



## Welcome

The Minnesota Department of Transportation's (Mn/DOT) Office of Aeronautics completed an update of the Minnesota Aviation System Plan in 2006. The Minnesota Aviation System Plan provides a macro level plan for guiding airport development in greater Minnesota. It provides input into the FAA's National Plan of Integrated Airport Systems (NPIAS), individual airport master plans, and the State's Transportation System Plan. The Federal Aviation Administration (FAA) uses the NPIAS as a basis for funding decisions, and the State Transportation System Plan guides transportation investment.

The update to the Minnesota Aviation System Plan was completed using FAA's latest advisory circular on aviation system planning. The plan helps Mn/DOT determine the type, extent, location, timing, and cost of aviation-related development needed to insure that Minnesota has a viable system of airports.

Three special studies were conducted concurrently with the System Plan. These three studies considered the air service needs of Greater Minnesota's commercial airports, air cargo activity within the state, and general aviation security needs as defined by the Transportation Security Administration (TSA).

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### **Executive Summary**

**Technical Report**  
Aviation System Plan  
Air Service  
Air Cargo  
General Aviation Airport Security



**Executive Summary**  
**2006 Minnesota Aviation**  
**System Plan**





## INTRODUCTION

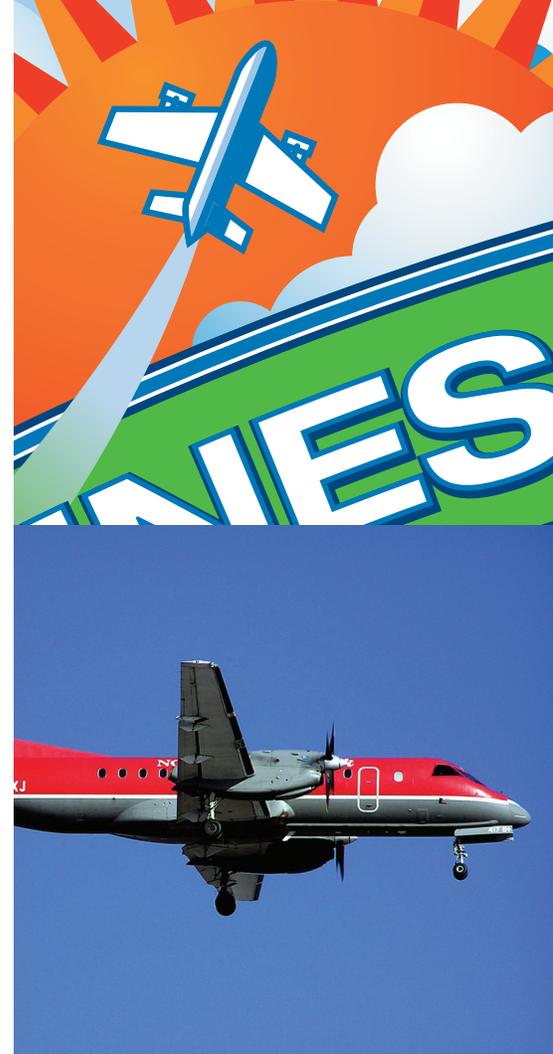
*The Minnesota Aviation System Plan provides the Minnesota Department of Transportation's (Mn/DOT) Office of Aeronautics a blueprint for enhancing the performance of public commercial and general aviation airports in Greater Minnesota. Mn/DOT works closely with the Federal Aviation Administration (FAA), the Metropolitan Council of the Twin Cities, and the Metropolitan Airports Commission (MAC) to help insure that air travel needs of Minnesota's residents, businesses, and visitors are met. The Metropolitan Council and MAC take an active role in planning for the nine airports in the Minneapolis-St. Paul metropolitan area, while Mn/DOT plans for the 127 public airports in Greater Minnesota.*



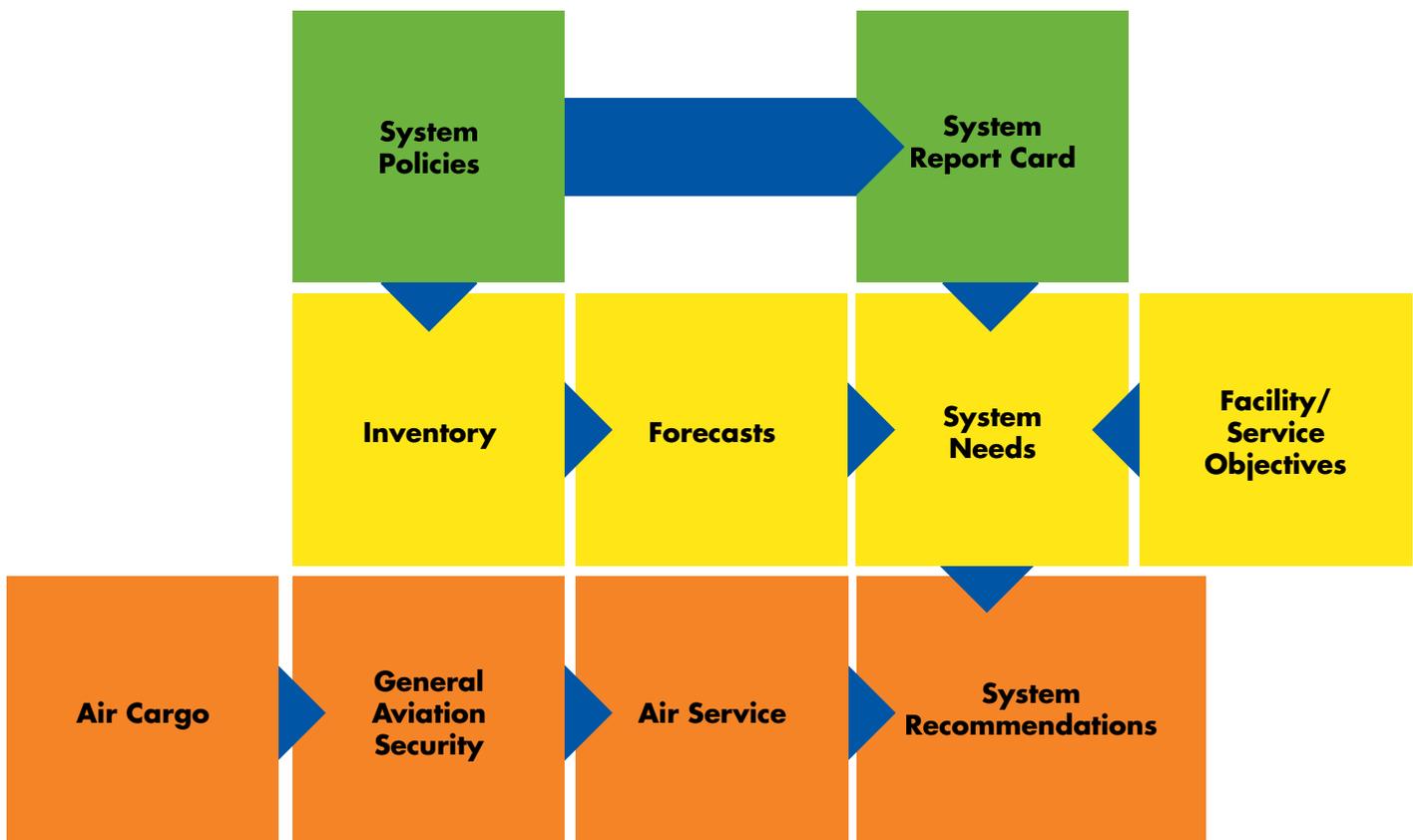
## Plan Overview

This report highlights the findings from the 2006 Minnesota Aviation System Plan. This update to the Minnesota Aviation System Plan has been completed using FAA's latest advisory circular on aviation system planning. The plan helps Mn/DOT determine the type, extent, location, timing, and cost of aviation-related development needed to insure that Minnesota has a viable system of airports. The development of the Minnesota Aviation System Plan was supported by input from a Project Advisory Committee and Mn/DOT staff. All 127 airports in the Greater Minnesota airport system were also contacted during the preparation of this plan. Airport-specific development needs obtained from the airports are incorporated into the findings.

In addition to the Aviation System Plan, this study was augmented with information from three special studies. These three studies considered the air service needs of Greater Minnesota's commercial airports, air cargo activity within the state, and general aviation security needs as defined by the Transportation Security Administration (TSA).



## Study Process



## Existing Airport System

There are a total of 136 public general aviation and commercial airports in Minnesota. Airports in Greater Minnesota belong to one of three classifications in regard to size and function. These three classifications were previously developed by Mn/DOT Office of Aeronautics and have been accepted by the State Legislature for planning the Minnesota airport system. There are 127 airports included in the Greater Minnesota airport system. There are nine airports in the metropolitan area including Minneapolis-St. Paul International and eight general aviation airports.

### Key Airports

These airports have paved and lighted primary runways 5,000 feet or greater in length. They are capable of accommodating all single engine aircraft along with larger multi-engine aircraft and most corporate jets. There are 24 Key Airports in Minnesota.

### Intermediate Airports

These airports have paved and lighted primary runways that are less than 5,000 feet long. Intermediate Airports can accommodate all single engine aircraft, some multi-engine aircraft, and some corporate jets. There are 80 Intermediate Airports in Minnesota.

### Landing Strips

These airports have turf runways which can accommodate most single engine aircraft and some twin engine aircraft. They may be unusable during wet weather, winter months, and during the spring melt. There are 23 Landing Strips in the Minnesota airport system.

In order for an airport to obtain federal funding from the FAA, it must be included in the National Plan of Integrated Airport Systems (NPIAS). All eight commercial service airports in Greater Minnesota are included in the NPIAS. There are a total of 85 Greater Minnesota airports that are included in the NPIAS.

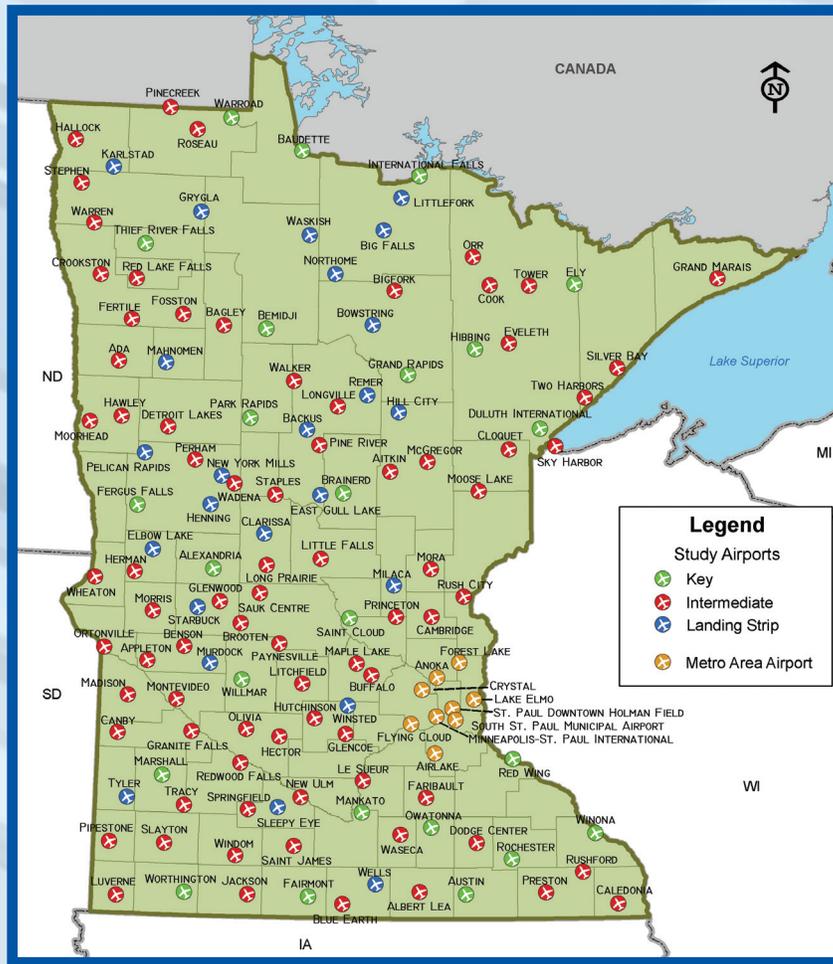
## Greater Minnesota Commercial Airports

- Bemidji Regional Airport
- International Falls Airport
- Brainerd Lakes Regional Airport
- Rochester International Airport
- Chisholm-Hibbing Municipal Airport
- St. Cloud Regional Airport
- Duluth International Airport
- Thief River Falls Regional Airport

## Future Aviation Demand

Aviation is the most fluid mode of transportation. Nevertheless, it is important to have an estimate of how and where growth will occur in the future. It is worth noting that the state's Aviation System Plan was last updated in 1999; demand projections contained in that plan were exceeded by actual general aviation and commercial demand levels. Twenty-year demand projections were developed for passengers boarding commercial airlines (enplanements) and for commercial airline operations. General aviation based aircraft and annual operations were also projected. Many factors were considered in developing these projections. National trends in both commercial and general aviation were carefully reviewed. For commercial airline projections, the continued growth of low cost carriers was considered, as were a number of airline bankruptcies, including that of Northwest Airlines. For general aviation, changes in the fleet mix (including the sport aviation classification

# Minnesota Public General Aviation and Commercial Airports



for planes and very light or micro jets) were considered in forecast development. Aside from industry trends, actual Minnesota growth in aviation demand was an important input for forecast development. Socio-economic, demographic, and income growth in each Minnesota county were all considered during forecast development.

Since 1995, the commercial airports in Greater Minnesota have experienced modest growth in the number of passenger enplanements they serve. Assuming no major changes in service, this

## Commercial Forecasts

### Enplanement Forecasts

	1995	2005E	2010	2015	2020	2025
BEMIDJI	16,100	29,900	33,900	38,500	43,400	48,000
BRAINERD	11,800	20,700	22,000	22,800	22,900	23,000
DULUTH	119,200	155,800	182,500	201,300	216,000	226,200
HIBBING	13,100	11,600	11,700	11,700	11,700	11,700
INTERNATIONAL FALLS	19,100	21,800	21,700	21,800	21,800	21,900
ROCHESTER	156,500	143,200	153,600	159,300	165,500	171,400
ST. CLOUD	8,400	25,900	25,600	27,100	29,100	31,100
THIEF RIVER FALLS	3,700	5,000	5,000	5,000	5,000	5,000
<b>TOTAL GREATER MINNESOTA</b>	<b>348,000</b>	<b>414,000</b>	<b>456,000</b>	<b>487,500</b>	<b>515,300</b>	<b>538,300</b>
MINNEAPOLIS-ST. PAUL	12,664,300	18,515,600	21,986,000	24,552,000	33,445,200	*
<b>TOTAL MINNESOTA</b>	<b>13,012,200</b>	<b>18,929,500</b>	<b>22,441,500</b>	<b>24,995,100</b>	<b>33,895,900</b>	<b>*</b>
% GREATER MINNESOTA	2.70%	2.20%	2.00%	2.00%	1.50%	*

\* Forecasts for MSP not available for 2025.

same general rate of growth can be expected through 2025. It is important to note that the percentage of enplanements served at the commercial airports in Greater Minnesota has declined and is expected to continue to decline. A higher percentage of Minnesota’s air travelers are expected to drive to Minneapolis-St. Paul to begin their airline trip. Relatively, it is less expensive to fly from Minneapolis-St. Paul International than from other commercial airports in Greater Minnesota.

While commercial enplanements are expected to experience some growth, commercial aircraft operations at the Greater Minnesota airports are expected to hold relatively steady. There are two primary factors that account for this projection. Commercial aircraft now departing Greater Minnesota airports currently have seats that are not filled. Therefore, even at existing operational levels, additional enplaned passengers can be accommodated. In addition, trends in the commercial airline industry indicate that over the forecast period the seating capacity of commercial aircraft serving the Greater Minnesota airports will likely be increasing. This means that fewer flights will actually be able to carry more passengers.

## Air Service

Until recently, air service in Minnesota has remained stable. Northwest Airlines has been the dominant carrier, with most other airlines providing a limited number of flights from Minnesota to their hub airports elsewhere in the United States. The forecasts prepared for this plan indicate that commercial air travel demand will grow at rates commensurate with population, income, and job growth. Minneapolis-St. Paul International Airport (MSP) has and will continue to attract most of the State’s demand for commercial airline travel.

In 2005, approximately 822,000 passengers used Greater Minnesota airports. This number is small considering that Minnesota communities outside the metro area actually generate an estimated enplanement “pool” of 1.9 million boarding passengers per year. The system plan considered how Greater Minnesota airports might better serve their local passengers. There are four key components for air service redistribution to Greater Minnesota airports:

- Local leadership
- Industry restructuring and opportunity
- Understanding of local drivers of demand
- A state of constant readiness, good timing, and a little luck.

Airport and community leadership is often the difference



## Total Annual Commercial Airline Operations

	2005E	2010	2015	2025
BEMIDJI	5,200	5,200	4,700	5,200
BRAINERD	3,400	3,400	3,300	2,600
DULUTH	6,300	7,700	7,700	8,200
HIBBING	2,000	2,000	2,000	2,000
INTERNATIONAL FALLS	2,800	2,600	2,200	2,100
ROCHESTER	10,300	10,600	10,700	10,300
ST. CLOUD	3,800	3,700	3,700	2,900
THIEF RIVER FALLS	1,400	1,400	1,400	1,400
<b>TOTAL GREATER MINNESOTA</b>	<b>35,200</b>	<b>36,600</b>	<b>35,700</b>	<b>34,700</b>

between the “haves” and the “have nots”. Cooperation between airport managers, the mayor, and city council is critical to exploiting opportunities. Airport management and governing boards set the tone for targeting resources and acting upon opportunities, leadership matters.

While it is too soon to know, at the very least, the post-bankruptcy Northwest Airlines will be smaller. Relationships with regional carriers will undoubtedly change, as will service to Greater Minnesota airports. Already Northwest has trimmed Airlink services by roughly 20 percent over last year. Every airport will be called upon to demonstrate a track record that justifies even the same level of air service.

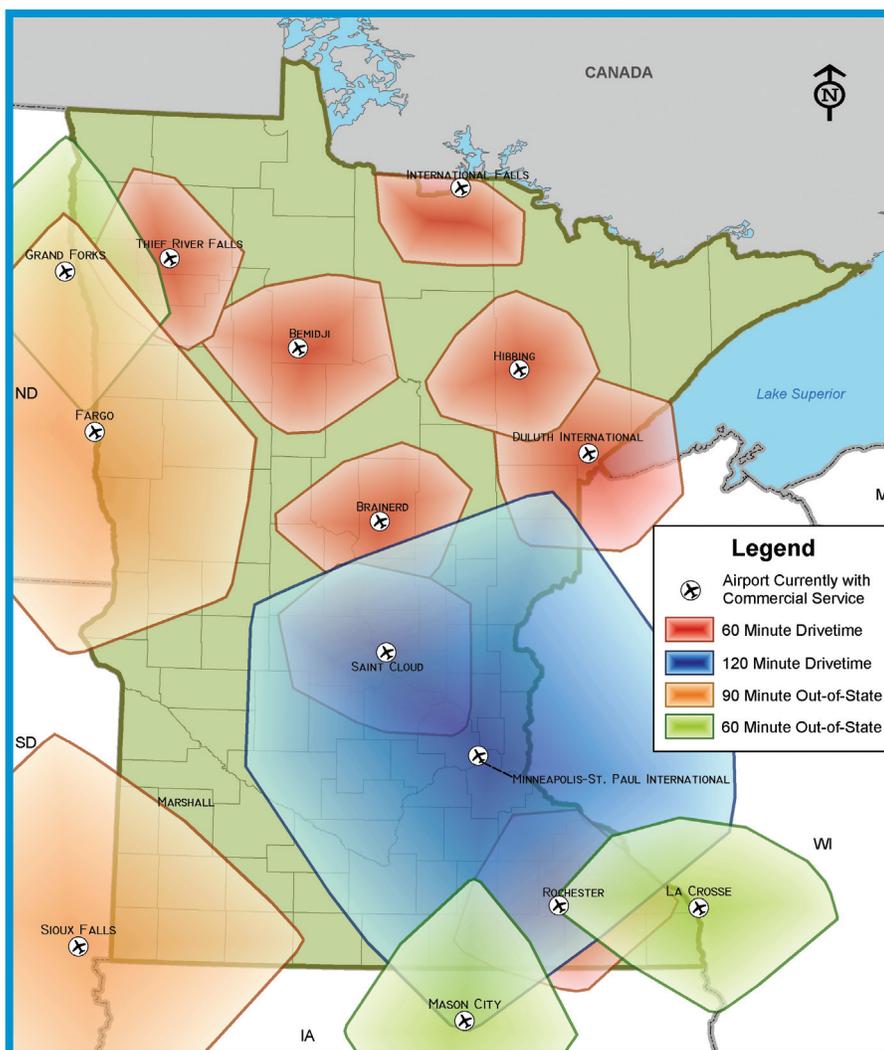
Air carriers are focused on revenue, not the number of passengers they carry. High revenues at Rochester help to explain why this airport has the greatest number of flights and non-stop destinations among the Greater Minnesota airports. Increasingly, carriers view aircraft as moveable assets that are deployed where the return is highest. Today, Greater Minnesota airports are in competition with all airports where aircraft could profitably be deployed.

While Northwest's bankruptcy will undoubtedly close some doors, others will open. Other carriers are increasing their presence in Minnesota. In 2006, Allegiant Air started service to Las Vegas from Duluth. AirTran Airways has doubled departures from MSP. As more competition occurs and fares decline further at MSP, Greater Minnesota airports, particularly those closest to the Twin Cities, are likely to experience increased passenger leakage.

### Unconstrained Demand for Air Service at Greater Minnesota Airports

Airports	2005 Estimated Total Passengers	Service Area Population	Unconstrained Potential Passengers	Estimated Current Retention Rate
BEMIDJI	59,800	92,500	139,000	43%
BRAINERD	41,400	105,500	158,000	26%
DULUTH	305,750	329,200	473,000	65%
HIBBING	23,200	60,900	82,000	28%
INTERNATIONAL FALLS	43,600	26,600	86,000	51%
ROCHESTER	286,400	344,800	555,000	52%
ST. CLOUD	51,800	314,100	393,000	13%
THIEF RIVER FALLS	10,000	31,800	32,000	31%
<b>TOTAL GREATER MINNESOTA</b>	<b>821,950</b>	<b>1,305,400</b>	<b>1,918,000</b>	<b>43%</b>

### Drive Times to Commercial Airports



Analysis completed in the system plan found that Minnesota's commercial airline travelers routinely drive two hours or more to start their airline trip from Minneapolis-St. Paul International Airport. The air service portion of this plan confirmed that airline travelers often drive 90 minutes to reach a commercial airport that has service by several airlines. Passengers from the market areas of smaller commercial airports throughout Minnesota are attracted to larger commercial airports, both within and beyond Minnesota. These airports typically have more competitive fares and a wider variety of services choices.

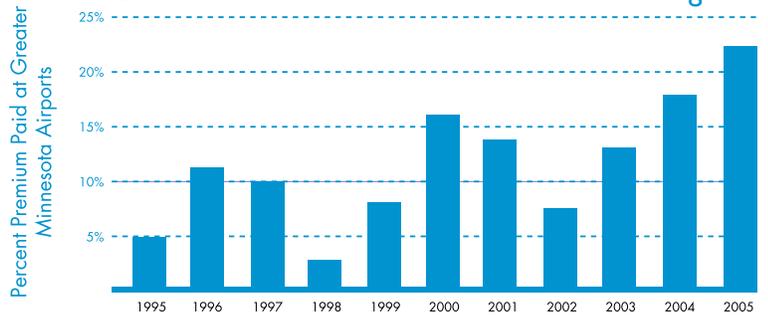
There has been a consistent relationship over time between the cost of air travel and use of local airports. If average fares declined, passengers increased their use of Greater Minnesota airports. The differential between airfares offered at Minneapolis-St. Paul International and at Greater Minnesota airports is increasing.

In 2005, Greater Minnesota airports carried an average fare premium of 22 percent. Unless communities can achieve lower fares or common-rated fares with MSP, passenger leakage will increase.

It is up to each community to know its market size, strengths, and weakness so that as opportunities arise local leadership can engage in effective campaigns for air service redistribution. The State of Minnesota, Office of Aeronautics, has supported development and upkeep of air service information. A main purpose of examining air service as part of the system plan was to provide Greater Minnesota airports with an updated analysis of unconstrained demand, top travel markets, and overall air service potential. The analysis concluded that there are a number of air service development strategies that should be explored:

- Improved network access either on Northwest or another mainline carrier.
- Recruitment of low cost niche carriers who will provide limited frequencies to top Minnesota travel destinations.
- Marketing initiatives that target the origin cities of visitors coming to Central and Northern Minnesota in the summer.
- Joint ventures by airports to support specific new air service in a region.
- Community-wide campaigns to increase use of local airports and retain existing air service.

Greater Minnesota Fare Premium is Increasing



If there are lessons to be learned from the last ten years of air service initiatives, it is that air service opportunities are difficult to anticipate but almost always present themselves to the communities that support their local airport and that are ready to act.

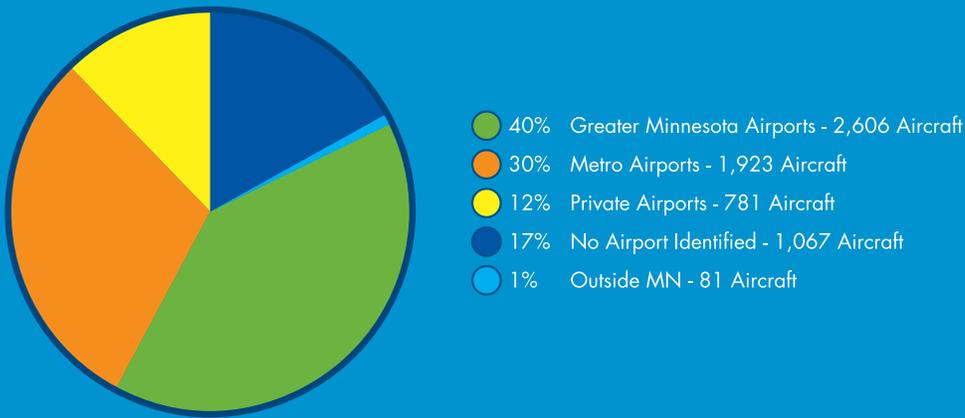
Strong Relationship Between Cost of Air Travel & Use of Local Airports



## General Aviation Forecasts

Mn/DOT registers all general aviation aircraft in Minnesota; as part of this process, aircraft owners are asked to report where their plane is stored or based. In 2005, 6,458 general aviation aircraft were registered by Minnesota owners. Roughly 40 percent of these planes are reportedly based at the 127 study airports. Many of the 1,067 aircraft that did not report a “basing” airport are stored at airports in Minnesota. While there is not always a direct correlation between registered and based aircraft, it is helpful to understand the relative distribution of registered general aviation aircraft throughout Minnesota.

2005 Minnesota Registered Aircraft by Airport Location



Actual growth in Minnesota’s general aviation based aircraft and total annual general aviation operations exceeded projections presented in the 1999 aviation system plan. This study used actual growth and projected population and employment to predict future demand levels. Total annual general aviation operations and based aircraft at the 127 study airports are expected to increase.

### Greater Minnesota General Aviation Forecasts

	Based Aircraft	Total Annual General Aviation Operations
2005	3,025	1,292,651
2010	3,136	1,347,343
2015	3,227	1,391,835
2025	3,457	1,490,484



Future growth in general aviation demand at airports in Greater Minnesota is expected to mirror actual growth that occurred between 1995 and 2005. Projections of general aviation demand help to determine which airports will need improved facilities over the 20-year planning period.

This study’s demand projections indicate that most Greater Minnesota airports should have ample operational capacity to accommodate projected demand. On a case by case basis, through the airport master planning process, a few airports may identify the need for projects over the next 20-years to boost their operational capacity. Most airports will need additional aircraft storage capacity to meet growing demand from based aircraft.

## General Aviation Demand in the Metropolitan Area

Planning responsibility for the airports in the Minneapolis–St. Paul Metropolitan Area rests with the Metropolitan Council. In April 2004, the Metropolitan Council released a study on Sport Aviation. The Sport Aviation Study examined varying levels of based aircraft that might be anticipated at the nine airports in the metropolitan area. The Sport Aviation Study projected that based aircraft at the metropolitan airports could increase from a 2002 level of 2,055 to a low of 2,373 or a high of 2,987 over 20 years. Sufficient operational and storage capacity to accommodate all future growth implied in the forecasts obtained from the Sport Aviation Study may not exist. When the Metropolitan Council updates its aviation system plan, an analysis should be undertaken to determine how all demand for airports in Minnesota can best be accommodated.



## Air Cargo

Minneapolis-St. Paul International Airport ranks 19th among U.S. non-hub gateways for the air cargo processes. This is due to belly-freight transported by Northwest Airlines on international flights. Freight forwarders currently control about 80 percent of international air cargo tonnage and are naturally attracted to larger international airports. There are 14 Minnesota airports that support scheduled air cargo operations for integrated and/or all-cargo carriers. An additional 18 airports report on-demand air cargo operations to varying degrees. All of Minnesota's commercial airports also have some air cargo lift through the belly-hold on commercial aircraft.

Most forwarders contacted for this system plan reported declining domestic service, citing the "Known Shipper" rule imposed after the 9/11 attacks. Most forwarders also reported stable or increasing services, and sometimes, dramatic increases in demand for international air cargo service. By 2025, annual tonnage carried by integrated express and all-cargo carriers in Minnesota is expected to exceed 633,500 tons. Currently, annual tonnage is reported at approximately 289,000 tons. Over 90 percent of Minnesota's total air cargo is served at Minneapolis-St. Paul International.

Recently, there have been discussions related to air cargo services in Minnesota, especially the availability of international air cargo services to shippers in the Twin Cities. During the same time period, there has been substantial change in the air cargo industry. There has been considerable consolidation among the carriers, and many are relying more extensively on trucking rather than air for domestic shipments. Some Minnesota businesses report difficulties in securing two-day international shipping. Without some intervention, the level of international air cargo service in Minnesota is likely to continue declining. While the focus of Minnesota's air cargo has been on Minneapolis-St. Paul International, the services and investments made by integrated carriers at other Minnesota airports such as Duluth, Rochester, and Thief River Falls should not be overlooked. The concept of consolidating air freight at these or other Greater Minnesota airports may be a strategy worthy of further investigation for keeping air cargo operations healthy.





## EVALUATION OF CURRENT SYSTEM PERFORMANCE

Policies used in the Minnesota Aviation System Plan are consistent with policies that have been previously established for Minnesota's airport system as part of either or both the state's prior Aviation System Plan or the most recent Statewide Transportation Plan. For each of the four identified policies, specific performance measures were used to determine how effectively the Minnesota airport system is now performing. Targets for performance relative to each measure were also set. System performance reported in this section considered all 136 public airports.



# PRESERVE ESSENTIAL ELEMENTS OF THE EXISTING TRANSPORTATION SYSTEM

## Performance Measure 1.1: Percent of airport runways that meet good and poor Pavement Condition Index (PCI) targets

### Target Performance

83% of applicable airports should have a PCI of 56 or greater; no more than 5% of applicable airports should have a PCI of less than 40 in 2009

### Current Performance

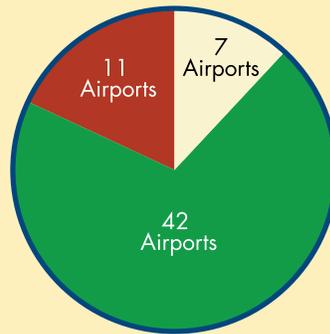
70% of applicable airports have a PCI of 56 or greater; no applicable airport has a PCI of less than 40

### Findings/Recommendations

This performance measure applies to airports with paved primary runways that serve either a Level 1, 2, or 3 Regional Trade Center (RTC). This measure applies to 60 runways. System performance relative to this measure will continually change; performance for this measure can be influenced by Mn/DOT investment.

To reach the 83% target for this measure, there are 11 primary runways in the Greater Minnesota system that could be considered for pavement improvement projects.

### PCI on Primary Runways



- 70% Have a PCI rating of 56 or greater on their primary runway
- 18% Have a PCI rating of less than 56 but greater than 40
- 12% MAC General Aviation Airports have no current PCI information
- 0% Have a PCI rating of less than 40



## SUPPORT LAND USE DECISIONS THAT PRESERVE MOBILITY AND ENHANCE THE SAFETY OF TRANSPORTATION SYSTEMS

### Performance Measure 2.1: Percent of airports that have current master plans or airport layout plans (ALPs)

**Target Performance**

*Key Airports: 100% every 7 years*

*Intermediate Airports: 100% every 15 years*

*Landing Strips: No target*

**Current Performance**

*Key Airports: 46% have a current master plan/ALP*

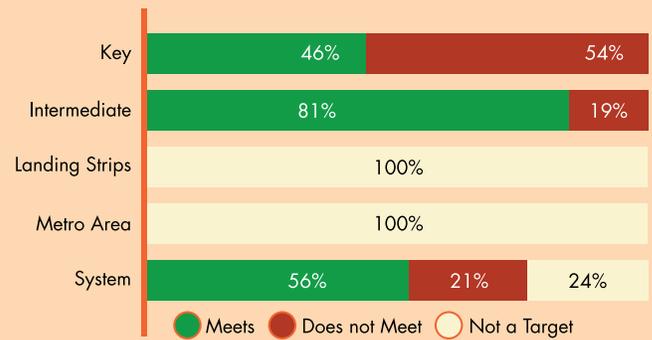
*Intermediate: 81% have a current master plan/ALP*

*Landing Strips: No target*

**Findings/Recommendations**

To meet the target set for this measure, 13 Key Airports and 15 Intermediate Airports currently need an updated master plan or airport layout plan. The responsibility for planning for airports in the metropolitan area does not rest with Mn/DOT; therefore, the target for this measure does not apply to the nine airports in the metropolitan area. Mn/DOT can influence performance for this measure with their investment. It is worth noting that system performance for this measure will constantly change over time.

**Minnesota Airports with Current Master Plans/ALPs**



### Performance Measure 2.2: Percent of airports that have Minnesota Rules Zoning

**Target Performance**

*100% of all airports should adopt Minnesota Rules Zoning*

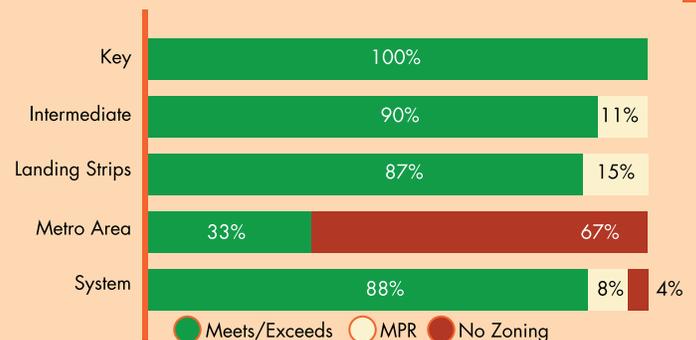
**Current Performance**

*96% of all airports have Minnesota Rules Zoning in place*

**Findings/Recommendations**

As it pertains to this performance measure, all airports in the Greater Minnesota system have Minnesota Rules Zoning that meets, exceeds, or is in the process of meeting, through the master plan review process (MPR), the target set. The target set for this measure applies to all Minnesota airports, including those in the metropolitan area. The only airports that currently do not meet the Minnesota Rules Zoning target are the general aviation airports in the metropolitan area that are owned by the Metropolitan Airports Commission (MAC).

**Minnesota Rules Zoning**



3

PROVIDE COST-EFFECTIVE TRANSPORTATION OPTIONS FOR PEOPLE AND FREIGHT

Performance Measure 3.1: Percent of Minnesota population within 60 minutes of an airport with scheduled airline service

**Target Performance**

*90% of Minnesota's population should be within 60 minutes of a commercial service airport*

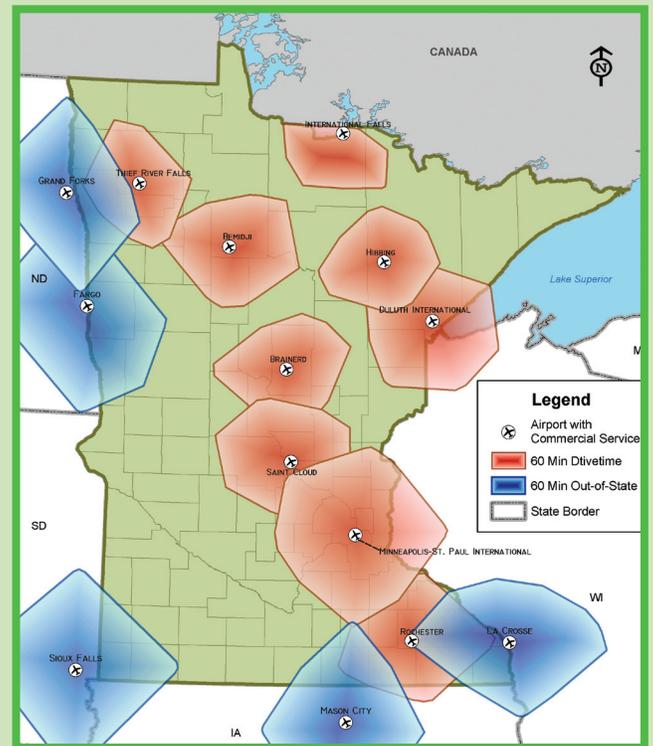
**Current Performance**

*86% of Minnesota's population is within 60 minutes of a commercial service airport*

Findings/Recommendations

Nine Minnesota airports (including Minneapolis-St. Paul International) have scheduled airline service. Airports in neighboring states that serve Grand Forks (ND), Fargo (ND), Sioux Falls (SD), Mason City (IA), and La Crosse (WI) also help to meet Minnesota's commercial airline travel needs. These 14 airports provide access within 60 minutes for 86 percent of Minnesota's population. Mn/DOT and the Minnesota communities and airports have limited impact how and where commercial airline service is provided; there are no recommendations for improving performance for this measure. It does not appear that any additional airports in Minnesota will secure scheduled commercial airline service in the near term. The bankruptcy of Northwest Airlines and willingness of FAA to continue to provide airline subsidies to some Minnesota airports through the Essential Air Service (EAS) program may impact future service at some commercial airports.

Percent of Population within 60 minutes of Airports with Scheduled Airline Service



Performance Measure 3.2: Percent of Minnesota population within 20 miles of an airport with a paved and lighted runway

**Target Performance**

*90% of Minnesota's population should be within 20 miles of a paved and lighted runway*

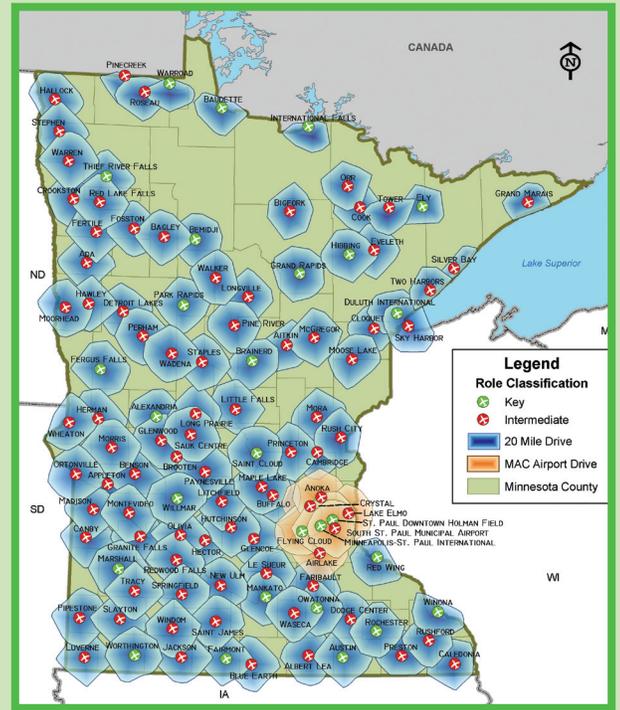
**Current Performance**

*95% of Minnesota's population is now within 20 miles of a paved and lighted runway*

## Findings/Recommendations

This target is currently met. The system plan does not include any actions or additional enhancements to raise performance relative to this measure. Current performance for this measure includes the airports in the metropolitan area.

## Population Within 20 Miles of Airports with Paved & Lighted Runways



## Performance Measure 3.3: Percent of Minnesota population within 60 minutes of an airport with cargo activity

### Target Performance

90% of Minnesota's population should be within 60 minutes of an airport with scheduled cargo service; 95% of Minnesota's population should be within 60 minutes of an airport with some type of cargo service

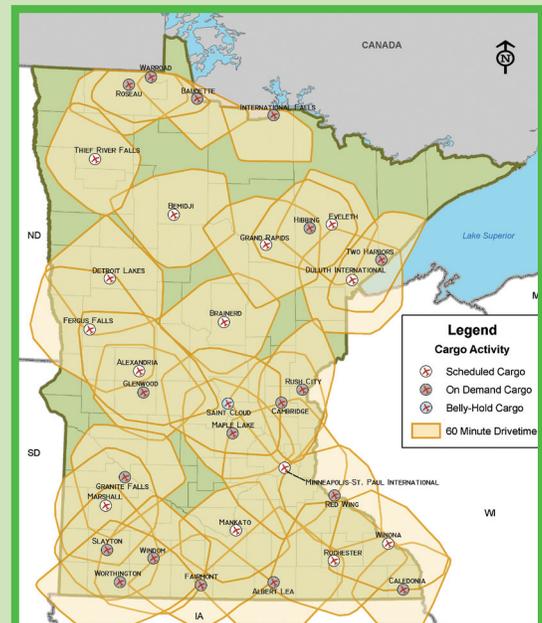
### Current Performance

88% of Minnesota's population is within 60 minutes of an airport with scheduled cargo service; 97% of Minnesota's population is within 60 minutes of an airport with some type of cargo service

## Findings/Recommendations

36 airports report either scheduled or on-demand air cargo service. For this measure, population was used as a proxy for business activity. Mn/DOT and the Minnesota airports have limited ability to influence where air cargo service is provided. The system plan does not have a specific recommendation for increasing system performance relative to this target. Reported performance for this measure would increase if out-of-state airports were considered in the analysis, possibly reaching the 90 percent target.

## Population Within 60 Minutes of an Airport with Some Type of Air Cargo Activity



## Performance Measure 3.4: Percent of airports with scheduled commercial air service having appropriate access to Interregional Corridors (IRCs)

### Target Performance

*100% of Minnesota's commercial service airports within 2 miles of an IRC*

### Current Performance

*100% of Minnesota's commercial service airports are within 2 miles of an IRC*

### Findings/Recommendations

The Aviation System Plan gauged appropriate access by distance of the commercial airport to a High or Medium Priority or a Regional Interregional Corridor (IRC). IRCs are the major roadways in Minnesota. A target was set for airports with commercial airline service to be no more than 2 miles from an IRC. The system plan analysis concluded that this target is currently being met. Therefore, there are no recommendations for enhancing system performance relative to this measure.

### Scheduled Commercial Service Access to Interregional Corridors (IRCs)

	Distance to High Priority IRC	Distance to Medium Priority IRC	Distance to Regional IRC
BEMIDJI	136 miles	0 miles	1 miles
BRAINERD	31 miles	0 miles	3 miles
DULUTH	2 miles	0 miles	7 miles
HIBBING	76 miles	1 miles	2 miles
INTERNATIONAL FALLS	163 miles	0 miles	3 miles
MINNEAPOLIS	1 miles	5 miles	1 miles
ROCHESTER	0 miles	3 miles	3 miles
SAINT CLOUD	1 miles	1 miles	2 miles
THIEF RIVER FALLS	113 miles	8 miles	0 miles

## Performance Measure 3.5: Percent of Level 1, 2, and 3 Regional Trade Centers (RTCs) that are within 20 miles of a Key Airport

### Target Performance

*100% of all Level 1, 2, or 3 RTCs should be within 20 miles or less of at least one Key Airport*

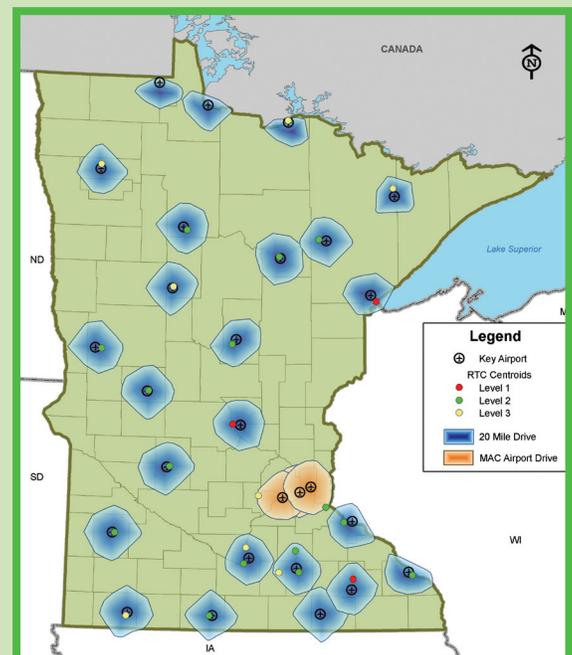
### Current Performance

*100% of all Level 1, 2, or 3 RTCs are currently within 20 miles or less of a Key Airport*

### Findings/Recommendations

This study's analysis shows that the target for this measure is being met. Consequently, additional designations for Key Airports are not needed at this time to meet the target for this performance measure.

### Number of Level 1, 2, & 3 RTCs within 20 miles of a Key Airport



## Performance Measure 3.6: Percent of Level 4 and 5 Regional Trade Centers that are within 20 miles of a Key or an Intermediate Airport

### Target Performance

*100% of all Level 4 or 5 RTCs should be within 20 miles or less of a Key or an Intermediate Airport*

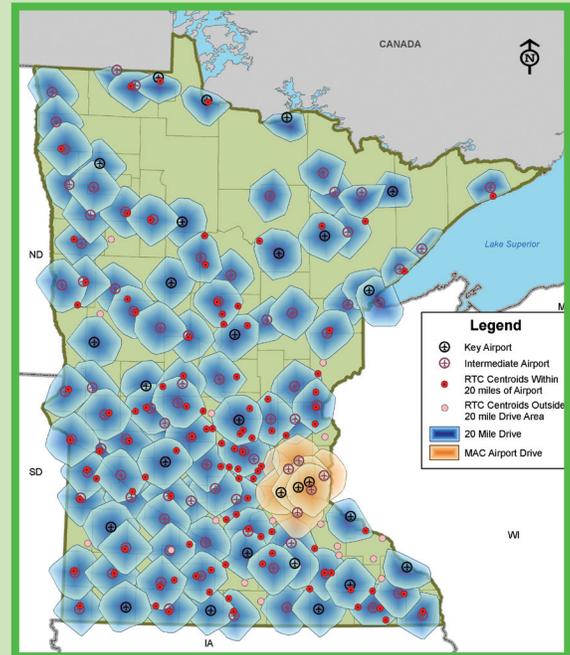
### Current Performance

*100% of all Level 4 or 5 RTCs are currently within 20 miles or less of a Key or an Intermediate Airport*

### Findings/Recommendations

This study's analysis shows that the target for this measure is being met. Consequently, additional designations for Key or Intermediate Airports are not needed at this time to meet the target for this performance measure.

### Number of Level 4 & 5 RTCs within 20 miles of either a Key or Intermediate Airport



## Performance Measure 3.7: Percent of airports with a runway 5,000 feet long or longer that have a precision instrument approach

### Target Performance

*100% of all airports with a 5,000 foot or longer runway should have a precision instrument approach*

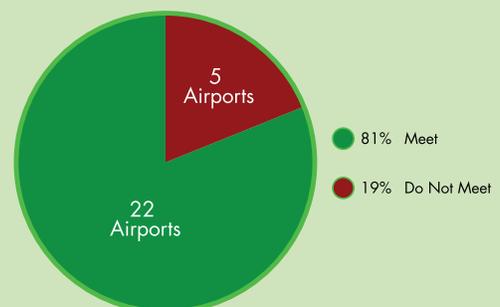
### Current Performance

*81% of all airports with a 5,000 foot or longer runway currently have a precision instrument approach*

### Findings/Recommendations

There are 27 airports in the Minnesota airport system that have runways that are 5,000 feet long or longer; 22 of these airports now have a precision instrument approach. To meet the target for this measure, approach capabilities to five airports need to be upgraded. Two of these upgrades are now underway.

### Runways 5,000 feet long or longer with a precision instrument approach



## Performance Measure 3.8: Percent of airports with a paved and lighted runway that have a published approach (precision or non-precision)

### Target Performance

*100% of airports with a paved & lighted runway should have a published approach*

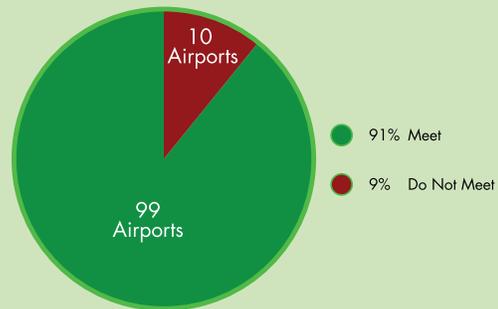
### Current Performance

*91% of airports with a paved & lighted runway now have a published approach*

### Findings/Recommendations

There are 101 airports in Greater Minnesota that this measure applies to; there are 8 additional airports in the metropolitan area that this measure applies to. The metropolitan airports meet this measure; 10 airports in Greater Minnesota are in need of an upgrade from a visual to a non-precision approach to meet the target set for this measure.

### Paved and lighted runways that have a published approach



## POLICY

# 4

## INCREASE THE SAFETY AND SECURITY OF TRANSPORTATION SYSTEMS AND THEIR USERS

### Performance Measure 4.1: Average total 3-year general aviation crashes as reported and defined by FAA

#### Target Performance

*No more than an average of 30 annual general aviation crashes over a 3-year period*

#### Current Performance

*An average of 34 annual general aviation crashes over a 3-year period*

### Findings/Recommendations

Mn/DOT can help improve the performance of the system relative to this performance measure, and measure 4.2, through education; projects that increase airport safety such as obstruction removal or obstruction lighting; and/or improved approach capabilities or weather reporting capabilities. Most crashes and fatalities are tied to pilot error and/or weather, things that are beyond the control of Mn/DOT. As defined by the FAA and National Transportation Safety Board (NTSB), a crash/accident is defined as "an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage."

**The targets set for this measure are as follows:**

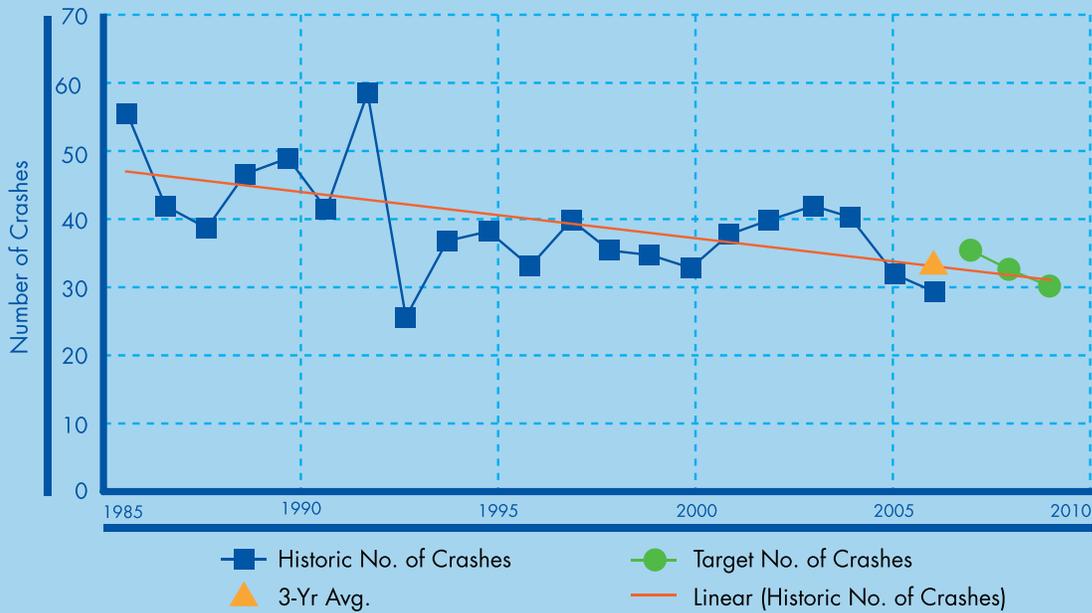
**2010 – 35 Crashes**

**2015 – 32 Crashes**

**2025 – 30 Crashes**

Over the most recent 3-year period, the average has been 34 crashes per year, as reported by FAA. This figure includes all aircraft except those classified as either commercial or military. Analysis completed as part of the system plan shows that Minnesota is on track to meet the target established for this performance measure. No additional specific recommendations for this measure have been identified by this system plan update. Individual airport recommendations will help Mn/DOT meet the targets set for this performance measure.

Historic, Forecast, and Target General Aviation Crashes



## Performance Measure 4.2: Average annual general aviation fatalities as reported by FAA

### Target Performance

*No more than an average of 6 fatalities annually*

### Current Performance

*An average of 12 fatalities annually*

### Findings/Recommendations

Over the last 3 years, Minnesota has reported an average of 12 fatalities each year. For the most recent reporting year, only 5 fatalities were reported. Fatalities in all aircraft that are non-commercial or non-military have been trending downward, although perhaps not at a rate sufficient to reach the established targets. The ability of Mn/DOT to influence performance related to this measure is limited. Individual airport recommendations will help Mn/DOT meet the targets set for this performance measure.

**Specific targets for this performance measure are as follows:**

**2010 – 7 Fatalities**

**2015 – 7 Fatalities**

**2025 – 6 Fatalities**

## Historic, Forecast, and Target General Aviation Fatalities



### Performance Measure 4.3: Percent of study airports meeting TSA guidelines for general aviation security

#### Target Performance

*No target established as of the writing of this document*

#### Current Performance

*See chart*

### Findings/Recommendations

The Transportation Security Administration (TSA) guidelines for general aviation airports have been established based on the relative risk that each airport poses to national security. At this time, there are no FAA requirements for airports to meet TSA's general aviation security guidelines. TSA's guidelines are graduated based on an airport's size and relative activity levels. It may not be necessary for all airports in Minnesota to meet all applicable TSA security guidelines. Facilities and procedures currently in place at general aviation airports in Minnesota keep them secure. Mn/DOT Office of Aeronautics is considering which TSA guidelines are appropriate for various types of airports in the Minnesota system. Therefore, no specific target has been set for this measure at this time. When this plan is next updated, a specific target for this measure will be set.

### Current Airport Compliance With TSA General Aviation Security Guidelines

Percent of Applicable TSA Guidelines Met

	100-75%	75-50%	50-25%	25-0%	
Key Airports	13	9	2	0	24 Total Airports
Intermediate Airports	24	41	9	6	80 Total Airports
Landing Strips	5	5	6	7	23 Total Airports
Metro Airports	9	0	0	0	9 Total Airports
<b>Total</b>	<b>51</b>	<b>55</b>	<b>17</b>	<b>13</b>	<b>136 Total Airports</b>

## COSTS

While the Minnesota airport system is performing relatively well in relationship to system policies and performance measures, there is still much work to be done. As part of this plan, facility and service objectives were established for all Key and Intermediate Airports and all Landing Strips. For each airport to fill its role in the Minnesota system, adopting these objectives and incorporating them into airport specific development plans is important. Investment to help airports throughout Minnesota achieve facility and service objectives outlined in the system plan will also help Minnesota reach targets established for many of the previously discussed performance measures.

Costs in this summary are those that may be incurred to raise the performance of the system to meet identified targets, to resolve deficiencies noted for facility and service objectives, and to implement current CIPs. These costs are not reflective of airport specific conditions which might cause costs to be higher or in some limited instances lower. Inclusion of a project in this document does not commit state or federal funding for that project. It is the role of the airport master plan to develop detailed cost estimates. System plan cost estimates are shown in current dollars.

To fund projects identified in this plan, at least \$590.15 million in federal, state, and local funds would be needed over 20 years. These estimated costs do not include any costs for the nine airports in the metropolitan area. The costs discussed in this section provide Mn/DOT with an understanding of the general cost range that could be associated with improving the performance of the study airports. It is considered likely that these estimated costs will be exceeded.

### Total Development Costs by Project Type

Project Type	Short Term (2005-2010)	Mid Term (2011-2015)	Long Term (2016-2025)	Total Estimated Cost
Terminal Area	\$117,722,700	\$27,247,000		
Runways	\$100,770,900	\$37,301,900		
Taxiways	\$20,190,400	\$25,777,100		
Pavement Maintenance	\$57,325,700	\$9,672,500		
NAVAIDs/Lighting/ Approaches	\$17,509,400	\$2,684,300		
Land Acquisition	\$18,361,600	\$2,502,700		
<b>Airside Development Subtotal</b>	<b>\$331,880,700</b>	<b>\$105,185,500</b>	<b>\$93,130,400</b>	<b>\$530,196,600</b>
Airport Equipment/ Equipment Bldg	\$18,099,200	\$3,606,600		
Planning/ Environmental	\$7,304,200	\$4,620,000		
Security/Fencing	\$9,861,200	\$1,918,800		
Obstruction Removal	\$3,557,100	\$506,000		
<b>Landside Development Subtotal</b>	<b>\$38,821,700</b>	<b>\$10,651,400</b>	<b>\$10,409,900</b>	<b>\$59,883,000</b>
<b>Total Development</b>	<b>\$370,702,400</b>	<b>\$115,836,900</b>	<b>\$103,540,300</b>	<b>\$590,079,600</b>

Individual project costs for the Long term were not developed

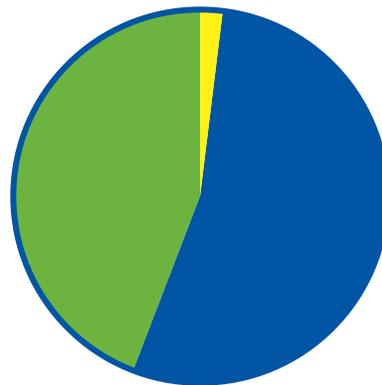
Over 90 percent of all costs will be needed to undertake identified airfield improvements; 98 percent of all costs are associated with Key and Intermediate airports.



# Total 20-year Costs \$590.1 million



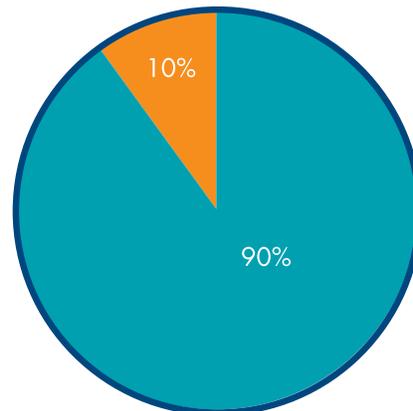
## Total 20-year Development Costs by Airport Role



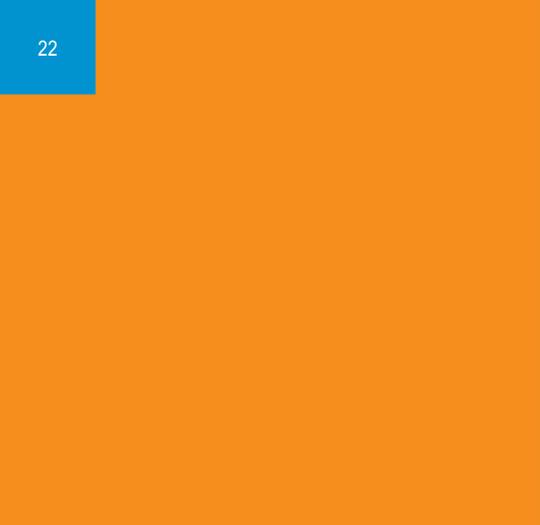
- 57% Key Airports **\$336.8 Million**
- 41% Intermediate Airports **\$239.7 Million**
- 2% Landing Strips **\$13.5 Million**



## 20-year Development Costs by Airside/Landside Projects



- 10% Landside **\$59.9 Million**
- 90% Airside **\$530.2 Million**



## Future Funding

If the estimated \$590.1 million is annualized over the next 20-years, this means at least \$29.5 million will be needed each year for the development of Greater Minnesota Airports. It is likely that the annual funding estimate of \$29.5 million to maintain and enhance airports in Greater Minnesota is conservative. Actual annual funding needs will almost certainly exceed this estimate. In the past, through federal and state funding streams, Mn/DOT has generally been able to respond to grant requests from system airports. As a result 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 historic levels of state funding is vital to Minnesota airports and to the ultimate success of this plan.

## SUMMARY

It is important to note that the Minnesota Aviation System Plan is not a programming or an implementation document. The Minnesota Department of Transportation does not own or operate public airports in Minnesota. The Aviation System Plan is a “top down” planning analysis; findings from this analysis must still be implemented by individual airports from the “bottom up.”

Over the next 20 years, this study has shown that an annual average of \$29.5 million will be needed to raise the performance of the Greater Minnesota airport system and to respond to needs that the airports themselves have identified. Minnesota is expected to experience growth in both population and employment. A well maintained and developed airport system is an important component of the state’s multi-modal transportation system. Further, airports are important to the economic well being of communities throughout Minnesota.

The Minnesota Aviation System Plan is a resource document that the Minnesota Department of Transportation can follow to help provide an aviation system that will meet the air transportation needs of Minnesota, now and in the future. More information on the Aviation System Plan or the other specialty studies can be obtained from the Mn/DOT Office of Aeronautics.

## Special thanks to the members of the Project Advisory Committee for the Minnesota Aviation System Plan

Citizens League

Federal Aviation Administration

League of Minnesota Cities

Local Airline Service Action Committee

Metropolitan Airports Commission

Metropolitan Council

Minneapolis Regional Chamber of Commerce

Minnesota Council of Airports

Minnesota Department of Employment & Economic Development

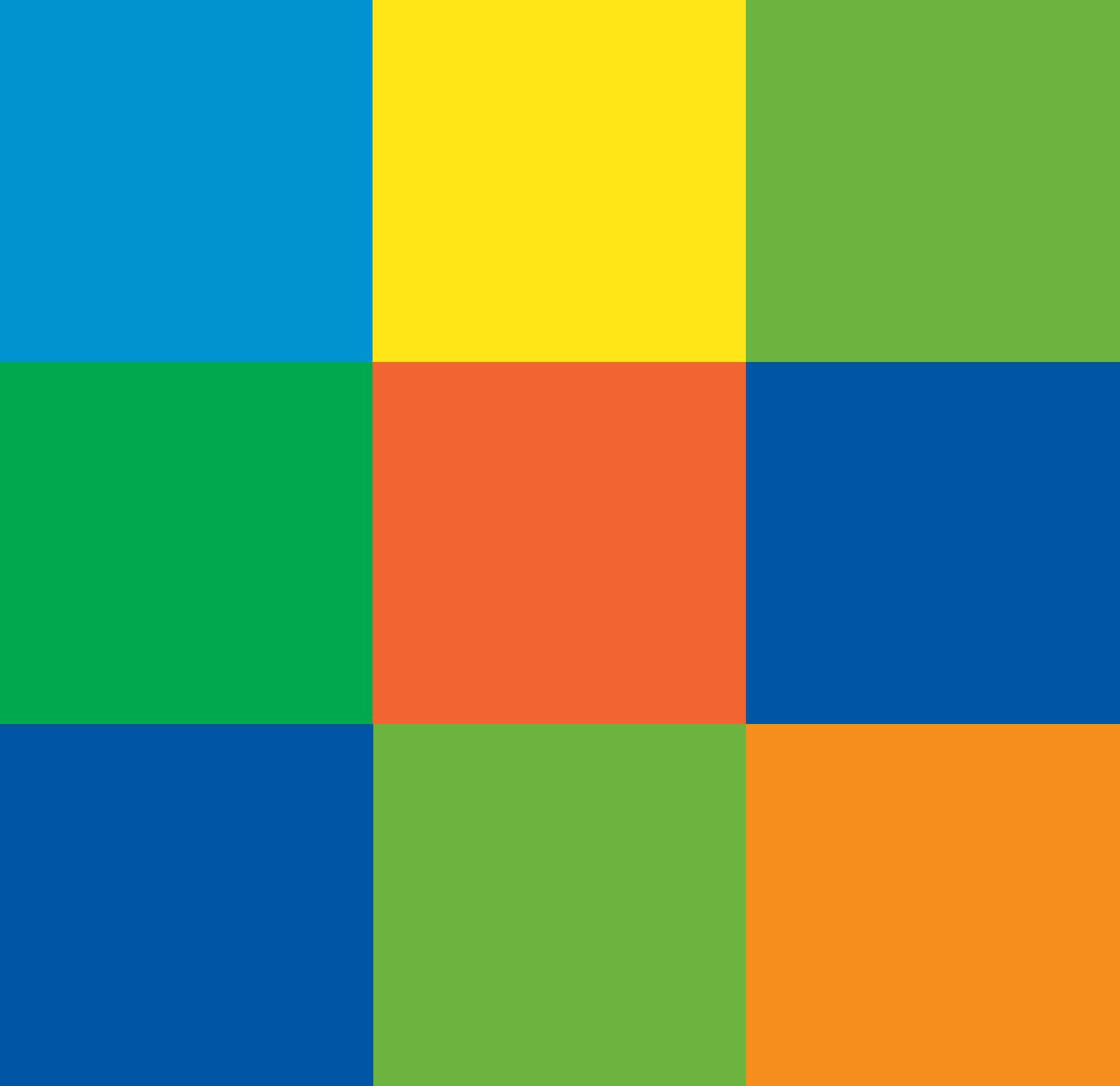
Minnesota Department of Transportation

Minnesota House of Representatives

Minnesota Senate

Northwest Airlines





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Technical Report  
2006 Minnesota Aviation  
System Plan



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## Chapter One: Study Overview and System Policies

### INTRODUCTION

The Minnesota Department of Transportation (Mn/DOT) Office of Aeronautics has long recognized the importance of a proactive approach to ensuring aviation's role in the statewide transportation system. Updating the Minnesota Aviation System Plan (SASP) provides the Office of Aeronautics an opportunity to stay abreast of changes in the aviation industry and to determine how Minnesota's airports should be positioned to respond to future needs and challenges.

The Minnesota State Aviation System Plan (SASP) provides input for federal planning documents. The Federal Aviation Administration's (FAA's) National Plan of Integrated Airport Systems (NPIAS) is updated every two years. The FAA provides money for eligible airport development from the Airport Improvement Program (AIP). Airports must be included in the NPIAS for their projects to be eligible for AIP funding. Recommendations from the Minnesota Aviation System Plan will be included in the NPIAS.

The SASP serves as a blueprint for the development of Minnesota's public airport system. It is a top down study whose recommendations must be implemented from the bottom up. While the analysis contained within the system plan is completed at a macro planning level, individual airport recommendations that flow from this study are important for guiding development at airports throughout Minnesota. Major facility improvements that may be identified in this plan must be substantiated and incorporated into approved airport-specific master plans before they can be funded and implemented. In some instances, projects identified as part of the system planning process would also be subject to comprehensive environmental review and approval prior to implementation.

The SASP is the Minnesota Department of Transportation's comprehensive plan for linking statewide aviation facilities with those of the nation and the world. Minnesota's SASP also works in concert with Minnesota's Statewide Transportation Plan. The Statewide Transportation Plan examines all of the State's transportation needs and sets the direction for making improvements and investments in all modes of transportation. Minnesota's Statewide Transportation Plan was adopted in August 2004 and is one of the first in the country to be performance based. The update to Minnesota's SASP will follow a similar performance based approach.

### DIFFERENCES BETWEEN 1999 AND 2004 SASP

This update to the SASP follows a methodology similar to the one used to develop the 1999 SASP. Where possible, this study expands on previous findings, while also identifying system improvements that have occurred as the result of airport development recommended in the 1999 system planning study. Aviation trends and economics have been impacted significantly by events that have occurred since the completion of the previous study, including,

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but not limited to, the terrorist attacks of September 11, 2001. The current SASP takes into account important changes in the aviation industry.

The current SASP update considers the following:

- Forecasts of aviation demand developed to reflect recent and on-going changes in both the general aviation and commercial aviation segments.
- System policies include policies and performance measures that are consistent with the previous SASP, as well as policies and performance measures identified for aviation in Minnesota's Statewide Transportation Plan.
- The current update includes an analysis of security at general aviation airports and provides a report on the ability of Minnesota airports to meet security guidelines established by the Transportation Security Administration (TSA) for general aviation airports.
- This plan provides insight into how and where Minnesota's Air Cargo needs are being served.
- The air service analysis included in this study reflects current air service trends and their impacts on Minnesota, including changes in scheduled commercial service that have occurred at study airports since the completion of the previous study.

While there are specific differences between this update and the previous study, system policies and performance measures have been carried forward.

## **PLAN COMPONENTS AND PROCESS**

This project includes separate analyses focusing on several components of the State's aviation system and activity types. The four separate analyses that comprise this update to the SASP include the following:

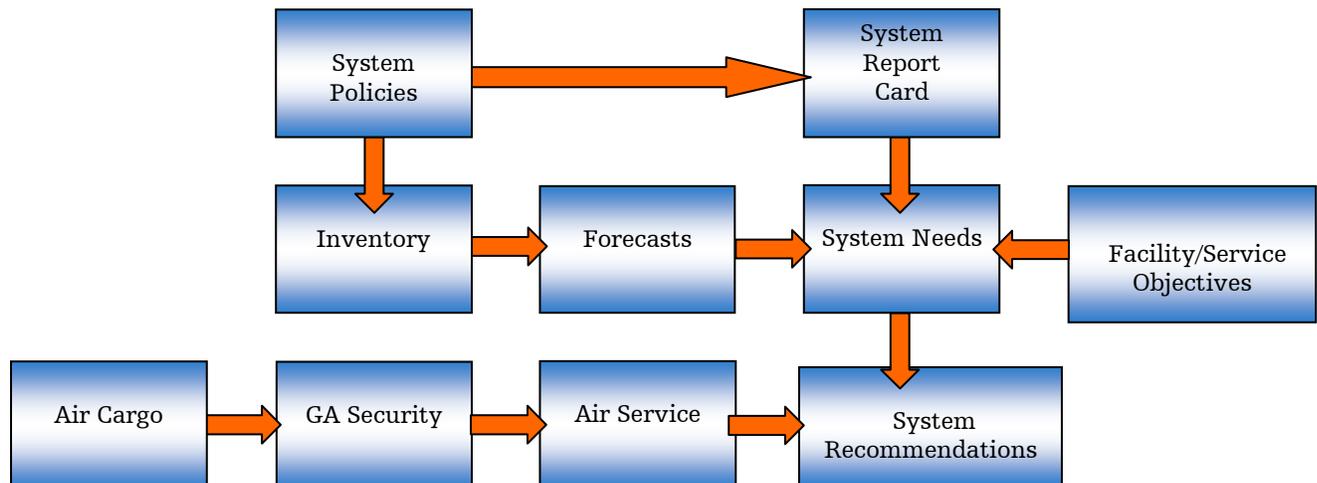
- Minnesota Aviation System Plan Update – provides a long-term outlook for the State's system of public-use airports and identifies a recommended development plan that will strategically improve airport facilities and move the system towards its established policies.
- General Aviation Security Analysis – summarizes industry guidelines regarding general aviation security and provides guidance to Mn/DOT and airport managers regarding the ability of study airports to meet TSA guidelines.
- Air Cargo/Freight Analysis – identifies existing air cargo infrastructure and provides activity forecasts for each Greater Minnesota airport handling air cargo. Minnesota shippers, commodities, and air cargo leakage are identified, as are international versus domestic air cargo volumes.

- Air Service Analysis – examines Greater Minnesota’s Tier 2, airports in Minnesota having a larger population base and serving in a supporting role for MSP in the event of capacity constraints; and Tier 3, airports supporting smaller population bases within the State, commercial service airports and identifies the role of each within the system. This analysis also discusses the prospects for scheduled service over the next three to five years at the airports. This component also provides useful market information for each airport and suggests ways that the State of Minnesota can participate effectively in the retention and development of air service.

Each of these independent elements is documented separately and is considered an integral component of the overall system planning process.

The Minnesota Aviation System Plan is being conducted in a series of separate, but related, steps. The process is graphically depicted in **Exhibit 1-1**.

**Exhibit 1-1**



Source: Wilbur Smith Associates.  
Prepared: January 2005.

As depicted in Exhibit 1-1, the findings of the system plan and its various components will culminate in the development of system recommendations. These system recommendations could include both infrastructure development and policy-related recommendations for improving the ability of Minnesota’s system of public-use airports to meet the current and future needs of the State’s citizens, businesses, visitors and airport stakeholders.

The system planning component encompasses the following tasks and is organized as follows:

- This chapter, Chapter One, *Study Overview and System Policies*
- Chapter Two, *Inventory*
- Chapter Three, *Demographics and Aviation Trends*
- Chapter Four, *Projections of Aviation Demand*
- Chapter Five, *System Performance Analysis*

- 
- Chapter Six, *Study Findings*
  - Appendix A, *Air Service*
  - Appendix B, *Air Cargo*
  - Appendix C, *General Aviation Security*

## **PROJECT ADVISORY COMMITTEE**

A Project Advisory Committee (PAC) has been assembled by the Office of Aeronautics to provide input and direction for the study. The PAC is comprised of volunteer members with a broad base of airport/aviation knowledge and responsibilities. The PAC includes representatives from the following:

- Federal Aviation Administration (FAA)
- Minnesota Department of Transportation (Mn/DOT)
- Metropolitan Airports Commission
- Metropolitan Council
- Minnesota Council of Airports
- Minnesota House of Representatives
- Minnesota Senate
- Northwest Airlines
- Citizens League
- League of Minnesota Cities
- Minneapolis Regional Chamber of Commerce
- Local Airline Service Action Committee

This committee provides the Office of Aeronautics with outside input into the system planning process, and the PAC provides the Consultant Team with first-hand knowledge of the key factors impacting aviation demand and needs throughout the State.

As the designated Metropolitan Planning Organization (MPO) for regional planning in the Minneapolis-St. Paul Metropolitan Area, the Metropolitan Council plays an important role in study development. According to State statutes, one responsibility of the Metropolitan Council is developing regional transportation plans, including a regional airport system plan. Therefore, the focus of this system plan is on the 127 general aviation and commercial airports that serve greater Minnesota. While the nine airports that serve the Twin Cities, Minneapolis and St. Paul, will be considered on an as needed basis in the development of this plan; these airports are not the focus of the study. When considering regional airport needs, the Metropolitan Council works closely with the Metropolitan Airports Commission and the City of South St. Paul regarding the airports they operate.

The Metropolitan Airports Commission (MAC) oversees the following seven airports in the metro area:

- Minneapolis-St. Paul International
- Minneapolis Airlake
- Minneapolis Anoka County/Blaine-Jane's Field
- Minneapolis Crystal
- Minneapolis Flying Cloud

- 
- Saint Paul Downtown-Holman Field
  - Saint Paul Lake Elmo

The City of South St. Paul oversees South St. Paul Airport and the City of Forest Lake oversees the Forest Lake Airport. The Metropolitan Council has planning authority over all communities in the seven-county region. The inclusion of representatives from both the Metropolitan Airports Commission and the Metropolitan Council facilitates the inclusion of relevant data from individual airport studies and regional planning studies in the SASP.

## **CHANGES IN THE STATE SYSTEM**

In addition to specific events and shifting trends that have affected the national aviation environment, there have been some important changes that have occurred to Greater Minnesota's system of public-use airports since the completion of the last system plan. Changes to the State's airport system considered for the development of this system plan include, but are not limited to, the following:

- The previous system plan examined 138 study airports, the current system plan includes 127 public-use airports, reflecting the following changes:
  - Removal of the following four airports from the system: Barnesville Municipal, Graceville Kapaun-Wilson Field, Pine City Municipal, and Sandstone Municipal
  - Addition of Paynesville Municipal to the system
- In the previous system plan, 85 Minnesota airport sites were identified in the NPIAS. The most recent NPIAS, for the period 2005-2009, includes 95 existing airports and one potential new airport site. The current system plan reflects the addition of the following airports to the NPIAS: Buffalo Municipal, Glenwood Municipal, Paynesville Municipal, Pine River Regional, Moorhead Municipal, Rushford, Sauk Centre, Walker Municipal, and Tower Municipal
- Improvements, identified as being desirable in the prior system plan, have been implemented. Improvements recommended in the previous system plan now completed include:
  - Runway extensions at the following airports: Aitkin Municipal-Steve Kurtz Field, Austin Municipal, Canby Municipal-Myers Field, Cambridge Municipal, Cloquet-Carlton County, McGregor-Isedor Iverson, Moorhead Municipal, Morris Municipal, Owatonna Degner Regional, Red Wing Regional, Rochester International, and St. Cloud Regional
  - Runway widening at Owatonna Degner Regional
  - Precision approaches at the following airports: Alexandria Municipal-Chandler Field, Chisholm-Hibbing Municipal, Owatonna Degner Regional, and Red Wing Regional
  - Non-precision approaches at 13 study airports
  - Automated weather systems at the following airports: Buffalo Municipal, Canby Municipal-Myers Field, Granite Falls Municipal, Luverne Municipal-Quentin Aaneson Field, Olivia Regional, Ortonville Municipal-Martinson Field, Rush City Regional, Wadena Municipal, Willmar Municipal-John L. Rice Field

- 
- Improvements not identified in the previous system plan but have since occurred include:
    - Runway extensions at the following airports: Bagley Municipal, Grand Rapids-Itasca County Gordon Newstrom Field, Granite Falls Municipal-Lenzen-Roe Memorial Field, Falls International, and Southwest Minnesota Regional-Ryan Field
    - Runway widening at St Cloud Regional
    - Automated weather systems at the following airports: Paynesville Municipal, Slayton Municipal, and Tracy Municipal
  - An increase in the number of aircraft based at study airports from 2,830 based aircraft at Greater Minnesota airports in 1996 to 3,025 based aircraft at Greater Minnesota airports in 2005

These and other changes that have occurred in Minnesota's public-use airport system are reflected in the analyses presented in following chapters. It should be noted that data analyzed in the 1999 SASP used 1996 data as a base year for analysis.

## **SYSTEM POLICIES**

Minnesota recognizes the importance of a healthy airport system to statewide, regional, and local economic and transportation infrastructures. Planning for a safe, efficient, and effective collection of airports is integral to the aviation system planning process. The first step in the SASP was to identify policies for the aviation system that serves the State of Minnesota.

The PAC met to discuss and identify policies for the Minnesota airport system at a workshop held in December 2004. At this workshop, the PAC provided input for refining policies for the airport system. The workshop yielded a foundation for establishing system policies.

Using the prior SASP, the Statewide Transportation Plan, and input from the Office of Aeronautics and the PAC, four policies were identified and adopted for use in the current SASP update. These policies are as follows:

- To provide an airport system that preserves essential elements of the existing transportation system
- To provide an airport system that supports land use decisions that preserve mobility and enhance the safety of transportation systems
- To promote an airport system that provides cost-effective transportation options for people and freight
- To promote an airport system that increases the safety and security of transportation systems and their users

In following chapters, adequacies, deficiencies, or potential surpluses of the current system are evaluated using these policies and their associated performance measures which further define the policies.

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These policies are discussed in the following sections. The specific performance measures used to evaluate the System's ability to meet policies are also identified.

## **SYSTEM POLICIES AND PERFORMANCE MEASURES**

In the system planning process, the broad policies identified for the airport system are reiterated as specific policies for the public airport system. For each policy, a set of performance measures are identified. Performance measures represent quantifiable factors used to evaluate current system performance relative to each policy. These performance measures are also used to establish targets for system performance.

### ***Policy 1: Preserve Essential Elements of the Existing Transportation Plan***

A considerable amount of investment, from a variety of public and private sources, has gone into the development of Minnesota's existing public airport system. Further, there are many airside and landside facilities at airports throughout the State that, with proper maintenance, have a substantial remaining useful life. An important goal for the Minnesota airport system is to maximize and preserve, where possible, the return on historic investment.

One of the most vital pieces of airport infrastructure is the runway. The preservation policy identifies the following performance measure for monitoring vital facility infrastructure at study airports:

*Performance Measure 1.1 – Percent of airport runways that meet good and poor Pavement Condition Index (PCI) targets*

Consistently maintaining and preserving the pavement condition of a runway not only promotes safe aircraft operations, it also extends the useful life of the pavement and minimizes the frequency at which more costly major rehabilitation and reconstruction projects must be completed.

### ***Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems***

Another goal for Minnesota's aviation system is to provide a network of airports that is supported by surrounding land use that is compatible with each airport, its operation, and its development needs. Planning for future airport development and protecting public investment in airports by controlling development around airports is important. A current Mn/DOT initiative seeks to develop a stronger relationship between airport zoning and community comprehensive land use planning. Without proper planning, airports in Minnesota may be restricted from accommodating demand and fulfilling their designated role in the airport system. Proactive land use planning provides one mechanism to protect airports from encroachment by activities or land uses that are incompatible with their day-to-day operations.

Specific performance measures used to evaluate how well the aviation system is performing relative to this policy include:

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*Performance Measure 2.1 – Percent of airports that have master plans or airport layout plans (ALPs)*

*Performance Measure 2.2 – Percent of airports that have Minnesota Rules Zoning*

Proper planning on and around study airports generally increases the ability of the system to respond to development needs.

***Policy 3: Provide Cost-Effective Transportation Options for People and Freight***

This policy relates to the accessibility of Minnesota’s public-use airport system from both the ground and the air. Ground accessibility is typically measured by identifying the percent of the State, its population, and its major business centers that are within a reasonable drive time of airports providing access to different services. In the NPIAS, the FAA notes the need for aviation facilities to be within reasonable access times to those who are expected to use the airport on a regular basis. The general FAA guideline for a reasonable drive time to non-commercial airports is 30 minutes, assumed to be a distance of 20 miles. This drive time for non-commercial airports, and other drive time assumptions for commercial service and cargo facilities, is used to measure the airport system’s accessibility from the ground.

An airport system must also provide accessibility from the air in a manner that meets the needs of pilots and system users. Accessibility to airports from the air is increased by the presence adequate runway facilities, runway lighting, and landing systems that enable aircraft to locate study airports during periods of reduced visibility. Study airports that have a precision approach offer the highest degree of accessibility, and airports with a non-precision approach provide a higher degree of accessibility from the air than do airports that are served by only a visual approach. Runway, lighting, and approach characteristics at Minnesota’s airports are used to evaluate air accessibility to the system.

The specific performance measures used to evaluate the accessibility of Minnesota’s aviation system include:

*Performance Measure 3.1 – Percent of Minnesota population within 60 minutes of an airport with scheduled airline service*

*Performance Measure 3.2 – Percent of Minnesota population within 20 miles of an airport with a paved and lighted runway*

*Performance Measure 3.3 – Percent of Minnesota population within 60 minutes of an airport with cargo activity*

*Performance Measure 3.4 – Percent of airports with scheduled commercial air service having appropriate access to Interregional Corridors*

*Performance Measure 3.5 – Percent of Level 1, 2, and 3 Regional Trade Centers that are within 20 miles of a Key Airport*

*Performance Measure 3.6 – Percent of Level 4 and 5 Regional Trade Centers that are within 20 miles of a Key or an Intermediate Airport*

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*Performance Measure 3.7 – Percent of airports with a runway 5,000 feet long or longer that have a precision instrument approach*

*Performance Measure 3.8 – Percent of airports with a paved and lighted runway that has a published non-precision or precision approach*

As illustrated by the performance measures selected for this policy, for the Minnesota airport system to satisfy the accessibility performance measure, the system must be accessible from both the ground and the air.

***Policy 4: Increase the Safety and Security of Transportation Systems and Their Users***

The intention of this policy is to provide a safe and secure system of airports. As part of this policy, the number of study airports that meet specific FAA and TSA objectives related to safety and security is determined. To evaluate the adequacy of Minnesota’s airport system, as it relates to its ability to comply with applicable performance measures, the following measures are used:

*Performance Measure 4.1 – Average total 3-year general aviation crashes as reported and defined by FAA*

*Performance Measure 4.2 – Average annual general aviation fatalities as reported by FAA*

*Performance Measure 4.3 – Percent of study airports meeting TSA guidelines for general aviation security*

Proactive planning for emergency response and the ability to provide a secure facility are both important factors evaluated for this policy.

**NEXT STEPS**

In subsequent chapters of the Minnesota Aviation System Plan, these policies and performance measures will be used to provide a report card for Minnesota’s airport system. This report card will quantify system performance and reveal current system adequacies, deficiencies, and surpluses. As later portions of the Minnesota Aviation System Plan analyses are undertaken, the results of the system evaluation will be used to formulate system recommendations.





## Chapter Two: Inventory

### INTRODUCTION

An up-to-date inventory of the activities and facilities at each public airport in Greater Minnesota is important to respond to the policies set forth for the Minnesota aviation system. This inventory helps guide future development at airports, and enables them to respond to needs and challenges facing airports today. The inventory information also helps federal and state agencies begin to plan for future funding that will be needed for growing airports.

A ten-page general aviation survey was sent to 127 of the 136 public-use airports within the State of Minnesota. This survey was not distributed to the seven Metropolitan Airport Commission (MAC) airports in the Twin Cities Metro area or the Forest Lake or South St. Paul Municipal airports. The Metropolitan Council is responsible for the system planning of all airports in the metropolitan area. **Table 2-1** shows the airports included in the Minnesota Aviation System Plan. Table 2-1 and the rest of the tables referenced in this chapter are located at the end of the chapter.

Information was gathered from each of these airports relating to airport activities, airside and landside facilities, aviation services, security, and land use/compatibility. The survey was completed by airport managers, city clerks, airport commission board members, public works department employees, fixed base operators, and Mn/DOT Office of Aeronautics employees. FAA 5010 forms, Terminal Area Forecasts, and consultant files were also used to gather inventory data. Survey information was collected by mail, phone, e-mail, and in-person.

The surveys for the system plan update were originally mailed to all 127 airports with return envelopes. Follow up telephone calls were made to airport personnel to collect surveys that were not returned. Additional survey information was collected by e-mail, in-person at the Minnesota Council of Airports (MCOA) Symposium, and through airport site visits.

Airports that were surveyed vary greatly in runway type and number of annual operations. This chapter summarizes the data gathered from the 127 public-use study airports. Information from the surveys was used to summarize airport classification within the State of Minnesota, activity statistics, runway information, approach type, landside facility data, and other facility and activity data.

### AIRPORT CLASSIFICATION

Airports in Minnesota belong to one of three classifications in regards to the size and function of the airport. These three classifications were previously developed by Mn/DOT Office of Aeronautics and have been accepted by the State Legislature and codified into law for planning the Minnesota airport system. **Exhibit 2-1**, Minnesota Aviation System Plan Study Airport Classifications, shows the classifications for the 127 study airports that were surveyed for this update to the SASP. The classifications are described on the following page. This exhibit does not include the 9 airports in the metropolitan area.

- Key Airports – These airports have paved and lighted primary runways 5,000 feet or greater in length. They are capable of accommodating all single engine aircraft along with larger multi-engine aircraft and most corporate jets. There are 25 Key Airports in Minnesota.
- Intermediate Airports – These airports have paved and lighted primary runways that are less than 5,000 feet long. Intermediate airports can accommodate all single engine aircraft, some multi-engine aircraft and most corporate jets. There are 79 Intermediate Airports in Minnesota.
- Landing Strips – These airports have turf runways which can accommodate most single engine aircraft and some twin engine aircraft. They may be unusable during wet weather, winter months, and during the spring melt. There are 23 Landing Strips in Minnesota airport system.

In September 2005, Minnesota Rules Chapter 8800 was updated in regard to “Public Special-Purpose Airports.” This new classification of airports is intended to be used by aircraft issued an FAA special airworthiness certificate in the light sport category. Further information on these facilities can be found online (<http://www.revisor.leg.state.mn.us/arule/8800.html>).

## **NPIAS AIRPORTS**

In order for an airport to obtain federal funding from the Federal Aviation Administration (FAA) for airport improvement projects, it must be included in the National Plan of Integrated Airport Systems (NPIAS). The primary purpose of the NPIAS is to identify the airports that are important to national air transportation and are therefore eligible to compete for grants from the Airport Improvement Program (AIP). The AIP is funded from the Aviation Trust Fund; monies in this fund are 100 percent user generated. For airports to be included in the NPIAS, the airport must have at least 10 based aircraft and be 30 minutes drive from another NPIAS airport. All commercial service airports in Minnesota are included in the NPIAS. There are a total of 87 system plan or study airports that are included in the NPIAS. In addition, 8 of the airports in the metropolitan area, including the 7 MAC airports, are included in the NPIAS. These airports are shown in Exhibit 2-2, Minnesota Aviation System Plan NPIAS and Non-NPIAS Airports. This exhibit does include the 9 airports in the metropolitan area.

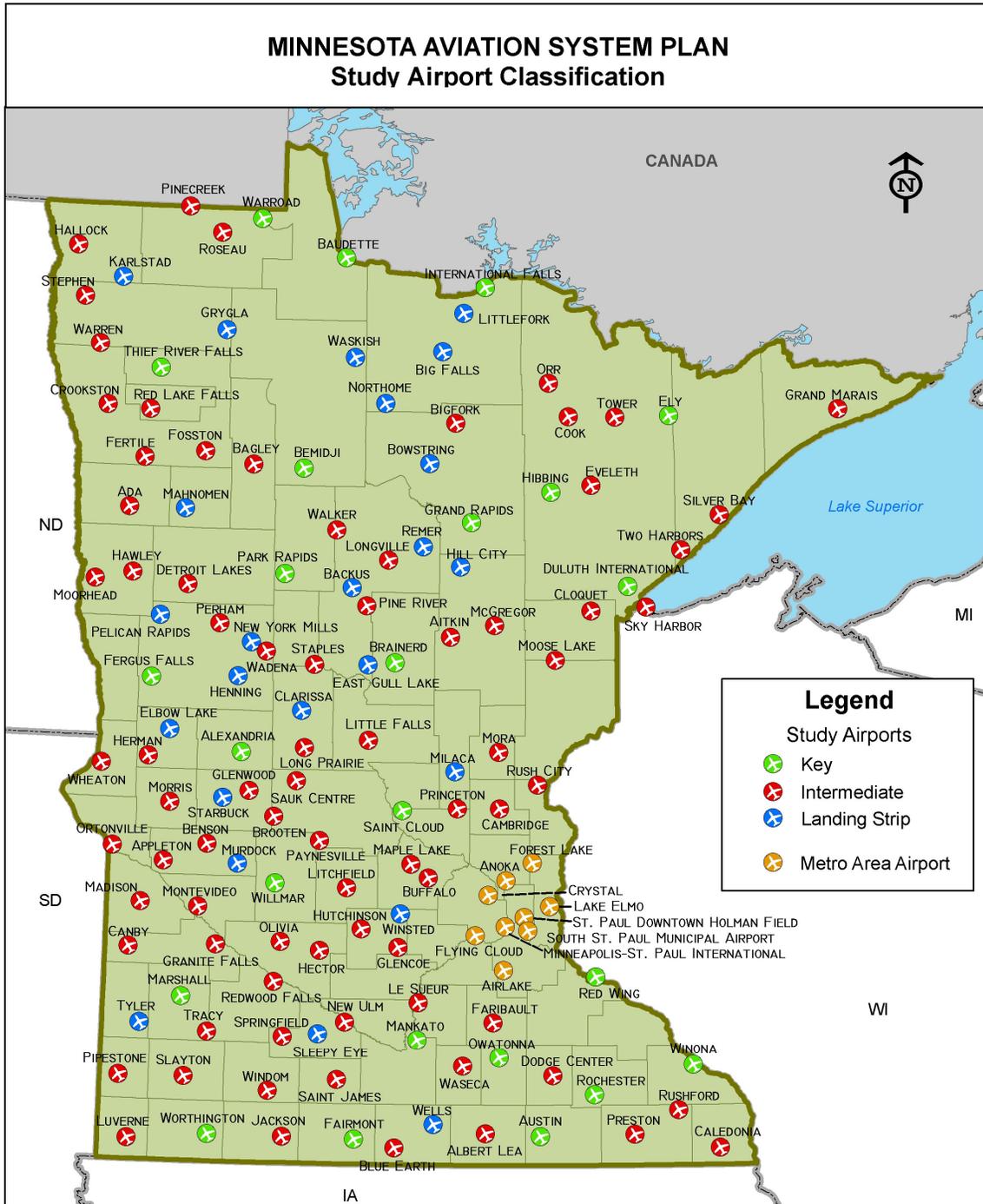
## **COMMERCIAL SERVICE AIRPORTS**

As stated earlier, all commercial service airports are included in the NPIAS. There are eight airports in Greater Minnesota that currently have commercial service. Those eight airports are listed below:

- |                                      |                                      |
|--------------------------------------|--------------------------------------|
| • Bemidji-Beltrami County Airport    | • Falls International Airport        |
| • Brainerd Lakes Regional Airport    | • Rochester International Airport    |
| • Chisholm-Hibbing Municipal Airport | • St. Cloud Regional Airport         |
| • Duluth International Airport       | • Thief River Falls Regional Airport |

These airports are shown in **Exhibit 2-3**, Minnesota Aviation System Plan Current Commercial Service Airports. Exhibit 2-3 also includes commercial service airports located in neighboring states that have the potential to serve Minnesota citizens. This exhibit also includes Minneapolis St. Paul International Airport which is owned and operated by MAC.

**Exhibit 2-1  
Study Airport Classifications**



Source: Mn/DOT Records and Wilbur Smith Associates  
Prepared: June 2005

**Exhibit 2-2  
NPIAS and Non-NPIAS Airports**



Source: Mn/DOT Records and Wilbur Smith Associates.  
Prepared: June 2005

**Exhibit 2-3  
Current Commercial Airline Airports**



Source: Mn/DOT Records and Wilbur Smith Associates.  
Prepared: June 2005

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Commercial service airports shown on Exhibit 2-3 are further defined by the size of population they serve and the support they provide Minneapolis/St. Paul International into Tiers. Minneapolis/St. Paul International is considered Tier 1. Tier 2 airports encompass Duluth International, Rochester International, and St. Cloud Regional airports. Commercial service airports included in Tier 3 include: Chisholm-Hibbing, Bemidji Regional, Brainerd Lakes Regional, International Falls, and Thief River Falls Regional airports. It should also be noted that two airports, Chisholm-Hibbing and Thief River Falls Regional, in Minnesota and one airport on the state border, Mason City, Iowa, receive Essential Air Service (EAS) grants.

## **AIRPORT ACTIVITY STATISTICS**

An important factor in determining needs of study airport is the number of operations that occur at each airport each year. The system plan survey, distributed to the 127 airports, broke down total annual operations into four categories: commercial airline, air cargo/freight, military, and general aviation. General aviation was broken down into six sub-categories including air taxi/charter, business, flight training, personal use, tourism/visitors, and recreational.

Only airports that have an Air Traffic Control Tower on site are able to provide more exact annual operations numbers. Air Traffic Control Towers only count traffic during the hours they are open, night operations are most often in addition to the reported tower counts. All other study airports provided a “best guess” for their total annual operations. For this study, Airport Managers, City Administrators, FBO Operators, or Airport Board Members estimated the number of operations, according to their observations for their airport. The FAA 5010 forms were also consulted for reported annual operations in 2005. One take-off and one landing are considered two operations. **Table 2-2** lists each study airport, its total number of current annual operations, and the percent of total operations by category/activity type.

Duluth International Airport, Rochester International Airport, and St. Cloud Regional Airport, are the only three airports of the 127 public airports examined in the Minnesota Aviation System Plan that have an Air Traffic Control Tower (ATCT). Therefore, more confidence can be placed in their annual operations numbers. Air traffic control towers are located at MSP International, Flying Cloud, Anoka County-Blaine, and St. Paul Downtown airports in the metro area.

## **RUNWAY INFORMATION**

As stated above, Mn/DOT Office of Aeronautics classifies airports into three categories, depending on the size and function of the runway. **Table 2-3** shows the number of runways at each study airport and the runway designation. This table also provides other information on runways such as length, width, surface type, lighting, and taxiway information. The current Airport Reference Code (ARC) for each airport is also presented in this table.

FAA Advisory Circular 150/5300-13 states that the ARC is used to relate airport design criteria to the operational and physical characteristics of the aircraft intended to operate on a specific runway at an airport. The ARC includes two components, the Aircraft Approach Category and the Airplane Design Group. The Aircraft Approach Category is represented by letters A, B, C, D, or E depending on the approach speed. The Airplane Design Group is represented by Roman numerals I, II, III, IV, V, or VI, depending on the wingspan of the design aircraft. The requirements are shown on the following page.

## Airport Reference Code

AIRCRAFT APPROACH CATEGORY		AIRPLANE DESIGN GROUP	
CATEGORY	SPEED	GROUP	WINGSPAN SIZE
A	Speed of less than 91 knots	I	Up to but not including 49'
B	91 knots up to but < 121 knots	II	49' up to but not including 79'
C	121 knots up to but < 141 knots	III	79' up to but not including 118'
D	141 knots up to but < 166 knots	IV	118' up to but not including 171'
E	166 knots or more	V	171' up to but not including 214'
		VI	214' up to but not including 262'

Source: FAA A/C 150-5300, Change 8.  
Prepared: June 2005

The 127 study airports analyzed in the system plan have 183 runways, which range in length from 10,152 feet at Duluth International Airport to 1,450 feet at Grand Rapids-Itasca County Airport. Currently, 122 runways, or 66 percent are paved; 133 runways, or 73 percent have lighting.

### APPROACH TYPE

Navigational aids (NAVAIDs) are devices that provide point-to-point guidance information to an aircraft in flight. NAVAIDs are divided into two categories, precision approach and non-precision approach. A precision approach provides aircraft both horizontal and vertical guidance to the runway. There are 19 airports of the 127 included in the Minnesota Aviation System Plan that have a precision approach.

A non-precision approach provides only horizontal guidance to aircraft. Some of these devices include Non-directional Beacons (NDB), Distance Measuring Equipment (DME), and Global Positioning Systems (GPS) to name a few. There are 68 airports with a non-precision approach. Each of these devices allows aircraft to operate in relatively poor weather conditions. **Exhibit 2-4** shows the airports that have a precision and a non-precision approach. The 9 airports in the metropolitan area that have either a precision or a non-precision approach are also shown on this exhibit.

### APPROACH/NAVAID DATA

**Table 2-4** shows the precision, non-precision, and visual approach devices at each airport. As mentioned above, there are three towered airports among the 127 study airports. Every airport has a wind indicator. Big Falls, Bowstring, Clarissa, East Gull Lake, Hector, Karlstad, Littlefork, Murdock, Paynesville, Remer, Sleepy Eye, Tower, and Waskish only have wind indicators for navigational aid.

### WEATHER FACILITY TYPE

Automated Weather Observation Systems (AWOS) and Automated Surface Observation Systems (ASOS) provide updated weather conditions to pilots. Eighty-three of the 127 study airports have either an AWOS or an ASOS on-site. This up-to-date information is critical for pilots as they travel throughout the state. **Exhibit 2-4** shows which airports within the state

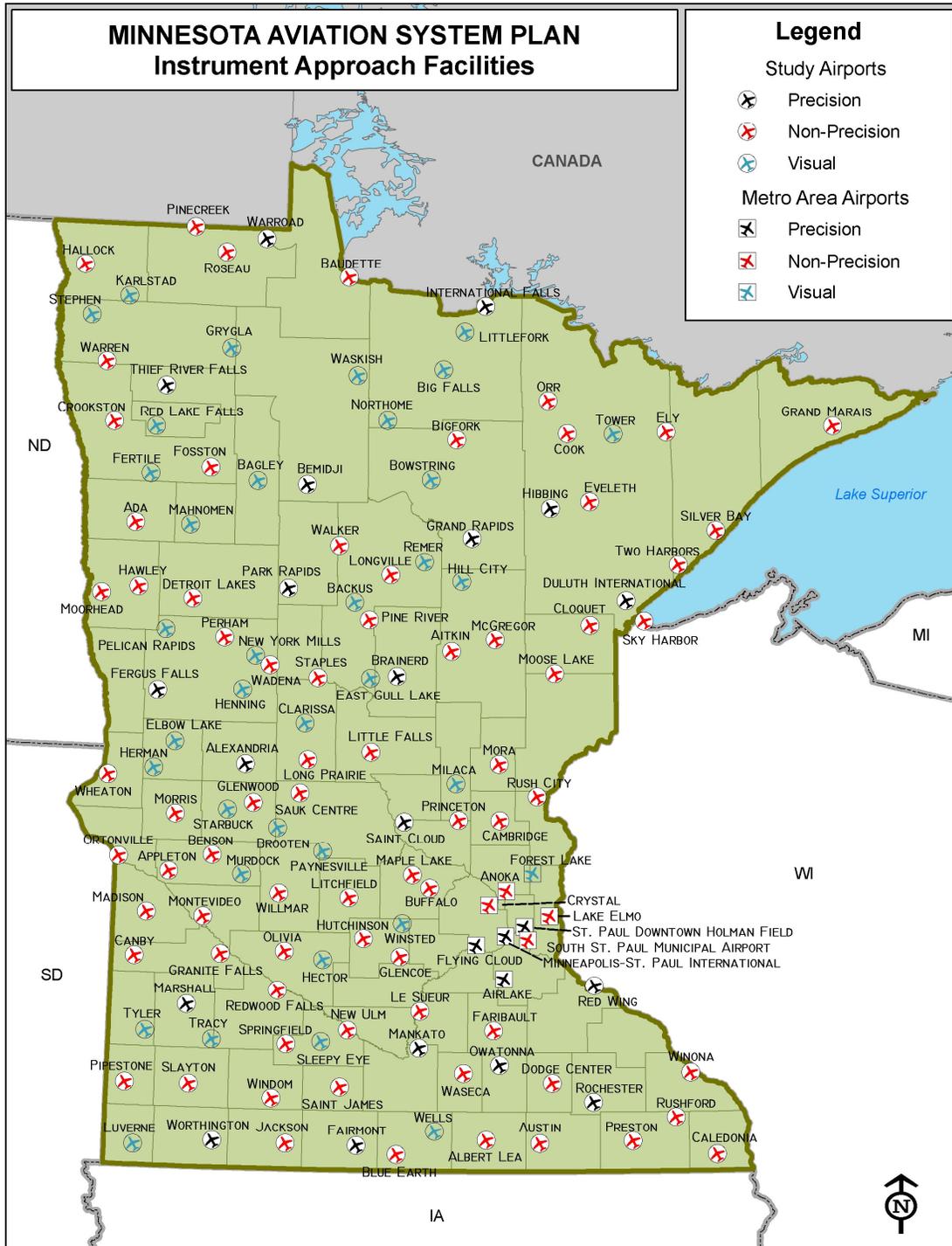
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have an AWOS and which airports have an ASOS. This exhibit shows not only study airports, but also includes the airports in the metropolitan area that have these weather reporting systems.

## **LANDSIDE FACILITY DATA**

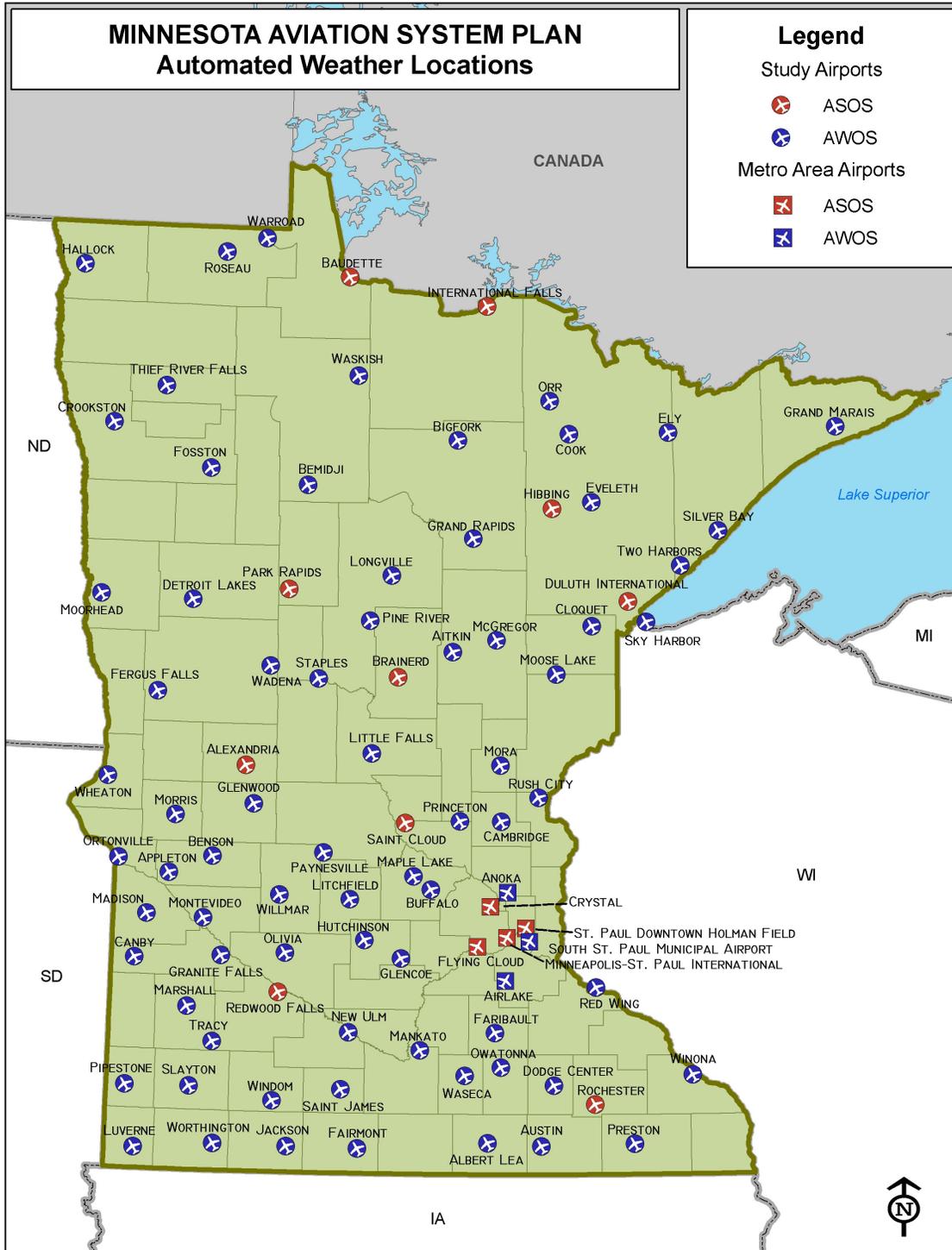
Landside facilities include terminal/administration buildings, hangar space, aircraft ramp and apron space, automobile parking, aircraft fuel, and various services such as aircraft rental, flight instruction, deicing, and snow removal. **Table 2-5** displays the fuel type, if the airport is attended, the square footage of the terminal building or arrival/departure building, and the number of tie-downs at each airport. Seventy (70) of the 127 study airports, or 55 percent, are attended. Some are attended all day, every day, while other airports are attended only in the summer months. Jet A fuel is offered by 47 (37 percent) of the 127 study airports.

## Exhibit 2-4 Instrument Approach Facilities



Source: Mn/DOT Records and 2005 SASP Inventory and Data Survey.  
Prepared: June 2005

**Exhibit 2-5  
Automated Weather System Locations**



Source: Mn/DOT Records and 2005 SASP Inventory and Data Survey.  
Prepared: June 2005

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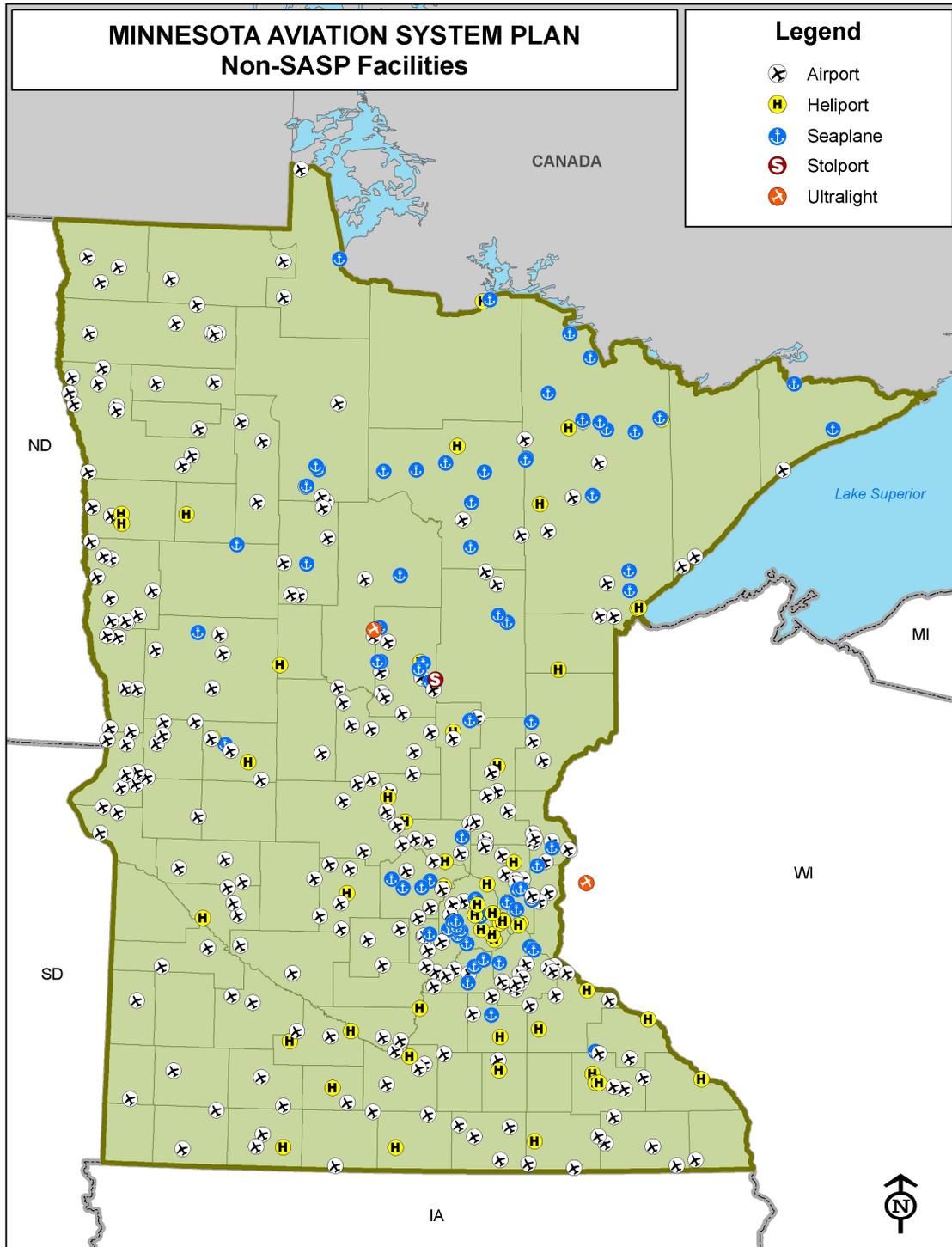
## **NON-SASP FACILITIES**

**Exhibit 2-6** shows aviation facilities within the State of Minnesota that are listed in FAA records but not included in the Minnesota Aviation System Plan. Most of these facilities are privately owned, which means they can be closed with little or no notice. Privately owned facilities are used for specialized purposes. The facilities shown on this exhibit include airports, seaplane bases, hospital heliports, and short takeoff and landing ports.

## **CONCLUSION**

The airports within the state of Minnesota continue to grow and develop as the state's aviation needs change. Continually updating the inventory for airports in Minnesota allows the FAA, Mn/DOT Office of Aeronautics, County boards, City governments, and other planning agencies to look ahead and budget for upcoming aviation needs. Data on airport classifications, airport activity statistics, runway information, approach types, and landside facility data helps determine future system and airport need. Information presented in this chapter will be used to forecast future aviation demand, to evaluate the current performance of the Minnesota aviation system, and to assess the ability of each of the study airports to provide facilities and services that are commensurate with their role in the state aviation system.

**Exhibit 2-6  
Non-SASP Airports**



Source: Mn/DOT Records, FAA Records, Wilbur Smith Associates.  
Prepared: June 2005

**Table 2-1 (1 of 3)  
SASP Airports**

<b>CITY</b>	<b>AIRPORT NAME</b>	<b>AIRPORT IDENTIFIER</b>
Ada	Norman County – Ada-Twin Valley	D00
Aitkin	Aitkin Municipal – Steve Kurtz Field	AIT
Albert Lea	Albert Lea Municipal	AEL
Alexandria	Alexandria Municipal – Chandler Field	AXN
Appleton	Appleton Municipal	AQP
Austin	Austin Municipal	AUM
Backus	Backus Municipal	7Y3
Bagley	Bagley Municipal	7Y4
Baudette	Baudette International	BDE
Bemidji	Bemidji – Beltrami County	BJI
Benson	Benson Municipal – Veterans Field	BBB
Big Falls	Big Falls Municipal	7Y9
Bigfork	Bigfork Municipal	FOZ
Blue Earth	Blue Earth Municipal	SBU
Bowstring	Bowstring Municipal	9Y0
Brainerd	Brainerd Lakes Regional	BRD
Brooten	Brooten Municipal	6D1
Buffalo	Buffalo Municipal	CFE
Caledonia	Houston County	CHU
Cambridge	Cambridge Municipal	CBG
Canby	Canby Municipal – Myers Field	27D
Clarissa	Clarissa Municipal	8Y5
Cloquet	Cloquet-Carlton County	COQ
Cook	Cook Municipal	CQM
Crookston	Crookston Municipal – Kirkwood Field	CKN
Detroit Lakes	Detroit Lakes – Wething Field	DTL
Dodge Center	Dodge Center Municipal	TOB
Duluth	Duluth International	DLH
Duluth	Sky Harbor	DYT
East Gull Lake	East Gull Lake Municipal	9Y2
Elbow Lake	Elbow Lake Municipal – Pride of the Prairie	Y63
Ely	Ely Municipal	ELO
Eveleth-Virginia	Eveleth-Virginia Municipal	EVM
Fairmont	Fairmont Municipal	FRM
Faribault	Faribault Municipal	FBL
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	FFM
Fertile	Fertile Municipal	D14
Fosston	Fosston Municipal	FSE
Glencoe	Glencoe Municipal – Vernon Perschau Field	GYL
Glenwood	Glenwood Municipal	GHW
Grand Marais	Grand Marais – Cook County	CKC
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	GPZ

**Table 2-1 (2 of 3)  
SASP Airports**

<b>CITY</b>	<b>AIRPORT NAME</b>	<b>AIRPORT IDENTIFIER</b>
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	GDB
Grygla	Grygla Municipal – Mel Wilkens Field	3G2
Hallock	Hallock Municipal	HCO
Hawley	Hawley Municipal	04Y
Hector	Hector Municipal	1D6
Henning	Henning Municipal	O5Y
Herman	Herman Municipal	06Y
Grygla	Grygla Municipal – Mel Wilkens Field	3G2
Hallock	Hallock Municipal	HCO
Hibbing	Chisholm-Hibbing Municipal	HIB
Hill City	Hill City – Quadna Mountain	07Y
Hutchinson	Hutchinson Municipal – Butler Field	HCD
International Falls	Falls International	INL
Jackson	Jackson Municipal	MJQ
Karlstad	Karlstad Municipal	23D
Le Sueur	Le Sueur Municipal	12Y
Litchfield	Litchfield Municipal	LJF
Little Falls	Little Falls – Morrison County – Lindbergh Field	LXL
Littlefork	Littlefork Municipal – Hanover	13Y
Long Prairie	Long Prairie Municipal – Todd Field	14Y
Longville	Longville Municipal	XVG
Luverne	Luverne Municipal – Quentin Aanenson Field	D19
Madison	Lac Qui Parle County – Bud Frye Field	DXX
Mahnomen	Mahnomen County	3N8
Mankato	Mankato Regional – Sohler Field	MKT
Maple Lake	Maple Lake Municipal	MGG
Marshall	Southwest Minnesota Regional – Ryan Field	MML
McGregor	McGregor – Isedor Iverson	HZX
Milaca	Milaca Municipal	18Y
Montevideo	Montevideo-Chippewa County	MVE
Moorhead	Moorhead Municipal	JKJ
Moose Lake	Moose Lake – Carlton County	MZH
Mora	Mora Municipal	JMR
Morris	Morris Municipal	MOX
Murdock	Murdock Municipal	23Y
New Ulm	New Ulm Municipal	ULM
New York Mills	New York Mills Municipal	25Y
Northome	Northome Municipal	43Y
Olivia	Olivia Regional	OVL
Orr	Orr Regional	ORB
Ortonville	Ortonville Municipal – Martinson Field	VVV
Owatonna	Owatonna – Degner Regional	OWA
Park Rapids	Park Rapids Municipal – Konshok Field	PKD
Paynesville	Paynesville Municipal	2P3
Pelican Rapids	Pelican Rapids Municipal – Lyon's Field	47Y

**Table 2-1 (3 of 3)  
SASP Airports**

<b>CITY</b>	<b>AIRPORT NAME</b>	<b>AIRPORT IDENTIFIER</b>
Perham	Perham Municipal	16D
Pine River	Pine River Regional	PWC
Pinecreek	Piney-Pinecreek Border	48Y
Pipestone	Pipestone Municipal	PQN
Preston	Fillmore County	FKA
Princeton	Princeton Municipal	PNM
Red Lake Falls	Red Lake Falls Municipal	D81
Red Wing	Red Wing Regional	RGK
Redwood Falls	Redwood Falls Municipal	RWF
Remer	Remer Municipal	52Y
Rochester	Rochester International	RST
Roseau	Roseau Municipal – Rudy Billberg Field	ROX
Rush City	Rush City Regional	ROS
Rushford	Rushford Municipal	55Y
St. Cloud	St. Cloud Regional	STC
St. James	St. James Municipal	JYG
Sauk Centre	Sauk Centre Municipal	D39
Silver Bay	Silver Bay Municipal	BFW
Slayton	Slayton Municipal	60Y
Sleepy Eye	Sleepy Eye Municipal	Y58
Springfield	Springfield Municipal	D42
Staples	Staples Municipal	SAZ
Starbuck	Starbuck Municipal	D32
Stephen	Stephen Municipal	D41
Thief River Falls	Thief River Falls Regional	TVF
Tower	Tower Municipal	12D
Tracy	Tracy Municipal	TKC
Two Harbors	Richard B. Helgeson	TWM
Tyler	Tyler Municipal	63Y
Wadena	Wadena Municipal	ADC
Walker	Walker Municipal	Y49
Warren	Warren Municipal	D37
Warroad	Warroad International – Swede Carlson Field	RRT
Waseca	Waseca Municipal	ACQ
Waskish	Waskish Municipal	VWU
Wells	Wells Municipal	68Y
Wheaton	Wheaton Municipal	ETH
Willmar	Willmar Municipal – John L. Rice Field	ILL
Windom	Windom Municipal	MWM
Winona	Winona Municipal – Max Conrad Field	ONA
Winsted	Winsted Municipal	10D
Worthington	Worthington Municipal	OTG

Source: Mn/DOT records, FAA Form 5010s, and Short Elliott Hendrickson Inc.  
Prepared: May 2005.

**Table 2-2 (1 of 11)**  
**Airport Annual Operations & Percent By Type**

CITY	AIRPORT NAME	TOTAL OPERATIONS (2005)	COMMERCIAL SERVICE (% OF TOTAL)	AIR CARGO/FREIGHT (% OF TOTAL)	MILITARY (% OF TOTAL)	AIR TAXI (% OF TOTAL)	BUSINESS (% OF TOTAL)	FLIGHT TRAINING (% OF TOTAL)	PERSONEL USE (% OF TOTAL)	TOURISM (% OF TOTAL)	RECREATION (% OF TOTAL)
Ada	Norman County – Ada-Twin Valley	400	0	0	0	0	25	10	45	10	10
Aitkin	Aitkin Municipal – Steve Kurtz Field	18,300	0	0	0	0	10	20	60	10	0
Albert Lea	Albert Lea Municipal	25,000	0	5	5	5	20	35	20	5	5
Alexandria	Alexandria Municipal – Chandler Field	26,000	0	0	1	43	9	16	12	9	9
Appleton	Appleton Municipal	2,400	0	0	0	0	10	0	90	0	0
Austin	Austin Municipal	25,000	0	0	1	1	49	49	0	0	0
Backus	Backus Municipal	6,400	0	0	0	0	2	77	20	0	0
Bagley	Bagley Municipal	4,000	0	0	0	0	0	0	50	25	25
Baudette	Baudette International	8,500	0	1	0	5	20	4	15	40	15
Bemidji	Bemidji – Beltrami County	12,000	38	20	7	7	10	3	10	3	2
Benson	Benson Municipal – Veterans Field	4,700	0	0	0	20	20	10	20	10	20

**Table 2-2 (2 of 11)  
 Airport Annual Operations & Percent By Type**

CITY	AIRPORT NAME	TOTAL OPERATIONS	COMMERCIAL SERVICE (% OF TOTAL)	AIR CARGO/FREIGHT (% OF TOTAL)	MILITARY (% OF TOTAL)	AIR TAXI (% OF TOTAL)	BUSINESS (% OF TOTAL)	FLIGHT TRAINING (% OF TOTAL)	PERSONEL USE (% OF TOTAL)	TOURISM (% OF TOTAL)	RECREATION (% OF TOTAL)
Big Falls	Big Falls Municipal	400	0	0	0	0	0	0	20	0	80
Bigfork	Bigfork Municipal	45	0	0	0	0	30	30	10	20	10
Blue Earth	Blue Earth Municipal	7,000	0	0	0	5	60	5	20	10	0
Bowstring	Bowstring Municipal	1,800	0	0	0	0	0	10	20	50	20
Brainerd	Brainerd Lakes Regional	37,500	11	2	1	4	25	5	14	25	13
Brooten	Brooten Municipal	2,000	0	0	0	0	40	5	40	5	10
Buffalo	Buffalo Municipal	7,500	0	0	0	0	0	0	50	0	50
Caledonia	Houston County	3,500	0	1	0	0	1	1	5	1	91
Cambridge	Cambridge Municipal	20,000	0	0	1	0	10	40	50	0	0
Canby	Canby Municipal - Myers Field	7,950	0	0	0	0	25	25	20	20	10
Clarissa	Clarissa Municipal	830	0	0	0	0	75	0	25	0	0
Cloquet	Cloquet-Carlton County	15,000	0	0	0	5	15	60	10	5	5
Cook	Cook Municipal	1,000	0	0	0	90	0	0	5	0	5

**Table 2-2 (3 of 11)  
 Airport Annual Operations & Percent By Type**

CITY	AIRPORT NAME	TOTAL OPERATIONS	COMMERCIAL SERVICE (% OF TOTAL)	AIR CARGO/FREIGHT (% OF TOTAL)	MILITARY (% OF TOTAL)	AIR TAXI (% OF TOTAL)	BUSINESS (% OF TOTAL)	FLIGHT TRAINING (% OF TOTAL)	PERSONEL USE (% OF TOTAL)	TOURISM (% OF TOTAL)	RECREATION (% OF TOTAL)
Crookston	Crookston Municipal – Kirkwood Field	40,000	0	0	1	5	0	75	19	0	0
Detroit Lakes	Detroit Lakes – Wething Field	8,000	0	1	1	5	50	1	14	14	14
Dodge Center	Dodge Center Municipal	6,000	0	0	0	0	25	0	75	0	0
Duluth	Duluth International	71,123	27	8	9	8	0	0	0	0	0
Duluth	Sky Harbor	13,000	0	0	0	1	3	0	60	28	8
East Gull Lake	East Gull Lake Municipal	1,000	0	0	0	0	0	5	10	42	43
Elbow Lake	Elbow Lake Municipal – Pride of the Prairie	4,000	0	0	0	0	40	25	20	15	0
Ely	Ely Municipal	3,000	0	0	5	30	20	5	15	10	15
Eveleth-Virginia	Eveleth-Virginia Municipal	6,000	0	20	0	15	15	20	10	5	15
Fairmont	Fairmont Municipal	5,000	0	1	2	15	45	25	5	5	5
Faribault	Faribault Municipal	5,000	0	0	1	1	0	25	25	24	24

**Table 2-2 (4 of 11)  
 Airport Annual Operations & Percent By Type**

CITY	AIRPORT NAME	TOTAL OPERATIONS	COMMERCIAL SERVICE (% OF TOTAL)	AIR CARGO/FREIGHT (% OF TOTAL)	MILITARY (% OF TOTAL)	AIR TAXI (% OF TOTAL)	BUSINESS (% OF TOTAL)	FLIGHT TRAINING (% OF TOTAL)	PERSONEL USE (% OF TOTAL)	TOURISM (% OF TOTAL)	RECREATION (% OF TOTAL)
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	8,900	0	20	0	0	50	0	30	0	0
Fertile	Fertile Municipal	900	0	0	0	0	16	31	16	16	21
Fosston	Fosston Municipal	4,000	0	0	0	0	0	2	90	8	0
Glencoe	Glencoe Municipal – Vernon Perschau Field	12,000	0	0	0	0	10	10	50	0	30
Glenwood	Glenwood Municipal	5,000	0	2	0	0	45	5	40	3	5
Grand Marais	Grand Marais – Cook County	4,500	0	0	0	3	2	20	5	60	10
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	25,000	0	2	1	7	10	20	25	10	25
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	5,000	0	15	0	10	50	10	5	10	0
Grygla	Grygla Municipal – Mel Wilkens Field	450	0	0	0	0	20	20	20	20	20

**Table 2-2 (5 of 11)  
 Airport Annual Operations & Percent By Type**

CITY	AIRPORT NAME	TOTAL OPERATIONS	COMMERCIAL SERVICE (% OF TOTAL)	AIR CARGO/FREIGHT (% OF TOTAL)	MILITARY (% OF TOTAL)	AIR TAXI (% OF TOTAL)	BUSINESS (% OF TOTAL)	FLIGHT TRAINING (% OF TOTAL)	PERSONEL USE (% OF TOTAL)	TOURISM (% OF TOTAL)	RECREATION (% OF TOTAL)
Hallock	Hallock Municipal	1,100	0	0	0	1	95	0	0	1	3
Hawley	Hawley Municipal	8,600	0	0	0	0	60	10	30	0	0
Hector	Hector Municipal	2,000	0	0	0	1	60	6	10	10	13
Henning	Henning Municipal	150	0	0	0	0	0	33	60	7	0
Herman	Herman Municipal	2,000	0	0	0	0	20	10	20	10	40
Hibbing	Chisholm-Hibbing Municipal	12,272	9	12	1	21	25	1	10	8	13
Hill City	Hill City – Quadna Mountain	500	0	0	0	0	0	0	33	0	67
Hutchinson	Hutchinson Municipal – Butler Field	13,500	0	0	1	2	23	24	50	0	0
International Falls	Falls International	15,000	25	7	1	10	25	4	4	20	4
Jackson	Jackson Municipal	8,500	0	0	0	0	20	0	0	0	80
Karlstad	Karlstad Municipal	26	0	0	0	0	0	0	100	0	0
Le Sueur	Le Sueur Municipal	2,704	0	0	3	0	25	25	0	10	37

**Table 2-2 (6 of 11)  
 Airport Annual Operations & Percent By Type**

CITY	AIRPORT NAME	TOTAL OPERATIONS	COMMERCIAL SERVICE (% OF TOTAL)	AIR CARGO/FREIGHT (% OF TOTAL)	MILITARY (% OF TOTAL)	AIR TAXI (% OF TOTAL)	BUSINESS (% OF TOTAL)	FLIGHT TRAINING (% OF TOTAL)	PERSONEL USE (% OF TOTAL)	TOURISM (% OF TOTAL)	RECREATION (% OF TOTAL)
Litchfield	Litchfield Municipal	2,000	0	0	1	10	10	30	49	2	2
Little Falls	Little Falls – Morrison County – Lindbergh Field	30,000	0	0	0	0	10	25	5	10	50
Littlefork	Littlefork Municipal – Hanover	800	0	0	0	0	0	0	100	0	0
Long Prairie	Long Prairie Municipal – Todd Field	3,400	0	0	1	0	0	0	50	49	0
Longville	Longville Municipal	6,000	0	0	0	0	0	0	25	0	75
Luverne	Luverne Municipal – Quentin Aanenson Field	8,400	0	0	0	5	30	5	40	5	15
Madison	Lac Qui Parle County – Bud Frye Field	1,500	0	0	0	0	0	5	10	0	85
Mahnomen	Mahnomen County	3,200	0	0	0	0	70	0	0	0	30
Mankato	Mankato Regional – Sohler Field	72,000	0	0	4	4	7	43	5	4	33
Maple Lake	Maple Lake Municipal	25,000	0	5	1	10	15	50	10	0	9

**Table 2-2 (7 of 11)  
 Airport Annual Operations & Percent By Type**

CITY	AIRPORT NAME	TOTAL OPERATIONS	COMMERCIAL SERVICE (% OF TOTAL)	AIR CARGO/FREIGHT (% OF TOTAL)	MILITARY (% OF TOTAL)	AIR TAXI (% OF TOTAL)	BUSINESS (% OF TOTAL)	FLIGHT TRAINING (% OF TOTAL)	PERSONEL USE (% OF TOTAL)	TOURISM (% OF TOTAL)	RECREATION (% OF TOTAL)
Marshall	Southwest Minnesota Regional – Ryan Field	22,848	0	10	1	10	60	10	5	4	0
McGregor	McGregor – Isedor Iverson	1,900	0	0	0	0	5	5	30	10	50
Milaca	Milaca Municipal	2,200	0	0	0	0	0	25	25	0	50
Montevideo	Montevideo-Chippewa County	2,802	0	0	0	0	94	1	5	0	0
Moorhead	Moorhead Municipal	25,000	0	0	0	0	10	60	30	0	0
Moose Lake	Moose Lake – Carlton County	9,000	0	0	0	0	10	0	30	30	30
Mora	Mora Municipal	15,000	0	0	0	1	10	0	30	29	30
Morris	Morris Municipal	4,000	0	0	0	0	80	10	10	0	0
Murdock	Murdock Municipal	20	0	0	0	0	50	0	0	0	50
New Ulm	New Ulm Municipal	15,510	0	0	0	25	50	10	15	0	0
New York Mills	New York Mills Municipal	110	0	0	0	0	10	30	30	20	10
Northome	Northome Municipal	50	0	0	0	0	0	0	100	0	0

**Table 2-2 (8 of 11)  
 Airport Annual Operations & Percent By Type**

CITY	AIRPORT NAME	TOTAL OPERATIONS	COMMERCIAL SERVICE (% OF TOTAL)	AIR CARGO/FREIGHT (% OF TOTAL)	MILITARY (% OF TOTAL)	AIR TAXI (% OF TOTAL)	BUSINESS (% OF TOTAL)	FLIGHT TRAINING (% OF TOTAL)	PERSONEL USE (% OF TOTAL)	TOURISM (% OF TOTAL)	RECREATION (% OF TOTAL)
Olivia	Olivia Regional	5,000	0	0	0	5	85	0	5	5	0
Orr	Orr Regional	300	0	0	0	10	10	5	25	25	25
Ortonville	Ortonville Municipal – Martinson Field	5,366	0	0	0	18	60	0	22	0	0
Owatonna	Owatonna – Degner Regional	24,000	0	0	2	0	45	30	8	7	8
Park Rapids	Park Rapids Municipal – Konshok Field	2,000	0	0	1	10	40	10	39	0	0
Paynesville	Paynesville Municipal	200	0	0	0	0	14	0	64	14	8
Pelican Rapids	Pelican Rapids Municipal – Lyon’s Field	500	0	0	0	0	0	0	90	10	0
Perham	Perham Municipal	5,000	0	0	0	15	0	15	70	0	0
Pine River	Pine River Regional	5,000	0	0	0	5	10	15	25	20	25
Pinecreek	Piney-Pinecreek Border	3,000	0	0	0	0	0	0	40	30	30
Pipestone	Pipestone Municipal	1,800	0	0	0	10	20	35	20	10	5
Preston	Fillmore County	4,056	0	0	0	5	20	10	60	5	0

**Table 2-2 (9 of 11)  
 Airport Annual Operations & Percent By Type**

CITY	AIRPORT NAME	TOTAL OPERATIONS	COMMERCIAL SERVICE (% OF TOTAL)	AIR CARGO/FREIGHT (% OF TOTAL)	MILITARY (% OF TOTAL)	AIR TAXI (% OF TOTAL)	BUSINESS (% OF TOTAL)	FLIGHT TRAINING (% OF TOTAL)	PERSONEL USE (% OF TOTAL)	TOURISM (% OF TOTAL)	RECREATION (% OF TOTAL)
Princeton	Princeton Municipal	13,300	0	0	0	0	0	0	100	0	0
Red Lake Falls	Red Lake Falls Municipal	10,000	0	0	0	0	25	15	5	25	30
Red Wing	Red Wing Regional	14,000	0	1	5	3	50	11	0	30	0
Redwood Falls	Redwood Falls Municipal	11,600	0	0	3	0	47	0	50	0	0
Remer	Remer Municipal	250	0	0	0	0	0	0	100	0	0
Rochester	Rochester International	69,077	8	2	8	10	20	5	17	10	20
Roseau	Roseau Municipal – Rudy Billberg Field	5,000	0	10	0	10	50	5	10	5	10
Rush City	Rush City Regional	7,810	0	7	3	0	5	60	20	5	0
Rushford	Rushford Municipal	1,000	0	0	1	0	4	20	50	5	20
St. Cloud	St. Cloud Regional	75,890	10	0	1	3	20	40	10	16	0
St. James	St. James Municipal	1,800	0	0	0	0	70	0	20	0	10
Sauk Centre	Sauk Centre Municipal	5,850	0	0	1	2	19	8	28	38	4
Silver Bay	Silver Bay Municipal	1,000	0	0	0	0	0	0	60	30	10

**Table 2-2 (10 of 11)  
 Airport Annual Operations & Percent By Type**

CITY	AIRPORT NAME	TOTAL OPERATIONS	COMMERCIAL SERVICE (% OF TOTAL)	AIR CARGO/FREIGHT (% OF TOTAL)	MILITARY (% OF TOTAL)	AIR TAXI (% OF TOTAL)	BUSINESS (% OF TOTAL)	FLIGHT TRAINING (% OF TOTAL)	PERSONEL USE (% OF TOTAL)	TOURISM (% OF TOTAL)	RECREATION (% OF TOTAL)
Slayton	Slayton Municipal	700	0	5	0	0	19	19	19	19	19
Sleepy Eye	Sleepy Eye Municipal	800	0	0	0	0	28	18	18	18	18
Springfield	Springfield Municipal	200	0	0	0	10	10	0	80	0	0
Staples	Staples Municipal	9,600	0	0	0	0	60	0	35	0	5
Starbuck	Starbuck Municipal	110	0	0	0	0	0	0	5	10	85
Stephen	Stephen Municipal	2,500	0	0	0	0	85	10	5	0	0
Thief River Falls	Thief River Falls Regional	38,360	3	6	0	7	9	55	7	5	8
Tower	Tower Municipal	3,700	0	0	0	0	20	20	20	20	20
Tracy	Tracy Municipal	1,785	10	0	0	0	0	21	27	21	21
Two Harbors	Richard B. Helgeson	11,000	0	0	0	2	2	30	30	30	6
Tyler	Tyler Municipal	100	0	0	0	0	25	0	25	25	25
Wadena	Wadena Municipal	17,551	0	0	0	0	50	25	10	10	10
Walker	Walker Municipal	9,200	0	0	0	0	10	0	30	30	30
Warren	Warren Municipal	19,100	0	0	0	1	0	0	100	0	0

**Table 2-2 (11 of 11)  
 Airport Annual Operations & Percent By Type**

CITY	AIRPORT NAME	TOTAL OPERATIONS	COMMERCIAL SERVICE (% OF TOTAL)	AIR CARGO/FREIGHT (% OF TOTAL)	MILITARY (% OF TOTAL)	AIR TAXI (% OF TOTAL)	BUSINESS (% OF TOTAL)	FLIGHT TRAINING (% OF TOTAL)	PERSONEL USE (% OF TOTAL)	TOURISM (% OF TOTAL)	RECREATION (% OF TOTAL)
Warroad	Warroad International – Swede Carlson Field	2,100	0	5	0	5	70	5	5	5	5
Waseca	Waseca Municipal	8,000	0	0	0	0	25	50	0	0	25
Waskish	Waskish Municipal	500	0	0	0	0	90	0	0	10	0
Wells	Wells Municipal	156	0	0	0	0	60	0	30	10	0
Wheaton	Wheaton Municipal	4,000	0	0	0	0	50	5	20	15	10
Willmar	Willmar Municipal – John L. Rice Field	18,100	0	0	0	0	60	10	20	5	5
Windom	Windom Municipal	1,500	0	2	0	25	0	0	50	15	8
Winona	Winona Municipal – Max Conrad Field	15,000	0	0	1	8	15	60	16	0	0
Winsted	Winsted Municipal	3,000	0	0	0	0	5	0	90	5	0
Worthington	Worthington Municipal	3,000	0	1	1	15	40	28	10	5	0

Source: FAA Form 5010, 2005 SASP Inventory & Data Survey, and Short Elliott Hendrickson Inc.  
 Prepared: May 2005.

**Table 2-3 (1 of 10)  
 Runway Information**

CITY	AIRPORT NAME	RUNWAY DESIGNATION	R/W LENGTH	R/W WIDTH	R/W SURFACE TYPE	R/W LIGHTING	TAXIWAY	ARC
Ada	Norman County-Ada-Twin Valley	15/33	3103	60	ASPHALT	LIRL	NONE	A-1
Aitkin	Aitkin Municipal	16/34	4018	75	ASPHALT	MIRL	NONE	B-II
	Steve Kurtz Field	08/26	3335	150	TURF	NONE	NONE	
Albert Lea	Albert Lea Municipal	16/34	4501	100	ASPHALT	NSTD	NONE	B-II
		04/22	2899	75	ASPHALT	NONE	NONE	
Alexandria	Alexandria Municipal – Chandler Field	13/31	5100	100	ASPHALT	MIRL	FULL	B-II
		04/22	4099	75	ASPHALT	MIRL	FULL	
Appleton	Appleton Municipal	13/31	3500	75	ASPHALT	MIRL	NONE	NO ARC
		04/22	2725	157	TURF	NONE	NONE	
Austin	Austin Municipal	18/36	5800	100	ASPHALT	MIRL	FULL	B-II
Backus	Backus Municipal	15/33	3588	145	TURF	NSTD	NONE	NO ARC
Bagley	Bagley Municipal	14/32	3800	75	ASPHALT	NSTD	NONE	B-II
Baudette	Baudette International	12/30	5499	100	ASPHALT	MIRL	PARTIAL	B-II
Bemidji	Bemidji – Beltrami County	13/31	6598	150	ASPHALT	HIRL	FULL	C-III
		07/25	5699	150	ASPHALT	MIRL	FULL	
Benson	Benson Municipal – Veterans Field	14/32	4000	75	ASPHALT	MIRL	FULL	B-I
Big Falls	Big Falls Municipal	03/21	2850	150	TURF	NSTD	NONE	NO ARC
		11/29	2602	200	TURF	NONE	NONE	
Bigfork	Bigfork Municipal	15/33	3100	75	ASPHALT	MIRL	NONE	NO ARC

**Table 2-3 (2 of 10)  
 Runway Information**

CITY	AIRPORT NAME	RUNWAY DESIGNATION	R/W LENGTH	R/W WIDTH	R/W SURFACE TYPE	R/W LIGHTING	TAXIWAY	ARC
Blue Earth	Blue Earth Municipal	16/34	3399	75	ASPHALT	MIRL	NONE	A-I
		03/21	2290	200	TURF	NONE	NONE	
Bowstring	Bowstring Municipal	07/25	2600	150	TURF	LIRL	NONE	NO ARC
Brainerd	Brainerd Lakes Regional	05/23	6500	150	ASPHALT	HIRL	FULL	C-III
		12/30	4082	75	ASPHALT	MIRL	FULL	
		16/34	6500	150	ASPHALT	HIRL	FULL	
Brooten	Brooten Municipal	15/33	3500	60	ASPHALT	LIRL	NONE	B-II
Buffalo	Buffalo Municipal	17/35	2600	60	ASPHALT	MIRL	PARTIAL	B-II
Caledonia	Houston County	13/31	3499	77	ASPHALT	MIRL	FULL	A-I
Cambridge	Cambridge Municipal	16/34	4000	75	ASPHALT	MIRL	PARTIAL	B-II
Canby	Canby Municipal – Myers Field	12/30	4400	75	ASPHALT	MIRL	NONE	B-II
		01/19	1650	125	TURF	NONE	NONE	
Clarissa	Clarissa Municipal	10/28	2560	200	TURF	NONE	NONE	NO ARC
Cloquet	Cloquet-Carlton County	17/35	4003	75	ASPHALT	MIRL	PARTIAL	B-II
		07/25	3100	75	ASPHALT	MIRL	NONE	
Cook	Cook Municipal	13/31	3200	75	ASPHALT	MIRL	NONE	B-II
Crookston	Crookston Municipal – Kirkwood Field	13/31	4300	75	ASPHALT	MIRL	FULL	B-II
		17/35	2978	202	TURF	NONE	NONE	
		06/24	2089	202	TURF	NONE	NONE	
Detroit Lakes	Detroit Lakes – Wething Field	13/31	4500	75	ASPHALT	MIRL	PARTIAL	A-II
		17/35	1880	250	TURF	NONE	NONE	
Dodge Center	Dodge Center Municipal	16/34	4500	75	CONCRETE	HIRL	NONE	B-II
		04/22	2390	200	TURF	NONE	NONE	

**Table 2-3 (3 of 10)  
 Runway Information**

CITY	AIRPORT NAME	RUNWAY DESIGNATION	R/W LENGTH	R/W WIDTH	R/W SURFACE TYPE	R/W LIGHTING	TAXIWAY	ARC
Duluth	Duluth International	09/27	10152	150	CONCRETE	HIRL	FULL	D-V
		03/21	5699	150	ASPHALT	HIRL	FULL	
Duluth	Sky Harbor	14/32	3050	75	ASPHALT	MIRL	FULL	A-I
East Gull Lake	East Gull Lake Municipal	13/31	2618	160	TURF	NONE	NONE	NO ARC
Elbow Lake	Elbow Lake Municipal – Pride of the Prairie	14/32	2795	200	TURF	NSTD	NONE	A-I
Ely	Ely Municipal	12/30	5600	100	ASPHALT	MIRL	NONE	B-III
Eveleth-Virginia	Eveleth-Virginia Municipal	09/27	4219	100	ASPHALT	MIRL	NONE	B-II
		14/32	2506	100	ASPHALT	MIRL	NONE	
		05/23	2685	110	TURF	NONE	NONE	
Fairmont	Fairmont Municipal	13/31	5505	100	ASPHALT	HIRL	FULL	D-II
		02/20	3300	75	ASPHALT	MIRL	NONE	
Faribault	Faribault Municipal	12/30	4254	72	ASPHALT	NSTD	PARTIAL	B-II
		02/20	2230	140	TURF	NONE	NONE	
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	13/31	5639	100	ASPHALT	MIRL	FULL	C-II
		17/35	3301	75	ASPHALT	MIRL	FULL	
Fertile	Fertile Municipal	14/32	3002	60	ASPHALT	LIRL	NONE	B-II
Fosston	Fosston Municipal	16/34	3501	75	ASPHALT	MIRL	NONE	B-II

**Table 2-3 (4 of 10)  
 Runway Information**

CITY	AIRPORT NAME	RUNWAY DESIGNATION	R/W LENGTH	R/W WIDTH	R/W SURFACE TYPE	R/W LIGHTING	TAXIWAY	ARC
Glencoe	Glencoe Municipal – Vernon Perschau Field	13/31	3300	75	ASPHALT	MIRL	NONE	B-II
Glenwood	Glenwood Municipal	15/33	4500	75	ASPHALT	MIRL	NONE	B-II
		05/23	2801	205	TURF	NONE	NONE	
Grand Marais	Grand Marais-Cook County	09/27	4200	75	ASPHALT	MIRL	NONE	B-III
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	16/34	5755	100	ASPHALT	HIRL	FULL	C-II
		04/22	2968	150	TURF	NONE	NONE	
		10/28	1455	150	TURF	NONE	NONE	
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	15/33	4350	75	ASPHALT	MIRL	NONE	B-I
Grygla	Grygla Municipal – Mel Wilkens Field	17/35	3437	92	TURF	LIRL	NONE	A-I
Hallock	Hallock Municipal	13/31	4007	75	ASPHALT	MIRL	NONE	B-II
Hawley	Hawley Municipal	15/33	3406	75	ASPHALT	MIRL	NONE	B-II
Hector	Hector Municipal	12/30	2776	50	ASPHALT	NSTD	NONE	B-I
		05/23	2580	165	TURF	NONE	NONE	
Henning	Henning Municipal	17/35	3280	200	TURF	NSTD	NONE	B-I
Herman	Herman Municipal	14/32	2997	60	ASPHALT	LIRL	NONE	NO ARC

**Table 2-3 (5 of 10)  
 Runway Information**

CITY	AIRPORT NAME	RUNWAY DESIGNATION	R/W LENGTH	R/W WIDTH	R/W SURFACE TYPE	R/W LIGHTING	TAXIWAY	ARC
Hibbing	Chisholm-Hibbing Municipal	13/31	6758	150	ASPHALT	HIRL	PARTIAL	C-III
		04/22	3075	75	ASPHALT	NONE	NONE	
Hill City	Hill City-Quadna Mountain	16/34	2850	150	TURF	NONE	NONE	NO ARC
Hutchinson	Hutchinson Municipal – Butler Field	15/33	4000	75	ASPHALT	MIRL	FULL	B-II
International Falls	International	13/31	6508	150	ASPHALT	HIRL	FULL	C-III
		04/22	2999	75	ASPHALT	NONE	PARTIAL	
Jackson	Jackson Municipal	13/31	3591	75	ASPHALT	MIRL	NONE	B-I
		04/22	2250	300	TURF	NONE	NONE	
Karlstad	Karlstad Municipal	17/35	2606	159	TURF	NSTD	NONE	NO ARC
Le Sueur	Le Sueur Municipal	13/31	3005	75	ASPHALT	MIRL	PARTIAL	A-I
Litchfield	Litchfield Municipal	13/31	4002	100	ASPHALT	MIRL	FULL	B-II
Little Falls	Little Falls-Morrison County – Lindbergh Field	13/31	4000	75	ASPHALT	MIRL	FULL	B-II
		18/36	2890	170	TURF	NONE	NONE	
Littlefork	Littlefork Municipal – Hanover	09/27	3000	150	TURF	NONE	NONE	A-I
Long Prairie	Long Prairie Municipal – Todd Field	16/34	3000	75	ASPHALT	MIRL	NONE	B-II
Longville	Longville Municipal	13/31	3781	75	ASPHALT	MIRL	NONE	B-II

**Table 2-3 (6 of 10)  
 Runway Information**

CITY	AIRPORT NAME	RUNWAY DESIGNATION	R/W LENGTH	R/W WIDTH	R/W SURFACE TYPE	R/W LIGHTING	TAXIWAY	ARC
Luverne	Luverne Municipal – Quentin Aanenson Field	17/35	2505	75	ASPHALT	LIRL	NONE	B-II
Madison	Lac Qui Parle County – Bud Frye Field	13/31	3301	75	ASPHALT	MIRL	NONE	B-II
		08/26	3033	135	TURF	NONE	NONE	
Mahnomen	Mahnomen County	16/34	3210	150	TURF	NSTD	NONE	A-II
Mankato	Mankato Regional – Sohler Field	15/33	5400	100	ASPHALT	HIRL	FULL	C-II
		04/22	4000	75	ASPHALT	MIRL	FULL	
Maple Lake	Maple Lake Municipal	10/28	2796	60	ASPHALT	MIRL	FULL	B-I
Marshall	Southwest Minnesota Regional – Ryan Field	12/30	5010	100	ASPHALT	HIRL	FULL	D-II
		02/20	4000	75	APSHALT	MIRL	FULL	
McGregor	McGregor-Isedor Iverson	14/32	3400	75	ASPHALT	MIRL	NONE	B-II
Milaca	Milaca Municipal	16/34	2900	150	TURF	NSTD	NONE	A-I
Montevideo	Montevideo-Chippewa County	14/32	4000	75	ASPHALT	MIRL	NONE	B-II
		03/21	2330	165	TURF	NONE	NONE	
Moorhead	Moorhead Municipal	12/30	4300	75	ASPHALT	MIRL	FULL	B-II
Moose Lake	Moose Lake-Carlton County	04/22	3200	75	ASPHALT	MIRL	FULL	A-I
Mora	Mora Municipal	17/35	3998	75	ASPHALT	MIRL	FULL	B-II
		11/29	2450	200	TURF	NONE	NONE	
Morris	Morris Municipal	14/32	4000	75	ASPHALT	MIRL	NONE	B-II
		04/22	2585	150	TURF	NONE	NONE	

**Table 2-3 (7 of 10)  
 Runway Information**

CITY	AIRPORT NAME	RUNWAY DESIGNATION	R/W LENGTH	R/W WIDTH	R/W SURFACE TYPE	R/W LIGHTING	TAXIWAY	ARC
Murdock	Murdock Municipal	12/30	3415	150	TURF	NONE	NONE	NO ARC
New Ulm	New Ulm Municipal	15/33	4401	75	ASPHALT	MIRL	FULL	B-II
		04/22	2825	160	TURF	NONE	NONE	
New York Mills	New York Mills Municipal	12/30	2500	196	TURF	NSTD	NONE	NO ARC
Northome	Northome Municipal	12/30	2500	147	TURF	NSTD	NONE	NO ARC
		02/20	2201	148	TURF	NONE	NONE	
Olivia	Olivia Regional	11/29	3498	75	ASPHALT	LIRL	PARTIAL	B-I
Orr	Orr Regional	13/31	4001	75	ASPHALT	MIRL	NONE	B-II
Ortonville	Ortonville Municipal – Martinson Field	16/34	3417	75	ASPHALT	MIRL	NONE	B-II
		04/22	2170	300	TURF	NONE	NONE	
Owatonna	Owatonna-Degner Regional	12/30	5500	100	CONCRETE	HIRL	FULL	C-II
Park Rapids	Park Rapids Municipal – Konshok Field	13/31	5498	100	ASPHALT	MIRL	NONE	C-II
		17/35	3190	140	TURF	NONE	NONE	
Paynesville	Paynesville Municipal	11/29	3302	75	ASPHALT	MIRL	NONE	SMALL A/C
Pelican Rapids	Pelican Rapids Municipal – Lyon’s Field	15/33	3260	150	TURF	NSTD	NONE	B-I
Perham	Perham Municipal	12/30	4100	75	ASPHALT	MIRL	NONE	B-II
Pine River	Pine River Regional	16/34	3000	75	ASPHALT	MIRL	PARTIAL	B-I

**Table 2-3 (8 of 10)  
 Runway Information**

CITY	AIRPORT NAME	RUNWAY DESIGNATION	R/W LENGTH	R/W WIDTH	R/W SURFACE TYPE	R/W LIGHTING	TAXIWAY	ARC
Pinecreek	Piney-Pinecreek Border	15/33	3298	75	ASPHALT	MIRL	NONE	B-II
Pipestone	Pipestone Municipal	18/36	4320	75	ASPHALT	MIRL	NONE	B-II
		09/27	2539	221	TURF	NONE	NONE	
Preston	Fillmore County	10/28	4000	75	ASPHALT	MIRL	PARTIAL	B-I
Princeton	Princeton Municipal	15/33	3900	75	APSHALT	MIRL	FULL	A-I
Red Lake Falls	Red Lake Falls Municipal	15/33	2500	60	ASPHALT	NSTD	NONE	B-II
Red Wing	Red Wing Regional	09/27	5010	100	ASPHALT	HIRL	FULL	C-II
Redwood Falls	Redwood Falls Municipal	12/30	4001	100	ASHPALT	MIRL	FULL	B-II
		05/23	2050	200	TURF	NONE	NONE	
Remer	Remer Municipal	13/31	2765	154	TURF	NONE	NONE	SMALL A/C
Rochester	Rochester International	13/31	9033	150	CONCRETE	HIRL	FULL	C-III
		02/20	7300	150	CONCRETE	MIRL	FULL	
Roseau	Roseau Municipal – Rudy Billberg Field	16/34	4400	75	ASPHALT	MIRL	FULL	B-II
		06/24	2504	250	TURF	NONE	NONE	
Rush City	Rush City Regional	16/34	4400	75	ASPHALT	MIRL	NONE	B-II
Rushford	Rushford Municipal	16/34	3200	60	ASPHALT	MIRL	NONE	A-I
St. Cloud	St. Cloud Regional	13/31	7000	150	CONCRETE	HIRL	FULL	B-II
		05/23	3000	75	ASPHALT	MIRL	FULL	
St. James	St. James Municipal	15/33	4000	75	ASPHALT	MIRL	PARTIAL	B-I

**Table 2-3 (9 of 10)  
 Runway Information**

CITY	AIRPORT NAME	RUNWAY DESIGNATION	R/W LENGTH	R/W WIDTH	R/W SURFACE TYPE	R/W LIGHTING	TAXIWAY	ARC
Sauk Centre	Sauk Centre Municipal	14/32	3300	60	ASPHALT	LIRL	NONE	B-I
		08/26	2270	140	TURF	NONE	NONE	
Silver Bay	Silver Bay Municipal	07/25	3200	75	ASPHALT	MIRL	NONE	B-II
Slayton	Slayton Municipal	17/35	3005	60	ASPHALT	NSTD	NONE	A-I
Sleepy Eye	Sleepy Eye Municipal	14/32	2500	300	TURF	NSTD	NONE	NO ARC
		04/22	2440	300	TURF	NONE	NONE	
Springfield	Springfield Municipal	13/31	3400	75	ASPHALT	MIRL	NONE	B-I
Staples	Staples Municipal	14/32	3304	75	ASPHALT	MIRL	NONE	B-II
Starbuck	Starbuck Municipal	15/33	2512	198	TURF	NSTD	NONE	A-I
Stephen	Stephen Municipal	17/35	2700	60	ASPHALT	LIRL	FULL	A-I
Thief River Falls	Thief River Falls Regional	13/31	6503	150	ASPHALT	HIRL	FULL	C-III
		03/21	4998	75	ASPHALT	LIRL	FULL	
Tower	Tower Municipal	18/26	3400	75	ASPHALT	MIRL	NONE	B-II
Tracy	Tracy Municipal	11/29	3100	75	ASPHALT	MIRL	NONE	B-II
		06/24	2590	200	TURF	NONE	NONE	
		17/35	1825	200	TURF	NONE	NONE	
Two Harbors	Richard B. Helgeson	06/24	4400	75	ASPHALT	MIRL	PARTIAL	B-II
		15/33	2550	150	TURF	NONE	NONE	
Tyler	Tyler Municipal	14/32	2600	160	TURF	LIRL	NONE	SMALL A/C
Wadena	Wadena Municipal	16/34	4005	75	ASPHALT	MIRL	PARTIAL	B-II
Walker	Walker Municipal	14/32	2803	75	ASPHALT	MIRL	NONE	A-I

**Table 2-3 (10 of 10)  
Runway Information**

CITY	AIRPORT NAME	RUNWAY DESIGNATION	R/W LENGTH	R/W WIDTH	R/W SURFACE TYPE	R/W LIGHTING	TAXIWAY	ARC
Warren	Warren Municipal	12/30	3205	75	ASPHALT	NSTD	NONE	B-I
		04/22	2606	200	TURF	NONE	NONE	
Warroad	Warroad International – Swede Carlson Field	13/31	5400	100	ASPHALT	HIRL	FULL	D-II
		04/22	3000	150	TURF	NONE	NONE	
Waseca	Waseca Municipal	15/33	3398	75	ASPHALT	MIRL	PARTIAL	B-II
Waskish	Waskish Municipal	02/20	3700	150	TURF	NONE	NONE	B-II
Wells	Wells Municipal	17/35	2912	198	TURF	NSTD	NONE	A-I
Wheaton	Wheaton Municipal	16/34	3300	75	ASPHALT	MIRL	NONE	B-II
		06/24	1919	175	TURF	NONE	NONE	
Willmar	Willmar Municipal – John L. Rice Field	10/28	5700	100	ASPHALT	MIRL	FULL	D-III
		18/36	3450	250	TURF	NONE	NONE	
Windom	Windom Municipal	17/35	3599	75	ASPHALT	MIRL	PARTIAL	B-II
Winona	Winona Municipal – Max Conrad Field	12/30	5199	100	ASPHALT	MIRL	FULL	B-II
		17/35	2553	75	ASPHALT	NONE	FULL	
Winsted	Winsted Municipal	09/27	3248	200	TURF	LIRL	NONE	SMALL A/C
Worthington	Worthington Municipal	11/29	5506	100	ASPHALT	HIRL	FULL	D-II
		17/35	4201	100	ASPHALT	MIRL	FULL	

Source: Mn/DOT records, Mn/DOT 2005 Airport Directory, FAA Form 5010, 2005 SASP Inventory & Data Survey, US Airport Facility Directory-North Central US-2005, and Short Elliott Hendrickson Inc.  
Prepared: May 2005.

Table 2-4 (1 of 9)  
 Approach/NAVAID Data

CITY	AIRPORT NAME	PAPI	VASI	REIL	BEAC.	WIND IND.	SEG. CIR.	ILS	LOC	DME	VOR	GPS	NDB	ATCT
Ada	Norman County – Ada-Twin Valley	None	None	None	X	X	None	None	None	None	None	X	None	None
Aitkin	Aitkin Municipal – Steve Kurtz Field	None	16/34	16/34	X	X	X	None	None	None	None	X	X	None
Albert Lea	Albert Lea Municipal	None	16/34	16/34	X	X	X	None	None	X	X	X	None	None
Alexandria	Alexandria Municipal – Chandler Field	13/31 04/22	None	13 04/22	X	X	X	X	None	None	X	X	X	None
Appleton	Appleton Municipal	None	None	None	X	X	None	None	None	None	None	X	X	None
Austin	Austin Municipal	18/36	None	18/36	X	X	None	None	None	X	X	X	None	None
Backus	Backus Municipal	None	None	None	X	X	None	None	None	None	None	None	None	None
Bagley	Bagley Municipal	14/32	None	14/32	X	X	None	None	None	None	None	None	None	None
Baudette	Baudette International	None	12/30	12/30	X	X	X	None	None	X	X	X	None	None
Bemidji	Bemidji – Beltrami County	None	13/31 07/25	13 07/25	X	X	X	X	None	X	None	X	X	None
Benson	Benson Municipal – Veterans Field	32	None	14/32	X	X	X	None	None	None	None	X	X	None
Big Falls	Big Falls Municipal	None	None	None	None	X	None	None	None	None	None	None	None	None
Bigfork	Bigfork Municipal	None	None	None	X	X	None	None	None	None	None	X	X	None
Blue Earth	Blue Earth Municipal	None	None	None	X	X	None	None	None	None	None	X	X	None
Bowstring	Bowstring Municipal	None	None	None	None	X	None	None	None	None	None	None	None	None
Brainerd	Brainerd Lakes Regional	None	05/23 12/30	5 30	X	X	X	X	X	X	X	X	X	None

Table 2-4 (2 of 9)  
 Approach/NAVAID Data

CITY	AIRPORT NAME	PAPI	VASI	REIL	BEAC.	WIND IND.	SEG. CIR.	ILS	LOC	DME	VOR	GPS	NDB	ATCT
Brooten	Brooten Municipal	None	None	None	X	X	None	None	None	None	None	None	None	None
Buffalo	Buffalo Municipal	None	None	None	X	X	None	None	None	None	X	X	None	None
Caledonia	Houston County	None	None	None	X	X	None	None	None	X	X	X	None	None
Cambridge	Cambridge Municipal	16/34	None	34	X	X	None	None	None	None	None	X	X	None
Canby	Canby Municipal – Myers Field	None	None	None	None	X	None	None	None	None	None	X	None	None
Clarissa	Clarissa Municipal	None	None	None	None	X	None	None	None	None	None	None	None	None
Cloquet	Cloquet-Carlton County	None	17/35	17	X	X	None	X	None	X	X	X	X	None
Cook	Cook Municipal	None	None	None	X	X	None	None	None	None	None	X	X	None
Crookston	Crookston Municipal – Kirkwood Field	13/31	None	13/31	X	X	None	None	None	None	X	X	X	None
Detroit Lakes	Detroit Lakes – Wething Field	None	13/31	13/31	X	X	X	None	None	None	X	X	None	None
Dodge Center	Dodge Center Municipal	16/34	None	16/34	X	X	None	None	None	None	X	X	None	None
Duluth	Duluth International	09/2703	21	03/21	X	X	None	X	X	X	X	X	X	X
Duluth	Sky Harbor	14/32	None	14/32	X	X	None	None	None	None	None	X	X	None
East Gull Lake	East Gull Lake Municipal	None	None	None	None	X	None	None	None	None	None	None	None	None
Elbow Lake	Elbow Lake Municipal – Pride of the Prairie	None	None	None	X	X	None	None	None	None	None	None	None	None
Ely	Ely Municipal	12/30	None	12/30	X	X	X	None	None	X	X	X	None	None

**Table 2-4 (3 of 9)  
 Approach/NAVAID Data**

CITY	AIRPORT NAME	PAPI	VASI	REIL	BEAC.	WIND IND.	SEG. CIR.	ILS	LOC	DME	VOR	GPS	NDB	ATCT
Eveleth-Virginia	Eveleth-Virginia Municipal	09/27	None	27	X	X	None	None	None	X	X	X	None	None
Fairmont	Fairmont Municipal	None	13/31	31	X	X	X	X	None	X	X	X	None	None
Faribault	Faribault Municipal	None	12/30	12/30	X	X	None	None	None	X	X	None	None	None
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	13/31	None	13/35	X	X	None	X	None	None	X	X	X	None
Fertile	Fertile Municipal	None	14/32	None	X	X	None	None	None	None	None	None	None	None
Preston	Fillmore County	None	11/29	None	X	X	None	None	None	None	None	X	None	None
Fosston	Fosston Municipal	16/34	None	16/34	X	X	X	None	None	None	None	X	X	None
Glencoe	Glencoe Municipal – Vernon Perschau Field	None	None	None	None	X	None	None	None	None	None	None	X	None
Glenwood	Glenwood Municipal	None	None	None	X	X	None	None	None	None	X	X	None	None
Grand Marais	Grand Marais – Cook County	09/27	None	09/27	X	X	X	None	None	None	None	X	X	None
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	None	16/34	16/34	X	X	X	X	None	None	X	X	X	None
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	None	None	33	X	X	None	None	None	X	X	X	None	None

Table 2-4 (4 of 9)  
 Approach/NAVAID Data

CITY	AIRPORT NAME	PAPI	VASI	REIL	BEAC.	WIND IND.	SEG. CIR.	ILS	LOC	DME	VOR	GPS	NDB	ATCT
Grygla	Grygla Municipal – Mel Wilkens Field	None	None	None	X	X	None	None	None	None	None	None	None	None
Hallock	Hallock Municipal	None	13/31	13/31	X	X	X	None	None	X	X	X	None	None
Hawley	Hawley Municipal	None	None	None	X	X	None	None	None	X	X	X	None	None
Hector	Hector Municipal	None	None	None	None	X	None	None	None	None	None	None	None	None
Henning	Henning Municipal	None	None	None	X	X	None	None	None	None	None	None	None	None
Herman	Herman Municipal	None	None	None	X	X	None	None	None	None	None	None	---	None
Hibbing	Chisholm-Hibbing Municipal	None	13/31	None	X	X	X	X	X	X	X	X	None	None
Hill City	Hill City – Quadna Mountain	None	None	None	X	X	None	None	None	None	None	None	None	None
Hutchinson	Hutchinson Municipal – Butler Field	15/33	None	15/33	X	X	None	None	None	X	X	X	X	None
International Falls	Falls International	None	13/31	13	X	X	None	X	X	X	X	X	X	None
Jackson	Jackson Municipal	13/31	None	13/31	X	X	None	None	None	None	None	X	X	None
Karlstad	Karlstad Municipal	None	None	None	None	X	None	None	None	None	None	None	None	None
Le Sueur	Le Sueur Municipal	None	13/31	None	X	X	None	None	None	None	None	None	None	None
Litchfield	Litchfield Municipal	13/31	None	13/31	X	X	None	None	None	X	X	X	None	None

**Table 2-4 (5 of 9)  
 Approach/NAVAID Data**

CITY	AIRPORT NAME	PAPI	VASI	REIL	BEAC.	WIND IND.	SEG. CIR.	ILS	LOC	DME	VOR	GPS	NDB	ATCT
Little Falls	Little Falls – Morrison County – Lindbergh Field	13/31	None	13/31	X	X	None	None	None	None	None	X	X	None
Littlefork	Littlefork Municipal – Hanover	None	None	None	None	X	None	None	None	None	None	None	None	None
Long Prairie	Long Prairie Municipal – Todd Field	None	None	None	X	X	None	None	None	None	None	None	None	None
Longville	Longville Municipal	None	None	None	X	X	None	None	None	None	None	X	X	None
Luverne	Luverne Municipal – Quentin Aanenson Field	None	None	None	X	X	None	None	None	None	None	None	None	None
Madison	Lac Qui Parle County – Bud Frye Field	None	None	None	X	X	None	None	None	None	None	X	X	None
Mahnomen	Mahnomen County	None	None	None	X	X	None	None	None	None	None	None	None	None
Mankato	Mankato Regional – Sohler Field	15/33	04/22	15/04/22	X	X	X	X	X	X	X	X	None	None
Maple Lake	Maple Lake Municipal	None	None	None	X	X	None	None	None	None	X	X	None	None
Marshall	Southwest Minnesota Regional – Ryan Field	None	12/30/02/20	30/02/20	X	X	None	X	None	X	X	X	None	None
McGregor	McGregor – Isedor Iverson	None	None	None	X	X	X	None						
Milaca	Milaca Municipal	None	None	None	X	X	None	None	None	None	None	None	None	None
Montevideo	Montevideo-Chippewa County	14/32	None	14/32	X	X	None	None	None	None	X	X	None	None

**Table 2-4 (6 of 9)  
 Approach/NAVAID Data**

CITY	AIRPORT NAME	PAPI	VASI	REIL	BEAC.	WIND IND.	SEG. CIR.	ILS	LOC	DME	VOR	GPS	NDB	ATCT
Moorhead	Moorhead Municipal	12/30	None	12/30	X	X	None	None	None	None	X	None	None	None
Moose Lake	Moose Lake – Carlton County	04/22	None	None	X	X	None	None	None	None	None	X	X	None
Mora	Mora Municipal	17/35	None	17/35	X	X	None	None	None	None	None	X	X	None
Morris	Morris Municipal	14/32	None	14/32	X	X	None	None	None	None	X	X	None	None
Murdock	Murdock Municipal	None	None	None	None	X	None	None	None	None	None	None	None	None
New Ulm	New Ulm Municipal	15/33	None	15	X	X	None	None	None	None	None	X	X	None
New York Mills	New York Mills Municipal	None	None	None	X	X	None	None	None	None	None	None	None	None
Northome	Northome Municipal	None	None	None	X	X	None	None	None	None	None	None	None	None
Olivia	Olivia Regional	None	None	None	X	X	None	None	None	X	X	X	None	None
Orr	Orr Regional	None	13/31	13/31	X	X	None	None	None	None	None	X	X	None
Ortonville	Ortonville Municipal – Martinson Field	None	16/34	None	X	X	X	None	None	None	None	X	X	None
Owatonna	Owatonna – Degner Regional	12/30	None	12	X	X	None	X	X	X	X	X	None	None
Park Rapids	Park Rapids Municipal – Konshok Field	13/31	None	13	X	X	X	X	None	None	X	X	X	None
Paynesville	Paynesville Municipal	None	None	None	None	X	None	None	None	None	None	None	None	None
Pelican Rapids	Pelican Rapids Municipal – Lyon's Field	None	None	15/33	X	X	None	None	None	None	None	None	None	None

Table 2-4 (7 of 9)  
 Approach/NAVAID Data

CITY	AIRPORT NAME	PAPI	VASI	REIL	BEAC.	WIND IND.	SEG. CIR.	ILS	LOC	DME	VOR	GPS	NDB	ATCT
Perham	Perham Municipal	12/30	None	12/30	X	X	None	None	None	None	None	X	None	None
Pine River	Pine River Regional	None	16/34	16/34	None	X	None	None	None	None	None	X	X	None
Pinecreek	Piney-Pinecreek Border	None	None	None	X	X	X	None	None	None	None	X	X	None
Pipestone	Pipestone Municipal	18/36	None	18/36	X	X	None	None	None	X	None	X	X	None
Princeton	Princeton Municipal	15/33	None	15/33	X	X	None	None	None	None	None	X	X	None
Red Lake Falls	Red Lake Falls Municipal	None	None	None	X	X	None	None	None	None	None	None	None	None
Red Wing	Red Wing Regional	09/27	None	27	X	X	X	X	None	None	None	X	X	None
Redwood Falls	Redwood Falls Municipal	12/30	None	12/30	X	X	X	None	None	None	X	X	None	None
Remer	Remer Municipal	None	None	None	None	X	None	None	None	None	None	None	None	None
Rochester	Rochester International	31	13 02/20	02/20	X	X	None	X	X	X	X	X	X	X
Roseau	Roseau Municipal – Rudy Billberg Field	None	16/34	16/34	X	X	X	None	None	None	X	X	None	None
Rush City	Rush City Regional	None	16/34	None	X	X	None	None	None	None	None	X	X	None
Rushford	Rushford Municipal	None	None	None	X	X	None	None	None	X	X	X	None	None
St. Cloud	St. Cloud Regional	13/31	None	None	X	X	X	X	X	X	X	X	X	X
St. James	St. James Municipal	None	15/33	15/33	X	X	None	None	None	None	None	X	X	None
Sauk Centre	Sauk Centre Municipal	None	None	None	X	X	None	None	None	None	None	X	None	None

Table 2-4 (8 of 9)  
 Approach/NAVAID Data

CITY	AIRPORT NAME	PAPI	VASI	REIL	BEAC.	WIND IND.	SEG. CIR.	ILS	LOC	DME	VOR	GPS	NDB	ATCT
Silver Bay	Silver Bay Municipal	07/25	None	07/25	X	X	None	None	None	None	None	X	X	None
Slayton	Slayton Municipal	None	17/35	17/35	X	X	None	None	None	None	None	X	None	None
Sleepy Eye	Sleepy Eye Municipal	None	None	None	None	X	None	None	None	None	None	None	None	None
Springfield	Springfield Municipal	None	13/31	None	X	X	None	None	None	X	X	X	None	None
Staples	Staples Municipal	None	None	None	X	X	None	None	None	None	None	X	X	None
Starbuck	Starbuck Municipal	None	None	None	X	X	None	None	None	None	None	None	None	None
Stephen	Stephen Municipal	None	None	None	X	X	None	None	None	None	None	None	None	None
Thief River Falls	Thief River Falls Regional	03/21	13/31	13 03/21	X	X	None	X	None	X	X	X	X	None
Tower	Tower Municipal	None	None	None	None	X	None	None	None	None	None	None	None	None
Tracy	Tracy Municipal	None	None	None	X	X	None	None	None	None	None	X	None	None
Two Harbors	Richard B. Helgeson	None	06/24	06/24	X	X	X	None	None	None	None	X	X	None
Tyler	Tyler Municipal	None	None	None	X	X	None	None	None	None	None	None	None	None
Wadena	Wadena Municipal	None	None	16/34	X	X	None	None	None	None	None	None	None	None
Walker	Walker Municipal	None	14/32	14/32	X	X	None	None	None	None	None	None	None	None
Warren	Warren Municipal	None	None	None	X	X	None	None	None	None	None	None	None	None
Warroad	Warroad International – Swede Carlson Field	13/31	None	13	X	X	None	X	X	X	X	X	X	None
Waseca	Waseca Municipal	None	15/33	None	X	X	None	None	None	None	X	X	X	None
Waskish	Waskish Municipal	None	None	None	None	X	None	None	None	None	None	None	None	None
Wells	Wells Municipal	None	None	None	X	X	None	None	None	None	None	None	None	None

**Table 2-4 (9 of 9)  
Approach/NAVAID Data**

CITY	AIRPORT NAME	PAPI	VASI	REIL	BEAC.	WIND IND.	SEG. CIR.	ILS	LOC	DME	VOR	GPS	NDB	ATCT
Wheaton	Wheaton Municipal	None	16/34	None	X	X	None	None	None	None	None	X	X	None
Willmar	Willmar Municipal – John L. Rice Field	None	10/28	10	X	X	None	None	X	None	X	X	None	None
Windom	Windom Municipal	None	None	17/35	X	X	None	None	None	None	None	X	X	None
Winona	Winona Municipal – Max Conrad Field	None	12/30	12	X	X	X	X	None	None	X	None	None	None
Winsted	Winsted Municipal	None	None	None	X	X	None	None	None	None	None	None	None	None
Worthington	Worthington Municipal	11/29	17/35	11/29 17/35	X	X	X	X	X	None	X	X	X	None

Source: Mn/DOT 2005 Airport Directory, 2005 SASP Inventory & Data Survey, FAA Terminal Procedures March 2005, and Short Elliott Hendrickson Inc.  
Prepared: May 2005.

**Table 2-5 (1 of 6)  
Landside Facilities**

CITY	AIRPORT NAME	FUEL TYPE	AIRPORT ATTENDED	TERMINAL-ARRIVAL/DEPARTURE BUILDING (SQUARE FOOTAGE)	TIE-DOWNS
Ada	Norman County – Ada-Twin Valley	AvGas	No	500	10
Aitkin	Aitkin Municipal – Steve Kurtz Field	AvGas, Jet A, MoGas	Yes	576	12
Albert Lea	Albert Lea Municipal	AvGas, Jet A, MoGas	Yes	2500	8
Alexandria	Alexandria Municipal – Chandler Field	AvGas, Jet A	Yes	4700	3
Appleton	Appleton Municipal	None	No	1064	6
Austin	Austin Municipal	AvGas, Jet A	Yes	2520	7
Backus	Backus Municipal	AvGas, MoGas	Yes	936	9
Bagley	Bagley Municipal	None	No	No A/D Building	3
Baudette	Baudette International	AvGas, Jet A	Yes	1200	20
Bemidji	Bemidji – Beltrami County	AvGas, Jet A	Yes	400	60
Benson	Benson Municipal – Veterans Field	AvGas	No	960	10
Big Falls	Big Falls Municipal	None	No	No A/D Building	3
Bigfork	Bigfork Municipal	None	No	192	9
Blue Earth	Blue Earth Municipal	AvGas, Jet A	Yes	900	6
Bowstring	Bowstring Municipal	None	No	180	4
Brainerd	Brainerd Lakes Regional	AvGas, Jet A, MoGas	Yes	4500	46
Brooten	Brooten Municipal	None	No	No A/D Building	10
Buffalo	Buffalo Municipal	AvGas	Yes	6400	8
Caledonia	Houston County	None	No	120	3
Cambridge	Cambridge Municipal	AvGas	No	500	25
Canby	Canby Municipal – Myers Field	AvGas	No	530	6
Clarissa	Clarissa Municipal	None	No	No A/D Building	1
Cloquet	Cloquet-Carlton County	AvGas, Jet A	Yes	2684	9

**Table 2-5 (2 of 6)  
Landside Facilities**

CITY	AIRPORT NAME	FUEL TYPE	AIRPORT ATTENDED	TERMINAL-ARRIVAL/DEPARTURE BUILDING (SQUARE FOOTAGE)	TIE-DOWNS
Cook	Cook Municipal	AvGas	Yes	800	10
Crookston	Crookston Municipal – Kirkwood Field	AvGas, Jet A, MoGas	Yes	1500	20
Detroit Lakes	Detroit Lakes – Wething Field	AvGas, Jet A	Yes	1080	20
Dodge Center	Dodge Center Municipal	AvGas	Yes	2000	12
Duluth	Duluth International	AvGas, Jet A	Yes	20000	66
Duluth	Sky Harbor	AvGas	Yes	240	40
East Gull Lake	East Gull Lake Municipal	None	No	No A/D Building	6
Elbow Lake	Elbow Lake Municipal – Pride of the Prairie	AvGas	No	1200 (ALP)	8
Ely	Ely Municipal	AvGas, Jet A	Yes	2000	60
Eveleth-Virginia	Eveleth-Virginia Municipal	AvGas, Jet A	Yes	4800	40
Fairmont	Fairmont Municipal	AvGas, Jet A	Yes	6600	32
Faribault	Faribault Municipal	AvGas, Jet A	Yes	900	15
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	AvGas, Jet A	Yes	1300	15
Fertile	Fertile Municipal	AvGas	No	No A/D Building	10
Forest Lake	Forest Lake Municipal	AvGas	Yes	800	0
Fosston	Fosston Municipal	AvGas	No	4224 (ALP)	8
Glencoe	Glencoe Municipal – Vernon Perschau Field	AvGas	No	900	12
Glenwood	Glenwood Municipal	AvGas	Yes	250	10
Grand Marais	Grand Marais – Cook County	AvGas, Jet A	Yes	1100	21

**Table 2-5 (3 of 6)  
 Landside Facilities**

CITY	AIRPORT NAME	FUEL TYPE	AIRPORT ATTENDED	TERMINAL-ARRIVAL/DEPARTURE BUILDING (SQUARE FOOTAGE)	TIE-DOWNS
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	AvGas, Jet A	Yes	10000	75
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	AvGas	No	1500	8
Grygla	Grygla Municipal – Mel Wilkens Field	None	No	No A/D Building	12
Hallock	Hallock Municipal	AvGas	No	300	10
Hawley	Hawley Municipal	AvGas	No	100	6
Hector	Hector Municipal	AvGas	Yes	320	4
Henning	Henning Municipal	AvGas	No	600	0
Herman	Herman Municipal	AvGas	No	500	20
Hibbing	Chisholm-Hibbing Municipal	AvGas, Jet A	Yes	1600	25
Hill City	Hill City – Quadna Mountain	None	No	No A/D Building	4
Hutchinson	Hutchinson Municipal – Butler Field	AvGas	Yes	1600	12
International Falls	Falls International	AvGas, Jet A, MoGas	Yes	2500	41 (ALP)
Jackson	Jackson Municipal	AvGas, Jet A	Yes	1250	5
Karlstad	Karlstad Municipal	None	No	No A/D Building	3
Le Sueur	Le Sueur Municipal	AvGas	Yes	625	7
Litchfield	Litchfield Municipal	AvGas, Jet A	No	900	30
Little Falls	Little Falls – Morrison County – Lindbergh Field	AvGas	Yes	5000	10
Littlefork	Littlefork Municipal – Hanover	None	No	No A/D Building	0
Long Prairie	Long Prairie Municipal – Todd Field	AvGas	Yes	625 (ALP)	6 (ALP)

**Table 2-5 (4 of 6)  
Landside Facilities**

CITY	AIRPORT NAME	FUEL TYPE	AIRPORT ATTENDED	TERMINAL-ARRIVAL/DEPARTURE BUILDING (SQUARE FOOTAGE)	TIE-DOWNS
Longville	Longville Municipal	AvGas	No	4000	5
Luverne	Luverne Municipal – Quentin Aanenson Field	AvGas	Yes	1200	5
Madison	Lac Qui Parle County – Bud Frye Field	AvGas	Yes	484	10
Mahnomen	Mahnomen County	AvGas	No	180	3
Mankato	Mankato Regional – Sohler Field	AvGas, Jet A	Yes	15300	30
Maple Lake	Maple Lake Municipal	AvGas	Yes	500	10
Marshall	Southwest Minnesota Regional – Ryan Field	AvGas, Jet A	Yes	14500	8
McGregor	McGregor – Isedor Iverson	AvGas, MoGas	No	676	0
Milaca	Milaca Municipal	AvGas	No	750 (ALP)	10 (ALP)
Montevideo	Montevideo-Chippewa County	AvGas	Yes	1600 (ALP)	8
Moorhead	Moorhead Municipal	AvGas, Jet A	Yes	700 (ALP)	13
Moose Lake	Moose Lake – Carlton County	AvGas	No	1200	5
Mora	Mora Municipal	AvGas, Jet A	No	1200 (ALP)	11 (ALP)
Morris	Morris Municipal	AvGas, Jet A	Yes	1428	12
Murdock	Murdock Municipal	None	No	No A/D Building	3
New Ulm	New Ulm Municipal	AvGas, Jet A	Yes	4900	6
New York Mills	New York Mills Municipal	None	No	No A/D Building	6
Northome	Northome Municipal	None	No	400	0
Olivia	Olivia Regional	AvGas	Yes	1200	7
Orr	Orr Regional	AvGas, Jet A	Yes	3025 (ALP)	13
Ortonville	Ortonville Municipal – Martinson Field	AvGas	Yes	600	7
Owatonna	Owatonna – Degner Regional	AvGas, Jet A	Yes	3800	12

**Table 2-5 (5 of 6)  
Landside Facilities**

CITY	AIRPORT NAME	FUEL TYPE	AIRPORT ATTENDED	TERMINAL-ARRIVAL/DEPARTURE BUILDING (SQUARE FOOTAGE)	TIE-DOWNS
Park Rapids	Park Rapids Municipal – Konshok Field	AvGas, Jet A	Yes	6400	20
Paynesville	Paynesville Municipal	AvGas	No	1600 (ALP)	12
Pelican Rapids	Pelican Rapids Municipal – Lyon's Field	AvGas, Jet A	No	480	6
Perham	Perham Municipal	AvGas	No	432	10
Pine River	Pine River Regional	AvGas, MoGas	Yes	440	10
Pinecreek	Piney-Pinecreek Border	AvGas	No	150	5
Pipestone	Pipestone Municipal	AvGas, Jet A	Yes	800	6
Preston	Fillmore County	None	No	300	9
Princeton	Princeton Municipal	AvGas	No	1040	9
Red Lake Falls	Red Lake Falls Municipal	None	No	384	20
Red Wing	Red Wing Regional	AvGas, Jet A	Yes	2500	34
Redwood Falls	Redwood Falls Municipal	AvGas, Jet A	Yes	1200	30
Remer	Remer Municipal	None	No	No A/D Building	6
Rochester	Rochester International	AvGas, Jet A	Yes	7800	75
Roseau	Roseau Municipal – Rudy Billberg Field	AvGas, Jet A	Yes	1000	6
Rush City	Rush City Regional	AvGas, Jet A	Yes	300	6
Rushford	Rushford Municipal	AvGas	Yes	100	5
St. Cloud	St. Cloud Regional	AvGas, Jet A	Yes	2400	50
St. James	St. James Municipal	AvGas	No	600	0
Sauk Centre	Sauk Centre Municipal	AvGas	No	6400	6
Silver Bay	Silver Bay Municipal	AvGas	No	8320	8
Slayton	Slayton Municipal	AvGas	No	900	7
Sleepy Eye	Sleepy Eye Municipal	None	No	240	0
Springfield	Springfield Municipal	AvGas	Yes	1500	10
Staples	Staples Municipal	AvGas	No	900 (ALP)	1
Starbuck	Starbuck Municipal	None	No	1120	3

**Table 2-5 (6 of 6)  
Landside Facilities**

CITY	AIRPORT NAME	FUEL TYPE	AIRPORT ATTENDED	TERMINAL-ARRIVAL/DEPARTURE BUILDING (SQUARE FOOTAGE)	TIE-DOWNS
Stephen	Stephen Municipal	AvGas, Jet A	Yes	196	6
Thief River Falls	Thief River Falls Regional	AvGas, Jet A	Yes	7000 (ALP)	10
Tower	Tower Municipal	AvGas	Yes	576	9
Tracy	Tracy Municipal	AvGas	No	1200	5
Two Harbors	Richard B. Helgeson	AvGas, Jet A, MoGas	Yes	672	24
Tyler	Tyler Municipal	None	No	No A/D Building	3
Wadena	Wadena Municipal	AvGas, MoGas	Yes	500	8
Walker	Walker Municipal	AvGas	No	720	6
Warren	Warren Municipal	AvGas	Yes	800	2
Warroad	Warroad International – Swede Carlson Field	AvGas, Jet A	Yes	1500	15
Waseca	Waseca Municipal	AvGas	Yes	900	8
Waskish	Waskish Municipal	None	No	No A/D Building	0
Wells	Wells Municipal	AvGas	Yes	1500	4
Wheaton	Wheaton Municipal	AvGas	No	2000	3
Willmar	Willmar Municipal – John L. Rice Field	AvGas, Jet A	Yes	6500	25
Windom	Windom Municipal	AvGas	No	1200	10
Winona	Winona Municipal – Max Conrad Field	AvGas, Jet A	Yes	450	8
Winsted	Winsted Municipal	AvGas	Yes	720	6
Worthington	Worthington Municipal	AvGas, Jet A	Yes	4000	12

Source: Mn/DOT 2005 Airport Directory, Mn/DOT records, 2005 SASP Inventory & Data Survey, and Short Elliott Hendrickson Inc.  
Prepared: May 2005





## Chapter Three: Demographic and Aviation Trends

### INTRODUCTION

In preparing a comprehensive statewide plan for public use airports in Minnesota, it is important to have a general understanding of recent and anticipated trends in the aviation industry as a whole. When these trends are considered, it is necessary review factors that could impact the use of commercial service and general aviation at both the national and State level. Some trends in the aviation industry will undoubtedly have a greater impact on Minnesota airports than others. It is important to identify and plan for, where possible, those trends that may impact Minnesota's public use airports over the 20-year planning period.

This chapter of the SASP is organized as follows:

- Minnesota Demographic Trends
- National Aviation Trends

National, regional, and state trends provide insight for the development of aviation activity projections for the airports in Minnesota's public use airport system. Forecasts of future activity levels, and the methodologies used to develop them, are presented in Chapter Four, *Projections of Aviation Demand*.

### MINNESOTA DEMOGRAPHIC TRENDS

An important initial step in examining historic and future trends in Minnesota's aviation activity is to understand the State's demographic characteristics and trends. Examination of demographic data helps identify trends that may directly or indirectly influence the demand for aviation services in the State and in specific areas. In general, those areas experiencing strong growth in certain demographic factors tend to have a relatively higher propensity to use aviation services. Conversely, those areas experiencing stagnant or limited growth may have a lower propensity to use aviation services.

Historic and anticipated future demographic trends for the State of Minnesota, presented by county, are summarized in the following sections:

- Population
- Employment
- Income

Socio-economic growth or decline is often strongly correlated with the future levels of activity at an airport. For this reason, this chapter leads off with a county-by-county discussion of population, employment and income trends and projections. Trends in these demographic factors, and their correlation with activity trends in the State, are important considerations in the

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development of aviation demand projections for Minnesota's airport system which are presented in the following chapter.

## Population

Minnesota's total population increased from approximately 4.6 million in 1994 to approximately 5.1 million in 2004, representing an average annual growth rate of approximately 1.1 percent. The state is projected to experience an average annual population growth rate of approximately 1.0 percent between 2004 and 2024, reaching an estimated total population of approximately 6.2 million in 2024. Historic and projected population trends in Minnesota counties are summarized in **Table 3-1**. This table is included along with the other tables at the conclusion of the chapter.

Historic data presented in Table 3-1 is graphically depicted in **Exhibit 3-1**. Projected population growth in the State is illustrated in **Exhibit 3-2**.

As the statistics and illustrations indicate, the State's population density and growth is centered in the region surrounding the Twin Cities. Hennepin and Ramsey counties, and the seven counties contiguous to them, accounted for almost 60 percent of the State's total population in 2004. These same counties are projected to experience some of the largest population increases in the State between 2004 and 2024. The nine counties surrounding the Twin Cities as well as Stearns and Olmstead counties are projected to experience total population growth of over 30,000 people through 2024. Projected total population growth in the nine-county Twin Cities region through 2024 accounts for almost 75 percent of the total population growth projected for the State over the same period.

Following chapters of the SASP examine the ways in which population growth in the Twin Cities region and in throughout Minnesota could potentially impact future activity levels and facility needs at system airports.

## Employment

In addition to being important indicators of an area's economic characteristics, total employment and employment growth frequently correlate with the demand for aviation services. Historic and projected employment data for Minnesota's counties are presented in **Table 3-2**.

As shown in Table 3-2, Minnesota experienced an average annual employment growth rate of approximately 1.1 percent from 1994 to 2004. An average annual employment growth rate of approximately 1.3 percent is projected for the State between 2004 and 2024. Historic and projected employment growth by county for the State of Minnesota is graphically depicted in **Exhibit 3-3** and **Exhibit 3-4**. Those counties projected to experience the highest levels of employment growth over the projection period, and their anticipated average annual growth rates and total employment growth, are identified in **Table 3-3**.

**Table 3-3  
Counties with Highest Total Employment Growth**

COUNTY	PROJECTED EMPLOYMENT AAGR	PROJECTED TOTAL EMPLOYMENT GROWTH
Hennepin	0.9%	217,391
Dakota	2.6%	150,617
Ramsey	1.0%	87,426
Anoka	1.9%	71,839
Washington	2.4%	59,298
Olmsted	1.6%	39,575
Stearns	1.4%	32,748
Scott	2.4%	30,458

Source: Woods & Poole Economics, State and County Projections to 2030.

Prepared: August 2005.

Note: AAGR = Average Annual Growth Rate.

It should also be noted the counties included in Table 3-3 are the only counties projected to experience total employment growth of approximately 30,000 jobs or greater. Those Minnesota counties projected to experience the highest average annual employment growth rate over the 20-year projection period include Dakota, Washington, Sherburne, Scott, and Carver counties. Each of these counties is projected to experience an average annual employment growth rate of over 2 percent per year. Study airports that can expect to be affected by the high employment growth shown in Table 3-3 are Brooten Municipal, Paynesville Municipal, Rochester International, and Sauk Centre Municipal airports.

The facility development recommendations that will ultimately be identified in the SASP will identify airport improvements that may be necessary to accommodate an anticipated increase in aviation demand in those areas experiencing strong employment growth.

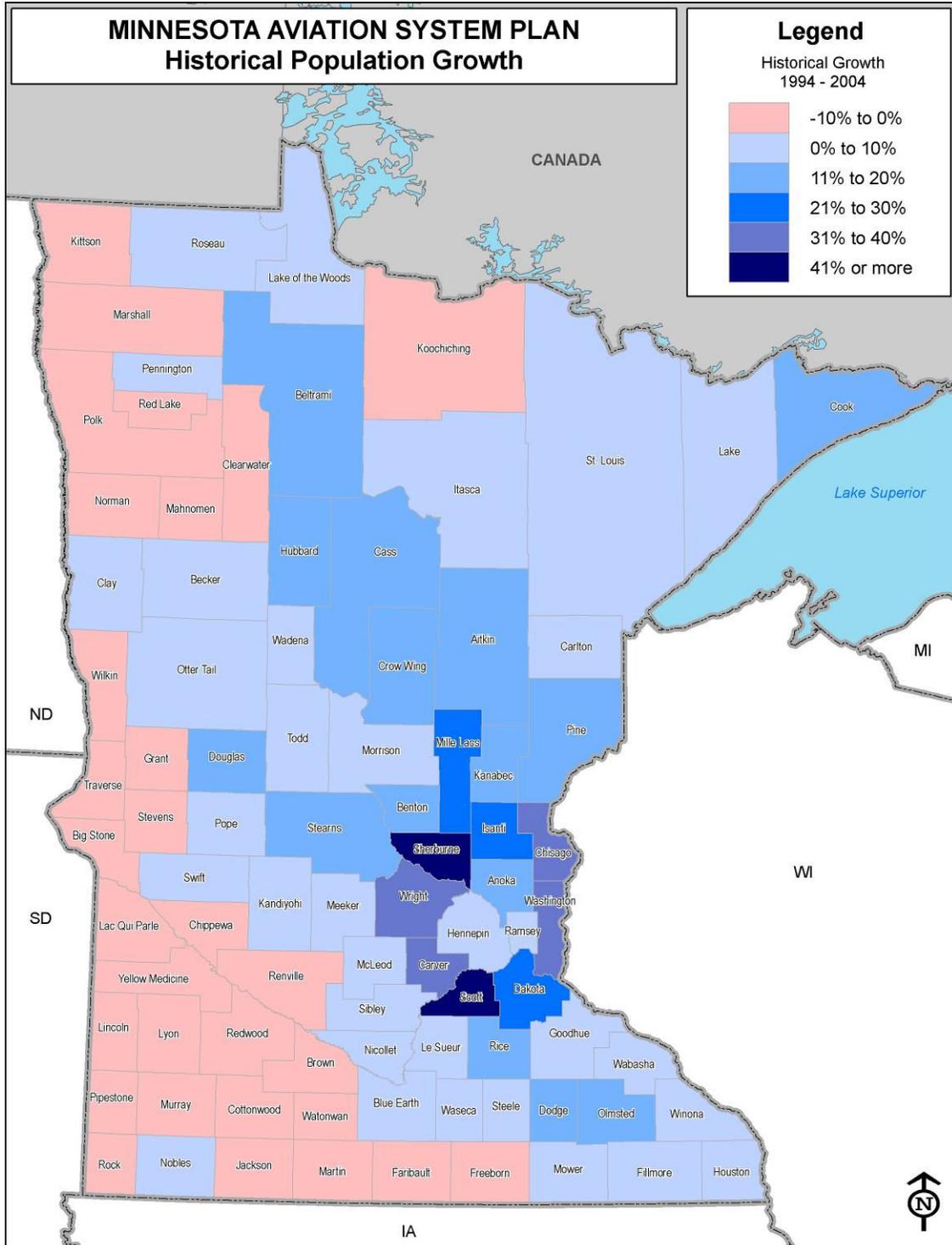
## **Income**

Another demographic indicator that frequently correlates with changes in aviation demand is income and income growth. Historic and projected per-capita income data for Minnesota and its counties are summarized in **Table 3-4**.

Historic income growth, on a per-capita basis by county, is depicted in **Exhibit 3-5** and projected income growth is depicted in **Exhibit 3-6**. It is important to note that strong growth in per capita income, on a percentage-basis, has been experienced in counties throughout the State between 1994 and 2004. The per-capita income projections summarized in Exhibit 3-6 illustrate that some of the strongest growth rates are projected to be experienced in Greater Minnesota counties that are relatively less populated than the Twin Cities metropolitan area.

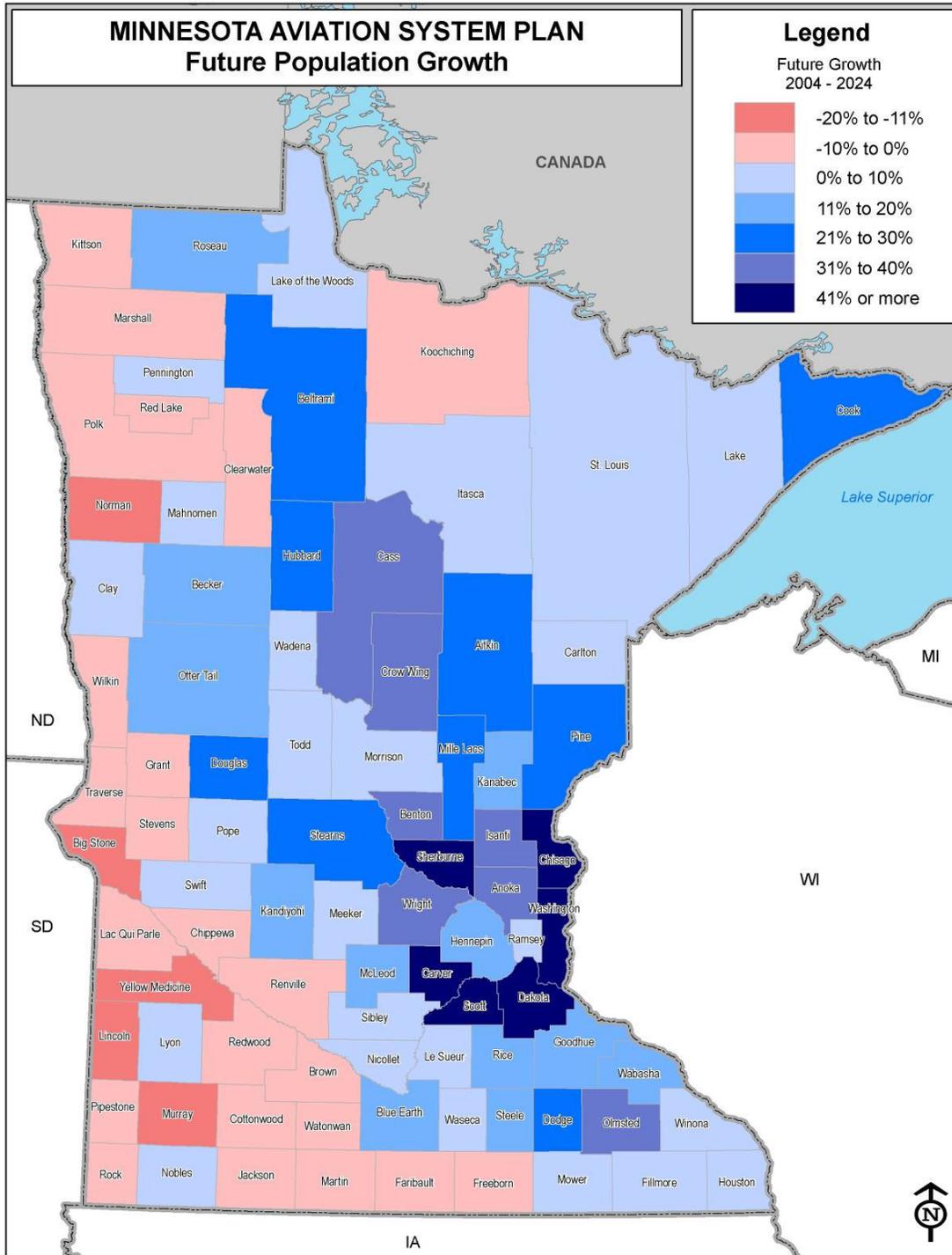
These historic and projected demographic trends, in conjunction with national and Minnesota aviation trends provide both quantitative and qualitative data that is used in the development of statewide aviation demand projections.

### Exhibit 3-1 Historical Population Growth



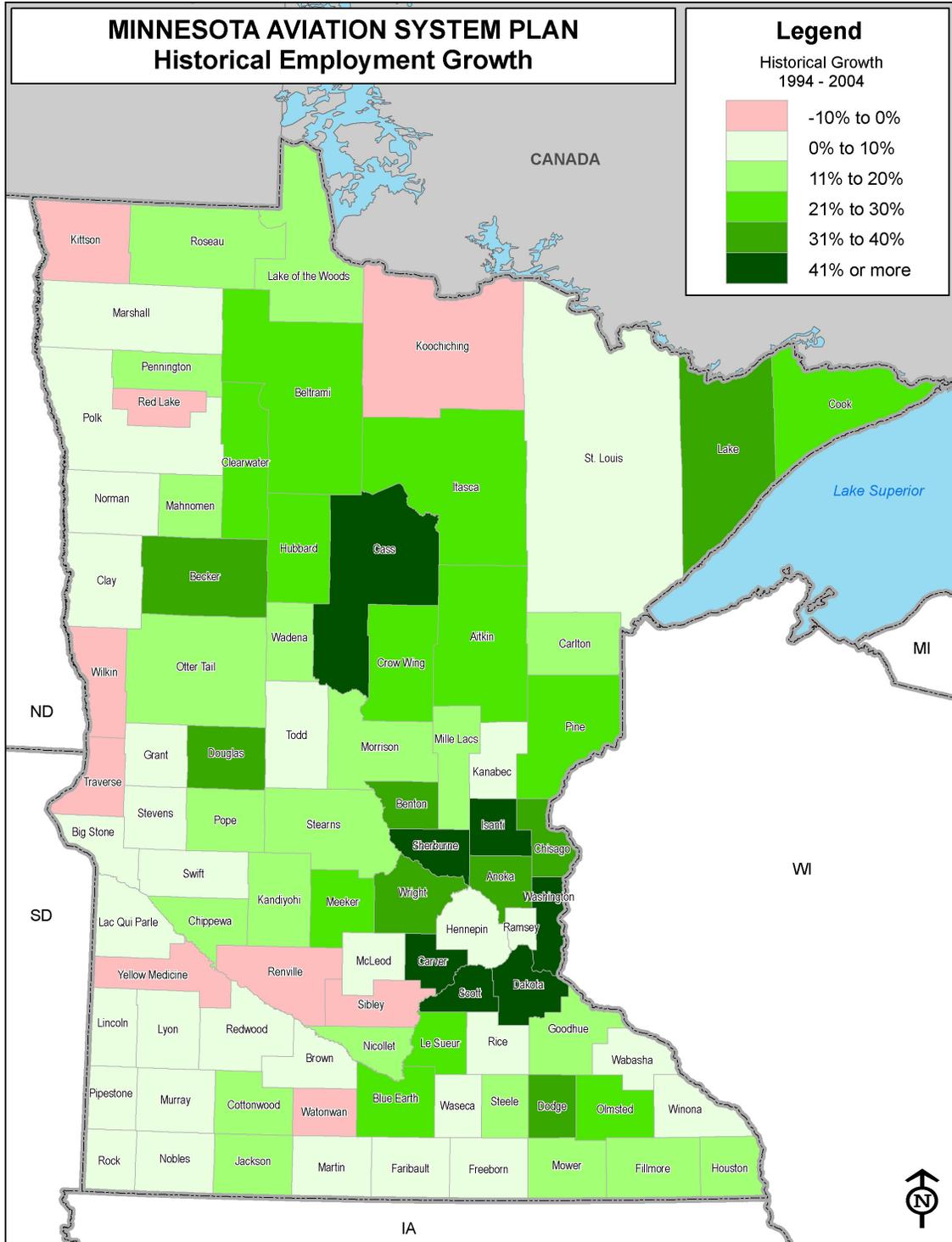
Source: Woods & Poole Economics, State and County, 2005.  
Prepared: August 2005.

## Exhibit 3-2 Future Population Growth



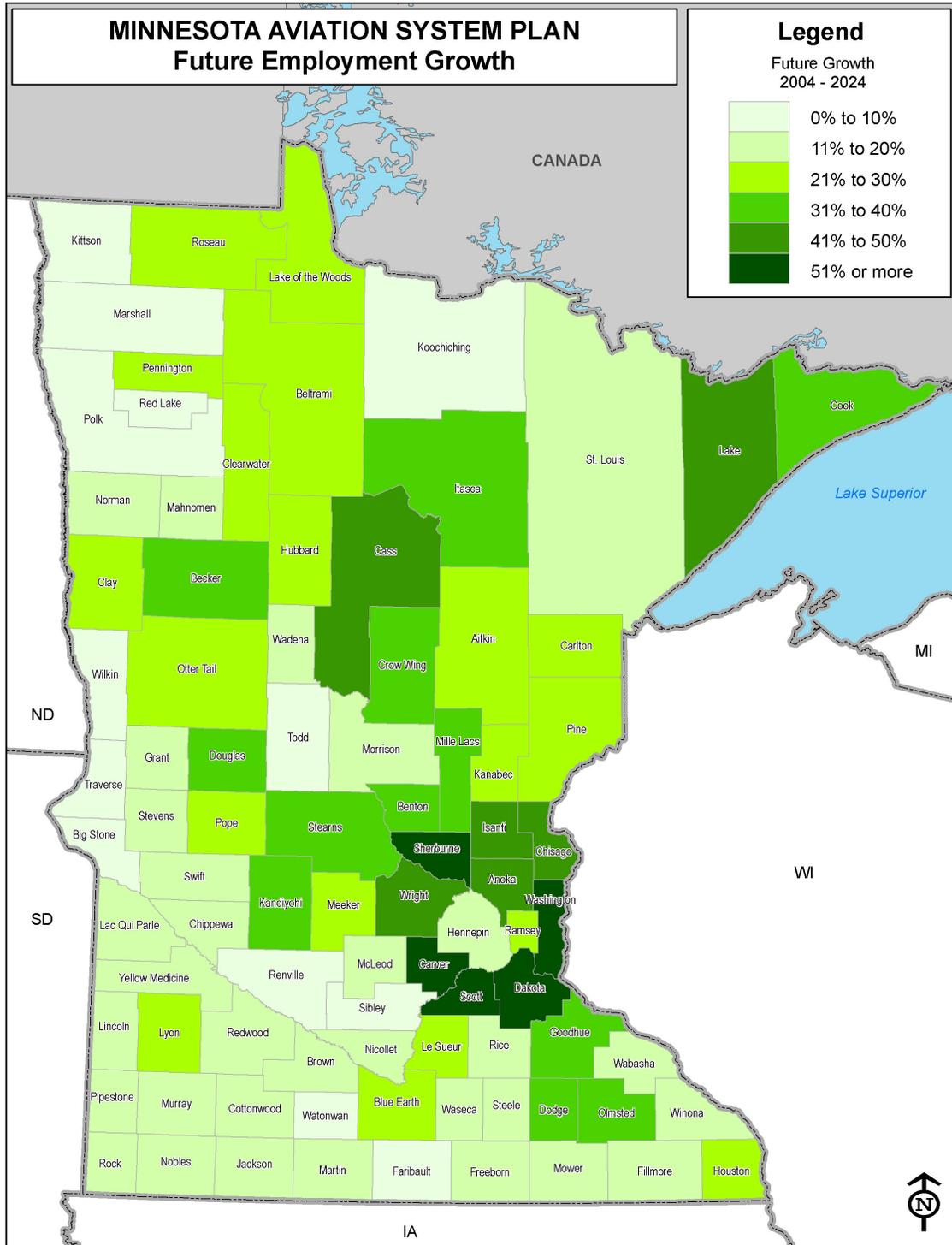
Source: Woods & Poole Economics, State and County, 2005.  
Prepared: August 2005.

### Exhibit 3-3 Historical Employment Growth



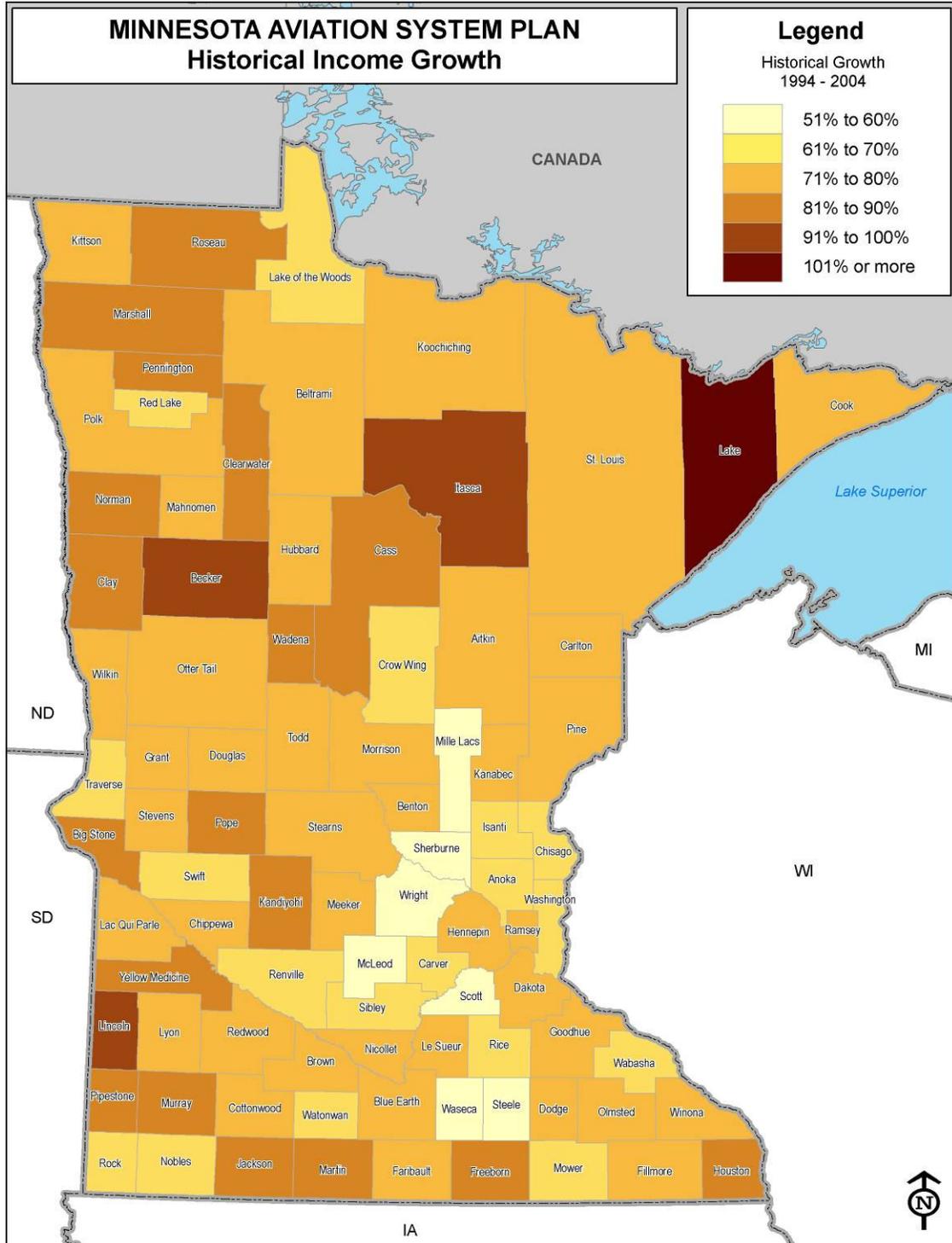
Source: Woods & Poole Economics, State and County, 2005.  
Prepared: August 2005.

## Exhibit 3-4 Future Employment Growth



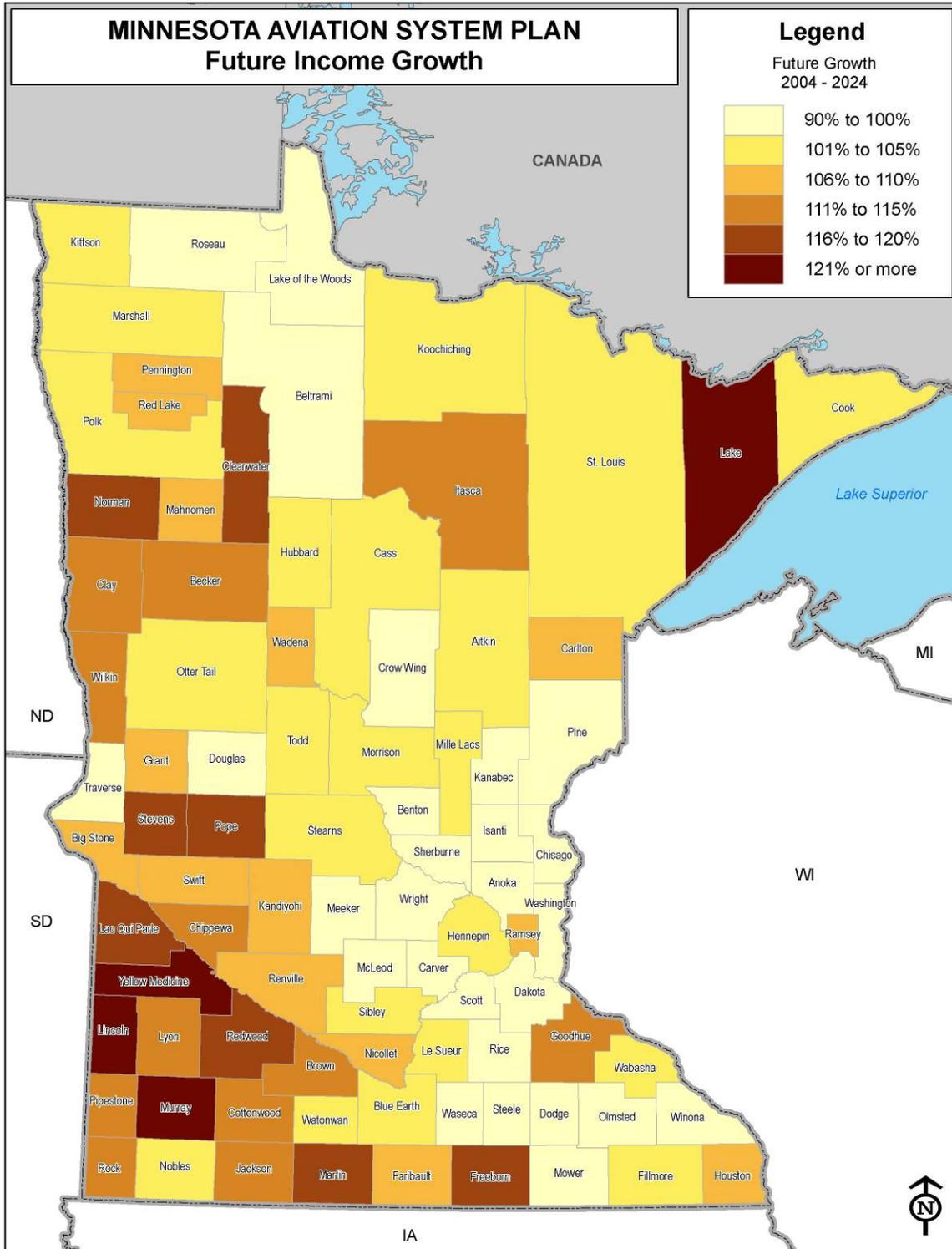
Source: Woods & Poole Economics, State and County, 2005.  
Prepared: August 2005.

### Exhibit 3-5 Historical Income Growth



Source: Woods & Poole Economics, State and County, 2005.  
Prepared: August 2005.

### Exhibit 3-6 Future Income Growth



Source: Woods & Poole Economics, State and County, 2005.  
Prepared: August 2005.

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## NATIONAL AVIATION TRENDS

Aviation trends at the national level, both related to commercial passenger traffic and general aviation activity, will influence Minnesota's system of public-use airports over this study's planning period. Having an understanding of recent and anticipated trends in the aviation industry is important to developing statewide projections of future aviation demand.

Aviation trends currently impacting and likely to impact Minnesota's aviation system in the future are summarized in the following sections.

### Commercial Service

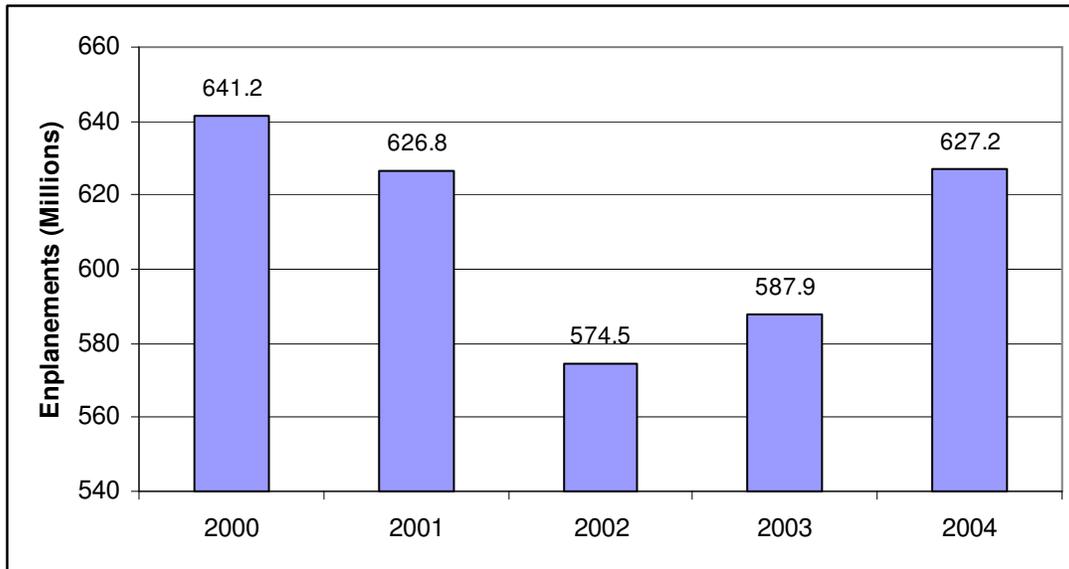
In years past, commercial aviation in Minnesota has remained relatively stable and somewhat immune to the larger perturbations within the national system of air transport. The *fortress hub* that Northwest Airlines built at Minneapolis-St. Paul International Airport (MSP) insulated the State from major instabilities and many of the structural changes within the aviation industry. With protection provided by *the fortress* also came single carrier dominance by Northwest and some of the highest air fares in the country.

While Northwest remains Minnesota's largest carrier, cracks in the system are occurring that will undoubtedly alter the competitive aspects of commercial service in Minnesota and in particular, at MSP. Northwest Airline bankruptcy in September, 2005 resulted in an immediate near-term contraction of Northwest service and opened the way for Minnesota to participate in some of the changes that are taking place throughout the country. Among the most important changes occurring at U.S. airports include:

- Increased competition for market share between network and low cost carriers
- Lower airfares
- Return of congestion at the largest airports
- Further declines in air service to the smallest communities.

Following September 11, 2001, aviation forecasters speculated that it would take some time for air demand to return to levels seen in 2000. Demand in 2005 appears finally to exceed 2000 levels. In 2004, domestic passengers increased by 6.7 percent. **Exhibit 3-7** shows growth in passengers since 2000.

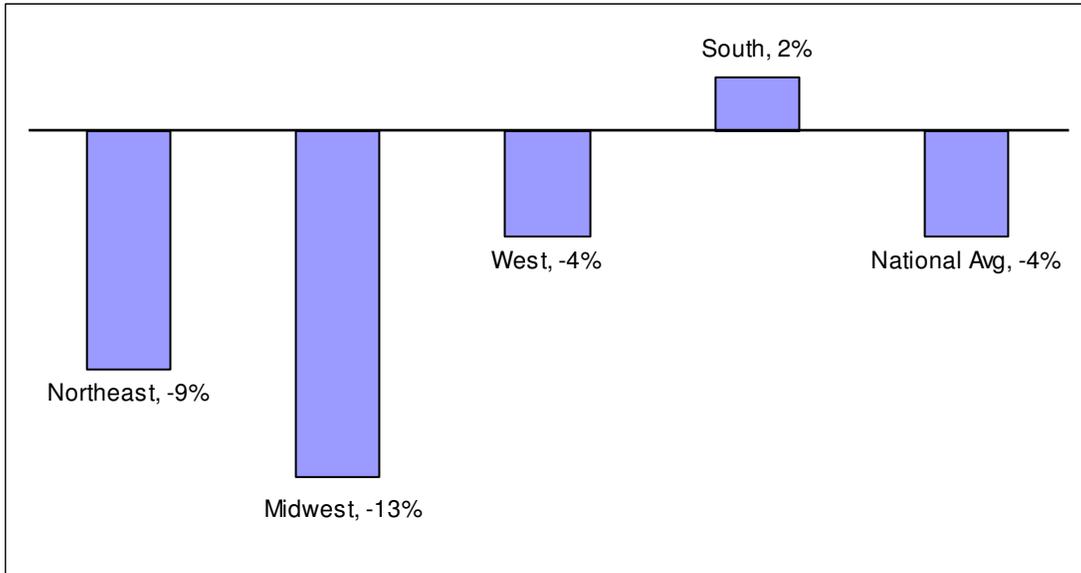
**Exhibit 3-7**  
**U.S. Domestic Passengers 2000-2004**



Source: USDOT  
Prepared: August 2005.

As of April, 2005 domestic demand, as measured by revenue passenger miles (RPMs), is up by one percent over 2000. However, it is the low cost carriers that are growing. The network carriers are cutting back. Capacity, as measured by available seat miles (ASMs), has fallen by 5 percent since 2000. Geographically, the Northeast and Midwest (including Minnesota) were subject to the greatest loss of seats. The South is the only region that appears to be increasing seat capacity. (See **Exhibit 3-8**) This trend is likely to be muted by the serious impacts Hurricane Katrina has had on Louisiana, Mississippi, and Alabama.

**Exhibit 3-8**  
**Percent Change in Available Seats- All Airports by Region<sup>1</sup>**  
**July, 2000 – July 2005**



Source: FAA Data.  
 Prepared: August 2005.

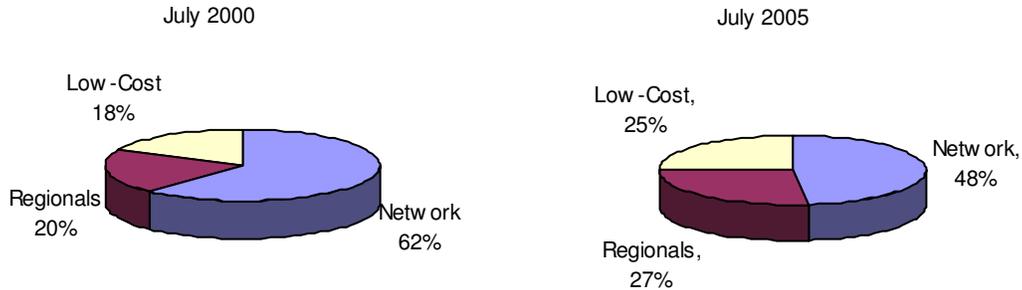
Network carriers account for almost all of the seat capacity declines. United Airlines, U.S. Airways, have both emerged from extended periods of Chapter 11 bankruptcy reorganization. During the five year period, May 2000 to May 2005, United and U.S. Airways reduced flights by almost one third. U.S. Airways ultimately merged with America West Airlines. During the same period, American Airlines reduced its seats by 24 percent; Delta and Continental by 18 percent; and Northwest by 5 percent.<sup>2</sup> Since this data was assembled, both Delta and Northwest declared bankruptcy and made additional and substantial reductions in capacity. Low cost carriers (LCC's) have continued to expand and set prices in almost all of the largest markets in the United States. Southwest Airlines has expanded by 14 percent<sup>2</sup> and has boldly stepped beyond its perimeter airport strategy and recently taken positions in Philadelphia, Pittsburgh, and Denver. Its code-sharing relationship with ATA has opened 'low cost' portals to the Southwest system in Minneapolis-St. Paul and Denver. JetBlue and AirTran have also expanded operations.

The growth of low cost carriers and contraction of network carriers has resulted in significant redistribution of market share. **Exhibit 3-9** compares the change in market shares among the network carriers, regionals, and low cost carriers. Where LCC's commanded an 18 percent market share in 2000, they now have a 25 percent share. The biggest growth was for the regionals, up from 20 percent to 27 percent, and the network carriers declined 14 percent.

<sup>1</sup> Northeast includes: CT, ME, MA, NH, NJ, NY, PA, RI & VT. The Midwest includes: IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, & WI. West includes: AK, AZ, CA, CO, HI, ID, MT, NV, NM, OR, UT, WA, & WY. South includes: AL, AR, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, & WV.

<sup>2</sup> Comparison of actual arrivals May, 2000 versus May 2005 at 55 largest U.S. airports (FAA data)

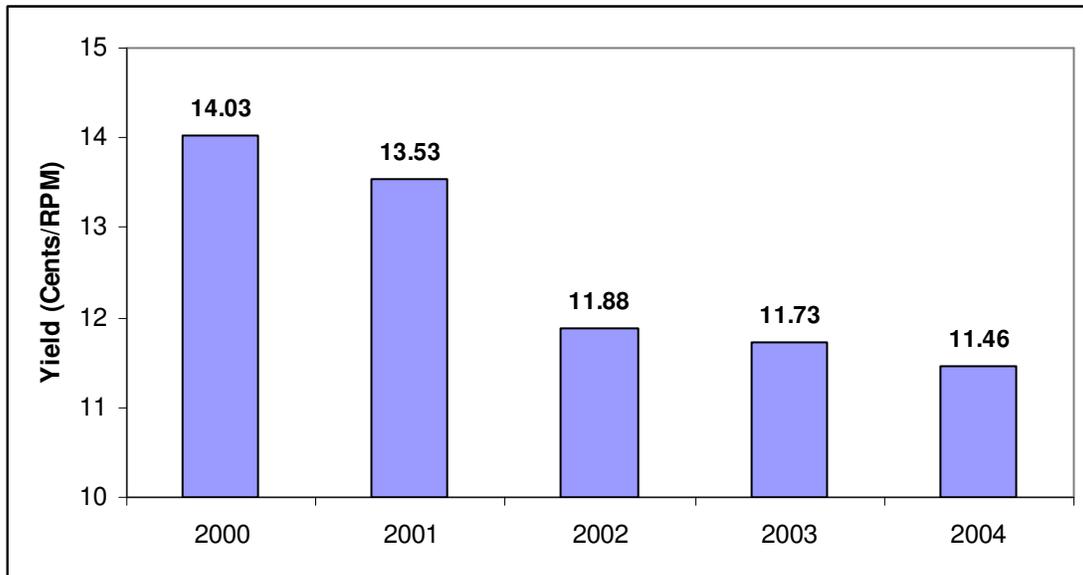
**Exhibit 3-9  
Airline Market Shares  
Available Seats Jul-00 versus Jul-05**



Source: FAA  
Prepared: August 2005.

The growth of low cost carriers has lowered average fares nationwide and extended the average stage length aircraft fly. **Exhibit 3-10** shows that domestic yield (cents per RPM) has declined 18.3 percent since 2000.

**Exhibit 3-10  
Domestic Yield, 2000-2004**



Source: Air Transport Association  
Prepared: August 2005.

Yields in Minnesota are still notably higher than national averages. However, they are declining at both Minneapolis-St. Paul and at Duluth International. **Table 3-5** shows the average yield for revenue passengers for the 12 months ending March 31, 2005. Yield has declined at MSP by 7.4 percent and at Duluth by 12.6 percent. These savings have not carried across to other Minnesota airports. In absolute terms, yield per passenger mile is higher at most Minnesota airports. Higher yields are due in part to the fact that Northwest must pay Mesaba Airlines out of pocket to carry passengers into the Twin Cities.<sup>3</sup>

**Table 3-5  
Average Yields at Minnesota Airports  
Years Ending March 31, 2004 and 2005**

AIRPORT	Average Yield (cents/RPM) Year ended March 31,		
	2005	2004	CHANGE
Minneapolis	15.97	17.25	-7.4%
Duluth	16.88	19.31	-12.6%
Chisholm-Hibbing	16.89	16.68	1.3%
Thief River Falls	16.93	16.49	2.7%
Bemidji	17.85	17.05	4.7%
International Falls	18.68	18.71	-0.2%
Brainerd	20.15	19.62	2.7%
Rochester	20.26	19.20	5.5%
St. Cloud	21.30	21.62	-1.5%

Source: USDOT, Origin and Destination Sample, Outbound Revenue Passengers  
Prepared: August 2005.

LCC point-to-point service has also increased the average stage length flown by domestic carriers. **Table 3-6** shows the changes in flight length since 2000. The largest growth has taken place in the 500-999 mile routes. This stage length coincides also with the optimum range for regional jets, the fastest growing segment of the fleet.

**Table 3-6  
Changes in Stage Length of Scheduled Flights  
July, 2000 versus July, 2005**

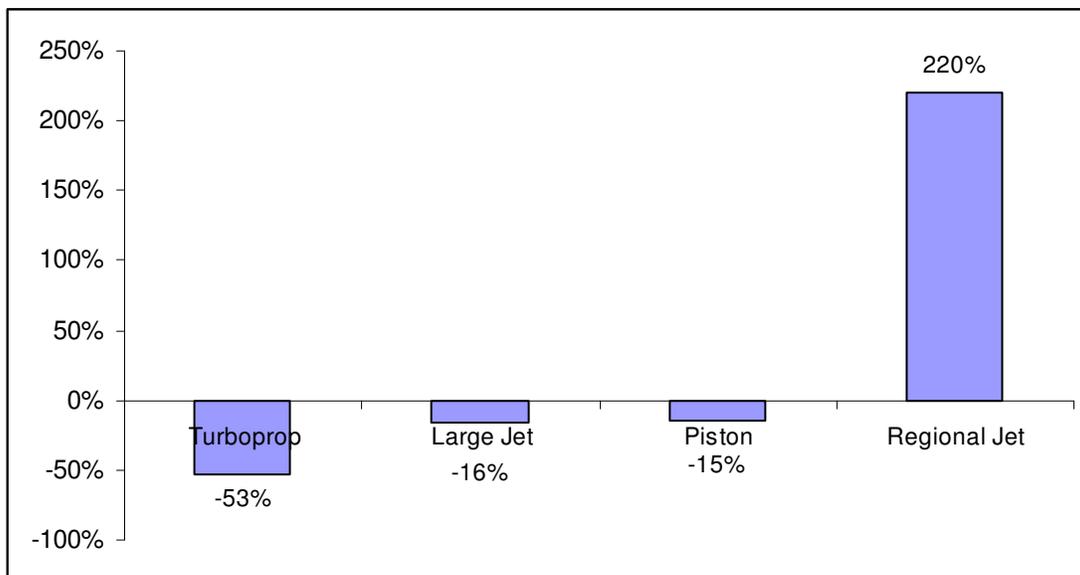
RANGE IN MILES	CHANGE JUL-00 TO JUL-05
0 to 249	-26%
250 to 499	-3%
500 to 999	27%
1,000 or more	15%

Source: FAA  
Prepared: August 2005.

<sup>3</sup> The fees paid to Mesaba are a principal reason Northwest resists common-rating fares in out-state airports.

Other factors have also contributed to the rebalancing of stage length. As the network carriers have struggled to lower costs and improve efficiencies, they have turned increasingly to regional jets. Additionally, Air Independence (formally Atlantic Coast Airlines) launched operations in 2004 with a regional jet fleet. Since July, 2000, the number of scheduled flights on regional jets has increased by 220 percent from 91,960 to 294,698 in July, 2005. Regional jets now comprise 50 percent of Chicago O'Hare flights. At Minneapolis they have grown from 6 percent of the fleet in 2000 to 27 percent in 2005. While regional jets have taken off; scheduled flights on turboprops and piston aircraft have declined 53% and 15%, respectively. Large jets have declined 16 percent. **Exhibit 3-11** shows the changes in aircraft used for domestic air service since 2000<sup>4</sup>.

**Exhibit 3-11**  
**Changes in Aircraft Type for Scheduled Flights**  
**July, 2000 versus July, 2005**



Source: FAA  
 Prepared: August 2005.

While all categories of airports experienced significant declines in air service during 2002 and 2003, non-hub airports were the only group of airports not to recover in 2004. Compared with July, 2000, scheduled flights in July, 2005 from non-hubs to large airports have declined by 15 percent; seats have declined by 5 percent. Non-hub airports depend on spoke service to larger airports to complete a connecting itinerary. The decline in service from non hub airports is very significant for many communities that depend on this service for access to the national air transportation system. **Table 3-7** summarizes the loss of flights from non-hub airports to other airports.

<sup>4</sup> Northwest Airlines has indicated a strong preference to form a new subsidiary that would fly aircraft under 100 seats. This arrangement would permit more regional jets to operate without the constraints of current “scope clauses” that limit the number of regional aircraft NWA can have in its fleet.

**Table 3-7**  
**Service from Non Hub Airports to All Hubs**  
**July, 2000 versus July 2005**

NON-HUBS TO:	FLIGHTS	SEATS
Other Non-Hubs	-18%	-22%
Small Hubs	-33%	-37%
Medium Hubs	-29%	-31%
Large Hubs	-15%	-5%

Source: FAA Data.  
 Prepared: August 2005.

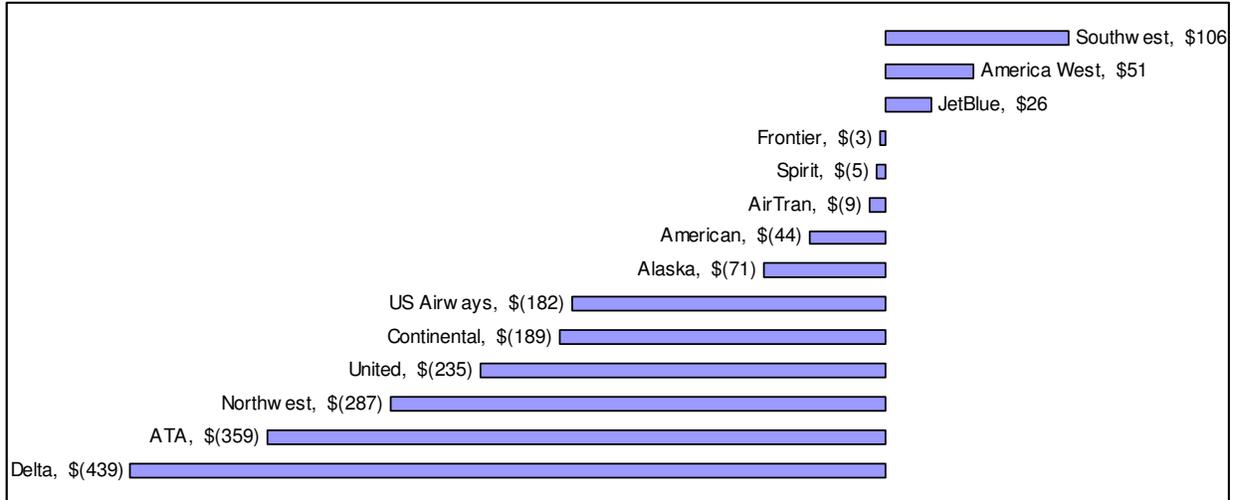
With the decline of air service to non-hub airports, more communities have applied and obtained Essential Air Service (EAS) subsidies and/or Small Community Air Service Development grants. Since 1999, Congressional appropriations for EAS have grown from \$50 million to \$102 million per year and the number of communities subsidized has grown from 100 to 151. The President's proposed 2006 budget calls for reductions in EAS funding to \$50 million and in the number of EAS points from 151 to 90 communities. Both Thief River Falls and Hibbing/Chisholm are currently subsidized under the EAS program. Brainerd, St. Cloud, Duluth and most recently Marshall and Hibbing/Chisholm have received Small Community Air Service grants.

Many challenges face the commercial airlines in the months and years ahead. The network carriers have worked hard to cut costs and adjust their business models to compete effectively with the low cost carriers. Even with retirement of aircraft, network reconfigurations, and substantial reductions in operating costs, the network carriers are not making money. **Exhibit 3-12** displays the operating profit and loss for the largest network and low cost carriers. Jet fuel is becoming the number one cost for airlines. In April, 2004 the cost per gallon of jet fuel was \$1.00. At the end of August, 2005, the cost was \$1.93 per gallon in New York and Rotterdam<sup>5</sup>. A 93 cent increase in jet fuel costs U.S. airlines an additional \$48 million per day to operate.<sup>6</sup> Southwest's ability to remain profitable has been due in large part to hedges the company made that locked future fuel costs at lower prices until 2009.

<sup>5</sup> Aviation Week Intelligence Network

<sup>6</sup> Air Transport Association estimates that U.S. airlines use approximately 19 billion gallons of fuel per year.

**Exhibit 3-12**  
**Operating Profit, Selected Carriers IQ, 2005**  
**Profit or Loss (\$ millions)**



Source: USDOT.  
 Prepared: August 2005.

**Table 3-8** displays how wide the differentials remain between the number of revenue passengers U.S. airlines need to breakeven. As of March, 2005, Southwest and America West were the only carriers to operate above their breakeven load factor. Second quarter results showed definite improvements in yields for American and Continental. Both companies reported small profits. However, for the foreseeable future, the financial pressures on the airlines are likely to continue as soaring fuel prices overshadow gains achieved by lower operating costs, reorganizations, and mergers. These difficulties suggest that more consolidation and change remains ahead.

**Table 3-8**  
**Actual versus Breakeven Load Factors**  
**Individual Airlines, IQ, 2005**

AIRLINE	ACTUAL LOAD FACTORS	BREAKEVEN LOAD FACTORS	DIFFERENCE
Southwest	65%	60%	5%
America West	78%	73%	5%
American	75%	80%	-5%
United	78%	87%	-9%
US Airways	73%	84%	-11%
Northwest	81%	94%	-13%
Delta	76%	89%	-13%
Alaska	73%	91%	-18%
Continental	78%	106%	-28%

Source: USDOT.  
 Prepared: August 2005.

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## General Aviation

General aviation refers to a broad category of aviation activity and includes all operators with the exception of airlines and the military. General aviation activity occurs at each airport in Minnesota's system. The health of the national general aviation industry, and trends related to general aviation pilots, aircraft, and users, are important factors that can impact activity levels and facility development needs at general aviation airports across the country, including Minnesota.

A pronounced decline in the general aviation industry began in 1978 and lasted throughout the 1980s and into the mid-1990s. This decline resulted in the loss of over 100,000 manufacturing jobs and a drop in aircraft production from approximately 18,000 annually to only approximately 930 in 1994. A dramatic drop in the number of new student pilots was also experienced over this period. Factors contributing to the decline in general aviation included liability claims against aircraft manufacturers, the loss of Veterans Benefits that covered many costs associated with student pilot training, and a recessionary economy.

Enactment of the General Aviation Revitalization Act (GARA) of 1994 provided significant relief to the general aviation industry primarily as a result of an 18-year statute of repose that it placed on the manufacture of all general aviation aircraft and their components. Previously, there had been no time limit to filing liability claims. Positive impacts of the GARA are reflected in national statistics that indicated an increase in general aviation activity, an increase in the active general aviation aircraft fleet, and an increase in shipments of fixed-wing general aviation aircraft. In addition, since 1994, annual general aviation shipments and total billings have each more than doubled.

More recently, the terrorist attacks of September 11, 2001 and the ensuing recessionary national economy had a dampening impact on positive general aviation industry trends. Significant restrictions were placed on general aviation activity following the attacks and these restrictions resulted in severe limitations being placed on general aviation operators in many areas of the country. Many of those restrictions have now been lifted and most segments of general aviation activity, including business and corporate aviation, have rebounded and continue to experience positive trends.

On an annual basis, the FAA publishes forecasts that summarize anticipated trends in most components of civil aviation activity, including general aviation. Each published forecast revisits previous activity forecasts and updates them after examining the previous years' trends in aviation and economic activity. Many factors are considered in the FAA's development of forecasts, some of the most important of which are U.S. and international economic growth and anticipated trends in fuel costs. These forecasts were published in Spring 2005 and included an assumed spike in oil costs during the first quarter of 2005 after which oil prices were assumed to decline in 2006 and experience moderate increases through the projection period. Should the relatively high cost of oil experienced at the time of writing, September 2005, continue, the projected activity growth identified in the FAA forecasts may be impacted.

FAA forecasts generally provide one of the most detailed analyses of historic and forecasted aviation trends and provide the general framework for examining future levels of aviation activity for the nation as well as in specific states and regions.

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Those general aviation trends identified in FAA's most recent forecasts, *FAA Aerospace Forecasts, Fiscal Years 2005-2016*, that are most likely to impact general aviation in Minnesota include the following:

- Continued growth in corporate aviation including fractional ownership, a market that has experienced strong growth but is only minimally developed, and on-demand air taxi services.
- Continued entry of new commercial manufacturers, such as Cirrus in Duluth, into the general aviation aircraft market.
- Continued growth in the number of amateur-built experimental aircraft in the general aviation fleet, a component of the general aviation fleet whose numbers have increased from 2,100 in 1970 to over 30,000 in 2004.
- An increase in the number of pilots and interest in flying as a result of the Sport Pilot and Light Sport Aircraft Rule. Sport pilot regulations cover the training and certification requirements of sport pilots, sport flight instructors, light sport aircraft, and light sport aircraft repairmen. Sport pilots require less training, and have fewer privileges, than private pilots, including limiting flight privileges to day VFR conditions. Sport aircraft must meet specific design restrictions, including limits of two seats, a maximum gross take-off weight of 1,320 lbs. and a maximum level flight speed of 120 knots.
- Growth in jet aircraft activity associated with the introduction of micro jets, representing a new aircraft market, to the active general aviation fleet. Micro jets, also known as very light jets, merge new jet engine technologies and sophisticated avionics equipment to create advanced jet aircraft, capable of carrying between four and six passengers, at an acquisition cost significantly lower than previous jet aircraft.

Forecasts of national general aviation activity developed by FAA can be summarized as follows:

- Growth in the active general aviation aircraft fleet at an average annual rate of approximately 1.1 percent from 2003 to 2016, including these anticipated average annual growth rates in the following aircraft categories:
  - Single-engine piston – 0.2 percent
  - Multi-engine piston – decline of 0.2 percent
  - Turboprop – 1.2 percent
  - Turbojet – 5.4 percent
  - Rotorcraft – 1.2 percent
- Total general aviation hours flown is projected to increase at an average annual rate of 1.6 percent between 2003 and 2016. The strongest growth, approximately 6.7 percent annually, is anticipated in the turbojet category as a result of the introduction of micro jets and the continued strong growth in fractional ownership aircraft which have high utilization rates.
- The total population of pilots is projected to increase at an average annual rate of approximately 1.6 percent between 2004 and 2016. The strongest growth is anticipated in the student pilot category.

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The demographic and aviation industry trends discussed in this chapter serve as the background and underlying forces that inform the passenger and airport activity forecasts prepared for Minnesota general aviation and commercial airports. These forecasts are described in detail in the next chapter, Projections of Aviation Demand.

**Table 3-1 (1 of 2)  
Historic and Future Population Growth**

<b>COUNTY</b>	<b>POPULATION 1994</b>	<b>POPULATION 2004</b>	<b>CAGR '94-'04</b>	<b>POPULATION 2024</b>	<b>CAGR '04-'24</b>
Aitkin	13,909	15,924	1.4%	19,510	1.0%
Anoka	264,580	319,842	1.9%	438,115	1.6%
Becker	28,790	31,328	0.8%	35,577	0.6%
Beltrami	37,029	42,210	1.3%	51,811	1.0%
Benton	31,425	37,483	1.8%	49,157	1.4%
Big Stone	6,006	5,610	-0.7%	4,991	-0.6%
Blue Earth	54,350	57,596	0.6%	64,149	0.5%
Brown	27,100	26,429	-0.3%	25,616	-0.2%
Carlton	30,752	33,097	0.7%	35,813	0.4%
Carver	58,287	80,871	3.3%	121,977	2.1%
Cass	23,819	28,704	1.9%	39,356	1.6%
Chippewa	13,165	12,765	-0.3%	12,350	-0.2%
Chisago	35,015	47,220	3.0%	69,886	2.0%
Clay	50,594	52,088	0.3%	55,437	0.3%
Clearwater	8,471	8,422	-0.1%	8,407	0.0%
Cook	4,629	5,332	1.4%	6,629	1.1%
Cottonwood	12,381	11,990	-0.3%	11,483	-0.2%
Crow Wing	49,473	59,273	1.8%	77,840	1.4%
Dakota	298,709	384,310	2.6%	593,847	2.2%
Dodge	16,301	19,189	1.6%	24,828	1.3%
Douglas	30,328	34,516	1.3%	43,120	1.1%
Faribault	16,485	15,662	-0.5%	14,490	-0.4%
Fillmore	20,842	21,346	0.2%	22,481	0.3%
Freeborn	32,971	31,797	-0.4%	29,252	-0.4%
Goodhue	42,232	45,443	0.7%	52,012	0.7%
Grant	6,294	6,225	-0.1%	6,106	-0.1%
Hennepin	1,069,411	1,126,378	0.5%	1,254,800	0.5%
Houston	19,166	20,026	0.4%	21,601	0.4%
Hubbard	16,518	18,842	1.3%	23,525	1.1%
Isanti	27,924	35,972	2.6%	49,496	1.6%
Itasca	42,374	44,459	0.5%	49,264	0.5%
Jackson	11,626	11,105	-0.5%	10,114	-0.5%
Kanabec	13,868	15,979	1.4%	19,202	0.9%
Kandiyohi	39,708	41,449	0.4%	47,308	0.7%
Kittson	5,411	4,955	-0.9%	4,599	-0.4%
Koochiching	14,990	13,967	-0.7%	12,735	-0.5%
Lac Qui Parle	8,400	7,829	-0.7%	7,030	-0.5%
Lake	10,776	11,185	0.4%	11,973	0.3%
Lake of the Woods	4,333	4,392	0.1%	4,793	0.4%
Le Sueur	24,548	26,843	0.9%	29,756	0.5%
Lincoln	6,705	6,108	-0.9%	5,278	-0.7%
Lyon	25,070	24,827	-0.1%	25,265	0.1%
Mahnomen	5,134	5,121	0.0%	5,199	0.1%
Marshall	10,467	9,975	-0.5%	9,485	-0.3%
Martin	22,346	21,115	-0.6%	19,298	-0.4%

**Table 3-1 (2 of 2)  
Historic and Future Population Growth**

<b>COUNTY</b>	<b>POPULATION 1994</b>	<b>POPULATION 2004</b>	<b>CAGR '94-'04</b>	<b>POPULATION 2024</b>	<b>CAGR '04-'24</b>
McLeod	33,298	36,097	0.8%	41,627	0.7%
Meeker	21,759	23,277	0.7%	25,675	0.5%
Mille Lacs	20,217	24,653	2.0%	32,234	1.3%
Morrison	30,789	32,668	0.6%	35,505	0.4%
Mower	37,686	38,914	0.3%	41,670	0.3%
Murray	9,458	8,917	-0.6%	7,826	-0.7%
Nicollet	29,221	30,815	0.5%	33,313	0.4%
Nobles	20,496	20,651	0.1%	21,620	0.2%
Norman	7,680	7,138	-0.7%	6,325	-0.6%
Olmsted	112,332	133,351	1.7%	175,199	1.4%
Otter Tail	54,223	59,071	0.9%	66,297	0.6%
Pennington	13,455	13,635	0.1%	14,071	0.2%
Pine	23,602	28,129	1.8%	36,493	1.3%
Pipestone	10,226	9,619	-0.6%	8,653	-0.5%
Polk	31,942	30,835	-0.4%	29,784	-0.2%
Pope	11,115	11,232	0.1%	11,325	0.0%
Ramsey	497,940	506,945	0.2%	530,336	0.2%
Red Lake	4,405	4,303	-0.2%	4,141	-0.2%
Redwood	17,012	16,179	-0.5%	15,247	-0.3%
Renville	17,458	16,748	-0.4%	15,313	-0.4%
Rice	53,554	59,971	1.1%	68,791	0.7%
Rock	9,852	9,591	-0.3%	9,268	-0.2%
Roseau	15,632	16,434	0.5%	19,029	0.7%
Scott	70,998	111,668	4.6%	179,970	2.4%
Sherburne	51,875	76,627	4.0%	119,588	2.3%
Sibley	14,923	15,289	0.2%	16,059	0.2%
St. Louis	198,519	198,826	0.0%	202,360	0.1%
Stearns	124,056	138,721	1.1%	171,262	1.1%
Steele	32,141	34,909	0.8%	39,192	0.6%
Stevens	10,312	9,841	-0.5%	9,205	-0.3%
Swift	11,456	11,658	0.2%	12,150	0.2%
Todd	23,930	24,318	0.2%	25,213	0.2%
Traverse	4,231	3,901	-0.8%	3,600	-0.4%
Wabasha	20,601	22,255	0.8%	25,352	0.7%
Wadena	13,343	13,613	0.2%	14,174	0.2%
Waseca	18,478	19,517	0.5%	21,633	0.5%
Washington	165,585	220,209	2.9%	348,727	2.3%
Watonwan	11,852	11,614	-0.2%	11,524	0.0%
Wilkin	7,317	6,900	-0.6%	6,150	-0.6%
Winona	48,827	49,577	0.2%	52,443	0.3%
Wright	78,451	104,385	2.9%	146,772	1.7%
Yellow Medicine	11,464	10,608	-0.8%	9,316	-0.6%
<b>Minnesota</b>	<b>4,594,423</b>	<b>5,108,808</b>	<b>1.1%</b>	<b>6,189,393</b>	<b>1.0%</b>

Source: Woods & Poole Economics, State and County Projections to 2030.  
Prepared: August 2005.

**Table 3-2 (1 of 2)  
Historic and Future Employment Growth**

<b>COUNTY</b>	<b>EMPLOYMENT 1994</b>	<b>EMPLOYMENT 2004</b>	<b>CAGR '94-'04</b>	<b>EMPLOYMENT 2024</b>	<b>CAGR '04-'24</b>
Aitkin	5,929	7,313	2.1%	9,296	1.2%
Anoka	117,468	157,143	3.0%	228,982	1.9%
Becker	15,645	21,649	3.3%	29,757	1.6%
Beltrami	20,010	26,191	2.7%	34,169	1.3%
Benton	16,067	22,189	3.3%	30,715	1.6%
Big Stone	3,163	3,414	0.8%	3,681	0.4%
Blue Earth	38,231	47,505	2.2%	61,231	1.3%
Brown	18,268	20,005	0.9%	23,224	0.7%
Carlton	14,951	18,000	1.9%	22,942	1.2%
Carver	32,163	46,986	3.9%	73,824	2.3%
Cass	12,131	18,762	4.5%	27,551	1.9%
Chippewa	8,057	9,555	1.7%	11,453	0.9%
Chisago	14,696	20,149	3.2%	29,814	2.0%
Clay	23,491	26,021	1.0%	31,891	1.0%
Clearwater	4,039	4,986	2.1%	6,383	1.2%
Cook	3,210	4,189	2.7%	5,829	1.7%
Cottonwood	7,597	8,521	1.2%	9,960	0.8%
Crow Wing	27,336	34,604	2.4%	46,133	1.4%
Dakota	158,074	225,529	3.6%	376,146	2.6%
Dodge	6,854	9,128	2.9%	12,374	1.5%
Douglas	18,877	25,093	2.9%	33,754	1.5%
Faribault	9,211	9,545	0.4%	10,277	0.4%
Fillmore	11,160	12,457	1.1%	14,805	0.9%
Freeborn	17,443	19,035	0.9%	21,901	0.7%
Goodhue	26,428	30,171	1.3%	39,870	1.4%
Grant	3,582	3,811	0.6%	4,324	0.6%
Hennepin	957,402	1,047,868	0.9%	1,265,259	0.9%
Houston	8,137	9,300	1.3%	11,326	1.0%
Hubbard	7,481	9,376	2.3%	12,207	1.3%
Isanti	12,963	19,025	3.9%	27,225	1.8%
Itasca	19,254	23,574	2.0%	32,730	1.7%
Jackson	6,578	7,608	1.5%	8,903	0.8%
Kanabec	6,352	6,902	0.8%	8,400	1.0%
Kandiyohi	25,644	30,422	1.7%	40,207	1.4%
Kittson	3,046	2,995	-0.2%	3,204	0.3%
Koochiching	8,495	7,710	-1.0%	8,016	0.2%
Lac Qui Parle	4,646	4,971	0.7%	5,812	0.8%
Lake	5,344	7,045	2.8%	10,416	2.0%
Lake of the Woods	2,246	2,613	1.5%	3,178	1.0%
Le Sueur	11,774	14,797	2.3%	18,545	1.1%
Lincoln	3,396	3,567	0.5%	4,009	0.6%
Lyon	17,639	19,561	1.0%	23,949	1.0%
Mahnomen	2,889	3,356	1.5%	4,016	0.9%
Marshall	5,116	5,458	0.6%	5,870	0.4%
Martin	13,566	14,516	0.7%	17,034	0.8%

**Table 3-2 (2 of 2)  
Historic and Future Employment Growth**

COUNTY	EMPLOYMENT 1994	EMPLOYMENT 2004	CAGR '90-'00	EMPLOYMENT 2020	CAGR '00-'20
McLeod	22,867	23,879	0.4%	28,651	0.9%
Meeker	10,277	12,909	2.3%	15,898	1.0%
Mille Lacs	11,085	13,111	1.7%	17,607	1.5%
Morrison	15,173	17,068	1.2%	19,890	0.8%
Mower	19,590	21,953	1.1%	25,641	0.8%
Murray	4,935	5,205	0.5%	5,958	0.7%
Nicollet	16,097	17,928	1.1%	21,542	0.9%
Nobles	13,916	14,563	0.5%	16,548	0.6%
Norman	3,924	4,181	0.6%	4,904	0.8%
Olmsted	85,414	108,473	2.4%	148,048	1.6%
Otter Tail	29,468	34,355	1.5%	42,896	1.1%
Pennington	9,443	11,242	1.8%	13,877	1.1%
Pine	10,321	12,694	2.1%	16,458	1.3%
Pipestone	6,236	6,724	0.8%	7,530	0.6%
Polk	17,342	17,521	0.1%	18,538	0.3%
Pope	5,615	6,434	1.4%	7,824	1.0%
Ramsey	371,827	408,210	0.9%	495,636	1.0%
Red Lake	2,113	2,083	-0.1%	2,268	0.4%
Redwood	10,053	10,544	0.5%	12,609	0.9%
Renville	9,349	9,274	-0.1%	9,788	0.3%
Rice	28,368	30,485	0.7%	34,306	0.6%
Rock	5,522	5,561	0.1%	6,377	0.7%
Roseau	11,221	12,730	1.3%	15,618	1.0%
Scott	33,705	50,895	4.2%	81,353	2.4%
Sherburne	19,673	30,363	4.4%	48,657	2.4%
Sibley	6,415	6,297	-0.2%	6,929	0.5%
St. Louis	109,392	120,859	1.0%	145,119	0.9%
Stearns	86,125	100,727	1.6%	133,475	1.4%
Steele	21,937	24,826	1.2%	30,025	1.0%
Stevens	6,299	6,664	0.6%	7,950	0.9%
Swift	5,942	6,284	0.6%	7,221	0.7%
Todd	10,796	11,538	0.7%	12,443	0.4%
Traverse	2,262	2,261	0.0%	2,375	0.2%
Wabasha	10,130	10,705	0.6%	12,945	1.0%
Wadena	7,861	8,925	1.3%	10,712	0.9%
Waseca	10,968	11,128	0.1%	12,876	0.7%
Washington	67,638	95,373	3.5%	154,671	2.4%
Watonwan	6,770	6,661	-0.2%	7,307	0.5%
Wilkin	3,652	3,628	-0.1%	3,888	0.3%
Winona	29,963	31,686	0.6%	35,710	0.6%
Wright	32,824	46,095	3.5%	67,478	1.9%
Yellow Medicine	6,621	6,578	-0.1%	7,533	0.7%
Minnesota	2,955,178	3,461,235	1.6%	4,487,671	1.3%

Source: Woods & Poole Economics, State and County Projections to 2030.  
Prepared: August 2005.

**Table 3-4 (1 of 2)  
Historic and Future Income Growth**

<b>COUNTY</b>	<b>INCOME 1994</b>	<b>INCOME 2004</b>	<b>CAGR '94-'04</b>	<b>INCOME 2024</b>	<b>CAGR '04-'24</b>
Aitkin	\$14,028	\$24,063	5.5%	\$48,621	3.6%
Anoka	\$19,835	\$33,675	5.4%	\$65,894	3.4%
Becker	\$14,390	\$27,760	6.8%	\$58,731	3.8%
Beltrami	\$14,087	\$25,432	6.1%	\$51,006	3.5%
Benton	\$16,238	\$28,749	5.9%	\$56,809	3.5%
Big Stone	\$14,378	\$27,076	6.5%	\$56,628	3.8%
Blue Earth	\$17,016	\$29,429	5.6%	\$60,315	3.7%
Brown	\$16,320	\$29,399	6.1%	\$62,346	3.8%
Carlton	\$15,021	\$26,587	5.9%	\$55,229	3.7%
Carver	\$24,381	\$41,467	5.5%	\$82,830	3.5%
Cass	\$15,148	\$28,927	6.7%	\$58,231	3.6%
Chippewa	\$16,122	\$28,961	6.0%	\$61,314	3.8%
Chisago	\$18,234	\$29,381	4.9%	\$57,940	3.5%
Clay	\$14,239	\$26,335	6.3%	\$55,594	3.8%
Clearwater	\$11,657	\$22,071	6.6%	\$48,396	4.0%
Cook	\$17,681	\$31,492	5.9%	\$64,406	3.6%
Cottonwood	\$15,133	\$27,087	6.0%	\$57,760	3.9%
Crow Wing	\$15,973	\$26,206	5.1%	\$51,344	3.4%
Dakota	\$23,362	\$40,512	5.7%	\$81,359	3.5%
Dodge	\$17,603	\$30,434	5.6%	\$59,742	3.4%
Douglas	\$16,004	\$28,242	5.8%	\$56,646	3.5%
Faribault	\$15,416	\$27,344	5.9%	\$57,563	3.8%
Fillmore	\$15,333	\$26,411	5.6%	\$54,224	3.7%
Freeborn	\$14,597	\$27,743	6.6%	\$60,563	4.0%
Goodhue	\$17,684	\$31,707	6.0%	\$67,038	3.8%
Grant	\$15,666	\$26,857	5.5%	\$56,139	3.8%
Hennepin	\$26,983	\$47,632	5.8%	\$96,536	3.6%
Houston	\$16,429	\$30,175	6.3%	\$63,402	3.8%
Hubbard	\$14,096	\$24,945	5.9%	\$50,576	3.6%
Isanti	\$17,282	\$28,977	5.3%	\$55,724	3.3%
Itasca	\$13,828	\$26,458	6.7%	\$56,650	3.9%
Jackson	\$14,872	\$27,307	6.3%	\$58,706	3.9%
Kanabec	\$14,186	\$24,568	5.6%	\$49,042	3.5%
Kandiyohi	\$16,771	\$31,414	6.5%	\$65,838	3.8%
Kittson	\$16,130	\$28,115	5.7%	\$56,672	3.6%
Koochiching	\$15,754	\$27,643	5.8%	\$56,641	3.7%
Lac Qui Parle	\$14,726	\$26,426	6.0%	\$57,865	4.0%
Lake	\$13,325	\$32,127	9.2%	\$74,192	4.3%
Lake of the Woods	\$13,538	\$22,805	5.4%	\$45,810	3.5%
Le Sueur	\$17,269	\$29,855	5.6%	\$61,129	3.6%
Lincoln	\$13,015	\$25,282	6.9%	\$56,719	4.1%
Lyon	\$16,511	\$29,236	5.9%	\$62,600	3.9%
Mahnomen	\$12,951	\$23,003	5.9%	\$47,481	3.7%
Marshall	\$14,929	\$27,885	6.4%	\$56,509	3.6%
Martin	\$16,241	\$29,755	6.2%	\$65,104	4.0%

**Table 3-4 (2 of 2)  
Historic and Future Income Growth, Continued**

<b>COUNTY</b>	<b>INCOME 1994</b>	<b>INCOME 2004</b>	<b>CAGR '94-'04</b>	<b>INCOME 2024</b>	<b>CAGR '04-'24</b>
McLeod	\$18,267	\$29,067	4.8%	\$57,753	3.5%
Meeker	\$15,517	\$27,290	5.8%	\$54,748	3.5%
Mille Lacs	\$14,599	\$22,776	4.5%	\$45,977	3.6%
Morrison	\$13,428	\$23,692	5.8%	\$48,518	3.6%
Mower	\$17,073	\$29,050	5.5%	\$58,067	3.5%
Murray	\$14,558	\$27,543	6.6%	\$61,247	4.1%
Nicollet	\$16,634	\$28,636	5.6%	\$59,543	3.7%
Nobles	\$15,923	\$26,573	5.3%	\$53,829	3.6%
Norman	\$14,771	\$27,017	6.2%	\$59,108	4.0%
Olmsted	\$21,766	\$37,800	5.7%	\$73,633	3.4%
Otter Tail	\$15,042	\$25,858	5.6%	\$53,047	3.7%
Pennington	\$16,186	\$30,370	6.5%	\$63,268	3.7%
Pine	\$14,017	\$24,249	5.6%	\$47,581	3.4%
Pipestone	\$14,812	\$27,383	6.3%	\$58,814	3.9%
Polk	\$15,268	\$26,224	5.6%	\$52,964	3.6%
Pope	\$14,180	\$26,416	6.4%	\$57,849	4.0%
Ramsey	\$21,463	\$38,312	6.0%	\$79,216	3.7%
Red Lake	\$12,906	\$21,816	5.4%	\$45,796	3.8%
Redwood	\$15,238	\$27,555	6.1%	\$59,899	4.0%
Renville	\$15,833	\$25,970	5.1%	\$54,206	3.7%
Rice	\$16,438	\$26,591	4.9%	\$51,615	3.4%
Rock	\$15,879	\$27,020	5.5%	\$57,110	3.8%
Roseau	\$16,399	\$29,775	6.1%	\$59,384	3.5%
Scott	\$21,507	\$33,431	4.5%	\$64,664	3.4%
Sherburne	\$17,427	\$27,235	4.6%	\$52,345	3.3%
Sibley	\$14,706	\$24,503	5.2%	\$49,592	3.6%
St. Louis	\$17,129	\$29,739	5.7%	\$60,378	3.6%
Stearns	\$15,994	\$28,746	6.0%	\$58,637	3.6%
Steele	\$18,611	\$29,466	4.7%	\$58,403	3.5%
Stevens	\$15,032	\$26,822	6.0%	\$58,957	4.0%
Swift	\$13,819	\$23,252	5.3%	\$48,192	3.7%
Todd	\$12,587	\$22,419	5.9%	\$45,447	3.6%
Traverse	\$16,228	\$26,786	5.1%	\$53,548	3.5%
Wabasha	\$17,485	\$28,792	5.1%	\$58,371	3.6%
Wadena	\$12,403	\$23,496	6.6%	\$49,543	3.8%
Waseca	\$16,434	\$26,022	4.7%	\$51,563	3.5%
Washington	\$23,929	\$39,734	5.2%	\$76,825	3.4%
Watonwan	\$15,430	\$25,672	5.2%	\$52,736	3.7%
Wilkin	\$14,975	\$25,920	5.6%	\$54,756	3.8%
Winona	\$16,099	\$27,690	5.6%	\$55,450	3.5%
Wright	\$18,006	\$28,500	4.7%	\$56,279	3.5%
Yellow Medicine	\$14,029	\$25,805	6.3%	\$57,164	4.1%
Minnesota	\$16,120	\$28,253	5.8%	\$58,160	3.7%

Source: Woods & Poole Economics, State and County Projections to 2030.  
Prepared: August 2005.



## Chapter Four: Projections of Aviation Demand

### INTRODUCTION

The development of commercial and general aviation activity projections for Minnesota's system of public-use airports is a critical step in assessing the need for and phasing of future development requirements. These activity projections assist in determining and/or verifying an airport's role in the state system, evaluating the ability of the existing system to accommodate projected aviation demand, and planning future airside and landside facilities for the system.

The SASP contains forecasts for the following components:

- Commercial enplanements and operations
- Based general aviation aircraft
- General aviation fleet mix
- Local, itinerant, and total general aviation operations

Aircraft operations projections typically drive capacity-related needs in the system and based aircraft levels typically drive certain landside facility development needs.

This chapter of the SASP is organized as follows:

- Projections of Aviation Demand – Commercial Service
- Projections of Aviation Demand – General Aviation
- Summary

Projections of aviation demand are developed based on relevant trends. Projections are presented on an airport-by-airport basis, as well as on a statewide basis, in the following sections.

### PROJECTIONS OF AVIATION DEMAND – COMMERCIAL SERVICE

Since the last Statewide Airport System Plan (SASP), the network of commercial airports in Minnesota has grown smaller. Four airports have lost commercial service: Grand Rapids, Ely, Fairmont, and Fergus Falls. At two additional airports, Hibbing and Thief River Falls, Mesaba Airlines now offers a minimal and subsidized level of air service under the auspices of the Essential Air Service Program (EAS). Minneapolis-St. Paul International Airport (MSP) continues to dominate, serving approximately 98 percent of all Minnesota enplaned passengers. Greater Minnesota airports serve the remaining enplanements. **Table 4-1** shows how the number of enplaned passengers has redistributed and grown since the last SASP.

**Table 4-1  
Passenger Enplanements at Minnesota Airports  
1996 and 2005**

<b>AIRPORT</b>	<b>1996 SASP</b>	<b>2005E</b>	<b>CHANGE</b>
Bemidji	17,200	29,900	74%
Brainerd	12,600	20,700	64%
Duluth	120,700	155,800	29%
Ely	1,500	0	-100%
Fairmont	600	0	-100%
Fergus Falls	3,600	0	-100%
Grand Rapids	7,400	0	-100%
Hibbing	12,600	11,600	-8%
International Falls	12,000	21,800	82%
Minneapolis-St. Paul	13,333,700	18,515,600	39%
Rochester	142,200	143,200	1%
St. Cloud	9,900	25,900	162%
Thief River Falls	3,900	5,000	28%
<i>Total</i>	<i>13,677,900</i>	<i>18,929,500</i>	<i>38%</i>

Source: 1999 Minnesota State Aviation System Plan and Individual Airport Records.  
Prepared: December 2005.

At the present time (2005), Duluth is the largest Greater Minnesota airport in terms of enplaned passengers, although Rochester has the largest number of commercial air carrier operations. With the loss of commercial service at Grand Rapids and Ely, both Duluth and Bemidji have increased their enplanements. Brainerd, St. Cloud, and International Falls have also notably grown. Today, the Greater Minnesota airports serve approximately 414,000 enplaned passengers. Of Minneapolis-St. Paul's estimated 18.5 million enplaned passengers, about 47 percent or approximately 8.2 million represent local originating passengers. The remaining 10.3 million are passengers who are making a connection at MSP.

This section projects passenger enplanements and operations at Greater Minnesota airports. It is anticipated that Minneapolis-St. Paul International will continue to function as the principal hub and anchor of the system. Thus MSP forecasts, prepared by the Metropolitan Airports Commission (MAC) are incorporated into this document as the MSP forecasts. The forecasts adopted for 2010 and 2015 were taken from the Environmental Assessment prepared in connection with the MAC Terminal Expansion project. The 2020 MSP forecast came from the FAA's Terminal Area Forecast (TAF).

These system forecasts were prepared in the midst of the Northwest Airlines (NWA) bankruptcy proceedings. The bankruptcy itself poses uncertainty as NWA restructures its finances and operations. It is too soon to see how the restructuring will impact Greater Minnesota airports. Thus, these forecasts represent a base case of activity that presumes that NWA's service in Greater Minnesota will continue approximately at current levels.

In addition to the bankruptcy, more traditional econometric factors will influence local demand over the forecast period were also considered. The most important factors that will impact demand are:

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- Economic growth in population, employment, and total income/per capita income,
  - Level of air service at Greater Minnesota airports, and
  - The cost of air travel from the local airports versus the cost from MSP.

To address the possibility that major shifts in air service could and probably will occur over the forecast period, a separate discussion of air service (see **Appendix A**) at Greater Minnesota airports explores: the impact of increased low cost carrier presence at MSP and at Tier 2 airports; post bankruptcy shifts in NWA's route structure; and new air service opportunities for Greater Minnesota airports.

## Economic Trends

Generally speaking, local air demand is determined by the level of service, the cost of that service, and the strength of the local economy as expressed by growth in population, employment and income. These factors, particularly the cost of air travel at Greater Minnesota airports serve as a good proxy for diversion to MSP. Diversion is significant throughout the State and is estimated to be as much as 80 percent for close-in communities such as St. Cloud. Even Duluth, which is located 163 driving miles from MSP, loses approximately 50 percent of its potential passengers who chose to drive to MSP rather than to fly out of Duluth.

Because Minnesota is large and diverse, a bottom up approach to forecasting was used to properly reflect differences in local economic conditions. The process began with a working definition of each commercial airport's primary service area. These service areas were derived from a careful analysis of Rand McNally Basic Trading Areas<sup>1</sup> and 60 minute drive times. When airport service areas overlapped, as in the case of Hibbing and Duluth, county data was allocated by percentage to each service area. For Minneapolis-St. Paul, the seven county region, defined by the Metropolitan Council, was used for a primary service area. This corresponds to the primary service area adopted by MAC for its most recent forecasts. The primary service areas are not necessarily the only areas from which an airport draws its passengers, but for forecasting purposes, they provide a very good indicator of local economic forces at play. **Table 4-2** summarizes the population centers in the primary service areas for each commercial airport. Since Minnesota counties are served by airports outside the State in Wisconsin, North Dakota and South Dakota, often only a portion of border counties are assigned to airport service areas within the State. This was particularly true for Thief River Falls, served to a large extent by Grand Forks, ND and Rochester, where Winona County is also served by La Crosse, WI. Also a small portion of the upper reaches of Cook County were assumed to be served by Thunder Bay.

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<sup>1</sup> Trading Areas are drawn according to county boundaries. Trading Areas take into account such factors as geography, population distribution, newspaper circulation, economic activities, and transportation networks.

**Table 4-2  
Primary Airport Service Areas**

<b>AIRPORT NAME</b>	<b>SERVICE AREA &amp; SHARE</b>			
<b>BEMIDJI</b>	Beltrami, MN	100%	Hubbard, MN	100%
	Clearwater, MN	100%	Itasca, MN	50%
<b>BRAINERD</b>	Aitkin, MN	100%	Crow Wing, MN	100%
	Cass, MN	100%		
<b>DULUTH</b>	Carlton, MN	100%	St. Louis, MN	75%
	Cook, MN	50%	Ashland, WI	100%
	Itasca, MN	25%	Bayfield, WI	100%
	Lake, MN	100%	Douglas, WI	100%
	Pine, MN	100%	Sawyer, WI	100%
<b>HIBBING</b>	Itasca, MN	25%	St. Louis, MN	25%
<b>INTERNATIONAL FALLS</b>	Koochiching, MN	100%	Lake of the Woods, MN	100%
<b>MINNEAPOLIS-ST PAUL</b>	Anoka, MN	100%	Ramsey, MN	100%
	Carver, MN	100%	Scott, MN	100%
	Dakota, MN	100%	Washington, MN	100%
	Hennepin, MN	100%		
<b>ROCHESTER</b>	Dodge, MN	100%	Olmsted, MN	100%
	Fairbault, MN	100%	Steele, MN	100%
	Fillmore, MN	100%	Wabasha, MN	100%
	Freeborn, MN	100%	Winona, MN	50%
	Mower, MN	100%		
<b>ST CLOUD</b>	Benton, MN	100%	Stearns, MN	100%
	Morrison, MN	100%	Todd, MN	100%
	Sherburne, MN	100%		
<b>THIEF RIVER FALLS</b>	Kittson, MN	33%	Red Lake, MN	25%
	Marshall, MN	100%	Roseau, MN	33%
	Pennington, MN	100%		

Source: Woods and Poole Economics, Inc.; KRAMER aerotek, inc.  
Prepared: December 2005.

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## ***Population***

**Table 4-3** shows historical population growth in each airport's primary service area. The fastest growing areas in the State are the metro area and the I-94 corridor up to St. Cloud and then northeast to Brainerd. Brainerd and St. Cloud have each grown 1.7 percent annually for the last 10 years. The metro area is growing 1.2 percent per year. Bemidji and Rochester are just under State and national averages at .9 percent per year, and the far north areas are the slowest growing, including Duluth, International Falls, and Thief River Falls. **Table 4-4** presents projected population growth in each of the primary service areas for the next 20 years. These projections were made by Woods & Poole Economics in 2005 and indicate that the metro area and I-94 corridor will grow at a faster rate than the rest of Minnesota.

## ***Employment***

**Table 4-5** presents historical employment in Greater Minnesota airport service areas. After the metro area, St. Cloud and Rochester lead in absolute growth of employment. However, it is noteworthy that Bemidji and Brainerd enjoy the highest percent annual job growth in the State. Employment forecasts are shown in **Table 4-6**. Over the 20 year forecast period, population growth correlates directly with job formation. On a percentage basis, the fastest growing area for jobs will be St. Cloud, followed by Brainerd and Minneapolis-St. Paul. International Falls, Thief River Falls, Hibbing and Rochester are projected to experience somewhat lower average job formation rates than the State as a whole.

## ***Income***

**Table 4-7** shows historic personal income in 1996 dollars for each of the commercial airport service areas and per capita income for 2005. Income growth correlates closely with the other economic metrics of population and employment. Both Brainerd and St. Cloud are experiencing well above average growth in aggregate personal income, followed by Minneapolis-St. Paul, Bemidji and then Rochester. There is, however, considerable diversity in per capita income around the State, as **Exhibit 4-1** demonstrates. The Metro area and Rochester lead the State in per capita income by a significant margin.

**Table 4-3**  
**Historical Population (in thousands)**

<b>AIRPORTS</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>	<b>ANNUAL GROWTH 1995-2005</b>
BEMIDJI	84.3	88.6	92.5	0.9%
BRAINERD	88.7	98.0	105.5	1.7%
DULUTH	316.4	324.9	329.2	0.4%
HIBBING	60.4	61.1	60.9	0.1%
INTERNATIONAL FALLS	19.6	18.8	18.3	-0.7%
MINNEAPOLIS-ST. PAUL	2,474.9	2,651.2	2,786.2	1.2%
ROCHESTER	316.4	331.7	344.8	0.9%
ST. CLOUD	265.9	289.6	314.1	1.7%
THIEF RIVER FALLS	32.3	31.9	31.8	-0.2%
MINNESOTA	4,660.2	4,933.6	5,161.4	1.0%
UNITED STATES	266,278.4	282,177.8	296,468.3	1.1%

Source: Woods & Poole Economics, State Reports, 2005, Minnesota and Wisconsin.  
 Prepared: December 2005.

**Table 4-4  
 Projected Population (in thousands)**

<b>AIRPORTS</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>PROJECTED ANNUAL GROWTH 2005-2025</b>
BEMIDJI	92.5	96.3	100.5	104.8	109.4	0.8%
BRAINERD	105.5	113.3	121.4	129.7	138.4	1.4%
DULUTH	329.2	334.4	340.6	347.5	354.7	0.4%
HIBBING	60.9	61.4	62.0	62.7	63.6	0.2%
INTERNATIONAL FALLS	18.3	18.2	18.2	18.2	18.2	0.0%
MINNEAPOLIS-ST. PAUL	2,786.2	2,964.8	3,151.7	3,344.3	3,544.7	1.2%
ROCHESTER	344.8	358.1	372.5	387.5	403.5	0.8%
ST. CLOUD	314.1	335.7	358.2	381.3	405.3	1.3%
THIEF RIVER FALLS	31.8	32.0	32.3	32.7	33.2	0.2%
MINNESOTA	5,161.4	5,423.3	5,700.7	5,988.4	6,290.0	1.0%
UNITED STATES	296,468.3	311,034.6	326,491.6	342,544.2	359,383.4	1.0%

Source: Woods & Poole Economics, State Reports, 2005, Minnesota and Wisconsin.  
 Prepared: December 2005.

**Table 4-5  
 Historical Employment (in thousands)**

<b>AIRPORTS</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>	<b>TOTAL JOB GROWTH 1995-2005</b>	<b>ANNUAL GROWTH 1995-2005</b>
BEMIDJI	42.40	49.18	53.11	10.70	2.3%
BRAINERD	47.31	56.48	61.63	14.32	2.7%
DULUTH	121.87	135.15	145.08	23.21	1.8%
HIBBING	32.70	35.41	36.53	3.83	1.1%
INTERNATIONAL FALLS	10.19	10.58	10.39	0.21	0.2%
MINNEAPOLIS-ST. PAUL	1,766.85	1,972.27	2,065.15	298.30	1.6%
ROCHESTER	198.41	223.61	234.96	36.55	1.7%
ST. CLOUD	153.60	169.89	185.00	31.40	1.9%
THIEF RIVER FALLS	20.26	21.67	22.60	2.35	1.1%
MINNESOTA	3,014.90	3,343.52	3,512.92	498.01	1.5%
UNITED STATES	148,982.79	166,758.78	174,571.54	25,588.75	1.6%

Source: Woods & Poole Economics, State Reports, 2005, Minnesota and Wisconsin.  
 Prepared: December 2005.

**Table 4-6  
 Projected Employment (in thousands)**

<b>AIRPORTS</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>PROJECTED ANNUAL GROWTH 2005-2025</b>
BEMIDJI	53.11	56.93	60.752	64.58	68.41	1.3%
BRAINERD	61.63	66.49	71.52	76.74	82.18	1.4%
DULUTH	145.08	155.20	165.231	175.22	185.18	1.2%
HIBBING	36.53	38.65	40.786	42.92	45.06	1.1%
INTERNATIONAL FALLS	10.39	10.72	11.058	11.40	11.73	0.6%
MINNEAPOLIS-ST. PAUL	2,065.15	2,230.66	2,395.816	2,560.60	2,724.98	1.4%
ROCHESTER	234.96	249.87	264.766	279.68	294.61	1.1%
ST. CLOUD	185.00	200.53	216.038	231.51	246.97	1.5%
THIEF RIVER FALLS	22.60	23.56	24.51514	25.48	26.44	0.8%
MINNESOTA	3,512.92	3,771.14	4,029.332	4,287.45	4,545.44	1.3%
UNITED STATES	174,571.54	187,135.18	199,698.512	212,262.14	224,825.65	1.3%

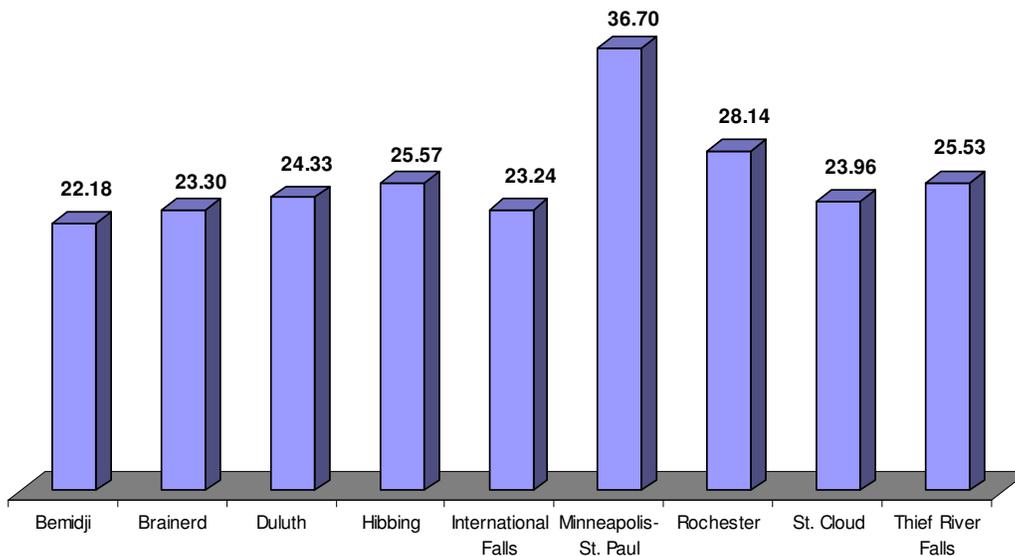
Source: Woods & Poole Economics, State Reports, 2005, Minnesota and Wisconsin.  
 Prepared: December 2005.

**Table 4-7**  
**Historical Personal Income (in thousands of 1996 dollars)**

<b>AIRPORTS</b>	<b>1995</b>	<b>2000</b>	<b>2005</b>	<b>ANNUAL GROWTH 1995-2005</b>	<b>2005 PER CAPITA INCOME</b>
BEMIDJI	1,434.76	1,786.98	2,051.02	3.6%	22,180
BRAINERD	1,650.75	2,148.62	2,457.55	4.1%	23,300
DULUTH	6,181.12	7,355.32	8,009.79	2.6%	24,330
HIBBING	1,253.69	1,458.84	1,557.42	2.2%	25,570
INTERNATIONAL FALLS	352.00	411.78	425.92	1.9%	23,240
MINNEAPOLIS-ST. PAUL	71,791.18	94,246.35	102,263.13	3.6%	36,700
ROCHESTER	6,869.02	8,669.19	9,705.07	3.5%	28,140
ST. CLOUD	4,946.16	6,590.66	7,528.19	4.3%	23,960
THIEF RIVER FALLS	603.94	764.57	811.09	3.0%	25,530
MINNESOTA	114,622.79	147,770.35	161,321.90	3.5%	31,260
UNITED STATES	6,276,926.31	7,878,597.67	8,556,569.99	3.1%	28,860

Source: Woods & Poole Economics, State Reports, 2005, Minnesota and Wisconsin.  
 Prepared: December 2005.

**Exhibit 4-1**  
**2005 Per Capita Income (Thousands of 1996 dollars)**



Source: Woods & Poole Economics, Inc.  
 Prepared: December 2005.

**Table 4-8** shows projected income. During the forecast period, St. Cloud is projected to approach the per capita income of Rochester. However, with the exception of the metro area, most of Minnesota will slightly lag the rest of the country in per capita income by 2025.

**Table 4-8**  
**Projected Personal Income (in thousands of 1996 dollars)**

<b>AIRPORTS</b>	<b>2005</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>	<b>PROJECTED ANNUAL GROWTH 2005-2025</b>	<b>PROJECTED 2025 PER CAPITA INCOME</b>
BEMIDJI	2,051.02	2,269.09	2,509.90	2,776.35	3,071.55	2.0%	28,070
BRAINERD	2,457.55	2,768.53	3,116.14	3,505.76	3,943.36	2.4%	37,380
DULUTH	8,009.79	8,624.42	9,302.89	10,056.33	10,894.53	1.5%	33,090
HIBBING	1,557.42	1,665.12	1,784.82	1,918.26	2,067.18	1.4%	33,940
INTERNATIONAL FALLS	425.92	448.53	473.52	501.01	531.25	1.1%	28,990
MINNEAPOLIS-ST. PAUL	102,263.13	114,447.25	127,845.63	142,642.89	159,029.48	2.2%	57,080
ROCHESTER	9,705.07	10,646.20	11,681.51	12,822.37	14,081.42	1.9%	40,840
ST. CLOUD	7,528.19	8,488.77	9,540.00	10,694.38	11,964.89	2.3%	38,090
THIEF RIVER FALLS	811.09	865.95	926.07	991.76	1,063.44	1.4%	33,480
MINNESOTA	161,321.90	179,264.28	199,001.03	220,790.30	244,901.73	2.1%	47,450
UNITED STATES	8,556,569.99	9,469,982.13	10,483,473.25	11,612,420.13	12,872,848.87	2.1%	43,420

Source: Woods & Poole Economics, State Reports, 2005, Minnesota and Wisconsin.  
 Prepared: December 2005.

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## Other Factors Affecting Local Demand

While it is true that each service area in Minnesota generates absolute demand for air service, use of the local airport is largely governed by the frequency of local flights, destinations served, and cost of local air service versus the cost at MSP. In addition to population, employment and income, sufficient flight frequencies from the local airport and the availability of lower airfares at a competing airport are the two most important factors that influence actual use of local airports. These factors are at play not only in Minnesota, but also throughout the United States. Non-hub access to large hub airports has been declining throughout the country. **Table 4-9** shows that the number of scheduled flights from non-hubs to large hubs has declined 15 percent since 2000. Growth within the national system of air transportation is occurring at medium and small hub airports as the legacy carriers have added frequencies to their connecting and fortress hub airports or point-to-point service from medium hubs to the largest destination markets.

**Table 4-9**  
**Changes in Scheduled Flights Between Airports of Different Sizes**  
**July 2000 versus July 2005**

HUB ACCESS	PERCENT CHANGE IN FLIGHTS
LARGE TO LARGE	-1%
MEDIUM TO LARGE	8%
SMALL TO LARGE	12%
NON-HUB TO LARGE	-15%

Source: FAA

Prepared: December 2005.

All of the Greater Minnesota airports are non-hub airports and have been subject to an absolute loss of flight frequencies. **Table 4-10** shows total annual seats offered from these airports, comparing 2000 with an estimate of available seats in 2005. In the last five years, every Greater Minnesota airport has lost seats. Some of this reduction of seats reflects an effort by Northwest to increase non-stop service and minimize the number of shared flights. In the late 1990's, NWA typically paired two small cities, providing a higher number of frequencies across both cities. More recently, NWA has reduced the number of shared flights. This by itself results in the loss of an absolute number of seats. However, as Table 4-10 demonstrates, even Duluth and Rochester have lost more than 20 and 13 percent, respectively, of their available seat capacity in the last five years, and these airports had few if any shared flights.

**Table 4-10  
Total Annual Seats  
Years 2000 and 2005**

<b>AIRPORT</b>	<b>2000</b>	<b>2005E</b>	<b>PERCENT CHANGE</b>
BEMIDJI	190,100	169,200	-11%
BRAINERD	190,400	114,900	-40%
DULUTH	602,700	479,800	-20%
HIBBING	116,000	68,000	-41%
INTERNATIONAL FALLS	118,600	97,100	-18%
ROCHESTER	636,100	551,500	-13%
ST. CLOUD	170,000	129,200	-24%
THIEF RIVER FALLS	53,600	47,600	-11%
<b>TOTAL GREATER MN AIRPORTS</b>	<b>2,077,400</b>	<b>1,657,400</b>	<b>-20%</b>

Source: USDOT, T100 Segment Data via Data Base Products, KRAMER aerotek, inc. analysis.  
Prepared: December 2005.

The other factor, cost of travel is of larger concern. Nationally and within Minnesota, the cost to fly from a non-hub airport is increasing, relative to the cost of flying from a large airport. **Table 4-11** compares average domestic fares reported from airports of various sizes. In 1993, the differences in fares offered at large and small airports were insignificant, ranging between two and three percent. In the last few years, average fares have declined in all markets, but much faster in the largest markets. In 2003, the smallest airports experienced a 16.5 percent fare premium over large airports.

**Table 4-11  
Comparison of Average Domestic Fares of Various Sized Airports - YE3Q03 vs YE3Q93**

<b>NUMBER OF DOMESTIC O&amp;D PASSENGERS</b>	<b>AVERAGE DOMESTIC ONE WAY FARE (\$)</b>	<b>INDEX</b>
<b>THIRD QUARTER 2003</b>		
10,000,000 AND MORE	138.18	100.0
1,000,000 - 9,999,999	131.27	95.0
100,000 - 999,999	154.54	111.8
20,000 - 99,999	160.94	116.5
<b>THIRD QUARTER 1993</b>		
10,000,000 AND MORE	153.38	100.0
1,000,000 - 9,999,999	142.17	92.7
100,000 - 999,999	157.45	102.7
20,000 - 99,999	158.33	103.2

Source: Bemidji Regional Airport Master Plan, US DOT 10% O&D Passenger Survey via Data Base Products via HNTB  
Prepared: December 2005.

Minnesota historically has been a high air fare State. **Table 4-12** provides an index showing Minneapolis-St. Paul's average one way fares as equal to 100. By comparing Greater Minnesota average fares with MSP average fares, it is possible to establish the average premium paid for flying from a Greater Minnesota airport. This premium appears unrelated to distance from the hub as St. Cloud consistently experiences a high premium as does Brainerd. Rochester also has high fares compared to MSP. In 2004, Duluth experienced some of the lowest fares in Greater Minnesota. This was the year that American Eagle re-entered the market; Northwest responded by adding Detroit service and lowering the cost of business travel. Thief River Falls also experienced relatively low average fares paid by passengers. However, subsidy from the Essential Air Service program has kept air fares on the lower side.

## Historical Commercial Airport Activity

### Enplanements

**Table 4-13** and **Exhibit 4-2** provide a 10 year history of enplanements at Greater Minnesota airports that currently offer scheduled air service. Airports with the highest annual growth rates are: St. Cloud, Bemidji, and Brainerd. Duluth experienced the largest absolute growth in enplaned passengers with 36,600 additional enplaned passengers. Rochester declined by 13,000 enplanements. Most of the largest gains took place in the first five years, 1995 to 2000.

**Table 4-13**  
**History of Minnesota Enplanements**

AIRPORTS	1995	2000	2005E	ABSOLUTE GROWTH	ANNUAL GROWTH
BEMIDJI	16,100	28,600	29,900	13,800	6.4%
BRAINERD	11,800	20,200	20,700	8,900	5.8%
DULUTH	119,200	148,200	155,800	36,600	2.7%
HIBBING	13,100	12,700	11,600	(1,500)	-1.2%
INTERNATIONAL FALLS	19,100	22,300	21,800	2,700	1.3%
ROCHESTER	156,500	155,000	143,200	(13,300)	-0.9%
ST. CLOUD	8,400	23,700	25,900	17,500	11.9%
THIEF RIVER FALLS	3,700	7,200	5,000	1,300	3.1%
TOTAL GREATER MN AIRPORTS	348,000	418,000	414,000	66,000	1.8%
MINNEAPOLIS-ST. PAUL	12,664,300	17,527,400	18,515,600	5,851,300	3.9%
<b>TOTAL MN AIRPORTS</b>	<b>13,005,500</b>	<b>17,945,400</b>	<b>18,929,500</b>	<b>5,924,000</b>	<b>3.8%</b>

Source: Individual Airport Records.

Prepared: December 2005.

**Table 4-12**  
**Comparison of Greater Minnesota Average Fares with Minneapolis-St. Paul International Average Fares**  
**(MSP = 100)**

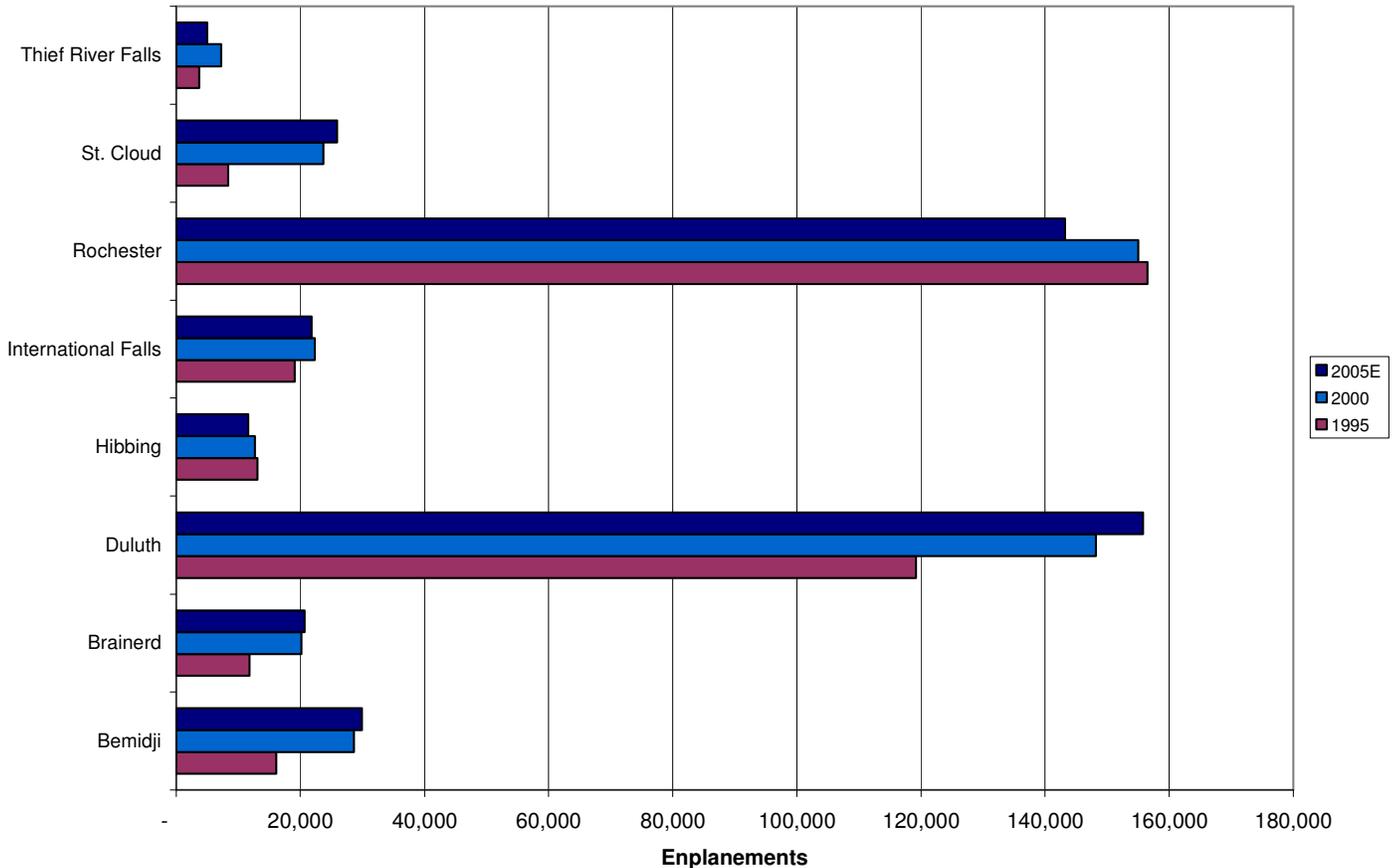
AIRPORTS	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
BEMIDJI	106	105	88	85	88	101	108	107	108	118
BRAINERD	111	113	104	98	108	114	113	113	117	123
DULUTH INTL	102	107	118	105	110	119	115	111	123	114
CHISHOLM/HIBBING	101	110	101	93	94	103	102	104	106	116
INTERNATIONAL FALLS	109	116	108	100	93	100	106	106	110	118
ROCHESTER	109	115	117	108	117	121	116	103	107	120
ST CLOUD	101	109	103	96	105	119	119	117	117	126
THIEF RIVER FALLS	120	116	123	95	84	101	104	104	99	109
GREATER MN AVG FARE	105	111	110	103	108	116	114	108	113	118
MINNEAPOLIS-ST PAUL INTL	100	100	100	100	100	100	100	100	100	100
ACTUAL GREATER MN AVERAGE FARE	209	235	227	218	219	225	214	204	214	210
ACTUAL MSP AVERAGE FARE	199	212	206	212	203	194	188	190	189	179

Source: USDOT 10 Percent Sample via DataBase Products.

Prepared: December 2005.

Note: Average one way fare = no taxes, no PFC's, no security fees or zero fares, inbound and outbound averages; Greater Minnesota Fares divided by MSP fares times 100.

## Exhibit 4-2 Changes in Greater Minnesota Enplanements



Source: Individual airport records.  
Prepared: December 2005.

All airports declined after September 11<sup>th</sup> in 2001 and have spent the last five years re-stabilizing air service and demand. In addition, the following factors also influence demand:

- An extended period of economic prosperity in the mid to late 1990's that generally increased passenger activity.
- Interest in and proliferation of regional jets on many routes.
- Shutdown of service at Grand Rapids, Ely, Fairmont, and Fergus Falls.
- Entry and re-entry of American Eagle at Duluth.
- Initiation of Detroit service at both Duluth and Rochester.
- Retirement of the American Eagle F-100 fleet and replacement with regional jets.

- Full implementation of the Fly Local Program in 1998 and 1999 where Northwest added a flat rate to MSP fares to fly from a Greater Minnesota Airport. This program stimulated use of local airports and reduced diversion to MSP.
- Reduction in tag flights by Northwest AirLink in favor of more nonstop service from spoke cities to MSP.
- A growth spurt of low cost service at MSP fueled by Sun Country in 1999-2000 and Frontier Airlines and ATA more recently.

## Operations

On the surface, the spoke system from Greater Minnesota airports appears intact, stable and consistent. Aircraft size has remained consistent with the 34 seat Saab aircraft the dominant equipment type for all but Rochester and Duluth. Rochester experienced a significant reduction in aircraft size as American Eagle retired the F-100's and replaced them with regional jets (RJ's). Northwest has served Rochester with a mix of Saab, DC-9, regional jet and Avro RJ-85 aircraft. Duluth's aircraft size has remained in the 65 seat range because of the mix of Avro's, RJ's, Saab's and Airbus 320's. **Table 4-14** shows the average aircraft size for each of the Greater Minnesota airports, comparing 2000 with 2005.

**Table 4-14**  
**Greater Minnesota Average Seats (Available Seats/Departures)**  
**2000 versus 2005**

AIRPORTS	2000	2005E
BEMIDJI	34	33
BRAINERD	34	34
DULUTH	65	76
HIBBING	34	34
INTERNATIONAL FALLS	34	35
ROCHESTER	74	54
ST. CLOUD	34	34
THIEF RIVER FALLS	34	34
<b>TOTAL GREATER MN AIRPORTS</b>	<b>49</b>	<b>47</b>

Source: USDOT, T100 Segment Data via Data Base Products.  
Prepared: December 2005.

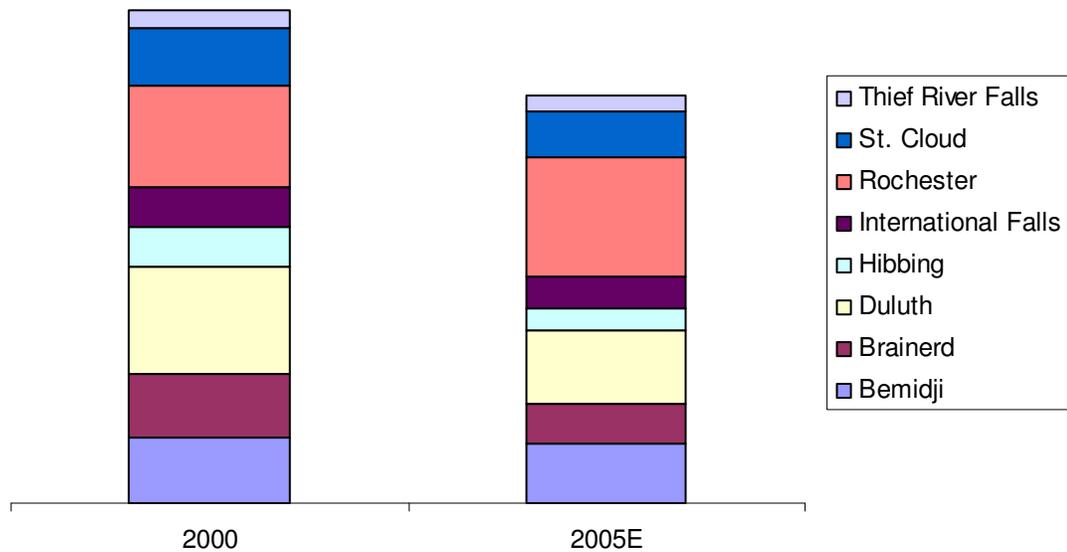
**Table 4-15** and **Exhibit 4-3** portray a much greater change in frequency of operations at individual airports. Hibbing, Brainerd, Duluth and St. Cloud lead the list of airports with the greatest reductions in operations. Overall, operations at Greater Minnesota airports have declined 21 percent in the last five years. This is partly attributable to more nonstop flying in the region and partly to real reductions in service. **Exhibit 4-4** summarizes changes in total commercial operations at Greater Minnesota airports since 1998.

**Table 4-15  
Greater Minnesota Airport Operations, 2000 versus 2005E**

<b>AIRPORTS</b>	<b>2000</b>	<b>2005E</b>	<b>CHANGE</b>
BEMIDJI	5,600	5,200	-7.1%
BRAINERD	5,600	3,400	-39.3%
DULUTH	9,300	6,300	-32.3%
HIBBING	3,400	2,000	-41.2%
INTERNATIONAL FALLS	3,500	2,800	-20.0%
ROCHESTER	8,600	10,300	19.8%
ST. CLOUD	5,000	3,800	-24.0%
THIEF RIVER FALLS	1,600	1,400	-12.5%
<b>TOTAL GREATER MN AIRPORTS</b>	<b>44,600</b>	<b>35,200</b>	<b>-21.1%</b>

Source: USDOT, T100 Segment Data via Data Base Products.  
Prepared: December 2005.

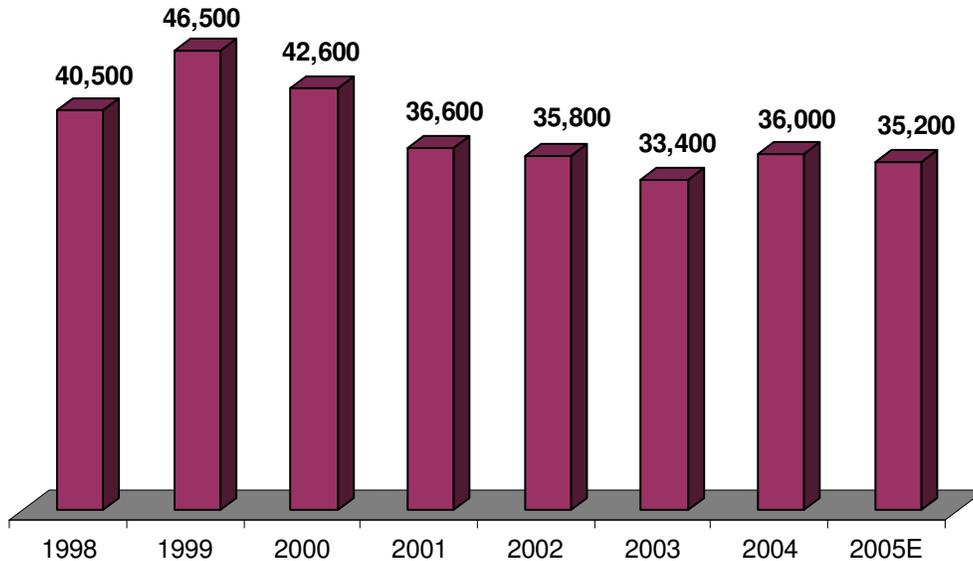
**Exhibit 4-3  
Greater Minnesota Airport Commercial Operations 2000 versus 2005 Estimated**



Source: USDOT, T100 Segment Data via Data Base Products.  
Prepared: December 2005.

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**Exhibit 4-4**  
**Total Greater Minnesota Airport Commercial Operations**



Source: USDOT, T100 Segment Data via Data Base Products.  
Prepared: December 2005.

**Table 4-16** estimates and compares passenger load factors in 2000 and 2005. Total seats available at Greater Minnesota airports have declined 22 percent. Enplaned passengers are down one percent with a resulting increase in load factors of 11 percent. The reduction in Greater Minnesota system seat capacity is shown clearly in **Exhibit 4-5**.

Since NWA declared bankruptcy, service to Greater Minnesota commercial airports is again changing. Northwest has announced that it will not keep the Avro RJ-85's and most of the DC-9's in its fleet. Leases on several Saab's will not be renewed. The Duluth A320 maintenance base is not operating, and NWA has increased the use of Saabs at Duluth and Rochester. While it is too soon to prognosticate on Northwest's plans for commercial airports in Greater Minnesota, additional reductions in capacity (i.e. available seats) appear certain, at least for the near term.

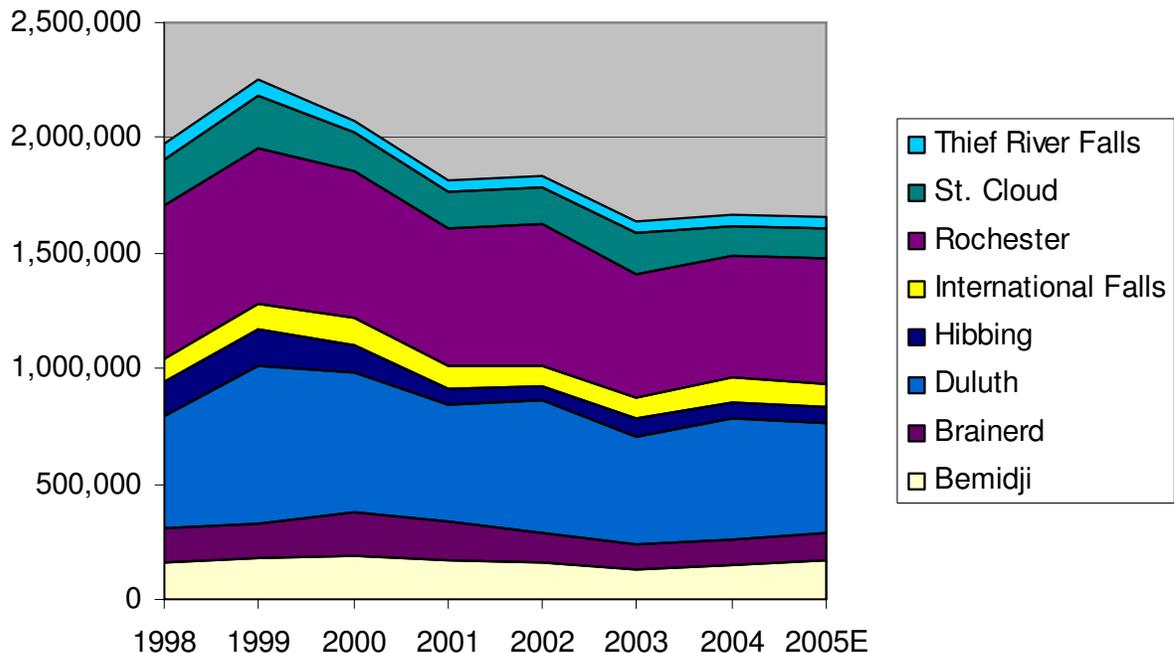
**Table 4-16  
 Commercial Aircraft 2000 and 2005E Load Factors**

AIRPORT	2000			2005E		
	Enplanements	One Way Seats	Load Factor	Enplanements	One Way Seats	Load Factor
BEMIDJI	28,600	95,050	30.1%	29,900	84,600	35.3%
BRAINERD	20,200	95,200	21.2%	20,700	57,450	36.0%
DULUTH	148,200	301,350	49.2%	155,800	239,900	64.9%
HIBBING	12,700	58,000	21.9%	11,600	34,000	34.1%
INTERNATIONAL FALLS	22,300	59,300	37.6%	21,800	48,550	44.9%
ROCHESTER	155,000	318,050	48.7%	143,200	275,750	51.9%
ST. CLOUD	23,700	85,000	27.9%	25,900	64,600	40.1%
THIEF RIVER FALLS	7,200	26,800	26.9%	5,000	23,800	21.0%
<b>TOTAL GREATER MN AIRPORTS</b>	<b>417,900</b>	<b>1,038,700</b>	<b>40.2%</b>	<b>413,900</b>	<b>807,600</b>	<b>51.3%</b>
	Change in Enplanements			-1.0%		
	Change in One Way Seats			-22.2%		
	Change in Load Factor			+11.0%		

Prepared: December 2005.

Note: In 2000, low load factors attributable to shared flights at most Greater Minnesota airports.

**Exhibit 4-5  
Total Commercial Airline Seats Available**



Prepared: December 2005.  
Note: Paired flights result in double counting of seats.

### General Forecast Assumptions

A general set of forecast assumptions were applied to all airports. The major assumptions are as described below:

- The forecasts are unconstrained with respect to facilities. This means that for “normal growth”, there should be sufficient airfield, terminal and landside facilities to accommodate the level of activity anticipated at the airports during the forecast period.
- The forecasts also assume that Northwest Airlines will continue to operate its hub at Minneapolis-St. Paul International Airport and serve the Greater Minnesota Airports in a manner consistent with current operations.
- During the forecast period, it is assumed that the economy will experience typical business cycles. These cycles will result in perturbations of demand for air service. However, generally speaking, the high growth periods will offset periods of low growth or decline.
- No specific entry of low cost carriers is built into the forecasts. However, it is anticipated that the cost of flying from MSP will continue to decline and that the premium paid to fly from Greater Minnesota airports will increase.

- 
- For Hibbing and Thief River Falls, the forecasts assume airport activity will continue at present levels as long as these communities continue to qualify for Essential Air Service subsidy and the subsidy remains sufficient.
  - From 2005 to 2010, no major reductions or additions in operations are expected at Greater Minnesota airports. Initially, retirement of RJ-85 and DC-9 aircraft will result in greater use of regional jets. For Duluth, loss of the maintenance base for Airbus aircraft has not yet resulted in a reduction of A320 service. Allegiant Air will start service in 2006 with 4 weekly operations of 150 seat aircraft; this may offset future curtailments in Airbus service to Duluth.
  - In 2015, reductions in the Saab 340 fleet will result in the use of more 44 seat regional jets at the smaller Greater Minnesota airports. A few 21-40 seat aircraft will continue operating throughout the forecast period.

## Passenger Forecasts

### *Methodology*

The following methodology was used to forecast each Greater Minnesota Airport:

- Examine the history of enplanements for trends.
- Determine through regression analysis the economic drivers of passenger activity at each local airport, including: population, employment, income, and per capita income.
- Test for correlation between local passenger enplanements and ratios that compare the relative difference between average fares at the local airport and at MSP.
- Look at the historical market share between local airport enplaned passengers and U.S. enplaned passengers.
- Project future enplanements using regression analysis and/or market share analysis.
- Back-test the equations to see if they predict historical activity adequately.
- Compare results with the FAA Terminal Area Forecasts and current airport specific master plans, if available.

### *Forecasts*

**Table 4-17** presents the forecasts of enplaned passengers. Overall, Greater Minnesota airports will grow from approximately 414,000 enplanements to 538,300 in 2025 for an average annual growth rate of 1.3 percent. This growth average annual rate of growth is slower than what the MAC expects for Minneapolis-St. Paul International Airport. Consequently, Greater Minnesota airports will handle an increasingly smaller share of Minnesota's total commercial passenger demand traffic as traffic builds to 34 million enplaned passengers by the end of the forecast period. Forecasts, in terms of rate of growth, are the highest for Duluth and Bemidji. Most of this growth is due to consolidation of airport activity and the introduction of new air services at Duluth. St. Cloud and Brainerd are experiencing some of the fastest population and employment growth in the State. However, close proximity to MSP will continue to dampen use of these local airports unless St. Cloud or Brainerd can attract additional seasonal or year-round service.

**Table 4-17  
Historical and Forecast Enplanements**

<b>AIRPORT</b>	<b>1995</b>	<b>2005E</b>	<b>2010</b>	<b>2015</b>	<b>2020</b>	<b>2025</b>
BEMIDJI	16,100	29,900	33,900	38,500	43,400	48,000
BRAINERD	11,800	20,700	22,000	22,800	22,900	23,000
DULUTH	119,200	155,800	182,500	201,300	216,000	226,200
HIBBING	13,100	11,600	11,700	11,700	11,700	11,700
INTERNATIONAL FALLS	19,100	21,800	21,700	21,800	21,800	21,900
ROCHESTER	156,500	143,200	153,600	159,300	165,500	171,400
ST. CLOUD	8,400	25,900	25,600	27,100	29,100	31,100
THIEF RIVER FALLS	3,700	5,000	5,000	5,000	5,000	5,000
<b>TOTAL GREATER MINNESOTA</b>	<b>348,000</b>	<b>414,000</b>	<b>456,000</b>	<b>487,500</b>	<b>515,300</b>	<b>538,300</b>
MINNEAPOLIS-ST. PAUL	12,664,300	18,515,600	21,986,000	24,552,000	33,445,200	-
<b>TOTAL MINNESOTA</b>	<b>13,012,200</b>	<b>18,929,500</b>	<b>22,414,500</b>	<b>24,995,100</b>	<b>33,895,900</b>	<b>-</b>
% GREATER MINNESOTA	2.70%	2.20%	2.00%	2.00%	1.50%	
<b>COMPOUND ANNUAL GROWTH RATE</b>						
	<b>1995-2005E</b>	<b>2005-2010</b>	<b>2010-2015</b>	<b>2015-2025</b>	<b>2005-2025</b>	
BEMIDJI	6.4%	2.5%	2.6%	2.2%	2.4%	
BRAINERD	5.8%	1.2%	0.7%	0.1%	0.5%	
DULUTH	2.7%	3.2%	2.0%	1.2%	1.9%	
HIBBING	-1.2%	0.2%	0.0%	0.0%	0.0%	
INTERNATIONAL FALLS	1.3%	-0.1%	0.1%	0.0%	0.0%	
ROCHESTER	-0.9%	1.4%	0.7%	0.7%	0.9%	
ST. CLOUD	11.9%	-0.2%	1.1%	1.4%	0.9%	
THIEF RIVER FALLS	3.1%	0.0%	0.0%	0.0%	0.0%	
<b>TOTAL GREATER MINNESOTA</b>	<b>1.8%</b>	<b>2.0%</b>	<b>1.3%</b>	<b>1.0%</b>	<b>1.3%</b>	
MINNEAPOLIS-ST. PAUL	3.9%	3.5%	2.2%			
<b>TOTAL MINNESOTA</b>	<b>3.8%</b>	<b>3.4%</b>	<b>2.2%</b>			

Source: Historical Enplanements: Individual Minnesota Airports  
 Greater Minnesota Forecasts: KRAMER aerotek, inc.  
 Minneapolis-St. Paul Airport Forecasts: 2010 and 2015, Draft Environmental Assessment - MSP 2015 Terminal Expansion Project, Forecast.  
 2020 Forecast, FAA Terminal Area  
 Prepared: December 2005.

**Table 4-18** compares the SASP forecasts with the Terminal Area Forecasts (TAF) for each airport in the Minnesota system. In 2005, the TAF underestimated actual performance at the Minnesota airports, without exception. A higher base level of enplanements resulted in five to ten year SASP forecasts that are generally higher than the TAF with the notable exception of the MAC forecasts for MSP. Long-term, the forecasts are fairly accurate.

## Operations Forecasts

**Tables 4-19 to 4-22** present four different components of future commercial airline operations at Greater Minnesota airports: operations, seats, load factors, and aircraft size. Changes in activity will be largely due to the following:

- Retirement of Saab 340's and replacement of these aircraft with 44 seat regional jets, starting in 2015.
- Replacement of RJ-85's with some 50 seat RJ's or 70 seat RJ's.
- General increase in load factors over the forecast period.
- Slight increase in the average size of aircraft.

**Table 4-19**  
**Annual Commercial Operations**

AIRPORTS	2005E	2010	2015	2025
BEMIDJI	5,200	5,200	4,700	5,200
BRAINERD	3,400	3,400	3,300	2,600
DULUTH	6,300	7,700	7,700	8,200
HIBBING	2,000	2,000	2,000	2,000
INTERNATIONAL FALLS	2,800	2,600	2,200	2,100
ROCHESTER	10,300	10,600	10,700	10,300
ST. CLOUD	3,800	3,700	3,700	2,900
THIEF RIVER FALLS	1,400	1,400	1,400	1,400
<b>TOTAL GREATER MINNESOTA</b>	<b>35,200</b>	<b>36,600</b>	<b>35,600</b>	<b>34,700</b>

Source: KRAMER aerotek inc.  
Prepared: December 2005.

**Table 4-20**  
**Annual Departing Commercial Airline Seats**

AIRPORTS	2005E	2010	2015	2025
BEMIDJI	169,200	169,200	168,100	198,700
BRAINERD	114,900	115,100	118,600	109,200
DULUTH	479,800	561,500	573,700	645,500
HIBBING	68,000	68,000	68,000	68,000
INTERNATIONAL FALLS	97,100	90,900	80,700	86,700
ROCHESTER	551,500	554,900	570,700	584,500
ST. CLOUD	129,200	124,400	132,000	121,800
THIEF RIVER FALLS	47,600	47,600	47,600	47,600
<b>TOTAL GREATER MINNESOTA</b>	<b>1,657,200</b>	<b>1,731,600</b>	<b>1,759,400</b>	<b>1,861,900</b>
<b>TOTAL PASSENGERS</b>	<b>828,000</b>	<b>912,000</b>	<b>975,000</b>	<b>1,076,600</b>

Source: KRAMER aerotek inc.  
Prepared: December 2005.

**Table 4-18  
 Comparison of SASP Forecasts with Terminal Area Forecasts**

AIRPORTS	HISTORICAL ENPLANEMENTS					
	1995	TAF	2005E	TAF		
BEMIDJI	16,100	17,800	29,900	29,200		
BRAINERD	11,800	11,800	20,700	18,100		
DULUTH	119,200	122,200	155,800	135,000		
HIBBING	13,100	13,200	11,600	7,400		
MINNEAPOLIS-ST. PAUL	12,664,300	12,301,100	18,515,600	17,960,100		
INTERNATIONAL FALLS	19,100	19,200	21,800	19,600		
ROCHESTER	156,500	149,000	143,200	141,000		
ST. CLOUD	8,400	7,800	25,900	20,900		
THIEF RIVER FALLS	3,700	2,500	5,000	4,500		
FORECAST ENPLANEMENTS						
	2010	TAF	2015	TAF	2020	TAF
BEMIDJI	33,900	33,200	38,500	37,100	43,400	41,000
BRAINERD	22,000	18,700	22,800	19,400	22,900	20,100
DULUTH	182,500	143,800	201,300	152,600	216,000	161,400
HIBBING	11,700	7,400	0	7,400	11,700	7,400
MINNEAPOLIS-ST. PAUL	21,986,000	23,292,400	24,552,000	28,259,800	33,445,200	33,445,200
INTERNATIONAL FALLS	21,700	20,600	21,800	21,700	21,800	22,700
ROCHESTER	153,600	148,800	159,300	156,600	165,500	164,400
ST. CLOUD	25,600	24,200	27,100	27,500	29,100	30,800
THIEF RIVER FALLS	5,000	4,500	5,000	4,500	5,000	4,500

Source: Airport Records; FAA Terminal Area Forecasts; and KRAMER Aerotek.  
 Prepared: December 2005.

**Table 4-21  
Average Commercial Aircraft Load Factors**

AIRPORTS	2005E	2010	2015	2025
BEMIDJI	35.4%	40.1%	45.8%	48.3%
BRAINERD	36.0%	38.2%	38.4%	42.1%
DULUTH	64.9%	65.0%	70.2%	70.1%
HIBBING	34.1%	34.4%	34.4%	34.4%
INTERNATIONAL FALLS	44.9%	47.7%	54.0%	50.5%
ROCHESTER	51.9%	55.4%	55.8%	58.6%
ST. CLOUD	40.1%	41.2%	41.1%	51.1%
THIEF RIVER FALLS	21.0%	21.0%	21.0%	21.0%

Source: KRAMER aerotek inc.  
Prepared: December 2005.

**Table 4-22  
Average Seats per Commercial Aircraft**

AIRPORTS	2005E	2010	2015	2025
BEMIDJI	33	33	36	38
BRAINERD	34	34	36	43
DULUTH	76	73	75	79
HIBBING	34	34	34	34
INTERNATIONAL FALLS	35	35	37	41
ROCHESTER	54	52	54	57
ST. CLOUD	34	34	36	42
THIEF RIVER FALLS	34	34	34	34

Source: KRAMER aerotek inc.  
Prepared: December 2005.

## Commercial Forecast Implications

The forecasts presented assume that the structure of air service in Greater Minnesota will remain essentially the same. It is too soon in the reorganization of NWA to presume radical changes. That said, in Northwest's post-bankruptcy period, Greater Minnesota airports are likely to be called upon to either pay additional premiums for air service or board additional passengers. Both models appear to be currently in use, with Rochester supporting a high level of air service, a higher than average fares and a relatively slow growing number of passengers. Duluth, on the other hand, is supporting much higher load factors on fewer flights. International Falls, Bemidji, and Brainerd carry a large proportion of their passengers during the summer months. It will be up to these communities to demonstrate continued off-season support for air service. With the demise of NWA service at Grand Rapids and Ely and reductions at Hibbing, both Bemidji and Duluth have benefited from the consolidation. This trend may continue. Both Thief River and Hibbing are at risk for continued air service, subject to future funding for Essential Air Service subsidies.

It should be noted that the Greater Minnesota airports have experienced higher growth than was anticipated back in 1999 when the last system plan forecasts were prepared. **Table 4-23** compares estimated 2005 enplanements with the 1999 SASP forecasts for 2010. With few exceptions, Greater Minnesota airports have met or exceeded the previously forecasted

enplanements for 2010. The forecasts contained in this chapter remain a reasonable assessment for this moment in time. As more details emerge concerning a reorganized Northwest Airlines, the view will clarify and the forecasts should be again reviewed.

**Table 4-23  
Comparison of 2005 Enplanements with 1999 SASP Forecast for 2010**

<b>AIRPORTS</b>	<b>2005E</b>	<b>2010*</b>
BEMIDJI	29,900	22,300
BRAINERD	20,700	13,700
DULUTH	155,800	144,000
HIBBING	11,600	12,100
INTERNATIONAL FALLS	21,800	18,400
ROCHESTER	143,200	151,000
ST. CLOUD	25,900	20,000
THIEF RIVER FALLS	5,000	3,900
<b>TOTAL GREATER MINNESOTA AIRPORTS</b>	<b>414,000</b>	<b>385,400</b>

Source: KRAMER aerotek.  
Prepared: December 2005.  
Note: \* 1999 SASP Forecast

## **PROJECTIONS OF AVIATION DEMAND – GENERAL AVIATION**

General aviation activity represents all facets of civil aviation, except the activity of certified route air carriers, commuters, and the military. Projections of general aviation activity at Minnesota study airports are presented in the following sections. Key components of the forecasts include:

- Based Aircraft – the total number of active general aviation aircraft that are either hangared or tied down at an airport.
- Aircraft Fleet Mix – the type of aircraft that operate or are based at an airport (i.e. single-engine, multi-engine, jet, etc).
- Operations – An operation is defined as a landing or a takeoff. For example, a landing and a takeoff, such as a touch-and-go operation, accounts for two operations.

Various methodologies used to project general aviation activity at Minnesota study airports were evaluated and a preferred projection selected. Preferred projections are used in various components of the system planning process to examine future needs of Greater Minnesota's public-use airport system.

### **Based Aircraft Projections**

Several methodologies were used to project based aircraft at Minnesota airports. To ensure a reasonable forecast, the existing characteristics of the State's registered aircraft fleet were examined and used as a baseline from which future based aircraft are projected. The process used to develop projections of based aircraft is described in the following sections:

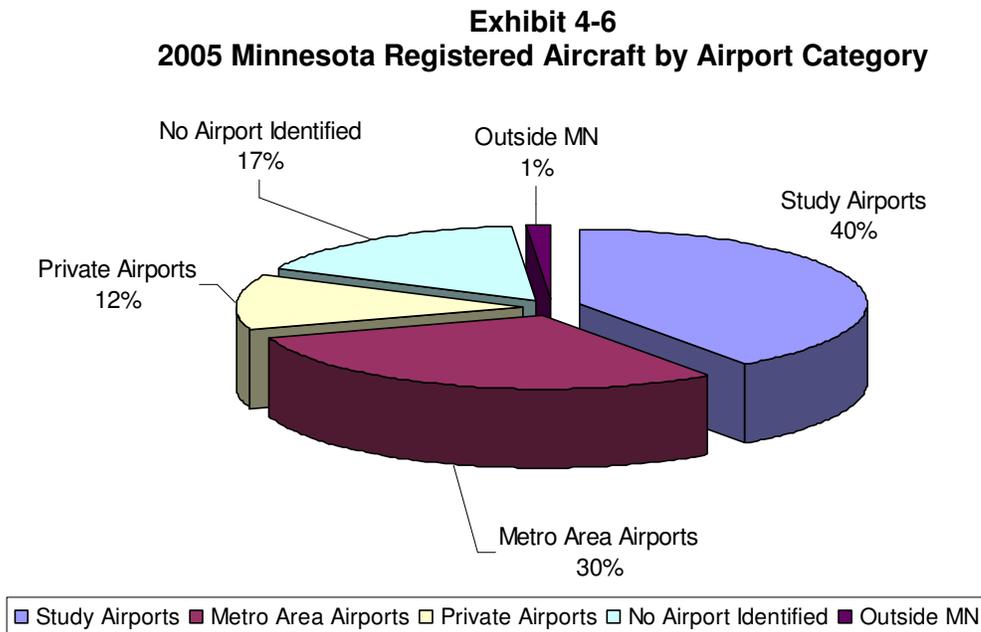
- Based General Aviation Aircraft
- Based Aircraft Projection Methodologies
- Selection of Preferred Based Aircraft Projection
- General Aviation Fleet Mix

Projection methodologies that use “top-down” and “bottom-up” approaches are compared and a preferred based aircraft projection is selected for study airports.

### **Based General Aviation Aircraft**

The State’s database of registered aircraft provides one source for identifying the current characteristics of Minnesota’s general aviation aircraft fleet. This database of registered aircraft records specific data on each aircraft, such as its make/model, engine type, tail number, and the airport at which the aircraft is based. To facilitate the development of based aircraft projections for study airports, registered Minnesota aircraft were categorized based on the airport at which they are based, as indicated by the registration data.

**Exhibit 4-6** illustrates the current distribution of registered general aviation aircraft among all airports, both public-use and private-use, in Minnesota.



Source: Mn/DOT Records.  
Prepared: October 2005.

Based on current aircraft registration data, approximately 40 percent of aircraft that are registered with Mn/DOT are based at study airports, and an additional 30 percent are based at Metro area airports. Approximately 12 percent of Minnesota registered aircraft are based at private-use airports. The remaining aircraft are believed to be based at airports outside of Minnesota or at metro area airports, although records do not indicate where the aircraft is based.

This data provides a snapshot-in-time view of registered aircraft in Minnesota. Although pilot preferences frequently result in based aircraft moving from one airport to another, this data provides a general framework for understanding the distribution of Minnesota's registered aircraft. This data, along with historic trends in based aircraft at study and Metro area airports, are important considerations in the forecasting process.

Registered and active aircraft data for 1995, 2000, and 2005 were evaluated to identify trends affecting Minnesota and the United States. Airports are examined to identify trends in the total number of registered aircraft based at these airports as well as changes to the registered and active aircraft fleet mix. **Table 4-24** presents registered and active aircraft.

**Table 4-24  
Total Historic Registered/Active Aircraft Trends**

YEAR	METRO AREA	ALL MN REGISTERED	US
1995	1,811	6,082	172,913
2000	1,986	6,413	197,126
2005	1,923	6,458	191,080
AVERAGE ANNUAL GROWTH			
1995-2000	1.86%	1.07%	2.66%
2000-2005	-0.64%	0.14%	-0.62%
1995-2005	0.60%	0.60%	1.00%

Source: Mn/DOT records; FAA Aerospace Forecasts, Fiscal Years 2005-2016.  
Prepared: October 2005.

In 2005, Mn/DOT records show a total of 6,458 registered aircraft. As noted, approximately 30 percent of these aircraft (1,923) are based at airports that are in the system of airports that serve the Minneapolis-St. Paul Metropolitan Area. Registration records show that 3,025 are based at Minnesota airports being analyzed in this study. The remaining 1,510 aircraft are potentially based at several metro area airports or based at other non-study airports that are either within or outside of the state.

Registered aircraft based at Metro area airports increased from 1,811 aircraft in 1995 to 1,986 aircraft in 2000. By 2005, the number of registered aircraft based at these airports declined to 1,923. Over the 10-year period, the total number of registered aircraft based at these airports grew at average annual compound rate of 0.6 percent, the same growth rate in registered based aircraft as experienced by all registered aircraft in Minnesota. Contrary to the growth experienced for all registered aircraft, the number of jets at Metro area airports decreased over the period, while rotorcraft and other aircraft experienced growth.

Between 1995 and 2005, the total number of aircraft registered with Mn/DOT increased from 6,082 aircraft to 6,458 aircraft, representing an average annual compound growth rate of approximately 0.6 percent. All segments of the registered aircraft fleet in the state experienced an increase over the 10-year period. The fastest growing component of the registered aircraft fleet over the 10-year period was jet aircraft, increasing from 98 aircraft to 150 aircraft, an average annual compound growth rate of approximately 4.4 percent.

At the national level, the active general aviation aircraft fleet experienced an average annual growth rate of approximately 1 percent between 1995 and 2005. Although the active national

fleet experienced a decline between 2000 and 2005, its growth over the 10-year period outpaced the growth experienced at public use airports in Greater Minnesota and Metro area airports.

In addition to analyzing historic registered and active aircraft trends, it is important to determine trends within the context of each segment of the fleet mix. The following tables (**Tables 4-25 through 4-29**) show historic aircraft fleet mix distributions on the national level, and the State and the Metro Area levels.

**Table 4-25  
Historic Registered/Active Aircraft Trends – Single Engine Aircraft**

YEAR	METRO AREA	ALL MN REGISTERED	US
1995	1,518	5,292	137,049
2000	1,643	5,514	149,422
2005	1,689	5,563	144,150
AVERAGE ANNUAL GROWTH			
1995-2000	1.60%	0.83%	1.74%
2000-2005	0.55%	0.18%	-0.72%
1995-2005	1.07%	0.50%	0.51%

Source: Mn/DOT records; FAA Aerospace Forecasts, Fiscal Years 2005-2016.  
Prepared: October 2005.

**Table 4-26  
Historic Registered/Active Aircraft Trends – Multi-Engine Aircraft**

YEAR	METRO AREA	ALL MN REGISTERED	US
1995	192	420	20,734
2000	187	418	26,853
2005	108	425	25,045
AVERAGE ANNUAL GROWTH			
1995-2000	-0.53%	-0.10%	5.31%
2000-2005	-10.40%	0.33%	-1.38%
1995-2005	-5.59%	0.12%	1.91%

Source: Mn/DOT records; FAA Aerospace Forecasts, Fiscal Years 2005-2016.  
Prepared: October 2005.

Note: Multi engine category includes piston and turboprop

**Table 4-27  
Historic Registered/Active Aircraft Trends – Jet Aircraft**

YEAR	METRO AREA	ALL MN REGISTERED	US
1995	73	98	4,559
2000	111	148	7,001
2005	39	150	8,750
AVERAGE ANNUAL GROWTH			
1995-2000	8.74%	8.59%	8.96%
2000-2005	-18.88%	0.27%	4.56%
1995-2005	-6.08%	4.35%	6.74%

Source: Mn/DOT records; FAA Aerospace Forecasts, Fiscal Years 2005-2016.

Prepared: October 2005.

Note: In the Metro area the decrease in based jet aircraft can be attributed to base transfer outside the Metro area, as well as sale or deregistration.

**Table 4-28  
Historic Registered/Active Aircraft Trends – Rotorcraft Aircraft**

YEAR	METRO AREA	ALL MN REGISTERED	US
1995	23	111	5,830
2000	39	157	7,150
2005	44	149	6,985
AVERAGE ANNUAL GROWTH			
1995-2000	11.14%	7.18%	4.17%
2000-2005	2.44%	-1.04%	-0.47%
1995-2005	6.70%	2.99%	1.82%

Source: Mn/DOT records; FAA Aerospace Forecasts, Fiscal Years 2005-2016.

Prepared: October 2005.

**Table 4-29  
Historic Registered/Active Aircraft Trends – Other Aircraft**

YEAR	METRO AREA	ALL MN REGISTERED	US
1995	5	161	4,741
2000	6	176	6,700
2005	43	171	6,150
AVERAGE ANNUAL GROWTH			
1995-2000	3.71%	1.80%	7.16%
2000-2005	48.27%	-0.57%	-1.70%
1995-2005	24.01%	0.60%	2.64%

Source: Mn/DOT records; FAA Aerospace Forecasts, Fiscal Years 2005-2016.

Prepared: October 2005.

Note: Other category includes balloons, gliders, and ultralights

The characteristics and trends experienced at the national level, and at State and Metro area airports, provide a framework for developing fleet mix forecasts for study airports.

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## ***Based Aircraft Projection Methodologies***

Projections of based aircraft at study airports were developed using three separate methodologies. The results of these different methodologies depict the impacts that different variables may have on activity at study airports. From these projection scenarios, a preferred projection of based aircraft is selected. The different projection methodologies utilized in this analysis are summarized as follows:

- ***US Market Share Approach*** – The market share methodology uses a top-down approach. In this scenario, Minnesota’s share of total U.S. active general aviation aircraft and the market share of study airports of the state total in 2005 is assumed to remain constant through the projection period. Based on these assumptions and active general aviation aircraft projections presented in FAA Aerospace Forecasts Fiscal Years 2005-2016, a statewide projection of based aircraft is developed. Using this approach, based aircraft at study airports are projected to increase from 3,025 aircraft in 2005 to approximately 3,510 in 2025, representing an average annual growth rate of approximately 0.75 percent.
- ***Socioeconomic Methodology*** – The socioeconomic methodology uses projections of Minnesota’s population growth to develop projections of based aircraft through the planning period. Based on current population and based aircraft statistics, a ratio of population per based aircraft was developed for each Minnesota county. This methodology assumes that each county’s ratio will remain constant through the planning period. For the milestone years, each county’s ratio of population per based aircraft is applied to its corresponding population projection to develop a county-specific estimate of based aircraft. The results are summed to develop a projection of statewide based aircraft. In this methodology, based aircraft at study airports are projected to increase from 3,025 aircraft in 2005 to approximately 3,457 aircraft in 2025, representing an average annual growth rate of approximately 0.67 percent.
- ***US Active Aircraft Growth Rate Approach*** – The US active aircraft growth rate approach is a top-down methodology. FAA projects all active general aviation aircraft in the U.S. to grow at a compound average annual rate of 0.70 percent. Using the number of aircraft that are currently based at study airports and the FAA’s projected rate of growth for total U.S. active general aviation aircraft, produces another projection of total based aircraft for study airports. The most current FAA projection for active general aviation aircraft does not extend to 2025. Therefore, growth rates implied in the national forecast were used to extrapolate FAA projections through 2025. Using this approach, based aircraft at study airports are projected to increase from 3,025 aircraft in 2005 to approximately 3,470 in 2025, representing an average annual growth rate of approximately 0.69 percent.

## ***Selection of Preferred Based Aircraft Projection***

After comparing the results and the average annual growth rates of the three methodologies, **Table 4-30**, the socioeconomic methodology was chosen as the preferred methodology because it more closely mirrors the actual growth that Minnesota has been experienced in general aviation aircraft that are registered in the state. Detailed airport specific based aircraft forecasts can be found at the end of this chapter (**Tables 31-36**).

**Table 4-30  
Based Aircraft Forecast Methodology Comparison**

METHODOLOGY	TOTAL BASED AIRCRAFT SASP AIRPORTS				AAGR 2005-2025
	2005	2010	2015	2025	
US Market Share	3,025	3,170	3,290	3,510	0.75%
Socioeconomic	3,025	3,136	3,227	3,457	0.67%
US Active Aircraft Growth Rate Approach	3,025	3,159	3,259	3,470	0.69%

Source: Woods and Poole Economics, Inc (2005); FAA Aerospace Forecasts, Fiscal Years 2005-2016.

Prepared: December 2005.

Note: AAGR – Average Annual Growth Rate

### **General Aviation Fleet Mix**

An airport's based aircraft fleet mix is one indication of its operational role and facility needs. In projecting the based aircraft fleet mix for the study airports, consideration was given to the continually changing national active general aviation aircraft fleet and the existing fleet mix at each system airport.

For many of the airports, the nature of the based fleet indicates that the fleet will continue to be primarily single-engine aircraft. Existing fleet mix percentages at study airports were considered when developing airport specific fleet mix projections. Adjusted fleet mix ratios were applied to the preferred projection of based aircraft for each airport through the 2010, 2015, and 2025 planning periods as shown in **Table 4-37**.

**Table 4-37  
Based Aircraft Fleet Mix**

AIRCRAFT TYPE	2005	2010	2015	2025	AAGR 2005-2025
Single Engine	2565	2591	2631	2685	0.23%
Multi Engine 1/	208	218	229	253	0.97%
Jet	45	56	69	115	4.80%
Rotor Craft	58	61	65	80	1.62%
Other 2/	148	150	152	155	0.23%
Sport 3/	---	60	80	169	7.15%
<b>Total</b>	<b>3,025</b>	<b>3,136</b>	<b>3,227</b>	<b>3,457</b>	<b>0.67%</b>

Source: Wilbur Smith Associates.

Prepared: December 2005.

Notes: AAGR – Average Annual Growth Rate

1/ Multi engine category includes piston and turboprop

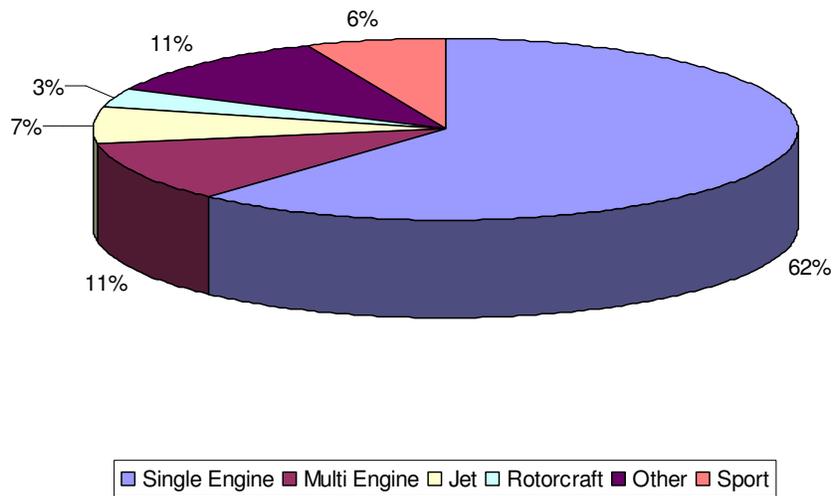
2/ Other category includes balloons, gliders, and ultralights

3/ The number of active sport aircraft is not available for 2005; AAGR is derived using 2010 and 2025 projections.

Table 4-37 shows the number of aircraft by type that can be expected at all study airports between 2005 and 2025. As shown, the 2010 forecast milestone shows the new Sport Aircraft category.

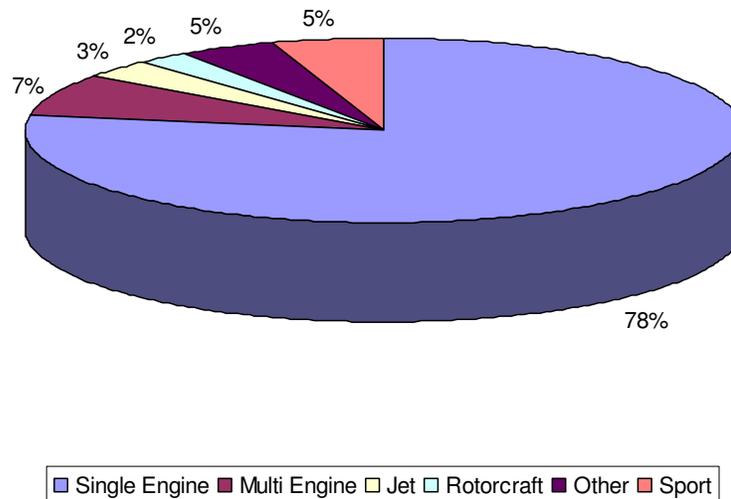
As shown in this table, it is expected that by the end of the planning period the fleet mix for the study airports could more closely reflect the FAA distribution of general aviation by aircraft type as shown in **Exhibits 4-7** and **4-8**.

**Exhibit 4-7  
US Active Fleet (2016)**



Source: FAA Aerospace Forecasts, Fiscal Years 2005-2016.  
Prepared: December 2005.

**Exhibit 4-8  
Study Airports (2025)**



Source: Wilbur Smith Associates.  
Prepared: December 2005.

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The forecast fleet mix for all study airports was then distributed to each of the individual airports. Each airport's role in the system (Key, Intermediate, and Landing Strip), the airport's current fleet mix, and the airport's location in relationship to areas of the Minnesota that are projected to have socioeconomic and demographic growth were considered as airport fleet mix projections were prepared.

## **Aircraft Operations Projections**

Two methodologies were tested to project general aviation operations. The process used to develop projections of system plan aircraft operations is described in the following sections:

- Aircraft Operations Projection Methodologies
- Selection of Preferred Aircraft Operations Projection
- Local/Itinerant General Aviation Operations

Projection methodologies that implement "top-down" and "bottom-up" approaches are compared and a preferred aircraft operation projection is selected for study airports.

### ***Aircraft Operations Projection Methodologies***

Projections of aircraft operations at study airports were developed using two separate methodologies. The results of these different methodologies depict the impacts that different variables may have on operations at study airports. From these projections, a preferred projection of general aviation aircraft operations is selected. The different methodologies utilized in this analysis are summarized as follows:

- ***Operations Per Based Aircraft (OPBA) Methodology*** – The OPBA methodology uses each airport's projected number of based aircraft and multiplies that number by an appropriate OPBA ratio to yield projected total annual general aviation aircraft operations for each airport. The OPBA ratio represents all general aviation operations, not just those conducted by the based aircraft. Each study airport's estimated 2005 OPBA ratio was used to develop these projections. The preferred based aircraft projections previously presented were used as part of this projection technique. This methodology produces a 2025 projection of 1,476,416 general aviation operations; 2005 total annual general aviation operations for study airports were 1,292,651. Using the OPBA methodology, annual general aviation operations are projected to grow at an average annual growth rate of 0.67 percent over the 20-year planning period.
- ***Socioeconomic Methodology*** – The socioeconomic methodology uses projections of Minnesota's population growth to develop projections of general aviation operations. Based on current population and aircraft operations statistics, a ratio of operations per capita at study airports was developed for each Minnesota county. This methodology assumes that each county's ratio will remain constant through the planning period. In this methodology, general aviation aircraft operations are projected to increase from 1,292,651 aircraft operations in 2005 to approximately 1,490,484 aircraft operations in 2025, representing an average annual growth rate of approximately 0.71 percent.

## Selection of Preferred Aircraft Operations Projection

The results from the two methodologies were compared. Based on the review of the two methodologies, as shown in **Table 4-38**, the socioeconomic methodology was selected as the preferred general aviation operations projection as it more closely mirrors the general aviation environment experienced in Minnesota over the last several years. Detailed airport specific general aviation operations forecasts can be found at the end of this chapter.

**Table 4-38**  
**Aircraft Operations Methodology Comparison**

METHODOLOGY	TOTAL AIRCRAFT OPERATIONS SASP AIRPORTS				AAGR 2005-2025
	2005	2010	2015	2025	
OPBA	1,292,651	1,330,885	1,379,990	1,476,416	0.61%
Socioeconomic	1,292,651	1,347,343	1,391,835	1,490,484	0.71%

Source: Mn/DOT records; Woods and Poole Economics, Inc (2005); and FAA Terminal Area Forecasts.  
Prepared: December 2005.

## Local/Itinerant General Aviation Operations

The split between local and itinerant operations was projected for each of the Minnesota study airports. The FAA defines local operations as operations performed by aircraft that:

- Operate in the local traffic pattern or within sight of an airport
- Are known to be departing for or arriving from flight in local practice areas located within a 20-mile radius of the airport
- Are executing simulated instrument approaches in low pass at an airport

Itinerant operations are all other operations. The existing local/itinerant split for each airport was held constant throughout the planning period. **Table 4-39** summarizes Minnesota's study airports local and itinerant operations for the 20-year planning period.

**Table 4-39**  
**Local/Itinerant General Aviation Operations**

OPERATION TYPE	2005	2010	2015	2025	% OF TOTAL OPERATIONS
Local	774,703	808,753	836,213	897,112	60%
Itinerant	517,948	538,590	555,622	593,371	40%
<b>Total</b>	<b>1,292,651</b>	<b>1,347,343</b>	<b>1,391,835</b>	<b>1,490,484</b>	<b>100%</b>

Source: Wilbur Smith Associates.  
Prepared: December 2005.

## Statewide General Aviation Activity Summary

**Table 4-40** provides a comparison of the projections in the 1999 Minnesota Aviation System Plan and current System Plan projections for general aviation activity. Current projections are based on demographic indicators for Minnesota which show that the state experienced annual

growth rates of between 1.1 and 1.3 percent in population and employment between 1994 and 2004. Using projected state growth, based aircraft and annual general aviation operations at study airports are projected to increase from 3,025 and 1,292,651, respectively, to 3,457 and 1,490,484 by 2025. This represents average annual growth rates of 0.67 and 0.71 percent, respectively. The previous aviation system plan projected a 0.32 percent average annual growth rate between 1996 and 2020 for based aircraft at study airports and a 0.31 percent average growth rate for general aviation operations. The rates of growth for both based aircraft and total annual general aviation operations reflected in this update are consistent with growth that Minnesota has experienced since the preparation of the prior plan.

**Table 4-40  
Minnesota Aviation System Plan Comparison at Study Airports  
(1999 and 2005)**

STUDY	TOTAL BASED AIRCRAFT						
	Planning Horizons						
	1996	2000	2005	2010	2015	2020	2025
1999 Minnesota Aviation System Plan	2,830	2,869	---	2,963	---	3,055	---
2005 Minnesota Aviation System Plan	---	---	3,025	3,116	3,227	---	3,457
	TOTAL GENERAL AVIATION OPERATIONS						
	Planning Horizons						
	1996	2000	2005	2010	2015	2020	2025
1999 Minnesota Aviation System Plan	1,315,500	1,332,400	---	1,379,800	---	1,417,700	---
2005 Minnesota Aviation System Plan	---	---	1,292,651	1,347,343	1,391,835	---	1,490,484

Source: Wilbur Smith Associates; 1999 Minnesota Aviation System Plan.  
Prepared: December 2005.

### General Aviation Forecast Implications

Statewide general aviation forecasts, presented in the 1996 State Aviation System Plan, were eclipsed by actual growth in general aviation demand experienced by study airports. Review of the projections prepared as part of this system plan update indicate that study airports should have for the most part ample operational capacity to accommodate projected demand. On a case by case basis through the airport master planning process, a few airports may identify the need for projects over the next twenty years that will boost their operational capacity. Most study airports will need additional storage capacity to meet growing demand from based aircraft.

This plan produced general aviation demand projections for the airports in the Greater Minnesota system. As has been previously noted, the responsibility for planning for the nine airports in the immediate Minneapolis – St. Paul Metropolitan Area rests with the Metropolitan

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Council of the Twin Cities. Seven of the nine airports in the metro area are owned and operated by the Metropolitan Airports Commission (MAC).

When Minnesota's aviation system plan was last updated in 1996, the Metropolitan Council had recently prepared a similar system planning analysis for the airports in the metro area. An update to the metropolitan area system plan was started in 2001. The effort was suspended with the 9/11 terrorist attacks and was never completed. Where data on the airports in the metropolitan system is available, it has been incorporated into this plan. For Minnesota to have a comprehensive plan that addresses all public airports, an update to the metropolitan system plan and individual comprehensive plans for the MAC airports are both needed. As of the writing of this plan, the Metropolitan Council anticipates initiating an update to their Metropolitan System Plan by 2007.

In April 2004, the Metropolitan Council did release a study on Sport Aviation. This study examined varying levels of based aircraft that might be anticipated at the nine airports in the metro area. The various demand scenarios developed for the Sport Aviation study were driven by baseline growth in general aviation and the possible influx of a new category of general aviation aircraft, sport aircraft.

**Table 4-41** provides a summary of forecasts from the Sport Aviation Study. When the Sport Aviation Study was initiated in 2002, there were an estimated 2,055 based aircraft at the airports in the metro area. Even under a lower growth scenario, more than 300 additional based aircraft might be expected at the nine metro area areas by 2030. Under a more aggressive growth scenario, more than 900 based aircraft might be expected at airports in the metro area by 2030.

It is doubtful that sufficient operational and storage capacity exists at the metro area airports to accommodate all future growth that is implied in the forecasts obtained from the Sport Aviation Study. As a result, it is likely that some of this projected general aviation growth could "spill over" to other airports in the Greater Minnesota system. In addition, in February 2006 the FAA made changes to the Class B airspace in the metropolitan area. These changes have made the airspace in the seven county area more restrictive by expanding the lateral limits of the airspace from 20 nm to 30 nm in some places and raising the ceiling from 8,000 feet msl to 10,000 feet msl. These changes could result in additional aircraft seeking basing opportunities outside the metro area. Finally, MAC is contemplating changes to its airports that also could result in system changes.

As part of an update to Metropolitan Council's aviation system plan for the metropolitan area, an analysis should be undertaken to determine how demand for airports in the Greater Minnesota airport system might be impacted by the outflow of based aircraft and/or aircraft operations from the nine airports in the seven metropolitan counties. When this information is available, an interim update to the State Aviation System Plan is recommended.

**Table 4-41  
Sport Aviation Forecast Summary  
Metro Area Airports**

METRO AREA AIRPORT	BASELINE FORECASTS – BASED AIRCRAFT			
	2002	2010	2020	2030
Forest Lake	18	18	20	20
Minneapolis-St. Paul International	13	17	20	25
Airlake	171	176	186	193
Anoka County/Blaine-Jane's Field	464	481	515	538
Crystal	276	284	303	311
Flying Cloud	473	490	525	547
St. Paul Downtown-Holman Field	130	142	155	171
Lake Elmo	237	243	257	264
<b>Total</b>	<b>2,055</b>	<b>2,130</b>	<b>2,277</b>	<b>2,373</b>
	HIGH GROWTH SCENARIO– BASED AIRCRAFT			
	2002	2010	2020	2030
Forest Lake	18	22	24	25
Minneapolis-St. Paul International	13	17	20	25
Airlake	171	216	240	251
Anoka County/Blaine-Jane's Field	464	578	643	676
Crystal	276	344	382	398
Flying Cloud	473	583	648	681
St. Paul Downtown-Holman Field	130	158	176	194
Lake Elmo	237	300	331	345
<b>Total</b>	<b>2,055</b>	<b>2,559</b>	<b>2,841</b>	<b>2,987</b>

Source: Metropolitan Council Sport Aviation Study, April 2004.

Prepared: February 2005.

Note: Base year data was obtained from FAA Form 5010s.

## FORECAST SUMMARY

The projections developed in this chapter will be used in the evaluation of the Minnesota airport system's ability to accommodate future demand. The projections provided in this chapter are considered planning estimates and are based on information gathered from all available sources. These projections were generated to a system planning, rather than a master planning, level of detail. Comprehensive airport development plans will continue to provide guidance for actual airport development as individual airport plans are developed from an examination of each airport's local conditions and operating environment.

**Table 4-31 (1 of 4)  
 Forecast Summary - Based Aircraft  
 (2005-2025)**

Associated City	Airport Name	Based Aircraft				AAGR 2005-2025
		2005	2010	2015	2025	
<b>Key Airports</b>						
Alexandria	Alexandria Municipal – Chandler Field	53	55	56	61	0.70%
Austin	Austin Municipal	46	47	49	54	0.84%
Baudette	Baudette International	19	20	21	25	1.41%
Bemidji	Bemidji Regional	54	56	60	69	1.27%
Brainerd	Brainerd Lakes Regional	85	89	92	99	0.77%
Duluth	Duluth International	82	83	86	93	0.62%
Ely	Ely Municipal	24	24	25	27	0.60%
Fairmont	Fairmont Municipal	22	23	23	26	0.92%
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	45	47	48	51	0.67%
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	81	83	85	91	0.57%
Hibbing	Chisholm-Hibbing Municipal	47	48	48	51	0.38%
International Falls	Falls International	36	36	37	38	0.25%
Mankato	Mankato Regional – Sohler Field	90	93	96	106	0.83%
Marshall	Southwest Minnesota Regional – Ryan Field	32	33	34	36	0.65%
Owatonna	Owatonna – Degner Regional	50	52	54	57	0.69%
Park Rapids	Park Rapids Municipal – Konshok Field	31	32	32	35	0.57%
Red Wing	Red Wing Regional	56	57	59	64	0.69%
Rochester	Rochester International	47	49	51	55	0.81%
St. Cloud	St. Cloud Regional	100	109	116	140	1.71%
Thief River Falls	Thief River Falls Regional	24	25	26	30	1.13%
Warroad	Warroad International – Swede Carlson Field	14	15	16	19	1.44%
Willmar	Willmar Municipal – John L. Rice Field	46	49	50	55	0.92%
Winona	Winona Municipal – Max Conrad Field	53	55	56	59	0.55%
Worthington	Worthington Municipal	25	26	27	29	0.76%
<b>Intermediate Airports</b>						
Ada	Norman County – Ada-Twin Valley	7	7	7	7	0.15%
Aitkin	Aitkin Municipal – Steve Kurtz Field	44	47	48	51	0.74%
Albert Lea	Albert Lea Municipal	58	59	59	62	0.35%
Appleton	Appleton Municipal	6	6	6	7	0.92%
Bagley	Bagley Municipal	3	3	3	3	0.15%

**Table 4-31 (2 of 4)  
Forecast Summary - Based Aircraft  
(2005-2025)**

Associated City	Airport Name	Based Aircraft				AAGH 2005-2025
		2005	2010	2015	2025	
Benson	Benson Municipal – Veterans Field	11	11	11	11	0.15%
Bigfork	Bigfork Municipal	5	5	5	7	1.89%
Blue Earth	Blue Earth Municipal	28	28	29	29	0.14%
Brooten	Brooten Municipal	8	8	8	9	0.70%
Buffalo	Buffalo Municipal	47	52	55	62	1.40%
Caledonia	Houston County	11	11	11	11	0.15%
Cambridge	Cambridge Municipal	51	55	56	60	0.80%
Canby	Canby Municipal – Myers Field	25	25	25	26	0.29%
Cloquet	Cloquet-Carlton County	42	44	45	47	0.52%
Cook	Cook Municipal	14	14	14	14	0.15%
Crookston	Crookston Municipal – Kirkwood Field	39	39	40	40	0.15%
Detroit Lakes	Detroit Lakes – Wething Field	76	78	79	80	0.28%
Dodge Center	Dodge Center Municipal	34	36	37	39	0.64%
Duluth	Sky Harbor	25	25	26	26	0.15%
Eveleth-Virginia	Eveleth-Virginia Municipal	31	31	32	34	0.52%
Faribault	Faribault Municipal	70	72	74	76	0.39%
Fertile	Fertile Municipal	2	2	2	2	0.44%
Fosston	Fosston Municipal	8	8	8	8	0.15%
Glencoe	Glencoe Municipal – Vernon Perschau Field	26	27	28	29	0.48%
Glenwood	Glenwood Municipal	22	22	23	23	0.20%
Grand Marais	Grand Marais – Cook County	18	19	20	20	0.64%
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	14	15	15	16	0.59%
Hallock	Hallock Municipal	10	10	10	10	0.21%
Hawley	Hawley Municipal	16	16	16	18	0.48%
Hector	Hector Municipal	22	22	23	23	0.22%
Herman	Herman Municipal	6	6	6	6	0.14%
Hutchinson	Hutchinson Municipal – Butler Field	31	32	33	36	0.70%
Jackson	Jackson Municipal	15	15	15	15	0.15%
Le Sueur	Le Sueur Municipal	57	58	59	62	0.40%
Litchfield	Litchfield Municipal	16	16	17	19	0.79%
Little Falls	Little Falls – Morrison County – Lindbergh Field	41	42	43	44	0.36%
Long Prairie	Long Prairie Municipal – Todd Field	15	15	15	16	0.46%

**Table 4-31 (3 of 4)  
Forecast Summary - Based Aircraft  
(2005-2025)**

Associated City	Airport Name	Based Aircraft				AAGH 2005-2025
		2005	2010	2015	2025	
Longville	Longville Municipal	3	3	3	4	1.56%
Luverne	Luverne Municipal – Quentin Aanenson Field	15	15	15	15	0.15%
Madison	Lac Qui Parle County – Bud Frye Field	4	4	4	4	0.15%
Maple Lake	Maple Lake Municipal	50	55	57	64	1.26%
McGregor	McGregor – Isedor Iverson	5	5	5	6	1.04%
Montevideo	Montevideo-Chippewa County	26	26	27	27	0.15%
Moorhead	Moorhead Municipal	20	20	21	23	0.69%
Moose Lake	Moose Lake – Carlton County	14	14	14	15	0.47%
Mora	Mora Municipal	46	49	50	52	0.63%
Morris	Morris Municipal	15	15	16	16	0.28%
New Ulm	New Ulm Municipal	21	21	21	22	0.17%
Olivia	Olivia Regional	13	13	14	13	0.10%
Orr	Orr Regional	7	7	7	7	0.23%
Ortonville	Ortonville Municipal – Martinson Field	5	5	5	5	0.15%
Paynesville	Paynesville Municipal	15	16	17	18	0.85%
Perham	Perham Municipal	19	20	21	22	0.66%
Pine River	Pine River Regional	36	40	41	44	0.99%
Pinecreek	Piney-Pinecreek Border	0	0	0	0	0.00%
Pipestone	Pipestone Municipal	17	17	18	18	0.19%
Preston	Fillmore County	17	17	17	18	0.16%
Princeton	Princeton Municipal	27	29	30	33	0.99%
Red Lake Falls	Red Lake Falls Municipal	9	9	9	9	0.15%
Redwood Falls	Redwood Falls Municipal	12	12	13	13	0.44%
Roseau	Roseau Municipal – Rudy Billberg Field	15	16	17	17	0.70%
Rush City	Rush City Regional	42	46	48	55	1.38%
Rushford	Rushford Municipal	7	7	7	9	1.38%
Sauk Centre	Sauk Centre Municipal	14	14	16	19	1.58%
Silver Bay	Silver Bay Municipal	14	14	14	15	0.18%
Slayton	Slayton Municipal	9	9	9	9	0.15%
Sleepy Eye	Sleepy Eye Municipal	10	10	10	10	0.16%
Springfield	Springfield Municipal	4	4	4	4	0.15%
St. James	St. James Municipal	15	15	16	16	0.45%
Staples	Staples Municipal	30	30	31	31	0.17%

**Table 4-31 (4 of 4)  
Forecast Summary - Based Aircraft  
(2005-2025)**

Associated City	Airport Name	Based Aircraft				AAGR 2005-2025
		2005	2010	2015	2025	
Stephen	Stephen Municipal	11	11	11	11	0.15%
Tower	Tower Municipal	31	32	32	35	0.62%
Tracy	Tracy Municipal	10	10	10	12	1.04%
Two Harbors	Richard B. Helgeson	33	34	35	36	0.43%
Wadena	Wadena Municipal	11	11	11	13	1.02%
Walker	Walker Municipal	23	25	26	30	1.26%
Warren	Warren Municipal	4	4	4	4	0.15%
Waseca	Waseca Municipal	27	27	28	30	0.53%
Wheaton	Wheaton Municipal	9	9	9	9	0.15%
Windom	Windom Municipal	14	14	14	15	0.19%
<b>Landing Strips</b>						
Backus	Backus Municipal	7	8	9	12	2.87%
Big Falls	Big Falls Municipal	1	1	1	1	0.15%
Bowstring	Bowstring Municipal	7	7	7	7	0.15%
Clarissa	Clarissa Municipal	1	1	1	1	0.15%
East Gull Lake	East Gull Lake Municipal	0	0	0	0	0.00%
Elbow Lake	Elbow Lake Municipal – Pride of the Prairie	18	18	19	19	0.17%
Grygla	Grygla Municipal – Mel Wilkens Field	0	0	0	0	0.00%
Henning	Henning Municipal	10	10	10	12	1.04%
Hill City	Hill City – Quadna Mountain	0	0	0	0	0.00%
Karlstad	Karlstad Municipal	2	2	2	2	0.15%
Littlefork	Littlefork Municipal – Hanover	2	2	2	2	0.15%
Mahnomen	Mahnomen County	17	17	17	18	0.15%
Milaca	Milaca Municipal	28	30	31	32	0.75%
Murdock	Murdock Municipal	0	0	0	0	0.00%
New York Mills	New York Mills Municipal	1	1	1	3	5.70%
Northome	Northome Municipal	0	0	0	0	0.00%
Pelican Rapids	Pelican Rapids Municipal – Lyon's Field	14	14	14	14	0.15%
Remer	Remer Municipal	6	6	6	7	0.89%
Starbuck	Starbuck Municipal	3	3	3	3	0.15%
Tyler	Tyler Municipal	6	6	6	6	0.16%
Waskish	Waskish Municipal	0	0	0	0	0.00%
Wells	Wells Municipal	6	6	6	6	0.15%
Winsted	Winsted Municipal	51	54	55	56	0.49%

Source: Mn/DOT records; FAA Form 5010s; Woods and Poole Economics, Inc.; and Wilbur Smith Associates.  
Prepared: December 2005.

**Table 4-32 (1 of 4)**  
**Forecast Summary – General Aviation Operations**  
**(2005-2025)**

Associated City	Airport Name	General Aviation Aircraft Operations				
		2005	2010	2015	2025	AAGR 2005-2025
<b>Key Airports</b>						
Alexandria	Alexandria Municipal – Chandler Field	26,000	27,488	29,060	32,481	1.12%
Austin	Austin Municipal	55,000	55,949	56,914	58,895	0.34%
Baudette	Baudette International	8,500	8,688	8,880	9,276	0.44%
Bemidji	Bemidji Regional	12,000	12,631	13,295	14,729	1.03%
Brainerd	Brainerd Lakes Regional	37,500	40,144	42,974	49,247	1.37%
Duluth	Duluth International	71,123	71,437	71,752	72,387	0.09%
Ely	Ely Municipal	3,000	3,013	3,027	3,053	0.09%
Fairmont	Fairmont Municipal	5,000	5,000	5,000	5,000	0.00%
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	8,900	9,161	9,429	9,989	0.58%
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	25,000	25,650	26,316	27,702	0.51%
Hibbing	Chisholm-Hibbing Municipal	12,272	12,326	12,381	12,490	0.09%
International Falls	Falls International	15,000	15,000	15,000	15,000	0.00%
Mankato	Mankato Regional – Sohler Field	72,000	73,966	75,986	80,192	0.54%
Marshall	Southwest Minnesota Regional – Ryan Field	22,848	22,948	23,049	23,251	0.09%
Owatonna	Owatonna – Degner Regional	24,000	24,705	25,430	26,945	0.58%
Park Rapids	Park Rapids Municipal – Konshok Field	2,000	2,114	2,235	2,497	1.12%
Red Wing	Red Wing Regional	14,000	14,481	14,978	16,024	0.68%
Rochester	Rochester International	69,077	73,955	79,177	90,755	1.37%
St. Cloud	St. Cloud Regional	75,890	84,822	94,806	118,438	2.25%
Thief River Falls	Thief River Falls Regional	38,360	38,663	38,968	39,587	0.16%
Warroad	Warroad International – Swede Carlson Field	2,100	2,178	2,260	2,432	0.74%
Willmar	Willmar Municipal – John L. Rice Field	18,100	18,708	19,337	20,659	0.66%
Winona	Winona Municipal – Max Conrad Field	15,000	15,212	15,427	15,867	0.28%
Worthington	Worthington Municipal	3,000	3,035	3,070	3,141	0.23%
<b>Intermediate Airports</b>						
Ada	Norman County – Ada-Twin Valley	5,000	5,000	5,000	5,000	0.00%
Aitkin	Aitkin Municipal – Steve Kurtz Field	18,300	19,253	20,256	22,421	1.02%
Albert Lea	Albert Lea Municipal	55,000	55,000	55,000	55,000	0.00%
Appleton	Appleton Municipal	2,400	2,425	2,450	2,501	0.21%
Bagley	Bagley Municipal	4,000	4,000	4,000	4,000	0.00%

**Table 4-32 (2 of 4)  
Forecast Summary – General Aviation Operations  
(2005-2025)**

Associated City	Airport Name	General Aviation Aircraft Operations				
		2005	2010	2015	2025	AAGR 2005-2025
Benson	Benson Municipal – Veterans Field	4,700	4,749	4,798	4,898	0.21%
Bigfork	Bigfork Municipal	45	46	47	50	0.51%
Blue Earth	Blue Earth Municipal	7,000	7,000	7,000	7,000	0.00%
Brooten	Brooten Municipal	2,000	2,108	2,222	2,469	1.06%
Buffalo	Buffalo Municipal	7,500	8,167	8,893	10,545	1.72%
Caledonia	Houston County	3,500	3,567	3,635	3,775	0.38%
Cambridge	Cambridge Municipal	20,000	21,661	23,460	27,519	1.61%
Canby	Canby Municipal – Myers Field	7,950	7,950	7,950	7,950	0.00%
Cloquet	Cloquet-Carlton County	15,000	15,299	15,603	16,231	0.40%
Cook	Cook Municipal	1,000	1,004	1,009	1,018	0.09%
Crookston	Crookston Municipal – Kirkwood Field	40,000	40,000	40,000	40,000	0.00%
Detroit Lakes	Detroit Lakes – Wething Field	8,000	8,258	8,525	9,085	0.64%
Dodge Center	Dodge Center Municipal	6,000	6,399	6,825	7,763	1.30%
Duluth	Sky Harbor	13,000	13,057	13,115	13,231	0.09%
Eveleth-Virginia	Eveleth-Virginia Municipal	6,000	6,026	6,053	6,107	0.09%
Faribault	Faribault Municipal	5,000	5,174	5,355	5,735	0.69%
Fertile	Fertile Municipal	900	900	900	900	0.00%
Fosston	Fosston Municipal	4,000	4,000	4,000	4,000	0.00%
Glencoe	Glencoe Municipal – Vernon Perschau Field	12,000	12,435	12,886	13,838	0.72%
Glenwood	Glenwood Municipal	5,000	5,010	5,021	5,041	0.04%
Grand Marais	Grand Marais – Cook County	4,500	4,752	5,018	5,595	1.09%
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	5,000	13,274	13,165	12,949	4.87%
Hallock	Hallock Municipal	1,100	1,100	1,100	1,100	0.00%
Hawley	Hawley Municipal	1,100	1,117	1,135	1,171	0.31%
Hector	Hector Municipal	2,000	2,000	2,000	2,000	0.00%
Herman	Herman Municipal	2,000	2,000	2,000	2,000	0.00%
Hutchinson	Hutchinson Municipal – Butler Field	13,500	13,990	14,497	15,568	0.72%
Jackson	Jackson Municipal	19,000	19,000	19,000	19,000	0.00%
Le Sueur	Le Sueur Municipal	2,704	2,775	2,847	2,997	0.52%
Litchfield	Litchfield Municipal	2,000	2,050	2,100	2,206	0.49%
Little Falls	Little Falls – Morrison County – Lindbergh Field	30,000	30,631	31,276	32,605	0.42%
Long Prairie	Long Prairie Municipal – Todd Field	3,400	3,431	3,462	3,525	0.18%
Longville	Longville Municipal	6,000	6,493	7,026	8,227	1.59%

**Table 4-32 (3 of 4)  
Forecast Summary – General Aviation Operations  
(2005-2025)**

Associated City	Airport Name	General Aviation Aircraft Operations				
		2005	2010	2015	2025	AAGR 2005-2025
Luverne	Luverne Municipal – Quentin Aanenson Field	8,400	8,400	8,400	8,400	0.00%
Madison	Lac Qui Parle County – Bud Frye Field	1,500	1,500	1,500	1,500	0.00%
Maple Lake	Maple Lake Municipal	25,000	27,223	29,644	35,152	1.72%
McGregor	McGregor – Isedor Iverson	1,900	1,999	2,103	2,328	1.02%
Montevideo	Montevideo-Chippewa County	2,802	7,439	7,378	7,257	4.87%
Moorhead	Moorhead Municipal	25,000	25,393	25,791	26,607	0.31%
Moose Lake	Moose Lake – Carlton County	9,000	9,179	9,362	9,739	0.40%
Mora	Mora Municipal	15,000	15,705	16,443	18,026	0.92%
Morris	Morris Municipal	4,000	4,000	4,000	4,000	0.00%
New Ulm	New Ulm Municipal	15,510	15,510	15,510	15,510	0.00%
Olivia	Olivia Regional	5,000	5,000	5,000	5,000	0.00%
Orr	Orr Regional	300	301	303	305	0.09%
Ortonville	Ortonville Municipal – Martinson Field	5,366	5,366	5,366	5,366	0.00%
Paynesville	Paynesville Municipal	200	211	222	247	1.06%
Perham	Perham Municipal	5,000	5,146	5,297	5,612	0.58%
Pine River	Pine River Regional	5,000	5,410	5,855	6,855	1.59%
Pinecreek	Piney-Pinecreek Border	3,000	3,112	3,228	3,474	0.74%
Pipestone	Pipestone Municipal	1,800	1,800	1,800	1,800	0.00%
Preston	Fillmore County	4,056	4,109	4,162	4,272	0.26%
Princeton	Princeton Municipal	13,300	14,222	15,208	17,390	1.35%
Red Lake Falls	Red Lake Falls Municipal	10,000	10,000	10,000	10,000	0.00%
Redwood Falls	Redwood Falls Municipal	11,600	11,600	11,600	11,600	0.00%
Roseau	Roseau Municipal – Rudy Billberg Field	5,000	5,187	5,380	5,790	0.74%
Rush City	Rush City Regional	7,810	8,614	9,501	11,559	1.98%
Rushford	Rushford Municipal	1,000	1,013	1,026	1,053	0.26%
Sauk Centre	Sauk Centre Municipal	5,850	6,166	6,500	7,222	1.06%
Silver Bay	Silver Bay Municipal	1,000	1,017	1,035	1,070	0.34%
Slayton	Slayton Municipal	700	700	700	700	0.00%
Sleepy Eye	Sleepy Eye Municipal	800	800	800	800	0.00%
Springfield	Springfield Municipal	200	200	200	200	0.00%
St. James	St. James Municipal	1,800	1,800	1,800	1,800	0.00%
Staples	Staples Municipal	9,600	9,697	9,796	9,996	0.20%

**Table 4-32 (4 of 4)**  
**Forecast Summary – General Aviation Operations**  
**(2005-2025)**

Associated City	Airport Name	General Aviation Aircraft Operations				
		2005	2010	2015	2025	AAGR 2005-2025
Stephen	Stephen Municipal	2,500	2,500	2,500	2,500	0.00%
Tower	Tower Municipal	3,700	3,716	3,733	3,766	0.09%
Tracy	Tracy Municipal	1,785	1,793	1,801	1,816	0.09%
Two Harbors	Richard B. Helgeson	11,000	11,189	11,381	11,775	0.34%
Wadena	Wadena Municipal	17,551	17,729	17,909	18,274	0.20%
Walker	Walker Municipal	9,200	9,955	10,773	12,614	1.59%
Warren	Warren Municipal	19,100	19,100	19,100	19,100	0.00%
Waseca	Waseca Municipal	8,000	8,081	8,163	8,330	0.20%
Wheaton	Wheaton Municipal	4,000	4,000	4,000	4,000	0.00%
Windom	Windom Municipal	1,500	1,500	1,500	1,500	0.00%
<b>Landing Strips</b>						
Backus	Backus Municipal	6,400	6,925	7,494	8,775	1.59%
Big Falls	Big Falls Municipal	400	400	400	400	0.00%
Bowstring	Bowstring Municipal	1,800	1,847	1,895	1,995	0.51%
Clarissa	Clarissa Municipal	830	838	845	861	0.18%
East Gull Lake	East Gull Lake Municipal	1,000	1,082	1,171	1,371	1.59%
Elbow Lake	Elbow Lake Municipal – Pride of the Prairie	4,000	4,000	4,000	4,000	0.00%
Grygla	Grygla Municipal – Mel Wilkens Field	450	450	450	450	0.00%
Henning	Henning Municipal	150	154	159	168	0.58%
Hill City	Hill City – Quadna Mountain	500	526	553	613	1.02%
Karlstad	Karlstad Municipal	26	26	26	26	0.00%
Littlefork	Littlefork Municipal – Hanover	800	800	800	800	0.00%
Mahnomen	Mahnomen County	3,200	3,212	3,224	3,249	0.08%
Milaca	Milaca Municipal	2,200	2,353	2,516	2,877	1.35%
Murdock	Murdock Municipal	20	20	20	21	0.21%
New York Mills	New York Mills Municipal	110	113	117	123	0.58%
Northome	Northome Municipal	50	50	50	50	0.00%
Pelican Rapids	Pelican Rapids Municipal – Lyon's Field	500	515	530	561	0.58%
Remer	Remer Municipal	250	271	293	343	1.59%
Starbuck	Starbuck Municipal	110	110	110	111	0.04%
Tyler	Tyler Municipal	100	100	100	100	0.00%
Waskish	Waskish Municipal	500	526	554	614	1.03%
Wells	Wells Municipal	156	156	156	156	0.00%
Winsted	Winsted Municipal	3,000	3,109	3,222	3,460	0.72%

Source: Mn/DOT records; FAA Form 5010s; Woods and Poole Economics, Inc.; and Wilbur Smith Associates.  
Prepared: December 2005.

**Table 4-33 (1 of 4)  
Forecast Summary –General Aviation  
Fleet and Operations Mix  
2005**

Associated City	Airport Name	Based Aircraft						Aircraft Operations		
		Single Engine	Multi Engine	Jet	Helo	Other	Total	Local	Itinerant	Total
<b>Key Airports</b>										
Alexandria	Alexandria Municipal – Chandler Field	46	7	0	0	0	53	9,620	16,380	26,000
Austin	Austin Municipal	39	4	3	0	0	46	37,400	17,600	55,000
Baudette	Baudette International	18	1	0	0	0	19	2,210	6,290	8,500
Bemidji	Bemidji Regional	21	24	9	0	0	54	4,560	7,440	12,000
Brainerd	Brainerd Lakes Regional	72	6	1	6	0	85	26,250	11,250	37,500
Duluth	Duluth International	50	6	3	1	22	82	27,027	44,096	71,123
Ely	Ely Municipal	23	1	0	0	0	24	1,890	1,110	3,000
Fairmont	Fairmont Municipal	18	2	1	0	1	22	2,100	2,900	5,000
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	35	6	0	0	4	45	5,874	3,026	8,900
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	77	2	1	1	0	81	19,500	5,500	25,000
Hibbing	Chisholm-Hibbing Municipal	44	3	0	0	0	47	4,050	8,222	12,272
International Falls	Falls International	35	1	0	0	0	36	6,450	8,550	15,000
Mankato	Mankato Regional – Sohler Field	70	8	6	1	5	90	43,920	28,080	72,000
Marshall	Southwest Minnesota Regional – Ryan Field	27	3	2	0	0	32	8,454	14,394	22,848
Owatonna	Owatonna – Degner Regional	45	3	0	0	2	50	12,480	11,520	24,000
Park Rapids	Park Rapids Municipal – Konshok Field	28	2	1	0	0	31	1,000	1,000	2,000
Red Wing	Red Wing Regional	48	3	1	1	3	56	6,020	7,980	14,000
Rochester	Rochester International	40	5	2	0	0	47	42,828	26,249	69,077
St. Cloud	St. Cloud Regional	87	10	1	2	0	100	44,016	31,874	75,890
Thief River Falls	Thief River Falls Regional	19	3	2	0	0	24	12,659	25,701	38,360
Warroad	Warroad International – Swede Carlson Field	10	3	1	0	0	14	1,407	693	2,100
Willmar	Willmar Municipal – John L. Rice Field	42	2	1	1	0	46	12,851	5,249	18,100
Winona	Winona Municipal – Max Conrad Field	48	3	0	2	0	53	10,050	4,950	15,000
Worthington	Worthington Municipal	20	3	2	0	0	25	2,100	900	3,000
<b>Intermediate Airports</b>										
Ada	Norman County – Ada-Twin Valley	7	0	0	0	0	7	2,850	2,150	5,000
Aitkin	Aitkin Municipal – Steve Kurtz Field	38	2	0	1	3	44	15,006	3,294	18,300
Albert Lea	Albert Lea Municipal	41	7	3	1	6	58	39,600	15,400	55,000
Appleton	Appleton Municipal	5	0	0	0	1	6	1,992	408	2,400

**Table 4-33 (2 of 4)  
 Forecast Summary –General Aviation  
 Fleet and Operations Mix  
 2005**

Associated City	Airport Name	Based Aircraft						Aircraft Operations		
		Single Engine	Multi Engine	Jet	Helo	Other	Total	Local	Itinerant	Total
Bagley	Bagley Municipal	3	0	0	0	0	3	2,400	1,600	4,000
Benson	Benson Municipal – Veterans Field	11	0	0	0	0	11	3,196	1,504	4,700
Bigfork	Bigfork Municipal	3	1	0	0	1	5	24	21	45
Blue Earth	Blue Earth Municipal	26	0	0	0	2	28	3,360	3,640	7,000
Brooten	Brooten Municipal	7	0	0	0	1	8	1,000	1,000	2,000
Buffalo	Buffalo Municipal	46	1	0	0	0	47	4,275	3,225	7,500
Caledonia	Houston County	11	0	0	0	0	11	1,820	1,680	3,500
Cambridge	Cambridge Municipal	50	0	0	1	0	51	18,000	2,000	20,000
Canby	Canby Municipal – Myers Field	19	6	0	0	0	25	7,235	716	7,950
Cloquet	Cloquet-Carleton County	38	2	0	0	2	42	6,150	8,850	15,000
Cook	Cook Municipal	14	0	0	0	0	14	260	740	1,000
Crookston	Crookston Municipal – Kirkwood Field	39	0	0	0	0	39	26,800	13,200	40,000
Detroit Lakes	Detroit Lakes – Wething Field	70	4	1	0	1	76	3,360	4,640	8,000
Dodge Center	Dodge Center Municipal	32	0	0	0	2	34	5,040	960	6,000
Duluth	Sky Harbor	25	0	0	0	0	25	4,160	8,840	13,000
Eveleth-Virginia	Eveleth-Virginia Municipal	27	4	0	0	0	31	5,280	720	6,000
Faribault	Faribault Municipal	54	7	0	1	8	70	4,050	950	5,000
Fertile	Fertile Municipal	1	1	0	0	0	2	540	360	900
Fosston	Fosston Municipal	8	0	0	0	0	8	2,960	1,040	4,000
Glencoe	Glencoe Municipal – Vernon Perschau Field	21	1	0	0	4	26	8,280	3,720	12,000
Glenwood	Glenwood Municipal	20	2	0	0	0	22	3,400	1,600	5,000
Grand Marais	Grand Marais – Cook County	17	1	0	0	0	18	3,375	1,125	4,500
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	9	4	1	0	0	14	3,650	1,350	5,000
Hallock	Hallock Municipal	9	1	0	0	0	10	583	517	1,100
Hawley	Hawley Municipal	14	1	0	0	1	16	0	1,100	1,100
Hector	Hector Municipal	16	0	0	1	5	22	1,720	280	2,000
Herman	Herman Municipal	4	0	0	0	2	6	1,820	180	2,000
Hutchinson	Hutchinson Municipal – Butler Field	29	1	0	1	0	31	7,560	5,940	13,500
Jackson	Jackson Municipal	15	0	0	0	0	15	13,110	5,890	19,000
Le Sueur	Le Sueur Municipal	26	0	0	31	0	57	1,622	1,082	2,704
Litchfield	Litchfield Municipal	15	0	0	1	0	16	840	1,160	2,000
Little Falls	Little Falls – Morrison County – Lindbergh Field	38	2	0	0	1	41	24,600	5,400	30,000
Long Prairie	Long Prairie Municipal – Todd Field	14	0	0	0	1	15	2,482	918	3,400
Longville	Longville Municipal	3	0	0	0	0	3	1,860	4,140	6,000
Luverne	Luverne Municipal – Quentin Aanenson Field	15	0	0	0	0	15	3,948	4,452	8,400

**Table 4-33 (3 of 4)  
Forecast Summary –General Aviation  
Fleet and Operations Mix  
2005**

Associated City	Airport Name	Based Aircraft						Aircraft Operations		
		Single Engine	Multi-Engine	Jet	Helo	Other	Total	Local	Itinerant	Total
Madison	Lac Qui Parle County – Bud Frye Field	4	0	0	0	0	4	1,395	105	1,500
Maple Lake	Maple Lake Municipal	38	7	0	0	5	50	19,750	5,250	25,000
McGregor	McGregor – Isedor Iverson	4	0	0	0	1	5	798	1,102	1,900
Montevideo	Montevideo-Chippewa County	21	1	0	0	4	26	1,345	1,457	2,802
Moorhead	Moorhead Municipal	17	3	0	0	0	20	18,750	6,250	25,000
Moose Lake	Moose Lake – Carlton County	11	0	0	0	3	14	4,410	4,590	9,000
Mora	Mora Municipal	41	3	1	0	1	46	11,100	3,900	15,000
Morris	Morris Municipal	11	3	0	0	1	15	1,840	2,160	4,000
New Ulm	New Ulm Municipal	14	5	0	0	2	21	6,359	9,151	15,510
Olivia	Olivia Regional	9	0	0	4	0	13	4,700	300	5,000
Orr	Orr Regional	6	1	0	0	0	7	120	180	300
Ortonville	Ortonville Municipal – Martinson Field	5	0	0	0	0	5	3,810	1,556	5,366
Paynesville	Paynesville Municipal	15	0	0	0	0	15	200	0	200
Perham	Perham Municipal	14	3	0	0	2	19	3,450	1,550	5,000
Pine River	Pine River Regional	32	2	0	0	2	36	3,150	1,850	5,000
Pinecreek	Piney-Pinecreek Border	0	0	0	0	0	0	0	3,000	3,000
Pipestone	Pipestone Municipal	15	1	0	0	1	17	882	918	1,800
Preston	Fillmore County	16	0	0	0	1	17	2,028	2,028	4,056
Princeton	Princeton Municipal	25	2	0	0	0	27	6,650	6,650	13,300
Red Lake Falls	Red Lake Falls Municipal	9	0	0	0	0	9	8,400	1,600	10,000
Redwood Falls	Redwood Falls Municipal	7	4	0	1	0	12	7,888	3,712	11,600
Roseau	Roseau Municipal – Rudy Billberg Field	12	0	0	0	3	15	2,900	2,100	5,000
Rush City	Rush City Regional	39	2	0	0	1	42	4,998	2,812	7,810
Rushford	Rushford Municipal	7	0	0	0	0	7	600	400	1,000
Sauk Centre	Sauk Centre Municipal	11	0	0	0	3	14	3,627	2,223	5,850
Silver Bay	Silver Bay Municipal	11	1	0	0	2	14	800	200	1,000
Slayton	Slayton Municipal	8	0	0	0	1	9	637	63	700
Sleepy Eye	Sleepy Eye Municipal	6	0	0	0	4	10	504	296	800
Springfield	Springfield Municipal	4	0	0	0	0	4	166	34	200
St. James	St. James Municipal	10	1	1	0	3	15	756	1,044	1,800
Staples	Staples Municipal	25	0	0	0	5	30	6,624	2,976	9,600
Stephen	Stephen Municipal	10	0	0	0	1	11	2,000	500	2,500
Tower	Tower Municipal	26	3	1	0	1	31	2,701	999	3,700
Tracy	Tracy Municipal	10	0	0	0	0	10	428	1,357	1,785
Two Harbors	Richard B. Helgeson	25	2	0	0	6	33	5,500	5,500	11,000
Wadena	Wadena Municipal	10	1	0	0	0	11	12,988	4,563	17,551
Walker	Walker Municipal	23	0	0	0	0	23	4,508	4,692	9,200
Warren	Warren Municipal	4	0	0	0	0	4	8,977	10,123	19,100
Waseca	Waseca Municipal	25	1	0	0	1	27	5,760	2,240	8,000
Wheaton	Wheaton Municipal	9	0	0	0	0	9	3,080	920	4,000
Windom	Windom Municipal	13	1	0	0	0	14	750	750	1,500
<b>Landing Strips</b>										
Backus	Backus Municipal	6	1	0	0	0	7	4,032	2,368	6,400

**Table 4-33 (4 of 4)  
Forecast Summary –General Aviation  
Fleet and Operations Mix  
2005**

Associated City	Airport Name	Based Aircraft						Aircraft Operations		
		Single Engine	Multi Engine	Jet	Helo	Other	Total	Local	Itinerant	Total
Big Falls	Big Falls Municipal	1	0	0	0	0	1	200	200	400
Bowstring	Bowstring Municipal	7	0	0	0	0	7	900	900	1,800
Clarissa	Clarissa Municipal	1	0	0	0	0	1	448	382	830
East Gull Lake	East Gull Lake Municipal	0	0	0	0	0	0	0	1,000	1,000
Elbow Lake	Elbow Lake Municipal – Pride of the Prairie	15	0	0	0	3	18	2,680	1,320	4,000
Grygla	Grygla Municipal – Mel Wilkens Field	0	0	0	0	0	0	0	450	450
Henning	Henning Municipal	10	0	0	0	0	10	113	38	150
Hill City	Hill City – Quadna Mountain	0	0	0	0	0	0	0	500	500
Karlstad	Karlstad Municipal	2	0	0	0	0	2	0	26	26
Littlefork	Littlefork Municipal – Hanover	2	0	0	0	0	2	560	240	800
Mahnomen	Mahnomen County	17	0	0	0	0	17	2,720	480	3,200
Milaca	Milaca Municipal	25	1	0	0	2	28	1,386	814	2,200
Murdock	Murdock Municipal	0	0	0	0	0	0	0	20	20
New York Mills	New York Mills Municipal	1	0	0	0	0	1	61	50	110
Northome	Northome Municipal	0	0	0	0	0	0	25	25	50
Pelican Rapids	Pelican Rapids Municipal – Lyon's Field	14	0	0	0	0	14	400	100	500
Remer	Remer Municipal	4	0	0	0	2	6	125	125	250
Starbuck	Starbuck Municipal	3	0	0	0	0	3	76	34	110
Tyler	Tyler Municipal	3	0	0	0	3	6	73	27	100
Waskish	Waskish Municipal	0	0	0	0	0	0	315	185	500
Wells	Wells Municipal	6	0	0	0	0	6	117	39	156
Winsted	Winsted Municipal	45	0	0	0	6	51	2,220	780	3,000

Source: Mn/DOT records; FAA Form 5010s; and Wilbur Smith Associates.

Prepared: December 2005.

Note: Totals may not equal sum due to rounding.

**Table 4-34 (1 of 4)  
 Forecast Summary –General Aviation  
 Fleet and Operations Mix  
 2010**

Associated City	Airport Name	Based Aircraft							Aircraft Operations		
		Single Engine	Multi Engine	Jet	Helo	Other	Sport	Total	Local	Itinerant	Total
<b>Key Airports</b>											
Alexandria	Alexandria Municipal – Chandler Field	46	7	0	0	0	1	55	10,170	17,317	27,488
Austin	Austin Municipal	39	4	4	0	0	0	47	38,045	17,904	55,949
Baudette	Baudette International	18	1	0	0	0	1	20	2,259	6,429	8,688
Bemidji	Bemidji Regional	21	25	10	0	0	0	56	4,800	7,831	12,631
Brainerd	Brainerd Lakes Regional	73	6	3	7	0	0	89	28,101	12,043	40,144
Duluth	Duluth International	50	6	3	1	22	0	83	27,146	44,291	71,437
Ely	Ely Municipal	23	1	0	0	0	0	24	1,898	1,115	3,013
Fairmont	Fairmont Municipal	18	2	1	0	1	0	23	2,100	2,900	5,000
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	35	6	0	0	4	1	47	6,046	3,115	9,161
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	78	2	2	1	0	0	83	20,007	5,643	25,650
Hibbing	Chisholm-Hibbing Municipal	44	3	0	0	0	0	48	4,068	8,259	12,326
International Falls	Falls International	35	1	0	0	0	0	36	6,450	8,550	15,000
Mankato	Mankato Regional – Sohler Field	71	8	7	1	5	0	93	45,119	28,847	73,966
Marshall	Southwest Minnesota Regional – Ryan Field	27	3	2	0	0	0	33	8,491	14,457	22,948
Owatonna	Owatonna – Degner Regional	45	3	0	0	2	1	52	12,846	11,858	24,705
Park Rapids	Park Rapids Municipal – Konshok Field	28	2	1	0	0	0	32	1,057	1,057	2,114
Red Wing	Red Wing Regional	48	3	1	1	3	0	57	6,227	8,254	14,481
Rochester	Rochester International	40	5	2	0	0	1	49	45,852	28,103	73,955
St. Cloud	St. Cloud Regional	88	10	2	2	0	7	109	49,197	35,625	84,822
Thief River Falls	Thief River Falls Regional	19	3	2	0	0	0	25	12,759	25,904	38,663
Warroad	Warroad International – Swede Carlson Field	10	3	1	0	0	1	15	1,460	719	2,178
Willmar	Willmar Municipal – John L. Rice Field	42	2	1	1	0	2	49	13,283	5,425	18,708
Winona	Winona Municipal – Max Conrad Field	48	3	0	2	0	1	55	10,192	5,020	15,212
Worthington	Worthington Municipal	20	3	2	0	0	0	26	2,124	910	3,035
<b>Intermediate Airports</b>											
Ada	Norman County – Ada-Twin Valley	7	0	0	0	0	0	7	2,850	2,150	5,000
Aitkin	Aitkin Municipal – Steve Kurtz Field	38	2	0	1	3	2	47	15,788	3,466	19,253
Albert Lea	Albert Lea Municipal	41	7	3	1	6	0	59	39,600	15,400	55,000
Appleton	Appleton Municipal	5	0	0	0	1	0	6	2,013	412	2,425
Bagley	Bagley Municipal	3	0	0	0	0	0	3	2,400	1,600	4,000
Benson	Benson Municipal – Veterans Field	11	0	0	0	0	0	11	3,229	1,520	4,749
Bigfork	Bigfork Municipal	3	1	0	0	1	0	5	25	21	46
Blue Earth	Blue Earth Municipal	26	0	0	0	2	0	28	3,360	3,640	7,000
Brooten	Brooten Municipal	7	0	0	0	1	0	8	1,054	1,054	2,108
Buffalo	Buffalo Municipal	46	1	0	0	0	4	52	4,655	3,512	8,167
Caledonia	Houston County	11	0	0	0	0	0	11	1,855	1,712	3,567
Cambridge	Cambridge Municipal	51	0	0	1	0	3	55	19,495	2,166	21,661

**Table 4-34 (2 of 4)  
Forecast Summary –General Aviation  
Fleet and Operations Mix  
2010**

Associated City	Airport Name	Based Aircraft							Aircraft Operations		
		Single Engine	Multi Engine	Jet	Helo	Other	Sport	Total	Local	Itinerant	Total
Canby	Canby Municipal – Myers Field	19	6	0	0	0	0	25	7,235	716	7,950
Cloquet	Cloquet-Carleton County	38	2	0	0	2	1	44	6,272	9,026	15,299
Cook	Cook Municipal	14	0	0	0	0	0	14	261	743	1,004
Crookston	Crookston Municipal – Kirkwood Field	39	0	0	0	0	0	39	26,800	13,200	40,000
Detroit Lakes	Detroit Lakes – Wething Field	71	4	1	0	1	1	78	3,469	4,790	8,258
Dodge Center	Dodge Center Municipal	32	0	0	0	2	2	36	5,375	1,024	6,399
Duluth	Sky Harbor	25	0	0	0	0	0	25	4,178	8,879	13,057
Eveleth-Virginia	Eveleth-Virginia Municipal	27	4	0	0	0	0	31	5,303	723	6,026
Faribault	Faribault Municipal	55	7	0	1	8	1	72	4,191	983	5,174
Fertile	Fertile Municipal	1	1	0	0	0	0	2	540	360	900
Fosston	Fosston Municipal	8	0	0	0	0	0	8	2,960	1,040	4,000
Glencoe	Glencoe Municipal – Vernon Perschau Field	21	1	0	0	4	1	27	8,580	3,855	12,435
Glenwood	Glenwood Municipal	20	2	0	0	0	0	22	3,407	1,603	5,010
Grand Marais	Grand Marais – Cook County	17	1	0	0	0	1	19	3,564	1,188	4,752
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	9	4	1	0	0	0	15	9,690	3,584	13,274
Hallock	Hallock Municipal	9	1	0	0	0	0	10	583	517	1,100
Hawley	Hawley Municipal	14	1	0	0	1	0	16	0	1,117	1,117
Hector	Hector Municipal	16	0	0	1	5	0	22	1,720	280	2,000
Herman	Herman Municipal	4	0	0	0	2	0	6	1,820	180	2,000
Hutchinson	Hutchinson Municipal – Butler Field	29	1	0	1	0	1	32	7,834	6,155	13,990
Jackson	Jackson Municipal	15	0	0	0	0	0	15	13,110	5,890	19,000
Le Sueur	Le Sueur Municipal	26	0	0	32	0	0	58	1,665	1,110	2,775
Litchfield	Litchfield Municipal	15	0	0	1	0	0	16	861	1,189	2,050
Little Falls	Little Falls – Morrison County – Lindbergh Field	38	2	0	0	1	1	42	25,118	5,514	30,631
Long Prairie	Long Prairie Municipal – Todd Field	14	0	0	0	1	0	15	2,505	926	3,431
Longville	Longville Municipal	3	0	0	0	0	0	3	2,013	4,480	6,493
Luverne	Luverne Municipal – Quentin Aanenson Field	15	0	0	0	0	0	15	3,948	4,452	8,400
Madison	Lac Qui Parle County – Bud Frye Field	4	0	0	0	0	0	4	1,395	105	1,500
Maple Lake	Maple Lake Municipal	38	7	0	0	5	4	55	21,506	5,717	27,223
McGregor	McGregor – Isedor Iverson	4	0	0	0	1	0	5	840	1,159	1,999
Montevideo	Montevideo-Chippewa County	21	1	0	0	4	0	26	3,571	3,868	7,439
Moorhead	Moorhead Municipal	17	3	0	0	0	0	20	19,044	6,348	25,393
Moose Lake	Moose Lake – Carlton County	11	0	0	0	3	0	14	4,498	4,681	9,179
Mora	Mora Municipal	41	3	1	0	1	2	49	11,622	4,083	15,705
Morris	Morris Municipal	11	3	0	0	1	0	15	1,840	2,160	4,000
New Ulm	New Ulm Municipal	14	5	0	0	2	0	21	6,359	9,151	15,510
Olivia	Olivia Regional	9	0	0	4	0	0	13	4,700	300	5,000

**Table 4-34 (3 of 4)  
Forecast Summary –General Aviation  
Fleet and Operations Mix  
2010**

Associated City	Airport Name	Based Aircraft							Aircraft Operations		
		Single Engine	Multi Engine	Jet	Helo	Other	Sport	Total	Local	Itinerant	Total
Orr	Orr Regional	6	1	0	0	0	0	7	121	181	301
Ortonville	Ortonville Municipal – Martinson Field	5	0	0	0	0	0	5	3,810	1,556	5,366
Paynesville	Paynesville Municipal	15	0	0	0	0	1	16	211	0	211
Perham	Perham Municipal	14	3	0	0	2	1	20	3,551	1,595	5,146
Pine River	Pine River Regional	32	2	0	0	2	3	40	3,409	2,002	5,410
Pinecreek	Piney-Pinecreek Border	0	0	0	0	0	0	0	0	3,112	3,112
Pipestone	Pipestone Municipal	15	1	0	0	1	0	17	882	918	1,800
Preston	Fillmore County	16	0	0	0	1	0	17	2,054	2,054	4,109
Princeton	Princeton Municipal	25	2	0	0	0	2	29	7,111	7,111	14,222
Red Lake Falls	Red Lake Falls Municipal	9	0	0	0	0	0	9	8,400	1,600	10,000
Redwood Falls	Redwood Falls Municipal	7	4	0	1	0	0	12	7,888	3,712	11,600
Roseau	Roseau Municipal – Rudy Billberg Field	12	0	0	0	3	1	16	3,008	2,178	5,187
Rush City	Rush City Regional	39	2	0	0	1	4	46	5,513	3,101	8,614
Rushford	Rushford Municipal	7	0	0	0	0	0	7	608	405	1,013
Sauk Centre	Sauk Centre Municipal	11	0	0	0	3	0	14	3,823	2,343	6,166
Silver Bay	Silver Bay Municipal	11	1	0	0	2	0	14	814	203	1,017
Slayton	Slayton Municipal	8	0	0	0	1	0	9	637	63	700
Sleepy Eye	Sleepy Eye Municipal	6	0	0	0	4	0	10	504	296	800
Springfield	Springfield Municipal	4	0	0	0	0	0	4	166	34	200
St. James	St. James Municipal	10	1	1	0	3	0	15	756	1,044	1,800
Staples	Staples Municipal	25	0	0	0	5	0	30	6,691	3,006	9,697
Stephen	Stephen Municipal	10	0	0	0	1	0	11	2,000	500	2,500
Tower	Tower Municipal	26	3	1	0	1	0	32	2,713	1,003	3,716
Tracy	Tracy Municipal	10	0	0	0	0	0	10	430	1,363	1,793
Two Harbors	Richard B. Helgeson	25	2	0	0	6	1	34	5,594	5,594	11,189
Wadena	Wadena Municipal	10	1	0	0	0	0	11	13,120	4,610	17,729
Walker	Walker Municipal	23	0	0	0	0	2	25	4,878	5,077	9,955
Warren	Warren Municipal	4	0	0	0	0	0	4	8,977	10,123	19,100
Waseca	Waseca Municipal	25	1	0	0	1	0	27	5,818	2,263	8,081
Wheaton	Wheaton Municipal	9	0	0	0	0	0	9	3,080	920	4,000
Windom	Windom Municipal	13	1	0	0	0	0	14	750	750	1,500
<b>Landing Strips</b>											
Backus	Backus Municipal	6	1	0	0	0	1	8	4,363	2,562	6,925
Big Falls	Big Falls Municipal	1	0	0	0	0	0	1	200	200	400
Bowstring	Bowstring Municipal	7	0	0	0	0	0	7	923	923	1,847
Clarissa	Clarissa Municipal	1	0	0	0	0	0	1	452	385	838
East Gull Lake	East Gull Lake Municipal	0	0	0	0	0	0	0	0	1,082	1,082
Elbow Lake	Elbow Lake Municipal – Pride of the Prairie	15	0	0	0	3	0	18	2,680	1,320	4,000
Grygla	Grygla Municipal – Mel Wilkens Field	0	0	0	0	0	0	0	0	450	450
Henning	Henning Municipal	10	0	0	0	0	0	10	116	39	154
Hill City	Hill City – Quadna Mountain	0	0	0	0	0	0	0	0	526	526

**Table 4-34 (4 of 4)**  
**Forecast Summary –General Aviation**  
**Fleet and Operations Mix**  
**2010**

Associated City	Airport Name	Based Aircraft							Aircraft Operations		
		Single Engine	Multi-Engine	Jet	Helo	Other	Sport	Total	Local	Itinerant	Total
Karlstad	Karlstad Municipal	2	0	0	0	0	0	2	0	26	26
Littlefork	Littlefork Municipal – Hanover	2	0	0	0	0	0	2	560	240	800
Mahnomen	Mahnomen County	17	0	0	0	0	0	17	2,730	482	3,212
Milaca	Milaca Municipal	25	1	0	0	2	2	30	1,482	870	2,353
Murdock	Murdock Municipal	0	0	0	0	0	0	0	0	20	20
New York Mills	New York Mills Municipal	1	0	0	0	0	0	1	62	51	113
Northome	Northome Municipal	0	0	0	0	0	0	0	25	25	50
Pelican Rapids	Pelican Rapids Municipal – Lyon's Field	14	0	0	0	0	0	14	412	103	515
Remer	Remer Municipal	4	0	0	0	2	0	6	135	135	271
Starbuck	Starbuck Municipal	3	0	0	0	0	0	3	76	34	110
Tyler	Tyler Municipal	3	0	0	0	3	0	6	73	27	100
Waskish	Waskish Municipal	0	0	0	0	0	0	0	332	195	526
Wells	Wells Municipal	6	0	0	0	0	0	6	117	39	156
Winsted	Winsted Municipal	45	0	0	0	6	2	54	2,301	808	3,109

Source: Wilbur Smith Associates.

Prepared: December 2005.

Note: Totals may not equal sum due to rounding.

**Table 4-35 (1 of 4)  
 Forecast Summary –General Aviation  
 Fleet and Operations Mix  
 2015**

Associated City	Airport Name	Based Aircraft							Aircraft Operations		
		Single Engine	Multi Engine	Jet	Helo	Other	Sport	Total	Local	Itinerant	Total
<b>Key Airports</b>											
Alexandria	Alexandria Municipal – Chandler Field	47	8	0	0	0	1	56	10,752	18,308	29,060
Austin	Austin Municipal	40	4	4	0	0	0	49	38,702	18,213	56,914
Baudette	Baudette International	18	1	0	0	0	1	21	2,309	6,571	8,880
Bemidji	Bemidji Regional	22	26	12	0	0	0	60	5,052	8,243	13,295
Brainerd	Brainerd Lakes Regional	74	7	4	8	0	0	92	30,082	12,892	42,974
Duluth	Duluth International	51	7	4	2	23	0	86	27,266	44,486	71,752
Ely	Ely Municipal	24	1	0	0	0	0	25	1,907	1,120	3,027
Fairmont	Fairmont Municipal	18	2	1	0	1	0	23	2,100	2,900	5,000
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	36	7	0	0	4	1	48	6,223	3,206	9,429
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	79	2	2	1	0	0	85	20,527	5,790	26,316
Hibbing	Chisholm-Hibbing Municipal	45	3	0	0	0	0	48	4,086	8,295	12,381
International Falls	Falls International	36	1	0	0	0	0	37	6,450	8,550	15,000
Mankato	Mankato Regional – Sohler Field	72	9	9	1	6	0	96	46,351	29,634	75,986
Marshall	Southwest Minnesota Regional – Ryan Field	28	3	3	0	0	0	34	8,528	14,521	23,049
Owatonna	Owatonna – Degner Regional	46	3	1	0	2	1	54	13,223	12,206	25,430
Park Rapids	Park Rapids Municipal – Konshok Field	29	2	1	0	0	0	32	1,117	1,117	2,235
Red Wing	Red Wing Regional	49	3	1	2	3	0	59	6,440	8,537	14,978
Rochester	Rochester International	41	6	3	0	0	1	51	49,090	30,087	79,177
St. Cloud	St. Cloud Regional	90	12	2	2	0	9	116	54,988	39,819	94,806
Thief River Falls	Thief River Falls Regional	19	3	3	0	0	0	26	12,860	26,109	38,968
Warroad	Warroad International – Swede Carlson Field	10	3	1	0	0	1	16	1,514	746	2,260
Willmar	Willmar Municipal – John L. Rice Field	43	2	1	1	0	3	50	13,729	5,608	19,337
Winona	Winona Municipal – Max Conrad Field	49	3	0	2	0	1	56	10,336	5,091	15,427
Worthington	Worthington Municipal	21	3	3	0	0	0	27	2,149	921	3,070
<b>Intermediate Airports</b>											
Ada	Norman County – Ada-Twin Valley	7	0	0	0	0	0	7	2,850	2,150	5,000
Aitkin	Aitkin Municipal – Steve Kurtz Field	39	2	0	1	3	3	48	16,610	3,646	20,256
Albert Lea	Albert Lea Municipal	42	7	3	1	6	0	59	39,600	15,400	55,000
Appleton	Appleton Municipal	5	0	0	0	1	0	6	2,034	417	2,450
Bagley	Bagley Municipal	3	0	0	0	0	0	3	2,400	1,600	4,000
Benson	Benson Municipal – Veterans Field	11	0	0	0	0	0	11	3,263	1,535	4,798
Bigfork	Bigfork Municipal	3	1	0	0	1	0	5	26	22	47
Blue Earth	Blue Earth Municipal	27	0	0	0	2	0	29	3,360	3,640	7,000
Brooten	Brooten Municipal	7	0	0	0	1	0	8	1,111	1,111	2,222
Buffalo	Buffalo Municipal	47	2	1	0	0	5	55	5,069	3,824	8,893
Caledonia	Houston County	11	0	0	0	0	0	11	1,890	1,745	3,635
Cambridge	Cambridge Municipal	51	0	0	1	0	4	56	21,114	2,346	23,460

**Table 4-35 (2 of 4)  
 Forecast Summary –General Aviation  
 Fleet and Operations Mix  
 2015**

Associated City	Airport Name	Based Aircraft							Aircraft Operations		
		Single Engine	Multi Engine	Jet	Helo	Other	Sport	Total	Local	Itinerant	Total
Canby	Canby Municipal – Myers Field	19	6	0	0	0	0	25	7,235	716	7,950
Cloquet	Cloquet-Carlton County	39	2	0	0	2	1	45	6,397	9,206	15,603
Cook	Cook Municipal	14	0	0	0	0	0	14	262	747	1,009
Crookston	Crookston Municipal – Kirkwood Field	40	0	0	0	0	0	40	26,800	13,200	40,000
Detroit Lakes	Detroit Lakes – Wething Field	71	4	1	0	1	1	79	3,581	4,945	8,525
Dodge Center	Dodge Center Municipal	32	0	0	0	2	3	37	5,733	1,092	6,825
Duluth	Sky Harbor	26	0	0	0	0	0	26	4,197	8,918	13,115
Eveleth-Virginia	Eveleth-Virginia Municipal	28	4	0	0	0	0	32	5,327	726	6,053
Faribault	Faribault Municipal	55	8	0	1	8	1	74	4,338	1,017	5,355
Fertile	Fertile Municipal	1	1	0	0	0	0	2	540	360	900
Fosston	Fosston Municipal	8	0	0	0	0	0	8	2,960	1,040	4,000
Glencoe	Glencoe Municipal – Vernon Perschau Field	22	1	0	0	4	1	28	8,892	3,995	12,886
Glenwood	Glenwood Municipal	21	2	0	0	0	0	23	3,414	1,607	5,021
Grand Marais	Grand Marais – Cook County	17	1	0	0	0	1	20	3,763	1,254	5,018
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	9	4	1	0	0	0	15	9,610	3,555	13,165
Hallock	Hallock Municipal	9	1	0	0	0	0	10	583	517	1,100
Hawley	Hawley Municipal	14	1	0	0	1	0	16	0	1,135	1,135
Hector	Hector Municipal	16	0	0	1	5	0	23	1,720	280	2,000
Herman	Herman Municipal	4	0	0	0	2	0	6	1,820	180	2,000
Hutchinson	Hutchinson Municipal – Butler Field	30	1	0	1	0	1	33	8,118	6,379	14,497
Jackson	Jackson Municipal	15	0	0	0	0	0	15	13,110	5,890	19,000
Le Sueur	Le Sueur Municipal	27	0	0	32	0	0	59	1,708	1,139	2,847
Litchfield	Litchfield Municipal	15	0	0	1	0	0	17	882	1,218	2,100
Little Falls	Little Falls – Morrison County – Lindbergh Field	39	2	0	0	1	1	43	25,646	5,630	31,276
Long Prairie	Long Prairie Municipal – Todd Field	14	0	0	0	1	0	15	2,527	935	3,462
Longville	Longville Municipal	3	0	0	0	0	0	3	2,178	4,848	7,026
Luverne	Luverne Municipal – Quentin Aanenson Field	15	0	0	0	0	0	15	3,948	4,452	8,400
Madison	Lac Qui Parle County – Bud Frye Field	4	0	0	0	0	0	4	1,395	105	1,500
Maple Lake	Maple Lake Municipal	39	8	0	0	5	5	57	23,419	6,225	29,644
McGregor	McGregor – Isedor Iverson	4	0	0	0	1	0	5	883	1,220	2,103
Montevideo	Montevideo-Chippewa County	22	1	0	0	4	0	27	3,541	3,836	7,378
Moorhead	Moorhead Municipal	17	3	0	0	0	0	21	19,343	6,448	25,791
Moose Lake	Moose Lake – Carlton County	11	0	0	0	3	0	14	4,587	4,775	9,362
Mora	Mora Municipal	42	3	2	0	1	3	50	12,168	4,275	16,443
Morris	Morris Municipal	11	3	0	0	1	0	16	1,840	2,160	4,000
New Ulm	New Ulm Municipal	14	5	0	0	2	0	21	6,359	9,151	15,510
Olivia	Olivia Regional	9	0	0	4	0	0	14	4,700	300	5,000
Orr	Orr Regional	6	1	0	0	0	0	7	121	182	303
Ortonville	Ortonville Municipal – Martinson Field	5	0	0	0	0	0	5	3,810	1,556	5,366
Paynesville	Paynesville Municipal	15	0	0	0	0	1	17	222	0	222

**Table 4-35 (3 of 4)  
Forecast Summary –General Aviation  
Fleet and Operations Mix  
2015**

Associated City	Airport Name	Based Aircraft							Aircraft Operations		
		Single Engine	Multi-Engine	Jet	Helio	Other	Sport	Total	Local	Itinerant	Total
Perham	Perham Municipal	14	3	0	0	2	1	21	3,655	1,642	5,297
Pine River	Pine River Regional	33	2	0	0	2	4	41	3,688	2,166	5,855
Pinecreek	Pinney-Pinecreek Border	0	0	0	0	0	0	0	0	3,228	3,228
Pipestone	Pipestone Municipal	15	1	0	0	1	0	18	882	918	1,800
Preston	Fillmore County	16	0	0	0	1	0	17	2,081	2,081	4,162
Princeton	Princeton Municipal	26	2	0	0	0	3	30	7,604	7,604	15,208
Red Lake Falls	Red Lake Falls Municipal	9	0	0	0	0	0	9	8,400	1,600	10,000
Redwood Falls	Redwood Falls Municipal	7	4	0	1	0	0	13	7,888	3,712	11,600
Roseau	Roseau Municipal – Rudy Billberg Field	12	0	0	0	3	1	17	3,121	2,260	5,380
Rush City	Rush City Regional	40	2	0	0	1	5	48	6,081	3,420	9,501
Rushford	Rushford Municipal	7	0	0	0	0	0	7	616	410	1,026
Sauk Centre	Sauk Centre Municipal	11	0	0	0	3	2	16	4,030	2,470	6,500
Silver Bay	Silver Bay Municipal	11	1	0	0	2	0	14	828	207	1,035
Slayton	Slayton Municipal	8	0	0	0	1	0	9	637	63	700
Sleepy Eye	Sleepy Eye Municipal	6	0	0	0	4	0	10	504	296	800
Springfield	Springfield Municipal	4	0	0	0	0	0	4	166	34	200
St. James	St. James Municipal	10	1	1	0	3	0	16	756	1,044	1,800
Staples	Staples Municipal	26	0	0	0	5	0	31	6,759	3,037	9,796
Stephen	Stephen Municipal	10	0	0	0	1	0	11	2,000	500	2,500
Tower	Tower Municipal	27	3	1	0	1	0	32	2,725	1,008	3,733
Tracy	Tracy Municipal	10	0	0	0	0	0	10	432	1,369	1,801
Two Harbors	Richard B. Helgeson	26	2	0	0	6	1	35	5,690	5,690	11,381
Wadena	Wadena Municipal	10	1	0	0	0	0	11	13,253	4,656	17,909
Walker	Walker Municipal	24	0	0	0	0	3	26	5,279	5,494	10,773
Warren	Warren Municipal	4	0	0	0	0	0	4	8,977	10,123	19,100
Waseca	Waseca Municipal	26	1	0	0	1	0	28	5,877	2,286	8,163
Wheaton	Wheaton Municipal	9	0	0	0	0	0	9	3,080	920	4,000
Windom	Windom Municipal	13	1	0	0	0	0	14	750	750	1,500
<b>Landing Strips</b>											
Backus	Backus Municipal	6	1	0	0	0	1	9	4,721	2,773	7,494
Big Falls	Big Falls Municipal	1	0	0	0	0	0	1	200	200	400
Bowstring	Bowstring Municipal	7	0	0	0	0	0	7	947	947	1,895
Clarissa	Clarissa Municipal	1	0	0	0	0	0	1	456	389	845
East Gull Lake	East Gull Lake Municipal	0	0	0	0	0	0	0	0	1,171	1,171
Elbow Lake	Elbow Lake Municipal – Pride of the Prairie	15	0	0	0	3	0	19	2,680	1,320	4,000
Grygla	Grygla Municipal – Mel Wilkens Field	0	0	0	0	0	0	0	0	450	450

**Table 4-35 (4 of 4)  
 Forecast Summary –General Aviation  
 Fleet and Operations Mix  
 2015**

Associated City	Airport name	Based Aircraft							Aircraft Operations		
		Single Engine	Multi-Engine	Jet	Helo	Other	Sport	Total	Local	Itinerant	Total
Henning	Henning Municipal	10	0	0	0	0	0	10	119	40	159
Hill City	Hill City – Quadna Mountain	0	0	0	0	0	0	0	0	553	553
Karlstad	Karlstad Municipal	2	0	0	0	0	0	2	0	26	26
Littlefork	Littlefork Municipal – Hanover	2	0	0	0	0	0	2	560	240	800
Mahnomen	Mahnomen County	17	0	0	0	0	0	17	2,741	484	3,224
Milaca	Milaca Municipal	26	1	0	0	2	3	31	1,585	931	2,516
Murdock	Murdock Municipal	0	0	0	0	0	0	0	0	20	20
New York Mills	New York Mills Municipal	1	0	0	0	0	0	1	64	52	117
Northome	Northome Municipal	0	0	0	0	0	0	0	25	25	50
Pelican Rapids	Pelican Rapids Municipal – Lyon’s Field	14	0	0	0	0	0	14	424	106	530
Remer	Remer Municipal	4	0	0	0	2	0	6	146	146	293
Starbuck	Starbuck Municipal	3	0	0	0	0	0	3	76	34	110
Tyler	Tyler Municipal	3	0	0	0	3	0	6	73	27	100
Waskish	Waskish Municipal	0	0	0	0	0	0	0	349	205	554
Wells	Wells Municipal	6	0	0	0	0	0	6	117	39	156
Winsted	Winsted Municipal	46	0	0	0	6	3	55	2,384	838	3,222

Source: Wilbur Smith Associates.

Prepared: December 2005.

Note: Totals may not equal sum due to rounding.

**Table 4-36 (1 of 4)  
 Forecast Summary –General Aviation  
 Fleet and Operations Mix  
 2025**

Associated City	Airport Name	Based Aircraft							Aircraft Operations		
		Single Engine	Multi Engine	Jet	Helo	Other	Sport	Total	Local	Itinerant	Total
<b>Key Airports</b>											
Alexandria	Alexandria Municipal – Chandler Field	48	8	2	0	0	2	61	12,018	20,463	32,481
Austin	Austin Municipal	41	5	7	0	0	2	54	40,049	18,846	58,895
Baudette	Baudette International	19	2	2	0	0	2	25	2,412	6,864	9,276
Bemidji	Bemidji Regional	22	29	18	0	0	0	69	5,597	9,132	14,729
Brainerd	Brainerd Lakes Regional	75	7	6	11	0	0	99	34,473	14,774	49,247
Duluth	Duluth International	52	8	7	3	23	0	93	27,507	44,880	72,387
Ely	Ely Municipal	24	2	1	0	0	0	27	1,924	1,130	3,053
Fairmont	Fairmont Municipal	19	2	3	0	1	1	26	2,100	2,900	5,000
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	37	7	1	0	4	2	51	6,593	3,396	9,989
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	81	2	4	2	0	2	91	21,608	6,094	27,702
Hibbing	Chisholm-Hibbing Municipal	46	4	1	0	0	0	51	4,122	8,368	12,490
International Falls	Falls International	37	1	0	0	0	0	38	6,450	8,550	15,000
Mankato	Mankato Regional – Sohler Field	73	10	14	2	6	2	106	48,917	31,275	80,192
Marshall	Southwest Minnesota Regional – Ryan Field	28	4	5	0	0	0	36	8,603	14,648	23,251
Owatonna	Owatonna – Degner Regional	47	4	2	0	2	3	57	14,011	12,933	26,945
Park Rapids	Park Rapids Municipal – Konshok Field	29	2	3	0	0	0	35	1,249	1,249	2,497
Red Wing	Red Wing Regional	50	4	2	3	3	2	64	6,890	9,134	16,024
Rochester	Rochester International	42	7	5	0	0	2	55	56,268	34,487	90,755
St. Cloud	St. Cloud Regional	100	13	7	4	0	16	140	68,694	49,744	118,438
Thief River Falls	Thief River Falls Regional	20	4	5	0	0	2	30	13,064	26,523	39,587
Warroad	Warroad International – Swede Carlson Field	10	4	2	0	0	2	19	1,629	802	2,432
Willmar	Willmar Municipal – John L. Rice Field	44	2	2	2	0	5	55	14,668	5,991	20,659
Winona	Winona Municipal – Max Conrad Field	50	4	0	3	0	2	59	10,631	5,236	15,867
Worthington	Worthington Municipal	21	4	5	0	0	0	29	2,199	942	3,141
<b>Intermediate Airports</b>											
Ada	Norman County – Ada-Twin Valley	7	0	0	0	0	0	7	2,850	2,150	5,000
Aitkin	Aitkin Municipal – Steve Kurtz Field	39	2	0	2	4	4	51	18,385	4,036	22,421
Albert Lea	Albert Lea Municipal	42	8	5	1	6	0	62	39,600	15,400	55,000
Appleton	Appleton Municipal	5	0	0	0	1	1	7	2,076	425	2,501
Bagley	Bagley Municipal	3	0	0	0	0	0	3	2,400	1,600	4,000
Benson	Benson Municipal – Veterans Field	11	0	0	0	0	0	11	3,331	1,567	4,898
Bigfork	Bigfork Municipal	3	1	0	0	1	2	7	27	23	50
Blue Earth	Blue Earth Municipal	27	0	0	0	2	0	29	3,360	3,640	7,000
Brooten	Brooten Municipal	7	0	0	0	1	1	9	1,235	1,235	2,469
Buffalo	Buffalo Municipal	53	2	0	0	0	7	62	6,011	4,535	10,545
Caledonia	Houston County	11	0	0	0	0	0	11	1,963	1,812	3,775
Cambridge	Cambridge Municipal	52	1	0	2	0	5	60	24,767	2,752	27,519

**Table 4-36 (2 of 4)  
 Forecast Summary –General Aviation  
 Fleet and Operations Mix  
 2025**

Associated City	Airport Name	Based Aircraft							Aircraft Operations		
		Single Engine	Multi Engine	Jet	Helo	Other	Sport	Total	Local	Itinerant	Total
Canby	Canby Municipal – Myers Field	20	7	0	0	0	0	26	7,235	716	7,950
Cloquet	Cloquet-Carleton County	39	2	0	0	2	3	47	6,655	9,576	16,231
Cook	Cook Municipal	14	0	0	0	0	0	14	265	753	1,018
Crookston	Crookston Municipal – Kirkwood Field	40	0	0	0	0	0	40	26,800	13,200	40,000
Detroit Lakes	Detroit Lakes – Wething Field	71	5	2	0	1	2	80	3,816	5,269	9,085
Dodge Center	Dodge Center Municipal	33	0	0	0	2	4	39	6,521	1,242	7,763
Duluth	Sky Harbor	26	0	0	0	0	0	26	4,234	8,997	13,231
Eveleth-Virginia	Eveleth-Virginia Municipal	28	5	0	0	0	2	34	5,374	733	6,107
Faribault	Faribault Municipal	56	8	0	2	8	2	76	4,646	1,090	5,735
Fertile	Fertile Municipal	1	1	0	0	0	0	2	540	360	900
Fosston	Fosston Municipal	8	0	0	0	0	0	8	2,960	1,040	4,000
Glencoe	Glencoe Municipal – Vernon Perschau Field	22	1	0	0	4	2	29	9,548	4,290	13,838
Glenwood	Glenwood Municipal	21	2	0	0	0	0	23	3,428	1,613	5,041
Grand Marais	Grand Marais – Cook County	18	1	0	0	0	2	20	4,196	1,399	5,595
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	9	5	2	0	0	0	16	9,453	3,496	12,949
Hallock	Hallock Municipal	9	1	0	0	0	0	10	583	517	1,100
Hawley	Hawley Municipal	15	1	0	0	1	1	18	0	1,171	1,171
Hector	Hector Municipal	16	0	0	1	5	0	23	1,720	280	2,000
Herman	Herman Municipal	4	0	0	0	2	0	6	1,820	180	2,000
Hutchinson	Hutchinson Municipal – Butler Field	30	2	0	2	0	2	36	8,718	6,850	15,568
Jackson	Jackson Municipal	15	0	0	0	0	0	15	13,110	5,890	19,000
Le Sueur	Le Sueur Municipal	27	0	0	33	0	2	62	1,798	1,199	2,997
Litchfield	Litchfield Municipal	15	0	0	1	0	2	19	927	1,280	2,206
Little Falls	Little Falls – Morrison County – Lindbergh Field	39	2	0	0	1	2	44	26,736	5,869	32,605
Long Prairie	Long Prairie Municipal – Todd Field	14	0	0	0	1	1	16	2,573	952	3,525
Longville	Longville Municipal	3	0	0	0	0	1	4	2,550	5,676	8,227
Luverne	Luverne Municipal – Quentin Aanenson Field	15	0	0	0	0	0	15	3,948	4,452	8,400
Madison	Lac Qui Parle County – Bud Frye Field	4	0	0	0	0	0	4	1,395	105	1,500
Maple Lake	Maple Lake Municipal	43	8	0	0	5	8	64	27,770	7,382	35,152
McGregor	McGregor – Isedor Iverson	4	0	0	0	1	1	6	978	1,350	2,328
Montevideo	Montevideo-Chippewa County	22	1	0	0	4	0	27	3,483	3,774	7,257
Moorhead	Moorhead Municipal	18	3	0	0	0	2	23	19,956	6,652	26,607
Moose Lake	Moose Lake – Carlton County	11	0	0	0	3	1	15	4,772	4,967	9,739
Mora	Mora Municipal	42	4	2	0	1	4	52	13,339	4,687	18,026
Morris	Morris Municipal	11	3	0	0	1	0	16	1,840	2,160	4,000
New Ulm	New Ulm Municipal	14	6	0	0	2	0	22	6,359	9,151	15,510
Olivia	Olivia Regional	9	0	0	4	0	0	13	4,700	300	5,000
Orr	Orr Regional	6	1	0	0	0	0	7	122	183	305
Ortonville	Ortonville Municipal – Martinson Field	5	0	0	0	0	0	5	3,810	1,556	5,366
Paynesville	Paynesville Municipal	16	0	0	0	0	2	18	247	0	247
Perham	Perham Municipal	14	3	0	0	2	2	22	3,872	1,740	5,612
Pine River	Pine River Regional	34	2	0	0	2	5	44	4,319	2,537	6,855

**Table 4-36 (3 of 4)  
Forecast Summary –General Aviation  
Fleet and Operations Mix  
2025**

Associated City	Airport Name	Based Aircraft							Aircraft Operations		
		Single Engine	Multi Engine	Jet	Helo	Other	Sport	Total	Local	Itinerant	Total
Pinecreek	Piney-Pinecreek Border	0	0	0	0	0	0	0	0	3,474	3,474
Pipestone	Pipestone Municipal	15	1	0	0	1	0	18	882	918	1,800
Preston	Fillmore County	16	0	0	0	1	0	18	2,136	2,136	4,272
Princeton	Princeton Municipal	27	2	0	0	0	4	33	8,695	8,695	17,390
Red Lake Falls	Red Lake Falls Municipal	9	0	0	0	0	0	9	8,400	1,600	10,000
Redwood Falls	Redwood Falls Municipal	7	5	0	1	0	0	13	7,888	3,712	11,600
Roseau	Roseau Municipal – Rudy Billberg Field	12	0	0	0	3	2	17	3,358	2,432	5,790
Rush City	Rush City Regional	44	2	0	0	1	8	55	7,398	4,161	11,559
Rushford	Rushford Municipal	7	0	0	0	0	2	9	632	421	1,053
Sauk Centre	Sauk Centre Municipal	12	1	0	0	3	4	19	4,478	2,744	7,222
Silver Bay	Silver Bay Municipal	11	1	0	0	2	0	15	856	214	1,070
Slayton	Slayton Municipal	8	0	0	0	1	0	9	637	63	700
Sleepy Eye	Sleepy Eye Municipal	6	0	0	0	4	0	10	504	296	800
Springfield	Springfield Municipal	4	0	0	0	0	0	4	166	34	200
St. James	St. James Municipal	10	1	2	0	3	0	16	756	1,044	1,800
Staples	Staples Municipal	26	0	0	0	5	0	31	6,897	3,099	9,996
Stephen	Stephen Municipal	10	0	0	0	1	0	11	2,000	500	2,500
Tower	Tower Municipal	27	3	2	0	1	2	35	2,749	1,017	3,766
Tracy	Tracy Municipal	10	0	0	0	0	2	12	436	1,381	1,816
Two Harbors	Richard B. Helgeson	26	2	0	0	6	2	36	5,887	5,887	11,775
Wadena	Wadena Municipal	10	1	0	0	0	2	13	13,523	4,751	18,274
Walker	Walker Municipal	26	0	0	0	0	4	30	6,181	6,433	12,614
Warren	Warren Municipal	4	0	0	0	0	0	4	8,977	10,123	19,100
Waseca	Waseca Municipal	26	1	0	0	1	2	30	5,997	2,332	8,330
Wheaton	Wheaton Municipal	9	0	0	0	0	0	9	3,080	920	4,000
Windom	Windom Municipal	13	1	0	0	0	0	15	750	750	1,500
<b>Landing Strips</b>											
Backus	Backus Municipal	6	1	0	0	0	5	12	5,528	3,247	8,775
Big Falls	Big Falls Municipal	1	0	0	0	0	0	1	200	200	400
Bowstring	Bowstring Municipal	7	0	0	0	0	0	7	997	997	1,995
Clarissa	Clarissa Municipal	1	0	0	0	0	0	1	465	396	861
East Gull Lake	East Gull Lake Municipal	0	0	0	0	0	0	0	0	1,371	1,371
Elbow Lake	Elbow Lake Municipal – Pride of the Prairie	15	0	0	0	3	0	19	2,680	1,320	4,000
Grygla	Grygla Municipal – Mel Wilkens Field	0	0	0	0	0	0	0	0	450	450
Henning	Henning Municipal	10	0	0	0	0	2	12	126	42	168
Hill City	Hill City – Quadna Mountain	0	0	0	0	0	0	0	0	613	613
Karlstad	Karlstad Municipal	2	0	0	0	0	0	2	0	26	26
Littlefork	Littlefork Municipal – Hanover	2	0	0	0	0	0	2	560	240	800
Mahnomen	Mahnomen County	18	0	0	0	0	0	18	2,761	487	3,249

**Table 4-36 (4 of 4)  
 Forecast Summary –General Aviation  
 Fleet and Operations Mix  
 2025**

Associated City	Airport Name	Based Aircraft							Aircraft Operations		
		Single Engine	Multi Engine	Jet	Helo	Other	Sport	Total	Local	Itinerant	Total
Milaca	Milaca Municipal	26	1	0	0	2	4	32	1,812	1,064	2,877
Murdock	Murdock Municipal	0	0	0	0	0	0	0	0	21	21
New York Mills	New York Mills Municipal	1	0	0	0	0	2	3	68	56	123
Northome	Northome Municipal	0	0	0	0	0	0	0	25	25	50
Pelican Rapids	Pelican Rapids Municipal – Lyon’s Field	14	0	0	0	0	0	14	449	112	561
Remer	Remer Municipal	4	0	0	0	2	1	7	171	171	343
Starbuck	Starbuck Municipal	3	0	0	0	0	0	3	77	34	111
Tyler	Tyler Municipal	3	0	0	0	3	0	6	73	27	100
Waskish	Waskish Municipal	0	0	0	0	0	0	0	387	227	614
Wells	Wells Municipal	6	0	0	0	0	0	6	117	39	156
Winsted	Winsted Municipal	46	0	0	0	6	4	56	2,560	899	3,460

Source: Wilbur Smith Associates.

Prepared: December 2005.

Note: Totals may not equal sum due to rounding.





## Chapter Five: System Performance Analysis

The classification of the airports within the Minnesota airport system, identified in Chapter Two, provides a baseline for evaluating the existing airport system. Policies, with specific performance measures for each policy, are used to evaluate the system. This evaluation provides an indication of where the airport system is adequate to meet the State's near- and long-term aviation needs, identifies specific airport or system deficiencies, and helps to determine if there are surpluses or duplications within the system. This evaluation provides the foundation for subsequent recommendations for the Minnesota airport system, as well as for individual study airports.

Some policies and performance measures used to evaluate Minnesota's Aviation System are action-oriented, while others are more informational in nature. The four policies established to evaluate the system and considered in this chapter include the following:

- **Policy 1: Preserve Essential Elements of the Existing Transportation System** – Ability to provide an airport system that preserves essential elements of the existing transportation system
- **Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems**– Ability to provide an airport system that supports land use decisions, that preserves mobility, and that enhances the safety of transportation systems
- **Policy 3: Provide Cost-Effective Transportation Options for People and Freight** – Ability to promote an airport system that provides cost-effective transportation options for people and freight
- **Policy 4: Increase the Safety and Security of Transportation Systems and Their Users** – Ability to promote an airport system that increases the safety and security of transportation systems and their users

It is important to note that these policies are consistent with policies that have been previously established for Minnesota's airport system as part of either or both the State's prior Aviation System Plan or the most recent Statewide Transportation Plan. It should be noted that the Statewide Transportation Plan is MnDOT's long-range plan for transportation investment and decision-making. The Transportation Plan identified performance measures that are used to determine how well MnDOT is meeting citizen expectations for providing infrastructure and services.

The following sections of this chapter use each policy and its associated performance measures to evaluate Minnesota's existing airport system.

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## **POLICY 1: PRESERVE ESSENTIAL ELEMENTS OF THE EXISTING TRANSPORTATION SYSTEM**

An important goal for the Minnesota airport system is to maximize and preserve, where possible, the return on historic investment. One of the most vital pieces of airport infrastructure is the runway. The preservation policy identified the following performance measure for monitoring facility infrastructure at study airports:

- Percent of airport runways that meet good and poor Pavement Condition Index (PCI) targets

### **Performance Measure 1.1: Percent of airport runways that meet good and poor Pavement Condition Index (PCI) targets**

#### **Target Performance**

**86% of Applicable Airports have a PCI of 56 or Greater; No More than 4% of Applicable Airports to have a PCI of Less than 40**

#### **Current Performance**

**70% of Applicable Airports Have a PCI of 56 or Greater; No Applicable Airport has a PCI of Less than 40**

Investment in the maintenance of paved surfaces at all study airports represents a considerable allocation of funds each year. The Minnesota Department of Transportation has determined that maintaining pavements to a certain standard helps to prevent major and more costly reconstruction projects. The review of pavement conditions was accomplished using Mn/DOT pavement records for primary runways. This information is depicted in **Table 5-1**. It is worth noting that this performance measure is not applicable to airports where the primary runway is not paved. This measure applies only to airports with a paved runway that serve a Level 1, 2, or 3 RTC.

There are 61 airports in Minnesota that this performance measure applies to; 53 of these airports are in the Greater Minnesota system and 8 are in the metropolitan area. Of the 53 study airports, 11 airports (21 percent) currently have a PCI rating on their paved primary runway that is below the target of 56. None of the 53 study airports currently have PCI rating that is lower than 40. The remaining 79 percent (42 airports) of the study airports currently have a PCI rating on their paved primary runway that is 56 or greater.

This performance measure applies to 8 of the 9 airports in the metropolitan area. These 8 airports are included in the total of 60 applicable airports. All of the 9 airports serve a Level 1, 2 or 3 RTC, but Forest Lake has a turf runway so this performance measure does not apply to this airport. The only airport in the metropolitan area for which PCI data is available is South St. Paul. The pavement on the primary runway, rated at a PCI of 69, meets the performance measure.

The target for this performance measure is to have 86 percent of the applicable airports with paved runways with a PCI rating of 56 or greater. As shown in **Chart 5-1**, currently 79 percent of the study airports in Greater Minnesota meet the target. The performance measure also has a target to have no more than 4 percent of applicable airports with poor pavement with a rating

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of 40 PCI or less. Currently, none of the study airports have a PCI rating of 40 or less. The remaining 21 percent of applicable study airports have PCI ratings on their primary runways that are less than 56 but greater than 40.

For all applicable airports (a total of 60 airports) that can be evaluated for their ability to meet the target for this performance measure, a total of 43 airports (42 in Greater Minnesota and one in the metropolitan area) meet the target. Eleven (11) airports, all in Greater Minnesota have a current PCI rating on their primary runway that is less than 56 but greater than 40. There are 8 airports in the metropolitan area that this measure applies to. PCI information is currently available for only one of these airports. As noted there is one airport in the metropolitan area that has a PCI on its primary runway that exceeds 56.

**Table 5-1  
Current Performance  
Policy 1: Preserve Essential Elements of the Existing Transportation System  
Measure 1.1: Minnesota Airports' Primary Runway PCI Ratings**

ASSOCIATED CITY	AIRPORT NAME	PRIMARY RUNWAY PCI RATING	SERVING LEVEL 1, 2, OR 3 RTC	MEETS PERFORMANCE MEASURE TARGET
<b>KEY AIRPORTS</b>				
Alexandria	Alexandria Municipal – Chandler Field	61	Yes	Yes
Austin	Austin Municipal	61	No	N/A
Baudette	Baudette International	67	Yes	Yes
Bemidji	Bemidji – Beltrami County	69	Yes	Yes
Brainerd	Brainerd Lakes Regional	90	No	N/A
Duluth	Duluth International	80	No	N/A
Ely	Ely Municipal	63	No	N/A
Fairmont	Fairmont Municipal	72	Yes	Yes
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	91	No	N/A
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	78	No	N/A
Hibbing	Chisholm-Hibbing Municipal	61	No	N/A
International Falls	Falls International	86	Yes	Yes
Mankato	Mankato Regional – Sohler Field	63	No	N/A
Marshall	Southwest Minnesota Regional – Ryan Field	78	Yes	Yes
Owatonna	Owatonna – Degner Regional	96	No	N/A
Park Rapids	Park Rapids Municipal – Konshok Field	76	Yes	Yes
Red Wing	Red Wing Regional	87	No	N/A
Rochester	Rochester International	82	Yes	Yes
St. Cloud	St. Cloud Regional	89	Yes	Yes
Thief River Falls	Thief River Falls Regional	76	Yes	Yes
Warroad	Warroad International – Swede Carlson Field	71	No	N/A
Willmar	Willmar Municipal – John L. Rice Field	45	Yes	No
Winona	Winona Municipal – Max Conrad Field	58	Yes	Yes
Worthington	Worthington Municipal	88	No	N/A
<b>INTERMEDIATE AIRPORTS</b>				
Ada	Norman County – Ada-Twin Valley	96	No	N/A
Aitkin	Aitkin Municipal – Steve Kurtz Field	76	Yes	Yes
Albert Lea	Albert Lea Municipal	61	Yes	Yes
Appleton	Appleton Municipal	62	Yes	Yes

**Table 5-1 (2 of 5)  
Current Performance  
Policy 1: Preserve Essential Elements of the Existing Transportation System  
Measure 1.1: Minnesota Airports' Primary Runway PCI Ratings**

ASSOCIATED CITY	AIRPORT NAME	PRIMARY RUNWAY PCI RATING	SERVING LEVEL 1, 2, OR 3 RTC	MEETS PERFORMANCE MEASURE TARGET
Bagley	Bagley Municipal	Turf	No	N/A
Benson	Benson Municipal – Veterans Field	68	No	N/A
Bigfork	Bigfork Municipal	67	Yes	Yes
Blue Earth	Blue Earth Municipal	68	No	N/A
Brooten	Brooten Municipal	96	No	N/A
Buffalo	Buffalo Municipal	73	No	N/A
Caledonia	Houston County	12	No	N/A
Cambridge	Cambridge Municipal	88	Yes	Yes
Canby	Canby Municipal – Myers Field	37	No	N/A
Cloquet	Cloquet-Carlton County	61	Yes	Yes
Cook	Cook Municipal	58	Yes	Yes
Crookston	Crookston Municipal – Kirkwood Field	49	Yes	No
Detroit Lakes	Detroit Lakes – Wething Field	54	No	N/A
Dodge Center	Dodge Center Municipal	98	Yes	Yes
Duluth	Sky Harbor	58	Yes	Yes
Eveleth-Virginia	Eveleth-Virginia Municipal	52	Yes	No
Faribault	Faribault Municipal	87	No	N/A
Fertile	Fertile Municipal	59	No	N/A
Fosston	Fosston Municipal	95	Yes	Yes
Glencoe	Glencoe Municipal – Vernon Perschau Field	78	Yes	Yes
Glenwood	Glenwood Municipal	53	Yes	No
Grand Marais	Grand Marais – Cook County	65	No	N/A
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	72	No	N/A
Hallock	Hallock Municipal	99	Yes	Yes
Hawley	Hawley Municipal	98	No	N/A
Hector	Hector Municipal	86	Yes	Yes
Herman	Herman Municipal	99	No	N/A
Hutchinson	Hutchinson Municipal – Butler Field	75	No	N/A

**Table 5-1 (3 of 5)  
Current Performance  
Policy 1: Preserve Essential Elements of the Existing Transportation System  
Measure 1.1: Minnesota Airports' Primary Runway PCI Ratings**

ASSOCIATED CITY	AIRPORT NAME	PRIMARY RUNWAY PCI RATING	SERVING LEVEL 1, 2, OR 3 RTC	MEETS PERFORMANCE MEASURE TARGET
Jackson	Jackson Municipal	82	No	N/A
Le Sueur	Le Sueur Municipal	58	Yes	Yes
Litchfield	Litchfield Municipal	96	Yes	Yes
Little Falls	Little Falls – Morrison County – Lindbergh Field	80	No	N/A
Long Prairie	Long Prairie Municipal – Todd Field	64	No	N/A
Longville	Longville Municipal	64	No	N/A
Luverne	Luverne Municipal – Quentin Aanenson Field	64	No	N/A
Madison	Lac Qui Parle County – Bud Frye Field	99	No	N/A
Maple Lake	Maple Lake Municipal	71	Yes	Yes
McGregor	McGregor – Isedor Iverson	69	No	N/A
Montevideo	Montevideo-Chippewa County	58	Yes	Yes
Moorhead	Moorhead Municipal	95	No	N/A
Moose Lake	Moose Lake – Carlton County	48	Yes	No
Mora	Mora Municipal	50	Yes	No
Morris	Morris Municipal	96	Yes	Yes
New Ulm	New Ulm Municipal	76	No	N/A
Olivia	Olivia Regional	96	No	N/A
Orr	Orr Regional	64	No	N/A
Ortonville	Ortonville Municipal – Martinson Field	62	Yes	Yes
Paynesville	Paynesville Municipal	94	No	N/A
Perham	Perham Municipal	50	Yes	No
Pine River	Pine River Regional	62	Yes	Yes
Pinecreek	Piney-Pinecreek Border	68	Yes	Yes
Pipestone	Pipestone Municipal	95	Yes	Yes
Preston	Fillmore County	62	Yes	Yes
Princeton	Princeton Municipal	63	No	N/A
Red Lake Falls	Red Lake Falls Municipal	80	No	N/A
Redwood Falls	Redwood Falls Municipal	75	No	N/A

**Table 5-1 (4 of 5)**  
**Current Performance**  
**Policy 1: Preserve Essential Elements of the Existing Transportation System**  
**Measure 1.1: Minnesota Airports' Primary Runway PCI Ratings**

ASSOCIATED CITY	AIRPORT NAME	PRIMARY RUNWAY PCI RATING	SERVING LEVEL 1, 2, OR 3 RTC	MEETS PERFORMANCE MEASURE TARGET
Roseau	Roseau Municipal – Rudy Billberg Field	46	Yes	No
Rush City	Rush City Regional	77	No	N/A
Rushford	Rushford Municipal	96	No	N/A
Sauk Centre	Sauk Centre Municipal	55	Yes	No
Silver Bay	Silver Bay Municipal	90	No	N/A
Slayton	Slayton Municipal	58	Yes	Yes
Sleepy Eye	Sleepy Eye Municipal	Turf	No	N/A
Springfield	Springfield Municipal	92	No	N/A
St. James	St. James Municipal	83	Yes	Yes
Staples	Staples Municipal	96	Yes	Yes
Stephen	Stephen Municipal	91	No	N/A
Tower	Tower Municipal	62	No	N/A
Tracy	Tracy Municipal	91	Yes	Yes
Two Harbors	Richard B. Helgeson	49	Yes	No
Wadena	Wadena Municipal	80	No	N/A
Walker	Walker Municipal	45	Yes	No
Warren	Warren Municipal	56	Yes	Yes
Waseca	Waseca Municipal	88	No	N/A
Wheaton	Wheaton Municipal	66	Yes	Yes
Windom	Windom Municipal	59	Yes	Yes
<b>LANDING STRIP AIRPORTS</b>				
Backus	Backus Municipal	Turf	No	N/A
Big Falls	Big Falls Municipal	Turf	No	N/A
Bowstring	Bowstring Municipal	Turf	No	N/A
Clarissa	Clarissa Municipal	Turf	No	N/A
East Gull Lake	East Gull Lake Municipal	Turf	No	N/A
Elbow Lake	Elbow Lake Municipal – Pride of the Prairie	Turf	No	N/A
Grygla	Grygla Municipal – Mel Wilkens Field	Turf	No	N/A

**Table 5-1 (5 of 5)**  
**Current Performance**  
**Policy 1: Preserve Essential Elements of the Existing Transportation System**  
**Measure 1.1: Minnesota Airports' Primary Runway PCI Ratings**

ASSOCIATED CITY	AIRPORT NAME	PRIMARY RUNWAY PCI RATING	SERVING LEVEL 1, 2, OR 3 RTC	MEETS PERFORMANCE MEASURE TARGET
Henning	Henning Municipal	Turf	No	N/A
Hill City	Hill City – Quadna Mountain	Turf	No	N/A
Karlstad	Karlstad Municipal	Turf	No	N/A
Littlefork	Littlefork Municipal – Hanover	Turf	No	N/A
Mahnomen	Mahnomen County	Turf	No	N/A
Milaca	Milaca Municipal	Turf	No	N/A
Murdock	Murdock Municipal	Turf	No	N/A
New York Mills	New York Mills Municipal	Turf	No	N/A
Northome	Northome Municipal	Turf	No	N/A
Pelican Rapids	Pelican Rapids Municipal – Lyon's Field	Turf	No	N/A
Remer	Remer Municipal	Turf	No	N/A
Starbuck	Starbuck Municipal	Turf	No	N/A
Tyler	Tyler Municipal	Turf	No	N/A
Waskish	Waskish Municipal	Turf	No	N/A
Wells	Wells Municipal	Turf	No	N/A
Winsted	Winsted Municipal	Turf	No	N/A
<b>METRO AREA AIRPORTS</b>				
Forest Lake	Forest Lake	Turf	Yes	N/A
Minneapolis	Minneapolis-St. Paul International	N/P	Yes	N/P
Minneapolis	Airlake	N/P	Yes	N/P
Minneapolis	Anoka County/Blaine-Jane's Field	N/P	Yes	N/P
Minneapolis	Crystal	N/P	Yes	N/P
Minneapolis	Flying Cloud	N/P	Yes	N/P
St. Paul	St. Paul Downtown-Holman Field	N/P	Yes	N/P
St. Paul	Lake Elmo	N/P	Yes	N/P
St. Paul	South St. Paul	69	Yes	Yes

Source: Mn/DOT records.

Prepared: January 2006.

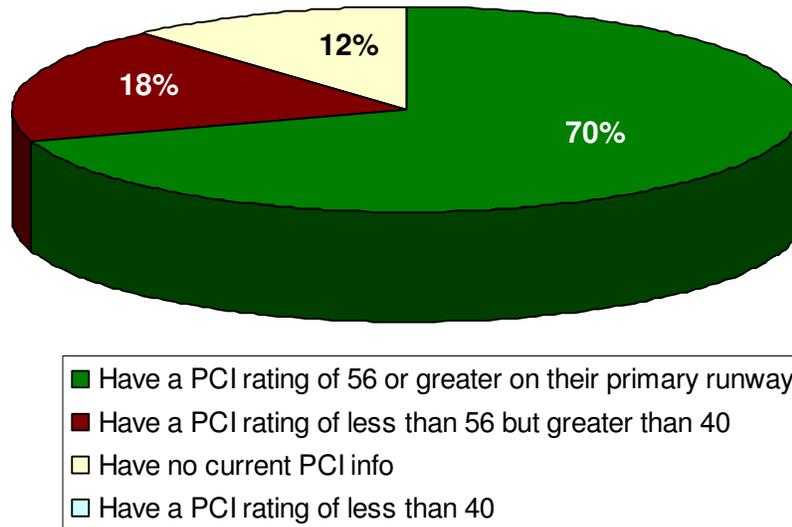
Note: Data current as of January 1, 2005.

N/A = Does not apply because airport's paved primary runway does not serve a Level 1, 2, or 3 RTC.

N/P = Data not provided/available.

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**Chart 5-1**  
**Current Performance**  
**Policy 1: Preserve Essential Elements of the Existing Transportation System**  
**Measure 1.1: Minnesota Airports' Primary Runway PCI Ratings**



Source: Mn/DOT records and Wilbur Smith Associates.  
Prepared: January 2006.

As reflected in Chart 5-1, PCI data was not available for seven of the metro area airports. Once this information is available and included, it is possible that the system may be performing at or near the target of 86 percent.

## **POLICY 2: SUPPORT LAND USE DECISIONS THAT PRESERVE MOBILITY AND ENHANCE THE SAFETY OF TRANSPORTATION SYSTEMS**

The long-term viability of airports in most systems can be threatened or endangered by encroachment from land uses or activities that are incompatible with an airport and its operation. For many airports, their zone of influence and potential impacts extend off property that is actually owned or controlled by the airport. In these instances, the airport must work with surrounding municipalities to implement land use controls or zoning that recognize the presence of the airport and its potential areas of influence. Areas around an airport that are most likely to experience impact from daily takeoffs and landings are typically confined to the flight patterns of the aircraft that operate at the airport and to any noise-related contours the aircraft may generate.

Mn/DOT's current land use initiative seeks to develop a stronger relationship between airport zoning and community comprehensive land use planning. Proactive land use planning provides one mechanism to protect airports from potential encroachment by activities or land uses that are incompatible with their day-to-day operations.

As demand at study airports grows and as FAA design criteria and development standards are modified over time, having a system of airports that can respond to changing needs and demands is important. The performance measures used to evaluate this policy include:

- Percent of airports that have current master plans or airport layout plans (ALPs)
- Percent of airports that have Minnesota Rules Zoning

**Performance Measure 2.1: Percent of airports that have current master plans (MP) or airport layout plans (ALPs)**

**Target Performance**

**Key Airports: 100% every 7 yrs**  
**Intermediate Airports: 100% every 15 yrs**  
**Landing Strips: No Target**

**Current Performance**

**Key Airports: 46% have a current MP/ALP**  
**Intermediate Airports: 81% have a current MP/ALP**  
**Landing Strips: No Target**

One of the best ways for an active airport to ensure that it can respond to near- and longer-term development needs is for the airport to have a master plan or ALP. When airports have current master plans and/or ALPs, compatibility with the community and the natural environment tends to increase.

Airport master plans and/or ALPs should be updated as demand warrants, as changing conditions at the airport or in the community dictate, or as changes in FAA planning and design standards warrant. For this study, targets were set as follows: master plans and/or ALPs are considered current if they had been prepared in the last 7 years for Key, the last 15 years for Intermediate Airports, and as needed for Landing Strips. Using these targets, **Table 5-2** provides information on airports that now meet established targets. It should be noted that 2005 was used as the base year in determining whether airports were meeting their applicable targets. Additionally, a target was not established for metro area airports as their planning is the responsibility of the Metropolitan Council and the Metropolitan Airports Commission.

**Table 5-2 (1 of 5)**  
**Current Performance**

**Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems**  
**Measure 2.1: Minnesota Airports with Current Master Plans/ALPs**

ASSOCIATED CITY	AIRPORT NAME	MASTER PLAN/ALP DATE	CURRENTLY MEETS TARGET
<b>KEY AIRPORTS – MP/ALP EVERY 7 YEARS</b>			
Alexandria	Alexandria Municipal – Chandler Field	1999	Yes
Austin	Austin Municipal	1999	Yes
Baudette	Baudette International	1997	No
Bemidji	Bemidji Regional	1997	No*
Brainerd	Brainerd Lakes Regional	2000	Yes

**Table 5-2 (2 of 5)**  
**Current Performance**  
**Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems**  
**Measure 2.1: Minnesota Airports with Current Master Plans/ALPs**

ASSOCIATED CITY	AIRPORT NAME	MASTER PLAN/ALP DATE	CURRENTLY MEETS
Duluth	Duluth International	2000	Yes
Ely	Ely Municipal	2002	Yes
Fairmont	Fairmont Municipal	1991	No
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	1994	No*
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	1998	Yes
Hibbing	Chisholm-Hibbing Municipal	1996	No*
International Falls	Falls International	2001	Yes
Mankato	Mankato Regional – Sohler Field	2002	Yes
Marshall	Southwest Minnesota Regional – Ryan Field	1975	No
Owatonna	Owatonna – Degner Regional	1974	No
Park Rapids	Park Rapids Municipal – Konshok Field	1978	No
Red Wing	Red Wing Regional	1996	No*
Rochester	Rochester International	1997	No*
Silver Bay	Silver Bay Municipal	1981	No
St. Cloud	St. Cloud Regional	2000	Yes
Thief River Falls	Thief River Falls Regional	1997	No*
Warroad	Warroad International – Swede Carlson Field	1989	No
Willmar	Willmar Municipal – John L. Rice Field	1998	Yes
Winona	Winona Municipal – Max Conrad Field	2004	Yes
Worthington	Worthington Municipal	1997	No
<b>INTERMEDIATE AIRPORTS – MP/ALP EVERY 15 YEARS</b>			
Ada	Norman County – Ada-Twin Valley	1977	No
Aitkin	Aitkin Municipal – Steve Kurtz Field	1975	No*
Albert Lea	Albert Lea Municipal	2005	Yes
Appleton	Appleton Municipal	1979	No
Bagley	Bagley Municipal	1996	Yes
Benson	Benson Municipal – Veterans Field	1988	No
Bigfork	Bigfork Municipal	1992	Yes
Blue Earth	Blue Earth Municipal	2004	Yes
Brooten	Brooten Municipal	1997	Yes
Buffalo	Buffalo Municipal	1995	Yes
Caledonia	Houston County	1968	No
Cambridge	Cambridge Municipal	2003	Yes
Canby	Canby Municipal – Myers Field	2004	Yes
Cloquet	Cloquet-Carlton County	1993	Yes
Cook	Cook Municipal	2004	Yes
Crookston	Crookston Municipal – Kirkwood Field	2000	Yes
Detroit Lakes	Detroit Lakes – Wething Field	2004	Yes
Dodge Center	Dodge Center Municipal	1979	No
Duluth	Sky Harbor	2005	Yes
Eveleth-Virginia	Eveleth-Virginia Municipal	2001	Yes
Faribault	Faribault Municipal	2005	Yes

**Table 5-2 (3 of 5)**  
**Current Performance**  
**Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems**  
**Measure 2.1: Minnesota Airports with Current Master Plans/ALPs**

ASSOCIATED CITY	AIRPORT NAME	MASTER PLAN/ALP DATE	CURRENTLY MEETS
Fertile	Fertile Municipal	2000	Yes
Fosston	Fosston Municipal	1973	No
Glencoe	Glencoe Municipal – Vernon Perschau Field	1993	Yes
Glenwood	Glenwood Municipal	2004	Yes
Grand Marais	Grand Marais – Cook County	1992	Yes
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	1996	Yes
Hallock	Hallock Municipal	1973	No
Hawley	Hawley Municipal	1984	No
Hector	Hector Municipal	2002	Yes
Herman	Herman Municipal	1970	No
Hutchinson	Hutchinson Municipal – Butler Field	2004	Yes
Jackson	Jackson Municipal	1979	No*
Le Sueur	Le Sueur Municipal	1990	Yes
Litchfield	Litchfield Municipal	1988	No
Little Falls	Little Falls – Morrison County – Lindbergh Field	1996	Yes
Long Prairie	Long Prairie Municipal – Todd Field	1980	No*
Longville	Longville Municipal	1994	Yes
Luverne	Luverne Municipal – Quentin Aanenson Field	2003	Yes
Madison	Lac Qui Parle County – Bud Frye Field	1972	No
Maple Lake	Maple Lake Municipal	1998	Yes
McGregor	McGregor – Isedor Iverson	1995	Yes
Montevideo	Montevideo-Chippewa County	2004	Yes
Moorhead	Moorhead Municipal	2001	Yes
Moose Lake	Moose Lake – Carlton County	1991	Yes
Mora	Mora Municipal	1994	Yes
Morris	Morris Municipal	2001	Yes
New Ulm	New Ulm Municipal	2000	Yes
Olivia	Olivia Regional	2000	Yes
Orr	Orr Regional	2002	Yes
Ortonville	Ortonville Municipal – Martinson Field	1973	No*
Paynesville	Paynesville Municipal	2001	Yes
Perham	Perham Municipal	1990	Yes
Pine River	Pine River Regional	2005	Yes
Pinecreek	Piney-Pinecreek Border	None	No*
Pipestone	Pipestone Municipal	2004	Yes
Preston	Fillmore County	2003	Yes
Princeton	Princeton Municipal	2004	Yes
Red Lake Falls	Red Lake Falls Municipal	1988	No
Redwood Falls	Redwood Falls Municipal	2001	Yes
Roseau	Roseau Municipal – Rudy Billberg Field	1972	No

**Table 5-2 (4 of 5)**  
**Current Performance**  
**Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems**  
**Measure 2.1: Minnesota Airports with Current Master Plans/ALPs**

ASSOCIATED CITY	AIRPORT NAME	MASTER PLAN/ALP DATE	CURRENTLY MEETS
Rush City	Rush City Regional	2005	Yes
Rushford	Rushford Municipal	2000	Yes
Sauk Centre	Sauk Centre Municipal	1973	No
Slayton	Slayton Municipal	1976	No
Springfield	Springfield Municipal	1995	Yes
St. James	St. James Municipal	1994	Yes
Staples	Staples Municipal	1996	Yes
Stephen	Stephen Municipal	1998	Yes
Tower	Tower Municipal	2003	Yes
Tracy	Tracy Municipal	1967	No*
Two Harbors	Richard B. Helgeson	2003	Yes
Wadena	Wadena Municipal	2002	Yes
Walker	Walker Municipal	1974	No*
Warren	Warren Municipal	1994	Yes
Waseca	Waseca Municipal	2003	Yes
Wheaton	Wheaton Municipal	2003	Yes
Windom	Windom Municipal	2004	Yes
<b>LANDING STRIPS – UPDATE MP/ALP AS DEMAND WARRANTS</b>			
Backus	Backus Municipal	None	N/A
Big Falls	Big Falls Municipal	None	N/A
Bowstring	Bowstring Municipal	None	N/A
Clarissa	Clarissa Municipal	None	N/A
East Gull Lake	East Gull Lake Municipal	None	N/A
Elbow Lake	Elbow Lake Municipal – Pride of the Prairie	2005	N/A
Grygla	Grygla Municipal – Mel Wilkens Field	1996	N/A
Henning	Henning Municipal	1995	N/A
Hill City	Hill City – Quadna Mountain	None	N/A
Karlstad	Karlstad Municipal	None	N/A
Littlefork	Littlefork Municipal – Hanover	None	N/A
Mahnomen	Mahnomen County	2004	N/A
Milaca	Milaca Municipal	2004	N/A
Murdock	Murdock Municipal	1970	N/A
New York Mills	New York Mills Municipal	None	N/A
Northome	Northome Municipal	None	N/A
Pelican Rapids	Pelican Rapids Municipal – Lyon’s Field	1975	N/A
Remer	Remer Municipal	None	N/A
Sleepy Eye	Sleepy Eye Municipal	None	N/A
Starbuck	Starbuck Municipal	1976	N/A
Tyler	Tyler Municipal	None	N/A
Waskish	Waskish Municipal	1995	N/A

**Table 5-2 (5 of 5)**  
**Current Performance**  
**Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems**  
**Measure 2.1: Minnesota Airports with Current Master Plans/ALPs**

ASSOCIATED CITY	AIRPORT NAME	MASTER PLAN/ALP DATE	CURRENTLY MEETS
Wells	Wells Municipal	1967	N/A
Winsted	Winsted Municipal	2005	N/A
<b>METRO AREA AIRPORTS – NO OBJECTIVE ESTABLISHED</b>			
Forest Lake	Forest Lake	2002	N/A
Minneapolis	Minneapolis-St. Paul International	2004	N/A
Minneapolis	Airlake	1998	N/A
Minneapolis	Anoka County/Blaine-Jane's Field	2003	N/A
Minneapolis	Crystal	1995	N/A
Minneapolis	Flying Cloud	2004	N/A
St. Paul	St. Paul Downtown-Holman Field	2005	N/A
St. Paul	Lake Elmo	2000	N/A
St. Paul	South St. Paul	2002	N/A

Source: Mn/DOT records and 2005 SASP Inventory/Data Survey.

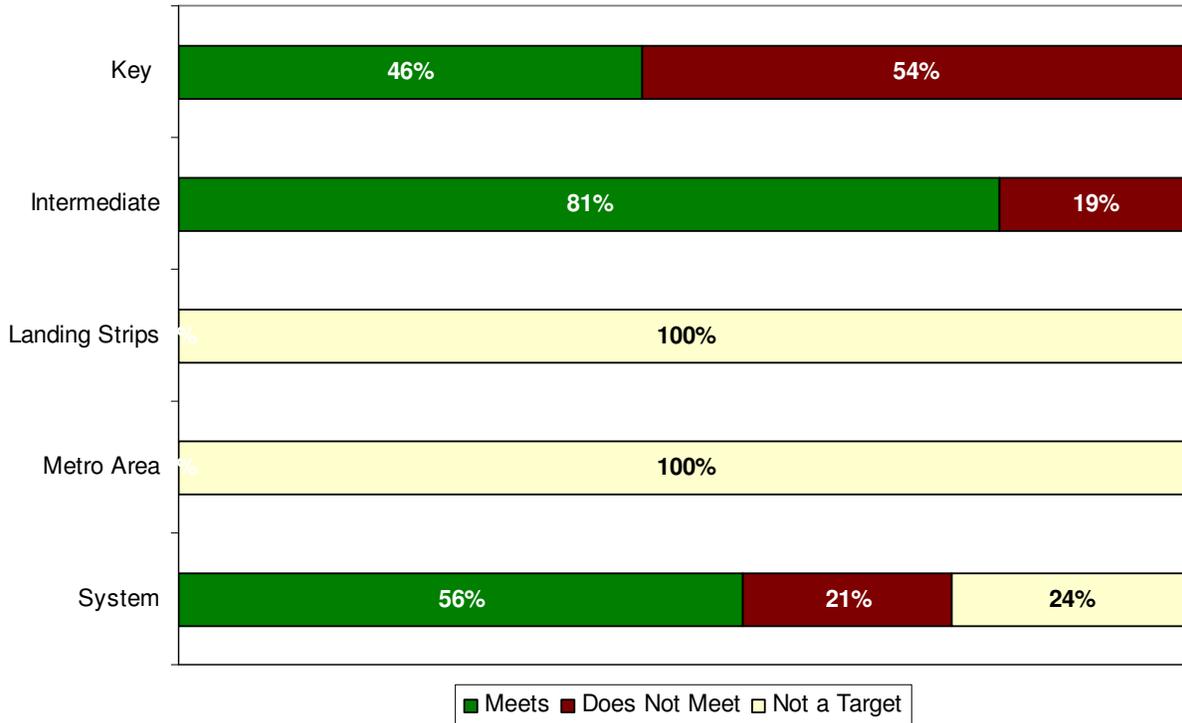
Prepared: March 2006.

Note: \*Airports are currently under contract updating their MP/ALP or the MP/ALP is in review.

N/A – Landing Strips are not required to have a current MP/ALP; Metro Area Airports do not have a target performance.

**Chart 5-2** summarizes the information presented in Table 5-2. Fifty-six (56) percent (76 airports) of all study airports have a master plan or an ALP that meets their respective target for currency. Although current planning documents are not necessarily an objective for Landing Strips, 12 Landing Strips do have a plan. It should also be noted that although a target has not been established for the metro area airports, all currently have a master plan or ALP that is current as of 1995.

**Chart 5-2**  
**Current Performance**  
**Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems**  
**Measure 2.1: Minnesota Airports with Current Master Plans/ALPs**



Source: Mn/DOT records and Wilbur Smith Associates.  
 Prepared: March 2006.

**Performance Measure 2.2: Percent of airports that have Minnesota Rules Zoning**

**Target Performance**  
**100% of All Airports Adopt MN Rules Zoning**

**Current Performance**  
**96% of All Airports have MN Rules Zoning in place**

According to data collected during this study’s inventory, many airports have taken steps to work with their host and surrounding communities to adopt Minnesota Rules Zoning. Meeting this particular performance measure for the system is often beyond the airport’s and Mn/DOT’s control. Actions to make land uses compatible within the influence zones of each airport are at the discretion of the effected municipality or municipalities. Airports reporting that Minnesota Rules Zoning has been adopted are shown in **Table 5-3**. The target for this performance measure is to have all (100 percent) of the study airports adopt Minnesota Rules Zoning.

**Table 5-3 (1 of 5)  
Current Performance**

**Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems  
Measure 2.2: Minnesota Airports with Minnesota Rules Zoning**

ASSOCIATED CITY	AIRPORT NAME	MEETS (M) OR EXCEEDS (E) MODEL	MASTER PLAN REVIEW (MPR) REQUESTED	DOES NOT (N) MEET MODEL
<b>KEY AIRPORTS</b>				
Alexandria	Alexandria Municipal – Chandler Field	E		
Austin	Austin Municipal	M		
Baudette	Baudette International	E		
Bemidji	Bemidji – Beltrami County	M		
Brainerd	Brainerd Lakes Regional	M		
Duluth	Duluth International	E		
Ely	Ely Municipal	E		
Fairmont	Fairmont Municipal	E		
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	E		
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	E		
Hibbing	Chisholm-Hibbing Municipal	E		
International Falls	Falls International	M		
Mankato	Mankato Regional – Sohler Field	E		
Marshall	Southwest Minnesota Regional – Ryan Field	E		
Owatonna	Owatonna – Degner Regional	E		
Park Rapids	Park Rapids Municipal – Konshok Field	E		
Red Wing	Red Wing Regional	M		
Rochester	Rochester International	E		
St. Cloud	St. Cloud Regional	E		
Thief River Falls	Thief River Falls Regional	E		
Warroad	Warroad International – Swede Carlson Field	M		
Willmar	Willmar Municipal – John L. Rice Field	E		
Winona	Winona Municipal – Max Conrad Field	E		
Worthington	Worthington Municipal	E		
<b>INTERMEDIATE AIRPORTS</b>				
Ada	Norman County – Ada-Twin Valley	E		
Aitkin	Aitkin Municipal – Steve Kurtz Field	E		
Albert Lea	Albert Lea Municipal	E		
Appleton	Appleton Municipal	E		

**Table 5-3 (2 of 5)  
 Current Performance**

**Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems  
 Measure 2.2: Minnesota Airports with Minnesota Rules Zoning**

ASSOCIATED CITY	AIRPORT NAME	MEETS (M) OR EXCEEDS (E) MODEL	MASTER PLAN REVIEW (MPR) REQUESTED	DOES NOT (N) MEET MODEL
Bagley	Bagley Municipal	E		
Benson	Benson Municipal – Veterans Field	M		
Bigfork	Bigfork Municipal	M		
Blue Earth	Blue Earth Municipal	E		
Brooten	Brooten Municipal	E		
Buffalo	Buffalo Municipal	E		
Caledonia	Houston County	M		
Cambridge	Cambridge Municipal	E		
Canby	Canby Municipal – Myers Field	E		
Cloquet	Cloquet-Carlton County	E		
Cook	Cook Municipal	E		
Crookston	Crookston Municipal – Kirkwood Field	E		
Detroit Lakes	Detroit Lakes – Wething Field	E		
Dodge Center	Dodge Center Municipal		MPR	
Duluth	Sky Harbor	E		
Eveleth-Virginia	Eveleth-Virginia Municipal	E		
Faribault	Faribault Municipal		MPR	
Fertile	Fertile Municipal	E		
Fosston	Fosston Municipal	M		
Glencoe	Glencoe Municipal – Vernon Perschau Field	E		
Glenwood	Glenwood Municipal	E		
Grand Marais	Grand Marais – Cook County		MPR	
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	E		
Hallock	Hallock Municipal	M		
Hawley	Hawley Municipal	E		
Hector	Hector Municipal	E		
Herman	Herman Municipal	E		
Hutchinson	Hutchinson Municipal – Butler Field	E		

**Table 5-3 (3 of 5)  
 Current Performance**

**Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems  
 Measure 2.2: Minnesota Airports with Minnesota Rules Zoning**

ASSOCIATED CITY	AIRPORT NAME	MEETS (M) OR EXCEEDS (E) MODEL	MASTER PLAN REVIEW (MPR) REQUESTED	DOES NOT (N) MEET MODEL
Jackson	Jackson Municipal	M		
Le Sueur	Le Sueur Municipal	E		
Litchfield	Litchfield Municipal	M		
Little Falls	Little Falls – Morrison County – Lindbergh Field	E		
Long Prairie	Long Prairie Municipal – Todd Field		MPR	
Longville	Longville Municipal	E		
Luverne	Luverne Municipal – Quentin Aanenson Field	E		
Madison	Lac Qui Parle County – Bud Frye Field	E		
Maple Lake	Maple Lake Municipal	E		
McGregor	McGregor – Isedor Iverson	M		
Montevideo	Montevideo-Chippewa County	M		
Moorhead	Moorhead Municipal	E		
Moose Lake	Moose Lake – Carlton County	M		
Mora	Mora Municipal	M		
Morris	Morris Municipal	E		
New Ulm	New Ulm Municipal		MPR	
Olivia	Olivia Regional		MPR	
Orr	Orr Regional	E		
Ortonville	Ortonville Municipal – Martinson Field	M		
Paynesville	Paynesville Municipal		MPR	
Perham	Perham Municipal	E		
Pine River	Pine River Regional	E		
Pinecreek	Piney-Pinecreek Border	M		
Pipestone	Pipestone Municipal	M		
Preston	Fillmore County	E		
Princeton	Princeton Municipal	E		
Red Lake Falls	Red Lake Falls Municipal	M		
Redwood Falls	Redwood Falls Municipal	E		

**Table 5-3 (4 of 5)  
Current Performance**

**Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems  
Measure 2.2: Minnesota Airports with Minnesota Rules Zoning**

ASSOCIATED CITY	AIRPORT NAME	MEETS (M) OR EXCEEDS (E) MODEL	MASTER PLAN REVIEW (MPR) REQUESTED	DOES NOT (N) MEET MODEL
Roseau	Roseau Municipal – Rudy Billberg Field	E		
Rush City	Rush City Regional	E		
Rushford	Rushford Municipal	M		
Sauk Centre	Sauk Centre Municipal	E		
Silver Bay	Silver Bay Municipal	E		
Slayton	Slayton Municipal	E		
Sleepy Eye	Sleepy Eye Municipal	M		
Springfield	Springfield Municipal	E		
St. James	St. James Municipal	E		
Staples	Staples Municipal	M		
Stephen	Stephen Municipal	M		
Tower	Tower Municipal	E		
Tracy	Tracy Municipal	M		
Two Harbors	Richard B. Helgeson		MPR	
Wadena	Wadena Municipal	E		
Walker	Walker Municipal	E		
Warren	Warren Municipal	E		
Waseca	Waseca Municipal	M		
Wheaton	Wheaton Municipal	E		
Windom	Windom Municipal	M		
<b>LANDING STRIP AIRPORTS</b>				
Backus	Backus Municipal		MPR	
Big Falls	Big Falls Municipal	E		
Bowstring	Bowstring Municipal	M		
Clarissa	Clarissa Municipal	M		
East Gull Lake	East Gull Lake Municipal	E		
Elbow Lake	Elbow Lake Municipal – Pride of the Prairie	E		
Grygla	Grygla Municipal – Mel Wilkens Field	M		

**Table 5-3 (5 of 5)  
 Current Performance**

**Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems  
 Measure 2.2: Minnesota Airports with Minnesota Rules Zoning**

ASSOCIATED CITY	AIRPORT NAME	MEETS (M) OR EXCEEDS (E) MODEL	MASTER PLAN REVIEW (MPR) REQUESTED	DOES NOT (N) MEET MODEL
Henning	Henning Municipal	E		
Hill City	Hill City – Quadna Mountain	E		
Karlstad	Karlstad Municipal		MPR	
Littlefork	Littlefork Municipal – Hanover	E		
Mahnomen	Mahnomen County	E		
Milaca	Milaca Municipal		MPR	
Murdock	Murdock Municipal	M		
New York Mills	New York Mills Municipal	E		
Northome	Northome Municipal	E		
Pelican Rapids	Pelican Rapids Municipal – Lyon’s Field	E		
Remer	Remer Municipal	E		
Starbuck	Starbuck Municipal	E		
Tyler	Tyler Municipal	E		
Waskish	Waskish Municipal	E		
Wells	Wells Municipal	E		
Winsted	Winsted Municipal	M		
<b>METRO AREA AIRPORTS</b>				
Forest Lake	Forest Lake	E		
Minneapolis	Minneapolis-St. Paul International	M		
Minneapolis	Airlake			N
Minneapolis	Anoka County/Blaine-Jane’s Field			N
Minneapolis	Crystal			N
Minneapolis	Flying Cloud			N
St. Paul	St. Paul Downtown-Holman Field			N
St. Paul	Lake Elmo			N
St. Paul	South St. Paul	M		

Source: Mn/DOT records.

Prepared: January 2006.

Note: E=Exceeds Model

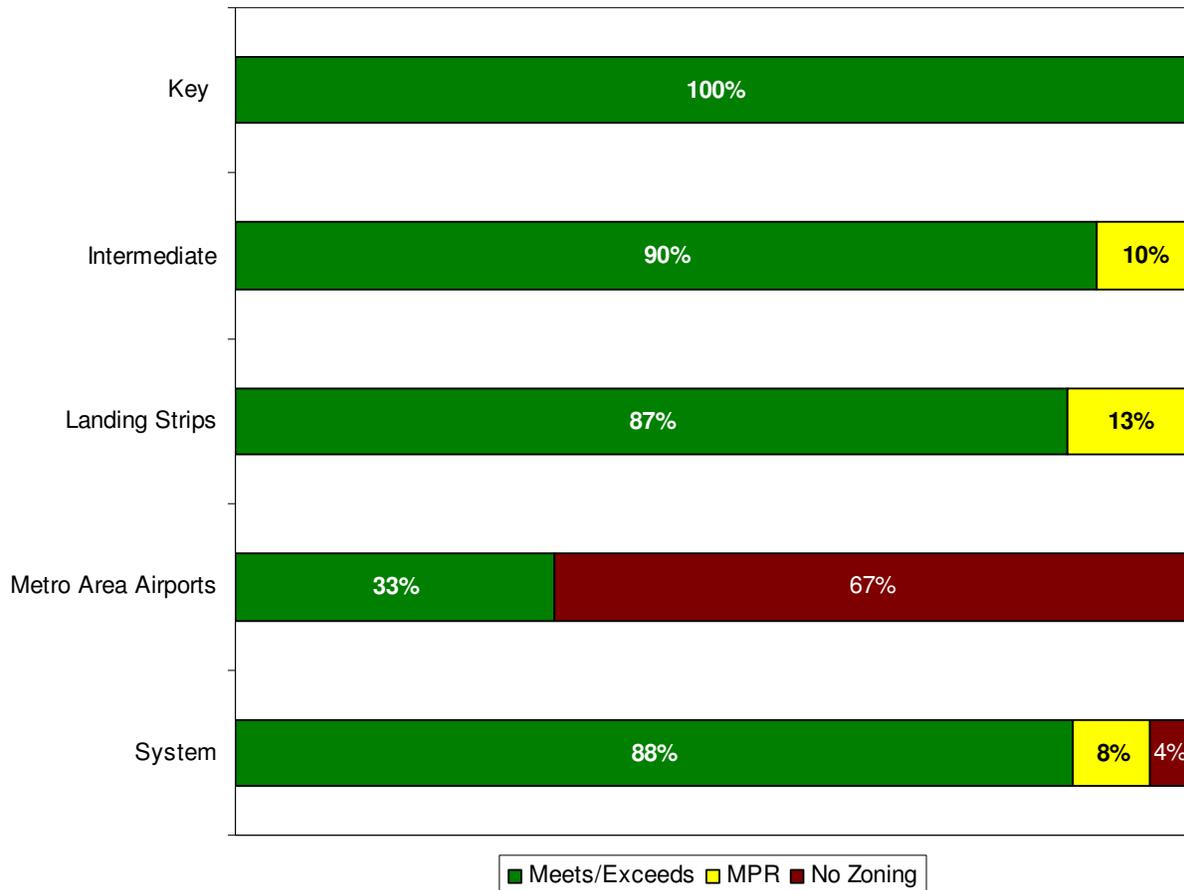
M=Meets Model

MPR = Master Plan Review Requested

N=Does Not Meet Model

As previously mentioned, the target is for all airports in the system to meet this performance measure. Systemwide, 96 percent (130 airports) of all airports currently meet, exceed or in the master plan review process (MPR) for Minnesota Rules Zoning. **Chart 5-3** shows that 100 percent of Key Airports currently meet or exceeds Minnesota Rules Zoning. Ninety percent (72 airports) and 87 percent (20 airports) in the Intermediate Airports and Landing Strip categories, respectively, meet or exceed Minnesota Rules Zoning. When Intermediate Airports and Landing Strips that are in the master plan review process (MPR) are considered, 100 percent of the airports in these two categories also meet the performance measure. It should be noted that the four percent of airports in the system not meeting this performance measure represent six airports in the metropolitan area.

**Chart 5-3**  
**Current Performance**  
**Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems**  
**Measure 2.2: Minnesota Airports with Minnesota Rules Zoning**



Source: Mn/DOT records and Wilbur Smith Associates.  
 Prepared: January 2006.

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## **POLICY 3: PROVIDE COST-EFFECTIVE TRANSPORTATION OPTIONS FOR PEOPLE AND FREIGHT**

For an airport system to adequately serve a state, it should provide convenient and reasonable access from both the ground and the air. Ground accessibility can be measured by determining the percentage of the State's population that is within established drive times of all or various categories of study airports. Coverage provided by airports with certain types of facilities can also be measured.

Air accessibility is also an important factor for measuring system performance. Air accessibility is influenced by factors such as the airport's type of approach (precision, non-precision, or visual), and the presence, or lack thereof, of on-site weather-reporting equipment.

The following performance measures were used to evaluate the ability of the Minnesota airport system to provide adequate ground and air access:

- Percent of Minnesota population within 60 minutes of an airport with scheduled airline service
- Percent of Minnesota population within 20 miles of an airport with a paved and lighted runway
- Percent of Minnesota population within 60 minutes of an airport with cargo activity
- Percent of airports with scheduled commercial air service having appropriate access to Interregional Corridors
- Percent of Level 1, 2, and 3 Regional Trade Centers that are within 20 miles of a Key Airport
- Percent of Level 4 and 5 Regional Trade Centers that are within 20 miles of a Key or an Intermediate Airport
- Percent of airports with a runway 5,000 feet long or longer that have a precision instrument approach
- Percent of airports with a paved and lighted runway that has a published approach

To measure many of the performance measures noted above, Geographic Information System (GIS) analysis was utilized. GIS analysis was conducted to determine the approximate percentage of the State's population that lies within established distances from airports and certain facility types.

### **Performance Measure 3.1: Percent of Minnesota population within 60 minutes of an airport with scheduled airline service**

#### **Target Performance**

**90% of MN Population within 60 min of a commercial service airport**

#### **Current Performance**

**86% of MN Population is within 60 min of a commercial service airport**

It is important for Minnesota's population to have access to airports with scheduled airline service. GIS analysis indicates that 86 percent of Minnesota's population is within a 60-minute drive time of a Minnesota airport with scheduled airline service or an out-of-state airport with scheduled airline service. Current coverage is presented in **Exhibit 5-1**. This drive time analysis assumes the user is able to travel to and from airports at posted speed limits. As reflected on

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Exhibit 5-1, this coverage includes Minneapolis-St. Paul International Airport at a 60-minute service area.

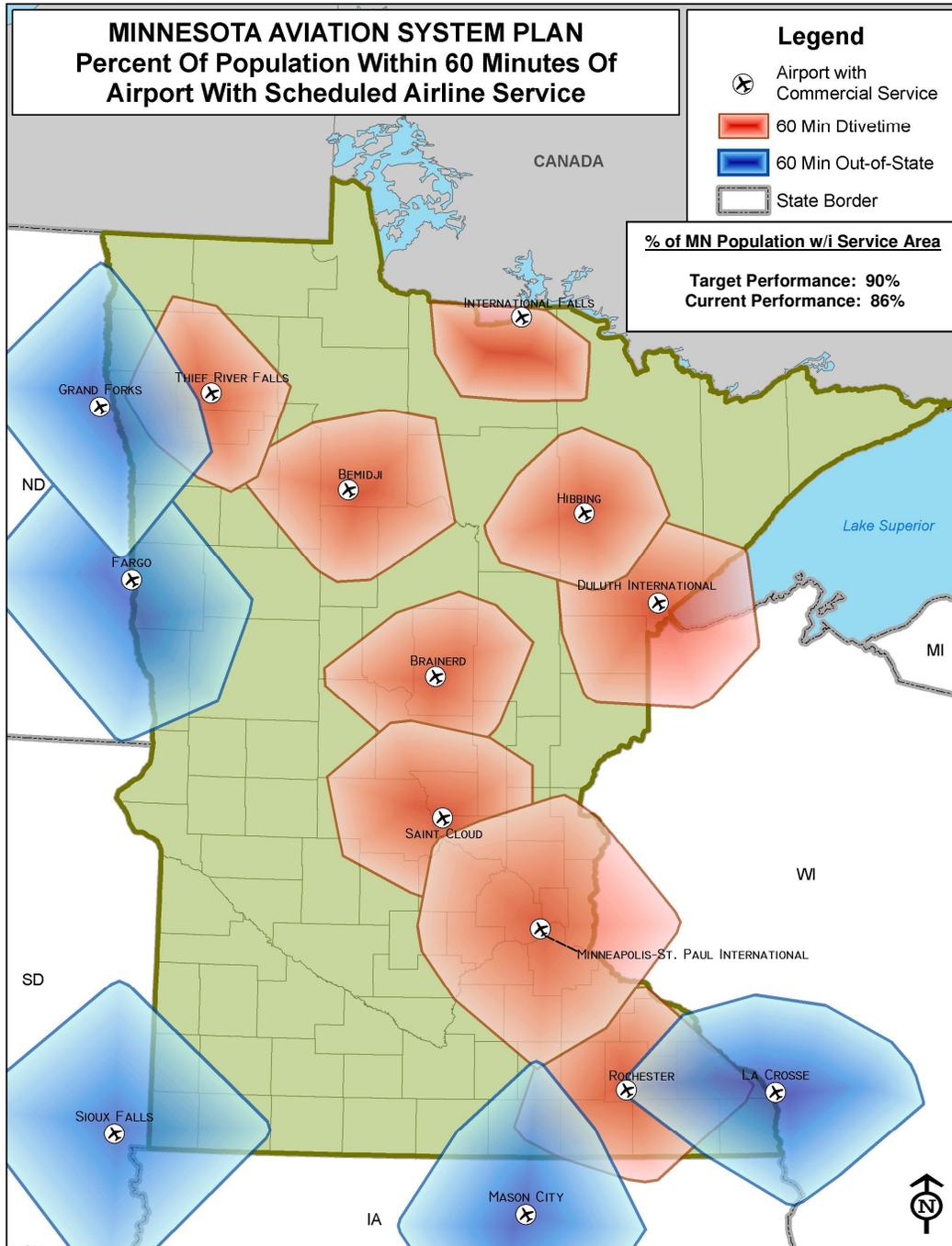
The target performance set for this measure is for 90 percent of Minnesota's population to be within 60 minutes of an airport that has scheduled commercial airline service. Historically, 60 minutes was considered to be an accurate measure of the time passengers would spend driving to a commercial airport. In today's environment, it is very common for travelers to choose to drive 120 minutes or more to reach an airport providing a wider range of service and fare options. In Minnesota, people will travel two hours or more to reach a large commercial airport. When a greater drive time (120 minutes) is applied to Minneapolis-St. Paul International Airport, 90 percent of Minnesota's population is within the service area of one or more of just Minnesota's commercial airports. It also needs to be noted that commercial service airports in neighboring states some times meet the scheduled air service needs of Minnesota's residents, businesses, and visitors. When these airports are added to the analysis, more than 96 percent of Minnesota's population is within an airport with scheduled airline service (see **Exhibit 5-2**). This coverage assumes 90 minute drive times for the airports serving Fargo, North Dakota and Sioux Falls, South Dakota. These drives reflect the level of airline service available at these two out-of-state airports.

Marshall, Minnesota has been in the process of attempting to secure scheduled airline service. As of the writing of this document, Mesaba Aviation Inc, a regional carrier for Northwest Airlines Corp, was scheduled to begin service in Marshall in April 2006. However, with the recent bankruptcy of Northwest Airlines, Mesaba has also filed for Chapter 11 bankruptcy. In the near term, it does not appear that new commercial airline service will be introduced at Marshall.

**Exhibit 5-1  
Current Performance**

**Policy 3: Provide Cost-Effective Transportation Options for People and Freight**

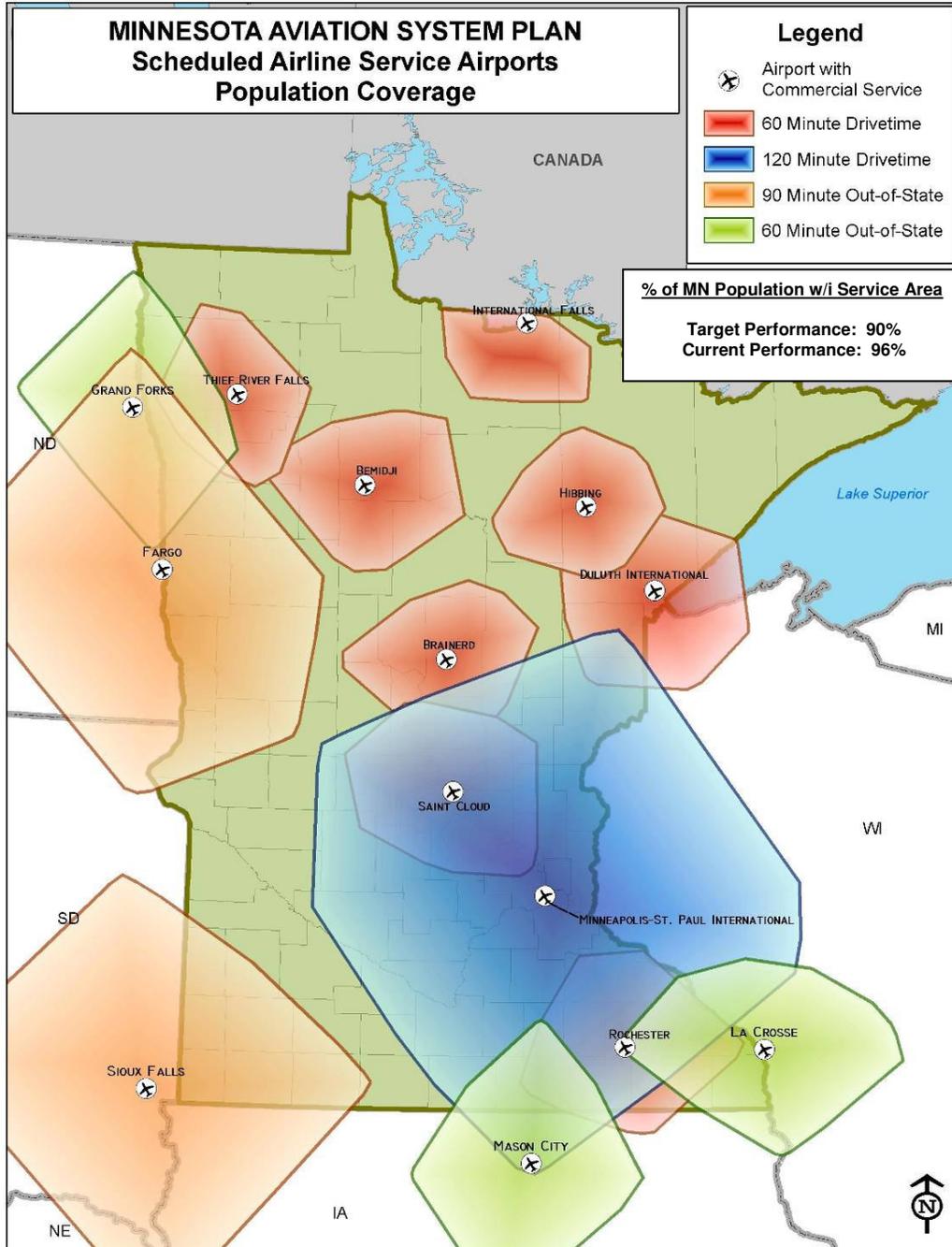
**Measure 3.1: Percent of Minnesota population within 60 minutes of an airport with scheduled airline service**



Source: Woods & Poole Economics, 2005.  
Prepared: December 2005.

**Exhibit 5-2  
Current Performance**

**Policy 3: Provide Cost-Effective Transportation Options for People and Freight  
Measure 3.1: (Alternative Analysis) Percent of Minnesota population within 60 or 120 minutes of Minnesota airport with scheduled airline service and 60 or 90 minutes of an out-of-state airport with scheduled airline service**



Source: Woods & Poole Economics, 2005.  
Prepared: December 2005.

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### **Performance Measure 3.2: Percent of Minnesota population within 20 miles of an airport with a paved and lighted runway**

#### **Target Performance**

**90% of MN Population within 20 miles of a paved & lighted runway**

#### **Current Performance**

**95% of MN Population is within 20 miles of a paved & lighted runway**

Paved and lighted runways are one of the most important components of an airport system. A paved and lighted runway allows for a broader range of aircraft utilization, especially during periods of reduced visibility. The target set for this measure is to have 90 percent of Minnesota's population within 20 miles or less of one or more study airports with a paved and lighted runway. GIS analysis indicates that 95 percent of Minnesota's population is within 20 miles or less of one or more airports with a paved and lighted runway. **Exhibit 5-3** reflects this coverage.

### **Performance Measure 3.3: Percent of Minnesota population within 60 minutes of an airport with cargo activity**

#### **Target Performance**

**90% of MN Population within 60 min of an airport w/scheduled cargo service; 95% of MN Population within 60 min of an airport w/some type of cargo service**

#### **Current Performance**

**88% of MN Population is within 60 min of an airport w/scheduled cargo service; 97% of MN Population is within 60 min of an airport w/some type of cargo service**

Airports that support air cargo activities (scheduled, on-demand, or belly-hold) provide economic support to the communities they serve. In Minnesota, 36 airports report having either scheduled cargo service, on-demand service, or belly-hold cargo service. **Appendix B** of this report provides more information on cargo activities in Minnesota. Eighty-eight (88) percent of the State's population is within 60 minutes or less of an airport supporting scheduled cargo activity and 97 percent of Minnesota's population is within 60 minutes or less of an airport supporting some type of cargo activity (**Exhibits 5-4** and **5-5**). A target has not been previously established for this measure. The suggested target is to have 90 percent of Minnesota within 60 minutes of an airport with scheduled cargo service, and to have 95 percent of Minnesota within 60 minutes of an airport with some type of cargo service (scheduled, on-demand, or belly-hold). These are suggested targets that should be reviewed by MnDOT Freight Office.

**Performance Measure 3.4: Percent of airports with scheduled commercial air service having appropriate access to Interregional Corridors (IRCs)**

**Target Performance**

**100% of MN commercial service airports within 2 miles of an IRC**

**Current Performance**

**100% of MN commercial service airports are within 2 miles of an IRC**

Minnesota’s IRCs are comprised of nearly 3,000 miles of highways which represent two percent of all roadway miles in Minnesota. It should be noted that this small percentage of total roadway miles accounts for one-third of all vehicle miles traveled in Minnesota. It is evident that the IRCs are a vital component of the State’s transportation infrastructure. The IRCs are a complimentary facet to the aviation system as a means to transport people and freight to and from the commercial airports in the state. It is important that commercial airports have access to the IRCs. **Table 5-4** presents the distance from Minnesota’s airports with scheduled commercial air service to the nearest IRCs in miles.

**Table 5-4  
Current Performance  
Policy 3: Provide Cost-Effective Transportation Options for People and Freight  
Measure 3.4: Minnesota’s Airports with Scheduled Commercial Service  
Access to Minnesota’s Interregional Corridors**

ASSOCIATED CITY	AIRPORT NAME	DISTANCE TO HIGH PRIORITY IRC	DISTANCE TO MEDIUM PRIORITY IRC	DISTANCE TO REGIONAL IRC
Bemidji	Bemidji Beltrami County	136 miles	0 miles	1 miles
Brainerd	Brainerd Lakes Regional	31 miles	0 miles	3 miles
Duluth	Duluth International	2 miles	0 miles	7 miles
Hibbing	Chisholm-Hibbing Municipal	76 miles	1 miles	2 miles
International Falls	Falls International	163 miles	0 miles	3 miles
Minneapolis	Minneapolis-St. Paul International	1 miles	5 miles	1 miles
Rochester	Rochester International	0 miles	3 miles	3 miles
Saint Cloud	Saint Cloud Regional	1 miles	1 miles	2 miles
Thief River Falls	Thief River Falls Regional	113 miles	8 miles	0 miles

Source: Mn/DOT Records and Wilbur Smith Associates GIS analysis.  
Prepared: December 2005.

Minnesota relies on reasonable and reliable access to its defined Interregional Corridors (IRCs). The State’s target is to have 100 percent of its airports with scheduled commercial air service have appropriate access to these corridors. As shown in **Exhibit 5-6** and Table 5-4, all nine of Minnesota’s airports with scheduled commercial air service have access to the State’s Interregional Corridors.

This performance measure for Minnesota’s commercial airports was identified in the most recent Statewide Transportation Plan. The measure as stated in the Transportation Plan calls for “appropriate access” to the IRCs from airports with scheduled commercial airline service. The Statewide Transportation Plan does not define a means for determining appropriate access.

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For this State Aviation System Plan, appropriate access was defined by proximity or distance from each airport to an IRC. Other options for determining appropriate access could include capacity of the IRC, condition of the IRC or ability of the IRC to handle truck/freight traffic. For this performance measure in this study, the focus was on passenger access; the appropriateness of which was determined by the distance of the airport from a High or Medium Priority or a Regional IRC. For this analysis, a distance target of 2 miles from a commercial airport to a High or Medium Priority or a Regional IRC was set. As shown in Table 5-4, all of the nine commercial airports are within 2 miles or less of a High or Medium Priority or a Regional IRC.

**Performance Measure 3.5: Percent of Level 1, 2, and 3 Regional Trade Centers that are within 20 miles of a Key Airport**

**Target Performance**

**100% of all Level 1, 2, or 3 RTCs within 20 miles of a Key Airport**

**Current Performance**

**100% of all Level 1, 2, or 3 RTCs are within 20 miles of a Key Airport**

Minnesota's Level 1, 2, or 3 Regional Trade Centers (RTCs) should be within 20 miles of a Key Airport. By providing aviation support to these RTC's, the State is promoting the mobility of people, businesses, and commodities within the state, while enhancing the transportation system. **Exhibit 5-7** indicates that 100 percent of Level 1, 2, and 3 RTCs are within 20 miles of a Key Airport. The target is to have 100 percent of Level 1, 2, and 3 RTCs within 20 miles of a Key Airport.

**Performance Measure 3.6: Percent of Level 4 and 5 Regional Trade Centers that are within 20 miles of a Key or an Intermediate Airport**

**Target Performance**

**100% of all Level 4 or 5 RTCs are within 20 miles of a Key or an Intermediate Airport**

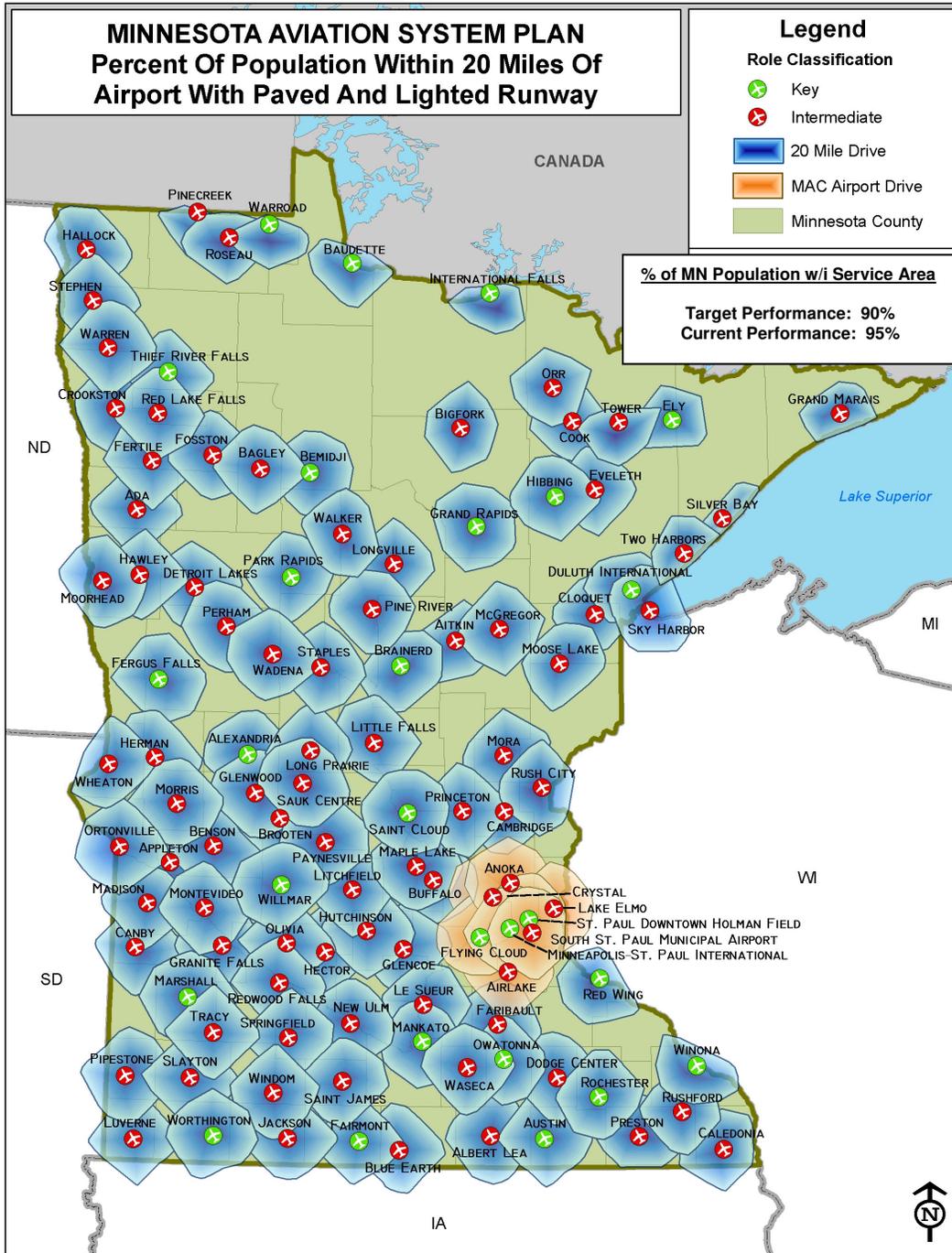
**Current Performance**

**100% of All Level 4 or 5 RTCs are within 20 miles of a Key or an Intermediate Airport**

The target for this performance measure is to have 100 percent of Level 4 and 5 RTCs within 20 miles of either a Key or Intermediate Airport. When Key Airports and Intermediate Airports are combined to show coverage for Level 4 and 5 RTCs, all Level 4 and 5 RTCs fall within 20 miles of a Key or an Intermediate airport. **Exhibit 5-8** supports this finding.

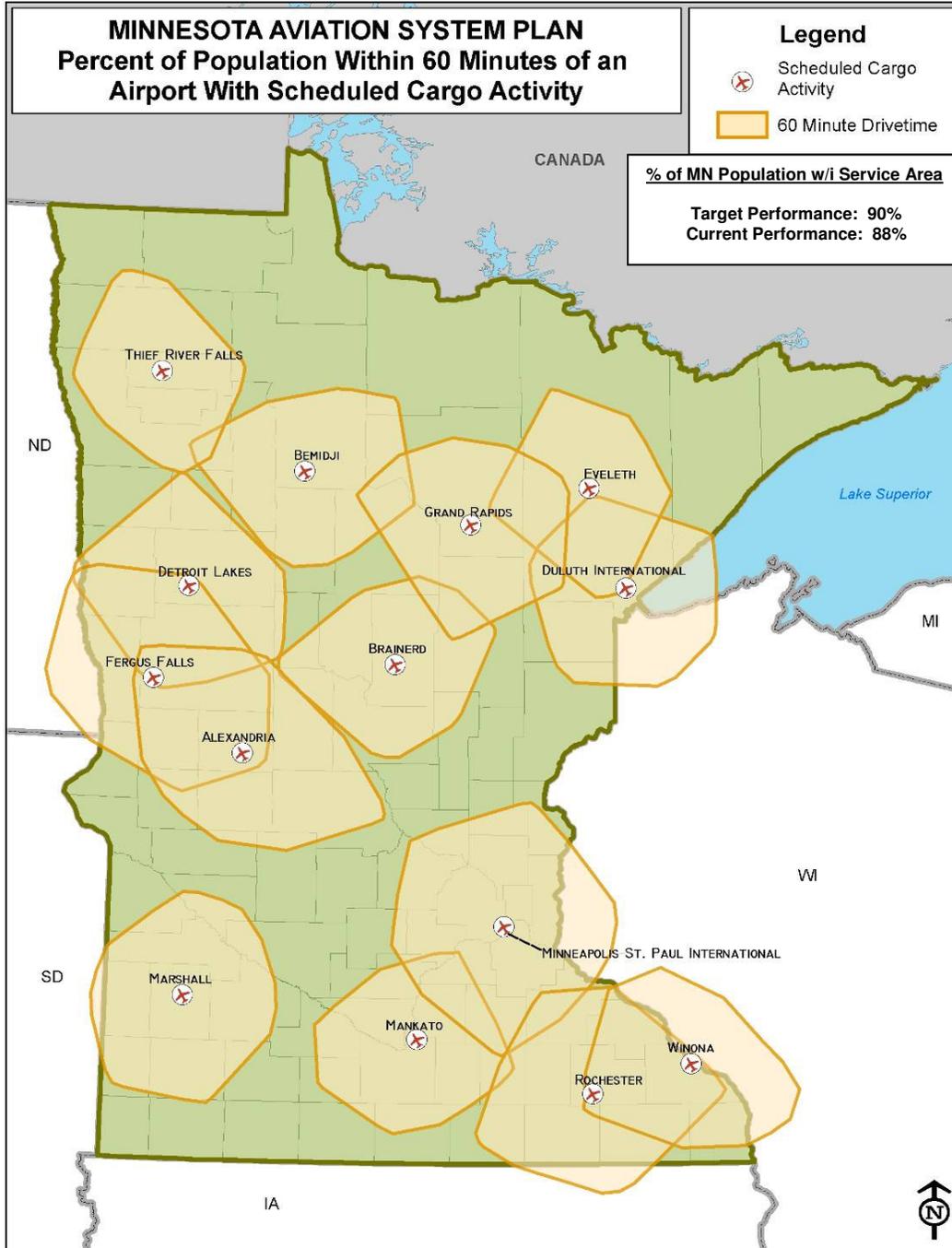
**Exhibit 5-3  
Current Performance**

**Policy 3: Provide Cost-Effective Transportation Options for People and Freight**  
**Measure 3.2: Percent of Minnesota population within 20 miles of an airport with a paved and lighted runway**



Source: Mn/DOT records; Wilbur Smith Associates.  
 Prepared: December 2005.

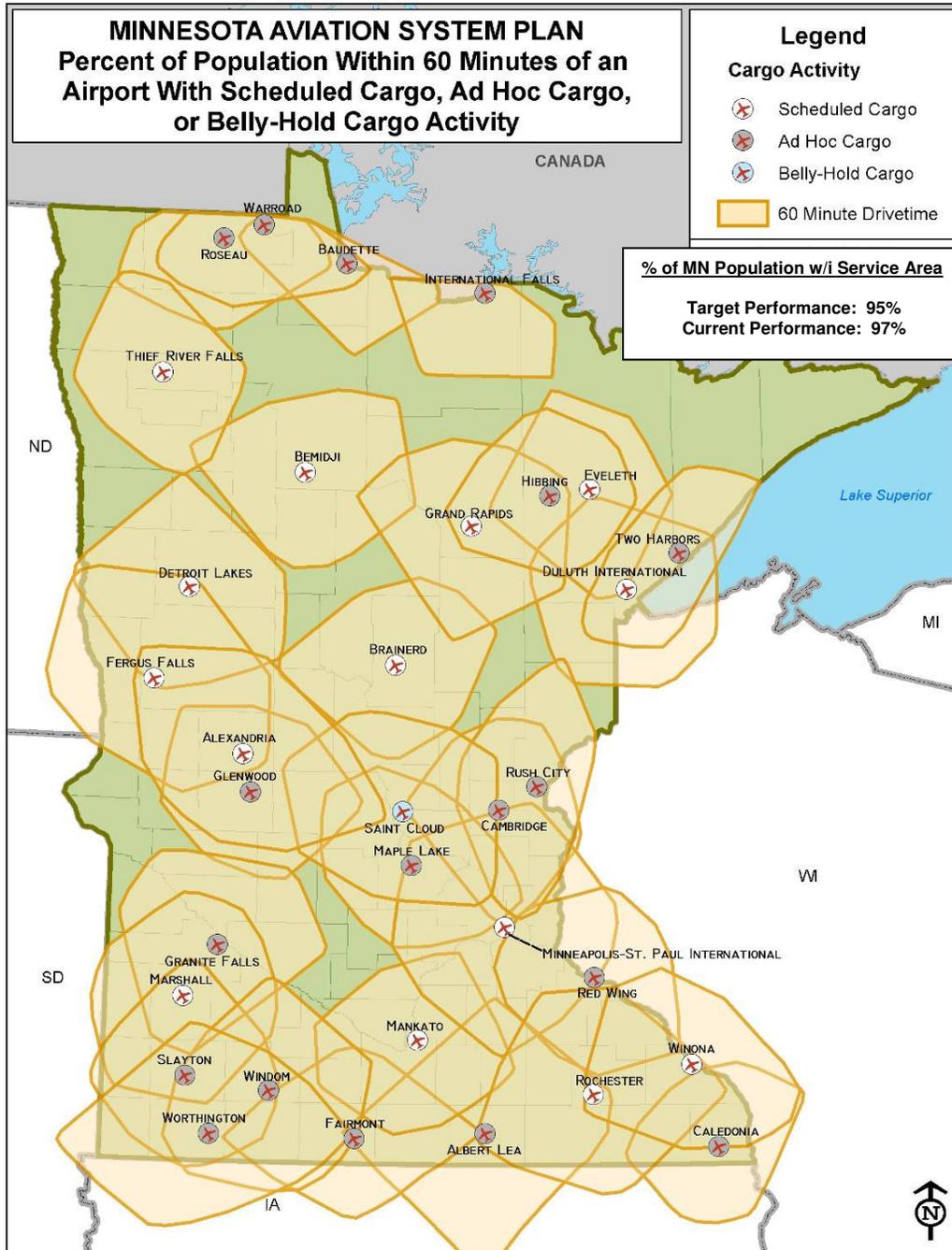
**Exhibit 5-4  
Current Performance**  
**Policy 3: Provide Cost-Effective Transportation Options for People and Freight**  
**Measure 3.3: Percent of Minnesota population within 60 minutes of an airport with scheduled cargo activity**



Source: Wilbur Smith Associates.  
 Prepared: December 2005.

**Exhibit 5-5  
Current Performance**

**Policy 3: Provide Cost-Effective Transportation Options for People and Freight**  
**Measure 3.3: Percent of Minnesota population within 60 minutes of an airport with cargo activity (Scheduled Cargo, Ad Hoc Cargo, or Belly Hold Cargo)**



Source: Wilbur Smith Associates.  
 Prepared: December 2005.

**Exhibit 5-6  
Current Performance**

**Policy 3: Provide Cost-Effective Transportation Options for People and Freight**  
**Measure 3.4: Percent of airports with scheduled commercial air service having appropriate access to Interregional Corridors**

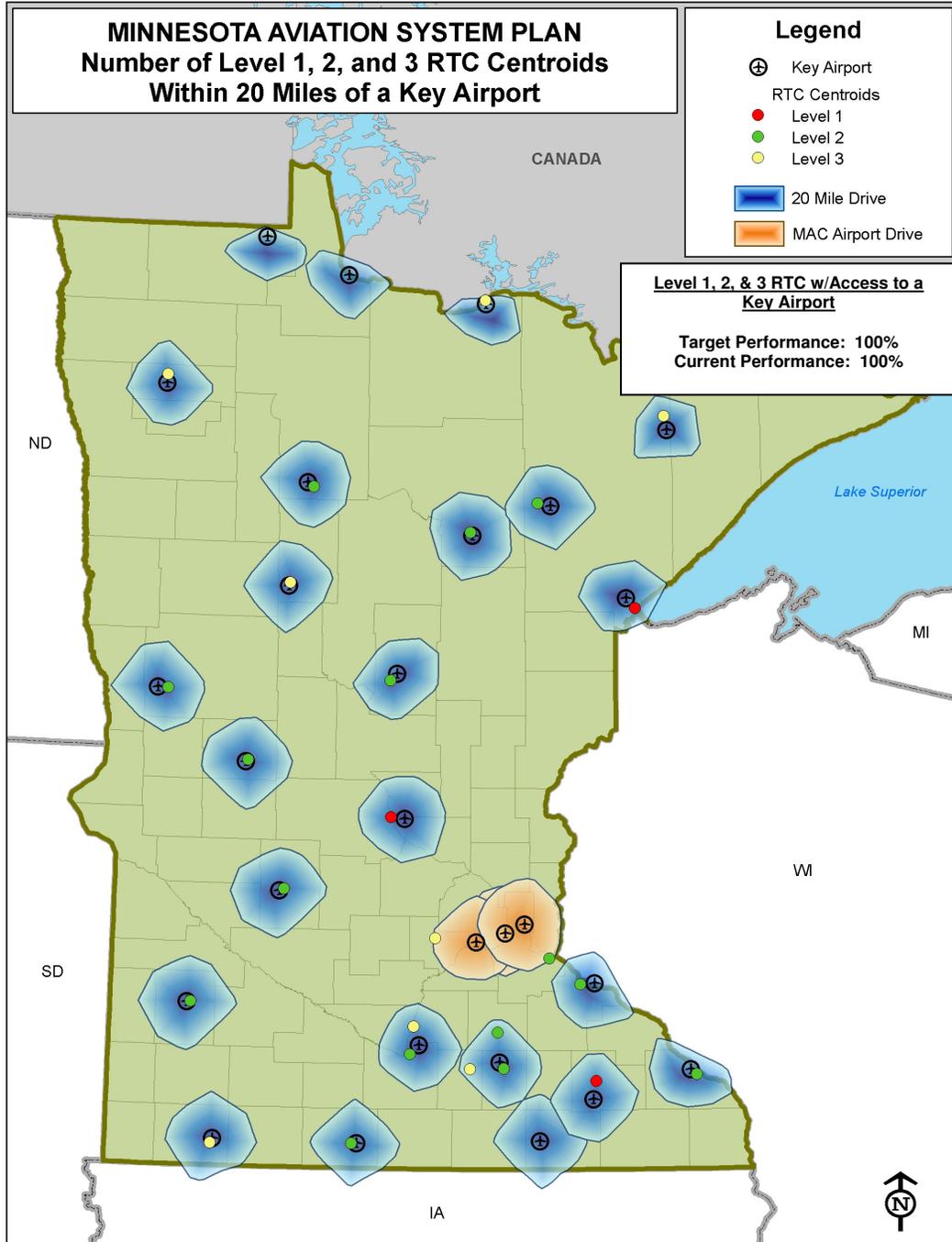


Source: Mn/DOT records and Wilbur Smith Associates.  
 Prepared: December 2005.

**Exhibit 5-7  
Current Performance**

**Policy 3: Provide Cost-Effective Transportation Options for People and Freight**

**Measure 3.5: Level 1, 2, and 3 Regional Trade Centers that are within 20 miles of a Key Airport**

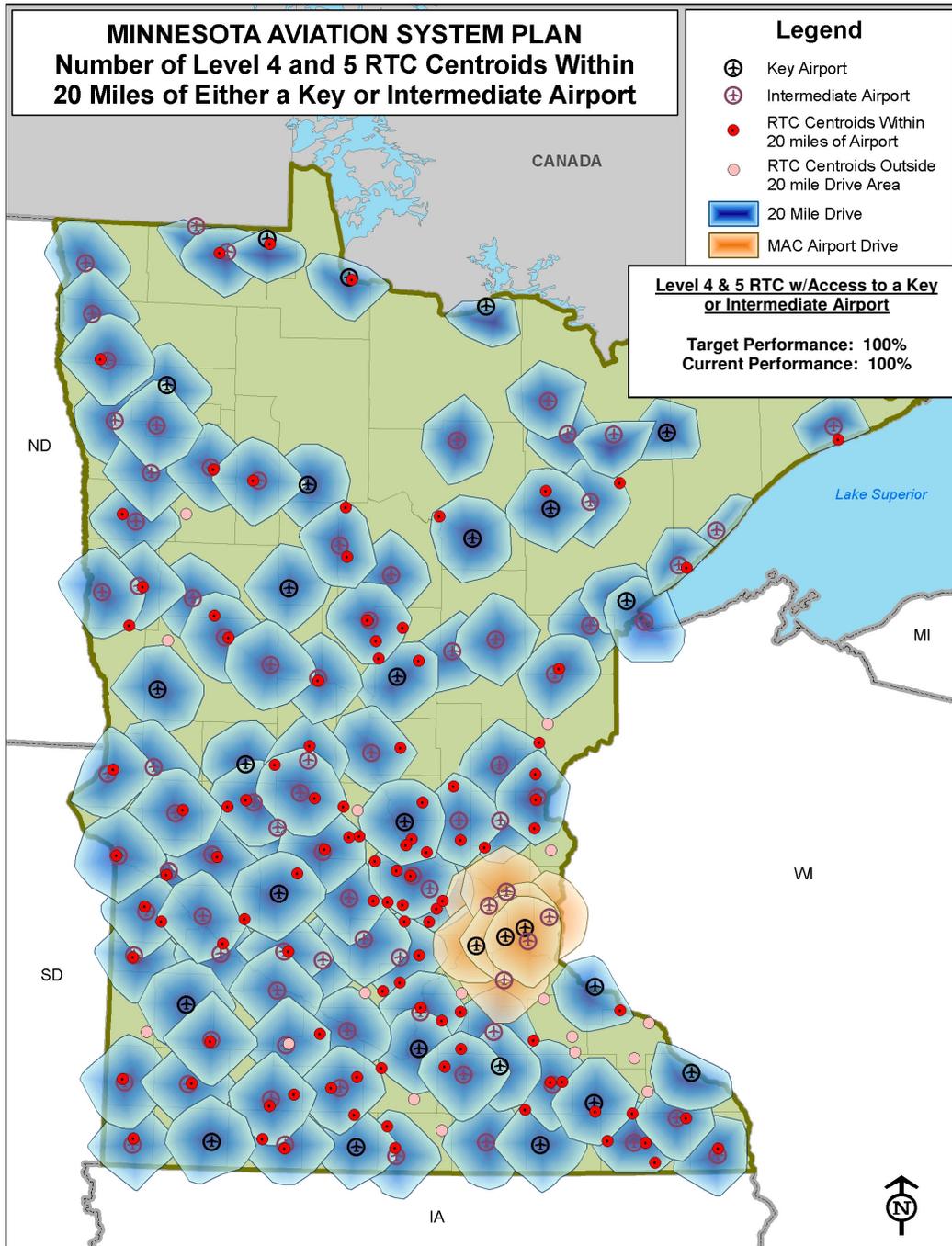


Source: Mn/DOT records and Wilbur Smith Associates.  
 Prepared: December 2005.

**Exhibit 5-8  
Current Performance**

**Policy 3: Provide Cost-Effective Transportation Options for People and Freight**

**Measure 3.6: Level 4 and 5 Regional Trade Centers that are within 20 miles of a Key or an Intermediate Airport**



Source: Mn/DOT records and Wilbur Smith Associates.  
 Prepared: December 2005.

**Performance Measure 3.7: Percent of airports with a runway 5,000 feet long or longer that have a precision instrument approach**

**Target Performance**

**100% Airports with a 5,000 foot or longer runway to have precision approach**

**Current Performance**

**80% of Airports with a 5,000 foot or longer runway have a precision approach**

Airports that have runway lengths of 5,000 feet or greater that are enhanced with a precision instrument approach are capable of serving larger more sophisticated aircraft. The target for this performance measure is to have 100 percent of airports with a 5,000 foot long or longer runway to have a precision instrument approach. Currently, 81 percent (22 airports) of the airports in the Minnesota aviation system that have a runway length of at least 5,000 feet also have a precision instrument approach (see **Table 5-5** and **Chart 5-4**).

**Table 5-5 (1 of 2)  
Current Performance  
Policy 3: Accessibility  
Measure 3.7: Minnesota airports with a runway 5,000 feet long or longer**

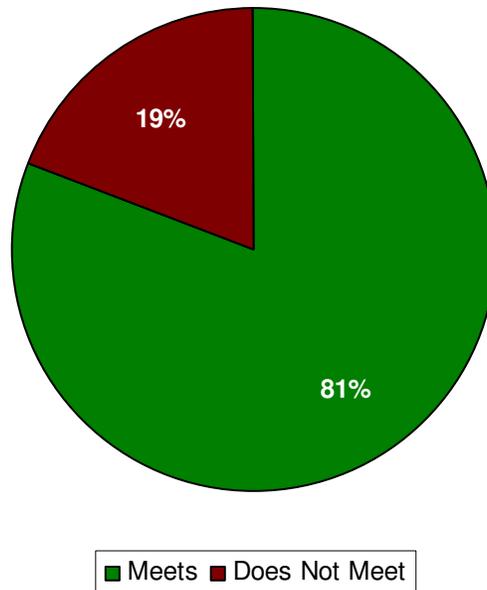
ASSOCIATED CITY	AIRPORT NAME	PRIMARY RUNWAY LENGTH	APPROACH TYPE	PRIMARY RUNWAY 5,000' + AND PRECISION APPROACH
Alexandria	Alexandria Municipal – Chandler Field	5,100	Precision	Yes
Austin	Austin Municipal	5,800	Non-Precision	No
Baudette	Baudette International	5,499	Non-Precision	No
Bemidji	Bemidji – Beltrami County	6,598	Precision	Yes
Brainerd	Brainerd Lakes Regional	6,500	Precision	Yes
Duluth	Duluth International	10,152	Precision	Yes
Ely	Ely Municipal	5,600	Non-Precision	No
Fairmont	Fairmont Municipal	5,505	Precision	Yes
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	5,639	Precision	Yes
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	5,755	Precision	Yes
Hibbing	Chisholm-Hibbing Municipal	6,758	Precision	Yes
International Falls	Falls International	6,508	Precision	Yes
Mankato	Mankato Regional – Sohler Field	5,400	Precision	Yes
Marshall	Southwest Minnesota Regional – Ryan Field	5,010	Precision	Yes
Minneapolis	Minneapolis-St. Paul International	11,006	Precision	Yes
Owatonna	Owatonna – Degner Regional	5,500	Precision	Yes
Park Rapids	Park Rapids Municipal – Konshok Field	5,498	Precision	Yes
Red Wing	Red Wing Regional	5,010	Precision	Yes
Rochester	Rochester International	7,533	Precision	Yes
St. Cloud	St. Cloud Regional	7,000	Precision	Yes
St Paul	St. Paul Downtown-Holman Field	6,711	Precision	Yes
Thief River Falls	Thief River Falls Regional	6,503	Precision	Yes

**Table 5-5 (2 of 2)**  
**Current Performance**  
**Policy 3: Accessibility**  
**Measure 3.7: Minnesota airports with a runway 5,000 feet long or longer**

ASSOCIATED CITY	AIRPORT NAME	PRIMARY RUNWAY LENGTH	APPROACH TYPE	PRIMARY RUNWAY 5,000' + AND PRECISION APPROACH
Warroad	Warroad International – Swede Carlson Field	5,400	Precision	Yes
Willmar	Willmar Municipal – John L. Rice Field	5,700	Non-Precision	No
Winona	Winona Municipal – Max Conrad Field	5,199	Non-Precision	No
Worthington	Worthington Municipal	5,506	Precision	Yes

Source: Mn/DOT Records and 2005 SASP Inventory/Data Survey.  
 Prepared: December 2005.

**Chart 5-4**  
**Current Performance**  
**Policy 3: Provide Cost-Effective Transportation Options for People and Freight**  
**Measure 3.7: Percent of airports with a runway 5,000 feet long or longer that have a precision instrument approach**



Source: Mn/DOT Records, 2005 SASP Inventory/Data Survey, and Wilbur Smith Associates.  
 Prepared: December 2005.

**Performance Measure 3.8: Percent of airports with a paved and lighted runway that has a published approach**

**Target Performance**

**100% Airports with a paved & lighted runway to have a published approach**

**Current Performance**

**89% of Airports with a paved & lighted runway have a published approach**

Airports that have a paved and lighted runway and that also have either a precision or non-precision instrument approach have the capability to serve a higher percentage of the general aviation fleet. These characteristics allow airports to serve aircraft during periods of reduced visibility and adverse weather conditions. **Table 5-6** presents the data for this performance measure.

**Table 5-6 (1 of 4)  
Current Performance  
Policy 3: Provide Cost-Effective Transportation Options for People and Freight  
Measure 3.8: Percent of airports with a paved and lighted runway that has a published approach**

ASSOCIATED CITY	AIRPORT NAME	PRIMARY RUNWAY (PAVED OR UNPAVED)	RUNWAY LIGHTING	APPROACH TYPE
<b>KEY AIRPORTS</b>				
Alexandria	Alexandria Municipal – Chandler Field	Paved	MIRL	Precision
Austin	Austin Municipal	Paved	MIRL	Non-Precision
Baudette	Baudette International	Paved	MIRL	Non-Precision
Bemidji	Bemidji – Beltrami County	Paved	HIRL	Precision
Brainerd	Brainerd Lakes Regional	Paved	HIRL	Precision
Duluth	Duluth International	Paved	HIRL	Precision
Ely	Ely Municipal	Paved	MIRL	Non-Precision
Fairmont	Fairmont Municipal	Paved	HIRL	Precision
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	Paved	MIRL	Precision
Grand Rapids	Grand Rapids – Itasca County Gordon Newstrom Field	Paved	HIRL	Precision
Hibbing	Chisholm-Hibbing Municipal	Paved	HIRL	Precision
International Falls	Falls International	Paved	HIRL	Precision
Mankato	Mankato Regional – Sohler Field	Paved	HIRL	Precision
Marshall	Southwest Minnesota Regional – Ryan Field	Paved	HIRL	Precision
Owatonna	Owatonna – Degner Regional	Paved	HIRL	Precision
Park Rapids	Park Rapids Municipal – Konshok Field	Paved	MIRL	Precision
Red Wing	Red Wing Regional	Paved	HIRL	Precision
Rochester	Rochester International	Paved	HIRL	Precision
St. Cloud	St. Cloud Regional	Paved	HIRL	Precision
Thief River Falls	Thief River Falls Regional	Paved	HIRL	Precision
Warroad	Warroad International – Swede Carlson Field	Paved	HIRL	Precision
Willmar	Willmar Municipal – John L. Rice Field	Paved	MIRL	Non-Precision
Winona	Winona Municipal – Max Conrad Field	Paved	MIRL	Non-Precision

**Table 5-6 (2 of 4)  
Current Performance**

**Policy 3: Provide Cost-Effective Transportation Options for People and Freight  
Measure 3.8: Percent of airports with a paved and lighted runway that has a published approach**

ASSOCIATED CITY	AIRPORT NAME	PRIMARY RUNWAY (PAVED OR UNPAVED)	RUNWAY LIGHTING	APPROACH TYPE
Worthington	Worthington Municipal	Paved	HIRL	Precision
<b>INTERMEDIATE AIRPORTS</b>				
Ada	Norman County – Ada-Twin Valley	Paved	LIRL	Non-Precision
Aitkin	Aitkin Municipal – Steve Kurtz Field	Paved	MIRL	Non-Precision
Albert Lea	Albert Lea Municipal	Paved	NSTD	Non-Precision
Appleton	Appleton Municipal	Paved	MIRL	Non-Precision
Benson	Benson Municipal – Veterans Field	Paved	MIRL	Non-Precision
Bigfork	Bigfork Municipal	Paved	MIRL	Non-Precision
Blue Earth	Blue Earth Municipal	Paved	MIRL	Non-Precision
Brooten	Brooten Municipal	Paved	LIRL	Visual
Buffalo	Buffalo Municipal	Paved	MIRL	Non-Precision
Caledonia	Houston County	Paved	MIRL	Non-Precision
Cambridge	Cambridge Municipal	Paved	MIRL	Non-Precision
Canby	Canby Municipal – Myers Field	Paved	MIRL	Non-Precision
Cloquet	Cloquet-Carlton County	Paved	MIRL	Non-Precision
Cook	Cook Municipal	Paved	MIRL	Non-Precision
Crookston	Crookston Municipal – Kirkwood Field	Paved	MIRL	Non-Precision
Detroit Lakes	Detroit Lakes – Wething Field	Paved	MIRL	Non-Precision
Dodge Center	Dodge Center Municipal	Paved	MIRL	Non-Precision
Duluth	Sky Harbor	Paved	MIRL	Non-Precision
Eveleth-Virginia	Eveleth-Virginia Municipal	Paved	MIRL	Non-Precision
Faribault	Faribault Municipal	Paved	NSTD	Non-Precision
Fertile	Fertile Municipal	Paved	LIRL	Visual
Fosston	Fosston Municipal	Paved	MIRL	Non-Precision
Glencoe	Glencoe Municipal – Vernon Perschau Field	Paved	MIRL	Non-Precision
Glenwood	Glenwood Municipal	Paved	MIRL	Non-Precision
Grand Marais	Grand Marais – Cook County	Paved	MIRL	Non-Precision
Granite Falls	Granite Falls Municipal – Lenzen-Roe Memorial Field	Paved	MIRL	Non-Precision
Hallock	Hallock Municipal	Paved	MIRL	Non-Precision
Hawley	Hawley Municipal	Paved	MIRL	Non-Precision
Hector	Hector Municipal	Paved	NSTD	Visual
Herman	Herman Municipal	Paved	LIRL	Visual
Hutchinson	Hutchinson Municipal – Butler Field	Paved	MIRL	Non-Precision
Jackson	Jackson Municipal	Paved	MIRL	Non-Precision
Le Sueur	Le Sueur Municipal	Paved	MIRL	Non-Precision
Litchfield	Litchfield Municipal	Paved	MIRL	Non-Precision
Little Falls	Little Falls – Morrison County – Lindbergh Field	Paved	MIRL	Non-Precision
Long Prairie	Long Prairie Municipal – Todd Field	Paved	MIRL	Non-Precision
Longville	Longville Municipal	Paved	MIRL	Non-Precision
Luverne	Luverne Municipal – Quentin Aanenson Field	Paved	LIRL	Visual
Madison	Lac Qui Parle County – Bud Frye Field	Paved	MIRL	Non-Precision

**Table 5-6 (3 of 4)  
Current Performance**

**Policy 3: Provide Cost-Effective Transportation Options for People and Freight  
Measure 3.8: Percent of airports with a paved and lighted runway that has a published approach**

ASSOCIATED CITY	AIRPORT NAME	PRIMARY RUNWAY (PAVED OR UNPAVED)	RUNWAY LIGHTING	APPROACH TYPE
Maple Lake	Maple Lake Municipal	Paved	MIRL	Non-Precision
McGregor	McGregor – Isedor Iverson	Paved	MIRL	Non-Precision
Montevideo	Montevideo-Chippewa County	Paved	MIRL	Non-Precision
Moorhead	Moorhead Municipal	Paved	MIRL	Non-Precision
Moose Lake	Moose Lake – Carlton County	Paved	MIRL	Non-Precision
Mora	Mora Municipal	Paved	MIRL	Non-Precision
Morris	Morris Municipal	Paved	MIRL	Non-Precision
New Ulm	New Ulm Municipal	Paved	MIRL	Non-Precision
Olivia	Olivia Regional	Paved	LIRL	Non-Precision
Orr	Orr Regional	Paved	MIRL	Non-Precision
Ortonville	Ortonville Municipal – Martinson Field	Paved	MIRL	Non-Precision
Paynesville	Paynesville Municipal	Paved	MIRL	Visual
Perham	Perham Municipal	Paved	MIRL	Non-Precision
Pine River	Pine River Regional	Paved	MIRL	Non-Precision
Pinecreek	Piney-Pinecreek Border	Paved	MIRL	Non-Precision
Pipestone	Pipestone Municipal	Paved	MIRL	Non-Precision
Preston	Fillmore County	Paved	MIRL	Non-Precision
Princeton	Princeton Municipal	Paved	MIRL	Non-Precision
Red Lake Falls	Red Lake Falls Municipal	Paved	NSTD	Visual
Redwood Falls	Redwood Falls Municipal	Paved	MIRL	Non-Precision
Roseau	Roseau Municipal – Rudy Billberg Field	Paved	MIRL	Non-Precision
Rush City	Rush City Regional	Paved	MIRL	Non-Precision
Rushford	Rushford Municipal	Paved	MIRL	Non-Precision
Sauk Centre	Sauk Centre Municipal	Paved	LIRL	Non-Precision
Silver Bay	Silver Bay Municipal	Paved	MIRL	Non-Precision
Slayton	Slayton Municipal	Paved	NSTD	Non-Precision
Springfield	Springfield Municipal	Paved	MIRL	Non-Precision
St. James	St. James Municipal	Paved	MIRL	Non-Precision
Staples	Staples Municipal	Paved	MIRL	Non-Precision
Stephen	Stephen Municipal	Paved	LIRL	Visual
Tower	Tower Municipal	Paved	MIRL	Visual
Tracy	Tracy Municipal	Paved	MIRL	Visual
Two Harbors	Richard B. Helgeson	Paved	MIRL	Non-Precision
Wadena	Wadena Municipal	Paved	MIRL	Non-Precision
Walker	Walker Municipal	Paved	MIRL	Non-Precision
Warren	Warren Municipal	Paved	NSTD	Non-Precision
Waseca	Waseca Municipal	Paved	MIRL	Non-Precision
Wheaton	Wheaton Municipal	Paved	MIRL	Non-Precision
Windom	Windom Municipal	Paved	MIRL	Non-Precision

Source: Mn/DOT Records and 2005 SASP Inventory/Data Survey.

Prepared: December 2005.

Note: Airports with unpaved runways are not included in this table.

**Table 5-6 (4 of 4)  
Current Performance**

**Policy 3: Provide Cost-Effective Transportation Options for People and Freight  
Measure 3.8: Percent of airports with a paved and lighted runway that has a published approach**

ASSOCIATED CITY	AIRPORT NAME	PRIMARY RUNWAY (PAVED OR UNPAVED)	RUNWAY LIGHTING	APPROACH TYPE
<b>METRO AREA AIRPORTS</b>				
Minneapolis	Minneapolis-St. Paul International	Paved	HIRL	Precision
Minneapolis	Airlake	Paved	HIRL	Precision
Minneapolis	Anoka County/Blaine-Jane's Field	Paved	MIRL	Non-Precision
Minneapolis	Crystal	Paved	MIRL	Non-Precision
Minneapolis	Flying Cloud	Paved	HIRL	Precision
St Paul	St. Paul Downtown-Holman Field	Paved	HIRL	Precision
St Paul	Lake Elmo	Paved	MIRL	Non-Precision
St Paul	South St Paul	Paved	MIRL	Non-Precision

Source: Mn/DOT Records and 2005 SASP Inventory/Data Survey.

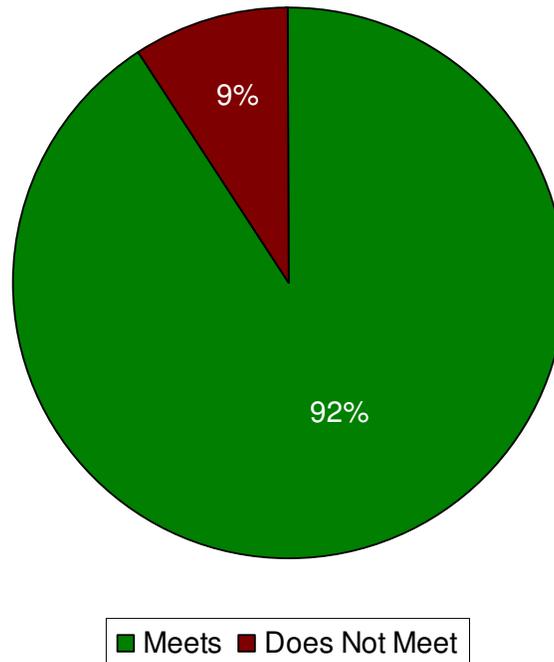
Prepared: December 2005.

Note: Airports with unpaved runways are not included in this table.

Currently, 92 percent (99 airports) of all airports that have runways that are paved and lighted also have a published approach as shown in **Chart 5-5**. The target performance set for this measure is to have 100 percent of all airports with a paved and lighted runway to also have a published approach. In order to meet this objective, 10 airports would need to have an approach published.

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**Chart 5-5**  
**Current Performance**  
**Policy 3: Provide Cost-Effective Transportation Options for People and Freight**  
**Measure 3.8: Percent of airports with a paved and lighted runway that has a published approach**



Source: Mn/DOT Records , 2005 SASP Inventory/Data Survey, and Wilbur Smith Associates.  
Prepared: December 2005.  
Note: Airports with unpaved runways are not included in this chart.

**POLICY 4: INCREASE THE SAFETY AND SECURITY OF TRANSPORTATION SYSTEMS AND THEIR USERS**

The intention of this policy is to provide a safe and secure system of airports. The following performance measures were used to evaluate the ability of the Minnesota airport system to provide a safe and secure airport system:

- Average total 3-year general aviation crashes as reported and defined by FAA
- Average annual general aviation fatalities as reported by FAA
- Percent of study airports meeting TSA guidelines for general aviation security

Proactive planning for emergency response and the ability to provide a secure facility are both important factors considered for this policy.

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**Performance Measure 4.1: Average total 3-year general aviation crashes as reported and defined by FAA**

**Target Performance**

**No more than an average of 30 annual general aviation crashes over a 3-year period**

**Current Performance**

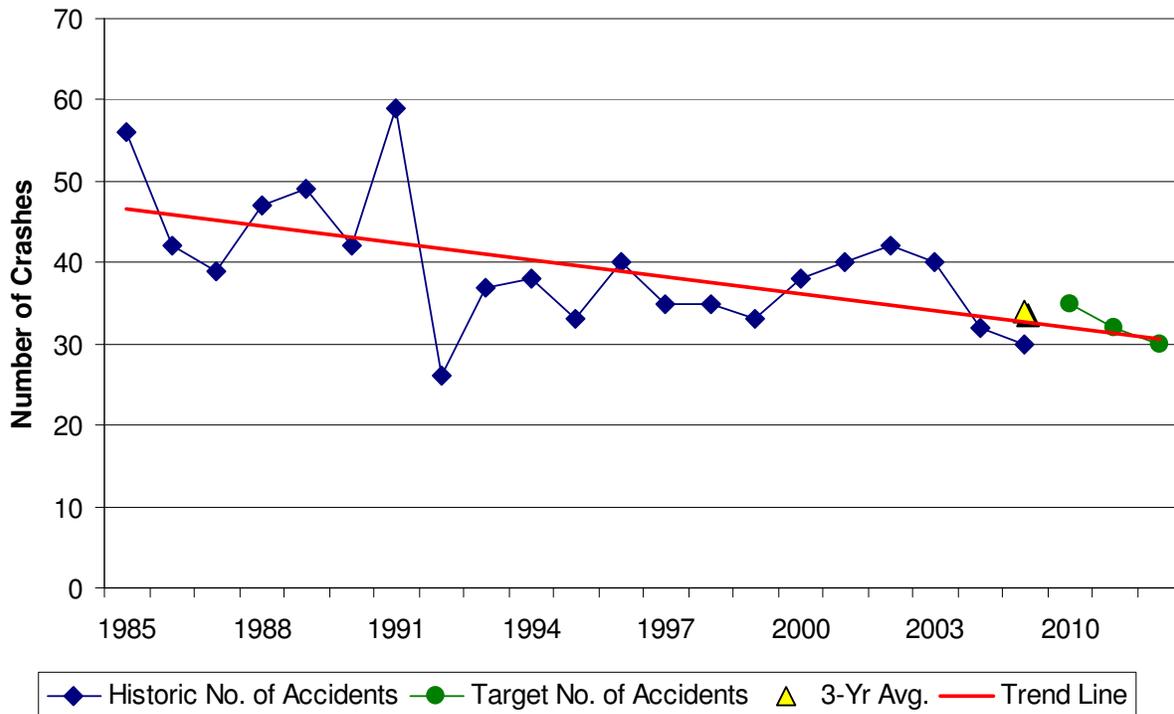
**An average of 34 crashes over a 3-year period**

As defined by the FAA and National Transportation Safety Board (NTSB), a crash/accident is defined as "an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage". Further an aircraft crash is defined by both agencies as an occurrence in which, "as a result of the operation of an aircraft, any person (occupant or non-occupant) receives fatal or serious injury or any aircraft receives substantial damage." Both the Minnesota Aviation System Plan and the Minnesota State Transportation Plan have set a target for this performance measure to have no more than 30 annual general aviation crashes by the end of the planning horizon. Targets for this measure are as follows:

<u>Target Performance</u>	<u>2010</u>	<u>2015</u>	<u>2025</u>
General Aviation Crashes	35	32	30

Based on data collected from the NTSB Aviation Accident Database & Synopsis between 1985 and 2005, the average total number of annual general aviation crashes was 40 over this period, as shown in **Chart 5-6**. The average total number of general aviation crashes over a 3-year period (2003-2005) is slightly lower at 34 crashes. It needs to be noted that the analysis included general aviation, agricultural, air taxi, and commuter operations. Commercial and military activities were not included.

**Chart 5-6  
Current Performance**  
**Policy 4: Increase the Safety and Security of Transportation Systems and Their Users**  
**Measure 4.1: Historical and Target General Aviation Accidents**



Source: MnDOT Records.  
 Prepared: December 2005.

**Performance Measure 4.2: Average annual general aviation fatalities as reported by FAA**

**Target Performance**

**No more than an average of 6 fatalities annually**

**Current Performance**

**An average of 12 fatalities annually**

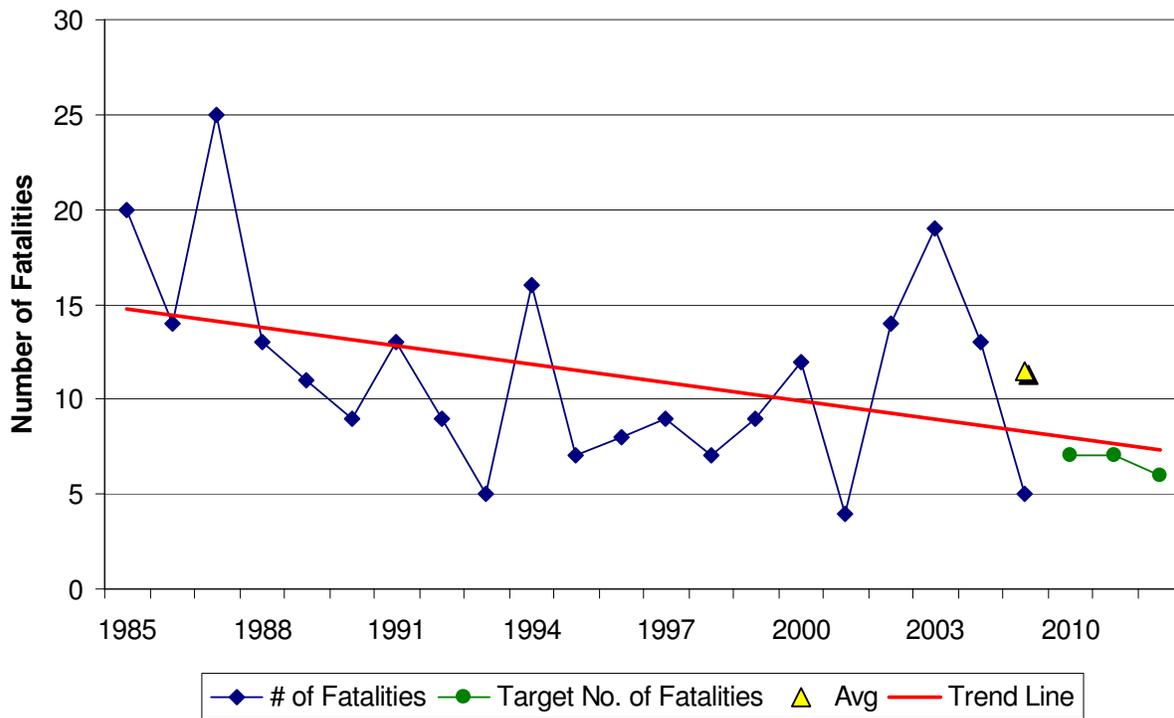
Building upon the prior performance measure and using the information for the same time frame, it was determined that there were 230 fatalities related to general aviation accidents in Minnesota for the entire reporting period (1985-2005). This results in an average of 12 fatalities a year (**Chart 5-7**). The Aviation System Plan and the State Transportation Plan both have adopted a target performance for this measure as shown on the following page.

<u>Target Performance</u>	<u>2010</u>	<u>2015</u>	<u>2025</u>
General Aviation Fatalities	7	7	6

The safety of pilots, aircraft, and communities is a continuous concern for the U.S. Department of Transportation (USDOT), the Federal Aviation Administration (FAA), the State of Minnesota, and local communities. Through continuous improvements in the education of pilots, revision to practical standards tests and knowledge tests, and better training for pilots to cope with various weather hazards, the SASP's targets may be achieved.

**Chart 5-7  
Current Performance**

**Policy 4: Increase the Safety and Security of Transportation Systems and Their Users  
Measure 4.2: Historical and Target General Aviation Fatalities**



Source: MnDOT Records.  
Prepared: December 2005.

**Performance Measure 4.3: Percent of study airports meeting TSA guidelines for general aviation security**

**Target Performance**  
None established as of the writing of this document

**Current Performance**  
Key Airports: 91% Meet at least 50% of TSA Enhancements  
Intermediate Airports: 81% Meet at least 50% of TSA Enhancements  
Landing Strips: 42% Meet at least 50% of TSA Enhancements

The events of September 11th, 2001 had a significant impact and influence on the aviation industry, with repercussions felt in both the commercial and general aviation sectors. In May 2004, TSA security guidelines for general aviation airports were released.

TSA guidelines help general aviation airports to identify security enhancements, while still allowing airports the option of selecting and implementing the security enhancements that best fit each airport's unique situation. TSA's 'General Aviation Airport Characteristics Measurement Tool' was used to determine the percent of Minnesota's study airports that meet the guidelines for four security classifications (Minimal, Low, Medium, and High). TSA's Measurement Tool uses a large number of factors to determine the extent of security related facilities and procedures that should be in place at a general aviation airport. **Table 5-7** presents the number of study airports that meet all TSA suggested security enhancements.

A target has not been established for this performance measure. However, Mn/DOT is in the process of working with general aviation airports in Minnesota to incorporate a security plan as part of each airport's emergency response plans. For further information on general aviation security at Minnesota's airports and a more in-depth analysis general aviation security for study airports, please refer to **Appendix C** of this document. When reviewing the information presented in Table 5-7, it is important to note that TSA guidelines do not indicate that all airports should necessarily seek to meet each of the security elements shown in this table. The size and activity level of the airport helps determine which of these elements are applicable to each airport.

**Table 5-7 (1 of 2)  
Current Performance**

**Policy 4: Increase the Safety and Security of Transportation Systems and Their Users  
Measure 4.3: Minnesota Airports' Meeting TSA Suggested Security Enhancements**

TSA SUGGESTED SECURITY ENHANCEMENTS	NUMBER OF STUDY AIRPORTS MEETING ENHANCEMENT
Signs	91
Documented Security Procedures	36
Positive Passenger/Cargo/Baggage ID	79
All Aircraft Secured	106
Community Watch Program	68
Contact List	108
Law Enforcement Officer (LEO) Support	111
Security Committee	53
Transient Pilot Sign-In/Out Procedures	41
Access Controls	89

**Table 5-7 (2 of 2)  
Current Performance**

**Policy 4: Increase the Safety and Security of Transportation Systems and Their Users  
Measure 4.3: Minnesota Airports' Meeting TSA Suggested Security Enhancements**

TSA SUGGESTED SECURITY ENHANCEMENTS	NUMBER OF STUDY AIRPORTS MEETING ENHANCEMENT
Lighting System	108
Personnel ID System	7
Vehicle ID System	6
Challenge Procedures	59
Fencing	60
Hangar Security	100
Closed Circuit TV	8
Intrusion Detecting System	16

Source: 2005 SASP Inventory/Data Survey and TSA, *Security Guidelines for General Aviation Airports*, May 2004.

Prepared: December 2005.

At this time, no target performance has been set for this performance measure. Additionally, it needs to be noted that although airports do not meet all of the TSA guidelines for their classification, only 4 airports report not having any security measures in place. In addition, several study airports have security measures in place that go beyond those recommended by TSA.

Information presented in **Chart 5-8** indicates that among all Key Airports, 52 percent have adopted between 75 and 100 percent of applicable TSA security guidelines. Another 39 percent of the Key Airports have adopted between 50 and 75 percent of all applicable TSA guidelines. The remaining 9 percent of the Key Airports have adopted 50 percent or less of TSA guidelines that are applicable to their perceived security risk.

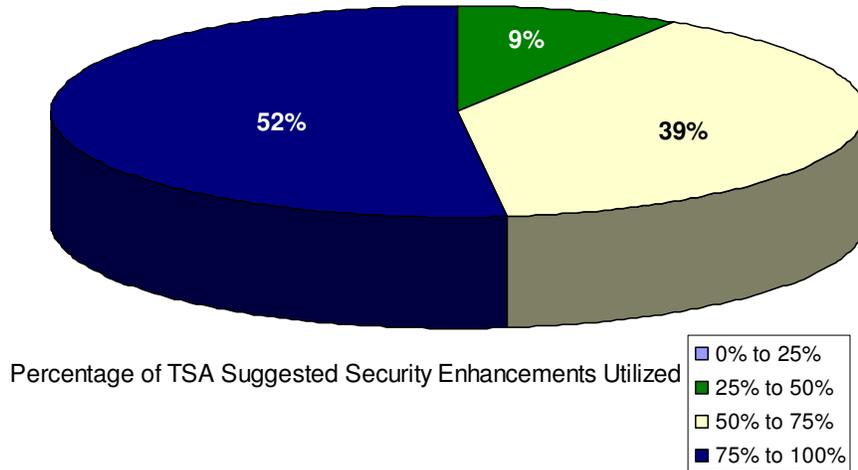
**Chart 5-9** indicates that for the Intermediate Airports, 30 percent have adopted between 75 and 100 percent of applicable TSA security measures. Another 51 percent of the Intermediate Airports have adopted between 50 and 75 percent of applicable TSA guidelines. The remaining 19 percent of the Intermediate Airports have adopted 50 percent or less of applicable TSA security guidelines.

As shown in **Chart 5-10**, 21 percent of the airports included in the Landing Strip classification have adopted between 75 and 100 percent of applicable TSA security guidelines. Another 21 percent of the Landing Strips have adopted between 50 and 75 percent of applicable TSA guidelines. The remaining 58 percent of the Landing Strips have adopted 50 percent or less of their applicable TSA security related enhancements.

As shown in **Chart 5-11**, 100 percent of the Metro Area Airports have adopted between 75 and 100 percent of applicable TSA security guidelines.

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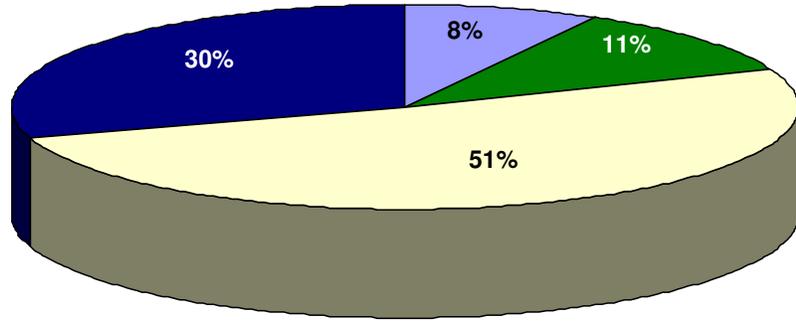
**Chart 5-8**  
**Current Performance**  
**Policy 4: Increase the Safety and Security of Transportation Systems and Their Users**  
**Measure 4.3: Key Airports Meeting TSA Suggested Security Guidelines**



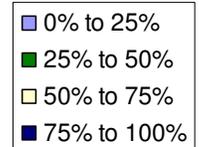
Source: MnDOT Records and Wilbur Smith Associates.  
Prepared: December 2005.

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**Chart 5-9**  
**Current Performance**  
**Policy 4: Increase the Safety and Security of Transportation Systems and Their Users**  
**Measure 4.3: Intermediate Airports Meeting TSA Suggested Security Guidelines**



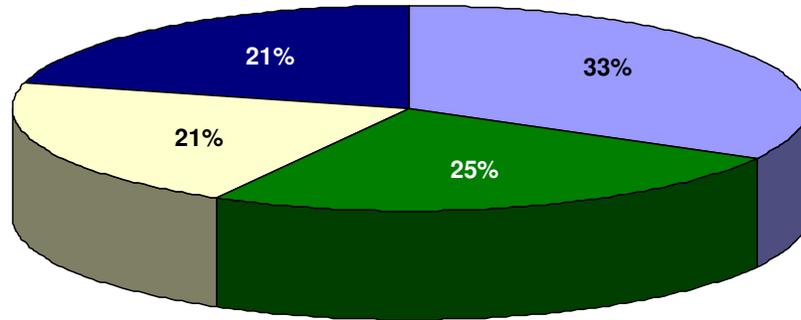
Percentage of TSA Suggested Security Enhancements Utilized



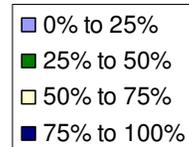
Source: MnDOT Records and Wilbur Smith Associates.  
Prepared: December 2005.

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**Chart 5-10**  
**Current Performance**  
**Policy 4: Increase the Safety and Security of Transportation Systems and Their Users**  
**Measure 4.3: Landing Strips Meeting TSA Suggested Security Guidelines**



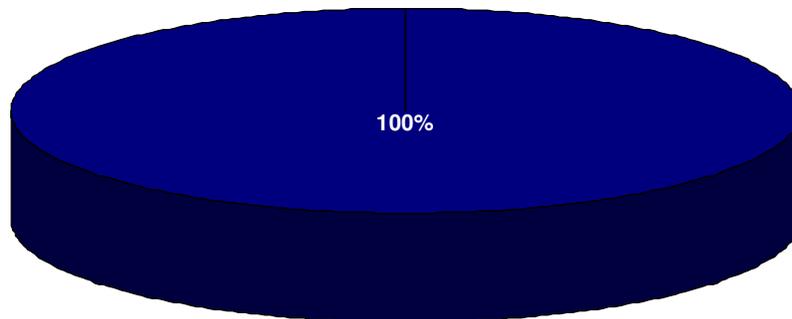
Percentage of TSA Suggested Security Enhancements Utilized



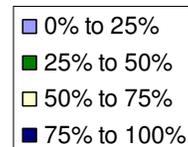
Source: MnDOT Records and Wilbur Smith Associates.  
Prepared: December 2005.

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**Chart 5-11**  
**Current Performance**  
**Policy 4: Increase the Safety and Security of Transportation Systems and Their Users**  
**Measure 4.3: Metro Area Airports Meeting TSA Suggested Security Guidelines**



Percentage of TSA Suggested Security Enhancements Utilized



Source: MnDOT Records and Wilbur Smith Associates.  
Prepared: December 2005.

## SUMMARY

Using system policies and performance measures established at the on-set of the Minnesota Aviation System Plan, this chapter provides valuable insight in to how well Minnesota's system of public airports is currently performing. The analysis completed in this chapter lays the ground work for establishing where the Minnesota airport system is adequate or deficient. The findings from analysis completed in this chapter serve as a partial foundation for establishing future system and airport needs and recommendations. These are discussed in the next chapter of this report.



## Chapter Six: Recommended Development Plan

This final chapter of the update to Minnesota's State Aviation System Plan summarizes and interprets the results of analyses completed as part of this project. Findings presented in this chapter are tied to potential improvements that have been identified on both the statewide and the individual airport level.

It is important to note that the Minnesota State Aviation System Plan is not a programming or an implementation document. The Minnesota Department of Transportation does not own or operate public airports in the Minnesota system. The State Aviation System Plan is "top down" planning analysis; findings from this analysis must still be implemented by individual airports from the "bottom up."

### **SYSTEM ACTIONS TO RESPOND TO PERFORMANCE MEASURE TARGETS**

A comprehensive analysis has been completed to determine how well the Greater Minnesota Aviation System is performing, relative to established policies and performance measures. As data were available, airports in the metropolitan area were also considered in this analysis. At the on-set of this update to the Minnesota State Aviation System Plan, the Project Advisory Committee determined that it would be appropriate to use only policies and performance measures identified in the 1999 State Aviation System Plan or in the most recent State Transportation Plan. Targets for performance were also derived, for the most part, from one or the other of these documents.

**Table 6-1** summarizes the four policies that were used in this study to evaluate the performance of the Minnesota Aviation System. This table also shows performance measures that are specific to each of the policies. Targets for the aviation system, relative to each of the performance measures, are also summarized in this table.

**Table 6-1 (1 of 3)  
Policies, Performance Measures, and Target Performance  
for the Minnesota Aviation System**

<b>Policy 1: Preserve Essential Elements of the Existing Transportation System</b>					
<b>Performance Measure</b>		<b>Target Performance</b>			
1.1 Percent of airport runways that meet good and poor Pavement Condition Index (PCI) targets. (State Measure 1.2A Physical Condition (airport pavements))		1.1 Targets apply to general aviation airports serving Level 1, 2, and 3 Regional Trade Centers.			
		Targets	2009	2013	2023
		Percent Good (PCI 56 or greater)	83%	84%	86%
		Percent Poor (PCI 40 or less)	5%	4%	4%
<b>Policy 2: Support Land Use Decisions that Preserve Mobility and Enhance the Safety of Transportation Systems</b>					
<b>Performance Measure</b>		<b>Target Performance</b>			
2.1 Percent of airports that have Master Plans or Airport Layout Plan (ALPs) identifying expansion needs. (State Measure 2.2A Airspace or Land that is Protected (Airports))		2.1 This is a new performance measure. Target: Key Airports should have master plans that are current at least every 7 years. Intermediate Airports should have abbreviated plans that are current at least every 15 years. Landing Strips should have abbreviated plans as local needs warrant. Based on airport size and activity levels, airport layout plan reports, as opposed to full master plans, may be appropriate for some Intermediate Airports or Landing Strips.			
2.2 Percent of airports that have Minnesota Rules Zoning. (State Measure 2.2A Airspace or Land that is Protected (Airports))		2.2 This is a new performance measure. Target: 100 percent of all publicly-owned airports in the Minnesota Airport System should meet this performance measure.			

**Table 6-1 (2 of 3)  
Policies, Performance Measures, and Target Performance  
for the Minnesota Aviation System**

<b>Policy 3: Provide Cost-Effective Transportation Options for People and Freight</b>	
<b>Performance Measure</b>	<b>Target Performance</b>
3.1 Percent of Minnesota Population within 60 minutes of an airport with scheduled airline service. (State Measure 4.1A Amount of Facilities/Service Provided (Scheduled Air Service/Freight))	3.1 Ninety (90) percent of Minnesota's population should be within 60 minutes of an airport that has scheduled commercial airline service.
3.2 Percent of Minnesota population within 20 miles of an airport with a paved and lighted runway.	3.2 Ninety (90) percent of Minnesota's population should be within 20 miles of an airport that has a paved and lighted runway.
3.3 Percent of Minnesota population within 60 minutes of an airport with air cargo activity. (State Measure 4.1A Amount of Facilities/Services Provided (Scheduled Air Service/Freight))	3.3 This is a new performance measure. Target: 90 percent of Minnesota's population should be within 60 minutes of an airport with scheduled air cargo service. 95 percent of Minnesota's population should be within 60 minutes of an airport with some type of air cargo service.
3.4 Percent of airports with scheduled commercial air service that have appropriate access to Interregional Corridors (IRCs). (State Measure 4.1A Amount of Facilities/Services Provided (Scheduled Air Service/Freight))	3.4 This is a new performance measure. Target: Airports with scheduled airline service should be within two miles of a High or Medium Priority or Regional IRC.
3.5 Percent of Level 1, 2, and 3 Regional Trade Centers (RTCs) that are within 20 miles of a Key Airport.	3.5 This is a new performance measure. Target: 100 percent of all Level 1, 2, and 3 Regional Trade Centers should be within 20 miles of a Key Airport.
3.6 Percent of Level 4 and 5 Regional Trade Centers (RTCs) that are within 20 miles of a Key or an Intermediate Airport.	3.6 This is a new performance measure. Target: 100 percent of all Level 4 and 5 Regional Trade Centers should be within 20 miles of a Key or an Intermediate Airport.
3.7 Percent of airports with a runway 5,000 feet long or longer that have a precision instrument approach.	3.7 100 percent of all airports with a runway 5,000 feet long or longer should have a precision approach.
3.8 Percent of airports with a paved and lighted runway that have a published non-precision or precision approach.	3.8 100 percent of all airports with a paved and lighted runway should have a published non-precision or precision approach.

**Table 6-1 (3 of 3)  
Policies, Performance Measures, and Target Performance  
for the Minnesota Aviation System**

<b>Policy 4: Increase the Safety and Security of Transportation Systems and Their Users</b>					
<b>Performance Measure</b>		<b>Target Performance</b>			
4.1 Average total 3-year general aviation crashes as reported and defined by FAA. (State Measure 7.1A Total Crashes (General Aviation))		4.1 The target set in the Statewide Transportation Plan for general aviation crashes is as follows:			
		Target	2009	2013	2023
		General Aviation Crashes	35	32	30
4.2 Average annual general aviation fatalities as reported by the FAA. (State Measure 7.2A Total Fatalities (General Aviation))		4.2 The target set in the Statewide Transportation Plan for general aviation fatalities is as follows:			
		Target	2009	2013	2023
		General Aviation Fatalities	7	7	6
4.3 Percent of system airports meeting TSA Guidelines for general aviation security. (See Policy 7 State Plan: Increase Safety and Security of Transportation Systems and Their Users)		4.3 This is a new performance measure. Mn/DOT is in the process of determining which TSA guidelines are most appropriate for airports in the Minnesota system; there currently is no target established for this performance measure.			

Source: Mn/DOT, Project Advisory Committee, and Wilbur Smith Associates.

Prepared: February 2005.

Note: Orange = Performance Measure consistent with Minnesota State Transportation Plan

Green = Performance Measure consistent with prior Minnesota State Aviation System Plan

Chapter Five of this study used each of the policies and performance measures shown in Table 6-1 to evaluate the ability of the Greater Minnesota Aviation System to meet established targets.

This final chapter is divided into several sections. The first of which addresses actions that should be considered to raise the performance of the system to meet the targets noted in Table 6-1. It is important to note that the Minnesota Department of Transportation, and more specifically the Office of Aeronautics, has limited to no ability to affect change in the system for some of the performance measures.

This plan provides an overview of where improvements to the Greater Minnesota Aviation System might be desirable. It is possible that local support for some of the projects identified in this plan could be lacking. Conversely, there could be local support and justification for more aggressive development that has been identified in this plan.

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## **ACTIONS TO RESPOND TO PERFORMANCE MEASURE TARGETS**

This section provides a summary of actions that could be considered to reach targets for each of the performance measures identified in Table 6-1, assuming the target is not already being met.

### **Policy 1: Preserve Essential Elements of the Existing Transportation System**

#### ***Performance Measure 1.1: Percent of airports with runways that meet good and poor Pavement Condition Index (PCI) targets.***

For this measure, only the condition of pavements on paved primary runways was considered. Other paved surfaces at an airport also can be reviewed to establish a current PCI; for this study, however, only the PCI on the primary runway was considered. It is important to note that this performance measure applies only to paved runways at airports that serve a Level 1, 2 or 3 Regional Trade Center (RTC).

The target set for this measure is to have a PCI of 56 or greater (considered “good”) for at least 83 percent of the applicable paved runways. This is the target set for this measure in 2009. Further, the target states that in 2009 no more than 5 percent of applicable runways should have a PCI of 40 or less. When pavement has a PCI rating of 40 or less, the pavement is considered to be in poor condition. It is important to note that the PCI for all paved runways in Minnesota changes continually. In states that experience extremes in temperature, as does Minnesota, PCI ratings can change from year-to-year. Findings presented in this section are based on the most current information available in January 2005. Paved primary runways with PCI rating above 56, may not achieve such a rating in future evaluation cycles. Constant monitoring and investment is needed to meet the established targets.

Airports with paved primary runways serving Level 1, 2 or 3 RTCs currently in need of a project to increase the PCI rating on their primary runway are shown **Table 6-2**.

**Table 6-2  
Airports To Be Considered For Improved PCI Ratings**

ASSOCIATED CITY	AIRPORT NAME	CURRENT PRIMARY RUNWAY PCI RATING
<b>KEY AIRPORTS</b>		
Willmar	Willmar Municipal – John L. Rice Field	45*
<b>INTERMEDIATE AIRPORTS</b>		
Crookston	Crookston Municipal-Kirkwood Field	49
Eveleth-Virginia	Eveleth-Virginia Municipal	52
Glenwood	Glenwood Municipal	53
Moose Lake	Moose Lake-Carton County	48
Mora	Mora Municipal	50
Perham	Perham Municipal	50
Roseau	Roseau Municipal-Rudy Billberg Field	46
Sauk Centre	Sauk Centre Municipal	55
Two Harbors	Richard B. Helgeson	49
Walker	Walker Municipal	45
<b>METRO AIRPORTS</b>		
Minneapolis	Minneapolis St. Paul International	Unknown**
Minneapolis	Airlake	Unknown**
Minneapolis	Anoka County/Blaine-Jane's Field	Unknown**
Minneapolis	Crystal	Unknown**
Minneapolis	Flying Cloud	Unknown**
St. Paul	St. Paul Downtown-Holman Field	Unknown**
St. Paul	Lake Elmo	Unknown**

Source: Mn/DOT records and Wilbur Smith Associates.

Prepared: February 2006.

\*Note: Airport is in the process of relocating to a new site.

\*\*Note: PCI data is not available for Metro Area airports at the time of writing of this document.

As noted, the target is for 83 percent of the applicable airports in the system to have a PCI of 56 or greater on their paved primary runway. Currently, when only Greater Minnesota airports are considered, this percentage stands at 70 percent. It is not possible to report an accurate rating for all applicable airports, including those in the metropolitan area at this time, since PCI information for almost all primary runways at these airports is not available. Four additional Greater Minnesota airports in the Key or Intermediate categories, among those shown in Table 6-2, would need to raise the PCI on their primary runway to 56 or more for the study airports to reach the 83 percent target.

System performance for this measure should be monitored on an ongoing basis. This is a performance measure that Mn/DOT can influence through their State funding investments.

## Policy 2: Support Land Use Decisions That Preserve Mobility and Enhance The Safety Of Transportation Systems

### ***Performance Measure 2.1: Percent of system airports that have current master plans or airport layout plans.***

Proactive planning is one means that Mn/DOT has at its disposal to preserve mobility and enhance the safety of the system. Local needs and conditions, changes in demand levels, and/or changes in FAA design standards most frequently dictate when it is necessary to prepare an update to a master plan, an ALP, or an airport layout plan report.

From the standpoint of the Minnesota Aviation System Plan, targets have been set as follows for updating master plans and/or ALPs. Key Airports should have plans that are updated every 7 years, and Intermediate Airports should have plans that are updated every 15 years. As a result of their lower levels of activity, master plans or ALPs for Landing Strips are needed only as local conditions or changes warrant. Less active system airports would have airport layout plan reports.

Based on information that was current in March 2006, airports included in **Table 6-3** should have planning studies in order for the system to be in compliance for the target that was established for this performance measure.

**Table 6-3 (1 of 2)**  
**Airports To Be Considered For Updated Master Plans or ALPs**

ASSOCIATED CITY	AIRPORT NAME	DATE OF MOST CURRENT MASTER PLAN/ALP
<b>KEY AIRPORTS</b>		
Baudette	Baudette International	1997
Bemidji	Bemidji Regional	1997*
Fairmont	Fairmont Municipal	1991
Fergus Falls	Fergus Falls Municipal – Einar Mickelson Field	1994*
Hibbing	Chisholm-Hibbing Municipal	1996*
Marshall	Southwest Minnesota Regional – Ryan Field	1975
Owatonna	Owatonna – Degner Regional	1974
Park Rapids	Park Rapids Municipal – Konshok Field	1978
Red Wing	Red Wing Regional	1996*
Rochester	Rochester International	1997*
Silver Bay	Silver Bay Municipal	1981
Thief River Falls	Thief River Falls Regional	1997*
Warroad	Warroad International – Swede Carlson Field	1989
Worthington	Worthington Municipal	1997

**Table 6-3 (2 of 2)**  
**Airports To Be Considered For Updated Master Plans or ALPs**

ASSOCIATED CITY	AIRPORT NAME	MASTER PLAN/ALP DATE
<b>INTERMEDIATE AIRPORTS – MP/ALP EVERY 15 YEARS</b>		
Ada	Norman County – Ada-Twin Valley	1977
Aitkin	Aitkin Municipal – Steve Kurtz Field	1975*
Appleton	Appleton Municipal	1979
Bagley	Bagley Municipal	1996
Benson	Benson Municipal – Veterans Field	1988
Bigfork	Bigfork Municipal	1992
Caledonia	Houston County	1968
Dodge Center	Dodge Center Municipal	1979
Fosston	Fosston Municipal	1973
Hallock	Hallock Municipal	1973
Hawley	Hawley Municipal	1984
Herman	Herman Municipal	1970
Jackson	Jackson Municipal	1979*
Litchfield	Litchfield Municipal	1988
Long Prairie	Long Prairie Municipal-Todd Field	1980*
Madison	Lac Qui Parle County-Bud Frye Field	1972
Ortonville	Ortonville Municipal-Martinson Field	1973*
Pinecreek	Piney-Pinecreek Border	None*
Red Lake Falls	Red Lake Municipal	1988
Roseau	Roseau Municipal-Rudy Billberg Field	1972
Sauk Centre	Sauk Centre Municipal	1973
Slayton	Slayton Municipal	1976
Tracy	Tracy Municipal	1967*
Walker	Walker Municipal	1974*

Source: Mn/DOT records and Wilbur Smith Associates.

Prepared: March 2006.

\*Note: Airport is in the process of updating as of March 2005.

Airports in the metropolitan area are included in the Key, Intermediate, or Landing Strip classifications, however, since they fall under the planning responsibility of the Metropolitan Council no specific targets for their compliance with performance measure were set as part of this plan. Data on the current date for master plans/ALPs at these airports is shown in **Table 6-4** for informational purposes. Information provided by the Metropolitan Airports Commission indicates that plans for Airlake, Crystal, and Lake Elmo are being updated in 2006. Further, Flying Cloud, Anoka County-Blaine, and St. Paul Downtown-Holman Field are scheduled to have completed plans in 2007.

**Table 6-4  
Plan Dates For Metro Area Airports**

ASSOCIATED CITY	AIRPORT NAME	DATE OF MOST CURRENT MASTER PLAN/ALP
<b>METRO AREA</b>		
Forest Lake	Forest Lake	2002
Minneapolis	Minneapolis St. Paul International	2004
Minneapolis	Airlake	1996
Minneapolis	Anoka County/Blaine-Jane's Field	2003
Minneapolis	Crystal	1995
Minneapolis	Flying Cloud	2004
St. Paul	St. Paul Downtown-Holman Field	2005
St. Paul	Lake Elmo	2000
St. Paul	South St. Paul	2002

Source: Mn/DOT records, Metropolitan Airports Council records, and Wilbur Smith Associates.  
Prepared: February 2006.

Similar to the performance measure addressing pavement condition, current system performance for this measure will change each year. The performance reported herein is applicable to conditions as they existed in 2005. System performance for this measure should be monitored on an ongoing basis. This is a performance measure that Mn/DOT can influence through their investment.

***Performance Measure 2.2: Minnesota airports with Minnesota Rules Zoning.***

The target is for 100 percent of all public airports in Minnesota to adopt Minnesota Rules Zoning. As reported in Chapter Five, all (100 percent) of the Key Airports now meet or exceed Minnesota Rules Zoning. One hundred percent of the Intermediate Airports and the Landing Strips also currently meet, exceed, or have Minnesota Rules Zoning that is in the master plan review process (MPR). Among the nine airports in the metropolitan area, six airports have not or are not in the process of adopting Minnesota Rules Zoning. These six airports are shown in **Table 6-5**. It should be noted that while Crystal Airport is shown as without Minnesota Rules Zoning in place, it does in fact have zoning, however, it does not meet current requirements under Minnesota Rules Zoning. As of the writing of this document, all airports shown as being with out Minnesota Rules Zoning are in the process of updating various planning documents and anticipate being compliant by 2007.

**Table 6-5  
Airports Without Minnesota Rules Zoning**

ASSOCIATED CITY	AIRPORT NAME
<b>METRO AREA</b>	
Minneapolis	Airlake
Minneapolis	Anoka County/Blaine-Jane's Field
Minneapolis	Crystal
Minneapolis	Flying Cloud
St. Paul	St. Paul Downtown-Holman Field
St. Paul	Lake Elmo

Source: Mn/DOT records and Wilbur Smith Associates.  
Prepared: February 2006.

Mn/DOT will continue to take applicable steps to help Minnesota airports and communities adopt Minnesota Rules Zoning. The system plan does not include an actual dollar value for meeting the target for this performance measure.

**Policy 3: Provide Cost-Effective Transportation Options for People and Freight**

***Performance Measure 3.1: Percent of Minnesota population within 60 minutes of an airport with scheduled airline service.***

Ideally, Mn/DOT strives to have an airport system in which 90 percent of the state's population within 60 minutes or less of an airport with scheduled commercial airline service. Demand for scheduled commercial airline service does not recognize state boundaries. Just as there are commercial airline travelers who enter Minnesota to board a commercial airline flight, there are also travelers who exit Minnesota to use a commercial airport in a neighboring state. The role that commercial airports in neighboring states play in meeting this target was considered.

Using a 60 minute drive time, the nine Minnesota airports (including Minneapolis-St. Paul International) that presently have scheduled airline service were considered. In addition, airports in neighboring states that serve Grand Forks (ND), Fargo (ND), Sioux Falls (SD), Mason City (IA), and La Crosse (WI) were also considered. Based on coverage provided by these 15 airports, 86 percent of Minnesota's population is currently 60 minutes or less from one or more airports that have at least one scheduled commercial carrier.

Information gained from the system plan's companion air service review shows that boarding airline passengers typically drive 120 minutes or more to reach Minneapolis-St. Paul International. Passengers are usually willing to travel this distance to secure: lower fares, a larger selection of airlines, a high number of non-stop flights, a greater frequency of service, and direct international flights. Because of some of these same factors, passengers often drive at least 90 minutes to use the airline service that is available at both Fargo (ND) and Sioux Falls (SD). When these greater drive times are applied, population coverage increases from 86 percent to 96 percent. Again, the target for this measure is 90 percent.

As of the writing of this report, Northwest Airlines is operating under bankruptcy protection. There is no way to predict at this time what changes in system performance might occur as they

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relate to this measure. Prior to bankruptcy, Northwest had actually planned to add a new city in Minnesota, Marshall, to its route structure. This plan has been shelved.

Since Mn/DOT and the Minnesota communities and airports have a very limited ability to impact how and where commercial airline service is provided, there are no recommendations for improving performance for this measure. It does not appear that any additional airports in Minnesota will secure scheduled commercial airline service in the near term.

The performance of the system relative to this measure, however, should be monitored very carefully. Scheduled commercial airline service at two of Minnesota's airports (Thief River Falls and Hibbing) is subsidized through the FAA's Essential Air Service program. If this program would be discontinued or revamped in some way to reduce or eliminate operating subsidies for carriers serving these two airports, service and associated coverage could be eliminated. Changes that may come about during the restructuring of Northwest Airlines could also result in coverage changes. There is a need for system performance for this measure to be re-visited at some point in the future. Appendix A to this report contains more information on air service conditions.

***Performance Measure 3.2: Percent of Minnesota population within 20 miles of airport with a paved and lighted runway.***

The target set for this measure is to have 90 percent of Minnesota's population within 20 miles or less of one or more Minnesota airports that have a paved and lighted runway. Results reported in the system plan, as they pertain to this performance measure, also include all airports in the metropolitan area that have paved and lighted runways. The system evaluation indicated that 95 percent of Minnesota's population is currently within 20 miles or less of one or more Minnesota airports with a paved and lighted runway. Consequently, there are no recommendations for system enhancement related to this performance measure.

***Performance Measure 3.3: Percent of Minnesota population within 60 minutes of an airport with air cargo activity.***

The target set for this performance measure is to have 90 percent of Minnesota's population within 60 minutes or less of an airport with scheduled air cargo activity. For this measure, population was used as a proxy for business activity. System plan analysis found that 88 percent of Minnesota's population is within 60 minutes or less of a Minnesota airport with scheduled air cargo activity. Mn/DOT and the Minnesota airports have a very limited ability to influence where air cargo service is provided. Therefore, the system plan does not have a specific recommendation for increasing system performance relative to this target. Reported performance for this measure would increase if out-of-state airports were considered in the analysis, possibly reaching the 90 percent target.

A secondary target set for this performance measure is to have 95 percent of Minnesota's population within 60 minutes of a Minnesota airport that reports some type of scheduled or on-demand air cargo activity. Current coverage is estimated at 97 percent; this target is being exceeded.

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***Performance Measure 3.4: Percent of airports with scheduled commercial airline service having appropriate access to Interregional Corridors (IRCs).***

In the State Aviation System Plan, appropriate access was gauged by distance of the commercial airport to a High or Medium Priority or a Regional Interregional Corridor (IRC). A target was set for airports with commercial airline service to be no more than 2 miles from an IRC. The system plan analysis concluded that this target is currently being met. Therefore, there are no recommendations for enhancing system performance relative to this measure.

***Performance Measure 3.5: Percent of Level 1, 2, and 3 Regional Trade Centers that are within 20 miles of a Key Airport.***

The established target for this measure is to have 100 percent of all designated Level 1, 2 and 3 Regional Trade Centers (RTCs) within 20 miles or less of one or more Key Airports. This study's analysis shows that this target is being met. Consequently, additional designations for Key Airports in the Minnesota system are not needed at this time to meet the target for this performance measure. It is worth noting that airports in the metropolitan area that meet the characteristics of a Key Airport are enabling the system to meet the established target.

***Performance Measure 3.6: Percent of Level 4 and 5 Regional Trade Centers that are within 20 miles of a Key or an Intermediate Airport.***

The target for this measure is to have 100 percent of the Level 4 and 5 Regional Trade Centers (RTCs) within 20 miles or less of one or more airports classified as Key or Intermediate. The system evaluation showed that this target is presently being met. Therefore, additional designations for either Key or Intermediate airports are not required to meet the target set for this performance measure. It is important to note that system performance for this measure considered the airports in the metropolitan area that meet the characteristics of a Key or an Intermediate Airport.

***Performance Measure 3.7: Percent of airports with a runway 5,000 feet long or longer runway that have a precision instrument approach.***

All Minnesota airports that have a runway that is 5,000 feet long or longer should be supported by a precision approach. Currently, there are 27 airports in the Minnesota airport system that have runways that are 5,000 feet long or longer. The system plan concluded that 22 of these airports now have a precision instrument approach. A target has been set to have all (100 percent) of applicable airports equipped with a precision approach. To meet this target, approach capabilities of at the five airports shown in **Table 6-6** would need to be upgraded. At two of the five airports, projects to provide a precision approach are already underway.

**Table 6-6  
Airports That Should Be Considered For Precision Approach Capabilities**

ASSOCIATED CITY	AIRPORT NAME
<b>KEY AIRPORTS</b>	
Austin	Austin Municipal*
Baudette	Baudette International
Ely	Ely Municipal
Willmar	Willmar Municipal-John L. Rice Field*
Winona	Winona Municipal-Max Conrad Field

Source: Mn/DOT records and, 2005 SASP Inventory and Data Survey, and Wilbur Smith Associates. Prepared: February 2006.

\*Note: Airport is under contract as of March 2006 to upgrade its approach capabilities.

***Performance Measure 3.8: Percent of airports with paved and lighted runways that have a non-precision approach.***

A target has been established that indicates that 100 percent of all Minnesota airports that have runways that are paved and lighted should also have at least a non-precision approach. There are 101 airports in Greater Minnesota that this measure applies to, and there are an additional 8 airports in the metropolitan area that this measure applies to. All 8 of the applicable metropolitan airports currently have facilities that comply with this measure.

A total of 10 airports among the 101 in the Greater Minnesota System that this measure applies to are in need of an upgrade from a visual to some type of published non-precision or precision approach to meet the target set for this measure. Airports needing upgraded approaches to reach the 100 percent target are shown in **Table 6-7**. All costs and the general feasibility of achieving these approaches were not evaluated as part of this plan.

**Table 6-7  
Airports That Should Be Considered For Non-Precision Approach Capabilities**

ASSOCIATED CITY	AIRPORT NAME
<b>KEY AIRPORTS</b>	
Bagley	Bagley Municipal
Brooten	Brooten Municipal
Fertile	Fertile Municipal
Hector	Hector Municipal
Herman	Herman Municipal
Luverne	Luverne Municipal-Quentin Aanenson Field
Paynesville	Paynesville Municipal
Red Lake Falls	Red Lake Falls Municipal
Stephen	Stephen Municipal
Tower	Tower Municipal
Tracy	Tracy Municipal

Source: Mn/DOT records and, 2005 SASP Inventory and Data Survey, and Wilbur Smith Associates. Prepared: February 2006.

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## **Policy 4: Increase the Safety and Security of Transportation Systems and Their Users**

### ***Performance Measure 4.1: Average total 3-year general aviation crashes as reported and defined by FAA.***

This measure was adopted from the State Transportation Plan. Mn/DOT can help improve the performance of the system related to this performance measure, and measure 4.2, through education, projects that increase airport safety such as obstruction removal or obstruction lighting, and/or improving approach capabilities or weather reporting capabilities at Minnesota airports. Most crashes and fatalities are tied to pilot error and/or weather, things that are beyond the control of Mn/DOT.

The targets set for this measure are as follows:

<u>Target Performance</u>	<u>2010</u>	<u>2015</u>	<u>2025</u>
General Aviation Crashes	35	32	30

Over the most recent 3 year period, the average has been 34 crashes per year, as reported by FAA. This figure includes all aircraft except those classified as either commercial or military. Analysis completed as part of the system plan shows that Minnesota is on track to meet the target established for this performance measure. No additional specific recommendations for this measure have been identified by this system plan update. Individual airport recommendations, presented at the end of this chapter, will help Mn/DOT to meet the targets set for this performance measure.

### ***Performance Measure 4.2: Average annual general fatalities as reported by FAA.***

The target set for this performance measure is to have no more than 6 fatalities annually. Again, data reflected in the system plan for this performance measure includes fatalities reported for all aircraft except commercial and military. Specific targets for this performance measure are as follows:

<u>Target Performance</u>	<u>2010</u>	<u>2015</u>	<u>2025</u>
General Aviation Fatalities	7	7	6

Over the last 3 years, FAA has reported for Minnesota an average of 12 fatalities each year. It is worth noting that since 1985, there have been three different years in which the targets noted above have been met. In fact, for the most recent reporting year, only 5 fatalities (below the 2010 target) were reported. Analysis completed as part of the system plan shows that since 1985, fatalities in non-commercial or non-military have been trending downward, although perhaps not at a rate sufficient to reach the established targets. As noted, the ability of Mn/DOT to influence performance related to this measure is limited. It appears that over time, fatalities are decreasing. The system plan does not contain any specific recommendations to increase the system performance relative to this measure. Individual airport recommendations,

presented at the end of this chapter, will however help Mn/DOT to meet the targets set for this performance measure.

**Performance Measure 4.3: Percent of study airports meeting Transportation Security Administration (TSA) guidelines for general aviation security.**

The Transportation Security Administration (TSA) guidelines for general aviation airports have been established based on the relative risk that each airport poses to national security. Relatively speaking, the security risk related to general aviation airports is not significant. There is ample flexibility in the TSA guidelines to enable airports and state agencies to determine which guidelines are most applicable to their airports. Mn/DOT Aeronautics Office is considering which TSA guidelines are appropriate for various types of airports in the Minnesota system. Therefore, no specific target has been set for this measure at this time. When this plan is next updated, a specific target for this measure will be needed. Facilities and procedures currently in place at Minnesota airports help to make airports more secure.

Until targets are established, current performance for this measure is summarized in **Table 6-8**.

**Table 6-8  
Current Airport Compliance With TSA General Aviation Security Guidelines**

	<b>PERCENT OF APPLICABLE TSA ENHANCEMENT GUIDELINES MET</b>				<b>Total No. of Airports</b>
	<b>100-75%</b>	<b>75-50%</b>	<b>50-25%</b>	<b>25-0%</b>	
Key Airports	13	9	2	0	24
Intermediate Airports	24	41	9	6	80
Landing Strips	5	5	6	7	23
Metro Area Airports	9	0	0	0	9
<b>Total</b>	<b>51</b>	<b>55</b>	<b>17</b>	<b>13</b>	<b>136</b>

Source: Wilbur Smith Associates.  
Prepared: February 2006.

No recommendations have been made as part of this plan to increase systemwide or airport specific performance relative to this performance measure.

Actions identified in this section that would enable the Minnesota airport system to reach targets set for each of the established performance measures have been integrated into airport specific recommendations which are included at the end of this chapter.

**NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS (NPIAS)**

As identified by the FAA, an existing airport that is currently included in an accepted State Aviation System Plan, such as the Minnesota Aviation System Plan, is eligible to be considered for inclusion in the NPIAS if the following conditions are satisfied:

- 
- The airport serves a community located at least 20 miles from the nearest existing or proposed NPIAS airport
  - The airport has at least 10 based aircraft

Including the airports in the metropolitan area, there are currently 95 airports in Minnesota that are included in the NPIAS.

In the prior State Aviation System Plan, four airports were considered for inclusion in the NPIAS. These airports were: Brooten Municipal, Buffalo Municipal, Walker Municipal and Warren Municipal. Since the completion of the prior system plan, both Walker and Buffalo Municipal airports have been included in the NPIAS.

Review was undertaken to consider airports in the Greater Minnesota system that currently are not in the NPIAS. Initially, several current non-NPIAS airports were noted. Then, the federally eligible NPIAS airports located nearest to each NPIAS candidate airport were identified. Distances and drive times from each non-NPIAS airport to the nearest federally eligible NPIAS airport were calculated using a geographic information systems (GIS) program.

Most of the Intermediate airports in Minnesota that are not currently included in the NPIAS are less than 20 miles from an airport in Minnesota that is already included in the NPIAS. Therefore, these airports may not be eligible for NPIAS inclusion based on FAA entry criteria.

Current levels of based aircraft were also examined using information on file for each airport. This information was gathered from this study's inventory effort, information provided by the Minnesota Department of Transportation, and the FAA's Form 5010 files. As noted, airports should have more than 10 based aircraft to be considered for NPIAS inclusion.

Of the Intermediate airports not in the NPIAS, the system plan provides the following conclusions:

- Cook Municipal, Granite Falls Municipal-Lenzen-Roe Memorial Field, Glencoe Municipal-Vernon Perchau Field, McGregor-Isedor Iverson, and Maple Lake Municipal airports have activity levels and support of local businesses. These characteristics are part of the criteria considered for NPIAS inclusion. A recommendation to include these airports in the NPIAS is not made at this time, however, because of the proximity of these airports to other NPIAS airports. The airports listed above will need further analysis to more accurately determine the distance of from the airport to other NPIAS airports and communities.
- Warren Municipal Airport meets the distance requirement to a NPIAS airport, but is not projected to meet the based aircraft objective at any time over the 20-year forecast period for the system plan. If activity levels at this airport increase beyond those projected in this system plan, Mn/DOT could support a recommendation that this airport be included in the NPIAS.

Based on analysis completed as part of this system plan, no additional airports appear to qualify for NPIAS inclusion at this time. It is worth noting that some of the airports noted in this section are pursuing efforts related to NPIAS inclusion.

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## AIRPORT ACTIONS

As part of this update to the Minnesota Aviation System Plan, facility and service objectives were established for Key and Intermediate Airports and the Landing Strips. These objectives should be used by each airport when updating their master plan or ALP. Based on each airports assigned role (Key, Intermediate, or Landing Strip), the facility and service objectives provide guidance on items each airport should have in place to best fill its system role and meet the needs of its projected users. The facility and service objectives for each airport classification were developed using input from Mn/DOT Aeronautics and this study's Project Advisory Committee. Facility and service objectives developed as part of this plan are shown in **Table 6-9**.

Individual airport summaries that are presented at the end of this chapter provide comparisons that enable each airport to clearly see the facilities and services that it should have to meet its system role. These tables also enable the airports to compare their objectives to the actual facilities and services that they have in place. Through this comparison, each airport can identify which facility and service upgrades are desirable for their individual airport.

Some of the most important areas in which Minnesota's airport system may need to be improved in the coming years, as determined by the system plan's facility and service objectives, relate to wider runways, improved approaches, and better on-site weather reporting capabilities. The individual airport summaries presented at the end of this chapter provide insight in to all improvements that each airport should consider to meet established facility and service objectives. The paragraphs on the following pages summarize runway, approach, and weather related needs identified from the facility and service objective analysis.

**Table 6-9  
Facility and Service Objectives Summary**

	<b>KEY</b>	<b>INTERMEDIATE</b>	<b>LANDING STRIP</b>
<b>Runway Length (Primary)</b>	Minimum 5,000 feet paved	Less than 5,000 feet paved	At least 3,000 feet paved; 2,500 feet turf
<b>Runway Width</b>	100 feet paved	75 feet paved	60 feet paved; 75 feet turf
<b>Taxiway Type</b>	Full Parallel	Full Parallel	Exits as Needed
<b>Approach</b>	Precision	Non-Precision	Visual
<b>Runway Lighting</b>	HIRL	MIRL	LIRL (Pilot Controlled)
<b>Taxiway Lighting</b>	MITL	LITL	Not an Objective
<b>Weather Reporting</b>	AWOS/ASOS	AWOS/ASOS	Not an Objective
<b>Approach Aids</b>	MALSR	MALS	Not an Objective
<b>VGSI</b>	Both Runway Ends	Both Runway Ends	Not an Objective
<b>REILs</b>	Both Runway Ends	Both Runway Ends	Not an Objective
<b>Other Visual Aids</b>	Rotating Beacon; Lighted Wind Indicator	Rotating Beacon; Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock
<b>Covered Aircraft Storage</b>	100% of Based Aircraft	100% of Based Aircraft	As Needed
<b>Aircraft Apron Storage</b>	100% of Daily Transient	50% of Daily Transient	As Needed
<b>General Aviation Terminal/Admin Bldg</b>	Yes	Yes	Not an Objective
<b>Auto Parking</b>	Paved Spaces Equal to 100% of Based Aircraft	Paved Spaces Equal to 75% of Based Aircraft	50% of Based Aircraft
<b>Fencing</b>	Perimeter	To Control Airfield Access	Not an Objective
<b>Fuel</b>	100LL & Jet A - 24 Hour	AvGas; Jet A As Needed	As Needed
<b>FBO</b>	Full Service - 24 Hour	Limited Service	Not an Objective
<b>Ground Transportation</b>	Rental Car, Taxi or Other	Courtesy Car/ Off-Site Rental Car	Not an Objective
<b>Food Services</b>	Vending	Vending	Not an Objective
<b>Phone</b>	Phone	Phone	Phone
<b>Restrooms</b>	Restrooms	Restrooms	Restrooms
<b>Pilots' Lounge</b>	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	Not an Objective
<b>Other</b>	Timely Snow Removal	Snow Removal	Not An Objective

Source: Mn/DOT, Project Advisory Committee, and Wilbur Smith Associates.  
Prepared: February 2005.

## Runway Projects

Facility and service objectives established for the Minnesota airports as part of this system plan, identify specific targets for runway length and width. Targets for runway length and width are based on each airports assigned system role as a Key Airport, Intermediate Airport or a Landing Strip. Review of the facility and service objectives shows that none of the system airports need a runway lengthening project, at least as it pertains specifically to this study's facility and service targets. As can be seen in the airport specific summaries, many system airports, as part of their individual capital improvement plans (CIPs), are planning for runway extension to meet local and airport specific needs.

To meet the system plan's facility and service objectives, there are 14 Intermediate Airports that could consider projects to widen their primary runway. **Table 6-10** lists those airports that could be considered for runway widening projects. Runway widening projects at these airports would enable the airports to meet this study's facility and service objectives.

**Table 6-10**  
**Recommended Development – Runway Widening**

ASSOCIATED CITY	AIRPORT NAME
<b>INTERMEDIATE AIRPORTS</b>	
Ada	Norman County – Ada-Twin Valley
Brooten	Brooten Municipal
Buffalo	Buffalo Municipal
Canby	Canby Municipal – Myers Field
Faribault	Faribault Municipal
Fertile	Fertile Municipal
Hector	Hector Municipal
Herman	Herman Municipal
Maple Lake	Maple Lake Municipal
Red Lake Falls	Red Lake Falls Municipal
Rushford	Rushford Municipal
Sauk Centre	Sauk Centre Municipal
Slayton	Slayton Municipal
Stephen	Stephen Municipal

Source: Wilbur Smith Associates.

Prepared: February 2006.

## Approach Capabilities

Facility and service objectives established for this study call for Key Airports to be supported by precision approaches and for Intermediate Airports to be supported by at least non-precision approaches. **Table 6-11** and **Table 6-12**, respectively, show Key Airports that should ideally be supported by a precision approach and Intermediate Airports that should be supported by a non-precision approach. There are a total of 16 airports in the Greater Minnesota airport system that need upgraded approach capabilities to meet this study's facility and service objectives.

**Table 6-11  
Recommended Development – Precision Approaches**

ASSOCIATED CITY	AIRPORT NAME
<b>KEY AIRPORTS</b>	
Austin	Austin Municipal*
Baudette	Baudette International
Ely	Ely Municipal
Willmar	Willmar Municipal*
Winona	Winona Municipal-Max Conrad Field

Source: Wilbur Smith Associates.

Prepared: February 2006.

\*Note: Airport is currently under contract to upgrade approach capabilities.

**Table 6-12  
Recommended Development – Non-Precision Approaches**

ASSOCIATED CITY	AIRPORT NAME
<b>INTERMEDIATE AIRPORTS</b>	
Bagley	Bagley Municipal
Brooten	Brooten Municipal
Fertile	Fertile Municipal
Hector	Hector Municipal
Herman	Herman Municipal
Luverne	Luverne Municipal-Quentin Aanenson
Paynesville	Paynesville Municipal
Red Lake Falls	Red Lake Falls Municipal
Stephen	Stephen Municipal
Tower	Tower Municipal
Tracy	Tracy Municipal

Source: Wilbur Smith Associates.

Prepared: February 2006.

In addition to Key and Intermediate Airports being able to support a published precision or non-precision approach, it is also an objective for these types of airports to have an approach lighting system (ALS) in place. An ALS compliments a published approach by giving the approach more desirable visibility minimums which are very important at airports in Minnesota. Ideally, all Key and Intermediate Airports should be supported by an ALS. There are a total of four (Austin Municipal, Baudette International, Ely Municipal, and Willmar Municipal) Key airports that are recommended to install an ALS. With the exception of Cloquet-Calton County Airport which has an omni directional approach lighting system (ODALS), the remaining 79 Intermediate Airports in Greater Minnesota are recommended to install an ALS system to meet this study's facility and service objectives.

### **On-Site Weather Reporting**

This study's facility and service objectives set a target for all Key Airports and all Intermediate Airports to have on-site weather reporting capabilities. Weather reporting could be provided by either an AWOS or an ASOS. All Key Airports currently have on-site weather reporting

systems. As shown in **Table 6-13**, there are 21 Intermediate Airports whose on-site weather reporting capabilities would need to be upgraded if this study's facility and service objectives for on-site weather reporting are to be met.

**Table 6-13  
Recommended Development – Weather Reporting**

ASSOCIATED CITY	AIRPORT NAME
<b>INTERMEDIATE AIRPORTS</b>	
Ada	Norman County – Ada-Twin Valley
Bagley	Bagley Municipal
Blue Earth	Blue Earth Municipal
Brooten	Brooten Municipal
Caledonia	Houston County
Fertile	Fertile Municipal
Hawley	Hawley Municipal
Hector	Hector Municipal
Herman	Herman Municipal
Le Sueur	Le Sueur Municipal
Long Prairie	Long Prairie Airport-Todd Field
Perham	Perham Municipal
Pinecreek	Piney-Pinecreek Border
Red Lake Falls	Red Lake Falls Municipal
Rushford	Rushford Municipal
Sauk Centre	Sauk Centre Municipal
Springfield	Springfield Municipal
Stephen	Stephen Municipal
Tower	Tower Municipal
Walker	Walker Municipal
Warren	Warren Municipal

Source: Wilbur Smith Associates.  
Prepared: February 2006.

Individual airport summaries identify facilities and services that are desirable at each airport, as determined by study facility and service objectives. The individual airport summaries also reflect actions on the airport specific level that should be considered if the Minnesota airport system is to reach targets for all policy related performance measures that were summarized previously in this chapter.

The individual airport summaries presented at the conclusion of this chapter provide an opportunity to blend top down system planning recommendations with bottom up airport needs. The airport specific summaries also reflect projects, needs, actions and other items that are contained in each airport's most current (January 2006) capital improvement program (CIP) as it is on file with Mn/DOT.

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## DEVELOPMENT COSTS

Costs that are discussed in the final section of this chapter are those that may be incurred to raise the performance of the system to meet identified targets, to resolve deficiencies noted for facility and service objectives, and to implement current CIPs.

Costs reflect those that could be incurred to address system deficiencies, to enable airports to meet facility and service objectives (established in this system planning effort) for their system role, and costs from current airport specific capital improvement plans (CIPs). The scope of this plan does not allow for detailed cost estimates to be developed. To develop costs shown in this final chapter, average unit costs were used. These costs are not reflective of airport specific conditions which might cause costs to be higher or in some limited instances lower. It is most likely that cost estimates provided in this chapter are conservative and that actual costs will exceed these estimates. Inclusion of a project in this document does not commit state or federal funding for that project. It is the role of the airport master plan to develop detailed cost estimates for airport specific projects noted in this document. Further, it should be noted that estimates developed for this system plan are purely estimated costs for planning purposes and actual costs could potentially be higher.

To fully fund all projects identified by this plan, to meet deficiencies related to system policies and performance measures, and planned capital improvement projects that have been identified by study airports, an estimated \$590 million in federal, State, and local funds would be needed over 20 years. **Table 6-14** reflects these costs. It is important to note that the costs reflected in Table 6-14 do not include any costs, system plan or other projects, for the 9 airports in the metropolitan area. As previously mentioned, costs provided in this section have not been developed to the level of detail that would result from master planning, a financial feasibility study, or an engineering study. The costs discussed in this section do provide Mn/DOT with an understanding of the general cost range that could be associated with achieving higher compliance ratings for each of the system performance measures. Cost shown in Table 6-14 would also enable study airports to act on their existing CIPs.

**Table 6-14**  
**Total Development Costs by Airport Classification (In Millions)**

AIRPORT CLASSIFICATION	ESTIMATED COSTS
Key Airports	\$336.8
Intermediate Airports	\$239.7
Landing Strips	\$13.5
<b>Total System</b>	<b>\$590.0</b>

Source: Short Elliott Hendrickson, Inc.

Prepared: March 2006.

Note: Estimated costs may not equal sum due to rounding.

**Table 6-15** identifies estimated costs by project type. It is also worth noting that the costs shown in Table 6-15 will continually change over time. Each time that an airport updates its CIP and each time system plan or airport specific projects are completed, the estimates shown in Table 6-15 will change. It is often difficult to determine specific projects and when they will occur beyond the Short Term and Mid Term planning horizons. Therefore, estimated costs for

the Long Term planning horizon has been summarized by airside and landside development estimated costs and not specific project type. Additionally, the estimated cost to develop the system over the next 20 years is also shown by airside and landside estimated costs.

**Table 6-15  
Total Development Costs by Airport Specific Project Types**

<b>PROJECT TYPE</b>	<b>SHORT TERM (2005-2010)</b>	<b>MID TERM (2011-2015)</b>	<b>LONG TERM (2016-2025)</b>	<b>TOTAL ESTIMATED COST</b>
Runways	\$100,770,900	\$37,301,900		
Taxiways	\$20,190,400	\$25,777,100		
Land Acquisition	\$18,361,600	\$2,502,700		
Pavement Maintenance	\$57,325,700	\$9,672,500		
NAVAIDs/Lighting/Approaches	\$17,509,400	\$2,684,300		
Terminal Area*	\$117,722,700	\$27,247,000		
<b><i>Airside Development Subtotal</i></b>	<b>\$331,880,700</b>	<b>\$105,185,500</b>	<b>\$93,130,400</b>	<b>\$530,196,600</b>
Airport Equipment/Equipment Bldg	\$18,099,200	\$3,606,600		
Security/Fencing	\$9,861,200	\$1,918,800		
Obstruction Removal	\$3,557,100	\$506,000		
Planning/Environmental	\$7,304,200	\$4,620,000		
<b><i>Landside Development Subtotal</i></b>	<b>\$38,821,700</b>	<b>\$10,651,400</b>	<b>\$10,409,900</b>	<b>\$59,883,000</b>
<b><i>Total Development</i></b>	<b>\$370,702,400</b>	<b>\$115,836,900</b>	<b>\$103,540,300</b>	<b>\$590,079,600</b>

Source: Short Elliott Hendrickson, Inc.

Prepared: March 2006.

Note 1/: Terminal Area costs include terminal buildings, aprons, hangars, fuel, auto parking spaces, access road improvements, and miscellaneous utilities.

2/Long Term and Total Estimated Costs do not reflect costs by specific project type but rather by Airside Development and Landside Development totals.

As previously mentioned, projects and costs will continue to change over the 20-year planning period. However, many larger airports in Greater Minnesota have CIPs that extend over this time and these costs were incorporated into the development costs estimated over the life span of the system plan. For those airports that do not have CIPs extending beyond the Short Term and/or Mid Term, their estimated costs are derived from facility and service objectives within the system plan. Further, it should be noted that while the Mid Term and Long Term estimated costs account for nearly 40 percent of the total development, they are conservative estimates and it is likely that these planning horizons will experience actual costs far in excess of what is estimated.

**Tables 6-16 through 6-19** provide cost estimates by airport role and by project type over the planning horizons. These cost estimates are generally reflective of the cost that could be incurred over the next 20 years to enable airports in Minnesota to meet facility and service objectives established by this study, as well as address airport specific CIP projects. Not all projects listed in Table 6-16 are eligible for FAA funding.

**Table 6-16  
Total Development Costs by  
Airport Project Type and Airport Classification**

PROJECT TYPE	KEY AIRPORTS ESTIMATED COST	INTERMEDIATE AIRPORTS ESTIMATED COST	LANDING STRIPS ESTIMATED COST	TOTAL ESTIMATED COST
Airside Development	\$305,382,900	\$212,583,200	\$12,230,500	\$530,196,600
Landside Development	\$31,442,600	\$27,123,900	\$1,316,500	\$59,883,000
<b>Total</b>	<b>\$336,825,500</b>	<b>\$239,707,100</b>	<b>\$13,547,000</b>	<b>\$590,079,600</b>

Source: Short Elliott Hendrickson, Inc.

Prepared: March 2006.

Note: Estimated Costs do not reflect costs by specific project type but rather by Airside Development and Landside Development totals.

**Table 6-17  
Short Term (2005-2010) Development Costs by  
Airport Specific Project Type and Airport Classification**

PROJECT TYPE	KEY AIRPORTS ESTIMATED COST	INTERMEDIATE AIRPORTS ESTIMATED COST	LANDING STRIPS ESTIMATED COST	TOTAL ESTIMATED COST
Runways	\$44,722,900	\$51,523,000	\$4,525,000	\$100,770,900
Taxiways	\$12,384,400	\$7,362,500	\$443,500	\$20,190,400
Land Acquisition	\$16,409,300	\$896,800	\$1,055,500	\$18,361,600
Pavement Maintenance	\$45,927,300	\$10,695,800	\$702,600	\$57,325,700
NAVAIDs/Lighting	\$12,118,900	\$4,392,500	\$998,000	\$17,509,400
Terminal Area*	\$89,289,400	\$26,180,700	\$2,252,600	\$117,722,700
<b>Airside Development Subtotal</b>	<b>\$220,852,200</b>	<b>\$101,051,300</b>	<b>\$9,977,200</b>	<b>\$331,880,700</b>
Airport Equipment/Equipment Bldg	\$15,838,200	\$1,648,700	\$612,300	\$18,099,200
Security/Fencing	\$2,045,800	\$7,783,400	\$32,000	\$9,861,200
Obstruction Removal	\$235,000	\$3,018,900	\$303,200	\$3,557,100
Planning/Environmental	\$4,230,000	\$2,824,200	\$250,000	\$7,304,200
<b>Landside Development Subtotal</b>	<b>\$22,349,000</b>	<b>\$15,275,200</b>	<b>\$1,197,500</b>	<b>\$38,821,700</b>
<b>Total</b>	<b>\$243,201,200</b>	<b>\$116,326,500</b>	<b>\$11,174,700</b>	<b>\$370,702,400</b>

Source: Short Elliott Hendrickson, Inc.

Prepared: March 2006.

Note: Terminal Area costs include terminal buildings, aprons, hangars, fuel, auto parking spaces, access road improvements, and miscellaneous utilities.

**Table 6-18**  
**Mid Term (2011-2015) Development Costs by**  
**Airport Specific Project Type and Airport Classification**

PROJECT TYPE	KEY AIRPORTS ESTIMATED COST	INTERMEDIATE AIRPORTS ESTIMATED COST	LANDING STRIPS ESTIMATED COST	TOTAL ESTIMATED COST
Runways	\$18,133,600	\$19,168,300	\$0	\$37,301,900
Taxiways	\$18,418,800	\$7,358,300	\$0	\$25,777,100
Land Acquisition	\$1,812,700	\$690,000	\$0	\$2,502,700
Pavement Maintenance	\$7,361,000	\$2,305,000	\$6,500	\$9,672,500
NAVAIDs/Lighting	\$350,000	\$2,234,300	\$100,000	\$2,684,300
Terminal Area*	\$17,624,300	\$9,332,700	\$290,000	\$27,247,000
<b>Airside Development Subtotal</b>	<b>\$63,700,400</b>	<b>\$41,088,600</b>	<b>\$396,500</b>	<b>\$105,185,500</b>
Airport Equipment/Equipment Bldg	\$3,217,600	\$360,000	\$29,000	\$3,606,600
Security/Fencing	\$0	\$1,918,800	\$0	\$1,918,800
Obstruction Removal	\$0	\$506,000	\$0	\$506,000
Planning/Environmental	\$2,860,000	\$1,760,000	\$0	\$4,620,000
<b>Landside Development Subtotal</b>	<b>\$6,077,600</b>	<b>\$4,544,800</b>	<b>\$29,000</b>	<b>\$10,651,400</b>
<b>Total</b>	<b>\$69,778,000</b>	<b>\$45,633,400</b>	<b>\$425,500</b>	<b>\$115,836,900</b>

Source: Short Elliott Hendrickson, Inc.

Prepared: February 2006.

Note: Terminal Area costs include terminal buildings, aprons, hangars, fuel, auto parking spaces, access road improvements, and miscellaneous utilities.

**Table 6-19**  
**Long Term (2016-2025) Development Costs by**  
**Airport Project Type and Airport Classification**

PROJECT TYPE	KEY AIRPORTS ESTIMATED COST	INTERMEDIATE AIRPORTS ESTIMATED COST	LANDING STRIPS ESTIMATED COST	TOTAL ESTIMATED COST
Airside Development	\$20,830,300	\$70,443,300	\$1,856,800	\$93,130,400
Landside Development	\$3,016,000	\$7,303,900	\$90,000	\$10,409,900
<b>Total</b>	<b>\$23,846,300</b>	<b>\$77,747,200</b>	<b>\$1,946,800</b>	<b>\$103,540,300</b>

Source: Short Elliott Hendrickson, Inc.

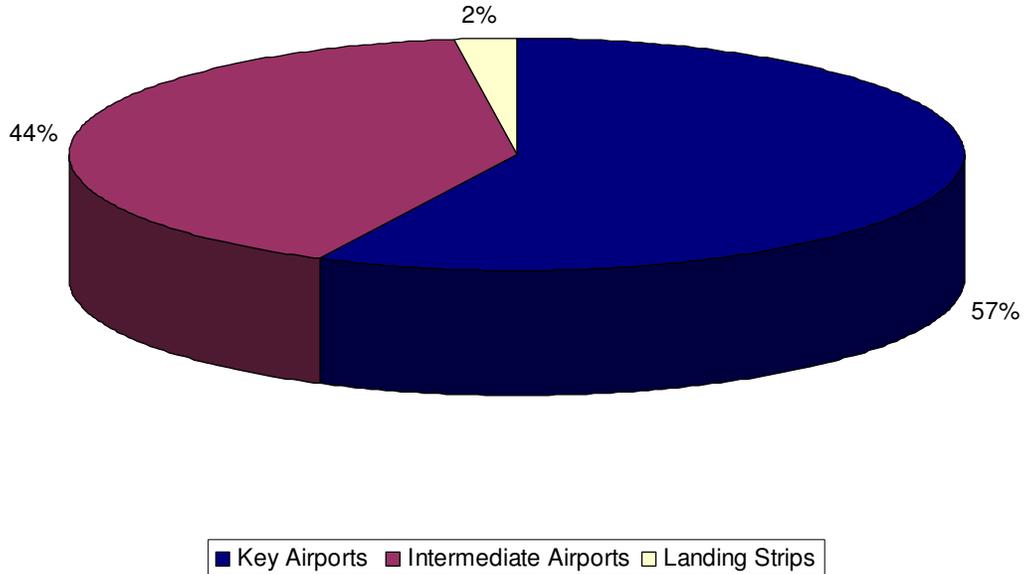
Prepared: March 2006.

Note: Long Term estimated costs do not reflect costs by specific project type but rather by Airside Development and Landside Development totals.

**Exhibit 6-1** summarizes the estimated 20-year costs by airport role. As shown in Exhibit 6-1, 98 percent of these costs could be incurred to raise the level of performance for Key and Intermediate Airports in Minnesota. The remaining 2 percent would be needed to raise the level of performance of Landing Strip airports. Again, it is worth noting, the costs shown in this exhibit do not include any improvements associated with airports in the metropolitan area.

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**Exhibit 6-1**  
**20-Year Development Costs by Airport Role**

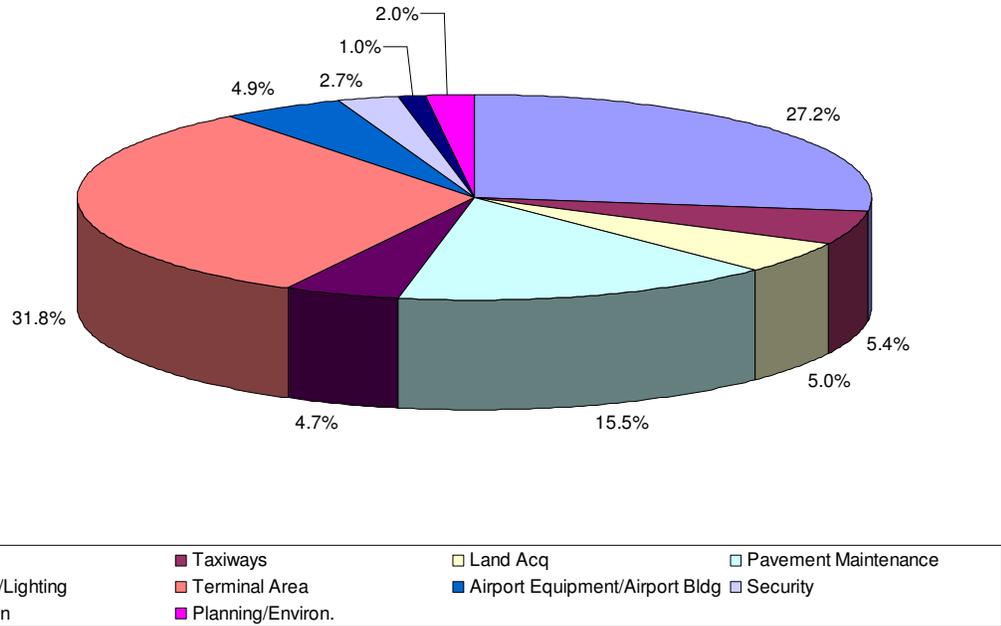


Source: Short Elliott Hendrickson, Inc. and Wilbur Smith Associates.  
Prepared: March 2006.

**Exhibit 6-2** reflects 5-year development costs by specific project type. Terminal area related projects would account for 31.8 percent of the total estimated development costs. Runways and pavement maintenance costs would account for 27.2 and 15.5 percent, respectively, of the 5-year costs, while other costs would account for 25.5 percent of the \$590 million total.

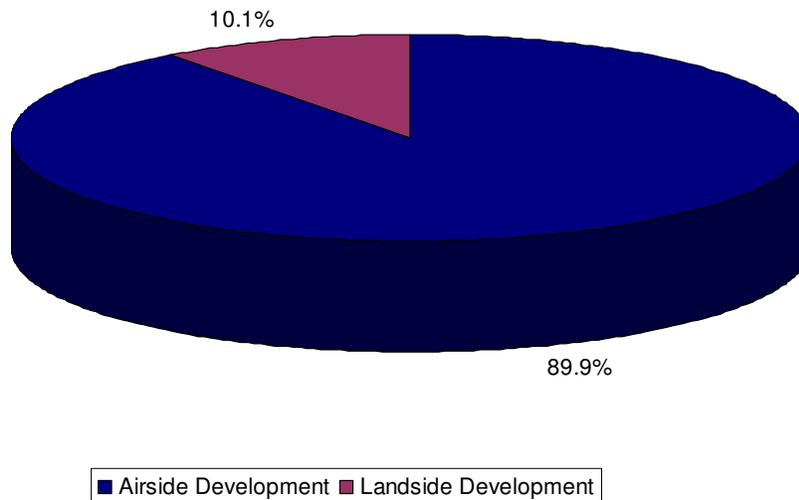
Total development costs by project type are shown in **Exhibit 6-3**. Nearly 90 percent of total development is anticipated to occur on the airside at public airports in Greater Minnesota.

**Exhibit 6-2  
5-Year Development Costs by Specific Project Type**



Source: Short Elliott Hendrickson, Inc. and Wilbur Smith Associates.  
Prepared: March 2006.

**Exhibit 6-3  
20-Year Development Costs by Project Type**



Source: Short Elliott Hendrickson, Inc. and Wilbur Smith Associates.  
Prepared: March 2006.

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## **Funding Needs**

Over the next 20 years, the approximate annual average cost to raise the level of performance of airports in Greater Minnesota would be at least \$29 million. Historically, when federal, State, and local funding sources are all considered each year an average of \$65 million has been invested in airports in Minnesota over the last eight years. It should be noted that \$32.2 million of historical funding has been diverted to Metropolitan Council to invest in the metro area airports with the remaining historical average funding level of \$33.4 million being allocated to airports in Greater Minnesota.

It is likely that the annual funding estimate of \$29 million to maintain and enhance airports in Greater Minnesota is conservative. Actual annual funding needs will almost certainly exceed this estimate. In the past, through federal and state funding streams, Mn/DOT has generally been able to respond to grant requests from system airports. As a result of changes in both the general aviation and the commercial aviation industries, levels of federal and state funding that historically been available for airport development are shrinking. Maintaining historic levels of state funding is vital to the Minnesota airports and to ultimate success of this plan.

The Minnesota Aviation System Plan has identified costs that will be needed to elevate the overall performance of the State's airport system and enable individual airports in the system to fulfill their designated roles. The importance of Minnesota's airports to the economics of the State and the cities and counties is undeniable. The system must be maintained and justifiably expanded to meet the needs of the aviation community, but also meet the economic demands in the State.

## **SUMMARY**

Airports are critical transportation and economic resources to the State and to communities throughout Minnesota. Airports are important economic catalysts that are critical to business development and retention. For Minnesota to meet the vision that has been established for its system of public airports there are many actions that may be considered. The Minnesota Aviation System Plan provides the FAA, Mn/DOT, airports and communities throughout the State with a blueprint for the future.

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## INDIVIDUAL AIRPORT SUMMARY SHEETS

As previously mentioned, the following individual airport summaries contain a summary of the inventory, forecasts, facility/services, and recommended development for each airport by classification. This information will enable each airport to clearly see facilities and services objectives that are recommended in order for the airports to meet their system roles. Further, these summary tables also enable the airports to compare their objectives to the actual facilities and services that they have in place.

### Inventory

Inventory items included:

- *Airport Identifier* – A unique three character code that identifies the airport.
- *Associated City* – The city associated with the airport.
- *County* – The county in which the airport is located.
- *Classification* – The State classification of the airport.
- *Mn/DOT Region* – Location of the airport within the Mn/DOT planning regions: North, South, East, and West.
- *Scheduled Air Service* – Indicates if scheduled commercial air service is available at the airport.
- *Included in the NPIAS* – Indicates if the airport is included in the National Plan of Integrated Airport Systems (NPIAS). Inclusion in the NPIAS is a requirement to receive federal grants for airport improvement projects.
- *Airfield Facilities* – The airfield facilities depict the runway heading, length, width, surface type, lighting, and taxiway type.

### Forecasts

Forecast items included:

- *Based Aircraft* – The number of aircraft, by type, based at the airport in 2005 and the number projected over the 20-year planning period. The “Other” category includes gliders, ultralights, balloons, etc.
- *General Aviation Operations* – The number of general aviation operations, by type, at the airport in 2005 and the activity projected over the 20-year planning period.

### Facility/Service Objectives

Once study airports were grouped into roles, the process of evaluating the Minnesota airport system to identify facilities and services that should ideally be available at airports in the three role classifications was conducted. It is important to note that facility and service objectives delineated in this section are just that, objectives. It is possible that airports may, for a variety of reasons, be unable to comply with certain facility and service objectives for their respective role. An airport’s inability to meet the facility and service objectives for its role does not necessarily preclude that airport from performing that role or function within the system. It is also important to note that the objectives presented are minimums, and that airports with facilities in excess of the objectives will be considered to meet the objective.

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## **Recommended Development**

For each airport, the recommended development and associated estimated costs are presented for each planning horizon (2005-2010, 2011-2015, and 2016-2025). The projects included reflect those project cost estimates that could be incurred to address system deficiencies, to enable airports to meet facility and service objectives for their system role, and costs from current airport specific capital improvement plans (CIPs). Further, inclusion of a project in this document does not commit state or federal funding for that project.

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**Associated City:** Alexandria

**Airport Name:** Alexandria Municipal - Chandler Field

**Airport Identifier:** AXN

**County:** Douglas

**Classification:** Key

**General:**

**MnDOT Region:** West

**Regional Commission:** 4

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	5,100'	100'	Asphalt	MIRL	Full
	04/22	4,099'	75'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	46	7	0	0	0	0	53
<b>2010</b>	46	7	0	0	0	1	54
<b>2015</b>	47	8	0	0	0	1	56
<b>2025</b>	48	8	2	0	0	2	60

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	9,620	16,380	26,000
<b>2010</b>	10,170	17,317	27,488
<b>2015</b>	10,752	18,308	29,060
<b>2025</b>	12,018	20,463	32,481

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Alexandria

**Airport Name:** Alexandria Municipal - Chandler Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

Existing	System Objective	Recommended	
<b>Airside Facilities</b>			
Primary Runway Length	5,100 feet	Minimum 5,000 feet	None
Primary Runway Width	100 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	MIRL	HIRL	HIRL
Taxiway Lighting	Reflectors	MITL	MITL
Weather Reporting	ASOS	AWOS/ASOS	None
Approach Lighting System	ODALS	MALSR	MALSR
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	REILs - Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	35,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	56 spaces	100% of Based Aircraft	5 add'l hangar spaces
Aircraft Apron	10 spaces	100% of Daily Transient	8 add'l apron spaces
General Aviation Terminal/Admin. Building	4,700 sq. ft.	Yes	None
Auto Parking	35 spaces	Paved Spaces Equal to 100% of Based Aircraft	26 add'l auto spaces
Fencing	Perimeter Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

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**Associated City:** Alexandria  
**Airport Name:** Alexandria Municipal Airport- Chandler Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$1,130,000.00
Hangar	**	\$460,000.00
Airport Equipment/Equip Bldg	**	\$200,000.00
Master Plan/ALP	**	\$90,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,880,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Approach Lighting	**	\$275,000.00
Airport Equipment/Equip Bldg	**	\$105,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$500,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$838,000.00
Landside Development	*	\$146,000.00
<i>Subtotal Long Term Costs</i>		<u>\$984,000.00</u>

**Total Cost (2005-2025)** \$3,364,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Austin

**Airport Name:** Austin Municipal

**Airport Identifier:** AUM

**County:** Mower

**Classification:** Key

**General:**

**MnDOT Region:** South

**Regional Commission:** 10

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
18/36	5,800'	100'	Concrete	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	39	4	3	0	0	0	46
2010	39	4	4	0	0	0	47
2015	40	4	4	0	0	0	48
2025	41	5	7	0	0	2	55

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	37,400	17,600	55,000
2010	38,045	17,904	55,949
2015	38,702	18,213	56,914
2025	40,049	18,846	58,895

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Austin

**Airport Name:** Austin Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>
<b>Airside Facilities</b>		
Primary Runway Length	5,800 feet	Minimum 5,000 feet
Primary Runway Width	100 feet	100 feet
Taxiway Type	Full Parallel	Full Parallel
Approach	GPS, VOR	Precision
Runway Lighting	MIRL	HIRL
Taxiway Lighting	MITL	MITL
Weather Reporting	AWOS - 3	AWOS/ASOS
Approach Lighting System	None	MALSR
VGSI	PAPIs - Both Runway Ends	Both Runway Ends
REILs	Both Runway Ends	Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator
Pavement Strength	30,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>		
Covered Aircraft Storage	24 spaces	100% of Based Aircraft
Aircraft Apron	5 spaces	100% of Daily Transient
General Aviation Terminal/Admin. Building	2,520 sq. ft.	Yes
Auto Parking	17 spaces	Paved Spaces Equal to 100% of Based Aircraft
Fencing	Fencing	Perimeter
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment
<b>Services</b>		
Fuel	AvGas & Jet A	100LL & Jet A - 24 Hour
FBO	Full Service	Full Service - 24 Hour
Ground Transportation	Car Rental	Rental Car, Taxi or Other
Food Services	None	Vending
Phone	Phone	Phone
Restrooms	Restroom	Restrooms
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting
Other	Timely Snow Removal	Timely Snow Removal

**Associated City:** Austin  
**Airport Name:** Austin Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Land Acquisition	**	\$200,000.00
Pavement Maintenance	**	\$100,000.00
Approach	**	\$500,000.00
Hangar	**	\$350,000.00
Apron	**	\$2,000,000.00
Airport Equipment/Equip Bldg	**	\$100,000.00
Security/Fencing	**	\$25,000.00
Master Plan/ALP	**	\$50,000.00
<i>Subtotal Short Term Costs</i>		<u>\$3,325,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$120,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,060,000.00
Landside Development	*	\$157,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,217,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$4,662,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Baudette  
**Airport Name:** Baudette International  
**Airport Identifier:** BDE  
**County:** Lake of the Woods  
**Classification:** Key

**General:**

**MnDOT Region:** North  
**Regional Commission:** 2  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
12/30	5,499'	100'	Asphalt	MIRL	Partial

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	18	1	0	0	0	0	19
<b>2010</b>	18	1	0	0	0	1	20
<b>2015</b>	18	1	0	0	0	1	20
<b>2025</b>	19	2	2	0	0	2	25

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	2,210	6,290	8,500
<b>2010</b>	2,259	6,429	8,688
<b>2015</b>	2,309	6,571	8,880
<b>2025</b>	2,412	6,864	9,276

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Baudette

**Airport Name:** Baudette International

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>
<b>Airside Facilities</b>		
Primary Runway Length	5,499 feet	Minimum 5,000 feet
Primary Runway Width	100 feet	100 feet
Taxiway Type	Partial Parallel	Full Parallel
Approach	VOR, GPS	Precision
Runway Lighting	MIRL	HIRL
Taxiway Lighting	MITL	MITL
Weather Reporting	ASOS	AWOS/ASOS
Approach Lighting System	None	MALSR
VGSI	VASIs - Both Runway Ends	Both Runway Ends
REILs	Both Runway Ends	Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator
Other - Pavement Strength	30,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>		
Covered Aircraft Storage	13 spaces	100% of Based Aircraft
Aircraft Apron	14 spaces	100% of Daily Transient
General Aviation Terminal/Admin. Building	1,200 sq. ft.	Yes
Auto Parking	20 spaces	Paved Spaces Equal to 100% of Based Aircraft
Fencing	Perimeter Fencing	Perimeter
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment
<b>Services</b>		
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour
FBO	None	Full Service - 24 Hour
Ground Transportation	Courtesy Car	Rental Car, Taxi or Other
Food Services	Vending	Vending
Phone	Phone	Phone
Restrooms	Restrooms	Restrooms
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting
Other	Timely Snow Removal	Timely Snow Removal

**Associated City:** Baudette  
**Airport Name:** Baudette International

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Lighting	**	\$160,000.00
Pavement Maintenance	**	\$220,000.00
PAPI	**	\$46,000.00
REILS	**	\$24,000.00
Approach	**	\$500,000.00
Hangar	**	\$500,000.00
Fuel	**	\$30,000.00
Airport Equipment/Equip Bldg	**	\$60,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,660,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$120,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,160,000.00
Landside Development	*	\$125,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,285,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,065,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Bemidji  
**Airport Name:** Bemidji Regional  
**Airport Identifier:** BJI  
**County:** Beltrami  
**Classification:** Key

**General:**

**MnDOT Region:** North  
**Regional Commission:** 2  
**Scheduled Air Service:** Yes  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	6,598'	150'	Asphalt	HIRL	Full
	07/25	5,699'	150'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	21	24	9	0	0	0	54
<b>2010</b>	21	25	10	0	0	0	56
<b>2015</b>	22	26	12	0	0	0	60
<b>2025</b>	22	29	18	0	0	0	69

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	4,560	7,440	12,000
<b>2010</b>	4,800	7,831	12,631
<b>2015</b>	5,052	8,243	13,295
<b>2025</b>	5,597	9,132	14,729

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Bemidji

**Airport Name:** Bemidji Regional

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	6,598 feet	Minimum 5,000 feet	None
Primary Runway Width	150 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	MITL	MITL	None
Weather Reporting	AWOS-3	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	33,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	30 spaces	100% of Based Aircraft	39 add'l hangar spaces
Aircraft Apron	36 spaces	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	400 sq.ft..	Yes	None
Auto Parking	300 spaces	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Perimeter Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Car Rental, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

**Associated City:** Bemidji  
**Airport Name:** Bemidji Regional

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$8,228,271.00
Land Acquisition	**	\$350,000.00
Pavement Maintenance	**	\$5,100,800.00
Approach Lighting	**	\$390,000.00
Approach	**	\$650,000.00
Hangar	**	\$2,315,390.00
Apron	**	\$830,700.00
Auto Spaces/Access Road	**	\$4,166,400.00
Terminal	**	\$2,868,699.00
Misc Utilities	**	\$2,632,200.00
Airport Equipment/Equip Bldg	**	\$750,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Short Term Costs</i>		<u>\$28,402,460.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Land Acquisition	**	\$1,500,000.00
Pavement Maintenance	**	\$1,901,000.00
Hangar	**	\$500,000.00
Apron	**	\$830,700.00
Auto Spaces/Access Road	**	\$605,000.00
Fuel	**	\$375,000.00
Airport Equipment/Equip Bldg	**	\$865,000.00
Master Plan/ALP	*	\$220,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$6,796,700.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$450,000.00
Landside Development	*	\$120,000.00
Environmental Assessment	*	
<i>Subtotal Long Term Costs</i>		<u>\$570,000.00</u>

**Total Cost (2005-2025)** \$35,769,160.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Brainerd  
**Airport Name:** Brainerd Lakes Regional  
**Airport Identifier:** BRD  
**County:** Crow Wing  
**Classification:** Key

**General:**

**MnDOT Region:** West  
**Regional Commission:** 5  
**Scheduled Air Service:** Yes  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	16/34	6,500'	150'	Asphalt	HIRL	Full
	05/23	6,500'	150'	Asphalt	HIRL	Full
	12/30	4,082'	75'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	72	6	1	6	0	0	85
<b>2010</b>	73	6	3	7	0	0	89
<b>2015</b>	74	7	4	8	0	0	93
<b>2025</b>	75	7	6	11	0	0	99

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	26,250	11,250	37,500
<b>2010</b>	28,101	12,043	40,144
<b>2015</b>	30,082	12,892	42,974
<b>2025</b>	34,473	14,774	49,247

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Brainerd

**Airport Name:** Brainerd Lakes Regional

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	6,500 feet	Minimum 5,000 feet	None
Primary Runway Width	150 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	MITL	MITL	None
Weather Reporting	ASOS	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	PAPI - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	115,000 lbs. - Dual Wheel	60,000 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	72 spaces	100% of Based Aircraft	27 add'l hangar spaces
Aircraft Apron	45 spaces	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	4,500 sq. ft.	Yes	None
Auto Parking	351 spaces	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Perimeter Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A, MoGas	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Car Rental	Car Rental, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

**Associated City:** Brainerd  
**Airport Name:** Brainerd Lakes Regional

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$2,000,000.00
Taxilane	**	\$280,000.00
Pavement Maintenance	**	\$12,595,000.00
Approach Lighting	**	\$290,800.00
Hangar	**	\$440,000.00
Apron	**	\$75,000.00
Auto Spaces/Access Road	**	\$475,000.00
Airport Equipment/Equip Bldg	**	\$920,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Short Term Costs</i>		<u>\$17,195,800.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$120,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$510,000.00
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$630,000.00</u>

**Total Cost (2005-2025)** \$17,945,800.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Duluth

**Airport Name:** Duluth International

**Airport Identifier:** DLH

**County:** St. Louis

**Classification:** Key

**General:**

**MnDOT Region:** North

**Regional Commission:** 3

**Scheduled Air Service:** Yes

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	09/27	10,152'	150'	Concrete	HIRL	Full
	03/21	5,699'	150'	Asphalt	HIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	50	6	3	1	22	0	82
<b>2010</b>	50	6	3	1	22	0	82
<b>2015</b>	51	7	4	2	23	0	87
<b>2025</b>	52	8	7	3	23	0	93

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	27,027	44,096	71,123
<b>2010</b>	27,146	44,291	71,437
<b>2015</b>	27,266	44,486	71,752
<b>2025</b>	27,507	44,880	72,387

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Duluth

**Airport Name:** Duluth International

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	10,152 feet	Minimum 5,000 feet	None
Primary Runway Width	150 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	MITL	MITL	None
Weather Reporting	ASOS	AWOS/ASOS	None
Approach Lighting System	MALSR/ALSF2	MALSR	None
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	75,000 lbs.	60,000 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	20 spaces	100% of Based Aircraft	73 add'l hangar spaces
Aircraft Apron	60 spaces	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	20,000 sq. ft.	Yes	None
Auto Parking	200 spaces	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Car Rental	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

**Associated City:** Duluth  
**Airport Name:** Duluth International

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$13,512,000.00
Taxiway	**	\$1,680,000.00
Land Acquisition	**	\$1,500,000.00
Pavement Maintenance	**	\$340,000.00
Hangar	**	\$13,860,000.00
Auto Spaces/Access Road	**	\$1,930,000.00
Terminal	**	\$24,650,000.00
Misc Utilities	**	\$300,000.00
Fuel	**	\$4,000.00
Airport Equipment/Equip Bldg	**	\$2,015,000.00
Obstruction Removal	**	\$100,000.00
Master Plan/ALP	**	\$400,000.00
<i>Subtotal Short Term Costs</i>		<u>\$60,291,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$8,400,000.00
Taxiway	**	\$18,000,000.00
Pavement Maintenance	**	\$4,400,000.00
Hangar	**	\$5,000,000.00
Apron	**	\$1,655,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$37,575,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$6,300,000.00
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$6,420,000.00</u>

**Total Cost (2005-2025)** \$104,286,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Ely  
**Airport Name:** Ely Municipal  
**Airport Identifier:** ELO  
**County:** St. Louis  
**Classification:** Key

**General:**

**MnDOT Region:** North  
**Regional Commission:** 3  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
12/30	5,600'	100'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	23	1	0	0	0	0	24
<b>2010</b>	23	1	0	0	0	0	24
<b>2015</b>	24	1	0	0	0	0	25
<b>2025</b>	24	2	1	0	0	0	27

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	1,890	1,110	3,000
<b>2010</b>	1,898	1,115	3,013
<b>2015</b>	1,907	1,120	3,027
<b>2025</b>	1,924	1,130	3,053

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Ely

**Airport Name:** Ely Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	5,600 feet	Minimum 5,000 feet	None
Primary Runway Width	100 feet	100 feet	None
Taxiway Type	Stub	Full Parallel	Full Parallel
Approach	VOR/DME	Precision	Precision Approach
Runway Lighting	MIRL	HIRL	HIRL
Taxiway Lighting	Reflectors	MITL	MITL
Weather Reporting	AWOS-3	AWOS/ASOS	None
Approach Lighting System	None	MALSR	MALSR
VGSI	PAPIs - Both Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	30 spaces	100% of Based Aircraft	None
Aircraft Apron	15 spaces	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	2,000 sq. ft.	Yes	None
Auto Parking	80 spaces	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Limited	Full Service - 24 Hour	Full Service FBO
Ground Transportation	Car Rental, Taxi	Rental Car, Taxi or Other	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

**Associated City:** Ely  
**Airport Name:** Ely Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxiway	**	\$3,507,343.00
Land Acquisition	**	\$110,000.00
Pavement Maintenance	**	\$410,000.00
Hangar	**	\$451,500.00
Apron	**	\$123,550.00
Auto Spaces/Access Road	**	\$55,000.00
Fuel	**	\$25,000.00
Airport Equipment/Equip Bldg	**	\$60,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Short Term Costs</i>		<u>\$4,862,393.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$2,393,550.00
Taxiway	**	\$418,758.00
Land Acquisition	**	\$262,740.00
Auto Spaces/Access Road	**	\$2,000.00
Master Plan/ALP	*	\$120,000.00
Environmental Assessment	**	
<i>Subtotal Mid Term Costs</i>		<u>\$3,197,048.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,318,000.00
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,438,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$9,497,441.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Fairmont

**Airport Name:** Fairmont Municipal

**Airport Identifier:** FRM

**County:** Martin

**Classification:** Key

**General:**

**MnDOT Region:** South

**Regional Commission:** 9

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	5,502'	100'	Asphalt	HIRL	Full
	02/20	3,300'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	18	2	1	0	1	0	22
<b>2010</b>	18	2	1	0	1	0	22
<b>2015</b>	18	2	1	0	1	0	22
<b>2025</b>	19	2	3	0	1	1	26

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	2,100	2,900	5,000
<b>2010</b>	2,100	2,900	5,000
<b>2015</b>	2,100	2,900	5,000
<b>2025</b>	2,100	2,900	5,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Fairmont

**Airport Name:** Fairmont Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	5,505 feet	Minimum 5,000 feet	None
Primary Runway Width	100 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	MITL	MITL	None
Weather Reporting	AWOS-3	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	35,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	24	100% of Based Aircraft	2 add'l hangar spaces
Aircraft Apron	20	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	180	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service	Full Service - 24 Hour	None
Ground Transportation	Car Rental, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

**Associated City:** Fairmont  
**Airport Name:** Fairmont Municipal Airport

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Lighting	**	\$150,000.00
Land Acquisition	**	\$93,300.00
Pavement Maintenance	**	\$750,000.00
PAPI	**	\$46,000.00
REILS	**	\$24,000.00
Rotating Beacon	**	\$35,000.00
Approach Lighting	**	\$160,000.00
Hangar	**	\$115,000.00
Misc Utilities	**	\$230,000.00
Airport Equipment/Equip Bldg	**	\$150,000.00
Obstruction Removal	**	\$135,000.00
Master Plan/ALP	**	\$35,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,923,300.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$120,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$120,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,163,300.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Fergus Falls

**Airport Name:** Fergus Falls Municipal - Einar Mickelson Field

**Airport Identifier:** FFM

**County:** Otter Tail

**Classification:** Key

**General:**

**MnDOT Region:** West

**Regional Commission:** 4

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	5,639'	100'	Asphalt	MIRL	Full
	17/35	3,301'	75'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	35	6	0	0	4	0	45
<b>2010</b>	35	6	0	0	4	1	46
<b>2015</b>	36	7	0	0	4	1	48
<b>2025</b>	37	7	1	0	4	2	51

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	5,874	3,026	8,900
<b>2010</b>	6,046	3,115	9,161
<b>2015</b>	6,223	3,206	9,429
<b>2025</b>	6,593	3,396	9,989

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Fergus Falls

**Airport Name:** Fergus Falls Municipal - Einar Mickelson Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	5,639 feet	Minimum 5,000 feet	None
Primary Runway Width	100 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	MIRL	HIRL	HIRL
Taxiway Lighting	LITL	MITL	MITL
Weather Reporting	AWOS-3	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	50	100% of Based Aircraft	1 add'l hangar space
Aircraft Apron	10	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	1,300 sq. ft.	Yes	None
Auto Parking	30	Paved Spaces Equal to 100% of Based Aircraft	21 add'l auto spaces
Fencing	Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Taxi, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Yes	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

**Associated City:** Fergus Falls  
**Airport Name:** Fergus Falls Municipal-Einar Mickelson Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$360,000.00
Hangar	**	\$500,000.00
Auto Spaces/Access Road	**	\$200,000.00
Misc Utilities	**	\$195,000.00
Fuel	**	\$60,000.00
Airport Equipment/Equip Bldg	**	\$460,000.00
Security/Fencing	**	\$10,000.00
Master Plan/ALP	**	\$120,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,905,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Apron	**	\$500,000.00
Airport Equipment/Equip Bldg	**	\$750,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$1,370,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$571,600.00
Landside Development	*	\$146,000.00
<i>Subtotal Long Term Costs</i>		<u>\$717,600.00</u>

<b>Total Cost (2005-2025)</b>		<u><u>\$3,992,600.00</u></u>
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\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Grand Rapids

**Airport Name:** Grand Rapids - Itasca County Gordon Newstrom Field

**Airport Identifier:** GPZ

**County:** Itasca

**Classification:** Key

**General:**

**MnDOT Region:** East

**Regional Commission:** 3

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	16/34	5,755'	100'	Asphalt	HIRL	Full
	04/22	2,968'	150'	Turf	None	None
	10/28	1,455'	150'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	77	2	1	1	0	0	81
<b>2010</b>	78	2	2	1	0	0	83
<b>2015</b>	79	2	2	1	0	0	84
<b>2025</b>	81	2	4	2	0	2	91

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	19,500	5,500	25,000
<b>2010</b>	20,007	5,643	25,650
<b>2015</b>	20,527	5,790	26,316
<b>2025</b>	21,608	6,094	27,702

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Grand Rapids

**Airport Name:** Grand Rapids - Itasca County Gordon Newstrom Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	5,755 feet	Minimum 5,000 feet	None
Primary Runway Width	100 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	LITL	MITL	MITL
Weather Reporting	AWOS-3	AWOS/ASOS	None
Approach Lighting System	MALSR - Runway 34	MALSR	None
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	30,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	34	100% of Based Aircraft	57 add'l hangar spaces
Aircraft Apron	30	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	10,000 sq. ft.	Yes	None
Auto Parking	150	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Rental Car, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	none	Phone	Phone
Restrooms	Restrooms	Yes	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

**Associated City:** Grand Rapids  
**Airport Name:** Grand Rapids/Gordon Newstrom Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$1,450,000.00
Pavement Maintenance	**	\$1,125,000.00
Rotating Beacon	**	\$13,120.00
Hangar	**	\$400,000.00
Terminal	**	\$175,000.00
Airport Equipment/Equip Bldg	**	\$525,000.00
Security/Fencing	**	\$200,000.00
Master Plan/ALP	**	\$50,000.00
<i>Subtotal Short Term Costs</i>		<u>\$3,938,120.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$500,000.00
Apron	**	\$75,000.00
Fuel	**	\$200,000.00
Airport Equipment/Equip Bldg	**	\$1,427,562.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$2,322,562.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$2,004,200.00
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$2,124,200.00</u>

**Total Cost (2005-2025)** \$8,384,882.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Hibbing

**Airport Name:** Chisholm - Hibbing Municipal

**Airport Identifier:** HIB

**County:** St. Louis

**Classification:** Key

**General:**

**MnDOT Region:** North

**Regional Commission:** 3

**Scheduled Air Service:** Yes

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	6,758'	150'	Asphalt	HIRL	Partial
	04/22	3,075'	75'	Asphalt	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	44	3	0	0	0	0	47
<b>2010</b>	44	3	0	0	0	0	47
<b>2015</b>	45	3	0	0	0	0	48
<b>2025</b>	46	4	1	0	0	0	51

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	4,050	8,222	12,272
<b>2010</b>	4,068	8,259	12,326
<b>2015</b>	4,086	8,295	12,381
<b>2025</b>	4,122	8,368	12,490

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Hibbing

**Airport Name:** Chisholm - Hibbing Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	6,758 feet	Minimum 5,000 feet	None
Primary Runway Width	150 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	None	MITL	MITL
Weather Reporting	ASOS	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	45 spaces	100% of Based Aircraft	6 add'l hangar spaces
Aircraft Apron	22 spaces	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	1,600 sq. ft.	Yes	None
Auto Parking	300 spaces	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Car Rental, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

**Associated City:** Hibbing  
**Airport Name:** Chisholm-Hibbing Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$3,500,000.00
Taxiway	**	\$1,700,000.00
Taxilane	**	\$105,000.00
Taxiway Lighting	**	\$120,000.00
Land Acquisition	**	\$150,000.00
Pavement Maintenance	**	\$4,650,000.00
Hangar	**	\$460,600.00
Terminal	**	\$2,400,000.00
Fuel	**	\$200,000.00
Airport Equipment/Equip Bldg	**	\$2,800,000.00
Master Plan/ALP	**	\$10,000.00
Environmental Assessment	**	\$250,000.00
<i>Subtotal Short Term Costs</i>		<u>\$16,345,600.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$120,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$120,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$16,585,600.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Falls  
**Airport Name:** International Falls  
**Airport Identifier:** INL  
**County:** Koochiching  
**Classification:** Key

**General:**

**MnDOT Region:** North  
**Regional Commission:** 3  
**Scheduled Air Service:** Yes  
**Included in the NPIAS:** No

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	6,508'	150'	Asphalt	HIRL	Full
	04/22	2,999'	75'	Asphalt	None	Partial

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	35	1	0	0	0	0	36
<b>2010</b>	35	1	0	0	0	0	36
<b>2015</b>	36	1	0	0	0	0	37
<b>2025</b>	37	1	0	0	0	0	38

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	6,450	8,550	15,000
<b>2010</b>	6,450	8,550	15,000
<b>2015</b>	6,450	8,550	15,000
<b>2025</b>	6,450	8,550	15,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Falls

**Airport Name:** International Falls

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	6,508 feet	Minimum 5,000 feet	None
Primary Runway Width	150 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	Reflectors - Summer	MITL	MITL
Weather Reporting	ASOS	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	100,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	24	100% of Based Aircraft	14 add'l hangar spaces
Aircraft Apron	41	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	2,500 sq. ft.	Yes	None
Auto Parking	180	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Rental Car, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Yes	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

**Associated City:** Falls  
**Airport Name:** Falls International

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxilane	**	\$1,500,000.00
Taxiway Lighting	**	\$50,000.00
Land Acquisition	**	\$200,000.00
Pavement Maintenance	**	\$180,000.00
Hangar	**	\$220,000.00
Apron	**	\$50,000.00
Terminal	**	\$1,550,000.00
Airport Equipment/Equip Bldg	**	\$1,490,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Short Term Costs</i>		<u>\$5,360,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Land Acquisition	**	\$50,000.00
Pavement Maintenance	**	\$50,000.00
Hangar	**	\$1,000,000.00
Airport Equipment/Equip Bldg	**	\$50,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$1,270,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$440,000.00
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$560,000.00</u>

**Total Cost (2005-2025)** \$7,190,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Mankato

**Airport Name:** Mankato Regional - Sohler Field

**Airport Identifier:** MKT

**County:** Blue Earth

**Classification:** Key

**General:**

**MnDOT Region:** South

**Regional Commission:** 9

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	15/33	5,400'	100'	Asphalt	HIRL	Full
	04/22	3,999'	75'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	70	8	6	1	5	0	90
<b>2010</b>	71	8	7	1	5	0	92
<b>2015</b>	72	9	9	1	6	0	97
<b>2025</b>	73	10	14	2	6	2	107

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	43,920	28,080	72,000
<b>2010</b>	45,119	28,847	73,966
<b>2015</b>	46,351	29,634	75,986
<b>2025</b>	48,917	31,275	80,192

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Mankato

**Airport Name:** Mankato Regional - Sohler Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	5,400 feet	Minimum 5,000 feet	None
Primary Runway Width	100 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	LITL	MITL	MITL
Weather Reporting	AWOS-3	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	40,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	80	100% of Based Aircraft	26 add'l hangar spaces
Aircraft Apron	22	100% of Daily Transient	23 add'l apron spaces
General Aviation Terminal/Admin. Building	15,300 sq. ft.	Yes	None
Auto Parking	290	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Perimeter Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Car Rental, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Yes	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

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**Associated City:** Mankato

**Airport Name:** Mankato Regional - Sohler Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
Runway Length	**	\$2,630,000.00
Runway Lighting	**	\$60,000.00
Land Acquisition	**	\$2,550,000.00
Pavement Maintenance	**	\$4,400,000.00
PAPI	**	\$180,000.00
Hangar	**	\$1,830,000.00
Terminal	**	\$240,000.00
Airport Equipment/Equip Bldg	**	\$523,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Short Term Costs</i>		<u>\$12,533,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
Runway Length	**	\$4,900,000.00
Control Tower	**	\$3,200,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$8,100,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
Airside Development	*	\$1,190,500.00
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,310,500.00</u>

**Total Cost (2005-2025)** \$21,943,500.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Marshall

**Airport Name:** Southwest Minnesota Regional - Ryan Field

**Airport Identifier:** MML

**County:** Lyon

**Classification:** Key

**General:**

**MnDOT Region:** West

**Regional Commission:** 8

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	12/30	5,010'	100'	Asphalt	HIRL	Full
	02/20	3,205'	75'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	27	3	2	0	0	0	32
<b>2010</b>	27	3	2	0	0	0	32
<b>2015</b>	28	3	3	0	0	0	34
<b>2025</b>	28	4	5	0	0	0	37

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	8,454	14,394	22,848
<b>2010</b>	8,491	14,457	22,948
<b>2015</b>	8,528	14,521	23,049
<b>2025</b>	8,603	14,648	23,251

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Marshall

**Airport Name:** Southwest Minnesota Regional - Ryan Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	5,010 feet	Minimum 5,000 feet	None
Primary Runway Width	100 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	LITL	MITL	MITL
Weather Reporting	AWOS-3	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	30,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	27	100% of Based Aircraft	9 add'l hangar spaces
Aircraft Apron	20	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	14,500 sq. ft.	Yes	None
Auto Parking	140	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Car Rental, Taxi	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Yes	None
Pilot Lounge	Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting
Other	Timely Snow Removal	Timely Snow Removal	None

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**Associated City:** Marshall

**Airport Name:** Southwest Minnesota Regional - Ryan Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
Runway Length	**	\$3,000,000.00
Land Acquisition	**	\$750,000.00
Pavement Maintenance	**	\$165,000.00
Approach	**	\$350,000.00
Control Tower	**	\$1,500,000.00
Hangar	**	\$1,765,000.00
Terminal	**	\$2,130,000.00
Airport Equipment/Equip Bldg	**	\$1,326,200.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Short Term Costs</i>		<u>\$11,206,200.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$120,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
Airside Development	*	\$264,000.00
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$384,000.00</u>

**Total Cost (2005-2025)** \$11,710,200.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Owatonna

**Airport Name:** Owatonna - Degner Regional

**Airport Identifier:** OWA

**County:** Steele

**Classification:** Key

**General:**

**MnDOT Region:** South

**Regional Commission:** 10

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
12/30	5,500'	100'	Concrete	HIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	45	3	0	0	2	0	50
2010	45	3	0	0	2	1	51
2015	46	3	1	0	2	1	53
2025	47	4	2	0	2	3	58

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	12,480	11,520	24,000
2010	12,846	11,858	24,705
2015	13,223	12,206	25,430
2025	14,011	12,933	26,945

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Owatonna

**Airport Name:** Owatonna - Degner Regional

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	5,500 feet	Minimum 5,000 feet	None
Primary Runway Width	100 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	LITL	MITL	MITL
Weather Reporting	AWOS -3	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	30,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	65	100% of Based Aircraft	None
Aircraft Apron	12	100% of Daily Transient	3 add'l apron spaces
General Aviation Terminal/Admin. Building	3,800	Yes	None
Auto Parking	77	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Car Rental, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Yes	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

**Associated City:** Owatonna  
**Airport Name:** Owatonna - Degner Regional

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$3,482,632.00
Land Acquisition	**	\$157,000.00
Hangar	**	\$375,000.00
Apron	**	\$550,000.00
Misc Utilities	**	\$20,000.00
Airport Equipment/Equip Bldg	**	\$340,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Short Term Costs</i>		<u>\$5,044,632.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Hangar	**	\$500,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$620,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$324,500.00
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$444,500.00</u>

**Total Cost (2005-2025)** \$6,109,132.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Park Rapids

**Airport Name:** Park Rapids Municipal - Konshok Field

**Airport Identifier:** PKD

**County:** Hubbard

**Classification:** Key

**General:**

**MnDOT Region:** West

**Regional Commission:** 2

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	5,498'	100'	Asphalt	MIRL	Full
	17/35	3,190	140'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	28	2	1	0	0	0	31
<b>2010</b>	28	2	1	0	0	0	31
<b>2015</b>	29	2	1	0	0	0	32
<b>2025</b>	29	2	3	0	0	0	34

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	1,000	1,000	2,000
<b>2010</b>	1,057	1,057	2,114
<b>2015</b>	1,117	1,117	2,235
<b>2025</b>	1,249	1,249	2,497

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Park Rapids

**Airport Name:** Park Rapids Municipal - Konshok Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	5,498 feet	Minimum 5,000 feet	None
Primary Runway Width	100 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	MIRL	HIRL	None
Taxiway Lighting	MITL	MITL	None
Weather Reporting	ASOS	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	PAPI	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	20,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	44	100% of Based Aircraft	None
Aircraft Apron	12	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	6,400 sq. ft	Yes	None
Auto Parking	50	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Car Rental, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Yes	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

**Associated City:** Park Rapids  
**Airport Name:** Park Rapids Municipal-Konshok Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$1,000,000.00
Taxiway	**	\$110,000.00
Pavement Maintenance	**	\$225,000.00
Apron	**	\$350,000.00
Auto Spaces/Access Road	**	\$75,000.00
Misc Utilities	**	\$268,000.00
Fuel	**	\$50,000.00
Airport Equipment/Equip Bldg	**	\$78,000.00
Security/Fencing	**	\$100,000.00
Master Plan/ALP	*	\$120,000.00
Environmental Assessment	**	\$40,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,416,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Lighting	**	\$75,000.00
Hangar	**	\$526,600.00
Airport Equipment/Equip Bldg	**	\$5,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$726,600.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$60,000.00
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$180,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,322,600.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Red Wing  
**Airport Name:** Red Wing Regional  
**Airport Identifier:** RGK  
**County:** Goodhue  
**Classification:** Key

**General:**

**MnDOT Region:** South  
**Regional Commission:** 10  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
09/27	5,010'	100'	Asphalt	HIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	48	3	1	1	3	0	56
2010	48	3	1	1	3	0	56
2015	49	3	1	2	3	0	58
2025	50	4	2	3	3	2	64

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	6,020	7,980	14,000
2010	6,227	8,254	14,481
2015	6,440	8,537	14,978
2025	6,890	9,134	16,024

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Red Wing

**Airport Name:** Red Wing Regional

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	5,010 feet	Minimum 5,000 feet	None
Primary Runway Width	100 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	MITL	MITL	None
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	30,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	60	100% of Based Aircraft	4 add'l hangar spaces
Aircraft Apron	34	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	2,500 sq. ft.	Yes	None
Auto Parking	50	Paved Spaces Equal to 100% of Based Aircraft	14 add'l auto spaces
Fencing	None	Perimeter	Fencing
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Car Rental, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Yes	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

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**Associated City:** Red Wing  
**Airport Name:** Red Wing Regional

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Land Acquisition	**	\$719,000.00
Pavement Maintenance	**	\$35,000.00
Hangar	**	\$200,000.00
Apron	**	\$741,000.00
Auto Spaces/Access Road	**	\$40,000.00
Terminal	**	\$150,000.00
Airport Equipment/Equip Bldg	**	\$90,000.00
Master Plan/ALP	**	\$50,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,025,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$120,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$120,000.00
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$240,000.00</u>

**Total Cost (2005-2025)** \$2,385,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Rochester  
**Airport Name:** Rochester International  
**Airport Identifier:** RST  
**County:** Olmsted  
**Classification:** Key

**General:**

**MnDOT Region:** South  
**Regional Commission:** 10  
**Scheduled Air Service:** Yes  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	9,033'	150'	Concrete	HIRL	Full
	02/20	7,300'	150'	Concrete	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	40	5	2	0	0	0	47
<b>2010</b>	40	5	2	0	0	1	48
<b>2015</b>	41	6	3	0	0	1	51
<b>2025</b>	42	7	5	0	0	2	56

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	42,828	26,249	69,077
<b>2010</b>	45,852	28,103	73,955
<b>2015</b>	49,090	30,087	79,177
<b>2025</b>	56,268	34,487	90,755

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Rochester

**Airport Name:** Rochester International

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	9,033 feet	Minimum 5,000 feet	None
Primary Runway Width	150 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	Stud	MITL	MITL
Weather Reporting	ASOS	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	VGSI's - Both Runway Ends	Both Runway Ends	None
REILs	MALSR	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	100,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	80	100% of Based Aircraft	None
Aircraft Apron	75	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	7800 sq. ft.	Yes	None
Auto Parking	500	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Car Rental, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Resturant, Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Yes	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

**Associated City:** Rochester  
**Airport Name:** Rochester International

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Lighting	**	\$900,000.00
Taxiway Lighting	**	\$1,300,000.00
Pavement Maintenance	**	\$700,000.00
Approach	**	\$1,300,000.00
Terminal	**	\$1,525,000.00
Misc Utilities	**	\$540,000.00
Airport Equipment/Equip Bldg	**	\$2,350,000.00
Security/Fencing	**	\$1,280,750.00
Master Plan/ALP	**	\$600,000.00
<i>Subtotal Short Term Costs</i>		<u>\$10,495,750.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$120,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$120,000.00</u>

<b>Total Cost (2005-2025)</b>		<u><u>\$10,735,750.00</u></u>
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\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** St. Cloud  
**Airport Name:** St. Cloud Regional  
**Airport Identifier:** STC  
**County:** Sherburne  
**Classification:** Key

**General:**

**MnDOT Region:** South  
**Regional Commission:** 7W  
**Scheduled Air Service:** Yes  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	7,000'	150'	Concrete	HIRL	Full
	05/23	3,000'	75'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	87	10	1	2	0	0	100
<b>2010</b>	88	10	2	2	0	7	109
<b>2015</b>	90	12	2	2	0	9	115
<b>2025</b>	100	13	7	4	0	16	140

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	44,016	31,874	75,890
<b>2010</b>	49,197	35,625	84,822
<b>2015</b>	54,988	39,819	94,806
<b>2025</b>	68,694	49,744	118,438

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** St. Cloud

**Airport Name:** St. Cloud Regional

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	7,000 feet	Minimum 5,000 feet	None
Primary Runway Width	150 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	MITL	MITL	None
Weather Reporting	ASOS	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	MALSR	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	75,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	95	100% of Based Aircraft	45 add'l hangar spaces
Aircraft Apron	20	100% of Daily Transient	47 add'l apron spaces
General Aviation Terminal/Admin. Building	2,400	Yes	None
Auto Parking	525	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Car Rental, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Resturant, Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Yes	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

**Associated City:** St. Cloud  
**Airport Name:** St. Cloud Regional

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$350,000.00
Taxiway	**	\$2,380,000.00
Runway Lighting	**	\$155,000.00
Land Acquisition	**	\$9,000,000.00
Pavement Maintenance	**	\$4,025,000.00
Approach	**	\$1,275,000.00
Hangar	**	\$495,000.00
Auto Spaces/Access Road	**	\$100,000.00
Misc Utilities	**	\$4,000,000.00
Airport Equipment/Equip Bldg	**	\$375,000.00
Environmental Assessment	**	\$600,000.00
<i>Subtotal Short Term Costs</i>		<u>\$22,755,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$120,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,684,500.00
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,804,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$24,679,500.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Thief River Falls  
**Airport Name:** Thief River Falls Regional  
**Airport Identifier:** TVF  
**County:** Pennington  
**Classification:** Key

**General:**

**MnDOT Region:** North  
**Regional Commission:** 1  
**Scheduled Air Service:** Yes  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	6,503'	150'	Asphalt	HIRL	Full
	03/21	4,998'	75'	Asphalt	LIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	19	3	2	0	0	0	24
<b>2010</b>	19	3	2	0	0	0	24
<b>2015</b>	19	3	3	0	0	0	25
<b>2025</b>	20	4	5	0	0	2	31

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	12,659	25,701	38,360
<b>2010</b>	12,759	25,904	38,663
<b>2015</b>	12,860	26,109	38,968
<b>2025</b>	13,064	26,523	39,587

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Thief River Falls

**Airport Name:** Thief River Falls Regional

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	6,503 feet	Minimum 5,000 feet	None
Primary Runway Width	150 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	MITL	MITL	None
Weather Reporting	AWOS-3	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	VASIs - Both Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	75,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	23	100% of Based Aircraft	7 add'l hangar spaces
Aircraft Apron	9	100% of Daily Transient	13 add'l hangar spaces
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	75	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Car Rental, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Yes	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

**Associated City:** Thief River Falls  
**Airport Name:** Thief River Falls Regional

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$4,000,000.00
Runway Lighting	**	\$290,000.00
Land Acquisition	**	\$200,000.00
Pavement Maintenance	**	\$2,000,000.00
Approach	**	\$1,000,000.00
Hangar	**	\$1,260,000.00
Apron	**	\$700,000.00
Auto Spaces/Access Road	**	\$520,000.00
Airport Equipment/Equip Bldg	**	\$980,000.00
Master Plan/ALP	*	\$120,000.00
Environmental Assessment	**	\$75,000.00
<i>Subtotal Short Term Costs</i>		<u>\$11,145,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$120,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$120,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$11,385,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Warroad

**Airport Name:** Warroad International - Swede Carlson Field

**Airport Identifier:** RRT

**County:** Roseau

**Classification:** Key

**General:**

**MnDOT Region:** North

**Regional Commission:** 1

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	5,400'	100'	Asphalt	HIRL	Full
	04/22	3,000'	150'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	10	3	1	0	0	0	14
<b>2010</b>	10	3	1	0	0	1	15
<b>2015</b>	10	3	1	0	0	1	15
<b>2025</b>	10	4	2	0	0	2	18

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	1,407	693	2,100
<b>2010</b>	1,460	719	2,178
<b>2015</b>	1,514	746	2,260
<b>2025</b>	1,629	802	2,432

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Warroad

**Airport Name:** Warroad International - Swede Carlson Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	5,400 feet	Minimum 5,000 feet	None
Primary Runway Width	100 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS/DME	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	Reflectors	MITL	MITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	30,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	25	100% of Based Aircraft	None
Aircraft Apron	13	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	1,500	Yes	None
Auto Parking	45	Paved Spaces Equal to 100% of Based Aircraft	None
Fencing	Fencing	Perimeter	None
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Car Rental, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Yes	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

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**Associated City:** Warroad

**Airport Name:** Warroad International - Swede Carlson Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Pavement Maintenance	**	\$286,000.00
Hangar	**	\$400,000.00
Terminal	**	\$317,000.00
Misc Utilities	**	\$300,000.00
Airport Equipment/Equip Bldg	**	\$246,000.00
Security/Fencing	**	\$330,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,999,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$1,000,000.00
Pavement Maintenance	**	\$10,000.00
Terminal	**	\$300,000.00
Fuel	**	\$105,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$1,535,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$280,000.00
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$400,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,934,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Willmar

**Airport Name:** Willmar Municipal - John L. Rice Field

**Airport Identifier:** ILL

**County:** Kandiyohi

**Classification:** Key

**General:**

**MnDOT Region:** West

**Regional Commission:** 6E

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	10/28	5,700'	100'	Asphalt	MIRL	Full
	18/36	3,450'	250'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	42	2	1	1	0	0	46
<b>2010</b>	42	2	1	1	0	2	48
<b>2015</b>	43	2	1	1	0	3	50
<b>2025</b>	44	2	2	2	0	5	55

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	12,851	5,249	18,100
<b>2010</b>	13,283	5,425	18,708
<b>2015</b>	13,729	5,608	19,337
<b>2025</b>	14,668	5,991	20,659

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Willmar

**Airport Name:** Willmar Municipal - John L. Rice Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>
<b>Airside Facilities</b>		
Primary Runway Length	5,700 feet	Minimum 5,000 feet
Primary Runway Width	100 feet	100 feet
Taxiway Type	Full Parallel	Full Parallel
Approach	GPS, Localizer, VOR	Precision
Runway Lighting	MIRL	HIRL
Taxiway Lighting	MITL	MITL
Weather Reporting	AWOS - 3	AWOS/ASOS
Approach Lighting System	None	MALSR
VGSI	VASIs - Both Runway Ends	Both Runway Ends
REILs	Runway 10	Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator
Other - Pavement Strength	24,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>		
Covered Aircraft Storage	25	100% of Based Aircraft
Aircraft Apron	17	100% of Daily Transient
General Aviation Terminal/Admin. Building	6,500	Yes
Auto Parking	50	Paved Spaces Equal to 100% of Based Aircraft
Fencing	Perimeter Fencing	Perimeter
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment
<b>Services</b>		
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour
FBO	Full Service - 24 Hour	Full Service - 24 Hour
Ground Transportation	Car Rental, Courtesy Car	Rental Car, Taxi or Other
Food Services	Vending	Vending
Phone	Phone	Phone
Restrooms	Restrooms	Yes
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting
Other	Timely Snow Removal	Timely Snow Removal

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**Associated City:** Willmar

**Airport Name:** Willmar Municipal - John L. Rice Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$1,570,000.00
Hangar	**	\$1,575,000.00
Apron	**	\$800,000.00
Auto Spaces/Access Road	**	\$200,000.00
Fuel	**	\$300,000.00
Master Plan/ALP	**	\$85,000.00
Environmental Assessment	**	\$40,000.00
<i>Subtotal Short Term Costs</i>		<u>\$4,570,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$1,440,000.00
Hangar	**	\$2,250,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$3,810,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$75,000.00
Landside Development	*	\$120,000.00
<i>Subtotal Long Term Costs</i>		<u>\$195,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$8,575,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Winona

**Airport Name:** Winona Municipal - Max Conrad Field

**Airport Identifier:** ONA

**County:** Winona

**Classification:** Key

**General:**

**MnDOT Region:** South

**Regional Commission:** 10

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	12/30	5,199'	100'	Asphalt	MIRL	Full
	17/35	2,553'	75'	Asphalt	None	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	48	3	0	2	0	0	53
<b>2010</b>	48	3	0	2	0	1	54
<b>2015</b>	49	3	0	2	0	1	55
<b>2025</b>	50	4	0	3	0	2	59

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	10,050	4,950	15,000
<b>2010</b>	10,192	5,020	15,212
<b>2015</b>	10,336	5,091	15,427
<b>2025</b>	10,631	5,236	15,867

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Winona

**Airport Name:** Winona Municipal - Max Conrad Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	5,199 feet	Minimum 5,000 feet	None
Primary Runway Width	100 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	GPS, VOR	Precision	Precision
Runway Lighting	MIRL	HIRL	HIRL
Taxiway Lighting	Reflectors	MITL	MITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	30,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	35	100% of Based Aircraft	24 add'l hangar spaces
Aircraft Apron	5	100% of Daily Transient	4 add'l apron spaces
General Aviation Terminal/Admin. Building	450	Yes	None
Auto Parking	20	Paved Spaces Equal to 100% of Based Aircraft	39 add'l auto spaces
Fencing	None	Perimeter	Perimeter Fencing
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Car Rental, Taxi	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Yes	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

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**Associated City:** Winona  
**Airport Name:** Winona Municipal - Max Conrad Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$3,750,000.00
Approach Lighting	**	\$2,150,000.00
Terminal	**	\$360,000.00
Fuel	**	\$16,000.00
Master Plan/ALP	*	\$120,000.00
Environmental Assessment	**	\$175,000.00
<i>Subtotal Short Term Costs</i>		<u>\$6,571,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$500,000.00
Airport Equipment/Equip Bldg	**	\$15,000.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$635,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,806,000.00
Landside Development	*	\$159,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,965,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$9,171,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Worthington

**Airport Name:** Worthington Municipal

**Airport Identifier:** OTG

**County:** Nobles

**Classification:** Key

**General:**

**MnDOT Region:** South

**Regional Commission:** 8

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	11/29	5,506'	100'	Asphalt	HIRL	Full
	17/35	4,201'	100'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	20	3	2	0	0	0	25
<b>2010</b>	20	3	2	0	0	0	25
<b>2015</b>	21	3	3	0	0	0	27
<b>2025</b>	21	4	5	0	0	0	30

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	2,100	900	3,000
<b>2010</b>	2,124	910	3,035
<b>2015</b>	2,149	921	3,070
<b>2025</b>	2,199	942	3,141

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Worthington

**Airport Name:** Worthington Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Key Airports**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	5,506 feet	Minimum 5,000 feet	None
Primary Runway Width	100 feet	100 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	ILS	Precision	None
Runway Lighting	HIRL	HIRL	None
Taxiway Lighting	Reflectors	MITL	MITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	MALSR	MALSR	None
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Other - Pavement Strength	44,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel	60,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	20	100% of Based Aircraft	9 add'l hangar spaces
Aircraft Apron	12	100% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	26	Paved Spaces Equal to 100% of Based Aircraft	3 add'l auto spaces
Fencing	None	Perimeter	Perimeter Fencing
Other	Building for Airport Maintenance Equipment	Building for Airport Maintenance Equipment	None
<b>Services</b>			
Fuel	100LL, Jet A	100LL & Jet A - 24 Hour	None
FBO	Full Service - 24 Hour	Full Service - 24 Hour	None
Ground Transportation	Taxi, Courtesy Car	Rental Car, Taxi or Other	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Yes	None
Pilot Lounge	Pilots' Lounge with Weather	Pilots' Lounge with Weather Reporting	None
Other	Timely Snow Removal	Timely Snow Removal	None

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**Associated City:** Worthington  
**Airport Name:** Worthington Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxiway	**	\$1,122,097.00
Land Acquisition	**	\$430,000.00
Pavement Maintenance	**	\$3,380,469.00
Hangar	**	\$266,976.00
Auto Spaces/Access Road	**	\$32,400.00
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Short Term Costs</i>		<u>\$5,351,942.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$120,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$374,000.00
Landside Development	*	\$123,000.00
<i>Subtotal Long Term Costs</i>		<u>\$497,000.00</u>

**Total Cost (2005-2025)** \$5,968,942.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Ada  
**Airport Name:** Norman County - Ada-Twin Valley  
**Airport Identifier:** D00  
**County:** Norman  
**Classification:** Intermediate

**General:**

**MnDOT Region:** North  
**Regional Commission:** 1  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
15/33	3,103'	60'	Asphalt	LIRL	Stub

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	7	0	0	0	0	0	7
<b>2010</b>	7	0	0	0	0	0	7
<b>2015</b>	7	0	0	0	0	0	7
<b>2025</b>	7	0	0	0	0	0	7

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	2,850	2,150	5,000
<b>2010</b>	2,850	2,150	5,000
<b>2015</b>	2,850	2,150	5,000
<b>2025</b>	2,850	2,150	5,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Ada

**Airport Name:** Norman County - Ada-Twin Valley

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,103 feet	Less than 5,000 feet	None
Primary Runway Width	60 feet	75 feet	Additional 15 feet of Width
Taxiway Type	Stub	Full Parallel	Full Parallel Taxiway
Approach	GPS	Non-Precision	None
Runway Lighting	LIRL	MIRL	MIRL
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	8	100% of Based Aircraft	None
Aircraft Apron	10	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	500sf	Yes	None
Auto Parking	0	Paved Spaces Equal to 75% of Based Aircraft	5 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	None	Snow Removal	Snow Removal

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**Associated City:** Ada  
**Airport Name:** Norman County - Ada-Twin Valley

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Lighting	**	\$130,000.00
Pavement Maintenance	**	\$31,000.00
PAPI	**	\$25,000.00
Hangar	**	\$340,000.00
Auto Spaces/Access Road	**	\$50,000.00
Fuel	**	\$60,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$716,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$1,443,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,443,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,159,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Aitkin  
**Airport Name:** Aitkin Municipal - Steve Kurtz Field  
**Airport Identifier:** AIT  
**County:** Aitkin  
**Classification:** Intermediate

**General:**

**MnDOT Region:** West  
**Regional Commission:** 3  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	16/34	4,018'	75'	Asphalt	MIRL	Stub
	08/26	3,335'	150'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	38	2	0	1	3	0	44
<b>2010</b>	38	2	0	1	3	2	46
<b>2015</b>	39	2	0	1	3	3	48
<b>2025</b>	39	2	0	2	4	4	51

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	15,006	3,294	18,300
<b>2010</b>	15,788	3,466	19,253
<b>2015</b>	16,610	3,646	20,256
<b>2025</b>	18,385	4,036	22,421

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Aitkin

**Airport Name:** Aitkin Municipal - Steve Kurtz Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,018 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Stub	Full Parallel	Full Parallel
Approach	VOR, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	LITL	LITL	None
Weather Reporting	AWOS-3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	38	100% of Based Aircraft	13 add'l hangar spaces
Aircraft Apron	12	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	576	Yes	None
Auto Parking	25	Paved Spaces Equal to 75% of Based Aircraft	13 add'l hangar spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas, Jet A, MoGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restroom	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Aitkin  
**Airport Name:** Aitkin Municipal - Steve Kurtz Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Lighting	**	\$104,000.00
Land Acquisition	**	\$250,000.00
Pavement Maintenance	**	\$20,000.00
Approach	**	\$10,000.00
Hangar	**	\$150,000.00
Airport Equipment/Equip Bldg	**	\$10,000.00
Obstruction Removal	**	\$10,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$634,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,220,000.00
Landside Development	*	\$13,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,233,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$1,867,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Albert Lea  
**Airport Name:** Albert Lea Municipal  
**Airport Identifier:** AEL  
**County:** Freeborn  
**Classification:** Intermediate

**General:**

**MnDOT Region:** South  
**Regional Commission:** 10  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	16/34	4,501'	100'	Asphalt	NSTD MIRL	None
	04/22	2,899'	75'	Asphalt	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	41	7	3	1	6	0	58
<b>2010</b>	41	7	3	1	6	0	58
<b>2015</b>	42	7	3	1	6	0	59
<b>2025</b>	42	8	5	1	6	0	62

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	39,600	15,400	55,000
<b>2010</b>	39,600	15,400	55,000
<b>2015</b>	39,600	15,400	55,000
<b>2025</b>	39,600	15,400	55,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Albert Lea

**Airport Name:** Albert Lea Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,501 feet	Less than 5,000 feet	None
Primary Runway Width	100 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel
Approach	VOR/DME	Non-Precision	None
Runway Lighting	NSTD MIRL	MIRL	Standard MIRL
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	19,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	58	100% of Based Aircraft	4 add'l hangar spaces
Aircraft Apron	8	50% of Daily Transient	7 add'l apron spaces
General Aviation Terminal/Admin. Building	2500	Yes	None
Auto Parking	24	Paved Spaces Equal to 75% of Based Aircraft	23 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas, Jet A, MoGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Albert Lea  
**Airport Name:** Albert Lea Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$2,172,500.00
Land Acquisition	**	\$500,000.00
Airport Equipment/Equip Bldg	**	\$80,000.00
Security/Fencing	**	\$325,500.00
Obstruction Removal	**	\$75,000.00
<i>Subtotal Short Term Costs</i>		<u>\$3,153,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$2,800,000.00
Runway Lighting	**	\$326,550.00
Land Acquisition	**	\$70,035.00
Pavement Maintenance	**	\$579,600.00
PAPI	**	\$76,650.00
Windcone	**	\$21,000.00
Approach	**	\$735,000.00
Hangar	**	\$300,000.00
Auto Spaces/Access Road	**	\$100,000.00
Terminal / A/D Building	**	\$346,500.00
Fuel	**	\$45,000.00
Airport Equipment/Equip Bldg	**	\$163,800.00
Obstruction Removal	**	\$31,500.00
<i>Subtotal Mid Term Costs</i>		<u>\$5,595,635.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$3,279,150.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$3,359,150.00</u>

**Total Cost (2005-2025)** \$12,107,785.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Appleton  
**Airport Name:** Appleton Municipal  
**Airport Identifier:** AQP  
**County:** Swift  
**Classification:** Intermediate

**General:**

**MnDOT Region:** West  
**Regional Commission:** 6W  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	3,500'	75'	Asphalt	MIRL	Stub
	04/22	2,725'	157'	Turf	None	Stub

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	5	0	0	0	1	0	6
<b>2010</b>	5	0	0	0	1	0	6
<b>2015</b>	5	0	0	0	1	0	6
<b>2025</b>	5	0	0	0	1	1	7

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	1,992	408	2,400
<b>2010</b>	2,013	412	2,425
<b>2015</b>	2,034	417	2,450
<b>2025</b>	2,076	425	2,501

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Appleton

**Airport Name:** Appleton Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,500 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Stub	Full Parallel	Full Parallel Taxiway
Approach	NDB, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI
REILs	None	Both Runway Ends	REILs
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	4	100% of Based Aircraft	3 add'l hangar spaces
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1,064 sq. ft.	Yes	None
Auto Parking	12	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	None	AvGas; Jet A as needed	100LL
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	None	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting
Other	Snow Removal	Snow Removal	None

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**Associated City:** Appleton  
**Airport Name:** Appleton Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>	<i>Estimated Cost</i>
Master Plan/ALP *	\$80,000.00
<i>Subtotal Short Term Costs</i>	<u>\$80,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>	<i>Estimated Cost</i>
<i>Subtotal Mid Term Costs</i>	<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>	<i>Estimated Cost</i>
Airside Development *	\$1,363,500.00
Landside Development *	\$80,000.00
<i>Subtotal Long Term Costs</i>	<u>\$1,443,500.00</u>
<b>Total Cost (2005-2025)</b>	<u><u>\$1,523,500.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Bagley  
**Airport Name:** Bagley Municipal  
**Airport Identifier:** 7Y4  
**County:** Clearwater  
**Classification:** Intermediate  
**General:**

**MnDOT Region:** North  
**Regional Commission:** 2  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
14/32	3,800'	75'	Asphalt	NSTD LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	3	0	0	0	0	0	3
2010	3	0	0	0	0	0	3
2015	3	0	0	0	0	0	3
2025	3	0	0	0	0	0	3

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	2,400	1,600	4,000
2010	2,400	1,600	4,000
2015	2,400	1,600	4,000
2025	2,400	1,600	4,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Bagley

**Airport Name:** Bagley Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,800 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	Visual	Non-Precision	Non-Precision Approach
Runway Lighting	NSTD LIRL	MIRL	MIRL
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI
REILs	None	Both Runway Ends	REILs
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	None	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	2	100% of Based Aircraft	1 add'l hangar space
Aircraft Apron	9	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	None	Yes	General Aviation Terminal/Admin. Building
Auto Parking	12	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	None	AvGas; Jet A as needed	100LL
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restroom	None
Pilot Lounge	None	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting Reporting
Other	Snow Removal	Snow Removal	None

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**Associated City:** Bagley  
**Airport Name:** Bagley Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Rotating Beacon	**	\$45,000.00
Weather	**	\$90,000.00
Auto Spaces/Access Road	**	\$63,000.00
Terminal / A/D Building	**	\$70,000.00
Fuel	**	\$60,000.00
Airport Equipment/Equip Bldg	**	\$95,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$503,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$2,221,200.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$2,301,200.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,804,200.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Benson  
**Airport Name:** Benson Municipal - Veterans Field  
**Airport Identifier:** BBB  
**County:** Swift  
**Classification:** Intermediate

**General:**

**MnDOT Region:** West  
**Regional Commission:** 6W  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
14/32	4,000'	75'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	11	0	0	0	0	0	11
<b>2010</b>	11	0	0	0	0	0	11
<b>2015</b>	11	0	0	0	0	0	11
<b>2025</b>	11	0	0	0	0	0	11

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	3,196	1,504	4,700
<b>2010</b>	3,229	1,520	4,749
<b>2015</b>	3,263	1,535	4,798
<b>2025</b>	3,331	1,567	4,898

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Benson

**Airport Name:** Benson Municipal - Veterans Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,000 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	VOR/DME, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS -3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPI - Both Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	40,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	12	100% of Based Aircraft	None
Aircraft Apron	10	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	960 sq. ft.	Yes	None
Auto Parking	10	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather	Pilots' Lounge with Weather	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Benson  
**Airport Name:** Benson Municipal - Veterans Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$1,000,000.00
Land Acquisition	**	\$200,000.00
Pavement Maintenance	**	\$15,000.00
Hangar	**	\$90,000.00
Terminal / A/D Building	**	\$25,000.00
Fuel	**	\$55,000.00
Environmental Assessment	**	\$40,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,425,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$2,700,000.00
Taxiway	**	\$1,000,000.00
Land Acquisition	**	\$500,000.00
Master Plan/ALP	**	\$80,000.00
Environmental Assessment	**	\$200,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$4,480,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$354,000.00
<i>Subtotal Long Term Costs</i>		<u>\$354,000.00</u>

<b>Total Cost (2005-2025)</b>		<u><u>\$6,259,000.00</u></u>
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\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Bigfork  
**Airport Name:** Bigfork Municipal  
**Airport Identifier:** FOZ  
**County:** Itasca  
**Classification:** Intermediate

**General:**

**MnDOT Region:** North  
**Regional Commission:** 3  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
15/33	3,100'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	3	1	0	0	1	0	5
2010	3	1	0	0	1	0	5
2015	3	1	0	0	1	0	5
2025	3	1	0	0	1	2	7

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	24	21	45
2010	25	21	46
2015	26	22	47
2025	27	23	50

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Bigfork

**Airport Name:** Bigfork Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,100 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	NDB, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	MITL	LITL	None
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	1	100% of Based Aircraft	6 add'l hangar spaces
Aircraft Apron	9	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	192	Yes	None
Auto Parking	10	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Partially Fenced	To Control Airfield Access	None
<b>Services</b>			
Fuel	None	AvGas; Jet A as needed	AvGas
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	None	Snow Removal	Snow Removal

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**Associated City:** Bigfork  
**Airport Name:** Bigfork Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$112,000.00
Taxiway Lighting	**	\$10,000.00
Pavement Maintenance	**	\$63,000.00
Auto Spaces/Access Road	**	\$50,000.00
Terminal / A/D Building	**	\$25,000.00
Misc Utilities	**	\$18,000.00
Fuel	**	\$60,000.00
Security/Fencing	**	\$375,000.00
Master Plan/ALP	*	\$48,000.00
<i>Subtotal Short Term Costs</i>		<u>\$761,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Hangar	**	\$300,000.00
Airport Equipment/Equip Bldg	**	\$60,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$360,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$1,132,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,212,000.00</u>

**Total Cost (2005-2025)** \$2,333,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Blue Earth  
**Airport Name:** Blue Earth Municipal  
**Airport Identifier:** SBU  
**County:** Faribault  
**Classification:** Intermediate

**General:**

**MnDOT Region:** South  
**Regional Commission:** 9  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	16/34	3,399'	75'	Asphalt	MIRL	None
	03/21	2,290'	200'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	26	0	0	0	2	0	28
<b>2010</b>	26	0	0	0	2	0	28
<b>2015</b>	27	0	0	0	2	0	29
<b>2025</b>	27	0	0	0	2	0	29

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	3,360	3,640	7,000
<b>2010</b>	3,360	3,640	7,000
<b>2015</b>	3,360	3,640	7,000
<b>2025</b>	3,360	3,640	7,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Blue Earth

**Airport Name:** Blue Earth Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,399 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	30	100% of Based Aircraft	None
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	900 sq. ft.	Yes	None
Auto Parking	6	Paved Spaces Equal to 75% of Based Aircraft	1 add'l auto space
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas; Jet A	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Blue Earth  
**Airport Name:** Blue Earth Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$2,634,000.00
Taxiway Lighting	**	\$120,000.00
Land Acquisition	**	\$225,000.00
Pavement Maintenance	**	\$48,000.00
Hangar	**	\$7,000.00
Apron	**	\$170,000.00
Terminal / A/D Building	**	\$84,500.00
Fuel	**	\$19,000.00
Airport Equipment/Equip Bldg	**	\$210,000.00
<i>Subtotal Short Term Costs</i>		<u>\$3,517,500.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$840,000.00
Taxiway	**	\$800,000.00
Pavement Maintenance	**	\$48,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$1,688,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$185,000.00
Landside Development	*	\$81,000.00
<i>Subtotal Long Term Costs</i>		<u>\$266,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$5,471,500.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Brooten  
**Airport Name:** Brooten Municipal  
**Airport Identifier:** 6D1  
**County:** Stearns  
**Classification:** Intermediate  
**General:**

**MnDOT Region:** South  
**Regional Commission:** 7W  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
15/33	3,500'	60'	Asphalt	LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	7	0	0	0	1	0	8
2010	7	0	0	0	1	0	8
2015	7	0	0	0	1	0	8
2025	7	0	0	0	1	1	9

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	1,000	1,000	2,000
2010	1,054	1,054	2,108
2015	1,111	1,111	2,222
2025	1,235	1,235	2,469

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Brooten

**Airport Name:** Brooten Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,500 feet	Less than 5,000 feet	None
Primary Runway Width	60 feet	75 feet	Additional 15 feet of Width
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	None	Non-Precision	Non-Precision Approach
Runway Lighting	LIRL	MIRL	MIRL
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	14	100% of Based Aircraft	None
Aircraft Apron	10	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	None	Yes	General Aviation Terminal/Admin. Building
Auto Parking	0	Paved Spaces Equal to 75% of Based Aircraft	7 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	None	AvGas; Jet A as needed	AvGas
FBO	None	Limited	Limited Service FBO
Ground Transportation	Call-ahead Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	None	Restroom	Restrooms
Pilot Lounge	None	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting Reporting
Other	Snow Removal	Snow Removal	None

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**Associated City:** Brooten  
**Airport Name:** Brooten Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$20,000.00
<i>Subtotal Short Term Costs</i>		<u>\$20,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$10,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$90,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$2,309,750.00
Landside Development	*	\$7,000.00
<i>Subtotal Long Term Costs</i>		<u>\$2,316,750.00</u>

<b>Total Cost (2005-2025)</b>		<u><u>\$2,426,750.00</u></u>
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\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Buffalo  
**Airport Name:** Buffalo Municipal  
**Airport Identifier:** CFE  
**County:** Wright  
**Classification:** Intermediate

**General:**

**MnDOT Region:** South  
**Regional Commission:** 7W  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
17/35	2,600'	60'	Asphalt	MIRL	Partial

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	46	1	0	0	0	0	47
2010	46	1	0	0	0	4	51
2015	47	2	1	0	0	5	55
2025	53	2	0	0	0	7	62

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	4,275	3,225	7,500
2010	4,655	3,512	8,167
2015	5,069	3,824	8,893
2025	6,011	4,535	10,545

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Buffalo

**Airport Name:** Buffalo Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,600 feet	Less than 5,000 feet	None
Primary Runway Width	60 feet	75 feet	Additional 15 feet Width
Taxiway Type	Partial	Full Parallel	Full Parallel Taxiway
Approach	GPS-B, VOR	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	65	100% of Based Aircraft	None
Aircraft Apron	8	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	6,400 sq. ft.	Yes	None
Auto Parking	25	Paved Spaces Equal to 75% of Based Aircraft	22 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car, Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Buffalo  
**Airport Name:** Buffalo Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$303,000.00
Taxiway	**	\$514,000.00
Runway Lighting	**	\$200,000.00
Land Acquisition	**	\$440,000.00
Pavement Maintenance	**	\$65,000.00
PAPI	**	\$61,000.00
Hangar	**	\$280,000.00
Apron	**	\$80,000.00
Auto Spaces/Access Road	**	\$100,000.00
Airport Equipment/Equip Bldg	**	\$139,000.00
Security/Fencing	**	\$50,000.00
Obstruction Removal	**	\$110,000.00
Master Plan/ALP	*	\$80,000.00
Environmental Assessment	**	\$70,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,492,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Taxiway Lighting	**	\$100,000.00
Hangar	**	\$520,000.00
Master Plan/ALP	**	\$220,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$840,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	**	\$420,000.00
Airside Development	*	\$255,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$755,000.00</u>

**Total Cost (2005-2025)** \$4,087,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Caledonia  
**Airport Name:** Houston County  
**Airport Identifier:** CHU  
**County:** Houston  
**Classification:** Intermediate  
**General:**

**MnDOT Region:** South  
**Regional Commission:** 10  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
13/31	3,499'	77'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	11	0	0	0	0	0	11
<b>2010</b>	11	0	0	0	0	0	11
<b>2015</b>	11	0	0	0	0	0	11
<b>2025</b>	11	0	0	0	0	0	11

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	1,820	1,680	3,500
<b>2010</b>	1,855	1,712	3,567
<b>2015</b>	1,890	1,745	3,635
<b>2025</b>	1,963	1,812	3,775

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Caledonia

**Airport Name:** Houston County

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,499 feet	Less than 5,000 feet	None
Primary Runway Width	77 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	VOR, GPS-A	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	10,000	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	13	100% of Based Aircraft	None
Aircraft Apron	3	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	120 sf	Yes	None
Auto Parking	15	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	None	AvGas; Jet A as needed	AvGas
FBO	None	Limited	Limited Service FBO
Ground Transportation	Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge	Pilot Lounge	Pilots' Lounge with Weather Reporting	Weather Reporting
Other	None	Snow Removal	Snow Removal

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**Associated City:** Caledonia  
**Airport Name:** Houston County

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Land Acquisition	**	\$100,000.00
Pavement Maintenance	**	\$430,000.00
PAPI	**	\$45,000.00
Hangar	**	\$50,000.00
Auto Spaces/Access Road	**	\$20,000.00
Terminal / A/D Building	**	\$75,000.00
Misc Utilities	**	\$30,000.00
Fuel	**	\$30,000.00
Security/Fencing	**	\$20,000.00
Obstruction Removal	**	\$200,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,080,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$325,000.00
Land Acquisition	**	\$80,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$405,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$415,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$495,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$1,980,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Cambridge  
**Airport Name:** Cambridge Municipal  
**Airport Identifier:** CBG  
**County:** Isanti  
**Classification:** Intermediate

**General:**

**MnDOT Region:** East  
**Regional Commission:** 7E  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
16/34	4,000'	75'	Asphalt	MIRL	Partial

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	50	0	0	1	0	0	51
<b>2010</b>	51	0	0	1	0	3	55
<b>2015</b>	51	0	0	1	0	4	56
<b>2025</b>	52	1	0	2	0	5	60

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	18,000	2,000	20,000
<b>2010</b>	19,495	2,166	21,661
<b>2015</b>	21,114	2,346	23,460
<b>2025</b>	24,767	2,752	27,519

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Cambridge

**Airport Name:** Cambridge Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

Existing	System Objective	Recommended	
<b>Airside Facilities</b>			
Primary Runway Length	4,000 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Partial Parallel	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	MITL	LITL	None
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Runway 34	Both Runway Ends	REILs - Runway 16
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	44	100% of Based Aircraft	16 add'l hangar spaces
Aircraft Apron	23	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	500 sq. ft.	Yes	None
Auto Parking	18	Paved Spaces Equal to 75% of Based Aircraft	27 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Cambridge  
**Airport Name:** Cambridge Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Hangar	**	\$555,000.00
Auto Spaces/Access Road	**	\$300,000.00
Security/Fencing	**	\$425,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,280,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
REILS	**	\$35,000.00
Airport Equipment/Equip Bldg	**	\$250,000.00
Obstruction Removal	**	\$6,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$291,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$1,000,000.00
Landside Development	*	\$107,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,107,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,678,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Canby  
**Airport Name:** Canby Municipal - Myers Field  
**Airport Identifier:** 27D  
**County:** Yellow Medicine  
**Classification:** Intermediate  
**General:**

**MnDOT Region:** West  
**Regional Commission:** 6W  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	12/30	4,400'	75'	Asphalt	MIRL	None
	01/19	1,650'	125'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	19	6	0	0	0	0	25
<b>2010</b>	19	6	0	0	0	0	25
<b>2015</b>	19	6	0	0	0	0	25
<b>2025</b>	20	7	0	0	0	0	27

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	7,235	716	7,950
<b>2010</b>	7,235	716	7,950
<b>2015</b>	7,235	716	7,950
<b>2025</b>	7,235	716	7,950

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Canby

**Airport Name:** Canby Municipal - Myers Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,400 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Ends	Both Runway Ends	None
REILs	REILs - Both Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	36	100% of Based Aircraft	None
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	530 sq. ft.	Yes	None
Auto Parking	0	Paved Spaces Equal to 75% of Based Aircraft	20 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Call-Ahead Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Canby

**Airport Name:** Canby Municipal - Myers Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Apron	**	\$100,000.00
Fuel	**	\$95,000.00
Airport Equipment/Equip Bldg	**	\$107,500.00
Security/Fencing	**	\$125,000.00
<i>Subtotal Short Term Costs</i>		<u>\$427,500.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$150,000.00
Taxiway	**	\$300,000.00
Hangar	**	\$30,000.00
Master Plan/ALP	**	\$50,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$530,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$557,800.00
Landside Development	*	\$100,000.00
<i>Subtotal Long Term Costs</i>		<u>\$657,800.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$1,615,300.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Cloquet  
**Airport Name:** Cloquet-Carlton County  
**Airport Identifier:** COQ  
**County:** Carlton  
**Classification:** Intermediate

**General:**

**MnDOT Region:** East  
**Regional Commission:** 7E  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	17/35	4,003'	75'	Asphalt	MIRL	Partial
	07/25	3,100'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	38	2	0	0	2	0	42
<b>2010</b>	38	2	0	0	2	1	43
<b>2015</b>	39	2	0	0	2	1	44
<b>2025</b>	39	2	0	0	2	3	46

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	6,150	8,850	15,000
<b>2010</b>	6,272	9,026	15,299
<b>2015</b>	6,397	9,206	15,603
<b>2025</b>	6,655	9,576	16,231

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Cloquet

**Airport Name:** Cloquet-Carlton County

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,003 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Partial	Full Parallel	Full Parallel Taxiway
Approach	VOR-A, NDB, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	ODALS	MALS	None
VGSI	Both Runway Ends	Both Runway Ends	None
REILs	Runway 17	Both Runway Ends	REIL - Runway 25
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	6,500 lbs.- Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	44	100% of Based Aircraft	3 add'l hangar spaces
Aircraft Apron	9	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	2,684 feet	Yes	None
Auto Parking	17	Paved Spaces Equal to 75% of Based Aircraft	18 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas; Jet A	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Cloquet  
**Airport Name:** Cloquet-Carlton County

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$300,000.00
Pavement Maintenance	**	\$120,000.00
Hangar	**	\$240,000.00
Fuel	**	\$22,000.00
Airport Equipment/Equip Bldg	**	\$52,000.00
Master Plan/ALP	*	\$80,000.00
Environmental Assessment	**	\$70,000.00
<i>Subtotal Short Term Costs</i>		<u>\$884,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$400,000.00
Auto Spaces/Access Road	**	\$300,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$700,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	**	\$600,000.00
Airside Development	*	\$1,061,500.00
Landside Development	*	\$98,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,759,500.00</u>

**Total Cost (2005-2025)** \$3,343,500.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Cook  
**Airport Name:** Cook Municipal  
**Airport Identifier:** CQM  
**County:** St. Louis  
**Classification:** Intermediate

**General:**

**MnDOT Region:** North  
**Regional Commission:** 3  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
13/31	3,200'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	14	0	0	0	0	0	14
2010	14	0	0	0	0	0	14
2015	14	0	0	0	0	0	14
2025	14	0	0	0	0	0	14

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	260	740	1,000
2010	261	743	1,004
2015	262	747	1,009
2025	265	753	1,018

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Cook

**Airport Name:** Cook Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,200 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSIs - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	15,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	15	100% of Based Aircraft	None
Aircraft Apron	9	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	800 sq. ft.	Yes	None
Auto Parking	20	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Car rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	None	Snow Removal	Snow Removal

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**Associated City:** Cook  
**Airport Name:** Cook Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$500,000.00
Taxiway	**	\$380,000.00
Land Acquisition	**	\$75,000.00
Pavement Maintenance	**	\$10,000.00
PAPI	**	\$70,000.00
Hangar	**	\$240,000.00
Apron	**	\$60,000.00
Terminal / A/D Building	**	\$10,000.00
Misc Utilities	**	\$35,000.00
Airport Equipment/Equip Bldg	**	\$36,000.00
Security/Fencing	**	\$50,000.00
Obstruction Removal	**	\$10,000.00
<i>Subtotal Short Term Costs</i>		<hr/> \$1,476,000.00

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<hr/> \$0.00

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$290,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<hr/> \$370,000.00
<b>Total Cost (2005-2025)</b>		<hr/> <hr/> \$1,846,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Crookston  
**Airport Name:** Crookston Municipal - Kirkwood Field  
**Airport Identifier:** CKN  
**County:** Polk  
**Classification:** Intermediate

**General:**

**MnDOT Region:** North  
**Regional Commission:** 1  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	4,300'	75'	Asphalt	MIRL	Full
	17/35	2,978'	202'	Turf	None	None
	06/24	2,089'	202'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	39	0	0	0	0	0	39
<b>2010</b>	39	0	0	0	0	0	39
<b>2015</b>	40	0	0	0	0	0	40
<b>2025</b>	40	0	0	0	0	0	40

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	26,800	13,200	40,000
<b>2010</b>	26,800	13,200	40,000
<b>2015</b>	26,800	13,200	40,000
<b>2025</b>	26,800	13,200	40,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Crookston

**Airport Name:** Crookston Municipal - Kirkwood Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,300 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	VOR, GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors in the summer	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	11,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	40	100% of Based Aircraft	None
Aircraft Apron	19	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1,500 sq. ft.	Yes	None
Auto Parking	47	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas; MoGas; Jet A	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	None	Phone	Phone
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Crookston  
**Airport Name:** Crookston Municipal-Kirkwood Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$1,855,000.00
Pavement Maintenance	**	\$5,000.00
Approach Lighting	**	\$160,000.00
Approach	**	\$350,000.00
Hangar	**	\$310,000.00
Auto Spaces/Access Road	**	\$130,000.00
Master Plan/ALP	**	\$3,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,813,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$80,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$247,500.00
<i>Subtotal Long Term Costs</i>		<u>\$247,500.00</u>

<b>Total Cost (2005-2025)</b>		<u><u>\$3,140,500.00</u></u>
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\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Detroit Lakes  
**Airport Name:** Detroit Lakes - Wething Field  
**Airport Identifier:** DTL  
**County:** Becker  
**Classification:** Intermediate

**General:**

**MnDOT Region:** West  
**Regional Commission:** 4  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	4,500'	75'	Asphalt	MIRL	Partial
	17/35	1,880'	250'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	70	4	1	0	1	0	76
<b>2010</b>	71	4	1	0	1	1	78
<b>2015</b>	71	4	1	0	1	1	78
<b>2025</b>	71	5	2	0	1	2	81

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	3,360	4,640	8,000
<b>2010</b>	3,469	4,790	8,258
<b>2015</b>	3,581	4,945	8,525
<b>2025</b>	3,816	5,269	9,085

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Detroit Lakes

**Airport Name:** Detroit Lakes - Wething Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,500 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Partial	Full Parallel	Full Parallel Taxiway
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	23,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	70	100% of Based Aircraft	10 add'l hangar spaces
Aircraft Apron	19	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1080	Yes	None
Auto Parking	15	Paved Spaces Equal to 75% of Based Aircraft	45 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas; Jet A	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Detroit Lakes  
**Airport Name:** Detroit Lakes - Wething Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Land Acquisition	**	\$384,072.00
Pavement Maintenance	**	\$6,974,000.00
Hangar	**	\$267,000.00
Auto Spaces/Access Road	**	\$10,500.00
Misc Utilities	**	\$144,408.00
Airport Equipment/Equip Bldg	**	\$1,536,800.00
<i>Subtotal Short Term Costs</i>		<u>\$9,316,780.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$956,500.00
Landside Development	*	\$115,000.00
Environmental Assessment	*	
<i>Subtotal Long Term Costs</i>		<u>\$1,071,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$10,388,280.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Dodge Center  
**Airport Name:** Dodge Center Municipal  
**Airport Identifier:** TOB  
**County:** Dodge  
**Classification:** Intermediate

**General:**

**MnDOT Region:** South  
**Regional Commission:** 10  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	16/34	4,500'	75'	Concrete	MIRL	None
	04/22	2,390'	200'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	32	0	0	0	2	0	34
<b>2010</b>	32	0	0	0	2	2	36
<b>2015</b>	32	0	0	0	2	3	37
<b>2025</b>	33	0	0	0	2	4	39

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	5,040	960	6,000
<b>2010</b>	5,375	1,024	6,399
<b>2015</b>	5,733	1,092	6,825
<b>2025</b>	6,521	1,242	7,763

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Dodge Center

**Airport Name:** Dodge Center Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,500 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	28	100% of Based Aircraft	11 add'l hangar spaces
Aircraft Apron	12	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	2,000 sq. ft.	Yes	None
Auto Parking	24	Paved Spaces Equal to 75% of Based Aircraft	6 add'l auto spaces
Fencing	Fenced	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car, Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Dodge Center  
**Airport Name:** Dodge Center Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxiway	**	\$1,143,000.00
Pavement Maintenance	**	\$24,000.00
Misc Utilities	**	\$22,341.00
Fuel	**	\$20,000.00
Airport Equipment/Equip Bldg	**	\$85,000.00
Security/Fencing	**	\$69,900.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,444,241.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxiway	**	\$775,000.00
Land Acquisition	**	\$85,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$860,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$569,500.00
Landside Development	*	\$86,000.00
<i>Subtotal Long Term Costs</i>		<u>\$655,500.00</u>

<b>Total Cost (2005-2025)</b>		<u><u>\$2,959,741.00</u></u>
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\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Duluth

**Airport Name:** Sky Harbor

**Airport Identifier:** DYT

**County:** St. Louis

**Classification:** Intermediate

**General:**

**MnDOT Region:** North

**Regional Commission:** 3

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
14/32	3,050'	75'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	25	0	0	0	0	0	25
2010	25	0	0	0	0	0	25
2015	26	0	0	0	0	0	26
2025	26	0	0	0	0	0	26

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	4,160	8,840	13,000
2010	4,178	8,879	13,057
2015	4,197	8,918	13,115
2025	4,234	8,997	13,231

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Duluth

**Airport Name:** Sky Harbor

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,050 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	MITL	LITL	None
Weather Reporting	ASOS	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Sock	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30, 000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	11	100% of Based Aircraft	15 add'l hangar spaces
Aircraft Apron	20	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	Parking Available	Paved Spaces Equal to 75% of Based Aircraft	20 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Duluth Sky Harbor

**Airport Name:** Duluth Sky Harbor

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Pavement Maintenance	**	\$780,000.00
Hangar	**	\$500,000.00
Fuel	**	\$99,000.00
Airport Equipment/Equip Bldg	**	\$351,000.00
Obstruction Removal	**	\$500,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,230,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Pavement Maintenance	**	\$750,000.00
Auto Spaces/Access Road	**	\$50,000.00
Misc Utilities	**	\$220,000.00
Airport Equipment/Equip Bldg	**	\$150,000.00
Obstruction Removal	**	\$50,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$1,220,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$120,000.00
Landside Development	*	\$100,000.00
<i>Subtotal Long Term Costs</i>		<u>\$220,000.00</u>

**Total Cost (2005-2025)** \$3,670,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Eveleth-Virginia  
**Airport Name:** Eveleth-Virginia Municipal  
**Airport Identifier:** EVM  
**County:** St. Louis  
**Classification:** Intermediate

**General:**

**MnDOT Region:** North  
**Regional Commission:** 3  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	09/27	4,219'	100'	Asphalt	MIRL	None
	14/32	2,506'	100'	Asphalt	MIRL	None
	05/23	2,685'	110'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	27	4	0	0	0	0	31
<b>2010</b>	27	4	0	0	0	0	31
<b>2015</b>	28	4	0	0	0	0	32
<b>2025</b>	28	5	0	0	0	2	35

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	5,280	720	6,000
<b>2010</b>	5,303	723	6,026
<b>2015</b>	5,327	726	6,053
<b>2025</b>	5,374	733	6,107

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Eveleth-Virginia

**Airport Name:** Eveleth-Virginia Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,219 feet	Less than 5,000 feet	None
Primary Runway Width	100 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Runway 27	Both Runway Ends	REIL - Runway 9
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,000 lbs - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	43	100% of Based Aircraft	None
Aircraft Apron	38	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	4,800 sf	Yes	None
Auto Parking	50	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas; Jet A	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Eveleth  
**Airport Name:** Eveleth-Virginia Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$1,300,000.00
Taxiway	**	\$600,000.00
Taxiway Lighting	**	\$75,000.00
Land Acquisition	**	\$80,000.00
Pavement Maintenance	**	\$390,000.00
PAPI	**	\$15,000.00
Approach	**	\$10,000.00
Hangar	**	\$83,000.00
Apron	**	\$40,000.00
Fuel	**	\$50,000.00
Obstruction Removal	**	\$25,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,668,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxilane	**	\$60,000.00
Pavement Maintenance	**	\$40,000.00
Hangar	**	\$240,000.00
Terminal / A/D Building	**	\$137,000.00
Airport Equipment/Equip Bldg	**	\$55,000.00
Security/Fencing	**	\$6,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$538,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$76,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$156,000.00</u>

**Total Cost (2005-2025)** \$3,362,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Faribault

**Airport Name:** Faribault Municipal

**Airport Identifier:** FBL

**County:** Rice

**Classification:** Intermediate

**General:**

**MnDOT Region:** South

**Regional Commission:** 10

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	12/30	4,254'	72'	Asphalt	NSTD MIRL	Partial
	02/20	2,230'	140'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	54	7	0	1	8	0	70
<b>2010</b>	55	7	0	1	8	1	72
<b>2015</b>	55	8	0	1	8	1	73
<b>2025</b>	56	8	0	2	8	2	76

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	4,050	950	5,000
<b>2010</b>	4,191	983	5,174
<b>2015</b>	4,338	1,017	5,355
<b>2025</b>	4,646	1,090	5,735

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Faribault

**Airport Name:** Faribault Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,254 feet	Less than 5,000 feet	None
Primary Runway Width	72 feet	75 feet	Additional 3 feet of width
Taxiway Type	Partial	Full Parallel	Full Parallel Taxiway
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	NSTD MIRL	MIRL	Standard MIRL
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	16,000 lbs - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	80	100% of Based Aircraft	None
Aircraft Apron	14	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	900 sf	Yes	None
Auto Parking	25	Paved Spaces Equal to 75% of Based Aircraft	32 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas, Jet A	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Fairbault  
**Airport Name:** Fairbault Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$500,000.00
Land Acquisition	**	\$789,000.00
Pavement Maintenance	**	\$775,000.00
Approach	**	\$350,000.00
Airport Equipment/Equip Bldg	**	\$116,000.00
Security/Fencing	**	\$200,000.00
Master Plan/ALP	*	\$80,000.00
Environmental Assessment	**	\$100,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,910,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Hangar	**	\$300,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$300,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$901,940.00
Landside Development	*	\$112,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,013,940.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$4,223,940.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Fertile

**Airport Name:** Fertile Municipal

**Airport Identifier:** D14

**County:** Polk

**Classification:** Intermediate

**General:**

**MnDOT Region:** North

**Regional Commission:** 1

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
14/32	3,002'	60'	Asphalt	LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	1	1	0	0	0	0	2
2010	1	1	0	0	0	0	2
2015	1	1	0	0	0	0	2
2025	1	1	0	0	0	0	2

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	540	360	900
2010	540	360	900
2015	540	360	900
2025	540	360	900

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Fertile

**Airport Name:** Fertile Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,002 feet	Less than 5,000 feet	None
Primary Runway Width	60 feet	75 feet	Additional 15 feet of Width
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	None	Non-Precision	Non-Precision Approach
Runway Lighting	LIRL	MIRL	MIRL
Taxiway Lighting	LITL	LITL	None
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	8	100% of Based Aircraft	None
Aircraft Apron	10	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	None	Yes	General Aviation Terminal/Admin. Building
Auto Parking	0	Paved Spaces Equal to 75% of Based Aircraft	2 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge	None	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting
Other	None	Snow Removal	Snow Removal

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**Associated City:** Fertile

**Airport Name:** Fertile Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$220,000.00
Terminal / A/D Building	**	\$200,000.00
<i>Subtotal Short Term Costs</i>		<u>\$420,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$80,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,782,000.00
Landside Development	*	\$95,750.00
<i>Subtotal Long Term Costs</i>		<u>\$1,877,750.00</u>

<b>Total Cost (2005-2025)</b>		<u><u>\$2,377,750.00</u></u>
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\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Fosston

**Airport Name:** Fosston Municipal

**Airport Identifier:** FSE

**County:** Polk

**Classification:** Intermediate

**General:**

**MnDOT Region:** North

**Regional Commission:** 1

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
16/34	3,501'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	8	0	0	0	0	0	8
2010	8	0	0	0	0	0	8
2015	8	0	0	0	0	0	8
2025	8	0	0	0	0	0	8

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	2,960	1,040	4,000
2010	2,960	1,040	4,000
2015	2,960	1,040	4,000
2025	2,960	1,040	4,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Fosston

**Airport Name:** Fosston Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,501 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	MITL	LITL	None
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	8	100% of Based Aircraft	None
Aircraft Apron	8	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	6	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	None	Snow Removal	Snow Removal

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**Associated City:** Fosston  
**Airport Name:** Fosston Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$350,000.00
Taxiway	**	\$330,000.00
Pavement Maintenance	**	\$27,000.00
Hangar	**	\$240,000.00
Auto Spaces/Access Road	**	\$64,100.00
Airport Equipment/Equip Bldg	**	\$70,000.00
Security/Fencing	**	\$40,000.00
Master Plan/ALP	*	\$25,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,146,100.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$15,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$15,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$60,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$140,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$1,301,100.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Glencoe

**Airport Name:** Glencoe Municipal - Vernon Perschau Field

**Airport Identifier:** GYL

**County:** McLeod

**Classification:** Intermediate

**General:**

**MnDOT Region:** South

**Regional Commission:** 6E

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
13/31	3,300'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	21	1	0	0	4	0	26
<b>2010</b>	21	1	0	0	4	1	27
<b>2015</b>	22	1	0	0	4	1	28
<b>2025</b>	22	1	0	0	4	2	29

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	8,280	3,720	12,000
<b>2010</b>	8,580	3,855	12,435
<b>2015</b>	8,892	3,995	12,886
<b>2025</b>	9,548	4,290	13,838

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Glencoe

**Airport Name:** Glencoe Municipal - Vernon Perschau Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,300 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	MITL	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	31	100% of Based Aircraft	None
Aircraft Apron	12	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	900 sf	Yes	None
Auto Parking	8	Paved Spaces Equal to 75% of Based Aircraft	14 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Glencoe  
**Airport Name:** Glencoe Municipal - Vernon Perschau Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Land Acquisition	**	\$80,000.00
Pavement Maintenance	**	\$69,000.00
PAPI	**	\$46,000.00
REILS	**	\$24,000.00
Weather	**	\$67,500.00
Hangar	**	\$955,000.00
Terminal / A/D Building	**	\$30,000.00
Master Plan/ALP	**	\$60,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,331,500.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$500,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$500,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,162,500.00
Landside Development	*	\$94,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,256,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,088,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Glenwood

**Airport Name:** Glenwood Municipal

**Airport Identifier:** GHW

**County:** Pope

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 4

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	15/33	4,500'	75'	Asphalt	MIRL	None
	05/23	2,801'	205'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	20	2	0	0	0	0	22
<b>2010</b>	20	2	0	0	0	0	22
<b>2015</b>	21	2	0	0	0	0	23
<b>2025</b>	21	2	0	0	0	0	23

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	3,400	1,600	5,000
<b>2010</b>	3,407	1,603	5,010
<b>2015</b>	3,414	1,607	5,021
<b>2025</b>	3,428	1,613	5,041

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Glenwood

**Airport Name:** Glenwood Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,500 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	MITL	LITL	None
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Ends	Both Runway Ends	None
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	13	100% of Based Aircraft	10 add'l hangar spaces
Aircraft Apron	10	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	250	Yes	None
Auto Parking	15	Paved Spaces Equal to 75% of Based Aircraft	3 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Glenwood  
**Airport Name:** Glenwood Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxiway	**	\$64,000.00
Pavement Maintenance	**	\$1,502,000.00
Hangar	**	\$200,000.00
Apron	**	\$50,000.00
Auto Spaces/Access Road	**	\$118,000.00
Terminal / A/D Building	**	\$50,000.00
Misc Utilities	**	\$25,000.00
Airport Equipment/Equip Bldg	**	\$81,110.00
Security/Fencing	**	\$55,000.00
Obstruction Removal	**	\$40,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,185,110.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$500,000.00
Pavement Maintenance	**	\$45,000.00
Fuel	**	\$75,000.00
Airport Equipment/Equip Bldg	**	\$35,000.00
Master Plan/ALP	**	\$300,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$955,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$232,000.00
Landside Development	*	\$83,000.00
<i>Subtotal Long Term Costs</i>		<u>\$315,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,455,110.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project  
 \*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Grand Marais

**Airport Name:** Grand Marais - Cook County

**Airport Identifier:** CKC

**County:** Cook

**Classification:** Intermediate

**General:**

**MnDOT Region:** North

**Regional Commission:** 3

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
09/27	4,200'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	17	1	0	0	0	0	18
2010	17	1	0	0	0	1	19
2015	17	1	0	0	0	1	19
2025	18	1	0	0	0	2	21

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	3,375	1,125	4,500
2010	3,564	1,188	4,752
2015	3,763	1,254	5,018
2025	4,196	1,399	5,595

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Grand Marais

**Airport Name:** Grand Marais - Cook County

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,200 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	8	100% of Based Aircraft	12 add'l hangar spaces
Aircraft Apron	21	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1100	Yes	None
Auto Parking	20	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas; Jet A	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Grand Marais  
**Airport Name:** Grand Marais-Cook County

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$4,000,000.00
Pavement Maintenance	**	\$50,000.00
Hangar	**	\$310,000.00
Security/Fencing	**	\$100,000.00
Master Plan/ALP	*	\$80,000.00
Environmental Assessment	**	\$107,895.00
<i>Subtotal Short Term Costs</i>		<u>\$4,647,895.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airport Equipment/Equip Bldg	**	\$150,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$150,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,389,500.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,469,500.00</u>

**Total Cost (2005-2025)** \$6,267,395.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Granite Falls

**Airport Name:** Granite Falls Municipal - Lenzen-Roe Memorial Field

**Airport Identifier:** GDB

**County:** Chippewa

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 6W

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
15/33	4,380'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	9	4	1	0	0	0	14
<b>2010</b>	9	4	1	0	0	0	14
<b>2015</b>	9	4	1	0	0	0	14
<b>2025</b>	9	5	2	0	0	0	16

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	3,650	1,350	5,000
<b>2010</b>	9,690	3,584	13,274
<b>2015</b>	9,610	3,555	13,165
<b>2025</b>	9,453	3,496	12,949

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Granite Falls

**Airport Name:** Granite Falls Municipal - Lenzen-Roe Memorial Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,380 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	Runway 33	Both Runway Ends	REILs - Runway 15
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	18	100% of Based Aircraft	None
Aircraft Apron	8	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1500	Yes	None
Auto Parking	14	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	None	Snow Removal	Snow Removal

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**Associated City:** Granite Falls

**Airport Name:** Granite Falls Municipal - Lenzen-Roe Memorial Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$600,000.00
Land Acquisition	**	\$450,000.00
Pavement Maintenance	**	\$80,000.00
PAPI	**	\$48,000.00
Approach	**	\$600,000.00
Hangar	**	\$560,000.00
Auto Spaces/Access Road	**	\$550,000.00
Airport Equipment/Equip Bldg	**	\$230,000.00
Master Plan/ALP	**	\$15,000.00
Environmental Assessment	**	\$40,000.00
<i>Subtotal Short Term Costs</i>		<u>\$3,173,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Pavement Maintenance	**	\$120,000.00
Hangar	**	\$560,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$760,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$1,263,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,263,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$5,196,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Hallock

**Airport Name:** Hallock Municipal

**Airport Identifier:** HCO

**County:** Kittson

**Classification:** Intermediate

**General:**

**MnDOT Region:** North

**Regional Commission:** 1

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
13/31	4,007'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	9	1	0	0	0	0	10
<b>2010</b>	9	1	0	0	0	0	10
<b>2015</b>	9	1	0	0	0	0	10
<b>2025</b>	9	1	0	0	0	0	10

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	583	517	1,100
<b>2010</b>	583	517	1,100
<b>2015</b>	583	517	1,100
<b>2025</b>	583	517	1,100

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Hallock

**Airport Name:** Hallock Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,007 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	10	100% of Based Aircraft	None
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	300 sf	Yes	None
Auto Parking	8	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Hallock  
**Airport Name:** Hallock Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxiway	**	\$100,000.00
Rotating Beacon	**	\$5,000.00
Auto Spaces/Access Road	**	\$47,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$232,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,260,500.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,340,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$1,572,500.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Hawley

**Airport Name:** Hawley Municipal

**Airport Identifier:** 04Y

**County:** Clay

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 4

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
15/33	3,406'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	14	1	0	0	1	0	16
<b>2010</b>	14	1	0	0	1	0	16
<b>2015</b>	14	1	0	0	1	0	16
<b>2025</b>	15	1	0	0	1	1	18

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	0	1,100	1,100
<b>2010</b>	0	1,117	1,117
<b>2015</b>	0	1,135	1,135
<b>2025</b>	0	1,171	1,171

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Hawley

**Airport Name:** Hawley Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,406 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	VOR/DME, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs.	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	40	100% of Based Aircraft	None
Aircraft Apron	0	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	100 sf	Yes	None
Auto Parking	10	Paved Spaces Equal to 75% of Based Aircraft	4 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	None	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting
Other	Snow Removal	Snow Removal	None

**Associated City:** Hawley  
**Airport Name:** Hawley Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$190,000.00
Taxiway	**	\$325,000.00
Runway Lighting	**	\$46,000.00
Land Acquisition	**	\$80,000.00
Pavement Maintenance	**	\$60,000.00
PAPI	**	\$48,000.00
Hangar	**	\$254,000.00
Terminal / A/D Building	**	\$52,000.00
Airport Equipment/Equip Bldg	**	\$110,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,245,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,270,500.00
Landside Development	*	\$84,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,354,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,599,500.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Hector

**Airport Name:** Hector Municipal

**Airport Identifier:** 1D6

**County:** Renville

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 6E

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	12/30	2,776'	50'	Asphalt	NSTD	None
	05/23	2,580'	165'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	16	0	0	1	5	0	22
<b>2010</b>	16	0	0	1	5	0	22
<b>2015</b>	16	0	0	1	5	0	22
<b>2025</b>	16	0	0	1	5	0	22

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	1,720	280	2,000
<b>2010</b>	1,720	280	2,000
<b>2015</b>	1,720	280	2,000
<b>2025</b>	1,720	280	2,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Hector

**Airport Name:** Hector Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,776 feet	Less than 5,000 feet	None
Primary Runway Width	50 feet	75 feet	Additional 25 feet of Width
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	None	Non-Precision	Non-Precision Approach
Runway Lighting	NSTD	MIRL	MIRL
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	None	Rotating Beacon	Rotating Beacon
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	13,000 lbs.	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	23	100% of Based Aircraft	None
Aircraft Apron	4	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	320 sf	Yes	None
Auto Parking	8	Paved Spaces Equal to 75% of Based Aircraft	9 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Hector  
**Airport Name:** Hector Municipal Airport

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$480,000.00
Land Acquisition	**	\$80,000.00
Pavement Maintenance	**	\$80,000.00
Weather	**	\$65,000.00
Hangar	**	\$165,000.00
Terminal / A/D Building	**	\$90,000.00
Fuel	**	\$165,000.00
Airport Equipment/Equip Bldg	**	\$155,000.00
Security/Fencing	**	\$40,000.00
Environmental Assessment	**	\$65,000.00
 <i>Subtotal Short Term Costs</i>		<hr/> \$1,385,000.00

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Rotating Beacon	**	\$40,000.00
Hangar	**	\$400,000.00
 <i>Subtotal Mid Term Costs</i>		<hr/> \$440,000.00

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$2,023,500.00
Landside Development	*	\$89,000.00
 <i>Subtotal Long Term Costs</i>		<hr/> \$2,112,500.00
 <b>Total Cost (2005-2025)</b>		<hr/> <hr/> \$3,937,500.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Herman

**Airport Name:** Herman Municipal

**Airport Identifier:** 06Y

**County:** Grant

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 4

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
14/32	2,997'	60'	Asphalt	LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	4	0	0	0	0	0	4
2010	4	0	0	0	2	0	6
2015	4	0	0	0	2	0	6
2025	4	0	0	0	2	0	6

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	1,820	180	2,000
2010	1,820	180	2,000
2015	1,820	180	2,000
2025	1,820	180	2,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Herman

**Airport Name:** Herman Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,997 feet	Less than 5,000 feet	None
Primary Runway Width	60 feet	75 feet	Additional 15 feet of Width
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	None	Non-Precision	Non-Precision Approach
Runway Lighting	LIRL	MIRL	MIRL
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	None	Rotating Beacon	Rotating Beacon
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	6	100% of Based Aircraft	None
Aircraft Apron	4	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	320 sf	Yes	None
Auto Parking	8	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Call-Ahead Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Herman  
**Airport Name:** Herman Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
Misc Utilities	**	\$4,000.00
Fuel	**	\$2,200.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Short Term Costs</i>		<hr/> \$86,200.00

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
<i>Subtotal Mid Term Costs</i>		<hr/> \$0.00

**Long Term (2016-2025)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
Airside Development	*	\$2,073,500.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<hr/> \$2,153,500.00
<b>Total Cost (2005-2025)</b>		<hr/> <hr/> \$2,239,700.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Hutchinson

**Airport Name:** Hutchinson Municipal - Butler Field

**Airport Identifier:** HCD

**County:** McLeod

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 6E

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
15/33	4,000'	75'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	29	1	0	1	0	0	31
<b>2010</b>	29	1	0	1	0	1	32
<b>2015</b>	30	1	0	1	0	1	33
<b>2025</b>	30	2	0	2	0	2	36

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	7,560	5,940	13,500
<b>2010</b>	7,834	6,155	13,990
<b>2015</b>	8,118	6,379	14,497
<b>2025</b>	8,718	6,850	15,568

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Hutchinson

**Airport Name:** Hutchinson Municipal - Butler Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,000 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	VOR, GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs- Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	31	100% of Based Aircraft	5 add'l hangar spaces
Aircraft Apron	12	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1600	Yes	None
Auto Parking	30	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Call Ahead Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Hutchinson  
**Airport Name:** Hutchinson Municipal-Butler Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Hangar	**	\$478,685.00
Apron	**	\$20,000.00
Misc Utilities	**	\$10,000.00
Airport Equipment/Equip Bldg	**	\$172,895.00
<i>Subtotal Short Term Costs</i>		<hr/> \$681,580.00

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<hr/> \$0.00

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$307,500.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<hr/> \$387,500.00
<b>Total Cost (2005-2025)</b>		<hr/> <hr/> \$1,069,080.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Jackson  
**Airport Name:** Jackson Municipal  
**Airport Identifier:** MJQ  
**County:** Jackson  
**Classification:** Intermediate

**General:**

**MnDOT Region:** South  
**Regional Commission:** 8  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	3,591'	75'	Asphalt	MIRL	None
	04/22	2,250'	300'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	15	0	0	0	0	0	15
<b>2010</b>	15	0	0	0	0	0	15
<b>2015</b>	15	0	0	0	0	0	15
<b>2025</b>	15	0	0	0	0	0	15

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	13,110	5,890	19,000
<b>2010</b>	13,110	5,890	19,000
<b>2015</b>	13,110	5,890	19,000
<b>2025</b>	13,110	5,890	19,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Jackson

**Airport Name:** Jackson Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,591 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	None
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	8,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	20	100% of Based Aircraft	None
Aircraft Apron	5	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1250	Yes	None
Auto Parking	15	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas; Jet A	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Jackson  
**Airport Name:** Jackson Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Land Acquisition	**	\$750,000.00
Pavement Maintenance	**	\$50,000.00
Hangar	**	\$860,000.00
Terminal / A/D Building	**	\$300,000.00
Airport Equipment/Equip Bldg	**	\$25,000.00
Master Plan/ALP	*	\$45,000.00
Environmental Assessment	**	\$40,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,070,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$5,000,000.00
Auto Spaces/Access Road	**	\$200,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$5,200,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$60,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$140,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$7,410,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Le Sueur  
**Airport Name:** Le Sueur Municipal  
**Airport Identifier:** 12Y  
**County:** Le Sueur  
**Classification:** Intermediate  
**General:**

**MnDOT Region:** South  
**Regional Commission:** 9  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
13/31	3,005'	75'	Asphalt	MIRL	Partial

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	26	0	0	31	0	0	57
<b>2010</b>	26	0	0	32	0	0	58
<b>2015</b>	27	0	0	32	0	0	59
<b>2025</b>	27	0	0	33	0	2	62

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	1,622	1,082	2,704
<b>2010</b>	1,665	1,110	2,775
<b>2015</b>	1,708	1,139	2,847
<b>2025</b>	1,798	1,199	2,997

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Le Sueur

**Airport Name:** Le Sueur Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,005 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Partial	Full Parallel	Full Parallel Taxiway
Approach	Non-Precision	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	20	100% of Based Aircraft	42 add'l hangar spaces
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	21	Paved Spaces Equal to 75% of Based Aircraft	26 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilot Lounge	Pilots' Lounge with Weather Reporting	Weather reporting
Other	Snow Removal	Snow Removal	None

**Associated City:** Le Sueur  
**Airport Name:** Le Sueur Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxiway	**	\$175,000.00
Runway Lighting	**	\$130,000.00
Land Acquisition	**	\$35,000.00
Pavement Maintenance	**	\$800,000.00
PAPI	**	\$50,000.00
Hangar	**	\$18,000.00
Fuel	**	\$54,000.00
Master Plan/ALP	**	\$42,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,304,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxiway	**	\$140,000.00
Land Acquisition	**	\$250,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$390,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,196,500.00
Landside Development	*	\$106,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,302,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,996,500.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Litchfield  
**Airport Name:** Litchfield Municipal  
**Airport Identifier:** LJF  
**County:** Meeker  
**Classification:** Intermediate  
**General:**

**MnDOT Region:** West  
**Regional Commission:** 6E  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
13/31	4,002'	100'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	15	0	0	1	0	0	16
2010	15	0	0	1	0	0	16
2015	15	0	0	1	0	0	16
2025	15	0	0	1	0	2	18

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	840	1,160	2,000
2010	861	1,189	2,050
2015	882	1,218	2,100
2025	927	1,280	2,206

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Litchfield

**Airport Name:** Litchfield Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,002 feet	Less than 5,000 feet	None
Primary Runway Width	100 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	20	100% of Based Aircraft	None
Aircraft Apron	30	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	75	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas, Jet A	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Litchfield  
**Airport Name:** Litchfield Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$620,000.00
Runway Lighting	**	\$71,000.00
Pavement Maintenance	**	\$200,000.00
Hangar	**	\$680,000.00
Obstruction Removal	**	\$10,000.00
Master Plan/ALP	**	\$30,000.00
Environmental Assessment	**	\$65,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,676,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Taxiway	**	\$280,000.00
Approach Lighting	**	\$160,000.00
Approach	**	\$600,000.00
Hangar	**	\$340,000.00
Apron	**	\$100,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$1,480,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$234,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$314,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,470,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Little Falls

**Airport Name:** Little Falls - Morrison County - Lindbergh Field

**Airport Identifier:** LXL

**County:** Morrison

**Classification:** Intermediate

**General:**

**MnDOT Region:** East

**Regional Commission:** 5

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	4,000'	75'	Asphalt	MIRL	Full
	18/36	2,890'	170'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	38	2	0	0	1	0	41
2010	38	2	0	0	1	1	42
2015	39	2	0	0	1	1	43
2025	39	2	0	0	1	2	44

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	24,600	5,400	30,000
2010	25,118	5,514	30,631
2015	25,646	5,630	31,276
2025	26,736	5,869	32,605

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Little Falls

**Airport Name:** Little Falls - Morrison County - Lindbergh Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,000 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	20	100% of Based Aircraft	24 add'l hangar spaces
Aircraft Apron	8	50% of Daily Transient	1 add'l apron space
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	12	Paved Spaces Equal to 75% of Based Aircraft	21 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Little Falls  
**Airport Name:** Little Falls - Morrison County - Lindbergh Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$600,000.00
Taxiway	**	\$75,000.00
Runway Lighting	**	\$250,000.00
Land Acquisition	**	\$200,000.00
Pavement Maintenance	**	\$20,000.00
Approach Lighting	**	\$300,000.00
Hangar	**	\$522,000.00
Auto Spaces/Access Road	**	\$70,000.00
Airport Equipment/Equip Bldg	**	\$291,200.00
<i>Subtotal Short Term Costs</i>		<u>\$2,328,200.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$80,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$425,500.00
Landside Development	*	\$21,000.00
<i>Subtotal Long Term Costs</i>		<u>\$446,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,854,700.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Long Prairie

**Airport Name:** Long Prairie Municipal - Todd Field

**Airport Identifier:** 14Y

**County:** Todd

**Classification:** Intermediate

**General:**

**MnDOT Region:** South

**Regional Commission:** 5

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
16/34	3,000'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	14	0	0	0	1	0	15
<b>2010</b>	14	0	0	0	1	0	15
<b>2015</b>	14	0	0	0	1	0	15
<b>2025</b>	14	0	0	0	1	1	16

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	2,482	918	3,400
<b>2010</b>	2,505	926	3,431
<b>2015</b>	2,527	935	3,462
<b>2025</b>	2,573	952	3,525

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Long Prairie

**Airport Name:** Long Prairie Municipal - Todd Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,000 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	Non-Precision	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Ends	Both Runway Ends	None
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	7	100% of Based Aircraft	9 add'l hangar spaces
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	625	Yes	None
Auto Parking	15	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Long Prairie  
**Airport Name:** Long Prairie Municipal -Todd Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$1,222,000.00
Land Acquisition	**	\$120,000.00
Windcone	**	\$6,000.00
Terminal / A/D Building	**	\$150,000.00
Security/Fencing	**	\$50,000.00
Master Plan/ALP	**	\$25,000.00
Environmental Assessment	**	\$65,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,638,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$140,000.00
Hangar	**	\$450,000.00
Master Plan/ALP	**	\$50,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$640,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,486,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,566,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,844,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Longville

**Airport Name:** Longville Municipal

**Airport Identifier:** XVG

**County:** Cass

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 5

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
13/31	3,781'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	3	0	0	0	0	0	3
2010	3	0	0	0	0	0	3
2015	3	0	0	0	0	0	3
2025	3	0	0	0	0	1	4

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	1,860	4,140	6,000
2010	2,013	4,480	6,493
2015	2,178	4,848	7,026
2025	2,550	5,676	8,227

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Longville

**Airport Name:** Longville Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,781 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	9,000	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	5	100% of Based Aircraft	None
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	4000 sf	Yes	None
Auto Parking	15	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Longville  
**Airport Name:** Longville Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Taxiway Lighting	**	\$9,300.00
Pavement Maintenance	**	\$476,000.00
PAPI	**	\$50,000.00
Rotating Beacon	**	\$50,000.00
Apron	**	\$25,000.00
Airport Equipment/Equip Bldg	**	\$360,800.00
Security/Fencing	**	\$14,000.00
Obstruction Removal	**	\$425,000.00
Master Plan/ALP	**	\$40,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,450,100.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Hangar	**	\$200,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$200,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$1,317,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,397,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,047,100.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Luverne

**Airport Name:** Luverne Municipal - Quentin Aanenson Field

**Airport Identifier:** D19

**County:** Rock

**Classification:** Intermediate

**General:**

**MnDOT Region:** South

**Regional Commission:** 8

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
17/35	2,505'	75'	Asphalt	LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	15	0	0	0	0	0	15
<b>2010</b>	15	0	0	0	0	0	15
<b>2015</b>	15	0	0	0	0	0	15
<b>2025</b>	15	0	0	0	0	0	15

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	3,948	4,452	8,400
<b>2010</b>	3,948	4,452	8,400
<b>2015</b>	3,948	4,452	8,400
<b>2025</b>	3,948	4,452	8,400

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Luverne

**Airport Name:** Luverne Municipal - Quentin Aanenson Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,505 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	None	Non-Precision	Non-Precision Approach
Runway Lighting	LIRL	MIRL	MIRL
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	None
REILs	None	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	17,000	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	21	100% of Based Aircraft	None
Aircraft Apron	10	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1200	Yes	None
Auto Parking	10	Paved Spaces Equal to 75% of Based Aircraft	1 add'l auto space
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	None	Snow Removal	Snow Removal

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**Associated City:** Luverne

**Airport Name:** Luverne Municipal - Quentin Aanenson Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$1,949,000.00
Runway Lighting	**	\$150,000.00
Taxiway Lighting	**	\$20,000.00
Land Acquisition	**	\$405,000.00
PAPI	**	\$40,000.00
REILS	**	\$30,000.00
Windcone	**	\$6,000.00
Hangar	**	\$375,000.00
Fuel	**	\$75,000.00
Airport Equipment/Equip Bldg	**	\$25,000.00
Obstruction Removal	**	\$50,000.00
Master Plan/ALP	**	\$15,000.00
Environmental Assessment	**	\$30,000.00
<i>Subtotal Short Term Costs</i>		<u>\$3,170,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Taxiway	**	\$500,000.00
Apron	**	\$350,000.00
Terminal / A/D Building	**	\$50,000.00
Master Plan/ALP	**	\$50,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$950,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$576,500.00
Landside Development	*	\$81,000.00
Taxiway	*	
<i>Subtotal Long Term Costs</i>		<u>\$657,500.00</u>

**Total Cost (2005-2025)** \$4,777,500.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Madison

**Airport Name:** Lac Qui Parle County - Bud Frye Field

**Airport Identifier:** DXX

**County:** Lac Qui Parle

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 6W

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	13/31	3,301'	75'	Asphalt	MIRL	None
	08/26	3,033'	135'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	4	0	0	0	0	0	4
<b>2010</b>	4	0	0	0	0	0	4
<b>2015</b>	4	0	0	0	0	0	4
<b>2025</b>	4	0	0	0	0	0	4

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	1,395	105	1,500
<b>2010</b>	1,395	105	1,500
<b>2015</b>	1,395	105	1,500
<b>2025</b>	1,395	105	1,500

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Madison

**Airport Name:** Lac Qui Parle County - Bud Frye Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,301 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Stub	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	LITL	LITL	None
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	10	100% of Based Aircraft	5 add'l hangar spaces
Aircraft Apron	8	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	484	Yes	None
Auto Parking	4	Paved Spaces Equal to 75% of Based Aircraft	7 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Call Ahead Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Madison  
**Airport Name:** Lac Qui Parle County - Bud Frye Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$330,000.00
Land Acquisition	**	\$147,500.00
Pavement Maintenance	**	\$175,000.00
Airport Equipment/Equip Bldg	**	\$209,000.00
Obstruction Removal	**	\$2,500.00
Master Plan/ALP	*	\$80,000.00
Environmental Assessment	**	\$50,000.00
<i>Subtotal Short Term Costs</i>		<u>\$994,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,292,000.00
Landside Development	*	\$87,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,379,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,373,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Maple Lake  
**Airport Name:** Maple Lake Municipal  
**Airport Identifier:** MGG  
**County:** Wright  
**Classification:** Intermediate

**General:**

**MnDOT Region:** South  
**Regional Commission:** 7W  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

**Airfield:**                    Runway                    Length                    Width                    Surface                    Lights                    Taxiway  
    10/28                    2,796'                    60'                    Asphalt                    MIRL                    Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	38	7	0	0	5	0	50
<b>2010</b>	38	7	0	0	5	4	54
<b>2015</b>	39	8	0	5	5	0	57
<b>2025</b>	43	8	0	0	5	8	64

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	19,750	5,250	25,000
<b>2010</b>	21,506	5,717	27,223
<b>2015</b>	23,419	6,225	29,644
<b>2025</b>	27,770	7,382	35,152

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Maple Lake

**Airport Name:** Maple Lake Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,796 feet	Less than 5,000 feet	None
Primary Runway Width	60 feet	75 feet	Additional 15 feet of Width
Taxiway Type	Full Parallel	Full Parallel	None
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	55	100% of Based Aircraft	9 add'l hangar spaces
Aircraft Apron	5	50% of Daily Transient	5 add'l apron spaces
General Aviation Terminal/Admin. Building	500 sf	Yes	None
Auto Parking	15	Paved Spaces Equal to 75% of Based Aircraft	33 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Maple Lake  
**Airport Name:** Maple Lake Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$950,000.00
Runway Lighting	**	\$130,000.00
Land Acquisition	**	\$220,000.00
Pavement Maintenance	**	\$274,000.00
Weather	**	\$67,500.00
Hangar	**	\$120,000.00
Fuel	**	\$100,000.00
Airport Equipment/Equip Bldg	**	\$180,000.00
Master Plan/ALP	**	\$55,000.00
Environmental Assessment	**	\$15,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,111,500.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$80,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$729,500.00
Landside Development	*	\$33,000.00
<i>Subtotal Long Term Costs</i>		<u>\$762,500.00</u>

**Total Cost (2005-2025)** \$2,954,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** McGregor  
**Airport Name:** McGregor - Isedor Iverson  
**Airport Identifier:** HZX  
**County:** Aitken  
**Classification:** Intermediate

**General:**

**MnDOT Region:** West  
**Regional Commission:** 3  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
14/32	3,400'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	4	0	0	0	1	0	5
<b>2010</b>	4	0	0	0	1	0	5
<b>2015</b>	4	0	0	0	1	0	5
<b>2025</b>	4	0	0	0	1	1	6

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	798	1,102	1,900
<b>2010</b>	840	1,159	1,999
<b>2015</b>	883	1,220	2,103
<b>2025</b>	978	1,350	2,328

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** McGregor

**Airport Name:** McGregor - Isedor Iverson

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,400 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	Non-Precision	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Ends	Both Runway Ends	None
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	4	100% of Based Aircraft	2 add'l hangar spaces
Aircraft Apron	9	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	0	Paved Spaces Equal to 75% of Based Aircraft	5 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas, MoGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** McGregor  
**Airport Name:** McGregor-Isedor Iverson

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$50,000.00
Taxiway	**	\$35,000.00
Land Acquisition	**	\$75,000.00
Pavement Maintenance	**	\$20,000.00
Hangar	**	\$150,000.00
Airport Equipment/Equip Bldg	**	\$75,000.00
Security/Fencing	**	\$12,000.00
Master Plan/ALP	*	\$80,000.00
Environmental Assessment	**	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$577,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxiway	**	\$20,000.00
Master Plan/ALP	*	\$80,000.00
Environmental Assessment	**	\$50,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$150,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,205,500.00
Landside Development	*	\$5,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,210,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$1,937,500.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Montevideo

**Airport Name:** Montevideo-Chippewa County

**Airport Identifier:** MVE

**County:** Chippewa

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 6W

**Scheduled Air Service:** No

**Included in the NPIAS:** No

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	14/32	4,000'	75'	Asphalt	MIRL	None
	03/21	2,330'	165'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	21	1	0	0	4	0	26
<b>2010</b>	21	1	0	0	4	0	26
<b>2015</b>	22	1	0	0	4	0	27
<b>2025</b>	22	1	0	0	4	0	27

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	1,345	1,457	2,802
<b>2010</b>	3,571	3,868	7,439
<b>2015</b>	3,541	3,836	7,378
<b>2025</b>	3,483	3,774	7,257

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Montevideo

**Airport Name:** Montevideo-Chippewa County

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,000 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	14,000	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	26	100% of Based Aircraft	1 add'l hangar space
Aircraft Apron	2	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	30	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Courtesy Car/Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	None	Snow Removal	Snow Removal

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**Associated City:** Montevideo

**Airport Name:** Montevideo-Chippewa County

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$425,000.00
Taxiway	**	\$750,000.00
Runway Lighting	**	\$30,000.00
Land Acquisition	**	\$7,500.00
Pavement Maintenance	**	\$430,000.00
PAPI	**	\$25,000.00
REILS	**	\$35,000.00
Hangar	**	\$380,000.00
Auto Spaces/Access Road	**	\$50,000.00
Fuel	**	\$95,000.00
Airport Equipment/Equip Bldg	**	\$130,000.00
Security/Fencing	**	\$15,500.00
Environmental Assessment	**	\$100,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,473,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$280,500.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$360,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,833,500.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Moorhead  
**Airport Name:** Moorhead Municipal  
**Airport Identifier:** JKJ  
**County:** Clay  
**Classification:** Intermediate

**General:**

**MnDOT Region:** West  
**Regional Commission:** 4  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
12/30	4,300'	75'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	17	3	0	0	0	0	20
2010	17	3	0	0	0	0	20
2015	17	3	0	0	0	0	20
2025	18	3	0	0	0	2	23

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	18,750	6,250	25,000
2010	19,044	6,348	25,393
2015	19,343	6,448	25,791
2025	19,956	6,652	26,607

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Moorhead

**Airport Name:** Moorhead Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,300 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	LITL	LITL	None
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	30	100% of Based Aircraft	None
Aircraft Apron	12	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	700 sf	Yes	None
Auto Parking	20	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas, Jet A	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Moorhead  
**Airport Name:** Moorhead Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$1,526,000.00
Taxiway	**	\$185,000.00
Taxilane	**	\$80,000.00
Land Acquisition	**	\$280,000.00
Hangar	**	\$690,000.00
Terminal / A/D Building	**	\$385,000.00
Airport Equipment/Equip Bldg	**	\$260,000.00
Master Plan/ALP	*	\$80,000.00
Environmental Assessment	**	\$23,500.00
<i>Subtotal Short Term Costs</i>		<u>\$3,509,500.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Approach Lighting	*	\$60,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$140,000.00</u>

<b>Total Cost (2005-2025)</b>		<u><u>\$3,649,500.00</u></u>
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\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Moose Lake  
**Airport Name:** Moose Lake - Carlton County  
**Airport Identifier:** MZH  
**County:** Carlton  
**Classification:** Intermediate

**General:**

**MnDOT Region:** East  
**Regional Commission:** 3  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
04/22	3,200'	75'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	11	0	0	0	3	0	14
<b>2010</b>	11	0	0	0	3	0	14
<b>2015</b>	11	0	0	0	3	0	14
<b>2025</b>	11	0	0	0	3	1	15

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	4,410	4,590	9,000
<b>2010</b>	4,498	4,681	9,179
<b>2015</b>	4,587	4,775	9,362
<b>2025</b>	4,772	4,967	9,739

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Moose Lake

**Airport Name:** Moose Lake - Carlton County

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,200 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	18	100% of Based Aircraft	None
Aircraft Apron	5	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1200 sf	Yes	None
Auto Parking	20	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Moose Lake  
**Airport Name:** Moose Lake-Carlton County

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$335,000.00
PAPI	**	\$87,500.00
Weather	**	\$67,500.00
Airport Equipment/Equip Bldg	**	\$204,500.00
Master Plan/ALP	**	\$80,000.00
Environmental Assessment	**	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$854,500.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$500,000.00
Terminal / A/D Building	**	\$200,000.00
Security/Fencing	**	\$300,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$1,000,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$985,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,065,000.00</u>

**Total Cost (2005-2025)** \$2,919,500.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Mora

**Airport Name:** Mora Municipal

**Airport Identifier:** JMR

**County:** Kanabec

**Classification:** Intermediate

**General:**

**MnDOT Region:** East

**Regional Commission:** 7E

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	17/35	3,998'	75'	Asphalt	MIRL	Full
	11/29	2,450'	200'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	41	3	1	0	1	0	46
<b>2010</b>	41	3	1	0	1	2	48
<b>2015</b>	42	3	2	0	1	3	51
<b>2025</b>	42	4	2	0	1	4	53

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	11,100	3,900	15,000
<b>2010</b>	11,622	4,083	15,705
<b>2015</b>	12,168	4,275	16,443
<b>2025</b>	13,339	4,687	18,026

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Mora

**Airport Name:** Mora Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,998 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	18	100% of Based Aircraft	34 add'l hangar spaces
Aircraft Apron	11	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1200	Yes	None
Auto Parking	34	Paved Spaces Equal to 75% of Based Aircraft	5 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas, Jet A	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car, Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Mora  
**Airport Name:** Mora Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$2,755,000.00
Taxiway	**	\$299,000.00
Taxiway Lighting	**	\$220,000.00
Land Acquisition	**	\$773,400.00
Pavement Maintenance	**	\$1,909,000.00
Hangar	**	\$200,000.00
Misc Utilities	**	\$10,000.00
Airport Equipment/Equip Bldg	**	\$150,000.00
Master Plan/ALP	*	\$40,000.00
<i>Subtotal Short Term Costs</i>		<u>\$6,356,400.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$620,000.00
Landside Development	*	\$85,000.00
<i>Subtotal Long Term Costs</i>		<u>\$705,000.00</u>

**Total Cost (2005-2025)** \$7,061,400.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Morris

**Airport Name:** Morris Municipal

**Airport Identifier:** MOX

**County:** Stevens

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 4

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	14/32	4,000'	75'	Asphalt	MIRL	None
	04/22	2,585'	150'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	11	3	0	0	1	0	15
<b>2010</b>	11	3	0	0	1	0	15
<b>2015</b>	11	3	0	0	1	0	15
<b>2025</b>	11	3	0	0	1	0	15

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	1,840	2,160	4,000
<b>2010</b>	1,840	2,160	4,000
<b>2015</b>	1,840	2,160	4,000
<b>2025</b>	1,840	2,160	4,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Morris

**Airport Name:** Morris Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,000 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs- Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	14,000	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	20	100% of Based Aircraft	None
Aircraft Apron	12	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	22	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phones	Phones	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Morris

**Airport Name:** Morris Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Pavement Maintenance	**	\$78,600.00
Hangar	**	\$345,000.00
Fuel	**	\$26,000.00
Airport Equipment/Equip Bldg	**	\$10,900.00
<i>Subtotal Short Term Costs</i>		<u>\$460,500.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Hangar	**	\$110,000.00
Airport Equipment/Equip Bldg	**	\$75,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$185,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$1,260,500.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,340,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$1,986,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** New Ulm  
**Airport Name:** New Ulm Municipal  
**Airport Identifier:** ULM  
**County:** Brown  
**Classification:** Intermediate

**General:**

**MnDOT Region:** South  
**Regional Commission:** 9  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	15/33	4,401'	75'	Asphalt	MIRL	Full
	04/22	2,825'	160'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	14	5	0	0	2	0	21
<b>2010</b>	14	5	0	0	2	0	21
<b>2015</b>	14	5	0	0	2	0	21
<b>2025</b>	14	6	0	0	2	0	22

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	6,359	9,151	15,510
<b>2010</b>	6,359	9,151	15,510
<b>2015</b>	6,359	9,151	15,510
<b>2025</b>	6,359	9,151	15,510

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** New Ulm

**Airport Name:** New Ulm Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,401 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	ODALS	MALS	MALS
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	23	100% of Based Aircraft	None
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	4900	Yes	None
Auto Parking	30	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas, Jet A	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** New Ulm  
**Airport Name:** New Ulm Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$12,046,500.00
Land Acquisition	**	\$1,300,000.00
Pavement Maintenance	**	\$300,000.00
Approach	**	\$1,000,000.00
Hangar	**	\$400,000.00
Auto Spaces/Access Road	**	\$150,000.00
Airport Equipment/Equip Bldg	**	\$140,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$15,416,500.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$1,250,000.00
Airport Equipment/Equip Bldg	**	\$120,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$1,370,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$252,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$332,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$17,118,500.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Olivia

**Airport Name:** Olivia Regional

**Airport Identifier:** OVL

**County:** Renville

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 6E

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
11/29	3,498'	75'	Asphalt	LIRL	Partial

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	9	0	0	4	0	0	13
2010	9	0	0	4	0	0	13
2015	9	0	0	4	0	0	13
2025	9	0	0	4	0	0	13

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	4,700	300	5,000
2010	4,700	300	5,000
2015	4,700	300	5,000
2025	4,700	300	5,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Olivia

**Airport Name:** Olivia Regional

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,498 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Partial	Full Parallel	Full Parallel Taxiway
Approach	VOR, GPS-A	Non-Precision	None
Runway Lighting	LIRL	MIRL	MIRL
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	9	100% of Based Aircraft	4 add'l hangar spaces
Aircraft Apron	7	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1200 sq. ft.	Yes	None
Auto Parking	40	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car/Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Olivia  
**Airport Name:** Olivia Regional

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$100,000.00
Hangar	**	\$155,000.00
Fuel	**	\$100,000.00
Airport Equipment/Equip Bldg	**	\$100,000.00
<i>Subtotal Short Term Costs</i>		<u>\$455,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$80,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$490,000.00
<i>Subtotal Long Term Costs</i>		<u>\$490,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$1,025,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Orr

**Airport Name:** Orr Regional

**Airport Identifier:** ORB

**County:** St. Louis

**Classification:** Intermediate

**General:**

**MnDOT Region:** North

**Regional Commission:** 3

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
13/31	4,001'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	6	1	0	0	0	0	7
2010	6	1	0	0	0	0	7
2015	6	1	0	0	0	0	7
2025	6	1	0	0	0	0	7

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	120	180	300
2010	121	181	301
2015	121	182	303
2025	122	183	305

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Orr

**Airport Name:** Orr Regional

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,001 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	6	100% of Based Aircraft	1 add'l hangar space
Aircraft Apron	13	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	3025 sf	Yes	None
Auto Parking	25	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	None	Snow Removal	Snow Removal

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**Associated City:** Orr  
**Airport Name:** Orr Regional

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Pavement Maintenance	**	\$270,000.00
Auto Spaces/Access Road	**	\$30,000.00
Terminal / A/D Building	**	\$33,145.00
Fuel	**	\$30,000.00
Airport Equipment/Equip Bldg	**	\$270,000.00
Obstruction Removal	**	\$12,000.00
<i>Subtotal Short Term Costs</i>		<u>\$645,145.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Hangar	**	\$385,000.00
Auto Spaces/Access Road	**	\$200,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$585,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$1,261,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,341,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,571,145.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Ortonville  
**Airport Name:** Ortonville Municipal - Martinson Field  
**Airport Identifier:** VVV  
**County:** Big Stone  
**Classification:** Intermediate

**General:**

**MnDOT Region:** West  
**Regional Commission:** 6W  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	16/34	3,417'	75'	Asphalt	MIRL	None
	04/22	2,170'	300'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	5	0	0	0	0	0	5
<b>2010</b>	5	0	0	0	0	0	5
<b>2015</b>	5	0	0	0	0	0	5
<b>2025</b>	5	0	0	0	0	0	5

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	3,810	1,556	5,366
<b>2010</b>	3,810	1,556	5,366
<b>2015</b>	3,810	1,556	5,366
<b>2025</b>	3,810	1,556	5,366

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Ortonville

**Airport Name:** Ortonville Municipal - Martinson Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,417 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	6	100% of Based Aircraft	None
Aircraft Apron	7	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	600 sq. ft.	Yes	None
Auto Parking	15	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	None	Snow Removal	Snow Removal

**Associated City:** Ortonville  
**Airport Name:** Ortonville Municipal - Martinson Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxiway Lighting	**	\$2,500.00
Pavement Maintenance	**	\$405,000.00
Hangar	**	\$220,000.00
Auto Spaces/Access Road	**	\$5,000.00
Terminal / A/D Building	**	\$150,000.00
Fuel	**	\$2,500.00
Security/Fencing	**	\$10,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$875,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,187,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,267,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,142,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Paynesville

**Airport Name:** Paynesville Municipal

**Airport Identifier:** 2P3

**County:**

**Classification:** Intermediate

**General:**

**MnDOT Region:** South

**Regional Commission:** 6E

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
11/29	3,302'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	15	0	0	0	0	0	15
2010	15	0	0	0	0	1	16
2015	15	0	0	0	0	1	16
2025	16	0	0	0	0	2	18

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	200	0	200
2010	211	0	211
2015	222	0	222
2025	247	0	247

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Paynesville

**Airport Name:** Paynesville Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,302 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	None	Non-Precision	Non-Precision Approach
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	None	Rotating Beacon	Rotating Beacon
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	15	100% of Based Aircraft	3 add'l hangar spaces
Aircraft Apron	12	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	5	Paved Spaces Equal to 75% of Based Aircraft	9 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Paynesville  
**Airport Name:** Paynesville Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Taxiway	**	\$100,000.00
Pavement Maintenance	**	\$85,000.00
PAPI	**	\$60,000.00
REILS	**	\$32,000.00
Rotating Beacon	**	\$26,000.00
Approach	**	\$10,000.00
Hangar	**	\$400,000.00
Terminal / A/D Building	**	\$170,000.00
Misc Utilities	**	\$200,000.00
Environmental Assessment	**	\$30,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,113,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Taxiway	**	\$450,000.00
Pavement Maintenance	**	\$5,000.00
Hangar	**	\$250,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$705,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$612,500.00
Landside Development	*	\$89,000.00
<i>Subtotal Long Term Costs</i>		<u>\$701,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,519,500.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Perham

**Airport Name:** Perham Municipal

**Airport Identifier:** 16D

**County:** Otter Tail

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 4

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
12/30	4,100'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	14	3	0	0	2	0	19
<b>2010</b>	14	3	0	0	2	1	20
<b>2015</b>	14	3	0	0	2	1	20
<b>2025</b>	14	3	0	0	2	2	21

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	3,450	1,550	5,000
<b>2010</b>	3,551	1,595	5,146
<b>2015</b>	3,655	1,642	5,297
<b>2025</b>	3,872	1,740	5,612

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Perham

**Airport Name:** Perham Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,100 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs- Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	12	100% of Based Aircraft	10 add'l hangar spaces
Aircraft Apron	10	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	8	Paved Spaces Equal to 75% of Based Aircraft	9 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car/Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Perham  
**Airport Name:** Perham Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Pavement Maintenance	**	\$300,000.00
REILS	**	\$24,000.00
Rotating Beacon	**	\$35,000.00
Hangar	**	\$30,000.00
Terminal / A/D Building	**	\$175,000.00
<i>Subtotal Short Term Costs</i>		<u>\$564,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$1,639,000.00
Landside Development	*	\$89,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,728,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,292,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Pine River  
**Airport Name:** Pine River Regional  
**Airport Identifier:** PWC  
**County:** Cass  
**Classification:** Intermediate  
**General:**

**MnDOT Region:** West  
**Regional Commission:** 5  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
16/34	3,000'	75'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	32	2	0	0	2	0	36
2010	32	2	0	0	2	3	39
2015	33	2	0	0	2	4	41
2025	34	2	0	0	2	5	43

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	3,150	1,850	5,000
2010	3,409	2,002	5,410
2015	3,688	2,166	5,855
2025	4,319	2,537	6,855

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Pine River

**Airport Name:** Pine River Regional

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,000 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	NDB, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	LITL	LITL	None
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs Both runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	None	Rotating Beacon	Rotating Beacon
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	43	100% of Based Aircraft	1 add'l hangar space
Aircraft Apron	10	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	0	Paved Spaces Equal to 75% of Based Aircraft	33 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas, MoGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car, Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilot Lounge	Pilots' Lounge with Weather Reporting	Weather Reporting
Other	Snow Removal	Snow Removal	None

**Associated City:** Pine River  
**Airport Name:** Pine River Regional

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxiway	**	\$25,000.00
Taxilane	**	\$12,000.00
Land Acquisition	**	\$185,000.00
Pavement Maintenance	**	\$175,000.00
Approach	**	\$44,000.00
Hangar	**	\$36,000.00
Apron	**	\$108,000.00
Auto Spaces/Access Road	**	\$15,000.00
Fuel	**	\$80,000.00
Airport Equipment/Equip Bldg	**	\$120,000.00
Security/Fencing	**	\$14,000.00
Master Plan/ALP	**	\$25,000.00
Environmental Assessment	**	\$60,000.00
<i>Subtotal Short Term Costs</i>		<u>\$899,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$360,000.00
Taxiway	**	\$40,000.00
Land Acquisition	**	\$200,000.00
Weather	**	\$15,000.00
Auto Spaces/Access Road	**	\$30,000.00
Terminal / A/D Building	**	\$100,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$745,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$790,000.00
Landside Development	*	\$83,000.00
<i>Subtotal Long Term Costs</i>		<u>\$873,000.00</u>

**Total Cost (2005-2025)** \$2,517,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Pinecreek

**Airport Name:** Piney-Pinecreek Border

**Airport Identifier:** 48Y

**County:** Roseau

**Classification:** Intermediate

**General:**

**MnDOT Region:** North

**Regional Commission:** 1

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
15/33	3,298'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	0	3,000	3,000
2010	0	3,112	3,112
2015	0	3,228	3,228
2025	0	3,474	3,474

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Pinecreek

**Airport Name:** Piney-Pinecreek Border

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,298 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSI - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	0	100% of Based Aircraft	None
Aircraft Apron	8	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	150	Yes	None
Auto Parking	10	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Pinecreek  
**Airport Name:** Piney-Pinecreek Border

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$500,000.00
Land Acquisition	**	\$40,000.00
Pavement Maintenance	**	\$25,000.00
Master Plan/ALP	**	\$20,000.00
<i>Subtotal Short Term Costs</i>		<u>\$585,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$175,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$175,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,319,500.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,399,500.00</u>

**Total Cost (2005-2025)** \$2,159,500.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Pipestone  
**Airport Name:** Pipestone Municipal  
**Airport Identifier:** PQN  
**County:** Pipestone  
**Classification:** Intermediate

**General:**

**MnDOT Region:** West  
**Regional Commission:** 8  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	18/36	4,302'	75'	Asphalt	MIRL	None
	09/27	2,539'	221'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	15	1	0	0	1	0	17
<b>2010</b>	15	1	0	0	1	0	17
<b>2015</b>	15	1	0	0	1	0	17
<b>2025</b>	15	1	0	0	1	0	17

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	882	918	1,800
<b>2010</b>	882	918	1,800
<b>2015</b>	882	918	1,800
<b>2025</b>	882	918	1,800

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Pipestone

**Airport Name:** Pipestone Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,302 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs- Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	16,000 lbs.	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	18	100% of Based Aircraft	None
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	800 sq. ft.	Yes	None
Auto Parking	0	Paved Spaces Equal to 75% of Based Aircraft	14 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Pipestone  
**Airport Name:** Pipestone Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
Hangar	**	\$660,000.00
Terminal / A/D Building	**	\$298,000.00
<i>Subtotal Short Term Costs</i>		<u>\$958,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
Airside Development	*	\$1,407,500.00
Landside Development	*	\$94,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,501,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,459,500.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Preston

**Airport Name:** Fillmore County

**Airport Identifier:** FKA

**County:** Fillmore

**Classification:** Intermediate

**General:**

**MnDOT Region:** South

**Regional Commission:** 10

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
11/29	4,000'	75'	Asphalt	MIRL	Partial

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	16	0	0	0	1	0	17
2010	16	0	0	0	1	0	17
2015	16	0	0	0	1	0	17
2025	16	0	0	0	1	0	17

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	2,028	2,028	4,056
2010	2,054	2,054	4,109
2015	2,081	2,081	4,162
2025	2,136	2,136	4,272

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Preston

**Airport Name:** Fillmore County

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,000 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Partial	Full Parallel	Full Parallel Taxiway
Approach	GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	20	100% of Based Aircraft	None
Aircraft Apron	9	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	6	Paved Spaces Equal to 75% of Based Aircraft	8 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	None	AvGas; Jet A as needed	AvGas
FBO	None	Limited	Limited Service FBO
Ground Transportation	Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restrooms	None
Pilot Lounge	Pilots' Lounge with weather reporting	Pilots' Lounge with Weather Reporting	None
Other	None	Snow Removal	Snow Removal

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**Associated City:** Preston

**Airport Name:** Fillmore County

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Land Acquisition	**	\$187,000.00
Pavement Maintenance	**	\$331,650.00
REILS	**	\$24,000.00
Auto Spaces/Access Road	**	\$80,800.00
Fuel	**	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$703,450.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$537,300.00
Taxiway	**	\$143,300.00
Taxilane	**	\$48,100.00
Hangar	**	\$51,700.00
Apron	**	\$76,625.00
<i>Subtotal Mid Term Costs</i>		<u>\$857,025.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$1,084,500.00
Landside Development	*	\$88,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,172,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,732,975.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Princeton  
**Airport Name:** Princeton Municipal  
**Airport Identifier:** PNM  
**County:** Mille Lacs  
**Classification:** Intermediate

**General:**

**MnDOT Region:** East  
**Regional Commission:** 7E  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
15/33	3,900'	75'	Asphalt	MIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	25	2	0	0	0	0	27
2010	25	2	0	0	0	2	29
2015	26	2	0	0	0	3	31
2025	27	2	0	0	0	4	33

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	6,650	6,650	13,300
2010	7,111	7,111	14,222
2015	7,604	7,604	15,208
2025	8,695	8,695	17,390

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Princeton

**Airport Name:** Princeton Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,900 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Edge and End Lights	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs- Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	27	100% of Based Aircraft	6 add'l hangar spaces
Aircraft Apron	9	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1040 sq. ft.	Yes	None
Auto Parking	12	Paved Spaces Equal to 75% of Based Aircraft	13 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Princeton  
**Airport Name:** Princeton Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$263,000.00
Runway Lighting	**	\$50,000.00
Land Acquisition	**	\$400,000.00
Pavement Maintenance	**	\$220,000.00
Hangar	**	\$460,000.00
Airport Equipment/Equip Bldg	**	\$300,000.00
Security/Fencing	**	\$300,000.00
Environmental Assessment	**	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,073,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$303,000.00
Landside Development	*	\$93,000.00
<i>Subtotal Long Term Costs</i>		<u>\$396,000.00</u>

**Total Cost (2005-2025)** \$2,469,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Red Lake Falls  
**Airport Name:** Red Lake Falls Municipal  
**Airport Identifier:** D81  
**County:** Red Lake  
**Classification:** Intermediate

**General:**

**MnDOT Region:** North  
**Regional Commission:** 1  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
15/33	2,500'	60'	Asphalt	NSTD LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	9	0	0	0	0	0	9
<b>2010</b>	9	0	0	0	0	0	9
<b>2015</b>	9	0	0	0	0	0	9
<b>2025</b>	9	0	0	0	0	0	9

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	8,400	1,600	10,000
<b>2010</b>	8,400	1,600	10,000
<b>2015</b>	8,400	1,600	10,000
<b>2025</b>	8,400	1,600	10,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Red Lake Falls

**Airport Name:** Red Lake Falls Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,500 feet	Less than 5,000 feet	None
Primary Runway Width	60 feet	75 feet	Additional 15 feet of Width
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	None	Non-Precision	Non-Precision Approach
Runway Lighting	NSTD LIRL	MIRL	MIRL
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSIs - Both Runway Ends
REILs	none	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	8	100% of Based Aircraft	1 add'l hangar space
Aircraft Apron	1	50% of Daily Transient	2 add'l apron spaces
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	0	Paved Spaces Equal to 75% of Based Aircraft	7 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	None	AvGas; Jet A as needed	AvGas
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilot Lounge	Pilots' Lounge with Weather Reporting	Weather Reporting
Other	Snow Removal	Snow Removal	None

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**Associated City:** Red Lake Falls  
**Airport Name:** Red Lake Falls Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$175,000.00
Land Acquisition	**	\$10,000.00
Pavement Maintenance	**	\$32,000.00
Approach	**	\$1,500.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$298,500.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,819,500.00
Landside Development	*	\$87,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,906,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,205,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Redwood Falls  
**Airport Name:** Redwood Falls Municipal  
**Airport Identifier:** RWF  
**County:** Redwood  
**Classification:** Intermediate

**General:**

**MnDOT Region:** West  
**Regional Commission:** 8  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	12/30	4,001'	100'	Asphalt	MIRL	Full
	05/23	2,050'	200'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	7	4	0	1	0	0	12
<b>2010</b>	7	4	0	1	0	0	12
<b>2015</b>	7	4	0	1	0	0	12
<b>2025</b>	7	5	0	1	0	0	13

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	7,888	3,712	11,600
<b>2010</b>	7,888	3,712	11,600
<b>2015</b>	7,888	3,712	11,600
<b>2025</b>	7,888	3,712	11,600

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Redwood Falls

**Airport Name:** Redwood Falls Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,001 feet	Less than 5,000 feet	None
Primary Runway Width	100 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	MITL	LITL	None
Weather Reporting	ASOS	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	23,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	12	100% of Based Aircraft	1 add'l hangar space
Aircraft Apron	30	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1200sf	Yes	None
Auto Parking	20	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas, Jet A	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Redwood Falls  
**Airport Name:** Redwood Falls Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$1,140,000.00
Taxiway	**	\$150,000.00
Land Acquisition	**	\$150,000.00
Pavement Maintenance	**	\$12,000.00
REILS	**	\$30,000.00
Hangar	**	\$400,000.00
Misc Utilities	**	\$120,000.00
Airport Equipment/Equip Bldg	**	\$267,500.00
Obstruction Removal	**	\$25,000.00
Master Plan/ALP	*	\$50,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,344,500.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$100,000.00
Taxiway Lighting	**	\$40,000.00
Pavement Maintenance	**	\$474,000.00
PAPI	**	\$30,000.00
Rotating Beacon	**	\$60,000.00
Windcone	**	\$6,000.00
Airport Equipment/Equip Bldg	**	\$150,000.00
Obstruction Removal	**	\$50,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$910,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$20,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$100,000.00</u>

**Total Cost (2005-2025)** \$3,354,500.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Roseau

**Airport Name:** Roseau Municipal - Rudy Billberg Field

**Airport Identifier:** ROX

**County:** Roseau

**Classification:** Intermediate

**General:**

**MnDOT Region:** North

**Regional Commission:** 1

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	16/34	4,400'	75'	Asphalt	MIRL	Full
	06/24	2,504'	250'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	12	0	0	0	3	0	15
<b>2010</b>	12	0	0	0	3	1	16
<b>2015</b>	12	0	0	0	3	1	16
<b>2025</b>	12	0	0	0	3	2	17

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	2,900	2,100	5,000
<b>2010</b>	3,008	2,178	5,187
<b>2015</b>	3,121	2,260	5,380
<b>2025</b>	3,358	2,432	5,790

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Roseau

**Airport Name:** Roseau Municipal - Rudy Billberg Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,400 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	10	100% of Based Aircraft	7 add'l hangar spaces
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	10,000 sq. ft.	Yes	None
Auto Parking	25	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas, Jet A	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	None	Snow Removal	Snow Removal

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**Associated City:** Roseau

**Airport Name:** Roseau Municipal - Rudy Billberg Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$124,000.00
Land Acquisition	**	\$334,200.00
Pavement Maintenance	**	\$292,000.00
Misc Utilities	**	\$264,000.00
Security/Fencing	**	\$150,000.00
Master Plan/ALP	*	\$80,000.00
Environmental Assessment	**	\$30,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,274,200.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$1,300,000.00
Runway Width	**	\$1,500,000.00
Runway Lighting	**	\$400,000.00
Taxiway Lighting	**	\$300,000.00
Land Acquisition	**	\$210,000.00
Pavement Maintenance	**	\$45,000.00
PAPI	**	\$150,000.00
Approach Lighting	**	\$400,000.00
Approach	**	\$400,000.00
Hangar	**	\$305,000.00
Apron	**	\$200,000.00
Terminal / A/D Building	**	\$175,000.00
Misc Utilities	**	\$65,000.00
Security/Fencing	**	\$150,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$5,600,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$80,000.00</u>

**Total Cost (2005-2025)** \$6,954,200.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Rush City  
**Airport Name:** Rush City Regional  
**Airport Identifier:** ROS  
**County:** Chisago  
**Classification:** Intermediate  
**General:**

**MnDOT Region:** East  
**Regional Commission:** 7E  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**                    Runway                    Length                    Width                    Surface                    Lights                    Taxiway  
    16/34                    4,400'                    75'                    Asphalt                    MIRL                    Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	39	2	0	0	1	0	42
2010	39	2	0	0	1	4	46
2015	40	2	0	0	1	5	48
2025	44	2	0	0	1	8	55

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	4,998	2,812	7,810
2010	5,513	3,101	8,614
2015	6,081	3,420	9,501
2025	7,398	4,161	11,559

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Rush City

**Airport Name:** Rush City Regional

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,400 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Full Parallel	Full Parallel	None
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	45	100% of Based Aircraft	10 add'l hangar spaces
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	300 sf	Yes	None
Auto Parking	6	Paved Spaces Equal to 75% of Based Aircraft	35 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas, Jet A	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Rush City  
**Airport Name:** Rush City Regional

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$2,709,000.00
Runway Lighting	**	\$80,000.00
Land Acquisition	**	\$351,100.00
Hangar	**	\$360,000.00
Terminal / A/D Building	**	\$50,000.00
Environmental Assessment	**	\$22,000.00
<i>Subtotal Short Term Costs</i>		<u>\$3,572,100.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,762,000.00
Landside Development	*	\$115,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,877,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$5,449,100.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project  
 \*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Rushford

**Airport Name:** Rushford Municipal

**Airport Identifier:** 55Y

**County:** Fillmore

**Classification:** Intermediate

**General:**

**MnDOT Region:** South

**Regional Commission:** 10

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
16/34	3,200'	60'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	7	0	0	0	0	0	7
2010	7	0	0	0	0	0	7
2015	7	0	0	0	0	0	7
2025	7	0	0	0	0	2	9

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	600	400	1,000
2010	608	405	1,013
2015	616	410	1,026
2025	632	421	1,053

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Rushford

**Airport Name:** Rushford Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,200 feet	Less than 5,000 feet	None
Primary Runway Width	60 feet	75 feet	Additional 15 feet of Width
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	VOR/DME, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSIs - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	7	100% of Based Aircraft	2 add'l hangar spaces
Aircraft Apron	5	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	100 sq. ft.	Yes	None
Auto Parking	0	Paved Spaces Equal to 75% of Based Aircraft	7 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Call Ahead Courtesy Shuttle	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Rushford  
**Airport Name:** Rushford Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$45,000.00
Taxilane	**	
Runway Lighting	**	\$24,000.00
Pavement Maintenance	**	\$46,000.00
Windcone	**	\$8,000.00
Weather	**	\$100,000.00
Hangar	**	\$375,000.00
Apron	**	\$65,000.00
Terminal / A/D Building	**	\$10,000.00
Fuel	**	\$20,000.00
Airport Equipment/Equip Bldg	**	\$50,000.00
Master Plan/ALP	**	\$35,000.00
<i>Subtotal Short Term Costs</i>		<u>\$778,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$160,000.00
Land Acquisition	**	\$350,000.00
Pavement Maintenance	**	\$60,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$650,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,731,000.00
Landside Development	*	\$7,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,738,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,166,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Sauk Centre  
**Airport Name:** Sauk Centre Municipal  
**Airport Identifier:** D39  
**County:** Stearns  
**Classification:** Intermediate

**General:**

**MnDOT Region:** South  
**Regional Commission:** 7W  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	14/32	3,300'	60'	Asphalt	LIRL	None
	08/26	2,270'	140'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	11	0	0	0	3	0	14
<b>2010</b>	11	0	0	0	3	0	14
<b>2015</b>	11	0	0	0	3	2	16
<b>2025</b>	12	1	0	0	3	4	20

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	3,627	2,223	5,850
<b>2010</b>	3,823	2,343	6,166
<b>2015</b>	4,030	2,470	6,500
<b>2025</b>	4,478	2,744	7,222

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Sauk Centre

**Airport Name:** Sauk Centre Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,300 feet	Less than 5,000 feet	None
Primary Runway Width	60 feet	75 feet	Additional 15 feet of Width
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS	Non-Precision	None
Runway Lighting	LIRL	MIRL	MIRL
Taxiway Lighting	LITL	LITL	None
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSIs - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	14	100% of Based Aircraft	5 add'l hangar spaces
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	6,400 sq. ft.	Yes	None
Auto Parking	22	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	None	Phone	Phone
Restrooms	None	Yes	Restrooms
Pilot Lounge	None	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting
Other	Snow Removal	Snow Removal	None

**Associated City:** Sauk Centre  
**Airport Name:** Sauk Centre Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$314,000.00
Runway Lighting	**	\$130,000.00
Land Acquisition	**	\$425,000.00
Pavement Maintenance	**	\$235,000.00
PAPI	**	\$46,000.00
REILS	**	\$24,000.00
Hangar	**	\$385,000.00
Apron	**	\$115,000.00
Auto Spaces/Access Road	**	\$160,000.00
Terminal / A/D Building	**	\$50,000.00
Misc Utilities	**	\$20,000.00
Airport Equipment/Equip Bldg	**	\$8,000.00
Obstruction Removal	**	\$30,000.00
Master Plan/ALP	*	\$20,000.00
Environmental Assessment	**	\$10,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,972,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxiway	**	\$410,000.00
Land Acquisition	**	\$250,000.00
Pavement Maintenance	**	\$28,000.00
Windcone	**	\$6,000.00
Fuel	**	\$40,000.00
Security/Fencing	**	\$50,000.00
Environmental Assessment	**	\$10,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$794,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,497,500.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,577,500.00</u>

**Total Cost (2005-2025)** \$4,343,500.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Silver Bay

**Airport Name:** Silver Bay Municipal

**Airport Identifier:** BFW

**County:** Lake

**Classification:** Intermediate

**General:**

**MnDOT Region:** North

**Regional Commission:** 3

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
07/25	3,200'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	11	1	0	0	2	0	14
2010	11	1	0	0	2	0	14
2015	11	1	0	0	2	0	14
2025	11	1	0	0	2	0	14

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	800	200	1,000
2010	814	203	1,017
2015	828	207	1,035
2025	856	214	1,070

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Silver Bay

**Airport Name:** Silver Bay Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,200 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	26,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	11	100% of Based Aircraft	4 add'l hangar spaces
Aircraft Apron	8	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	8320 sf	Yes	None
Auto Parking	12	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Call Ahead Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Silver Bay  
**Airport Name:** Silver Bay Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$1,800,000.00
Taxiway	**	\$200,000.00
Land Acquisition	**	\$100,000.00
Pavement Maintenance	**	\$100,000.00
Rotating Beacon	**	\$7,500.00
Terminal / A/D Building	**	\$240,000.00
Misc Utilities	**	\$40,000.00
Airport Equipment/Equip Bldg	**	\$50,000.00
Security/Fencing	**	\$203,950.00
Obstruction Removal	**	\$15,000.00
Master Plan/ALP	*	\$80,000.00
Environmental Assessment	**	\$57,895.00
<i>Subtotal Short Term Costs</i>		<u>\$2,894,345.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxiway	**	\$1,000,000.00
Pavement Maintenance	**	\$100,000.00
Hangar	**	\$315,880.00
Apron	**	\$500,000.00
Fuel	**	\$200,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$2,195,880.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$258,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$338,000.00</u>

**Total Cost (2005-2025)** \$5,428,225.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Slayton

**Airport Name:** Slayton Municipal

**Airport Identifier:** 60Y

**County:** Murray

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 8

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
17/35	3,005'	60'	Asphalt	NSTD LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	8	0	0	0	1	0	9
2010	8	0	0	0	1	0	9
2015	8	0	0	0	1	0	9
2025	8	0	0	0	1	0	9

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	637	63	700
2010	637	63	700
2015	637	63	700
2025	637	63	700

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Slayton

**Airport Name:** Slayton Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,005 feet	Less than 5,000 feet	None
Primary Runway Width	60 feet	75 feet	Additional 15 feet of Width
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS	Non-Precision	None
Runway Lighting	NSTD LIRL	MIRL	MIRL
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	8	100% of Based Aircraft	1 add'l hangar space
Aircraft Apron	7	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	4	Paved Spaces Equal to 75% of Based Aircraft	3 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilot Lounge	Pilots' Lounge with Weather Reporting	Weather Reporting
Other	Snow Removal	Snow Removal	None

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**Associated City:** Slayton  
**Airport Name:** Slayton Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Pavement Maintenance	**	\$79,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$159,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Pavement Maintenance	**	\$20,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$20,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$482,625.00
Landside Development	*	\$83,000.00
<i>Subtotal Long Term Costs</i>		<u>\$565,625.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$744,625.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Springfield

**Airport Name:** Springfield Municipal

**Airport Identifier:** D42

**County:** Brown

**Classification:** Intermediate

**General:**

**MnDOT Region:** South

**Regional Commission:** 9

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
13/31	3,400'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	4	0	0	0	0	0	4
2010	4	0	0	0	0	0	4
2015	4	0	0	0	0	0	4
2025	4	0	0	0	0	0	4

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	166	34	200
2010	166	34	200
2015	166	34	200
2025	166	34	200

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Springfield

**Airport Name:** Springfield Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,400 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	VOR, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,000 lbs.	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	7	100% of Based Aircraft	None
Aircraft Apron	5	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1500 sf	Yes	None
Auto Parking	10	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	None	Snow Removal	Snow Removal

**Associated City:** Springfield  
**Airport Name:** Springfield Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$300,000.00
Taxiway	**	\$862,500.00
Taxilane	**	\$45,000.00
Runway Lighting	**	
Land Acquisition	**	\$75,000.00
Pavement Maintenance	**	\$50,000.00
PAPI	**	\$60,000.00
REILS	**	\$30,000.00
Hangar	**	\$543,000.00
Airport Equipment/Equip Bldg	**	\$150,000.00
Obstruction Removal	**	
Master Plan/ALP	*	\$80,000.00
Environmental Assessment	**	\$190,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,385,500.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$600,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$600,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$378,500.00
<i>Subtotal Long Term Costs</i>		<u>\$378,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,364,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** St. James  
**Airport Name:** St. James Municipal  
**Airport Identifier:** JYG  
**County:** Watonwan  
**Classification:** Intermediate  
**General:**

**MnDOT Region:** South  
**Regional Commission:** 9  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

**Airfield:**                    Runway                    Length                    Width                    Surface                    Lights                    Taxiway  
    15/33                    4,000'                    75'                    Asphalt                    MIRL                    Partial

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	10	1	1	0	3	0	15
2010	10	1	1	0	3	0	15
2015	10	1	1	0	3	0	15
2025	10	1	2	0	3	0	16

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	756	1,044	1,800
2010	756	1,044	1,800
2015	756	1,044	1,800
2025	756	1,044	1,800

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** St. James

**Airport Name:** St. James Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,000 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	NDB, GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	LITL	LITL	None
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	15	100% of Based Aircraft	1 add'l hangar space
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	600 sf	Yes	None
Auto Parking	35	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Call Ahead Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** St. James  
**Airport Name:** St. James Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxiway	**	\$750,000.00
Land Acquisition	**	\$56,000.00
Pavement Maintenance	**	\$60,000.00
Hangar	**	\$430,000.00
Terminal / A/D Building	**	\$550,000.00
Master Plan/ALP	*	\$65,000.00
Environmental Assessment	**	\$60,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,971,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$860,000.00
Land Acquisition	**	\$100,000.00
Pavement Maintenance	**	\$30,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$990,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$80,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$160,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,121,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Staples

**Airport Name:** Staples Municipal

**Airport Identifier:** SAZ

**County:** Wadena

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 5

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
14/32	4,000'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	25	0	0	0	5	0	30
<b>2010</b>	25	0	0	0	5	0	30
<b>2015</b>	26	0	0	0	5	0	31
<b>2025</b>	26	0	0	0	5	0	31

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	6,624	2,976	9,600
<b>2010</b>	6,691	3,006	9,697
<b>2015</b>	6,759	3,037	9,796
<b>2025</b>	6,897	3,099	9,996

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Staples

**Airport Name:** Staples Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,304 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Partial	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	LITL	LITL	None
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSIs - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	30	100% of Based Aircraft	1 add'l hangar space
Aircraft Apron	1	50% of Daily Transient	2 add'l apron spaces
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	15	Paved Spaces Equal to 75% of Based Aircraft	8 add'l auto spaces
Fencing	None	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge	None	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting
Other	Snow Removal	Snow Removal	None

**Associated City:** Staples  
**Airport Name:** Staples Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Pavement Maintenance	**	\$500,000.00
Hangar	**	\$320,000.00
Auto Spaces/Access Road	**	\$100,000.00
Airport Equipment/Equip Bldg	**	\$200,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,120,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$400,000.00
Land Acquisition	**	\$500,000.00
Approach Lighting	**	\$300,000.00
Hangar	**	\$100,000.00
Auto Spaces/Access Road	**	\$100,000.00
Airport Equipment/Equip Bldg	**	\$425,000.00
Master Plan/ALP	*	\$80,000.00
Environmental Assessment	**	\$50,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$1,955,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,052,000.00
Landside Development	*	
<i>Subtotal Long Term Costs</i>		<u>\$1,052,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$4,127,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Stephen  
**Airport Name:** Stephen Municipal  
**Airport Identifier:** D41  
**County:** Marshall  
**Classification:** Intermediate

**General:**

**MnDOT Region:** North  
**Regional Commission:** 1  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
17/35	2,700'	60'	Asphalt	LIRL	Full

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	10	0	0	0	1	0	11
2010	10	0	0	0	1	0	11
2015	10	0	0	0	1	0	11
2025	10	0	0	0	1	0	11

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	2,000	500	2,500
2010	2,000	500	2,500
2015	2,000	500	2,500
2025	2,000	500	2,500

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Stephen

**Airport Name:** Stephen Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,700 feet	Less than 5,000 feet	None
Primary Runway Width	60 feet	75 feet	Additional 15 feet of Width
Taxiway Type	Full Parallel	Full Parallel	Full Parallel Taxiway
Approach	None	Non-Precision	Non-Precision Approach
Runway Lighting	LIRL	MIRL	MIRL
Taxiway Lighting	LITL	LITL	None
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSIs - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	8	100% of Based Aircraft	3 add'l hangar spaces
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	0	Paved Spaces Equal to 75% of Based Aircraft	8 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	None	AvGas; Jet A as needed	AvGas
FBO	None	Limited	Limited Service FBO
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	None
Phone	Phone	Phone	None
Restrooms	None	Restrooms	Restrooms
Pilot Lounge	Pilot Lounge	Pilots' Lounge with Weather Reporting	Weather Reporting
Other	Snow Removal	Snow Removal	None

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**Associated City:** Stephen  
**Airport Name:** Stephen Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$250,000.00
Land Acquisition	**	\$25,000.00
Misc Utilities	**	\$6,000.00
Airport Equipment/Equip Bldg	**	\$40,000.00
Security/Fencing	**	\$20,000.00
<i>Subtotal Short Term Costs</i>		<u>\$341,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$80,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$1,661,500.00
Landside Development	*	\$8,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,669,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,090,500.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Tower

**Airport Name:** Tower Municipal

**Airport Identifier:** 12D

**County:** St. Louis

**Classification:** Intermediate

**General:**

**MnDOT Region:** North

**Regional Commission:** 3

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
18/26	3,400'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	26	3	1	0	1	0	31
<b>2010</b>	26	3	1	0	1	0	31
<b>2015</b>	27	3	1	0	1	0	32
<b>2025</b>	27	3	2	0	1	2	35

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	2,701	999	3,700
<b>2010</b>	2,713	1,003	3,716
<b>2015</b>	2,725	1,008	3,733
<b>2025</b>	2,749	1,017	3,766

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Tower

**Airport Name:** Tower Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,400 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	None	Non-Precision	Non-Precision Approach
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSIs - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	None	Rotating Beacon	Rotating Beacon
Other - Visual Aids	None	Lighted Wind Indicator	Lighted Wind Indicator
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	25	100% of Based Aircraft	10 add'l hangar spaces
Aircraft Apron	12	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	576 sq. ft.	Yes	None
Auto Parking	12	Paved Spaces Equal to 75% of Based Aircraft	14 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Tower

**Airport Name:** Tower Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$280,000.00
Land Acquisition	**	\$125,000.00
Pavement Maintenance	**	\$208,467.00
Rotating Beacon	**	\$35,000.00
Hangar	**	\$800,000.00
Airport Equipment/Equip Bldg	**	\$1,200.00
Obstruction Removal	**	\$25,000.00
Master Plan/ALP	*	\$15,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,489,667.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airport Equipment/Equip Bldg	**	\$245,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$245,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,818,000.00
Landside Development	*	\$94,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,912,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,646,667.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Tracy

**Airport Name:** Tracy Municipal

**Airport Identifier:** TKC

**County:** Lyon

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 8

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	11/29	3,100'	75'	Asphalt	MIRL	None
	06/24	2,590'	200'	Turf	None	None
	17/35	1,825'	200'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	10	0	0	0	0	0	10
<b>2010</b>	10	0	0	0	0	0	10
<b>2015</b>	10	0	0	0	0	0	10
<b>2025</b>	10	0	0	0	0	2	12

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	428	1,357	1,785
<b>2010</b>	430	1,363	1,793
<b>2015</b>	432	1,369	1,801
<b>2025</b>	436	1,381	1,816

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Tracy

**Airport Name:** Tracy Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,100 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	None	Non-Precision	Non-Precision
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSIs - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	10	100% of Based Aircraft	2 add'l hangar spaces
Aircraft Apron	5	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1,200 sq. ft.	Yes	None
Auto Parking	0	Paved Spaces Equal to 75% of Based Aircraft	9 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Courtesy Car, Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

**Associated City:** Tracy  
**Airport Name:** Tracy Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$530,000.00
Taxilane	**	\$75,000.00
Runway Lighting	**	\$50,000.00
Pavement Maintenance	**	\$300,000.00
PAPI	**	\$55,000.00
Hangar	**	\$30,000.00
Auto Spaces/Access Road	**	\$55,000.00
Terminal / A/D Building	**	\$35,000.00
Security/Fencing	**	\$40,000.00
Master Plan/ALP	*	\$80,000.00
Environmental Assessment	**	\$50,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,300,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Master Plan/ALP	*	\$50,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$50,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$1,475,500.00
Landside Development	*	\$89,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,564,500.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,914,500.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Two Harbors  
**Airport Name:** Richard B. Helgeson  
**Airport Identifier:** TWM  
**County:** Lake  
**Classification:** Intermediate

**General:**

**MnDOT Region:** North  
**Regional Commission:** 3  
**Scheduled Air Service:** No  
**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	06/24	4,400'	75'	Asphalt	MIRL	Partial
	15/33	2,550'	150'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	25	2	0	0	6	0	33
<b>2010</b>	25	2	0	0	6	1	34
<b>2015</b>	26	2	0	0	6	1	35
<b>2025</b>	26	2	0	0	6	2	36

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	5,500	5,500	11,000
<b>2010</b>	5,594	5,594	11,189
<b>2015</b>	5,690	5,690	11,381
<b>2025</b>	5,887	5,887	11,775

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Two Harbors

**Airport Name:** Richard B. Helgeson

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,400 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Partial	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS - 3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	34	100% of Based Aircraft	2 add'l hangar spaces
Aircraft Apron	24	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	672 sf	Yes	None
Auto Parking	43	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas, Jet A, MoGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Two Harbors  
**Airport Name:** Richard B. Helgeson

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Taxilane	**	\$210,000.00
Pavement Maintenance	**	\$750,000.00
Hangar	**	\$442,000.00
Terminal / A/D Building	**	\$20,000.00
Airport Equipment/Equip Bldg	**	\$41,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,463,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$725,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$805,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,268,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Wadena

**Airport Name:** Wadena Municipal

**Airport Identifier:** ADC

**County:** Wadena

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 5

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
16/34	4,005'	75'	Asphalt	MIRL	Partial

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	10	1	0	0	0	0	11
2010	10	1	0	0	0	0	11
2015	10	1	0	0	0	0	11
2025	10	1	0	0	0	2	13

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	12,988	4,563	17,551
2010	13,120	4,610	17,729
2015	13,253	4,656	17,909
2025	13,523	4,751	18,274

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Wadena

**Airport Name:** Wadena Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	4,005 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Partial Parallel	Full Parallel	Full Parallel Taxiway
Approach	GPS	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS-3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	PAPIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	12	100% of Based Aircraft	1 add'l hangar space
Aircraft Apron	8	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	500 sq. ft.	Yes	None
Auto Parking	8	Paved Spaces Equal to 75% of Based Aircraft	2 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas, MoGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Wadena  
**Airport Name:** Wadena Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$550,000.00
Pavement Maintenance	**	\$100,000.00
Fuel	**	\$60,000.00
Airport Equipment/Equip Bldg	**	\$80,000.00
Master Plan/ALP	*	\$1,200.00
Environmental Assessment	**	\$100,000.00
<i>Subtotal Short Term Costs</i>		<u>\$891,200.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airport Equipment/Equip Bldg	**	\$40,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$40,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$834,000.00
Landside Development	*	\$82,000.00
<i>Subtotal Long Term Costs</i>		<u>\$916,000.00</u>

**Total Cost (2005-2025)** \$1,847,200.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Walker

**Airport Name:** Walker Municipal

**Airport Identifier:** Y49

**County:** Cass

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 5

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
14/32	2,803'	75'	Asphalt	MIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	23	0	0	0	0	0	23
<b>2010</b>	23	0	0	0	0	2	25
<b>2015</b>	24	0	0	0	0	3	27
<b>2025</b>	26	0	0	0	0	4	30

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	4,508	4,692	9,200
<b>2010</b>	4,878	5,077	9,955
<b>2015</b>	5,279	5,494	10,773
<b>2025</b>	6,181	6,433	12,614

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Walker

**Airport Name:** Walker Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,803 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	Non-Precision	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	27	100% of Based Aircraft	3 add'l hangar spaces
Aircraft Apron	11	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	Yes	Yes	None
Auto Parking	22	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	100LL	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	Car Rental	Courtesy Car/ Off-Site Rental Car	None
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Walker  
**Airport Name:** Walker Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$950,000.00
Taxiway	**	\$300,000.00
Land Acquisition	**	\$50,000.00
Hangar	**	\$140,000.00
Apron	**	\$600,000.00
Airport Equipment/Equip Bldg	**	\$85,000.00
Security/Fencing	**	\$250,000.00
Obstruction Removal	**	\$2,000.00
Environmental Assessment	**	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,457,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Hangar	**	\$675,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$675,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$443,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$523,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,655,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Warren

**Airport Name:** Warren Municipal

**Airport Identifier:** D37

**County:** Marshall

**Classification:** Intermediate

**General:**

**MnDOT Region:** North

**Regional Commission:** 1

**Scheduled Air Service:** No

**Included in the NPIAS:** No

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	12/30	3,205'	75'	Asphalt	NSTD MIRL	None
	04/22	2,606'	200'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	4	0	0	0	0	0	4
<b>2010</b>	4	0	0	0	0	0	4
<b>2015</b>	4	0	0	0	0	0	4
<b>2025</b>	4	0	0	0	0	0	4

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	8,977	10,123	19,100
<b>2010</b>	8,977	10,123	19,100
<b>2015</b>	8,977	10,123	19,100
<b>2025</b>	8,977	10,123	19,100

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Warren

**Airport Name:** Warren Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,205 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	VOR/DME	Non-Precision	None
Runway Lighting	NSTD MIRL	MIRL	Standard MIRL
Taxiway Lighting	None	LITL	LITL
Weather Reporting	None	AWOS/ASOS	AWOS/ASOS
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSIs - Both Runway Ends
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	26,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	3	100% of Based Aircraft	1 add'l hangar space
Aircraft Apron	6	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	800 sq. ft.	Yes	None
Auto Parking	8	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Warren  
**Airport Name:** Warren Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Pavement Maintenance	**	\$175,000.00
Hangar	**	\$150,000.00
Auto Spaces/Access Road	**	\$6,000.00
Security/Fencing	**	\$4,000.00
Master Plan/ALP	*	\$80,000.00
<i>Subtotal Short Term Costs</i>		<u>\$415,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$1,535,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,615,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,030,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Waseca

**Airport Name:** Waseca Municipal

**Airport Identifier:** ACQ

**County:** Waseca

**Classification:** Intermediate

**General:**

**MnDOT Region:** South

**Regional Commission:** 9

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
15/33	3,398'	75'	Asphalt	MIRL	Partial

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	25	1	0	0	1	0	27
<b>2010</b>	25	1	0	0	1	0	27
<b>2015</b>	26	1	0	0	1	0	28
<b>2025</b>	26	1	0	0	1	2	30

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	5,760	2,240	8,000
<b>2010</b>	5,818	2,263	8,081
<b>2015</b>	5,877	2,286	8,163
<b>2025</b>	5,997	2,332	8,330

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Waseca

**Airport Name:** Waseca Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,398 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Partial Parallel	Full Parallel	Full Parallel Taxiway
Approach	VOR/DME, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	MITL	LITL	None
Weather Reporting	AWOS-3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	25	100% of Based Aircraft	5 add'l hangar spaces
Aircraft Apron	3	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	900 sq. ft.	Yes	None
Auto Parking	12	Paved Spaces Equal to 75% of Based Aircraft	11 add'l auto spaces
Fencing	Fencing	To Control Airfield Access	None
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	Limited	Limited	None
Ground Transportation	Courtesy Car	Courtesy Car/ Off-Site Rental Car	None
Food Services	Vending	Vending	None
Phone	Phone	Phone	None
Restrooms	Restroom	Restroom	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	Snow Removal	Snow Removal	None

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**Associated City:** Waseca  
**Airport Name:** Waseca Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Taxilane	**	\$200,000.00
Pavement Maintenance	**	\$100,000.00
Hangar	**	\$350,000.00
Terminal / A/D Building	**	\$250,000.00
Fuel	**	\$20,000.00
Airport Equipment/Equip Bldg	**	\$360,000.00
Master Plan/ALP	*	\$80,000.00
Environmental Assessment	**	\$60,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,420,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$1,500,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$1,500,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$426,000.00
Landside Development	*	\$91,000.00
<i>Subtotal Long Term Costs</i>		<u>\$517,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,437,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Wheaton

**Airport Name:** Wheaton Municipal

**Airport Identifier:** ETH

**County:** Traverse

**Classification:** Intermediate

**General:**

**MnDOT Region:** West

**Regional Commission:** 4

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	16/34	3,300'	75'	Asphalt	MIRL	None
	06/24	1,919'	175'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	9	0	0	0	0	0	9
<b>2010</b>	9	0	0	0	0	0	9
<b>2015</b>	9	0	0	0	0	0	9
<b>2025</b>	9	0	0	0	0	0	9

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	3,080	920	4,000
<b>2010</b>	3,080	920	4,000
<b>2015</b>	3,080	920	4,000
<b>2025</b>	3,080	920	4,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Wheaton

**Airport Name:** Wheaton Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,300 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	None	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	None	LITL	LITL
Weather Reporting	AWOS-3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	VASIs - Both Runway Ends	Both Runway Ends	None
REILs	None	Both Runway Ends	REILs - Both Runway Ends
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	12,500 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	12	100% of Based Aircraft	None
Aircraft Apron	3	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	2000 sq. ft.	Yes	None
Auto Parking	12	Paved Spaces Equal to 75% of Based Aircraft	None
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	None	Snow Removal	Snow Removal

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**Associated City:** Wheaton  
**Airport Name:** Wheaton Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
Runway Length	**	\$1,760,000.00
PAPI	**	\$125,000.00
Hangar	**	\$500,000.00
Apron	**	\$150,000.00
Fuel	**	\$60,000.00
Airport Equipment/Equip Bldg	**	\$100,000.00
Environmental Assessment	**	\$125,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,820,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
Airside Development	*	\$1,306,000.00
Landside Development	*	\$80,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,386,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$4,206,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Windom

**Airport Name:** Windom Municipal

**Airport Identifier:** MWM

**County:** Cottonwood

**Classification:** Intermediate

**General:**

**MnDOT Region:** South

**Regional Commission:** 8

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
17/35	3,599'	75'	Asphalt	MIRL	Partial

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	13	1	0	0	0	0	14
<b>2010</b>	13	1	0	0	0	0	14
<b>2015</b>	13	1	0	0	0	0	14
<b>2025</b>	13	1	0	0	0	0	14

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	750	750	1,500
<b>2010</b>	750	750	1,500
<b>2015</b>	750	750	1,500
<b>2025</b>	750	750	1,500

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Windom

**Airport Name:** Windom Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Intermediate Airports**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,599 feet	Less than 5,000 feet	None
Primary Runway Width	75 feet	75 feet	None
Taxiway Type	Partial	Full Parallel	Full Parallel Taxiway
Approach	GPS, NDB	Non-Precision	None
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	Reflectors	LITL	LITL
Weather Reporting	AWOS-3	AWOS/ASOS	None
Approach Lighting System	None	MALS	MALS
VGSI	None	Both Runway Ends	VGSIs - Both Runway Ends
REILs	Both Runway Ends	Both Runway Ends	None
Other - Visual Aids	Rotating Beacon	Rotating Beacon	None
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator	None
Pavement Strength	15,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel	30,000 lbs. - Single Wheel
<b>Landside Facilities</b>			
Covered Aircraft Storage	16	100% of Based Aircraft	None
Aircraft Apron	3	50% of Daily Transient	None
General Aviation Terminal/Admin. Building	1200 sq. ft.	Yes	None
Auto Parking	3	Paved Spaces Equal to 75% of Based Aircraft	8 add'l auto spaces
Fencing	None	To Control Airfield Access	Fencing
<b>Services</b>			
Fuel	AvGas	AvGas; Jet A as needed	None
FBO	None	Limited	Limited Service FBO
Ground Transportation	None	Courtesy Car/ Off-Site Rental Car	Courtesy Car/ Site Rental Car      Off
Food Services	None	Vending	Vending
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge	Pilots' Lounge with Weather Reporting	Pilots' Lounge with Weather Reporting	None
Other	None	Snow Removal	Snow Removal

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**Associated City:** Windom  
**Airport Name:** Windom Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$843,000.00
Land Acquisition	**	\$465,000.00
Pavement Maintenance	**	\$606,750.00
Hangar	**	\$6,250.00
Terminal / A/D Building	**	\$10,000.00
<i>Subtotal Short Term Costs</i>		<u>\$1,931,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$1,296,000.00
Landside Development	*	\$88,000.00
<i>Subtotal Long Term Costs</i>		<u>\$1,384,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$3,315,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Backus

**Airport Name:** Backus Municipal

**Airport Identifier:** 7Y3

**County:** Cass

**Classification:** Landing Strip

**General:**

**MnDOT Region:** West

**Regional Commission:** 5

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
15/33	3,588'	145'	Turf	NSTD LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	6	1	0	0	0	0	7
2010	6	1	0	0	0	1	8
2015	6	1	0	0	0	1	8
2025	6	1	0	0	0	5	12

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	4,032	2,368	6,400
2010	4,363	2,562	6,925
2015	4,721	2,773	7,494
2025	5,528	3,247	8,775

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Backus

**Airport Name:** Backus Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	3,588 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	145 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	NSTD LIRL	LIRL (Pilot Controlled)	Standard LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	8	As Needed	None
Aircraft Apron	10	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	10	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	AvGas, MoGas	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge		Not an Objective	

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**Associated City:** Backus  
**Airport Name:** Backus Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Turf/Pavement Maintenance	**	\$5,000.00
Hangar	**	\$5,000.00
Obstruction Removal	**	\$10,000.00
Master Plan/ALP	**	
Environmental Assessment	**	
<i>Subtotal Short Term Costs</i>		<u>\$20,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$143,520.00
<i>Subtotal Long Term Costs</i>		<u>\$143,520.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$163,520.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Big Falls  
**Airport Name:** Big Falls Municipal  
**Airport Identifier:** 7Y9  
**County:** Koochiching  
**Classification:** Landing Strip

**General:**

**MnDOT Region:** North  
**Regional Commission:** 3  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	03/21	2,850'	150'	Turf	NSTD	None
	11/29	2,602'	200'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	1	0	0	0	0	0	1
<b>2010</b>	1	0	0	0	0	0	1
<b>2015</b>	1	0	0	0	0	0	1
<b>2025</b>	1	0	0	0	0	0	1

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	200	200	400
<b>2010</b>	200	200	400
<b>2015</b>	200	200	400
<b>2025</b>	200	200	400

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Big Falls

**Airport Name:** Big Falls Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,850 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	150 feet	60 feet paved; 75 feet turf	None
Taxiway Type	None	Exits as Needed	None
Approach	Visual	Visual	None
Runway Lighting	NSTD	LIRL (Pilot Controlled)	Standard LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	3	As Needed	None
Aircraft Apron	3	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	0	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge		Not an Objective	

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**Associated City:** Big Falls  
**Airport Name:** Big Falls Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Auto Spaces/Access Road	**	\$2,000.00
Terminal / A/D Building	**	\$3,500.00
<i>Subtotal Short Term Costs</i>		<hr/> \$5,500.00

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<hr/> \$0.00

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$104,080.00
<i>Subtotal Long Term Costs</i>		<hr/> \$104,080.00
<b>Total Cost (2005-2025)</b>		<hr/> <hr/> \$109,580.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Bowstring

**Airport Name:** Bowstring Municipal

**Airport Identifier:** 9Y0

**County:**

**Classification:** Landing Strip

**General:**

**MnDOT Region:** North

**Regional Commission:** 3

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
07/25	2,600'	150'	Turf	LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	7	0	0	0	0	0	7
2010	7	0	0	0	0	0	7
2015	7	0	0	0	0	0	7
2025	7	0	0	0	0	0	7

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	900	900	1,800
2010	923	923	1,847
2015	947	947	1,895
2025	997	997	1,995

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Bowstring

**Airport Name:** Bowstring Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,600 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	150 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	LIRL	LIRL (Pilot Controlled)	None
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Wind Sock	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	8	As Needed	None
Aircraft Apron	6	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	50	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge		Not an Objective	

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**Associated City:** Bowstring  
**Airport Name:** Bowstring Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

*Project Description:*

Estimated Cost

*Subtotal Short Term Costs*

\$0.00

**Mid Term (2011-2015)**

*Project Description:*

Estimated Cost

*Subtotal Mid Term Costs*

\$0.00

**Long Term (2016-2025)**

*Project Description:*

Estimated Cost

*Subtotal Long Term Costs*

\$0.00

**Total Cost (2005-2025)**

\$0.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Clarissa

**Airport Name:** Clarissa Municipal

**Airport Identifier:** 8Y5

**County:** Todd

**Classification:** Landing Strip

**General:**

**MnDOT Region:** South

**Regional Commission:** 5

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
10/28	2,560'	200'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	1	0	0	0	0	0	1
2010	1	0	0	0	0	0	1
2015	1	0	0	0	0	0	1
2025	1	0	0	0	0	0	1

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	448	382	830
2010	452	385	838
2015	456	389	845
2025	465	396	861

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Clarissa

**Airport Name:** Clarissa Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,560 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	200 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	None	LIRL (Pilot Controlled)	LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Wind Sock	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	1	As Needed	None
Aircraft Apron	0	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	0	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge		Not an Objective	

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**Associated City:** Clarissa  
**Airport Name:** Clarissa Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>	<i>Estimated Cost</i>
Master Plan/ALP *	\$45,000.00
<i>Subtotal Short Term Costs</i>	<u>\$45,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>	<i>Estimated Cost</i>
<i>Subtotal Mid Term Costs</i>	<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>	<i>Estimated Cost</i>
Airside Development *	\$104,000.00
Landside Development *	\$45,000.00
<i>Subtotal Long Term Costs</i>	<u>\$149,000.00</u>
<b>Total Cost (2005-2025)</b>	<u><u>\$194,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** East Gull Lake  
**Airport Name:** East Gull Lake Municipal  
**Airport Identifier:** 9Y2  
**County:** Cass  
**Classification:** Landing Strip

**General:**

**MnDOT Region:** West  
**Regional Commission:** 5  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
13/31	2,618'	160'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	0	1,000	1,000
2010	0	1,082	1,082
2015	0	1,171	1,171
2025	0	1,371	1,371

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** East Gull Lake

**Airport Name:** East Gull Lake Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,618 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	160 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	None	LIRL (Pilot Controlled)	LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Wind Sock	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	0	As Needed	None
Aircraft Apron	8	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	4	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge		Not an Objective	

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**Associated City:** East Gull Lake  
**Airport Name:** East Gull Lake Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>	<i><u>Estimated Cost</u></i>
<i>Subtotal Short Term Costs</i>	<u>\$0.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>	<i><u>Estimated Cost</u></i>
<i>Subtotal Mid Term Costs</i>	<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>	<i><u>Estimated Cost</u></i>
Airside Development *	\$104,720.00
<i>Subtotal Long Term Costs</i>	<u>\$104,720.00</u>
<b>Total Cost (2005-2025)</b>	<u><u>\$104,720.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Elbow Lake

**Airport Name:** Elbow Municipal - Pride of the Prairie

**Airport Identifier:** Y63

**County:** Grant

**Classification:** Landing Strip

**General:**

**MnDOT Region:** West

**Regional Commission:** 4

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
14/32	2,795'	200'	Turf	NSTD LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	15	0	0	0	3	0	18
<b>2010</b>	15	0	0	0	3	0	18
<b>2015</b>	15	0	0	0	3	0	18
<b>2025</b>	15	0	0	0	3	0	18

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	2,680	1,320	4,000
<b>2010</b>	2,680	1,320	4,000
<b>2015</b>	2,680	1,320	4,000
<b>2025</b>	2,680	1,320	4,000

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Elbow Lake

**Airport Name:** Elbow Municipal - Pride of the Prairie

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	2,795 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	200 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	NSTD LIRL	LIRL (Pilot Controlled)	Standard LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	12	As Needed	None
Aircraft Apron	6	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	0	50% of Based Aircraft	9 add'l auto spaces
Fencing		Not an Objective	
<b>Services</b>			
Fuel	AvGas	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge		Not an Objective	

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**Associated City:** Elbow Lake

**Airport Name:** Elbow Municipal - Pride of the Prairie

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$963,000.00
Taxiway	**	\$52,000.00
Runway Lighting	**	\$153,000.00
Turf/Pavement Maintenance	**	\$293,000.00
PAPI	**	\$39,000.00
REILS	**	\$29,000.00
Rotating Beacon	**	\$55,000.00
Weather	**	\$75,000.00
Hangar	**	\$438,000.00
Auto Spaces/Access Road	**	\$189,000.00
Airport Equipment/Equip Bldg	**	\$204,000.00
Security/Fencing	**	\$12,000.00
Obstruction Removal	**	\$2,000.00
Master Plan/ALP	**	\$30,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,534,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$9,000.00
<i>Subtotal Long Term Costs</i>		<u>\$9,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$2,543,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Grygla

**Airport Name:** Grygla Municipal - Mel Wilkens Field

**Airport Identifier:** 3G2

**County:** Marshall

**Classification:** Landing Strip

**General:**

**MnDOT Region:** North

**Regional Commission:** 1

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
17/35	3,437'	92'	Turf	LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	0	450	450
2010	0	450	450
2015	0	450	450
2025	0	450	450

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Grygla

**Airport Name:** Grygla Municipal - Mel Wilkens Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,437 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	92 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	LIRL	LIRL (Pilot Controlled)	None
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indictaor	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	0	As Needed	None
Aircraft Apron	12	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	0	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge		Not an Objective	

---

**Associated City:** Grygla  
**Airport Name:** Grygla Municipal-Mel Wilkens Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airport Equipment/Equip Bldg	**	\$20,000.00
<i>Subtotal Short Term Costs</i>		<u>\$20,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airport Equipment/Equip Bldg	**	\$25,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$25,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Long Term Costs</i>		<u>\$0.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$45,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Henning

**Airport Name:** Henning Municipal

**Airport Identifier:** O5Y

**County:** Otter Tail

**Classification:** Landing Strip

**General:**

**MnDOT Region:** West

**Regional Commission:** 4

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
17/35	3,280'	200'	Turf	NSTD LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	10	0	0	0	0	0	10
2010	10	0	0	0	0	0	10
2015	10	0	0	0	0	0	10
2025	10	0	0	0	2	0	12

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	112	38	150
2010	116	39	154
2015	119	40	159
2025	126	42	168

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Henning

**Airport Name:** Henning Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,280 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	200 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	NSTD LIRL	LIRL (Pilot Controlled)	Standard LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	15	As Needed	None
Aircraft Apron	25	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	12	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	AvGas	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	None	Phone	Phone
Restrooms	Restrooms	Restrooms	None
Pilot Lounge		Not an Objective	

---

**Associated City:** Henning  
**Airport Name:** Henning Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
PAPI	**	\$6,000.00
REILS	**	\$8,000.00
<i>Subtotal Short Term Costs</i>		<u>\$14,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Airside Development	*	\$131,200.00
<i>Subtotal Long Term Costs</i>		<u>\$131,200.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$145,200.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Hill City

**Airport Name:** Hill City - Quadna Mountain

**Airport Identifier:** 07Y

**County:** Aitkin

**Classification:** Landing Strip

**General:**

**MnDOT Region:** East

**Regional Commission:** 3

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
16/34	2,850'	150'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	0	0	0	0	0	0	0
<b>2010</b>	0	0	0	0	0	0	0
<b>2015</b>	0	0	0	0	0	0	0
<b>2025</b>	0	0	0	0	0	0	0

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	0	500	500
<b>2010</b>	0	526	526
<b>2015</b>	0	553	553
<b>2025</b>	0	613	613

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Hill City

**Airport Name:** Hill City - Quadna Mountain

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	2,850 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	150 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	None	LIRL (Pilot Controlled)	LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Wind Sock	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	0	As Needed	None
Aircraft Apron	0	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	0	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge		Not an Objective	

---

**Associated City:** Hill City  
**Airport Name:** Hill City - Quadna Mountain

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>	<i><u>Estimated Cost</u></i>
<i>Subtotal Short Term Costs</i>	<hr/> \$0.00

**Mid Term (2011-2015)**

<i>Project Description:</i>	<i><u>Estimated Cost</u></i>
<i>Subtotal Mid Term Costs</i>	<hr/> \$0.00

**Long Term (2016-2025)**

<i>Project Description:</i>	<i><u>Estimated Cost</u></i>
Airside Development *	\$114,000.00
<i>Subtotal Long Term Costs</i>	<hr/> \$114,000.00
<b>Total Cost (2005-2025)</b>	<hr/> <hr/> \$114,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Karlstad

**Airport Name:** Karlstad Municipal

**Airport Identifier:** 23D

**County:** Kittson

**Classification:** Landing Strip

**General:**

**MnDOT Region:** North

**Regional Commission:** 1

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
17/35	2,606'	159'	Turf	NSTD LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	2	0	0	0	0	0	2
2010	2	0	0	0	0	0	2
2015	2	0	0	0	0	0	2
2025	2	0	0	0	0	0	2

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	0	26	26
2010	0	26	26
2015	0	26	26
2025	0	26	26

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Karlstad

**Airport Name:** Karlstad Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	2,606 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	159 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	NSTD LIRL	LIRL (Pilot Controlled)	Standard LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	2	As Needed	None
Aircraft Apron	3	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	50	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge		Not an Objective	

---

**Associated City:** Karlstad  
**Airport Name:** Karlstad Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

*Project Description:*

Estimated Cost

*Subtotal Short Term Costs*

\$0.00

**Mid Term (2011-2015)**

*Project Description:*

Estimated Cost

*Subtotal Mid Term Costs*

\$0.00

**Long Term (2016-2025)**

*Project Description:*

Estimated Cost

Airside Development

\*

\$104,240.00

*Subtotal Long Term Costs*

\$104,240.00

**Total Cost (2005-2025)**

\$104,240.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Littlefork

**Airport Name:** Littlefork Municipal - Hanover

**Airport Identifier:** 13Y

**County:** Koochiching

**Classification:** Landing Strip

**General:**

**MnDOT Region:** North

**Regional Commission:** 3

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
09/27	3,000'	150'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	2	0	0	0	0	0	2
2010	2	0	0	0	0	0	2
2015	2	0	0	0	0	0	2
2025	2	0	0	0	0	0	2

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	560	240	800
2010	560	240	800
2015	560	240	800
2025	560	240	800

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Littlefork

**Airport Name:** Littlefork Municipal - Hanover

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,000 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	150 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	None	LIRL (Pilot Controlled)	LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Wind Sock	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	5	As Needed	None
Aircraft Apron	2	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	0	50% of Based Aircraft	1 add'l auto space
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge		Not an Objective	

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**Associated City:** Littlefork  
**Airport Name:** Littlefork Municipal - Hanover

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>	<i>Estimated Cost</i>
Runway Lighting **	\$16,000.00
<i>Subtotal Short Term Costs</i>	<u>\$16,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>	<i>Estimated Cost</i>
<i>Subtotal Mid Term Costs</i>	<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>	<i>Estimated Cost</i>
Airside Development *	\$120,000.00
<i>Subtotal Long Term Costs</i>	<u>\$120,000.00</u>
<b>Total Cost (2005-2025)</b>	<u><u>\$136,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Mahnomen

**Airport Name:** Mahnomen County

**Airport Identifier:** 3N8

**County:** Mahnomen

**Classification:** Landing Strip

**General:**

**MnDOT Region:** West

**Regional Commission:** 2

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
16/34	3,210'	150'	Turf	NSTD LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	17	0	0	0	0	0	17
<b>2010</b>	17	0	0	0	0	0	17
<b>2015</b>	17	0	0	0	0	0	17
<b>2025</b>	18	0	0	0	0	0	18

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	2,720	480	3,200
<b>2010</b>	2,730	482	3,212
<b>2015</b>	2,741	484	3,224
<b>2025</b>	2,761	487	3,249

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Mahnomen

**Airport Name:** Mahnomen County

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	3,210 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	150 feet	60 feet paved; 75 feet turf	None
Taxiway Type	Exit to Apron	Exits as Needed	None
Approach	Visual	Visual	None
Runway Lighting	NSTD LIRL	LIRL (Pilot Controlled)	Standard LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	3	As Needed	None
Aircraft Apron	7	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	0	50% of Based Aircraft	9 add'l auto spaces
Fencing		Not an Objective	
<b>Services</b>			
Fuel	AvGas, MoGas	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	Phone	Phone	None
Restrooms	None	Restrooms	Restrooms
Pilot Lounge		Not an Objective	

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**Associated City:** Mahnomen  
**Airport Name:** Mahnomen County

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$1,862,000.00
Taxiway	**	\$150,000.00
Runway Lighting	**	\$78,000.00
Land Acquisition	**	\$122,000.00
PAPI	**	\$60,000.00
REILS	**	\$32,000.00
Hangar	**	\$340,000.00
Terminal / A/D Building	**	\$42,000.00
Fuel	**	\$30,000.00
Airport Equipment/Equip Bldg	**	\$88,000.00
Obstruction Removal	**	\$280,000.00
Master Plan/ALP	**	\$5,000.00

*Subtotal Short Term Costs* \$3,089,000.00

**Mid Term (2011-2015)**

*Project Description:* *Estimated Cost*

*Subtotal Mid Term Costs* \$0.00

**Long Term (2016-2025)**

*Project Description:* *Estimated Cost*

*Subtotal Long Term Costs* \$0.00

**Total Cost (2005-2025)** \$3,089,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Milaca

**Airport Name:** Milaca Municipal

**Airport Identifier:** 18Y

**County:** Mille Lacs

**Classification:** Landing Strip

**General:**

**MnDOT Region:** East

**Regional Commission:** 7E

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
16/34	2,900'	150'	Turf	NSTD LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	25	1	0	0	2	0	28
2010	25	1	0	0	2	2	30
2015	26	1	0	0	2	3	32
2025	26	1	0	0	2	4	33

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	1,386	814	2,200
2010	1,482	870	2,353
2015	1,585	931	2,516
2025	1,812	1,064	2,877

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Milaca

**Airport Name:** Milaca Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

Existing	System Objective	Recommended	
<b>Airside Facilities</b>			
Primary Runway Length	2,900 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	150 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	NSTD LIRL	LIRL (Pilot Controlled)	Standard LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	2	As Needed	None
Aircraft Apron	10	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	0	50% of Based Aircraft	16 add'l auto spaces
Fencing		Not an Objective	
<b>Services</b>			
Fuel	AvGas	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge		Not an Objective	

---

**Associated City:** Milaca  
**Airport Name:** Milaca Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

*Project Description:*

Estimated Cost

*Subtotal Short Term Costs*

\$0.00

**Mid Term (2011-2015)**

*Project Description:*

Estimated Cost

*Subtotal Mid Term Costs*

\$0.00

**Long Term (2016-2025)**

*Project Description:*

Estimated Cost

Airside Development

\*

\$116,000.00

*Subtotal Long Term Costs*

\$116,000.00

**Total Cost (2005-2025)**

\$116,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Murdock

**Airport Name:** Murdock Municipal

**Airport Identifier:** 23Y

**County:** Swift

**Classification:** Landing Strip

**General:**

**MnDOT Region:** West

**Regional Commission:** 6W

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
12/30	3,415'	150'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	0	20	20
2010	0	20	20
2015	0	20	20
2025	0	21	21

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Murdock

**Airport Name:** Murdock Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,415 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	150 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	None	LIRL (Pilot Controlled)	LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Wind Sock	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	0	As Needed	None
Aircraft Apron	3	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	0	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge		Not an Objective	

---

**Associated City:** Murdock  
**Airport Name:** Murdock Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

*Project Description:*

Estimated Cost

*Subtotal Short Term Costs*

\$0.00

**Mid Term (2011-2015)**

*Project Description:*

Estimated Cost

*Subtotal Mid Term Costs*

\$0.00

**Long Term (2016-2025)**

*Project Description:*

Estimated Cost

Airside Development

\*

\$136,600.00

*Subtotal Long Term Costs*

\$136,600.00

**Total Cost (2005-2025)**

\$136,600.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** New York Mills  
**Airport Name:** New York Mills Municipal  
**Airport Identifier:** 25Y  
**County:** Otter Tail  
**Classification:** Landing Strip

**General:**

**MnDOT Region:** West  
**Regional Commission:** 4  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
12/30	2,500'	196'	Turf	NSTD LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	1	0	0	0	0	0	1
<b>2010</b>	1	0	0	0	0	0	1
<b>2015</b>	1	0	0	0	0	0	1
<b>2025</b>	1	0	0	0	0	2	3

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	61	50	110
<b>2010</b>	62	51	113
<b>2015</b>	64	52	117
<b>2025</b>	68	56	123

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** New York Mills

**Airport Name:** New York Mills Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	2,500 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	196 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	NSTD LIRL	LIRL (Pilot Controlled)	Standard LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	1	As Needed	None
Aircraft Apron	5	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	20	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge		Not an Objective	

---

**Associated City:** New York Mills  
**Airport Name:** New York Mills Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Lighting	**	\$3,000.00
Auto Spaces/Access Road	**	\$1,800.00
Terminal / A/D Building	**	\$300.00
Misc Utilities	**	\$1,000.00
Airport Equipment/Equip Bldg	**	\$5,750.00
Obstruction Removal	**	\$1,200.00
<i>Subtotal Short Term Costs</i>		<u>\$13,050.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$100,000.00
<i>Subtotal Long Term Costs</i>		<u>\$100,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$113,050.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Northome

**Airport Name:** Northome Municipal

**Airport Identifier:** 43Y

**County:** Koochiching

**Classification:** Landing Strip

**General:**

**MnDOT Region:** North

**Regional Commission:** 3

**Scheduled Air Service:** No

**Included in the NPIAS:** No

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	12/30	2,500'	147'	Turf	NSTD LIRL	None
	02/20	2,201'	148'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	0	0	0	0	0	0	0
<b>2010</b>	0	0	0	0	0	0	0
<b>2015</b>	0	0	0	0	0	0	0
<b>2025</b>	0	0	0	0	0	0	0

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	25	25	50
<b>2010</b>	25	25	50
<b>2015</b>	25	25	50
<b>2025</b>	25	25	50

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Northome

**Airport Name:** Northome Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	2,500 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	147 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	NSTD LIRL	LIRL (Pilot Controlled)	Standard LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	1	As Needed	None
Aircraft Apron	5	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	10	50% of Based Aircraft	Nno
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge		Not an Objective	

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**Associated City:** Northome  
**Airport Name:** Northome Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Rotating Beacon	**	\$7,000.00
Auto Spaces/Access Road	**	\$10,000.00
Airport Equipment/Equip Bldg	**	\$15,000.00
Obstruction Removal	**	\$5,000.00
<i>Subtotal Short Term Costs</i>		<u>\$37,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Hangar	**	\$10,000.00
Airport Equipment/Equip Bldg	**	\$4,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$14,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$128,000.00
<i>Subtotal Long Term Costs</i>		<u>\$128,000.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$179,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Pelican Rapids

**Airport Name:** Pelican Rapids Municipal - Lyon's Field

**Airport Identifier:** 47Y

**County:** Otter Tail

**Classification:** Landing Strip

**General:**

**MnDOT Region:** West

**Regional Commission:** 4

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
15/33	3,260'	150'	Turf	NSTD LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	14	0	0	0	0	0	14
2010	14	0	0	0	0	0	14
2015	14	0	0	0	0	0	14
2025	14	0	0	0	0	0	14

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	400	100	500
2010	412	103	515
2015	424	106	530
2025	449	112	561

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Pelican Rapids

**Airport Name:** Pelican Rapids Municipal - Lyon's Field

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,260 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	150 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	NSTD LIRL	LIRL (Pilot Controlled)	Standard LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	14	As Needed	None
Aircraft Apron	6	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	0	50% of Based Aircraft	7 add'l auto spaces
Fencing		Not an Objective	
<b>Services</b>			
Fuel	AvGas, MoGas	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge		Not an Objective	

**Associated City:** Pelican Rapids  
**Airport Name:** Pelican Rapids Municipal - Lyon's Field

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$550,000.00
Turf/Pavement Maintenance	**	\$70,000.00
REILS	**	\$30,000.00
Weather	**	\$3,000.00
Hangar	**	\$160,000.00
Auto Spaces/Access Road	**	\$10,000.00
Fuel	**	\$25,000.00
Airport Equipment/Equip Bldg	**	\$75,000.00
<i>Subtotal Short Term Costs</i>		<u>\$923,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$130,400.00
<i>Subtotal Long Term Costs</i>		<u>\$130,400.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$1,053,400.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Remer

**Airport Name:** Remer Municipal

**Airport Identifier:** 52Y

**County:** Cass

**Classification:** Landing Strip

**General:**

**MnDOT Region:** West

**Regional Commission:** 5

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
13/31	2,765'	154'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	4	0	0	0	2	0	6
<b>2010</b>	4	0	0	0	2	0	6
<b>2015</b>	4	0	0	0	2	0	6
<b>2025</b>	4	0	0	0	2	1	7

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	125	125	250
<b>2010</b>	135	135	270
<b>2015</b>	146	146	292
<b>2025</b>	171	171	342

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Remer

**Airport Name:** Remer Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,765 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	154 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	None	LIRL (Pilot Controlled)	LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Wind Sock	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	5	As Needed	None
Aircraft Apron	4	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	10	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	Phone	Phone	None
Restrooms	None	Restrooms	Restrooms
Pilot Lounge		Not an Objective	

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**Associated City:** Remer  
**Airport Name:** Remer Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Turf/Pavement Maintenance	**	\$5,000.00
Airport Equipment/Equip Bldg	**	\$5,500.00
Obstruction Removal	**	\$10,000.00
<i>Subtotal Short Term Costs</i>		<hr/> \$20,500.00

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<hr/> \$0.00

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$110,600.00
<i>Subtotal Long Term Costs</i>		<hr/> \$110,600.00
<b>Total Cost (2005-2025)</b>		<hr/> <hr/> \$131,100.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Sleepy Eye  
**Airport Name:** Sleepy Eye Municipal  
**Airport Identifier:** Y58  
**County:** Brown  
**Classification:** Landing Strip

**General:**

**MnDOT Region:** South  
**Regional Commission:** 9  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

<b>Airfield:</b>	<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
	14/32	2,500'	300'	Turf	NSTD LIRL	None
	04/22	2,440'	300'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	6	0	0	0	4	0	10
<b>2010</b>	6	0	0	0	4	0	10
<b>2015</b>	6	0	0	0	4	0	10
<b>2025</b>	6	0	0	0	4	0	10

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	504	296	800
<b>2010</b>	504	296	800
<b>2015</b>	504	296	800
<b>2025</b>	504	296	800

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Sleepy Eye

**Airport Name:** Sleepy Eye Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,500 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	300 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	NSTD LIRL	LIRL (Pilot Controlled)	Standard LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	14	As Needed	None
Aircraft Apron	3	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	0	50% of Based Aircraft	5 add'l auto spaces
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge		Not an Objective	

**Associated City:** Sleepy Eye  
**Airport Name:** Sleepy Eye Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Turf/Pavement Maintenance	**	\$290,000.00
Airport Equipment/Equip Bldg	**	\$75,000.00
Master Plan/ALP	*	\$40,000.00
<i>Subtotal Short Term Costs</i>		<u>\$405,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Hangar	**	\$250,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$250,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Airside Development	*	\$100,000.00
Landside Development	*	\$45,000.00
<i>Subtotal Long Term Costs</i>		<u>\$145,000.00</u>

<b>Total Cost (2005-2025)</b>		<u><u>\$800,000.00</u></u>
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\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Starbuck

**Airport Name:** Starbuck Municipal

**Airport Identifier:** D32

**County:** Pope

**Classification:** Landing Strip

**General:**

**MnDOT Region:** West

**Regional Commission:** 4

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
15/33	2,512'	198'	Turf	NSTD LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	3	0	0	0	0	0	3
2010	3	0	0	0	0	0	3
2015	3	0	0	0	0	0	3
2025	3	0	0	0	0	0	3

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	76	34	110
2010	76	34	110
2015	76	34	110
2025	77	34	111

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Starbuck

**Airport Name:** Starbuck Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	2,512 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	198 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	NSTD LIRL	LIRL (Pilot Controlled)	Standard LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	3	As Needed	None
Aircraft Apron	3	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	27	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge		Not an Objective	

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**Associated City:** Starbuck  
**Airport Name:** Starbuck Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
Taxiway	**	\$90,280.00
Windcone	**	\$6,000.00
Airport Equipment/Equip Bldg	**	\$23,000.00
Security/Fencing	**	\$20,000.00
<i>Subtotal Short Term Costs</i>		<u>\$139,280.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u><i>Estimated Cost</i></u>
Airside Development	*	\$100,480.00
<i>Subtotal Long Term Costs</i>		<u>\$100,480.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$239,760.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Tyler

**Airport Name:** Tyler Municipal

**Airport Identifier:** 63Y

**County:** Lincoln

**Classification:** Landing Strip

**General:**

**MnDOT Region:** West

**Regional Commission:** 8

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
14/32	2,600'	160'	Turf	LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	3	0	0	0	3	0	6
2010	3	0	0	0	3	0	6
2015	3	0	0	0	3	0	6
2025	3	0	0	0	3	0	6

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	73	27	100
2010	73	27	100
2015	73	27	100
2025	73	27	100

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Tyler

**Airport Name:** Tyler Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

<b>Existing</b>	<b>System Objective</b>	<b>Recommended</b>	
<b>Airside Facilities</b>			
Primary Runway Length	2,500 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	150 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	LIRL	LIRL (Pilot Controlled)	None
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	4	As Needed	None
Aircraft Apron	3	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	100	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge		Not an Objective	

**Associated City:** Tyler  
**Airport Name:** Tyler Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$50,000.00
Taxiway	**	\$15,000.00
Runway Lighting	**	\$15,000.00
Land Acquisition	**	\$33,500.00
Turf/Pavement Maintenance	**	\$39,600.00
Hangar	**	\$177,000.00
Apron	**	\$15,000.00
Auto Spaces/Access Road	**	\$30,000.00
Misc Utilities	**	\$35,000.00
Fuel	**	\$60,000.00
Airport Equipment/Equip Bldg	**	\$50,000.00
Obstruction Removal	**	\$5,000.00
<i>Subtotal Short Term Costs</i>		<u>\$525,100.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Mid Term Costs</i>		<u>\$0.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Long Term Costs</i>		<u>\$0.00</u>

<b>Total Cost (2005-2025)</b>		<u><u>\$525,100.00</u></u>
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\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Waskish

**Airport Name:** Waskish Municipal

**Airport Identifier:** VWU

**County:** Beltrami

**Classification:** Landing Strip

**General:**

**MnDOT Region:** North

**Regional Commission:** 2

**Scheduled Air Service:** No

**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
02/20	3,700'	150'	Turf	None	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0
2015	0	0	0	0	0	0	0
2025	0	0	0	0	0	0	0

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	315	185	500
2010	332	195	526
2015	349	205	554
2025	387	227	614

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Waskish

**Airport Name:** Waskish Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,700 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	150 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	None	LIRL (Pilot Controlled)	LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Wind Sock	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	0	As Needed	None
Aircraft Apron	5	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	0	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	None	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	None	Phone	Phone
Restrooms	None	Restrooms	Restrooms
Pilot Lounge		Not an Objective	

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**Associated City:** Waskish  
**Airport Name:** Waskish Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Runway Length	**	\$200,000.00
Runway Lighting	**	\$30,000.00
Terminal / A/D Building	**	\$30,000.00
Environmental Assessment	**	\$25,000.00
<i>Subtotal Short Term Costs</i>		<u>\$285,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<u>Estimated Cost</u>
Hangar	**	\$30,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$30,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<u>Estimated Cost</u>
<i>Subtotal Long Term Costs</i>		<u>\$0.00</u>
<b>Total Cost (2005-2025)</b>		<u><u>\$315,000.00</u></u>

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

**Associated City:** Wells  
**Airport Name:** Wells Municipal  
**Airport Identifier:** 68Y  
**County:** Faribault  
**Classification:** Landing Strip

**General:**

**MnDOT Region:** South  
**Regional Commission:** 9  
**Scheduled Air Service:** No  
**Included in the NPIAS:** No

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
17/35	2,912'	198'	Turf	NSTD LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
<b>2005</b>	6	0	0	0	0	0	6
<b>2010</b>	6	0	0	0	0	0	6
<b>2015</b>	6	0	0	0	0	0	6
<b>2025</b>	6	0	0	0	0	0	6

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
<b>2005</b>	117	39	156
<b>2010</b>	117	39	156
<b>2015</b>	117	39	156
<b>2025</b>	117	39	156

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Wells

**Airport Name:** Wells Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

Existing	System Objective	Recommended	
<b>Airside Facilities</b>			
Primary Runway Length	2,912 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	198 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	NSTD LIRL	LIRL (Pilot Controlled)	Standard LIRL
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	6	As Needed	None
Aircraft Apron	4	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	6	50% of Based Aircraft	None
Fencing		Not an Objective	
<b>Services</b>			
Fuel	AvGas	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge		Not an Objective	

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**Associated City:** Wells  
**Airport Name:** Wells Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Taxiway	**	\$32,000.00
PAPI	**	\$23,000.00
Approach Lighting	**	\$130,000.00
Hangar	**	\$265,000.00
Fuel	**	\$80,000.00
Airport Equipment/Equip Bldg	**	\$28,000.00
Master Plan/ALP	**	\$30,000.00
<i>Subtotal Short Term Costs</i>		<u>\$588,000.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Lighting	**	\$100,000.00
<i>Subtotal Mid Term Costs</i>		<u>\$100,000.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
<i>Subtotal Long Term Costs</i>		<u>\$0.00</u>

**Total Cost (2005-2025)** \$688,000.00

\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP

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**Associated City:** Winsted

**Airport Name:** Winsted Municipal

**Airport Identifier:** 10D

**County:** McLeod

**Classification:** Landing Strip

**General:**

**MnDOT Region:** South

**Regional Commission:** 6E

**Scheduled Air Service:** No

**Included in the NPIAS:** Yes

**Airfield:**

<u>Runway</u>	<u>Length</u>	<u>Width</u>	<u>Surface</u>	<u>Lights</u>	<u>Taxiway</u>
09/27	3,248'	200'	Turf	LIRL	None

**Forecast Based Aircraft:**

<u>Year</u>	<u>Single Engine</u>	<u>Multi-Engine</u>	<u>Jet</u>	<u>Helicopter</u>	<u>Other</u>	<u>Sport</u>	<u>Total</u>
2005	45	0	0	0	6	0	51
2010	45	0	0	0	6	2	53
2015	46	0	0	0	6	3	55
2025	46	0	0	0	6	4	56

**Forecast General Aviation Operations:**

<u>Year</u>	<u>Local</u>	<u>Itinerant</u>	<u>Total</u>
2005	2,220	780	3,000
2010	2,301	808	3,109
2015	2,384	838	3,222
2025	2,560	899	3,459

Note: Forecast Based Aircraft and General Aviation Operations may not equal sum due to rounding.

**Associated City:** Winsted

**Airport Name:** Winsted Municipal

**Minnesota Aviation System Plan Facility and Service Objectives Summary - Landing Strip**

	Existing	System Objective	Recommended
<b>Airside Facilities</b>			
Primary Runway Length	3,248 feet, turf	At least 3,000 feet paved; 2,500 feet turf	None
Primary Runway Width	200 feet	60 feet paved; 75 feet turf	None
Taxiway Type		Exits as Needed	
Approach	Visual	Visual	None
Runway Lighting	LIRL	LIRL (Pilot Controlled)	None
Taxiway Lighting		Not an Objective	
Weather Reporting		Not an Objective	
Approach Aids		Not an Objective	
VGSI		Not an Objective	
REILs		Not an Objective	
Other - Visual Aids	Lighted Wind Indicator	Lighted Wind Indicator/ Wind Sock	None
Pavement Strength	N/A	12,500 lbs. - Single Wheel	None
<b>Landside Facilities</b>			
Covered Aircraft Storage	60	As Needed	None
Aircraft Apron	6	As Needed	None
General Aviation Terminal/Admin. Building		Not an Objective	
Auto Parking	0	50% of Based Aircraft	28 add'l auto spaces
Fencing		Not an Objective	
<b>Services</b>			
Fuel	AvGas	As Needed	None
FBO		Not an Objective	
Ground Transportation		Not an Objective	
Food Services		Not an Objective	
Phone	Phone	Phone	None
Restrooms	Restrooms	Restrooms	None
Pilot Lounge		Not an Objective	

**Associated City:** Winsted  
**Airport Name:** Winsted Municipal

**Recommended Development Summary**

**Short Term (2005-2010)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Runway Length	**	\$900,000.00
Taxilane	**	\$104,200.00
Runway Lighting	**	\$130,000.00
Land Acquisition	**	\$900,000.00
PAPI	**	\$46,000.00
REILS	**	\$24,000.00
Apron	**	\$5,000.00
Auto Spaces/Access Road	**	\$298,000.00
Airport Equipment/Equip Bldg	**	\$23,000.00
Master Plan/ALP	**	\$15,000.00
Environmental Assessment	**	\$60,000.00
<i>Subtotal Short Term Costs</i>		<u>\$2,505,200.00</u>

**Mid Term (2011-2015)**

<i>Project Description:</i>		<i>Estimated Cost</i>
Turf/Pavement Maintenance	**	\$6,500.00
<i>Subtotal Mid Term Costs</i>		<u>\$6,500.00</u>

**Long Term (2016-2025)**

<i>Project Description:</i>		<i>Estimated Cost</i>
<i>Subtotal Long Term Costs</i>		<u>\$0.00</u>

<b>Total Cost (2005-2025)</b>		<u><u>\$2,511,700.00</u></u>
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\* Denotes a Minnesota Aviation System Plan Recommended Project

\*\* Denotes a project from the Airport's FY2006 CIP





## Appendix A: Air Service

### INTRODUCTION

Over the last ten years, the State of Minnesota Office of Aeronautics has sponsored marketing programs; many individual air service studies; and a 2003 report on Tier 2 airports: Duluth, Rochester and St. Cloud. This 2006 report appends the Minnesota Aviation System Plan and provides an updated assessment of travel patterns, retention rates, and air service prospects for Greater Minnesota airports. The appendix is organized into five sections:

- **Executive Summary**
- **Core Market Analysis** that examines passenger traffic and top travel destinations, local airport retention rates, average fares, changes in the Northwest network, and an estimate of the true size of local commercial service demand.
- **Air Service Strategies** to retain service and take advantage of important changes in the airline industry.
- Findings from a **Telephone Survey** conducted in Bemidji, Brainerd, International Falls, and Chisholm/Hibbing.
- **Individual Airport Data** that includes each airport's top 25 markets and average fares.

### EXECUTIVE SUMMARY

Minnesota has remained, until recently, a rock of air service stability. Northwest Airlines has been the dominant carrier with most other carriers held at bay, serving limited frequencies to their hub airports elsewhere in the United States. The forecasts prepared for this System Plan project a view that local airports will continue to grow at rates commensurate with population, income, and job growth. The real action taking place is at Minneapolis/St. Paul International Airport (MSP). This is the airport that is absorbing the lion's share of the State's increasing demand for airline travel.

The challenge inherent in the enhancement of air service at Greater Minnesota airports is really one of redistribution. With the exceptions of Duluth, International Falls, and Rochester, more than one half of Greater Minnesota passengers drive to Minneapolis/St. Paul for air service. In 2005, approximately 828,000 passengers used Greater Minnesota airports. This number is dwarfed when considering that the Minnesota communities outside of the metro area actually generate an estimated passenger pool of 1.9 million boarding passengers per year. It is the magnitude of this number that stimulates the question: how can Greater Minnesota airports better serve their local passengers?

There are four key components of air service redistribution that merit special attention for Greater Minnesota airports. They are in order of importance:

- 
1. Local leadership
  2. Industry restructuring and opportunity
  3. An understanding of local drivers of demand
  4. Constant readiness, good timing, and a little luck.

The first, local leadership is a surprising contender for the most important factor. However, airport and community leadership is often the difference between the “have’s” and the “have not’s”. The smallest Minnesota airports typically function as a department of city/county government. Cooperation between airport managers, the mayor, and city council is critical to exploiting opportunities. For larger airports, the airport management and their governing boards set the tone for targeting resources and acting upon opportunities. Leadership matters.

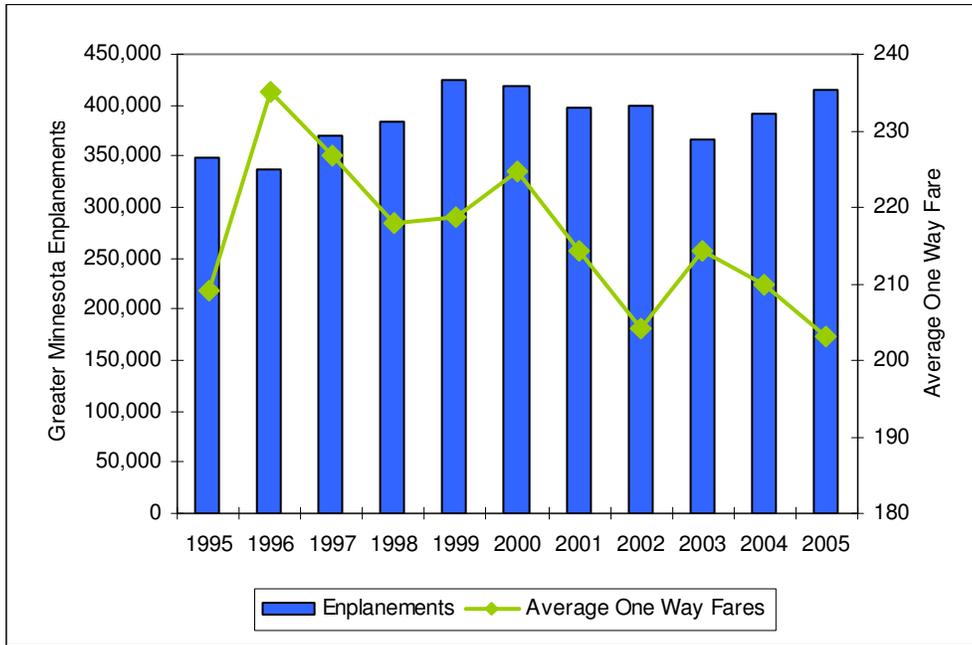
The second factor is industry restructuring and opportunity. While it is too soon to know the details, at the very least, the post-bankruptcy Northwest Airlines will be smaller and leaner. Relationships with regional carriers will undoubtedly change as will service to Greater Minnesota airports. Already Northwest has trimmed Airlink services by over 18 percent over last year. Every local airport and community will be called upon to demonstrate a track record that justifies the same or different level of air service. Again, this a matter of leadership and local community support for its airport.

Today, air carriers are focused on revenue, not the number of passengers they carry. High station revenues at Rochester are among the reasons that this airport has the greatest number of flights and non-stop destinations of any Greater Minnesota airport. Increasingly, carriers view aircraft as moveable assets that are deployed where the return is highest. Today, Greater Minnesota airports are not just competing with fares and service at MSP, but every other U.S. airport where their aircraft could profitably be deployed.

While Northwest’s bankruptcy will undoubtedly close some doors; others will open. Other carriers are increasing their presence in Minnesota. In 2006, Allegiant Air started service to Las Vegas from Duluth. AirTran Airways has doubled departures from MSP. Elsewhere in the U.S., while United Airlines and U.S. Airways were in bankruptcy, Southwest Airlines boldly entered three of their hub strongholds: Denver, Philadelphia, and Pittsburgh. With price-setting power in many of the largest markets, Southwest has retired its perimeter airport strategy in favor of a new willingness to initiate service at the largest airport in a region. A Southwest entry at Minneapolis/St. Paul International may be part of Minnesota’s near-term future.

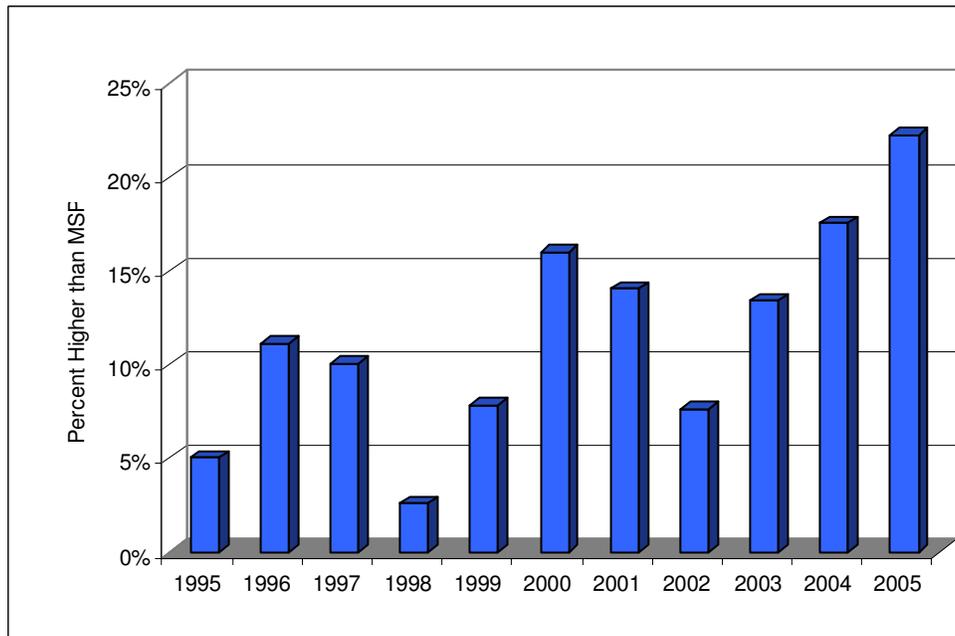
As more competition occurs and if fares decline further at MSP, Greater Minnesota airports, particularly those closest to the Twin Cities are likely to experience increased propensity by local passengers to drive. As **Exhibit A-1** clearly shows, there has been a consistent relationship over time between the cost of air travel and use of local airports. As average fares have declined, passengers have increased their use of Greater Minnesota airports. However, the differential between airfares offered at MSP and at Greater Minnesota airports is on the increase. In 2005, Greater Minnesota airports carried an average fare premium of 22 percent. (See **Exhibit A-2**.) Unless communities can achieve lower fares or common-rated fares with MSP, they will continue to wrestle with the value to passengers of paying a premium for the convenience of local air service.

**Exhibit A-1  
Cost of Air Travel & Use of Greater Minnesota Airports**



Sources: USDOT 10 Percent Sample via DataBase Products and Individual Airport Statistics  
Prepared: January 2006.

**Exhibit A-2  
Average Fare Differentials between Greater Minnesota Airports & MSP**



Source: USDOT 10 Percent Sample via DataBase Products  
Prepared: January 2006.

It is up to each community to know its market size, its strengths and weakness so that as opportunities arise, local leadership can engage in effective campaigns for air service redistribution. This is the third component of enhancing service. The State of Minnesota, Office of Aeronautics has long supported development and upkeep of air service information. A main purpose of this special report on air service is to provide Greater Minnesota airports with an updated core market analysis of unconstrained demand, top travel markets, and assessment of overall air service potential.

As **Table A-1** indicates, an estimated 1.9 million passengers travel to/from the communities served by Greater Minnesota airports. The most frequent travel destinations are: Phoenix, Las Vegas, Denver, Chicago and Orlando, as **Table A-2** shows.

**Table A-1**  
**Existing and Potential Demand at Greater Minnesota Airports**

AIRPORTS	ESTIMATED 2005 TOTAL PASSENGERS	SERVICE AREA POPULATION	UNCONSTRAINED POTENTIAL PASSENGERS	ESTIMATED CURRENT RETENTION RATE
BEMIDJI	59,800	92,500	139,000	43%
BRAINERD	41,400	105,500	158,000	26%
DULUTH	305,750	329,200	473,000	65%
HIBBING	23,200	60,900	82,000	28%
INTERNATIONAL FALLS	43,600	26,600	86,000	51%
ROCHESTER	286,400	344,800	555,000	52%
ST. CLOUD	51,800	314,100	393,000	13%
THIEF RIVER FALLS	10,000	31,800	32,000	31%
TOTAL GREATER MINNESOTA AIRPORTS	821,950	1,305,400	1,918,000	43%

Sources: Individual Airport Records, Woods & Poole Economics, KRAMER aerotek, inc.  
Prepared: February 2006.

**Table A-2  
Minnesota Origin & Destination Passengers  
YE IIIQ 2005**

AIRPORT	O&D BOTH DIRECTIONS		
	MINNEAPOLIS/ ST. PAUL	GREATER MINNESOTA AIRPORTS	TOTAL O&D PASSENGERS
1 SKY HARBOR INTL AZ	654,440	27,280	681,720
2 MCCARRAN INTL NV	631,880	25,310	657,190
3 DENVER INTL CO	629,800	20,110	649,910
4 O'HARE INTL IL	613,070	36,730	649,800
5 ORLANDO INTL FL	607,540	20,410	627,950
6 LOS ANGELES INTL CA	553,050	15,110	568,160
7 CHICAGO MIDWAY IL	445,200	8,880	454,080
8 DALLAS/FT WORTH INTL TX	434,250	19,190	453,440
9 SAN FRANCISCO INTL CA	427,100	11,280	438,380
10 WM B HARTSFIELD GA	409,960	15,820	425,780
11 SEATTLE/TACOMA INTL WA	374,450	14,000	388,450
12 LA GUARDIA NY	332,860	13,360	346,220
13 RONALD REAGAN NTL DC	315,670	18,670	334,340
14 LOGAN INTL MA	296,200	10,590	306,790
15 SW FLORIDA REG FL	290,650	9,640	300,290
16 LINDBERG FIELD CA	276,110	11,480	287,590
17 NEWARK INTL NY	272,030	8,590	280,620
18 WAYNE COUNTY MI	249,020	19,170	268,190
19 PHILADELPHIA INTL PA	255,660	12,010	267,670
20 TAMPA INTL FL	255,300	10,320	265,620
TOP 20 CITIES	8,324,240	327,950	8,652,190
OTHER CITIES	6,779,340	401,590	7,180,930
TOTAL PASSENGERS	15,103,580	729,540	15,833,120
PERCENT SHARE	95.4%	4.6%	100.0%

Source: USDOT 10 Percent Sample via DataBase Products  
Prepared: February 2006.

A number of air service development strategies can and should be explored by Greater Minnesota airports. They are:

- Improved network access either on Northwest or other mainline carriers.
- Recruitment of low cost niche carriers to Greater Minnesota airports willing to provide limited frequency service to top Minnesota destinations.
- Marketing initiatives that target the origin cities of visitors coming to Central and Northern Minnesota in the summer.
- Joint ventures by airports to support specific new air service in a region.
- Community-wide campaigns to increase use of local airports and retain existing air service.

If there are lessons to be learned from the last ten years of air service initiatives, it is that air service opportunities are difficult to anticipate, but almost always present themselves to the communities that support their local airport and are ready to act.

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## CORE MARKET ANALYSIS

A core market analysis evaluates the existing character of air travel under the current regime of service and explores the total level of demand generated in the market area that is served by local and other airports. The core market analysis provides the building blocks to determine what service enhancements are feasible. The analysis here includes:

- A working definition of each Greater Minnesota's catchment market area,
- A profile of existing service,
- Air passenger growth trends and largest travel destinations,
- Current retention rates at Greater Minnesota airports, and
- An estimate of air travel demand generated in each catchment area.

Typically, a core market analysis is completed by an individual airport. The central question of course is: how can this airport achieve a new redistribution of air passengers that better serves local demand and/or captures demand from neighboring airports? From a system perspective, the core analysis presents an opportunity to evaluate from the top down. How are the airports interacting and how can the State direct resources to efficiently serve the region as a whole? The system approach allows a view that is more closely aligned with the carrier's view of their regional network. At no time in the history of the aviation industry have airlines more closely examined each and every route to discern whether the route is profitable or whether the region can more cost effectively be served by scheduled air service to one airport. Already, consolidation is taking place in Minnesota's northeast region. Since the last system plan, Northwest has discontinued service to Grand Rapids and Ely. Service to Hibbing has also been significantly reduced. Under the present financial conditions of Northwest, it would not at all be surprising if further consolidation takes place.

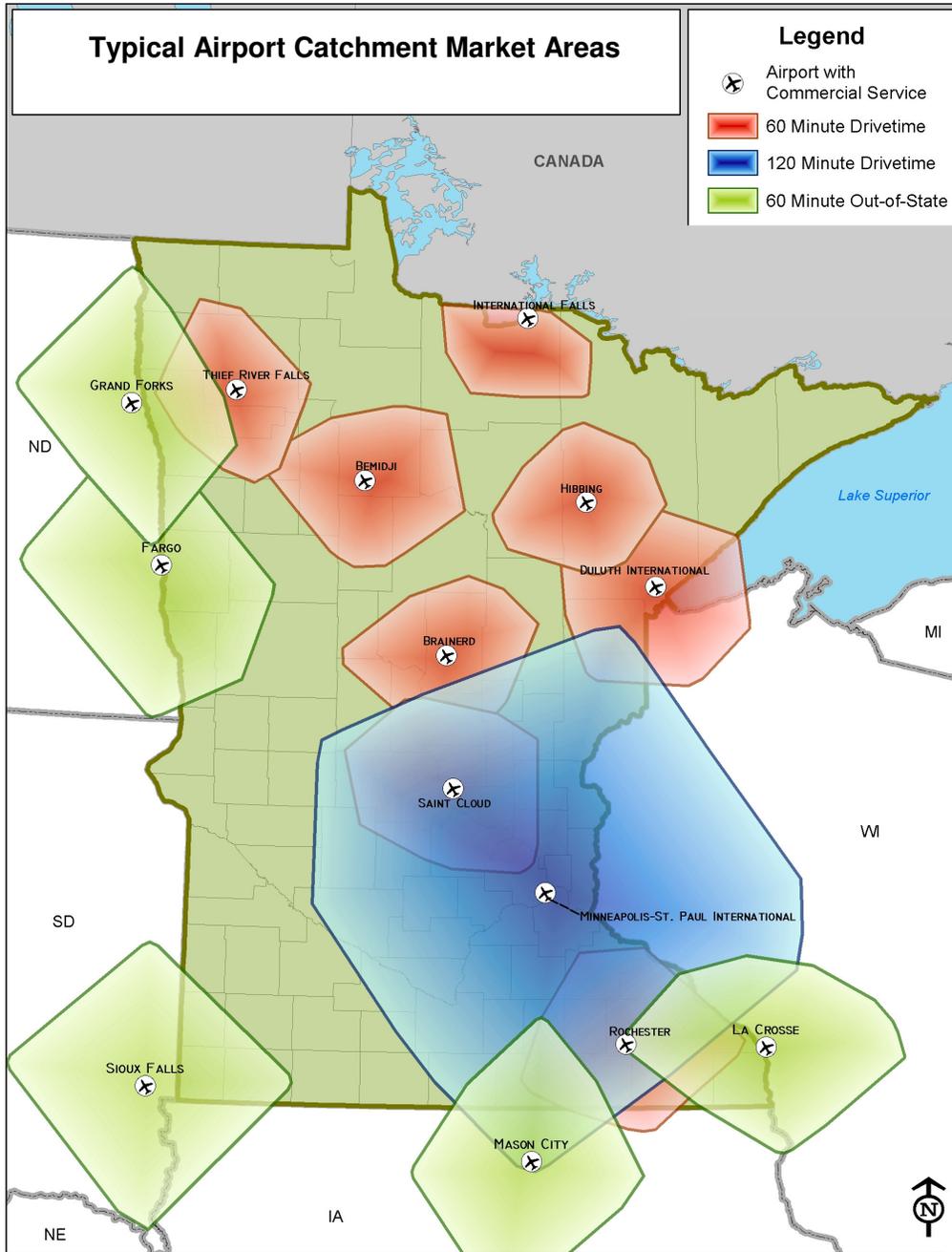
So the core market analysis is a readiness tool for airports and for the State to discern how well an airport is serving its local demand and what additional service might be supported.

### Airport Catchment Areas

An airport's catchment area is the geographic region that the airport can reasonable expect to draw passengers. This area is highly dependent on the level of service offered at the airport, the cost of that service, and proximity to a larger airport. **Exhibit A-3** shows the geographic areas encompassed within 60 minute drive times from Greater Minnesota airports. Minneapolis/St. Paul is also included on the map and assigned a 120 minute drive time radius. **Table A-3** summarizes the counties or portions of counties assigned to each airport's primary service area. The map suggests several important facts about catchment areas in Minnesota:

- Minneapolis/St. Paul Airport catchment area overlaps almost entirely with St. Cloud and Rochester. Past leakage studies indicate that MSP draws passengers extensively from these areas and beyond. Passengers from Duluth and Bemidji routinely drive to Minneapolis/St. Paul for air travel, although both of these communities work hard to encourage air travelers to use the local airports.

**Exhibit A-3  
Commercial Service Airports  
Drive Times**



Source: Woods and Poole Economics, Inc and Wilbur Smith Associates  
Prepared: December 2005.

**Table A-3  
Airport Primary Service Areas**

<b>AIRPORT NAME</b>	<b>SERVICE AREA &amp; SHARE</b>			
<b>BEMIDJI</b>	Beltrami, MN	100%	Hubbard, MN	100%
	Clearwater, MN	100%	Itasca, MN	50%
<b>BRAINERD</b>	Aitkin, MN	100%	Crow Wing, MN	100%
	Cass, MN	100%		
<b>DULUTH</b>	Carlton, MN	100%	St. Louis, MN	75%
	Cook, MN	50%	Ashland, WI	100%
	Itasca, MN	25%	Bayfield, WI	100%
	Lake, MN	100%	Douglas, WI	100%
	Pine, MN	100%	Sawyer, WI	100%
<b>HIBBING</b>	Itasca, MN	25%	St. Louis, MN	25%
<b>INTERNATIONAL FALLS</b>	Fort Frances, Canada	100%	Lake of the Woods, MN	100%
	Koochiching, MN	100%		
<b>MINNEAPOLIS/ST PAUL</b>	Anoka, MN	100%	Ramsey, MN	100%
	Carver, MN	100%	Scott, MN	100%
	Dakota, MN	100%	Washington, MN	100%
	Hennepin, MN	100%		
<b>ROCHESTER</b>	Dodge, MN	100%	Olmsted, MN	100%
	Faribault, MN	100%	Steele, MN	100%
	Fillmore, MN	100%	Wabasha, MN	100%
	Freeborn, MN	100%	Winona, MN	50%
	Mower, MN	100%		
<b>ST CLOUD</b>	Benton, MN	100%	Stearns, MN	100%
	Morrison, MN	100%	Todd, MN	100%
	Sherburne, MN	100%		
<b>THIEF RIVER FALLS</b>	Kittson, MN	33%	Red Lake, MN	25%
	Marshall, MN	100%	Roseau, MN	33%
	Pennington, MN	100%		

Sources: Rand McNally Commercial Atlas, KRAMER aerotek, inc.  
Prepared: January 2006.

- The Chisholm/Hibbing catchment area overlaps with Duluth, and Thief River Falls overlaps with Grand Forks. Northwest Airlines has reduced air service to these smaller airports and currently offers limited air service that is subsidized under the Essential Air Service Program (EAS).
- For western Minnesota, there is a gap in scheduled service airports within the State. Marshall proposed service to MSP and secured a grant that would provide a revenue guarantee during the start-up phase of new service. This proposed new service at Marshall<sup>1</sup> is on hold, pending a final decision from Northwest Airlines that they are willing to embark on a new service point within Minnesota. In the meantime, the western part of Minnesota is served by Sioux Falls in South Dakota as well as Fargo and Grand Forks in North Dakota.

To define each airport's primary service or catchment area, 30 and 60 minute drive times were analyzed along with a careful analysis of Trading Areas defined by Rand McNally.<sup>2</sup> When airport service areas overlapped as in the case of Hibbing and Duluth, county data was allocated by percentage to each service area. For Minneapolis-St. Paul, the seven county region, defined by the Metropolitan Council, was used as this corresponds to the primary service area adopted by MAC for its most recent forecasts. **Table A-4** shows estimated 2005 population for each airport's primary service area.

**Table A-4**  
**Primary Service Area Population**

	PRIMARY SERVICE AREA POPULATION
BEMIDJI	92,500
BRAINERD	105,500
DULUTH	329,200
HIBBING	60,900
INTERNATIONAL FALLS	26,600
ROCHESTER	344,800
ST. CLOUD	314,100
THIEF RIVER FALLS	31,800
TOTAL GREATER MINNESOTA AIRPORTS	1,305,400
MINNEAPOLIS/ST. PAUL	2,786,200

Source: Woods & Poole Economics, 2005 Minnesota State Profile  
Prepared: February 2006.

### **Current Air Service at Greater Minnesota Airports and MSP**

The Greater Minnesota system of scheduled air service is fundamentally a single hub and spoke system with a few additional flights offered from Rochester and Duluth. **Table A-5** summarizes service. Both Rochester and Duluth have one daily flight to Detroit, Rochester has five daily American Eagle flights to Chicago and Duluth has two weekly flights to Las Vegas.

<sup>1</sup> Marshall, MN received a Small Communities Air Service Development Grant in 2005, prior to Northwest Airlines' bankruptcy. The grant provides a revenue guarantee for a three frequency service from Marshall to MSP.

<sup>2</sup> Trading Areas are drawn according to county boundaries. Trading Areas take into account such factors as geography, population distribution, newspaper circulation, economic activities, and transportation networks.

The western part of the state also has service options in neighboring North and South Dakota. Fargo has service to MSP, Chicago and Denver, and Sioux Falls has service to MSP, Chicago, Cincinnati, and Denver. There is also service from Grand Forks to MSP.

**Table A-5  
Greater Minnesota Airports - Nonstop Service and Carriers**

CITY	NONSTOP DESTINATIONS	CARRIERS
BEMIDJI	Minneapolis/St. Paul	Mesaba
BRAINERD	Minneapolis/St. Paul	Mesaba
DULUTH	Minneapolis/St. Paul, Detroit, Las Vegas	Northwest, Mesaba, Pinnacle, Allegiant Air
FARGO	Minneapolis/St. Paul, Chicago, Denver	Northwest, United
HIBBING	Minneapolis/St. Paul	Mesaba
INTERNATIONAL FALLS	Minneapolis/St. Paul	Mesaba
ROCHESTER	Minneapolis/St. Paul, Detroit, Chicago O'Hare	Northwest, Mesaba, Pinnacle, American Eagle
SIOUX FALLS	Minneapolis/St. Paul, Chicago, Cincinnati, Denver	Northwest, United, Delta
ST. CLOUD	Minneapolis/St. Paul	Mesaba
THIEF RIVER FALLS	Minneapolis/St. Paul	Mesaba

Source: Official Airline Guide, March 2006  
Prepared: March 2006.

Since last year, Northwest Airlines has reduced daily departures out of MSP by approximately 15 percent. This translates into a reduction of 81 daily departures and 7,260 departure seats. In many markets, frequency was cut and/or smaller aircraft were deployed to reduce capacity. **Tables A-6** and **A-7** compare daily departures and seats scheduled for March, 2006 and March, 2005. Of note, at this point in time, there has been limited opportunistic entry of other carriers at MSP. These additional flights, however, understate the considerable shuffle that has taken place at MSP amongst other bankrupt carriers and their regional affiliates.<sup>3</sup>

**Table A-6  
Changes in Daily Departures at MSP  
March, 2005 and 2006**

MINNEAPOLIS	DAILY DEPARTURES		ANNUAL CHANGE	SHARE OF ALL DEPARTURES	
	2006	2005		2006	2005
NORTHWEST	265	313	-15%	51%	53%
MESABA	90	114	-21%	17%	19%
PINNACLE	94	103	-9%	18%	18%
SUBTOTAL	449	530	-15%	87%	90%
OTHER CARRIERS	67	58	16%	13%	10%
ALL CARRIERS	516	588	-12%	100%	100%

Prepared: March 2006.

<sup>3</sup> Delta, US Airways, United and their respective regional carriers have all undergone extensive rework of their networks and partnerships. United Express carriers Air Wisconsin and Mesa no longer provide contract service. ATA has also discontinued service.

**Table A-7**  
**Changes in Daily Seats at MSP**  
**March, 2005 and 2006**

MINNEAPOLIS	DAILY SEATS		ANNUAL CHANGE	SHARE OF ALL SEATS	
	2006	2005		2006	2005
NORTHWEST	37,576	43,275	-13%	65%	66%
MESABA	3,831	4,941	-22%	7%	8%
PINNACLE	4,700	5,150	-9%	8%	8%
SUBTOTAL	46,107	53,366	-14%	80%	81%
OTHER CARRIERS	11,589	12,513	-7%	20%	19%
ALL CARRIERS	57,696	65,879	-12%	100%	100%

Sources: OAG Flight Guide, March 15, 2005 and SH&E Aviation Database,  
 Airport Schedule Report, March 15, 2006  
 Prepared: March 2006.

For Greater Minnesota, loss of capacity is uneven. Winter schedules at Brainerd, International Falls, and the two EAS points (Hibbing and Thief River Falls) are already at minimum levels. These cities may experience cutbacks when summer schedules are put in place. Bemidji and Rochester have lost one frequency to MSP. Duluth lost one flight to Detroit. St. Cloud lost a frequency following expiration of its revenue guarantee program. However, year over year, there appears to be no additional reductions.

Other additions and subtractions to Greater Minnesota service include start-up of Allegiant Air twice weekly service from Duluth to Las Vegas and a short experiment with Rochester-Dallas service. American Eagle offered a single daily departure. However, because of a recent legislative change allowing direct service between cities in Missouri and Dallas-Love Field, American has redeployed several aircraft for a St. Louis-Love Field service to compete more effectively with Southwest Airlines<sup>4</sup>. **Tables A-8 and A-9** summarize the changes in departures and seat departures at Greater Minnesota airports over the last twelve months. **Exhibit A-4** compares how Greater Minnesota departure seats have changed toward slightly more jet seats. This chart does suggest that the larger airports, Duluth and Rochester, are increasing capacity through additions by carriers other than Northwest.

<sup>4</sup> American also intends to add a sixth frequency from Rochester to Chicago O'Hare in the spring, 2006.

**Table A-8  
Greater Minnesota Daily Departures<sup>5</sup>**

DAILY DEPARTURES	MINNEAPOLIS/ST. PAUL		DETROIT		CHICAGO		LAS VEGAS		TOTAL DAILY DEPARTURES	
	2006	2005	2006	2005	2006	2005	2006	2005	2006	2005
BEMIDJI	4	5							4	5
BRAINERD	3	3							3	3
DULUTH	7	7	1	2			1		9	9
HIBBING	2	2							2	2
INTERNATIONAL FALLS	3	3							3	3
ROCHESTER	7	8	1	1	5	5			13	14
ST. CLOUD	5	5							5	5
THIEF RIVER FALLS	2	2							2	2
<b>TOTAL</b>	<b>33</b>	<b>35</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>5</b>	<b>1</b>		<b>41</b>	<b>43</b>

Sources: OAG Flight Guide, March 15, 2005 and SH&E Aviation Database, Airport Schedule Report, March 15, 2006  
Prepared: February 2006.

**Table A-9  
Greater Minnesota Daily Seats<sup>5</sup>**

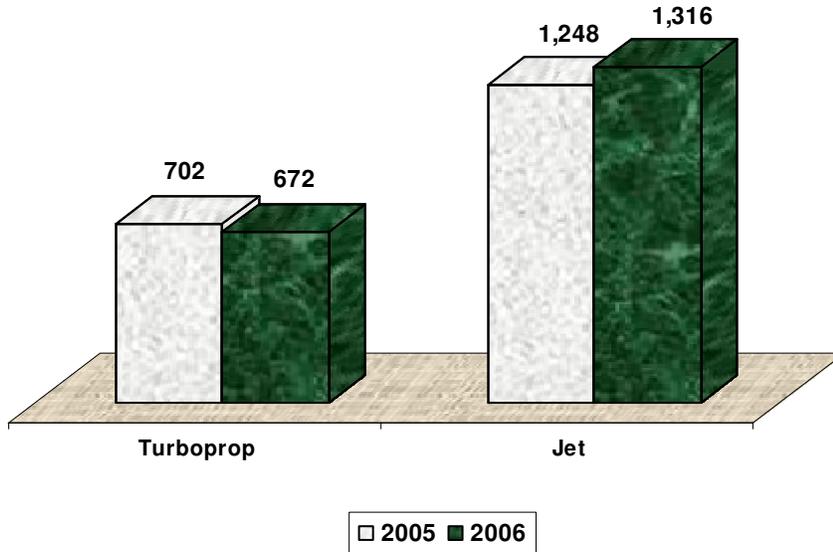
DAILY SEATS	MINNEAPOLIS/ST. PAUL		DETROIT		CHICAGO		LAS VEGAS		TOTAL DAILY SEATS	
	2006	2005	2006	2005	2006	2005	2006	2005	2006	2005
BEMIDJI	102	132							102	132
BRAINERD	90	90							90	90
DULUTH	551	528	50	100			150		751	628
HIBBING	60	60							60	60
INTERNATIONAL FALLS	90	90							90	90
ROCHESTER	385	440	50	50	250	250			685	740
ST. CLOUD	150	150							150	150
THIEF RIVER FALLS	60	60							60	60
<b>TOTAL</b>	<b>1,488</b>	<b>1,550</b>	<b>100</b>	<b>150</b>	<b>250</b>	<b>250</b>	<b>150</b>		<b>1,988</b>	<b>1,950</b>

Sources: OAG Flight Guide, March 15, 2005 and SH&E Aviation Database, Airport Schedule Report, March 15, 2006  
Prepared: February 2006.

<sup>5</sup> International Falls shares two of its flights with either Brainerd or Hibbing; Thief River Falls shares its flights with Bemidji.

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**Exhibit A-4**  
**Greater Minnesota Daily Turboprop and Jet Seats**



Sources: OAG Flight Guide, March 15, 2005 and SH&E Aviation Database, Airport Schedule Report, March 15, 2006  
Prepared: March 2006.

## Passenger Trends

Because of relative size differences, the temptation is to single out Minneapolis/St. Paul International Airport and group all the remaining Minnesota airports in another category. For system planning purposes and air service development, it is more useful to group Greater Minnesota airports according to the number of passengers they currently serve. In this way, the airports break out into three subgroups as follows:

- Essential Air Service (EAS) Points: Hibbing and Thief River Falls
- Smaller Airports: Brainerd, International Falls, St. Cloud, and Bemidji
- Midsize Airports: Duluth and Rochester

While these groupings carry no official system designations, they make sense when contemplating the next steps of air service development. At this point in time, the EAS cities continue to have air service because of their subsidy. President Bush's proposed budget calls for cuts in the EAS budget from \$110 million to \$50 million. If this budget item passes Congress, Hibbing and Thief River Falls will be competing for ever-more scarce EAS funds.

For the smaller Minnesota airports, it makes sense to look at Rochester and Duluth air service for the next logical steps in service enhancement.

**Table A-10** lists the Greater Minnesota airports from the largest to the smallest, based on origin and destination passengers carried for the 12 months ending September 30, 2005. At the writing of this report, this is the most current period for which information is available.

**Table A-10  
Origin and Destination Passenger Trends - Greater Minnesota Airports**

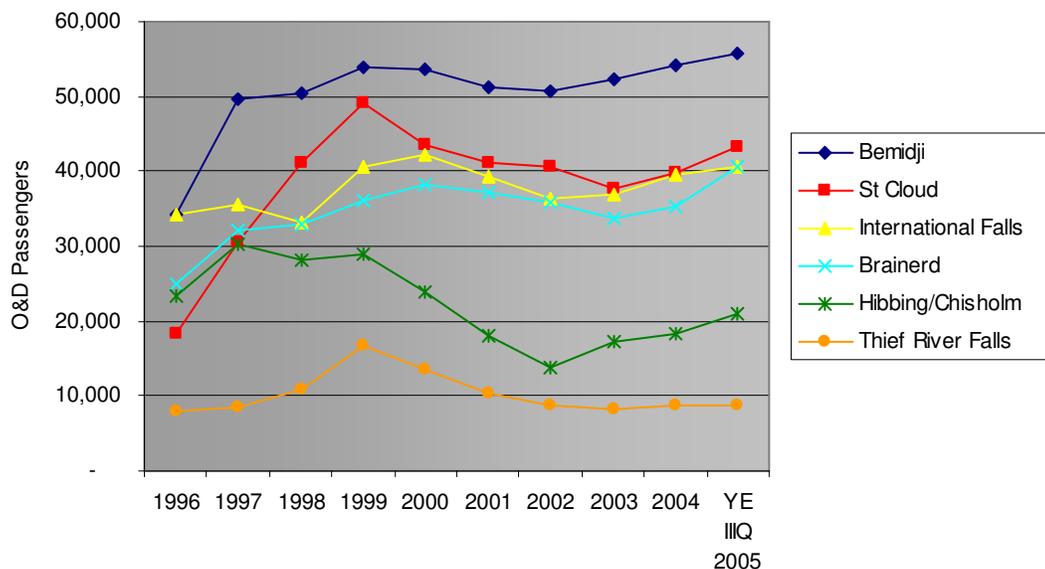
	1996	1997	1998	1999	2000	2001	2002	2003	2004	YE IIIQ 2005	ANNUAL CHANGE
DULUTH	223,740	219,820	212,220	254,610	255,070	245,660	261,400	220,950	279,710	272,690	2.0%
ROCHESTER	259,490	284,610	286,660	274,980	262,840	260,660	256,950	245,770	242,660	246,770	-0.5%
BEMIDJI	34,140	49,530	50,370	53,950	53,550	51,140	50,640	52,370	54,130	55,830	5.0%
ST CLOUD	18,250	30,630	41,080	49,210	43,580	41,180	40,660	37,700	39,700	43,210	9.0%
INTERNATIONAL FALLS	34,130	35,580	33,120	40,550	42,170	39,380	36,270	36,820	39,620	40,680	1.8%
BRAINERD	25,000	32,050	32,820	36,030	38,140	37,140	35,800	33,600	35,340	40,570	5.0%
HIBBING/CHISHOLM	23,410	30,290	28,180	28,870	23,900	18,000	13,930	17,260	18,390	20,980	-1.1%
THIEF RIVER FALLS	7,850	8,390	10,980	16,720	13,470	10,230	8,630	8,310	8,840	8,810	1.2%
GREATER MINNESOTA AIRPORTS	626,010	690,900	695,430	754,920	732,720	703,390	704,280	652,780	718,390	729,540	1.5%
MINNEAPOLIS/ ST PAUL	<u>10,905,060</u>	<u>11,559,320</u>	<u>11,488,370</u>	<u>12,746,230</u>	<u>14,463,230</u>	<u>13,236,740</u>	<u>12,439,840</u>	<u>12,809,320</u>	<u>14,187,790</u>	<u>15,103,580</u>	<u>3.3%</u>
TOTAL MINNESOTA	11,531,070	12,250,220	12,183,800	13,501,150	15,195,950	13,940,130	13,144,120	13,462,100	14,906,180	15,833,120	3.2%

Sources: USDOT 10 Percent Sample via DataBase Products  
Prepared: February 2006.

Over the last 10 years, the fastest growing airport is St. Cloud, followed by Bemidji and Brainerd. Growth in passengers comports with population and employment trends in these areas as discussed in Chapter 4.

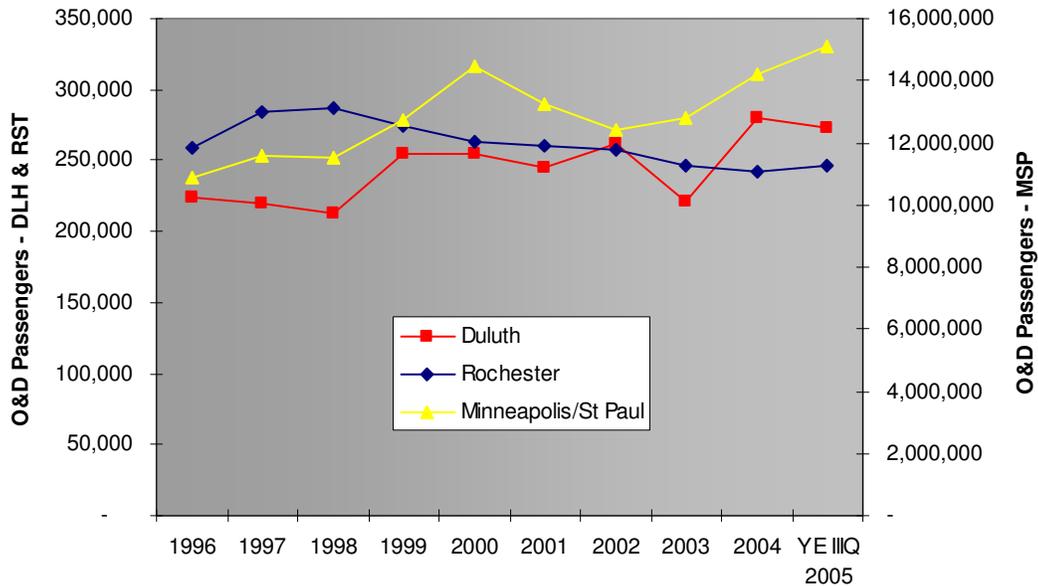
**Exhibits A-5 and A-6** graph O&D passenger trends for the last ten years. Exhibit A-5 shows the airports served by Northwest, and Exhibit A-6 shows airports served by multiple carriers. The single carrier airports are in a steady state with passenger levels recovering nicely from September 11, 2001, but otherwise remaining somewhat flat since 2000. Only Brainerd and Bemidji appear to be growing in absolute terms. Duluth shows a bumpy recent past with the exit and entry twice of American Eagle. The real growth story is in Minneapolis/St. Paul where growth in the metro region and increased diversion from Greater Minnesota airports is fueling increases in O&D passengers. Both Rochester and St. Cloud have experienced solid growth in population and jobs, but nevertheless have lost an increasing number of passengers who drive to the Twin Cities.

**Exhibit A-5  
O&D Passenger Trends  
Airports Served Exclusively by Northwest Airlines**



Source: USDOT 10 percent sample via DataBase Products  
Prepared: February 2006.

**Exhibit A-6  
O&D Passenger Trends  
Airports Served by More than One Carrier**



Source: USDOT 10 percent sample via DataBase Products  
Prepared: February 2006.

**Local Airport Use**

Air passengers to/from Minnesota exercise a large degree of choice about what airport they use. **Table A-11** summarizes driving mileage to alternate airports. The northern tier airports have additional choices beyond MSP. For example, it is half the mileage to drive from International Falls to Duluth than MSP. Bemidji air travelers are equidistant from Fargo and Duluth. Travel to Denver via Fargo and Detroit via Duluth are alternate options for Bemidji. Despite these choices the pull to Minneapolis is strong.

A number of retention studies have been done over the years in Minnesota communities. In 2003, Minnesota Office of Aeronautics conducted a telephone survey in Duluth, St. Cloud, Eau Claire, WI and Rochester in connection with the Tier 2 Air Service Study. In 2004, the St. Cloud-Brainerd Gateway Partnership examined retention rates in Central Minnesota and Rochester.<sup>6</sup> In May-June, 2005 telephone surveys were conducted in Bemidji, Brainerd, Duluth<sup>7</sup>, International Falls, and Hibbing in connection with this air service assessment. A detailed discussion of survey results is included in a later section of this report. However, as part of the core market analysis, local retention rates are important to both estimate the whole market for air service and to establish appropriate targets for air service enhancement.

<sup>6</sup> St. Cloud-Brainerd Gateway Partnership, Ticket Sample provided by Bursch Travel Agency Inc.-American Express, April, 2004.

<sup>7</sup> Duluth opted to update its telephone survey from 2002 independent of the system planning effort.

**Table A-11  
Driving Mileage to Alternate Airports**

CITY	DRIVING MILES			
	MSP	DLH	FAR	GFK
BEMIDJI	241	146	146	122
BRAINERD	142	120	148	
DULUTH (DLH)	157			
FARGO (FAR)	249			
GRAND FORKS (GFK)	329	256	78	
HIBBING	221	82		
INTERNATIONAL FALLS	297	158	160	232
ROCHESTER	94			
ST. CLOUD	72			
THIEF RIVER FALLS	330	234	144	73

Source: Mapquest.com  
Prepared: February 2006.

**Table A-12** shows estimated retention rates for Greater Minnesota airports. The rates reported are from the most recent surveys available. By sorting airports from the greatest retention rate to the lowest, several principles of air service become immediately obvious:

- Rochester and Duluth enjoy reasonable retention rates of 67 and 53 percent, respectively. These airports have the most air service.
- The further away the airport from MSP, the higher the retention rate. This applies to Duluth (157 miles), International Falls (297 miles) and Bemidji (241 miles). While Thief River Falls is 330 miles away from MSP, Grand Forks is only 73 miles away.
- Hibbing is 221 miles from MSP but 82 miles from Duluth. At this point, approximately 21 percent of air passengers are using Duluth; 47 percent MSP. Air service is quite limited at Hibbing.
- Finally, Brainerd and St. Cloud have low retention rates as they are both closer to MSP and have limited frequencies of flights, when compared to Rochester, which is also close.

**Table A-12  
Estimated Retention Rates**

	USE OF LOCAL AIRPORT	ALTERNATE AIRPORTS		
		MSP	DULUTH	OTHER
DULUTH	67%	32%	0%	1%
ROCHESTER	53%	47%	0%	0%
INTERNATIONAL FALLS	50%	47%	3%	0%
BEMIDJI	46%	49%	2%	3%
HIBBING	28%	51%	21%	0%
BRAINERD	25%	73%	1%	1%
ST. CLOUD	11%	88%	0%	1%

Sources: KRAMER aerotek Telephone Survey, 2005,  
Diversion Report for St. Cloud and Rochester, 2004  
Prepared: January 2006.

## Top Destinations

Given extensive use of Minneapolis/St. Paul, the analysis of air travel patterns includes both Greater Minnesota airports as well as MSP. **Table A-13** shows the top 25 markets for Minnesota air passengers from all airports in the State. The top destinations were ranked by the total origin and destination (O&D) passengers<sup>8</sup>. The top destinations for each Greater Minnesota airport are presented in separate tables for reference in **Attachment 3** at the back of this report.

**Table A-13**  
**Top 25 Domestic Total O&D Passengers, YE IIIQ, 2005**

	AIRPORT	O&D BOTH DIRECTIONS		TOTAL O&D PASSENGERS	PERCENT OF SAMPLE	CUMULATIVE PERCENT
		MINNEAPOLIS/ ST. PAUL	GREATER MINNESOTA AIRPORTS			
1	SKY HARBOR INTL AZ	654,440	27,280	681,720	4.3%	4.3%
2	MCCARRAN INTL NV	631,880	25,310	657,190	4.2%	8.5%
3	DENVER INTL CO	629,800	20,110	649,910	4.1%	12.6%
4	O'HARE INTL IL	613,070	36,730	649,800	4.1%	16.7%
5	ORLANDO INTL FL	607,540	20,410	627,950	4.0%	20.6%
6	LOS ANGELES INTL CA	553,050	15,110	568,160	3.6%	24.2%
7	CHICAGO MIDWAY IL	445,200	8,880	454,080	2.9%	27.1%
8	DALLAS/FT WORTH INTL TX	434,250	19,190	453,440	2.9%	30.0%
9	SAN FRANCISCO INTL CA	427,100	11,280	438,380	2.8%	32.7%
10	WM B HARTSFIELD GA	409,960	15,820	425,780	2.7%	35.4%
11	SEATTLE/TACOMA WA	374,450	14,000	388,450	2.5%	37.9%
12	LA GUARDIA NY	332,860	13,360	346,220	2.2%	40.0%
13	RONALD REAGAN NTL DC	315,670	18,670	334,340	2.1%	42.2%
14	LOGAN INTL MA	296,200	10,590	306,790	1.9%	44.1%
15	SW FLORIDA REG FL	290,650	9,640	300,290	1.9%	46.0%
16	LINDBERG FIELD CA	276,110	11,480	287,590	1.8%	47.8%
17	NEWARK INTL NY	272,030	8,590	280,620	1.8%	49.6%
18	WAYNE COUNTY MI	249,020	19,170	268,190	1.7%	51.3%
19	PHILADELPHIA INTL PA	255,660	12,010	267,670	1.7%	53.0%
20	TAMPA INTL FL	255,300	10,320	265,620	1.7%	54.6%
21	LAMBERT-ST LOUIS MO	215,920	10,400	226,320	1.4%	56.1%
22	JOHN F KENNEDY NY	212,280	1,830	214,110	1.4%	57.4%
23	GEORGE BUSH INTC TX	183,610	8,690	192,300	1.2%	58.6%
24	MIAMI INTL FL	176,210	6,350	182,560	1.2%	59.8%
25	BALTIMORE/WASH INTL	171,450	9,510	180,960	1.1%	60.9%
	TOP 25 CITIES	9,283,710	364,730	9,648,440	60.9%	
	OTHER CITIES	5,819,870	364,810	6,184,680	39.1%	
	TOTAL PASSENGERS	15,103,580	729,540	15,833,120	100.0%	
	PERCENT SHARE	95.4%	4.6%	100.0%		

Source: USDOT 10 percent sample via DataBase Products  
Prepared: February 2006.

<sup>8</sup> Note that MSP O&D passengers are a much smaller number than Minneapolis/St. Paul enplaned and deplaned passengers. O&D passengers remove connecting passengers from the mix and account only for those travelers who begin or end their trip at MSP.

The top five markets of Phoenix, Las Vegas, Denver, Chicago O'Hare and Orlando are unequivocally Minnesota's largest markets and represent 20.6 percent of all travel. New York is also in this group when traffic to LaGuardia, Newark, and JFK airports are combined. The top ten markets represent 35.4 percent of all travel and the top 25 cities represent 61 percent of all travel.

**Table A-14** shows the daily weekday nonstop service available from Minnesota airports to the top destinations. This table also reviews daily departures from Greater Minnesota to MSP as a reminder of how the hub and spoke system works and why given limited frequencies from certain Minnesota airports to MSP compels air travelers to drive to the Twin Cities.

**Table A-14  
Daily Weekday Nonstop Departures, March 15, 2006**

	<b>AIRPORT</b>	<b>MINNEAPOLIS/ ST. PAUL</b>	<b>GREATER MINNESOTA AIRPORTS</b>
1	SKY HARBOR INTL AZ	15	
2	MCCARRAN INTL NV	12	1
3	DENVER INTL CO	17	
4	O'HARE INTL IL	31	5
5	ORLANDO INTL FL	9	
6	LOS ANGELES INTL CA	8	
7	CHICAGO MIDWAY IL	11	
8	DALLAS/FT WORTH INT TX	15	
9	SAN FRANCISCO IN CA	6	
10	WM B HARTSFIELD GA	18	
11	SEATTLE/TACOMA IN WA	6	
12	LA GUARDIA NY	7	
13	RONALD REAGAN NTL DC	6	
14	LOGAN INTL MA	4	
15	SW FLORIDA REG FL	4	
16	LINDBERG FIELD CA	5	
17	NEWARK INTL NY	12	
18	WAYNE COUNTY MI	15	2
19	PHILADELPHIA INTL PA	10	
20	TAMPA INTL FL	5	
21	LAMBERT-ST LOUIS MO	12	
22	JOHN F KENNEDY IN NY	5	
23	GEORGE BUSH INTC TX	10	
24	MIAMI INTL FL	4	
25	BALTIMORE/WASH INTL	3	
	<b>TOP 25 CITIES</b>	<b>250</b>	<b>8</b>

<b>Daily Departures to MSP</b>	
Bemidji	4
Brainerd	3
Duluth	7
Hibbing	2
International Falls	3
Rochester	7
St. Cloud	5
Thief River Falls	2
<b>Total Greater Minnesota</b>	<b>33</b>

Sources: OAG Flight Guide, March 15, 2005 & SH&E Aviation Database, Airport Schedule Report, March 15, 2006  
Prepared: March 2006.

As of March, 2006, Northwest offered 78 percent of all departures out of MSP and 77 percent of all seats. (See **Table A-15**.) However, in terms of the top ten markets served out of Minnesota, other carriers are participating in these markets to a greater extent. Top 10 markets make up 25 percent of all departures in Minnesota. However, for Northwest, only 15 percent of its departures serve the top 10 markets. This suggests that Northwest is not participating as extensively in the largest markets and concentrating on the smaller markets where competition is less and opportunities for higher yields, greater. **Table A-16** breaks out departures by carrier.

**Table A-15  
Northwest Airlines Dominance at MSP**

	DAILY DEPARTURES	DAILY SEATS
NORTHWEST	265	37,576
MESABA	90	3,831
PINNACLE	94	4,700
SUBTOTAL	449	46,107
ALL CARRIERS	578	59,538
NORTHWEST SHARE	78%	77%

Source: SH&E Aviation Database, Airport Schedule Report, March 15, 2006  
Prepared: March 2006.

### ***Regional Distribution of Travel***

Top market analysis is important for Greater Minnesota airports. However, because of relatively low retention rates at local airports, most airports will look at additional frequencies to MSP and the prospects for service to another hub airport. The potential of traffic flow across alternate hubs is particularly important to Greater Minnesota airports as a starting point for additional service. Accordingly, this section considers the flow of traffic to different geographic regions within the United States.

**Exhibit A-7** shows the United States divided into six regions. These regions are combinations of the Federal Aviation Administration's (FAA) geographic regions. The FAA has nine regions. Regions have been combined to represent directional traffic flows from Minnesota as follows:

- Eastern/New England
- Southern/Caribbean
- Central/Great Lakes
- Southwest
- Alaska/Northwest Mountain
- Western Pacific

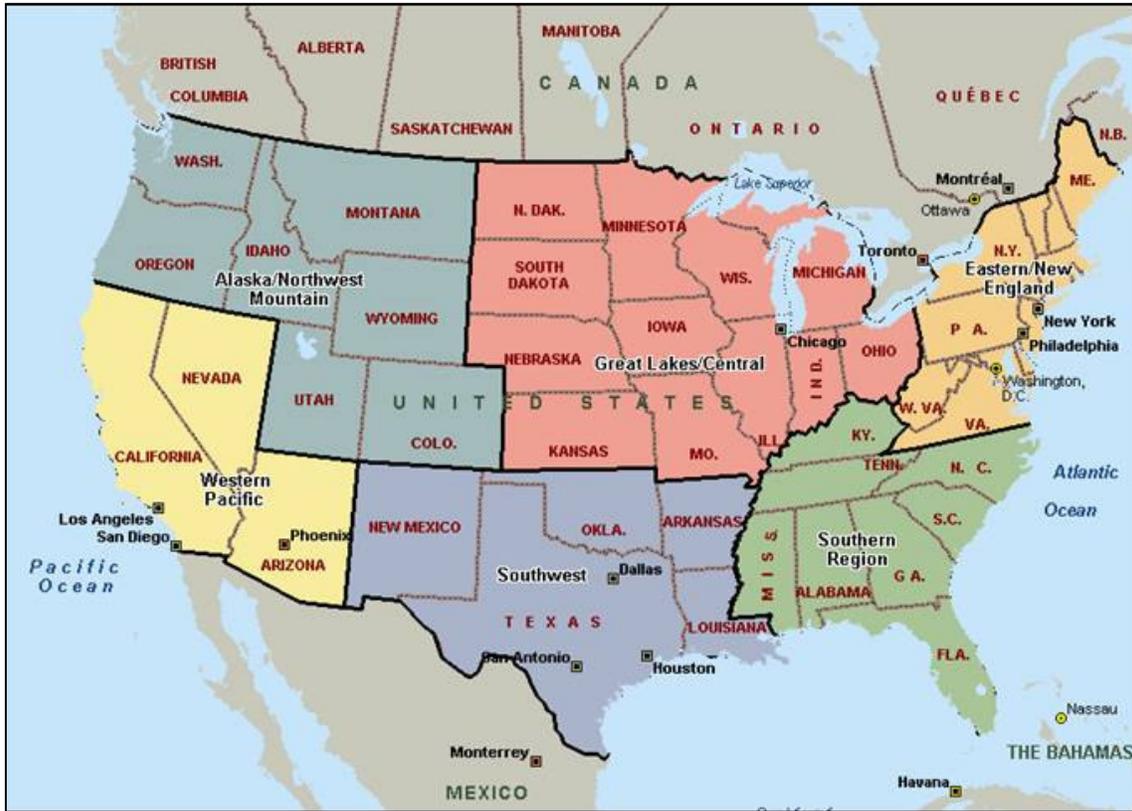
**Table A-17** and **Exhibit A-8** show total O&D Minnesota passengers by region. The Western Pacific region is the largest, the Southeastern part of the U.S. and then the Great Lakes/Central Region. These three regions account for 62 percent of the traffic flow. Put in this context, the use of MSP, Chicago O'Hare, and Denver as large hub airports provides good coverage for connecting service. Chicago and Denver are the logical alternate hubs for Greater Minnesota airports.

**Table A-16  
Daily Departures at MSP by Carrier**

ORIGIN OR DESTINATION	AIRTRAN	ALLEGIAN	AMERICAN	AMERICA WEST & US AIR	CONTINENTAL	DELTA	FRONTIER	MIDWEST	NORTHWEST	SUN COUNTRY	UNITED	TOTAL DEPARTURES	PERCENT OF TOTAL DEPARTURES
PHOENIX				4					8	3		15	2.6%
LAS VEGAS		1		3					7	2		13	2.2%
DENVER							3		7	1	6	17	2.9%
CHICAGO O'HARE			14						10		12	36	6.2%
ORLANDO	1								6	2		9	1.5%
LOS ANGELES									7	1		8	1.4%
CHICAGO MIDWAY	5								6			11	1.9%
DALLAS/FT WORTH			7						7	1		15	2.6%
SAN FRANCISCO									5	1		6	1.0%
ATLANTA	4					9			5			18	3.1%
TOP 10 MARKETS	10	1	21	7	-	9	3	-	68	11	18	148	25.4%
TOTAL MINNESOTA DEPARTURES	10	1	27	15	16	18	3	5	449	19	20	583	
% CARRIER DEPARTURES IN TOP 10	100.0%	100.0%	77.8%	46.7%	0.0%	50.0%	100.0%	0.0%	15.1%	57.9%	90.0%	25.4%	

Source: SH&E Aviation Database, Airport Schedule Report, March 15, 2006  
Prepared: February 2006.

**Exhibit A-7  
Air Travel Regions**



Sources: FAA Regions combined by KRAMER aerotek, inc.  
Prepared: February 2006.

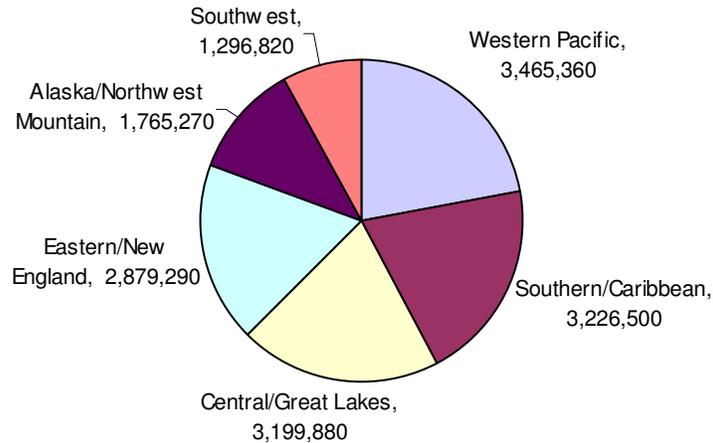
**Table A-17  
Minnesota Traffic Flow, YE IIIQ, 2005**

FAA REGIONS	MINNESOTA O&D PASSENGERS	PERCENT SHARE
WESTERN PACIFIC	3,465,360	22%
SOUTHERN/CARIBBEAN	3,226,500	20%
CENTRAL/GREAT LAKES	3,199,880	20%
EASTERN/NEW ENGLAND	2,879,290	18%
ALASKA/NORTHWEST MOUNTAIN	1,765,270	11%
SOUTHWEST	1,296,820	8%
GRAND TOTAL	15,833,120	100%

Source: USDOT 10 Percent Sample via DataBase Products  
Prepared: February 2006.

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## Exhibit A-8 Distribution of Minnesota Passengers by Region



Source: USDOT 10 Percent Sample via DataBase Products  
Prepared: February 2006.

### Fares

For Minnesota air passengers, the cost of air travel is an important factor in the choice of an airport. **Exhibit A-1** showed the relationship between enplanements and average fares at Greater Minnesota airports. When fares declined, enplanements rose. However, while it is true that the trend is heading down on fares at Greater Minnesota airports, the ten year trend for fares at MSP presents a much steeper decline. **Exhibit A-9** compares the ten year trend of average fares<sup>9</sup> at Greater Minnesota airports and at MSP. These fares are in current dollars for each year. If inflation were eliminated, the downward trend would be steeper. Of note in this graph is both the accelerating steepness of the decline and the increasing differential between average MSP fares and those at Greater Minnesota airports. As of September, 2005 this differential was \$35 one way. Historically, it has been \$15 to \$20.

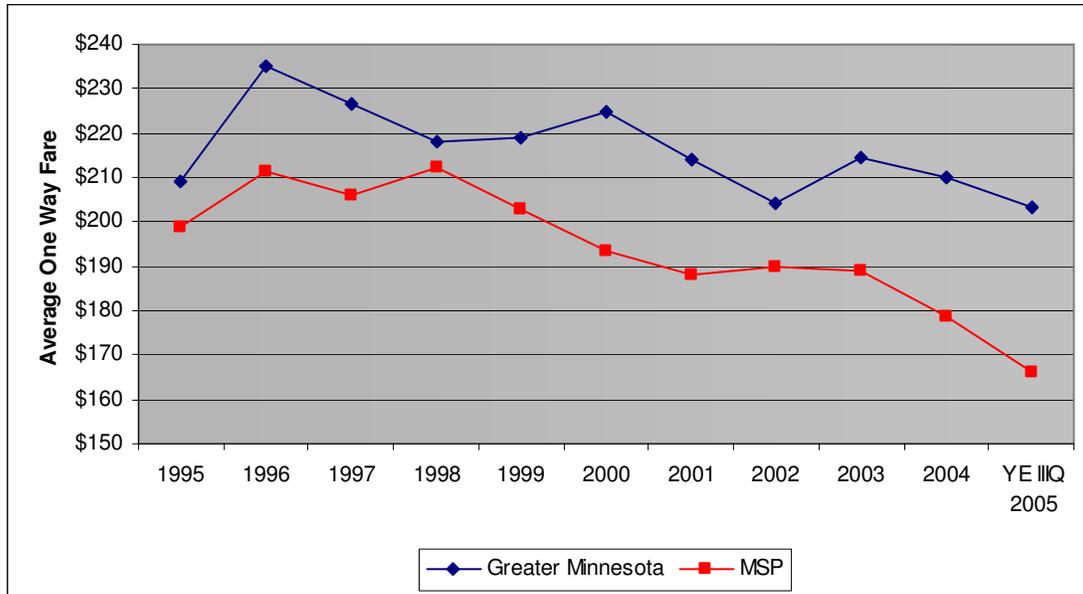
In the telephone survey (see **Attachments 1 and 2**) respondents reported a willingness to pay up to \$100 roundtrip to fly from their local airport. Average fair differentials are well within this range. Estimated retention rates suggest that preferences to use MSP may involve other factors in addition to price such as: a strong preference for jet service, non-stop service, schedule choices, etc.

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<sup>9</sup> These are average fares of passengers who paid a fare. Non-revenue passengers are not included.

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### Exhibit A-9 Ten Year Trend in Average Fares, Greater Minnesota and MSP



Source: USDOT 10 percent sample via DataBase Products  
Prepared: February 2006.

### Estimate of Total Market for Air Travel

The forecasts presented in Chapter 4 examine the trends and future of existing scheduled service at Greater Minnesota airports and do not address the question: what level of demand is generated from these regions regardless of what airport is actually used? It is in this sense that the forecasts are inherently conservative as they equate level of current activity with current level of demand. For Greater Minnesota airports, nothing could be further from the truth. Most of actual passenger activity at the small airports in Minnesota stems directly from the frequency and price of air service and proximity to MSP. St. Cloud is an extreme example where 25,000 annual enplanements represent not 100 percent of the area's demand, but 12 to 15 percent. While the forecasts err on the side of projecting the past into the future, it is also useful to contemplate a much brighter palette of changes for Greater Minnesota airports and investigate both their feasibility and implications.

Minnesota air service has, in the past, demonstrated good resilience and stability. With Northwest Airlines currently in bankruptcy, the status quo will undoubtedly change. So far, in the last six months since entering bankruptcy, Northwest has trimmed its service rather than restructure its network. This is likely to be a holding pattern as contracts and leases are renegotiated. It is possible as NWA considers a new wholly owned regional carrier, that Greater Minnesota will encounter some further changes and possibly greater consolidation of service. At this point in time, it is not possible to know the outcome of Northwest's restructuring. However, evidence points to several possible changes at Northwest and other air service changes that may impact Greater Minnesota. These include:

- Further reductions in the Northwest Saab 340 fleet,
- Reductions in the Essential Air Service Program that curtail subsidy to Hibbing and/or Thief River Falls,
- Entry of Southwest Airlines or increased service by other low cost carriers into the Minnesota market,
- Additional spoke service from Greater Minnesota airports to either Chicago or Denver, and
- Additional point-to-point service from Greater Minnesota airports to major markets.

Since all of these possible futures are event-driven, it is useful to investigate their implications for Greater Minnesota airports.

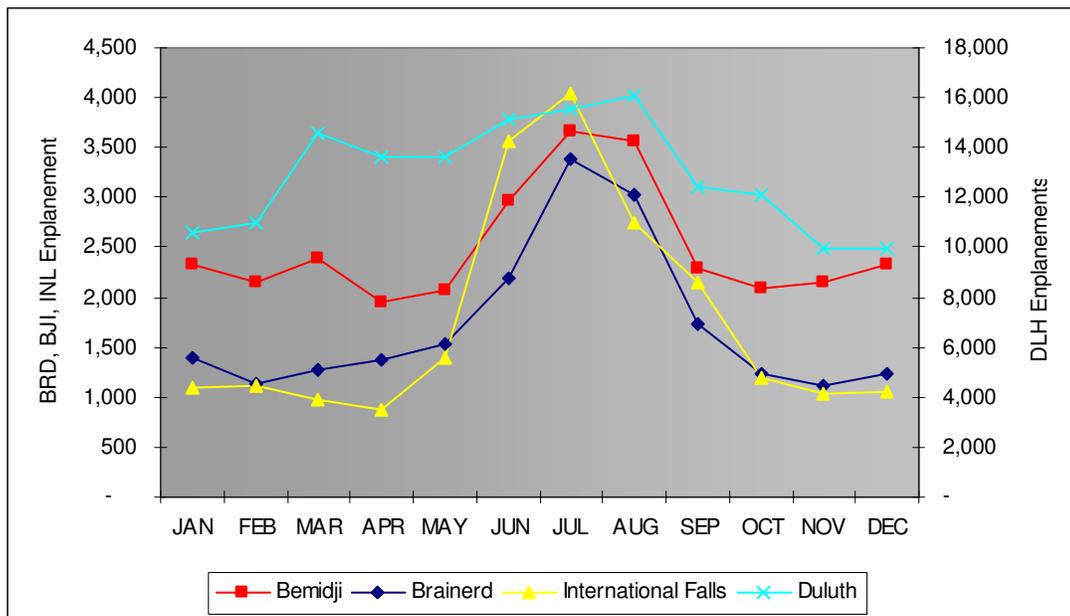
### Methodology

For Minnesota, there are two travel factors that go into an estimate of total air travel demand:

- Number of trips generated by the local population
- Number of trips generated by visitors

Most estimates concentrate on travel factors based on population in the catchment area. So for the smaller areas, a travel factor of .75 to 1.25 trips per person is common. However for communities where there are seasonal spikes of travel during the summer: Brainerd, International Falls, Bemidji and Duluth, total air traffic is also impacted by visitors. **Exhibit A-10** shows the impact of visitors to these communities during the summer months, June through August. Duluth's seasonality is somewhat muted; however it is sufficient to add a visitor travel factor to the estimates of total market.

**Exhibit A-10**  
**2005 Monthly Enplanements**



Sources: Individual Airport Records  
Prepared: February 2006.

**Table A-18** shows how the estimates of total air travel markets were built according to the following guidelines:

- Any service area with over 150,000 population, travel factor = 1.25 trips per year. Rochester has a slightly higher travel factor of 1.40 trips per year, due to its higher per capita income.
- Any service area that demonstrates seasonal traffic has a visitor travel factor as well. A visitor factor of 15% also was assigned to Rochester to account for the Mayo Clinic visitor traffic.
- Derived retention rates were compared with past survey results.

**Table A-18  
Estimate of Unconstrained Passenger Demand**

	2005 ESTIMATED TOTAL PASSENGERS	SERVICE AREA POPULATION	LOCAL AIR TRAVEL FACTOR	ESTIMATED TOTAL LOCAL O&D PASSENGERS	VISITOR FACTOR	UNCONSTRAINED POTENTIAL PASSENGERS	ESTIMATED CURRENT RETENTION RATE
BEMIDJI	59,800	92,500	1.00	92,500	1.50	139,000	43%
BRAINERD	41,400	105,500	1.00	105,500	1.50	158,000	26%
DULUTH	305,750	329,200	1.25	411,500	1.15	473,000	65%
HIBBING	23,200	60,900	1.00	60,900	1.35	82,000	28%
INTERNATIONAL FALLS	43,600	26,600	1.00	26,600	3.25	86,000	51%
ROCHESTER	286,400	344,800	1.40	482,720	1.15	555,000	52%
ST. CLOUD	51,800	314,100	1.25	392,625	1.00	393,000	13%
THIEF RIVER FALLS	10,000	31,800	1.00	31,800	1.00	32,000	31%
TOTAL GREATER MINNESOTA AIRPORTS	821,950	1,305,400	1.23	1,604,145	1.20	1,918,000	43%

Source: KRAMER aerotek, inc.  
Prepared: February 2006.

### True Markets

Based on estimates of unconstrained demand, Greater Minnesota catchment areas generate an approximately 1.9 million origin and destination passengers per year. Currently, the airports serve about 43 percent of this demand, although retention rates at Greater Minnesota airports vary widely as Table A-18 indicates. Retention rates also change from year to year as service and fares change both at local airports and at MSP. The most concrete example of fluctuating retention rates at Duluth occurred with the entry/exit of American's Chicago service and the additions of Northwest's Detroit service<sup>10</sup>. These fluctuations are visible on Exhibit A-6 which tracked a 10 year history of Duluth O&D traffic.

**Table A-19** explores what happens to total O&D passengers as an airport increases its rate of retention. For those communities with larger bases, each five percent increase in retention gains many more passengers.

<sup>10</sup> Allegiant has also added service in January, 2006. However, the statistics in this report do not yet reflect this addition.

**Table A-19**  
**Sensitivity Analysis: Passenger Estimates with Higher Retention Rates**

AIRPORTS	TOTAL PASSENGERS	CURRENT RETENTION RATES	CURRENT PASSENGERS	INCREASED RETENTION RATE	NEW LEVEL OF PASSENGERS	GAIN	INCREASED RETENTION RATE	NEW LEVEL OF PASSENGERS	GAIN
GREATER MINNESOTA	1,918,000	43%	821,950	48%	917,850	95,900	53%	1,013,750	191,800
ROCHESTER	555,000	52%	286,400	57%	314,150	27,750	62%	341,900	55,500
DULUTH	473,000	65%	305,750	70%	329,400	23,650	75%	353,050	47,300
ST. CLOUD	393,000	13%	51,800	18%	71,450	19,650	23%	91,100	39,300
BRAINERD	158,000	26%	41,400	31%	49,300	7,900	36%	57,200	15,800
BEMIDJI	139,000	43%	59,800	48%	66,750	6,950	53%	73,700	13,900
INTERNATIONAL FALLS	86,000	51%	43,600	56%	47,900	4,300	61%	52,200	8,600
HIBBING	82,000	28%	23,200	33%	27,300	4,100	38%	31,400	8,200
THIEF RIVER FALLS	32,000	31%	10,000	36%	11,600	1,600	41%	13,200	3,200

Source: KRAMER aerotek, inc.  
 Prepared: February 2006.

**Table A-20  
Unconstrained Passenger Demand for Top 25 Markets**

	CITY	MINNESOTA O&D MARKET SHARES	GREATER MINNESOTA UNCONSTRAINED DEMAND	BEMIDJI	BRAINERD	DULUTH	HIBBING	INTERNATIONAL FALLS	ROCHESTER	ST. CLOUD	THIEF RIVER FALLS
1	PHOENIX	4.3%	82,600	5,985	6,803	20,366	3,531	3,703	23,896	16,921	1,378
2	LAS VEGAS	4.2%	79,600	5,770	6,558	19,633	3,404	3,570	23,037	16,312	1,328
3	DENVER	4.1%	78,700	5,706	6,486	19,415	3,366	3,530	22,781	16,132	1,314
4	CHICAGO O'HARE	4.1%	78,700	5,705	6,484	19,412	3,365	3,529	22,778	16,129	1,313
5	ORLANDO	4.0%	76,100	5,513	6,266	18,759	3,252	3,411	22,012	15,587	1,269
6	LOS ANGELES	3.6%	68,800	4,988	5,670	16,973	2,943	3,086	19,916	14,103	1,148
7	CHICAGO MIDWAY	2.9%	55,000	3,986	4,531	13,565	2,352	2,466	15,917	11,271	918
8	DALLAS/FT WORTH	2.9%	54,900	3,981	4,525	13,546	2,348	2,463	15,894	11,255	916
9	SAN FRANCISCO	2.8%	53,100	3,849	4,375	13,096	2,270	2,381	15,367	10,881	886
10	ATLANTA	2.7%	51,600	3,738	4,249	12,720	2,205	2,313	14,925	10,568	861
11	SEATTLE	2.5%	47,100	3,410	3,876	11,605	2,012	2,110	13,616	9,642	785
12	LA GUARDIA	2.2%	41,900	3,039	3,455	10,343	1,793	1,881	12,136	8,594	700
13	WASHINGTON	2.1%	40,500	2,935	3,336	9,988	1,732	1,816	11,720	8,299	676
14	BOSTON	1.9%	37,200	2,693	3,061	9,165	1,589	1,666	10,754	7,615	620
15	FT. MYERS	1.9%	36,400	2,636	2,997	8,971	1,555	1,631	10,526	7,454	607
16	SAN DIEGO	1.8%	34,800	2,525	2,870	8,591	1,489	1,562	10,081	7,138	581
17	NEWARK	1.8%	34,000	2,464	2,800	8,383	1,453	1,524	9,837	6,965	567
18	DETROIT	1.7%	32,500	2,354	2,676	8,012	1,389	1,457	9,401	6,657	542
19	PHILADELPHIA	1.7%	32,400	2,350	2,671	7,996	1,386	1,454	9,383	6,644	541
20	TAMPA	1.7%	32,200	2,332	2,651	7,935	1,376	1,443	9,311	6,593	537
21	ST LOUIS	1.4%	27,400	1,987	2,258	6,761	1,172	1,229	7,933	5,618	457
22	JOHN F KENNEDY	1.4%	25,900	1,880	2,137	6,396	1,109	1,163	7,505	5,315	433
23	HOUSTON	1.2%	23,300	1,688	1,919	5,745	996	1,045	6,741	4,773	389
24	MIAMI	1.2%	22,100	1,603	1,822	5,454	945	992	6,399	4,531	369
25	BALTIMORE	1.1%	21,900	1,589	1,806	5,406	937	983	6,343	4,492	366
	TOP 25 CITIES	60.9%	1,168,800	84,704	96,283	288,238	49,969	52,407	338,208	239,488	19,500
	OTHER CITIES	39.1%	749,200	54,296	61,717	184,762	32,031	33,593	216,792	153,512	12,500
	TOTAL PASSENGERS	100.0%	1,918,000	139,000	158,000	473,000	82,000	86,000	555,000	393,000	32,000
	CURRENT RETENTION RATES		43%	43%	26%	65%	28%	51%	52%	13%	31%
	CURRENT PASSENGERS		821,950	59,800	41,400	305,750	23,200	43,600	286,400	51,800	10,000

Source: KRAMER aerotek, inc.  
Prepared: February 2006.

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Despite moderate fluctuations of retention rates, estimates of unconstrained demand are useful to bracket what types of air service an airport can support, given various assumptions about levels of service and retention rates.

To begin this exercise, it is useful to explore how the unconstrained demand for air travel breaks out by market. **Table A-20** distributes total origin and destination markets across the top 25 markets for each airport catchment area. The statewide percent share of each market was employed as a reasonable proxy for travel patterns. So for travel to Phoenix, the top market, Greater Minnesota as a whole generates 82,600 O&D passengers, distributed as follows:



A once daily roundtrip 50 seat regional jet to Phoenix would provide 36,500 seats per year. If 100 percent of Rochester's Phoenix passengers fly on this single flight, the trip would sustain a 65.5 percent load factor. It is much more likely that even one well-timed flight per day will attract significantly fewer Rochester passengers, perhaps 25 to 30 percent or 6,000 to 7,100 passengers. This short exercise in arithmetic points to the advantage of the hub and spoke system. A flight that connects at a hub airport can carry more than point-to-point passengers. In the Phoenix example, if Rochester secured America West service to Las Vegas, passengers could travel on to Phoenix or California cities. Denver would accomplish the same westbound access but provide additional coverage to a greater number of western and mountain cities.<sup>11</sup> With the exception of limited weekly frequency point-to-point service, Greater Minnesota airports will benefit the most from additional spoke service to a hub airport.

## AIR SERVICE STRATEGIES

### The Near Future

This air service assessment began with an identification of four factors that will shape the future of air service at Greater Minnesota airports. They were:

1. Local leadership
2. Industry restructuring and opportunity
3. An understanding of local drivers of demand
4. A state of constant readiness, good timing, and a little luck.

Together these factors will determine the course of air service in Minnesota. That said, certain structural changes within the airline industry will dominate as the catalyst for change within Greater Minnesota.

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<sup>11</sup> Feasibility of this routing requires further detailed analysis.

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## Service to Minnesota's Smallest Airports is at Risk

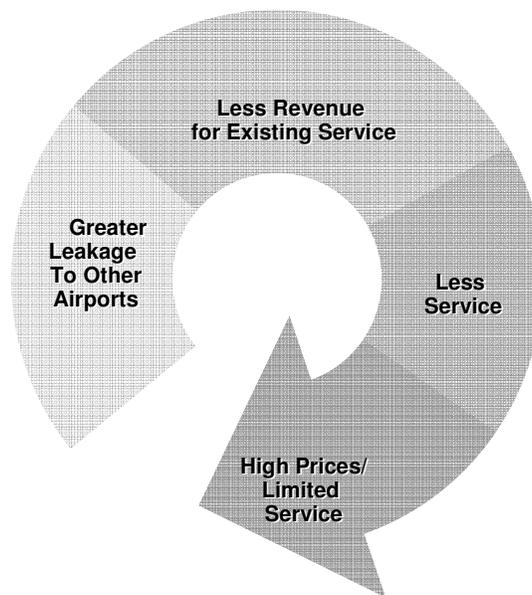
To understand the difficulties of small community air service, it is first useful to look at the most financially solvent model for air service currently in play: the low cost carrier (LCC). Low cost carriers provide the opposite of small community air service. Low cost carriers operate in the largest markets where the density of traffic is greatest and there is the ability to spread fixed costs over large numbers of passengers at relatively few service points. Small community service is high cost on a per seat basis. Fixed costs are incurred at many stations. Traffic is thin so station costs, marketing and staff must be spread over a relatively few number of passengers. To cover costs and because there is little competition, airlines charge a premium for small community service. Price sensitive passengers are willing to drive considerable distances to fly on jets for a cheaper price.

The low cost carrier satisfies three important principals of effective air service:

- Reasonable air fares
- Jet service versus turboprop
- Point-to-point service to the largest markets.

The dilemma facing small community air service is sadly reinforcing. To serve small markets, hub and spoke carriers experience higher costs and few passengers. When they increase price, passengers drive to a larger airport. The local traffic base declines and the cost basis for each passenger increases. At some point the airline is either happy to consolidate service at a regional airport or abandon service altogether.

**Exhibit A-11**  
**Downward Cycle of Air Service**



Source: Eclat Consulting

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Northwest Airlines is caught in just such a dilemma. Since the last System Plan, NWA has terminated air service to Grand Rapids, Ely, Fergus Falls, and Fairmont. Hibbing and Thief River Falls are supported with Essential Air Service subsidies. Many of the northern Minnesota passengers have redistributed themselves to Grand Forks, Bemidji, and Duluth. However, the willingness of more than half of Minnesota passengers to drive to MSP has privatized (into the automobile) many of the spoke trips from Greater Minnesota into the Twin Cities. The issues of cost of service, density of traffic, and competition continue to plague the remaining smaller Greater Minnesota airports.

In its bankruptcy, Northwest is grappling both with the cost of service and pricing. While Pinnacle Airlines is a wholly owned subsidiary of Northwest, Mesaba Airlines is a non-owned regional partner. The pro-rate agreement between Northwest and Mesaba guarantees a certain return to Mesaba for flying Airlink flights. While pro-rate agreements are confidential, they nevertheless represent an outside cost to Northwest for Mesaba service to Greater Minnesota. Declining fares at Minnesota airports has put pressure on Northwest to either reduce or internalize the cost of spoke service. Until there is a competitive reason to increase service to Greater Minnesota, Northwest will maintain service at current or lower levels. This could include further consolidation of air service in northeast Minnesota at Duluth and reductions in summer frequencies at International Falls, Brainerd, and Bemidji. It is up to each and every airport to intensify efforts toward retaining existing service and search for alternatives.

### **Battle for Catchment will Continue**

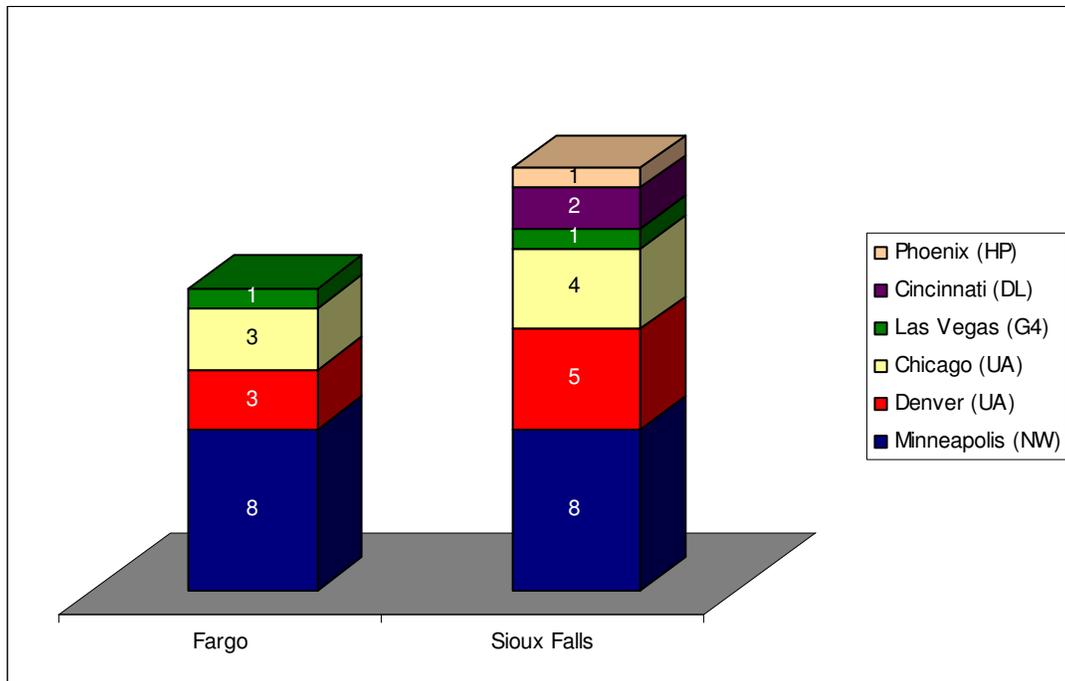
Most Greater Minnesota airports recognize that retention of passengers is the key to maintaining air service and that in order for air service development to be successful, communities must capture as much traffic as possible that is now using either MSP or another airport. The battle for catchment is occurring in Greater Minnesota as it is in many parts of the country at both large and small airports. The JetFirst proposal for service from Grand Rapids to Chicago Midway was predicated on a view that this unique service will draw passengers from Hibbing, Duluth and Bemidji. This service proposal has now been withdrawn. In the same vein, the St. Cloud service will draw passengers from as far north as Brainerd, west as Alexandria and south to Monticello. Allegiant Air in Duluth is also hoping to tap from a larger pool of northeast Minnesota passengers for its Las Vegas service.

Allegiant Air is Northern Minnesota's first experiment in niche market point-to-point service.

### **Multiple Mainline Carrier Service will Benefit Greater Minnesota**

While it is too soon to describe a post-bankruptcy Northwest, other carriers may become emboldened to enter Minnesota. To the west in Fargo and Sioux Falls, multiple mainline carriers coexist. **Exhibit A-12** shows the number of daily departures and hub airports served at these airports. Northwest (NW) remains the dominant carrier, but United Express (UA) offers service to both Denver and Chicago. Allegiant Air (G4) offers weekly frequencies to Las Vegas. Sioux Falls also has a daily flight on America West (HP) to Phoenix and two Delta (DL) flights to Cincinnati. Both of these airports function as regional airports with large catchment areas. In the 12 months ending September 30, 2005, total O&D passengers at Fargo were 508,630 and at Sioux Falls, 640,600. While these passengers levels are larger than Greater Minnesota airports, they do offer an example of a logical growth path.

**Exhibit A-12  
Daily Departures and Destinations: Fargo, ND and Sioux Falls, SD**



Source: Official Airline Guide, March 2006  
Prepared: March 2006.

**A Southwest Entry Could Place Significant Pressure on Greater Minnesota Airports**

With Northwest's bankruptcy, certain wildcards exist on the horizon. An entry of Southwest Airlines into Minnesota is possible, if not likely. Southwest began Denver service in January, 2006 and previously established a foothold at Pittsburgh and Philadelphia. Despite limited gate space at MSP, Southwest will chose MSP over a perimeter airport because Minneapolis offers the economies of scale necessary to operate profitably. Minnesota passengers have already demonstrated a willingness to drive long distances to obtain a lower fare. A Southwest entry will intensify redistribution of passengers in favor of MSP. Retention rates will decline throughout Greater Minnesota, with the largest impacts at Rochester and St. Cloud where the drive is less than 80 miles and in the resorts where leisure travelers are price sensitive.

Much has been made of the stimulation effects of a Southwest entry. There are two types of stimulation that occur: price stimulation and service stimulation. Service stimulation occurs because either the quality of service improves from say, one-stop to non-stop service or turboprop to regional jet aircraft. Service stimulation results in redistribution of passengers toward the airport that offers the best service. In the summer of 2005, International Falls experienced increased air passengers when Northwest replaced a Saab 340 with a regional jet. Price stimulation is far more important in that "net new passengers" will fly because air travel costs less.

The economics of turboprop service do not favor competitive pricing from Greater Minnesota airports in the event of a Southwest entry at MSP. There have already been pricing battles at

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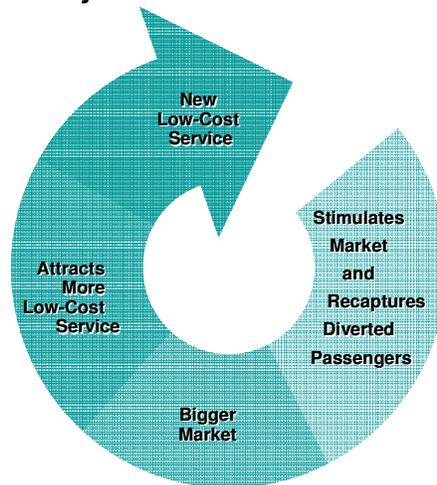
MSP in certain markets, notably Los Angeles, Phoenix and Chicago Midway. Northwest typically matches the lowest fares. Through either travel restrictions<sup>12</sup> or yield management<sup>13</sup>, Northwest is able to create “walls” that restrict the lowest fares to a few customers. Sometimes these fares are not even offered at Greater Minnesota airports. A high frequency, Southwest entry at MSP will intensify the challenge for Greater Minnesota airports to retain their passenger base and current level of service.

## Principles to Guide Minnesota Air Service Development

Over the last ten years, the Office of Aeronautics, individual communities and groups of communities have shared a common view that they can influence the direction of air service development. Given the hard work and incremental efforts to build traffic and service stability, Greater Minnesota airports have achieved small gains at a time when many airports in the U.S. of equivalent size were losing ground. In the context of air service throughout the country, this is a large accomplishment.

During this transition period with Northwest, it may appear that the air service development cycle is going in the wrong direction. However, diminished dominance by Northwest may present its own opportunities to build low cost offerings and additional mainline carrier service to Greater Minnesota. The goal is to increase air service and lower air fares. This is the path that begins a positive cycle of air service development.

**Exhibit A-13**  
**Positive Cycle of Air Service Development**



Source: Eclat Consulting

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<sup>12</sup> Travel restrictions could include 21, 14, or 7 day advance purchase requirements or an itinerary that includes a Saturday night stay.

<sup>13</sup> Number of seats offered at a particular fare.

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## **Achievement of Effective Air Service**

Progress in air service development depends on clarity about community goals and an understanding of air carrier objectives for route development.

### ***Community Goals***

The effectiveness of air service at a community level can be measured by:

- The availability of competitive air fares
- The breadth of air service in terms of the number non-stop destinations and the frequency of service.<sup>14</sup>
- The availability of jets versus turboprop aircraft.

Recognizing that MSP will offer more density of air service and lower airfares, the goal for Greater Minnesota airports is to achieve a level of passenger convenience at a slight fare premium. Passengers will use the local airport when the combination of service and price is right or, when the community recognizes that support of the airport leads to better prospects for air service development in the future. The first easily promotes use of the local airport. The second requires strong community leadership and a longer term view toward future prospects. In Greater Minnesota, there is strong advocacy for local airports. However, given the large differences in service at MSP and given low retention rates at some airports, Minnesota air passengers have mixed opinions about the value of supporting local air service.

### ***Airline Concerns***

When airlines consider new routes, they are looking for opportunities that for one reason or another have been overlooked and present the potential for profitability either by recapturing passengers using alternate airports or stimulating new air travel with lower air fares. Communities that present proposals to airlines must be prepared to address air carrier concerns:

- In terms of both traffic and revenue, is the market large enough to support this new service as well as existing service?
- How is Northwest Airlines likely to respond to a new carrier initiative?
- How will the community promote the service and offset the costs of start-up?
- Why does this opportunity offer lower risk and higher potential than other opportunities elsewhere in the U.S.?

## **Elements of Every Airport's Air Service Development**

A goal to increase the effectiveness of local air service must keep in mind several principles.

### ***Focus on Revenues Rather than Passengers***

Despite the fact that airports and air carriers participate in the same business, they use different yardsticks to measure effectiveness. Government agencies from the FAA down to local airports focus on the number of passengers using an airport. Passengers are the most pervasive

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<sup>14</sup> For the largest airports, this would also include both domestic and international service.

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measures of an airport's level of activity and importance. From the air carrier's point of view, revenues are much more important than passengers. Chapter 3 discussed how passenger levels in 2005 finally rose above those levels achieved prior to the terrorist's attack on the World Trade Center. Despite the fact that air demand has returned, the airlines continue to sustain significant losses. Discussions about air service development with carriers must focus on revenue potential.

### ***Emphasize the Importance of Business Travel***

Despite the fact that the Internet has made discount fares available to many more air travelers, airlines still depend on business travel for three reasons:

- Business generates a higher percentage of total travel than leisure.
- Business travelers tend to book later and pay somewhat higher ticket prices.
- Businesses in a community can shift large blocks of travel to a particular airline and can influence other companies to do the same.

When a community recruits a carrier for new service, the support of the business community is very important. Even low cost carriers such as AirTran and Southwest estimate that business travel represents 40 to 50 percent of revenue.

### ***Think Regionally for Catchment***

The reach of Minneapolis/St. Paul International is such that the entire State of Minnesota and west central Wisconsin essentially are within MSP's catchment area. Local airports will continue to fight for retention of their passengers and as indicated, retention may well become Greater Minnesota's principal air service objective. The battle for retention and catchment will continue and heat up over the next several years. For airports recruiting an airline for additional service, the justification for a new route should be based on demand from the airport's primary service area. However, ultimately the profitability of the route will be greatly enhanced if passengers are drawn from a larger secondary catchment area as well.

### ***Involve the Community***

Community involvement is an essential element of efforts to recapture passengers. Historically, Northwest has not considered diversion to MSP an issue. There is little reason even now because most Minnesota passengers end up on Northwest regardless of their origin airport. Under the current economics, a driving passenger may cost less to Northwest than one beginning the trip on a Mesaba flight. More competition at MSP may intensify Northwest's interest in capturing its passengers at a local airport.<sup>15</sup> It is thus incumbent on the community to demonstrate that (a) local demand exists and (b) that the airline benefits directly from capturing the passenger at the local airport.

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<sup>15</sup> As of March, 2006, NWA controlled 78 percent of seats at MSP. A more competitive environment would involve a significant reduction in Northwest's market share.

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## Recommendations

### General Air Service Strategies

A number of air service development strategies can and should be explored by Greater Minnesota airports. They include:

- Improved network access either on Northwest or other mainline carriers.
- Recruitment of low cost niche carriers to Greater Minnesota airports willing to provide limited frequency service to top Minnesota destinations.
- Marketing initiatives that target the origin cities of visitors coming to Central and Northern Minnesota in the summer.
- Joint ventures by airports to support specific new air service in a region.
- Community-wide campaigns to increase use of local airports and retain existing air service.

### Community Involvement Strategies

Community support of local air service is absolutely essential to both air service development and retention of air travelers. There is already a long history of effective involvement strategies in Minnesota embodied in marketing campaigns and promotions. The key messages include:

- The airport is an engine of economic development. Using the airport establishes a track record of local demand for the airport and opens the door to further improvements.
- Passengers should always first check fares at the local airport and not assume that MSP fares are cheaper.
- The community should address its reputation for high fares through fare samples and newspaper advertisements that demonstrate competitive fares are available at the local airport.
- Travel from the local airport usually saves time and avoids the hassle and expense of driving to MSP.

Support from the business community is essential. In some eastern cities, business fare reduction programs have successfully increased an airline's revenue. For these programs to work, an essential ingredient is airline competition at the airport and in the region. Currently, Minnesota is not an ideal candidate for these programs, but the situation may change. If Northwest sees that a business fare reduction program will capture passengers it is otherwise losing to other airlines, it will participate just as it did successfully in Erie, Pennsylvania where the market is divided between Delta, Continental, U.S. Airways, and Northwest. Apart from the revenue benefits to the airlines, the success of these programs relies on extensive community awareness of the program and support of the local businesses.

In the past five years, other programs have been tried to enhance air service and reduce a carrier's risk of entry into a new market. The USDOT Small Community Air Service Development Program has funded numerous carrier incentives, revenue guarantees, and marketing programs. Duluth, Hibbing, Brainerd, St. Cloud, and Marshall have all received these grants. Through its own air service marketing program, MnDOT has contributed support for the USDOT grants. The jury remains out on the effectiveness of some of these pilot programs, including revenue guarantees. In an environment where air fares are declining, revenue targets are difficult to establish and even more difficult to meet. Other creative approaches such as

Travel Banks proved unattractive to the carriers, although in Central Minnesota, pledges in excess of \$3 million from the business community did garner the attention of several air carriers. It is worth noting that as of the writing of this report, the communities involved in this initiative were able to raise less than one third of the \$3 million needed for new service. Ultimately, advertising and promotion plus negotiated airport fees and charges endure as community and airport programs that are less complex to manage and quite effective.

### Individual Airport Priorities

Greater Minnesota airports are at different stages of air service development, and thus they have specific needs to address. **Table A-21** summarizes air service priorities for each airport.

**Table A-21  
Air Service Priorities for Greater Minnesota**

	CURRENT O&D PASSENGER PER DAY EACH WAY	POTENTIAL UNCONSTRAINED PASSENGERS PER DAY EACH WAY	AIR SERVICE GOALS
ROCHESTER	676	1,521	Expand service and lower fares.
DULUTH INTL	747	1,296	Expand service and lower fares.
ST CLOUD	118	1,077	Expand service and lower fares.
BRAINERD	111	433	Retain winter air service. Expand summer service.
BEMIDJI	153	381	Restore and retain air service. Expand summer service.
INTERNATIONAL FALLS	111	236	Retain winter air service. Expand summer service.
HIBBING/CHISHOLM	57	225	Retain commercial service
THIEF RIVER FALLS	24	88	Retain commercial service

Source: KRAMER aerotek, inc.  
Prepared: February 2006.

### ***Rochester, Duluth, and St. Cloud***

For the Tier 2 airports, Rochester, Duluth, and St. Cloud, the primary focus should be on retention of local passengers and development of additional service that will be price competitive. For Duluth, the addition of Allegiant Air marks the first low cost, niche carrier to enter Greater Minnesota. Rochester and St. Cloud should consider this option as well. While Southwest may have abandoned its perimeter strategy, other low cost carriers have not. If more low cost options can be developed, Greater Minnesota will experience greater retention of air passengers, even in the event of a Southwest entry at MSP. Other priorities include:

- Chicago service at Duluth and St. Cloud
- Additional Detroit frequencies for Rochester and Duluth
- Denver service at Rochester and Duluth

### ***Bemidji, Brainerd, & International Falls***

Bemidji and Brainerd are both experiencing a growth in year-round residents who contribute to an increased demand for air service. In the near-term, air service development for these communities and International Falls should concentrate on passenger retention and summer visitor development. Elsewhere in the country, communities have attracted multiple carriers to

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provide seasonal service. Jackson Hole WY, Aspen, Eagle, and Durango CO have successfully recruited mainline carriers to bring in visitors during peak winter months. As Minnesota establishes a national reputation as a summer vacation destination, Brainerd, Bemidji and International Falls will benefit and may be able to support additional summer service.

### ***Hibbing & Thief River Falls***

Hibbing and Thief River Falls face the most serious retention problems, as they are both caught in a downward cycle of air service options. Service to these communities is subsidized and schedules are less than optimal. Northwest's commitment to service is highly dependent in Hibbing on their continued use of the reservation center in Chisholm and on the amount of EAS subsidy received. Of all the Greater Minnesota airports, Hibbing and Thief River Falls are at the greatest risk. Their future rests in the political arena of Essential Air Service and the degree to which the communities will support a below minimum level of air service.

### **MnDOT Participation in Air Service Development**

A potential transformation of Minnesota air service also invites a fresh look at what participation the State of Minnesota might have in the shaping of air service in Greater Minnesota. Already the Office of Aeronautics has stepped up to the plate and funded many local initiatives to retain and improve air service. Among the most expressive projects, MnDOT promoted the Fly Local Program with wacky commercials showing Saab 340's driving up the street to pick passengers up at their front door. The Office of Aeronautics has taken the lead or financially supported many air service evaluations, marketing campaigns, strategic plans and carrier meetings. These efforts should continue.

During the transition as Northwest emerges from bankruptcy, the State may be called upon to work more closely with its commercial airports to:

- Monitor developments in the airline industry and ensure that airports are informed about changes that might impact their airport and the State of Minnesota.
- Continue to support air service development with marketing grants to individual airports.
- Advocate for multiple airports who are seeking as a group to retain or expand air service.
- Develop regional solutions for air service that are dictated by today's airline economics.
- Strongly advocate use of local airports by firms doing business in the State.
- Convene at the State level a group of aviation and economic development leaders to coordinate initiatives to increase summer visitors to Minnesota.

Just as local leadership is an indispensable component to the development of air service, the State must also be ready to quickly assemble supportive resources. These resources need not be expensive, but must be well coordinated to assist Greater Minnesota airports as they move along a determined and positive path of air service development.

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Attachment 1  
Telephone Survey

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# Attachment 1: Telephone Survey

## OVERVIEW

In 2002, the State of Minnesota sponsored a telephone survey of the Tier 2 airports: Duluth, Eau Claire WI, Rochester, and St. Cloud. The surveys were designed to discern airport preferences and travel patterns of business travelers residing in the primary service area of the Tier 2 airports. This 2006 update of the Minnesota Aviation System Plan provides a focus on the Tier 3 airports: Brainerd, Bemidji, Hibbing, and International Falls. Accordingly, a comparable telephone survey was conducted in these communities during May through June, 2005. This chapter presents the methodology, results, and conclusions of the effort.

Surveys were completed for 222 air travelers in each of the four study communities. This sample size was needed to achieve a confidence level of 95 percent at a precision of +/- 5 percent. **Exhibit A1-1** reproduces the survey questions.

The study team employed various criteria based on income, age, and location to develop a call list of likely air travelers in each of the airport service areas. To qualify for inclusion in this survey, respondents had to have traveled for business or personal reasons or both at least one or more times in the past year.<sup>16</sup> **Exhibits A1-2** through **A1-5** show the location of the survey respondents for the four communities surveyed. The respondents were mostly male, with an average age of 49 and an average annual household income of \$72,500. Most of the respondents were homeowners who have lived in their current homes for a close to nine and one half years<sup>17</sup>. However, the characteristics of the respondents did vary somewhat among the different study communities:

- The respondents in Bemidji were younger than those in Brainerd, Hibbing and International Falls.
- Brainerd respondents had a lower percentage of male to female respondents than Bemidji, Hibbing and International Falls; however the overall mix for all communities was predominantly male.
- The respondents in Hibbing had average incomes lower than those in the other study communities.
- Bemidji and Brainerd respondents have lived in their current homes for a shorter time than those in Hibbing and International Falls.

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<sup>16</sup> The Tier 2 telephone survey required two business trips to qualify for inclusion in the survey. However, because Tier 3 airports have smaller populations and significantly less business travel, qualifying travel was reduced to one or more air trips per year.

<sup>17</sup> Average length of residence for Tier 3 airports is much longer than Tier 2 respondents where St. Cloud respondents had lived at the same address an average of 4 years and Rochester 4.2 years.

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**Exhibit A1-1  
Survey Questions and Format**

1. **Have you flown on an airline at least once in the last 12 months?**  
Yes, continues survey.  
No, ends survey.
  
2. **Did you fly for business, personal reasons, or both?**
  
3. **For those trips, how many times have you flown from:**  
\_\_\_\_\_ Airport \_\_\_\_\_  
Duluth International Airport \_\_\_\_\_  
Minneapolis-St. Paul Airport \_\_\_\_\_  
Grand Forks Airport \_\_\_\_\_  
Hector Int'l Airport (Fargo) Airport \_\_\_\_\_
  
4. **What is the most frequent airport you fly to:** \_\_\_\_\_
  
5. **Which of the following are important in your decision to fly from \_\_\_\_\_ Airport or another airport?**  
**(1 = Important; 2 = Not Important)**  
\_\_\_\_\_ Cost of ticket  
\_\_\_\_\_ Total trip time, including driving, parking or layover time when connecting  
\_\_\_\_\_ Prefer non-stop service  
\_\_\_\_\_ Parking is cheaper at local airport  
\_\_\_\_\_ Strong preference for jet service  
\_\_\_\_\_ Faster, easier security clearance at local airport  
\_\_\_\_\_ Prefer not to drive to Minneapolis-St. Paul  
\_\_\_\_\_ Experience of flying from \_\_\_\_\_ Airport is better.
  
6. **Are you willing to pay more to fly from \_\_\_\_\_ Airport rather than drive to the Minneapolis-St. Paul Airport?**  
No \_\_\_\_\_ Yes \_\_\_\_\_ If yes, how much more for a roundtrip ticket?  
  
\_\_\_\_\_ < \$50  
\_\_\_\_\_ \$50 - \$100  
\_\_\_\_\_ \$101 - \$150  
\_\_\_\_\_ More than \$150
  
7. **Which of the following improvements in service at \_\_\_\_\_ Airport are important to you?**  
**(1 = Important; 2 = Not Important)**  
\_\_\_\_\_ More daily flights  
\_\_\_\_\_ More early AM flights  
\_\_\_\_\_ Service to another airport. Which one? \_\_\_\_\_  
\_\_\_\_\_ Low fare carrier such as Frontier or Southwest  
\_\_\_\_\_ More evening flights  
\_\_\_\_\_ Jet aircraft  
\_\_\_\_\_ Greater reliability of the local service  
Other: \_\_\_\_\_

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: April 2005.

- The majority of the survey respondents' reason for flying during the past year was personal (59 percent), while 26 percent of those surveyed flew exclusively for business reasons, and 14 percent flew for both business and personal reasons. Survey respondents fly for business approximately five times per year, but use their local airport only once or twice.
- Local airport use did correlate with geographic distance from Minneapolis and Duluth. **Table A1-1** shows the driving distances from each of the communities to the larger airports:

**Table A1-1  
Driving Miles to From City Centers to Alternate Airports**

COMMUNITY	MINNEAPOLIS/ ST. PAUL INT'L AIRPORT	DULUTH INT'L AIRPORT	OTHER AIRPORTS	
BEMIDJI	241	146	122	Grand Forks
BRAINERD	142	120	66	St. Cloud
HIBBING	221	82	110	Bemidji
INTERNATIONAL FALLS	297	158	234	Winnipeg

Source: Mapquest.com  
Prepared: June 2005.

- Hibbing has the lowest percentage of respondents traveling for business reasons at 20 percent of those interviewed, while International Falls has highest percentage of respondents traveling for business at 32 percent. International Falls also has the highest percentage of respondents traveling for both business and personal reasons at 18 percent of those surveyed.
- In Brainerd and Hibbing, travelers use the local airport for only roughly one quarter of their trips and rely on Minneapolis/St. Paul International and Duluth (in the case of Hibbing) for the remainder of their trips. On average, travelers from these communities make between 5 and 6 trips per year, respectively.
- In Bemidji, the average number of trips per year was 6.6 trips per year. Passengers use the local airport for close to half of these trips.
- International Falls respondents reported frequent use of Canadian airports, especially Winnipeg, but also Thunder Bay and Fort Frances.
- Brainerd has the lowest capture rate of the study communities, with only 25 percent of the area's air travel being done through the local airport. Brainerd is also the closest of the four subject airports to Minneapolis-St. Paul.
- Consistent with a sample of mostly leisure travelers, important destinations were the leisure markets including Las Vegas, Florida and Mexico. Chicago, Los Angeles, New York and Denver also ranked high, but not usually as high as leisure destinations.

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The survey results show that passengers in these communities are willing to pay more to fly locally, with about two thirds of respondents from all four communities willing to pay more to fly locally. About one third of the respondents from these communities indicated that they would be willing to pay \$50-\$100 more to fly locally, with one third of respondents being unwilling to pay any additional fare at all. When compared with Tier 2 airports, Rochester, St. Cloud and Eau Claire, only half of the passengers were willing to pay more and the rest were not willing to pay any additional airfare to fly from their local airport. Each of the Tier 2 airports is less than 80 miles from Minneapolis/St. Paul International. Duluth passengers are much more willing to pay an additional fare to travel from their local airport, but on average value the add-on around \$50 per roundtrip ticket.

A passenger's overall local airport experience is also an important factor that can have a meaningful impact on the ability of the airport to retain local passengers. On average, 75 percent of Bemidji and International Falls respondents rated local experience as better, while roughly 60 percent of respondents from Brainerd and Hibbing rated local airport experience as better. All four communities ranked ticket cost, total trip time, and non-stop service as important in influencing airport choice. These are logical preferences and the same factors reported for Tier 2 airports.

Survey respondents considered other factors, such as jet service, easier security, and not having to drive to Minneapolis as somewhat important. However, these factors were not as important as the more fundamental issues of travel time, fares, service levels, and airport experience.

The survey results clearly indicated that several factors are especially important in determining the respondents' airport choice, while other factors were not as important. **Table A1-2** summarizes the relative importance of the various airport choice factors. Notably, the presence of additional carriers at Minneapolis/St. Paul International was not an important decision factor. Recently, Northwest Airlines has aggressively matched fare levels established by low cost carriers (LCC) in specific markets. Therefore, while the presence of an LCC is required in many cases to generate lower fares, passengers are frequently choosing to fly Northwest over an alternate carrier, if the fares are similar.

**Table A1-2  
Summary of Airport Choice Factors**

IMPORTANCE	FACTOR
Very Important	<ul style="list-style-type: none"> <li>• Total trip time</li> <li>• Fares</li> <li>• Non-stop service</li> <li>• Reliability</li> </ul>
Moderately Important	<ul style="list-style-type: none"> <li>• Free Parking</li> <li>• Avoiding the drive to MSP</li> <li>• Easier security</li> <li>• Jet service</li> <li>• Overall airport experience</li> <li>• More early AM or daily Flights</li> <li>• Service to Another Airport</li> </ul>
Relatively Unimportant	<ul style="list-style-type: none"> <li>• Business opportunities in MSP</li> <li>• More evening flights</li> <li>• Different carriers at MSP</li> <li>• Employer policy</li> </ul>

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

The following sections present a detailed description of the survey results and their interpretation.

## PROFILE OF THE RESPONDENTS

The study team used a number of criteria to create a universe of potential contacts that were likely to be frequent fliers and provide useful information for this study. A variety of data sources were considered. The team considered airlines' frequent flier programs as one possible source of data. Although these lists might provide a reasonable group of participants, there are several drawbacks to using them in the study. The primary problem is that using a particular airline's (or even several airlines') frequent flier list would bias the results (for better or worse) on an individual airline, rather than on the communities as a whole. A secondary concern is that the airline frequent flier data is difficult and expensive to obtain and would not be cost-effective in the context of this study.

Aside from the airlines' own frequent flier data, there is not a readily available list that directly identifies "frequent fliers". Thus, a number of other criteria were used as a proxy:

- **Location.** A geographic filter selected callers from within and slightly beyond the approximate service areas of each airport. Service areas were based on a 60 minute drive time.
- **Income.** A minimum household income level of \$40,000 further filtered the data to better focus the call list on those who were likely to fly.
- **Age.** A minimum age of 18 served as other criteria to further focus the call list on adults that make their own travel plans.

It should be noted that this filtering process resulted in a consistent and comparable pool of respondents across the four communities. However, it underrepresented the student population in Bemidji which is obviously an important component of demand in that community. It is also underrepresented visitors who do not maintain permanent residence in the study area.

The following sections describe the characteristics of the study participants. Although the constraints described above influence these characteristics, the demographics of the study participants still provide insights into the nature of typical business travelers in each of the communities.

**Location**

Exhibits A1-2 through A1-5 shows the location of the survey respondents in each community. These locations were plotted based on the home address of each participant.

**Age**

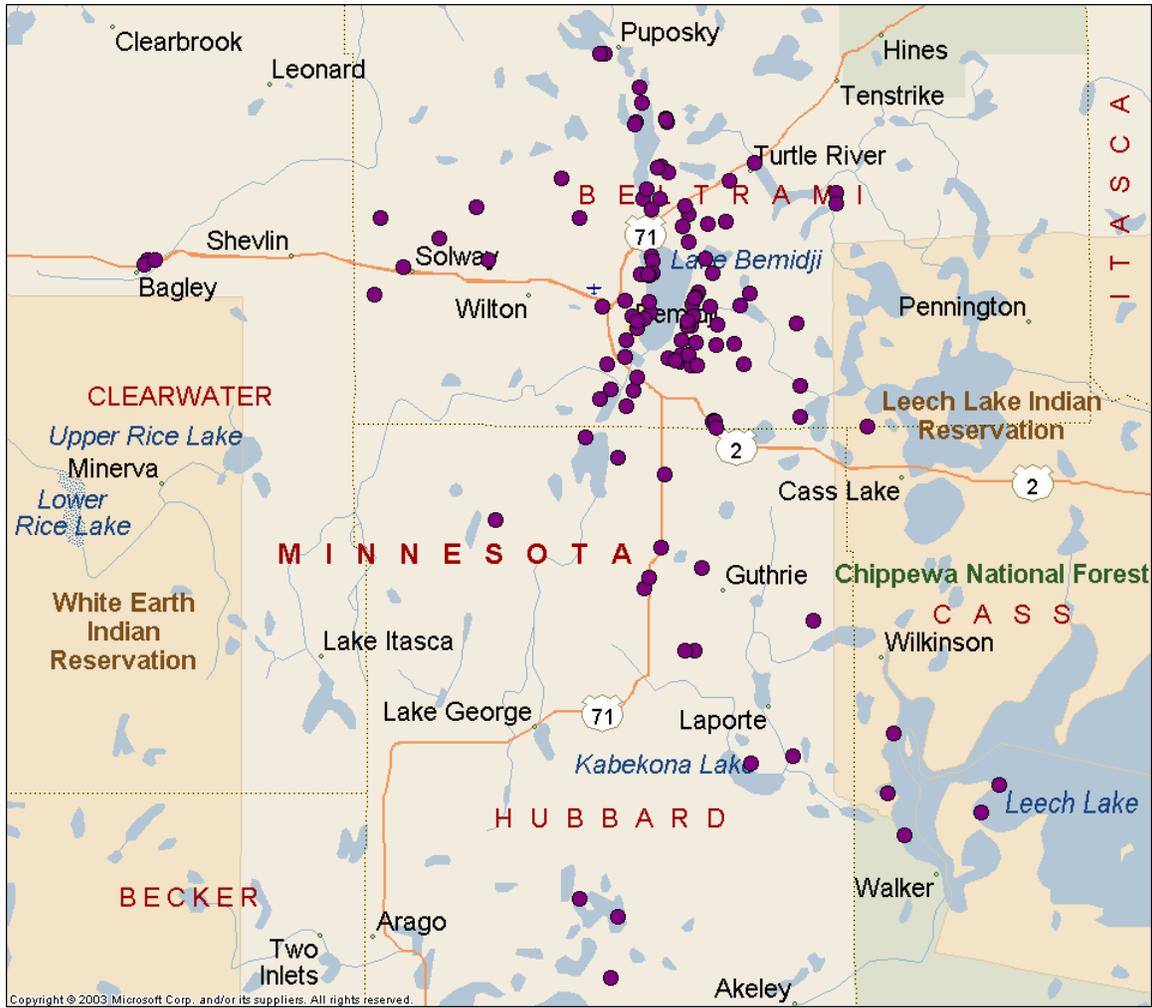
**Table A1-3** shows the age distribution of the survey respondents. As noted above, a minimum age of 18 was used in establishing the list of potential survey participants. Otherwise, no artificial constraints were placed on the age of the participants.

**Table A1-3  
Age Distribution of Survey Respondents**

AGE	BEMIDJI	BRAINERD	HIBBING	INTERNATIONAL FALLS	AVERAGE
18 to 24	2%	2%	0%	0%	1%
25 to 34	13%	11%	10%	16%	11%
34 to 44	30%	26%	26%	21%	26%
45 to 54	30%	25%	35%	26%	29%
55 to 64	16%	18%	20%	21%	18%
65 plus	10%	18%	9%	17%	15%
<b>Total</b>	100%	100%	100%	100%	100%

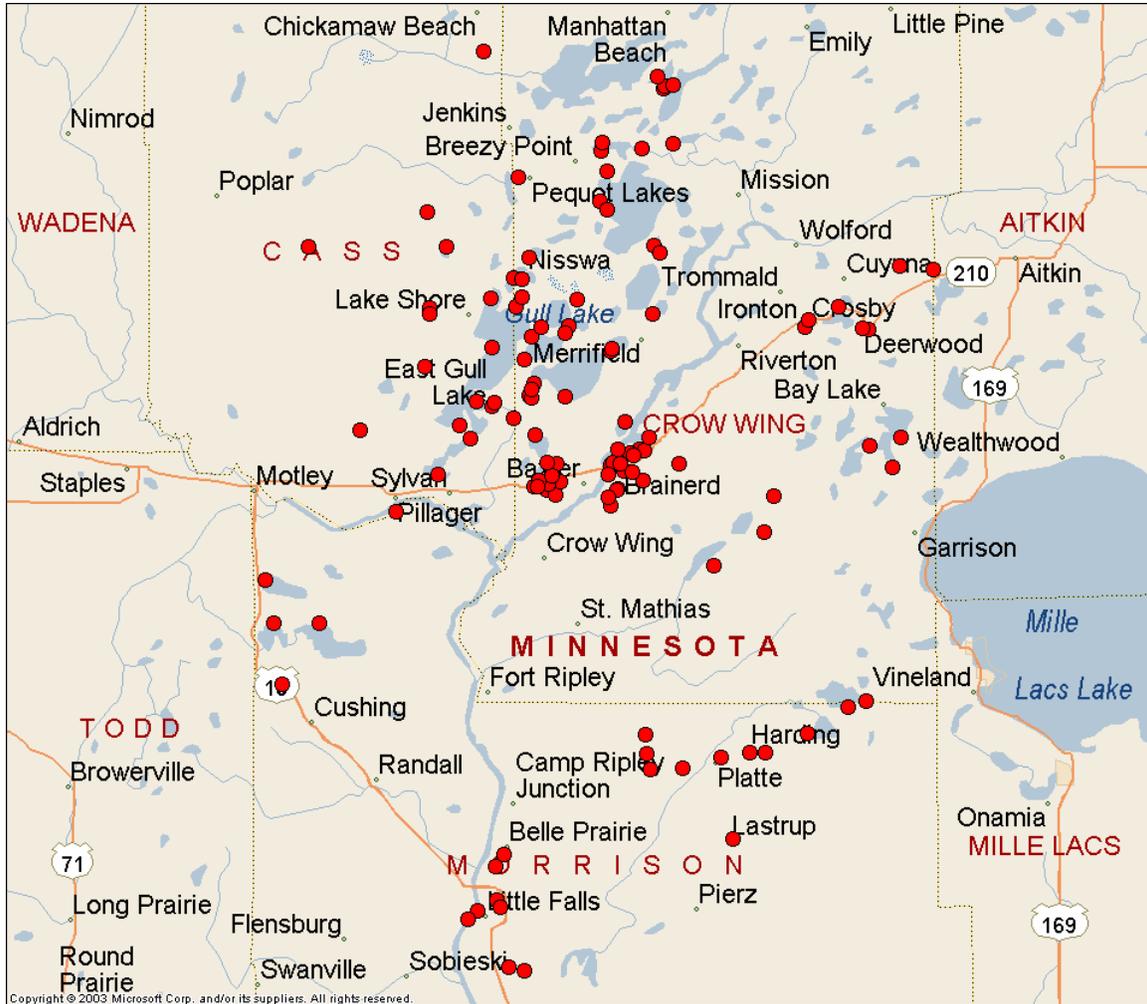
Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Exhibit A1-2  
Location of Bemidji Survey Respondents**



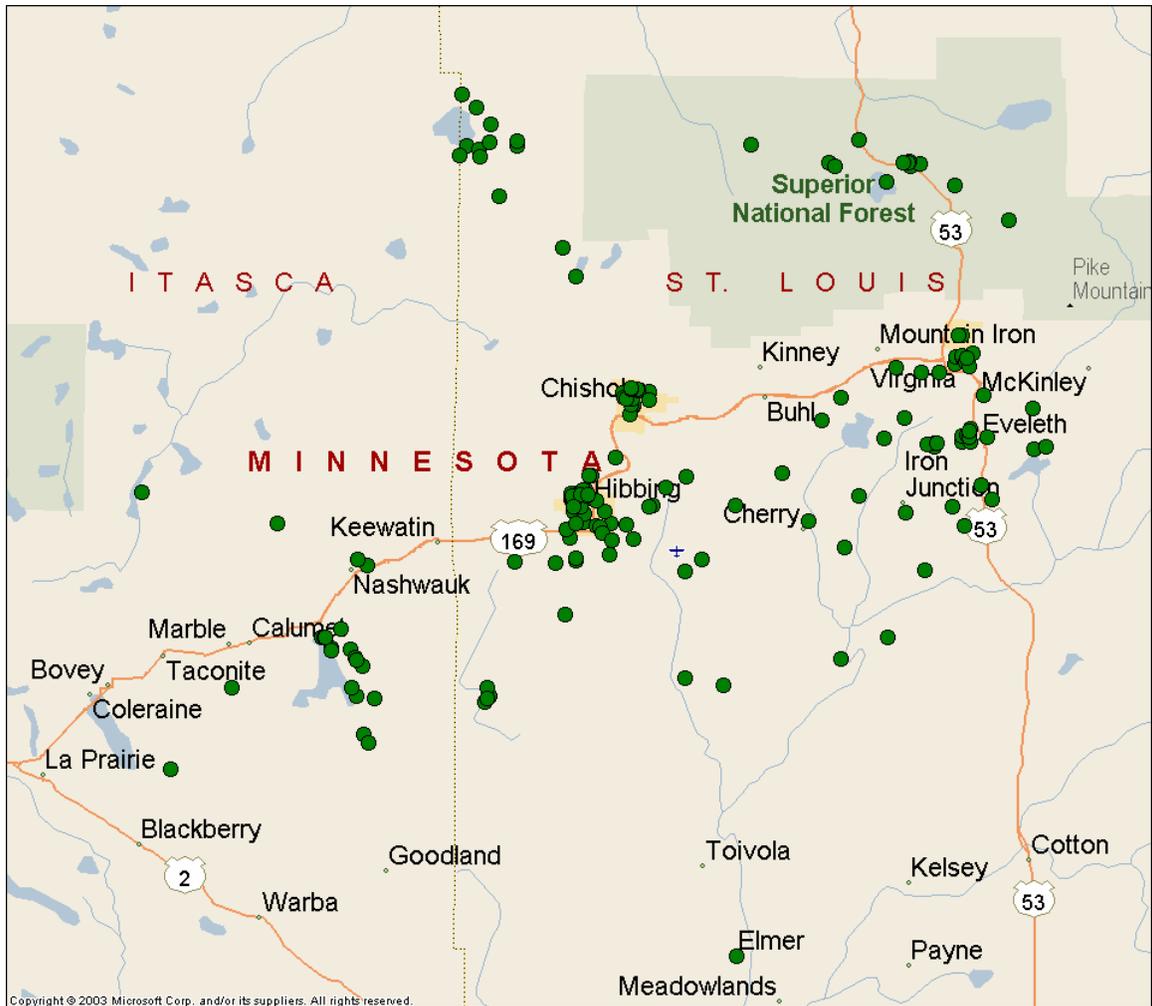
Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Exhibit A1-3  
Location of Brainerd Survey Respondents**



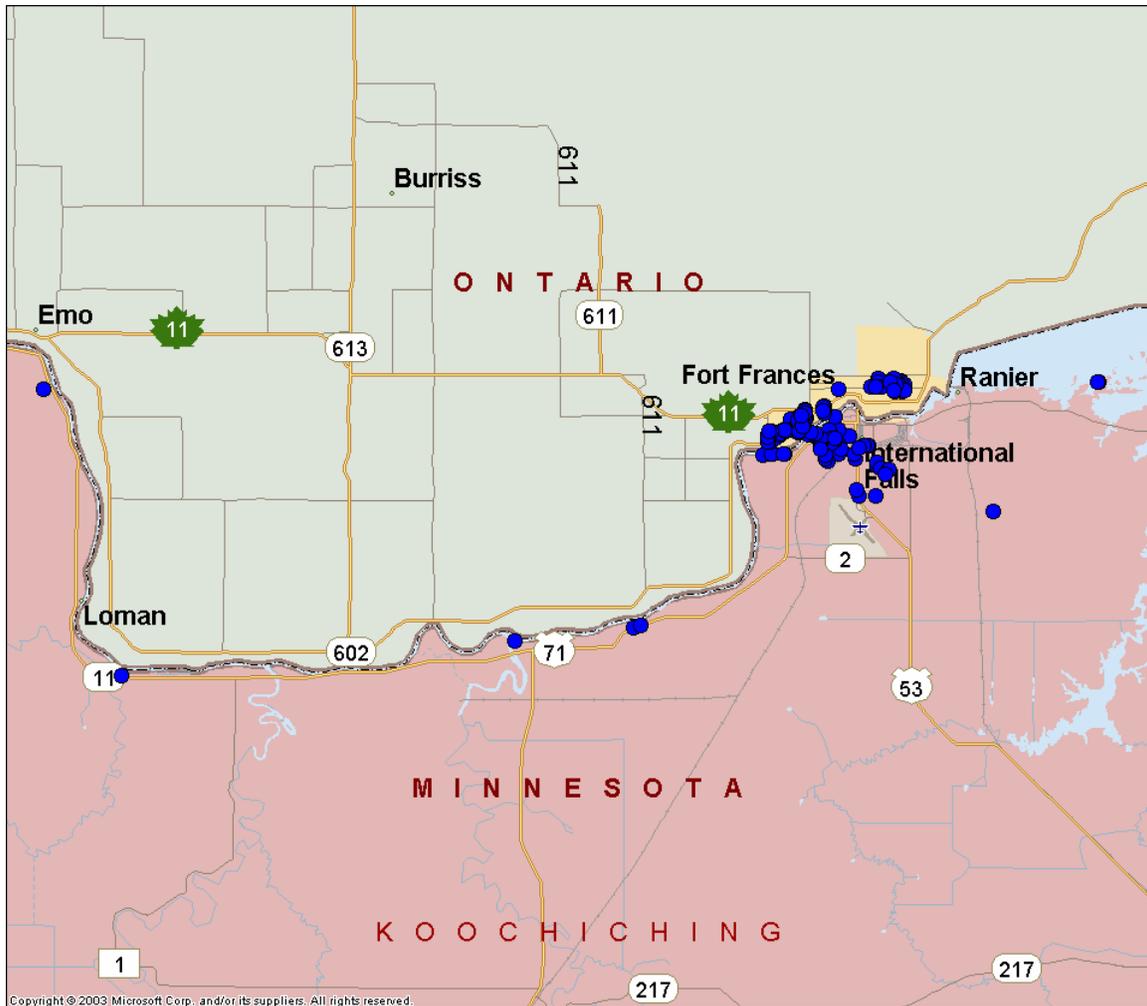
Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Exhibit A1-4  
Location of Hibbing Survey Respondents**



Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

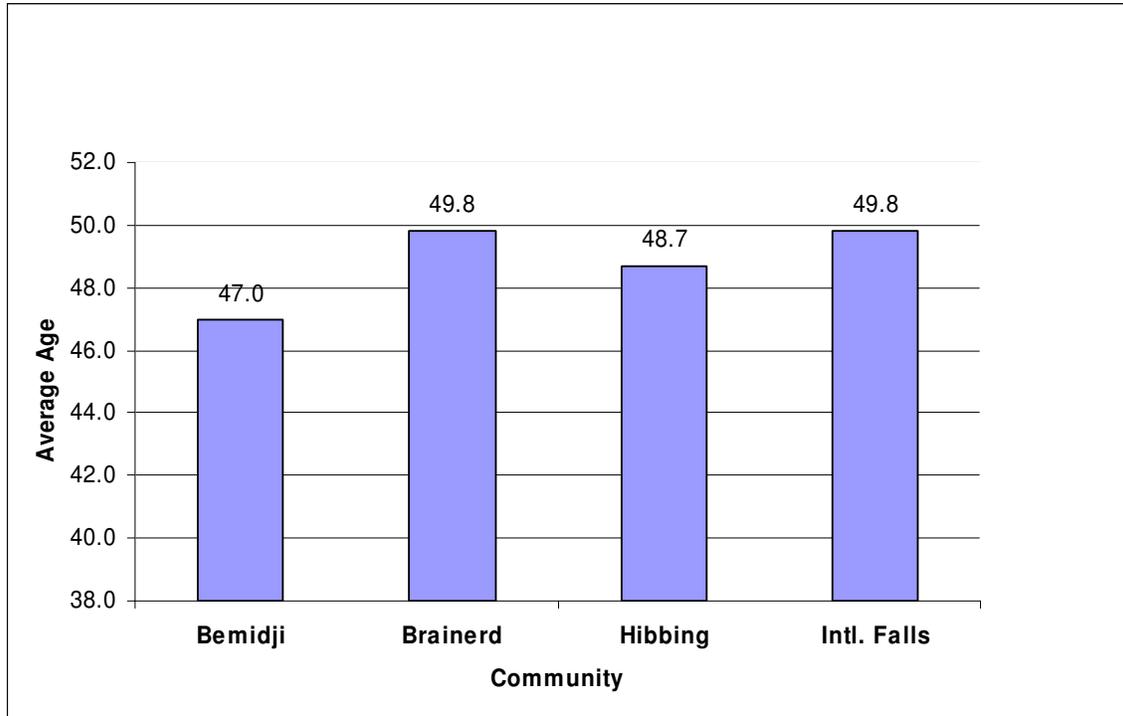
**Exhibit A1-5  
Location of International Falls Survey Respondents**



Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Exhibit A1-6** illustrates the average age of the survey respondents in each community. Although the average age falls within a relatively small range, there are some differences between the communities. The participants in Bemidji are somewhat younger than those in the other communities, with an equally higher percentage of travelers in the 35 to 44 and 45 to 54 year age range. Participants in Brainerd and International Falls are somewhat older, with a higher relative percentage in the 55 to 64 and 65 plus year range, as compared with Bemidji respondents.

**Exhibit A1-6  
Average Age of Survey Respondents**



Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Gender**

Although gender was not a criteria used in establishing the call list, the vast majority of the survey respondents were male. **Table A1-4** shows the gender distribution of the survey respondents in each community.

**Table A1-4  
Gender Distribution of Survey Respondents**

GENDER	BEMIDJI	BRAINERD	HIBBING	INTL. FALLS	AVERAGE
Female	18%	27%	19%	20%	21%
Male	82%	73%	81%	80%	79%
Total	100%	100%	100%	100%	100%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

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**Income**

**Table A1-5** shows the income distribution of the survey respondents. A minimum income of \$40,000 was used as a filter on the call list simply to focus calling efforts towards those who were more likely to fly.

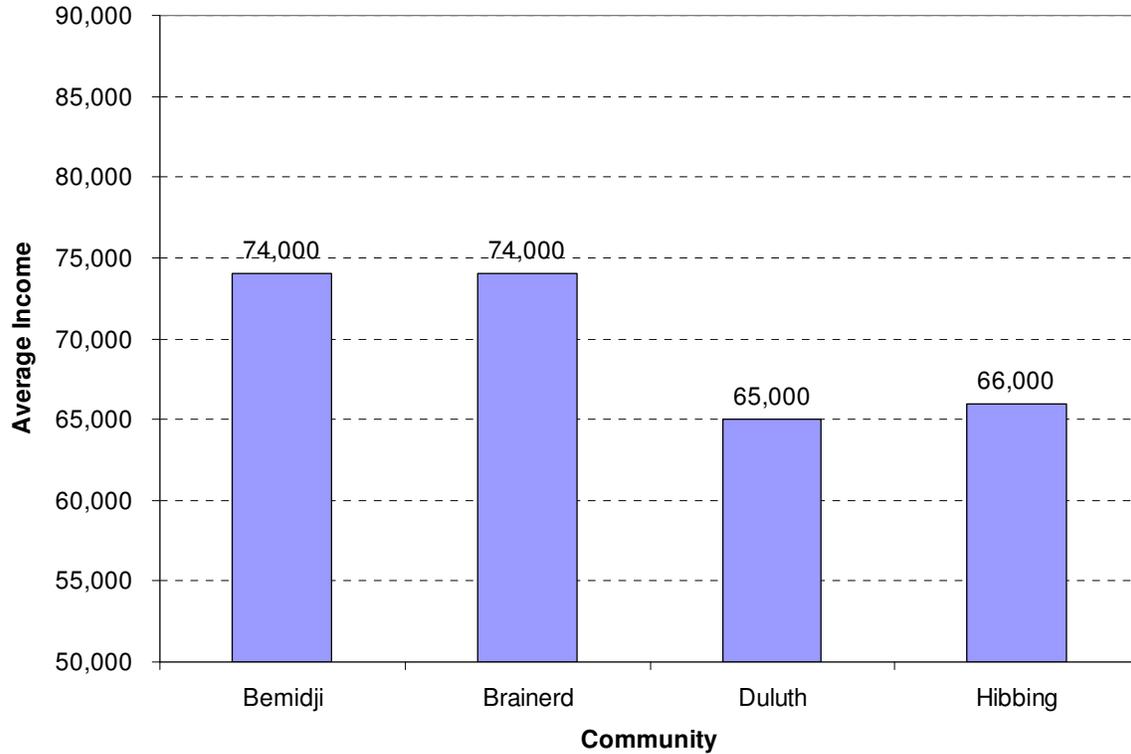
**Table A1-5**  
**Income Distribution of Survey Respondents**

<b>GENDER</b>	<b>BEMIDJI</b>	<b>BRAINERD</b>	<b>HIBBING</b>	<b>INTL. FALLS</b>	<b>AVERAGE</b>
<b>\$40,000 to \$49,999</b>	21%	25%	31%	18%	25%
<b>\$50,000 to \$59,999</b>	17%	23%	17%	17%	19%
<b>\$60,000 to \$69,999</b>	17%	15%	20%	18%	17%
<b>\$70,000 to \$79,999</b>	10%	8%	9%	13%	9%
<b>\$80,000 to \$89,999</b>	10%	5%	8%	4%	7%
<b>\$90,000 to \$99,999</b>	8%	6%	7%	11%	7%
<b>\$100,000 to \$124,999</b>	13%	9%	7%	11%	10%
<b>&gt; \$125,000</b>	5%	9%	1%	8%	5%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Exhibit A1-7** shows the estimated average household income of the survey respondents in each community. Respondents in Hibbing show a lower average income when compared with the other communities of Bemidji, Brainerd, and International Falls where the average household income is \$8,000 to 10,000 higher. Income levels are also markedly lower than respondents in the previous Tier 2 telephone survey where average household income ranged from a low in St. Cloud of \$93,000 to a high in Rochester of \$115,000.

**Exhibit A1-7  
Average Household Income of Survey Respondents**



Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

***Length of Residence***

With only a few exceptions, all of the survey respondents were homeowners rather than renters. On average, the respondents have lived in their current homes for 9 1/2 years. **Table A1-6** shows the distribution in the length of residence of the survey respondents.

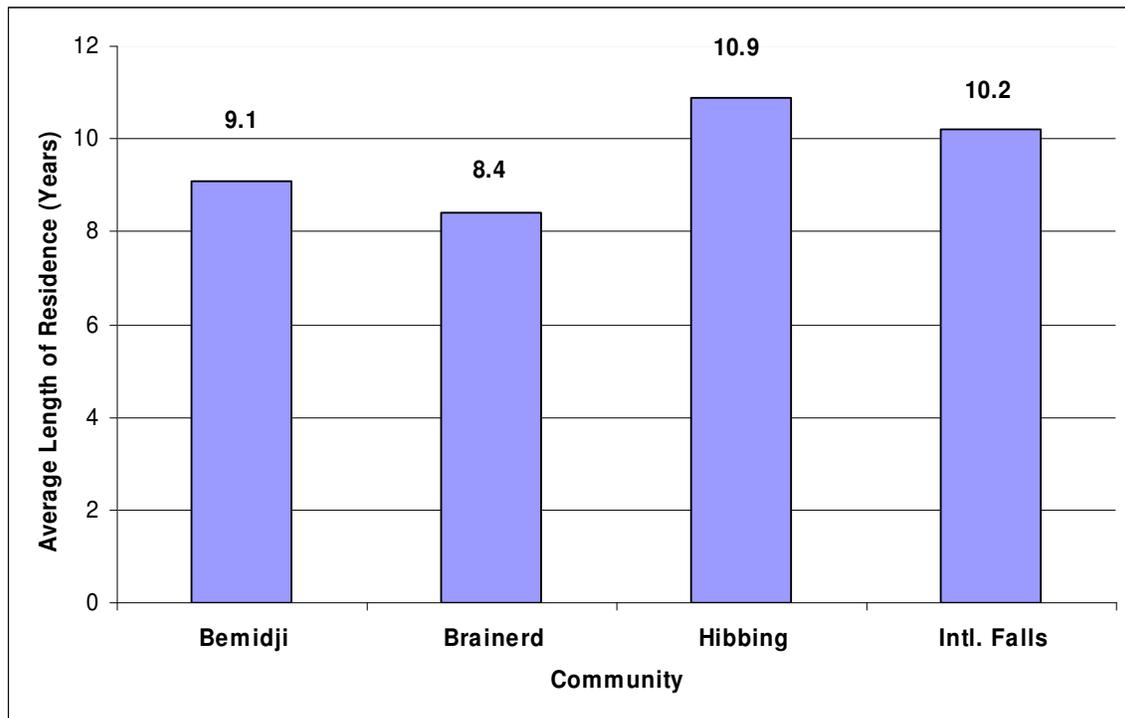
**Table A1-6  
Length of Residence of Survey Respondents**

LENGTH OF RESIDENCE	BEMIDJI	BRAINERD	HIBBING	INTL. FALLS	AVERAGE
<b>1 to 3 years</b>	30%	30%	23%	21%	27%
<b>4 to 5 years</b>	16%	17%	7%	10%	13%
<b>6 to 9 years</b>	18%	19%	22%	24%	20%
<b>10 to 14 years</b>	16%	18%	19%	26%	19%
<b>&gt; 15 years</b>	21%	16%	30%	19%	22%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

The overall average length of residence for the four communities studied ranged from 8.4 years in Brainerd up to 10.9 years in Hibbing, a difference of 2.5 years. Thus one can assume that all of these communities are fairly stable with the least change experienced in International Falls and Hibbing where respondents' average length of residence is the longest. For Tier 2 airports, the average length of residency was much shorter, 6.6 years for Duluth; 4.2 for Rochester; and 4.0 for St. Cloud.

**Exhibit A1-8**  
**Average Length of Residence of Survey Respondents**



Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

## SUMMARY OF RESULTS

### *Reason for Flying*

The results of Question 2 in the survey explored the reasons for flying during the past 12 months. (See Exhibit A1-1.) Almost 60 percent of those surveyed across the four communities flew exclusively for personal reasons. This percentage varied by community with Hibbing respondents flying for personal reasons the most often, while respondents in International Falls flying most often exclusively for business reasons. Also, International Falls respondents flew the most often for both business and personal reasons. **Table A1-7** shows the reason for flying (business, personal, and both) by community.

**Table A1-7  
Flight Reason of Survey Respondents**

FLIGHT REASON	BEMIDJI	BRAINERD	HIBBING	INTL. FALLS	AVERAGE
<b>Business</b>	30%	24%	20%	32%	26%
<b>Personal</b>	60%	63%	65%	50%	59%
<b>Both</b>	10%	14%	15%	18%	14%
<b>Total</b>	100%	100%	100%	100%	100%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Travel Frequency and Airport Choice**

Question 3 in the survey established the travel frequency and airport choice of the survey respondents. On average, the survey respondents fly approximately five times per year, but use their local airport only once or twice. Bemidji has the highest average number of trips at 6.7 per year while International Falls has the least average number of trips at 3.6 per year. **Tables A1-8 through A1-12** show travel frequency and airport choice across community and for each specific community surveyed.

**Table A1-8  
Travel Frequency and Airport Choice (Trips per Year)**

ORIGIN	BEMIDJI	BRAINERD	HIBBING	INTL. FALLS	AVERAGE
<b>Local Airport</b>	3.1	1.4	1.4	1.8	1.9
<b>MSP and Other Airports</b>	3.6	4.1	3.6	1.8	3.3
<b>Total Trips per Year</b>	6.7	5.5	5.0	3.6	5.2
<b>Percent Use of Local Airport</b>	46%	25%	28%	50%	37%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Table A1-9  
Travel Frequency and Airport Choice  
Bemidji**

ORIGIN	AVG # TRIPS (LAST 12 MONTHS)	PERCENT USE
<b>BEMIDJI</b>	3.1	46.4%
<b>DULUTH</b>	0.1	1.7%
<b>MSP</b>	3.3	49.4%
<b>GRAND FORKS</b>	0.1	1.4%
<b>FARGO</b>	0.1	1.2%
<b>TOTAL</b>	6.7	100.0%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Table A1-10  
Travel Frequency and Airport Choice  
Brainerd**

ORIGIN	AVG # TRIPS (LAST 12 MONTHS)	PERCENT USE
BRAINERD	1.4	25.2%
DULUTH	0.1	1.1%
MSP	4.0	72.8%
ST. CLOUD	0.1	1.0%
<b>TOTAL</b>	<b>5.5</b>	<b>100.0%</b>

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Table A1-11  
Travel Frequency and Airport Choice  
Hibbing**

ORIGIN	AVG # TRIPS (LAST 12 MONTHS)	PERCENT USE
HIBBING	1.4	28.3%
DULUTH	1.1	21.2%
MSP	2.5	50.5%
<b>TOTAL</b>	<b>5.0</b>	<b>100.0%</b>

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Table A1-12  
Travel Frequency and Airport Choice  
International Falls\***

ORIGIN	AVG # TRIPS (LAST 12 MONTHS)	PERCENT USE
INTERNATIONAL FALLS	1.8	49.6%
DULUTH	0.1	3.3%
MSP	1.7	47.1%
<b>TOTAL</b>	<b>3.6</b>	<b>100.0%</b>

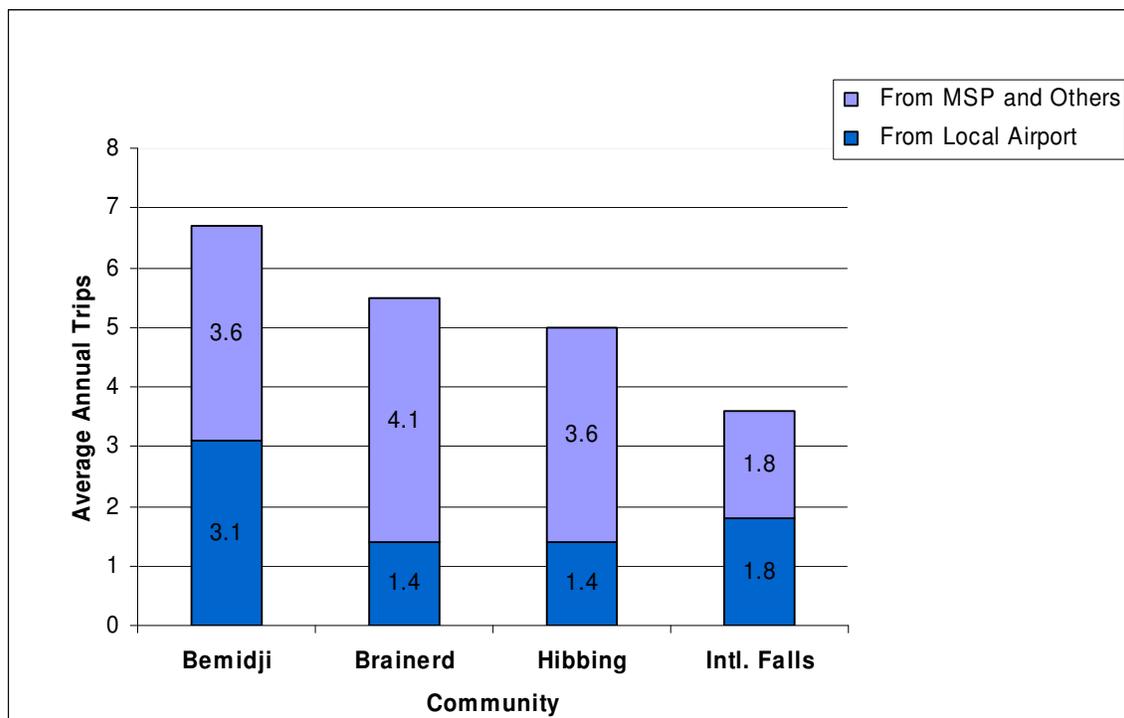
Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

Note: Due to its northern location, International Falls respondents also listed Fort Frances, Thunder Bay, and Winnipeg as airports of choice not mentioned by respondents in the other three communities.

This data shows that Minneapolis/St. Paul International remains a very important option for respondents choosing to fly, despite the long drive. With respondents from Brainerd choosing to fly from Minneapolis/St. Paul International almost three quarters of the time. Respondents from the remaining three communities also choose to fly from Minneapolis/St. Paul International roughly half of the time.

As shown in **Exhibit A1-9**, the respondents from Bemidji choose to use the local airport more than any of the other communities included in the survey with an average annual travel frequency of roughly three trips per year. In terms of absolute numbers and capture rate, Bemidji has the highest average number of trips per year from the local airport as well as a 46 percent capture rate. Brainerd and Hibbing respondents use the local airport, on average 50 percent less than Bemidji with just 1.4 trips per year, and capture rates that range from 25 percent in Brainerd and 28 percent in Hibbing. International Falls has an average of 1.8 trips per year from the local airport.

**Exhibit A1-9**  
**Travel Frequency and Airport Choice**



Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

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## ***Frequent Destinations***

Question 4 in the survey asked participants to identify their most frequent travel destinations. Over 50 percent of the respondents indicated that they traveled to various destinations, with no single destination standing out as the most common. Other respondents were able to identify a particular “most frequent” destination.

There were no significant common destinations shared by the communities surveyed in terms of a sizable percent of respondents, however some of the destinations mentioned by respondents included vacation spots such as Las Vegas, Florida, Phoenix, and Mexico and hubs including Toronto (International Falls) and Chicago (O’Hare).

**Tables A1-13** through **A1-16** show the top destinations for the survey respondents and the portion of the respondents that identified a particular destination as their most frequent. The top destinations are consistent with travel patterns indicated in the U.S. Department of Transportation’s 10 percent sample of airline tickets for airports included in the study.

**Table A1-13**  
**Frequent Destinations for Bemidji**

<b>RANK</b>	<b>DESTINATION</b>	<b>% OF RESPONDENTS</b>
<b>1</b>	Las Vegas	4.1%
<b>2</b>	Florida (unspecified or other than Miami and Orlando)	3.6%
<b>3</b>	Phoenix	3.2%
<b>4</b>	Mexico	2.7%
<b>5</b>	Orlando	1.8%
<b>6</b>	Texas	1.8%
<b>7</b>	Chicago (O’Hare)	1.8%
<b>8</b>	New York	1.8%
<b>9</b>	Los Angeles	1.8%
<b>10</b>	Denver	1.4%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Table A1-14  
Frequent Destinations for Brainerd**

<b>RANK</b>	<b>DESTINATION</b>	<b>% OF RESPONDENTS</b>
<b>1</b>	Phoenix	5.0%
<b>2</b>	Mexico	4.5%
<b>3</b>	Florida (unspecified or other than Miami and Orlando)	4.1%
<b>4</b>	Chicago (O'Hare)	4.1%
<b>5</b>	Las Vegas	3.2%
<b>6</b>	Orlando	3.2%
<b>7</b>	Los Angeles	2.7%
<b>8</b>	Texas	2.3%
<b>9</b>	Atlanta	2.3%
<b>10</b>	New York	1.8%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Table A1-15  
Frequent Destinations for Hibbing**

<b>RANK</b>	<b>DESTINATION</b>	<b>% OF RESPONDENTS</b>
<b>1</b>	Las Vegas	8.5%
<b>2</b>	Florida (unspecified or other than Miami and Orlando)	7.2%
<b>3</b>	Phoenix	4.5%
<b>4</b>	Duluth	4.0%
<b>5</b>	Denver	3.1%
<b>6</b>	New York	2.2%
<b>7</b>	Orlando	1.8%
<b>8</b>	Texas	1.8%
<b>9</b>	Chicago (O'Hare)	1.3%
<b>10</b>	Los Angeles	1.3%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Table A1-16**  
**Frequent Destinations for International Falls**

RANK	DESTINATION	% OF RESPONDENTS
1	Toronto Intl	14.8%
2	Las Vegas	4.5%
3	Florida (Unspecified Or Other Than Miami And Orlando)	3.1%
4	Thunder Bay	2.2%
5	Phoenix	1.8%
6	Orlando	1.8%
7	Arizona	1.8%
8	Denver	1.3%
9	Chicago (O'Hare)	1.3%
10	Ohio	1.3%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

### ***Important Factors in Airport Choice***

Question 5 asked the survey respondents to indicate whether certain factors were “Important” or “Not Important” in their decision to fly from their local airport rather than Minneapolis/St. Paul International. **Table A1-17** shows the relative importance of the factors in each community.

The three most important factors influencing airport choice were the cost of the ticket, total trip time, and free parking. Two of these factors, excluding ticket cost, are indicators that convenience plays a very important part in influencing airport choice.

For the other airport choice factors, opinions across the communities varied depending on the specific factor. Non-stop service was ranked as important by respondents in Brainerd and International Falls, while respondents in Bemidji and Hibbing perceived this factor to be less important. A preference for jet service is considered important in International Falls but less so in the other three communities surveyed. There was also a difference regarding the perceived local experience being better for respondents in Bemidji and International Falls than for Brainerd and Hibbing respondents. Preferring not to drive to Minneapolis/St. Paul International was considered to be more important for Hibbing respondents than the other three communities. Hibbing has a viable alternate airport given that it is 82 miles from Duluth.

**Table A1-17  
Percent of Respondents Where Airport Choice Factor is “Important”**

<b>FACTOR</b>	<b>BEMIDJI</b>	<b>BRAINERD</b>	<b>HIBBING</b>	<b>INTL. FALLS</b>	<b>AVERAGE</b>
<b>Cost of Ticket</b>	86%	92%	84%	91%	88%
<b>Total Trip Time</b>	78%	82%	79%	75%	78%
<b>Non-stop Service</b>	65%	79%	69%	78%	73%
<b>Free Parking</b>	75%	79%	77%	71%	76%
<b>Prefer Jet Service</b>	55%	61%	61%	75%	63%
<b>Easier Security</b>	69%	75%	78%	80%	76%
<b>Employer Policy</b>	18%	21%	23%	16%	20%
<b>Prefer Not to Drive to MSP</b>	66%	64%	74%	67%	68%
<b>Business in MSP</b>	27%	22%	23%	23%	24%
<b>Local Experience is Better</b>	77%	59%	58%	76%	68%
<b>Different Carriers at MSP</b>	57%	54%	48%	34%	48%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

***Willingness to Pay More at Local Airport***

Tier 3 airports, because they are further away from Minneapolis-St. Paul, appear more willing to pay more to fly from their local airport than Tier 2 airports. Roughly two thirds of the survey respondents interviewed are willing to pay more to fly locally. Sixty percent of this group will pay \$50-\$100 more per roundtrip ticket to fly out of their local airport. This is true across all four communities included in the survey. A small percentage of respondents are even willing to pay more than \$100 per ticket to fly locally. The largest number of respondents in this category comes from the most distant communities of International Falls and from Bemidji. **Table A1-18** summarizes the willingness of the respondents to pay more to fly locally.

**Table A1-18  
Percent of Respondents Willing to Pay More to Fly Locally**

WILLING TO PAY MORE?	BEMIDJI	BRAINERD	HIBBING	INTL. FALLS	AVERAGE
<b>Yes</b> Less than \$50	6.8%	16.7%	14.3%	12.1%	12.5%
\$50 - \$100	41.0%	34.7%	44.8%	32.7%	38.3%
\$101 - \$150	9.0%	4.1%	5.8%	13.0%	8.0%
More than \$150	6.8%	2.7%	4.5%	5.4%	4.8%
<b>Yes Total</b>	63.5%	58.1%	69.5%	63.2%	63.6%
<b>No Total</b>	36.5%	41.9%	30.5%	36.8%	36.4%
<b>Grand Total</b>	100.0%	100.0%	100.0%	100.0%	100.0%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

***Desired Service Improvements***

Survey respondents were given an opportunity to identify important service improvements. This was done by asking them to state whether certain improvements were “Important” or “Not Important” to them and also by providing a free-response question about service improvements.

**Table A1-19** lists the service improvements and the portion of the respondents that felt a particular improvement was important. By far, the most desired improvement by all communities surveyed was greater reliability of the local service, followed by the availability of nonstop flights. About half of the respondents considered more daily flights and more early AM flights to be important. The availability of more evening flights was not considered to be an important service improvement for any of the communities surveyed.

**Table A1-19  
Percent of Respondents Where Service Improvement is “Important”**

FACTOR	BEMIDJI	BRAINERD	HIBBING	INTL. FALLS	AVERAGE
Greater Reliability	82%	78%	86%	87%	83%
Nonstop Flights	63%	68%	69%	67%	67%
Jet Aircraft	57%	52%	57%	70%	59%
More Daily Flights	54%	54%	62%	54%	56%
More Early AM Flights	52%	48%	56%	58%	53%
Service to Another Airport	44%	53%	58%	42%	49%
More Evening Flights	34%	34%	43%	35%	37%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

Just over ten percent of the respondents surveyed provided one or more free-response suggestions for service improvements. **Attachment 1** provides a detailed listing of these suggestions. Although the responses varied in their details, the answers could be grouped into a limited number of categories:

- Lower fares – Interest in lower fares, but not necessarily changes in service.
- Facility improvements – Airport facility improvements such as restaurants, parking, baggage, and airside facilities.
- Additional service – Service to more destinations or more flight times. This category excludes requests for new carriers.
- Better customer service – Complaints about various customer service issues including lost baggage, unpleasant interactions with airline or airport staff, and other customer service issues.
- Additional carriers – Desire for service from a new carrier, typically a low-fare carrier. Concerns about single-carrier monopoly.
- Jets / larger aircraft – Interest in jets or larger turboprop aircraft.
- Security improvements – Interest in faster or better security and other security complaints.
- Improved reliability – Interest in reduced cancellations and improved on-time performance.
- Positive comments – Other miscellaneous positive comments.

Table A1-20 shows the portion of respondents making each type of suggestion.

**Table A1-20**  
**Respondents Suggesting Improvement in Free Response Question**

CATEGORY	BEMIDJI	BRAINERD	HIBBING	INTL. FALLS	AVERAGE
<b>Lower Fares</b>	4.1%	4.1%	3.6%	2.2%	3.5%
<b>Additional Service</b>	0.5%	2.3%	2.2%	1.3%	1.6%
<b>Additional Carriers</b>	2.3%	0.0%	0.0%	0.0%	1.5%
<b>Customer Service</b>	1.4%	0.5%	0.4%	2.2%	1.1%
<b>Security</b>	0.5%	0.5%	0.4%	0.0%	0.8%
<b>Facilities</b>	0.5%	0.5%	1.8%	0.0%	0.7%
<b>Jets</b>	1.8%	0.5%	0.4%	0.4%	0.6%
<b>Reliability</b>	0.0%	0.0%	0.4%	0.4%	0.3%
<b>Positive Comments</b>	<b>2.7%</b>	<b>2.7%</b>	<b>3.6%</b>	<b>1.3%</b>	<b>2.6%</b>

Source: 2005 Telephone Survey, KRAMER aerotek, inc.

Prepared: July 2005.

These free responses also served as a quality control check on the structure of the survey questions. The free response answers did not identify any significant issues that were not already addressed in some way by the other survey questions. This suggests that the basic survey questions did not overlook any critical issues.

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## **Requested Service**

Part of Question 7 (service improvements) asked survey respondents to identify additional service that they would request. **Tables A1-21** through **A1-24** show the results. By far, the most requested new service was to Minneapolis with Chicago and Duluth also in the top five requested service for all four communities but by significantly fewer respondents than those requesting service to Minneapolis. It is interesting to note that Duluth is mentioned frequently for feeder service from Tier 3 communities. The tables below show the most requested service for each community.

**Table A1-21**  
**Most Requested Service**  
**Bemidji**

<b>RANK</b>	<b>DESTINATION</b>	<b>% OF RESPONDENTS</b>
<b>1</b>	Minneapolis	27.0%
<b>2</b>	Chicago	3.2%
<b>3</b>	Fargo	3.2%
<b>4</b>	Duluth	1.4%
<b>5</b>	Denver	0.9%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Table A1-22**  
**Most Requested Service**  
**Brainerd**

<b>RANK</b>	<b>DESTINATION</b>	<b>% OF RESPONDENTS</b>
<b>1</b>	Minneapolis	34.2%
<b>2</b>	Chicago	3.2%
<b>3</b>	Duluth	2.3%
<b>4</b>	Atlanta	1.4%
<b>5</b>	Denver	0.9%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Table A1-23**  
**Most Requested Service**  
**Hibbing**

<b>RANK</b>	<b>DESTINATION</b>	<b>% OF RESPONDENTS</b>
<b>1</b>	Minneapolis	37.2%
<b>2</b>	Duluth	4.9%
<b>3</b>	Chicago	4.5%
<b>4</b>	Detroit	1.8%
<b>5</b>	New York	1.3%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Table A1-24  
Most Requested Service  
International Falls**

RANK	DESTINATION	% OF RESPONDENTS
1	Minneapolis	27.4%
2	Chicago	4.0%
3	Duluth	3.1%
4	Fargo	0.9%
5	Winnipeg	0.9%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

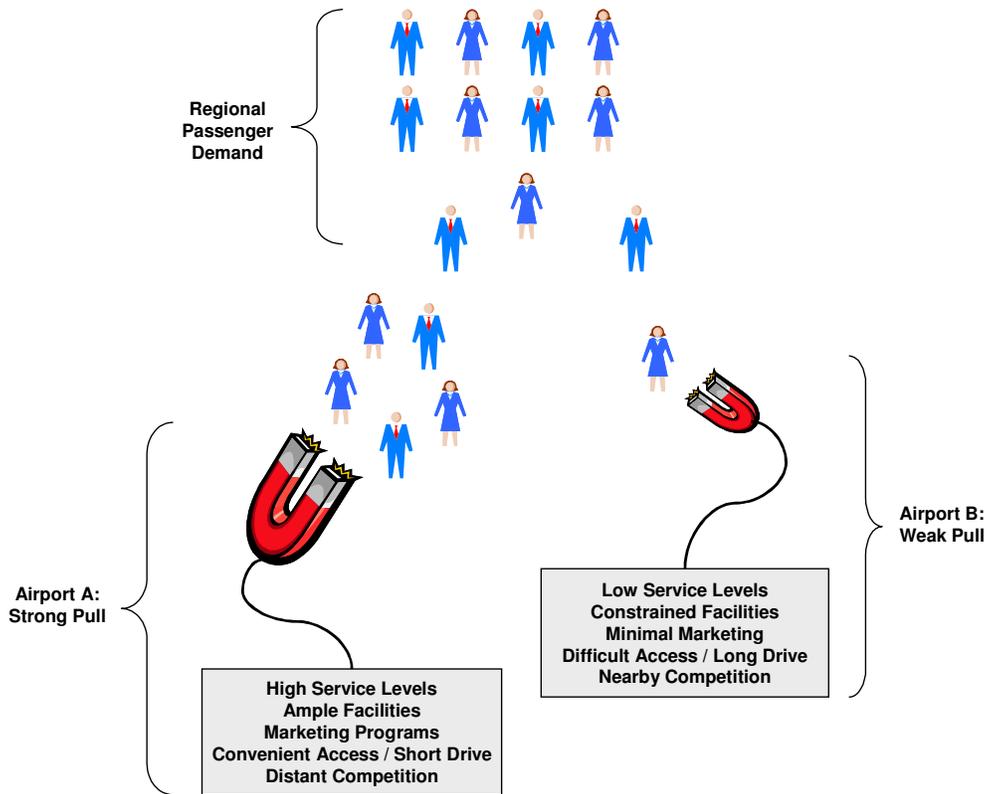
## INTERPRETATION OF THE RESULTS

Based on the survey results presented above, it is possible to draw a number of different conclusions about the current state of air service in the study communities and how future efforts to improve service might be directed.

### ***Capture Rates***

In areas with higher populations, wealth, and economic activity, demand for air travel generation is higher than in communities with fewer people or less economic activity. In the end, each community creates a certain finite amount of air travel demand from which the local airport can draw passengers. The local airport may serve a large portion of this demand, or it may serve a smaller portion of the demand if passengers travel to another airport. The proportion of the total demand that is served by the local airport is called the *capture rate*. The capture rate can vary from zero (no air service) to 100 percent (local travelers use only the local airport). **Exhibit A1-10** illustrates how different factors affect the capture rate of a given airport as compared to another airport.

**Exhibit A1-10  
Capture of Regional Demand**



Sourced: KRAMER aerotek, inc.  
Prepared: July 2005.

The telephone survey data provides an objective measure of how much of the local community air service demand is being retained by the study airports. **Table A1-25** shows the capture rates for each of the study communities.

**Table A1-25  
Overall Capture Rates**

	BEMIDJI	BRAINERD	HIBBING	INTL. FALLS	AVERAGE
<b>Overall Capture Rate</b>	46%	25%	28%	50%	43%

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

As the table shows, there is a wide variation in the capture rates among the communities. A number of factors affect these capture rates. These are discussed in more detail in the “Key Factors Affecting Capture Rates” and “Airport Specific Issues” sections below.

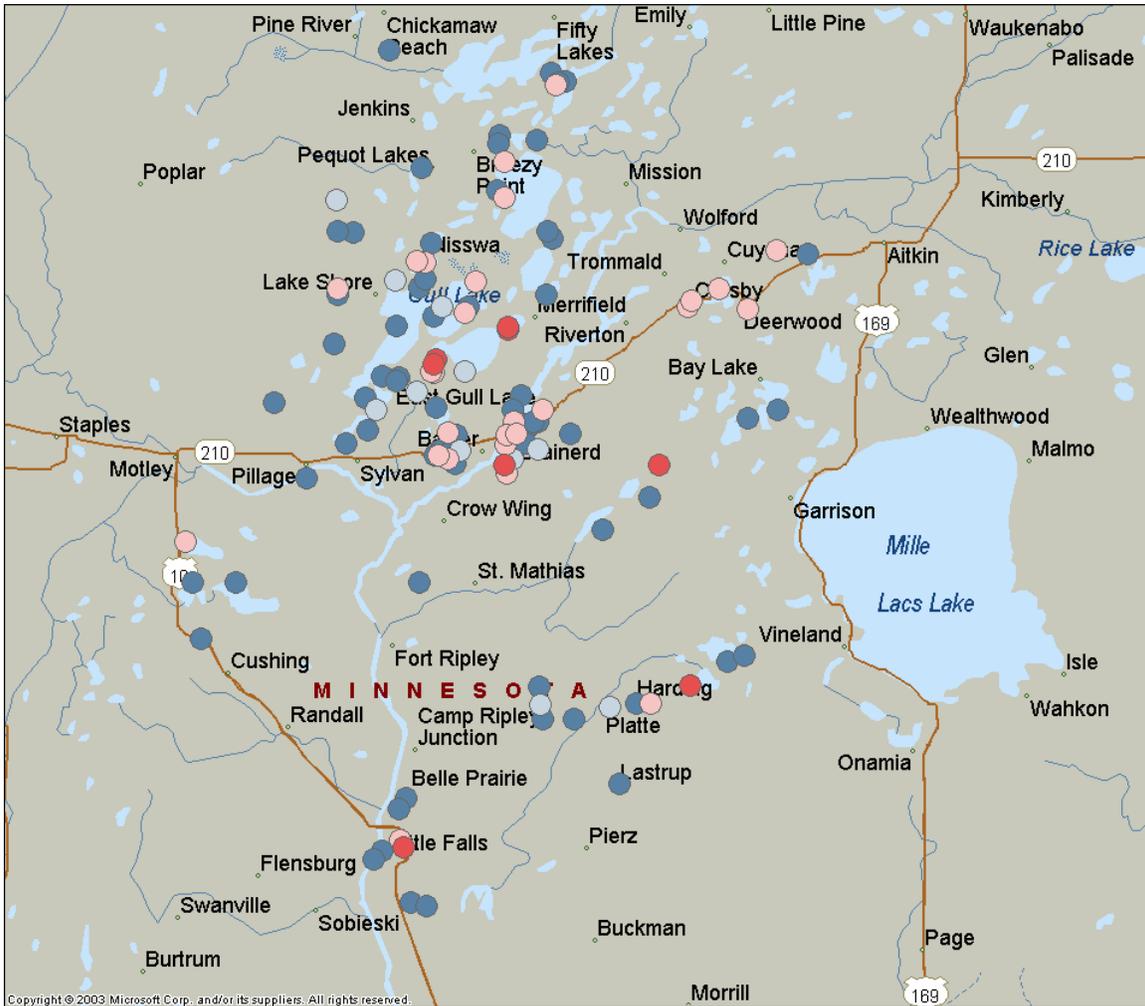
**Exhibits A1-11 through A1-14** detail the location of respondents in each community and their frequency of use of their local airports. Red and pink dots indicate a higher percent of use of the local airports. What is revealing here is the apparent lack of a trend, except for International Falls. For Tier 2 airports, the geographic pull of Minneapolis/St. Paul International was apparent in all of the samples. This is not as apparent among Tier 3 airports.

**Exhibit A1-11  
Capture Rate – Bemidji**



Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

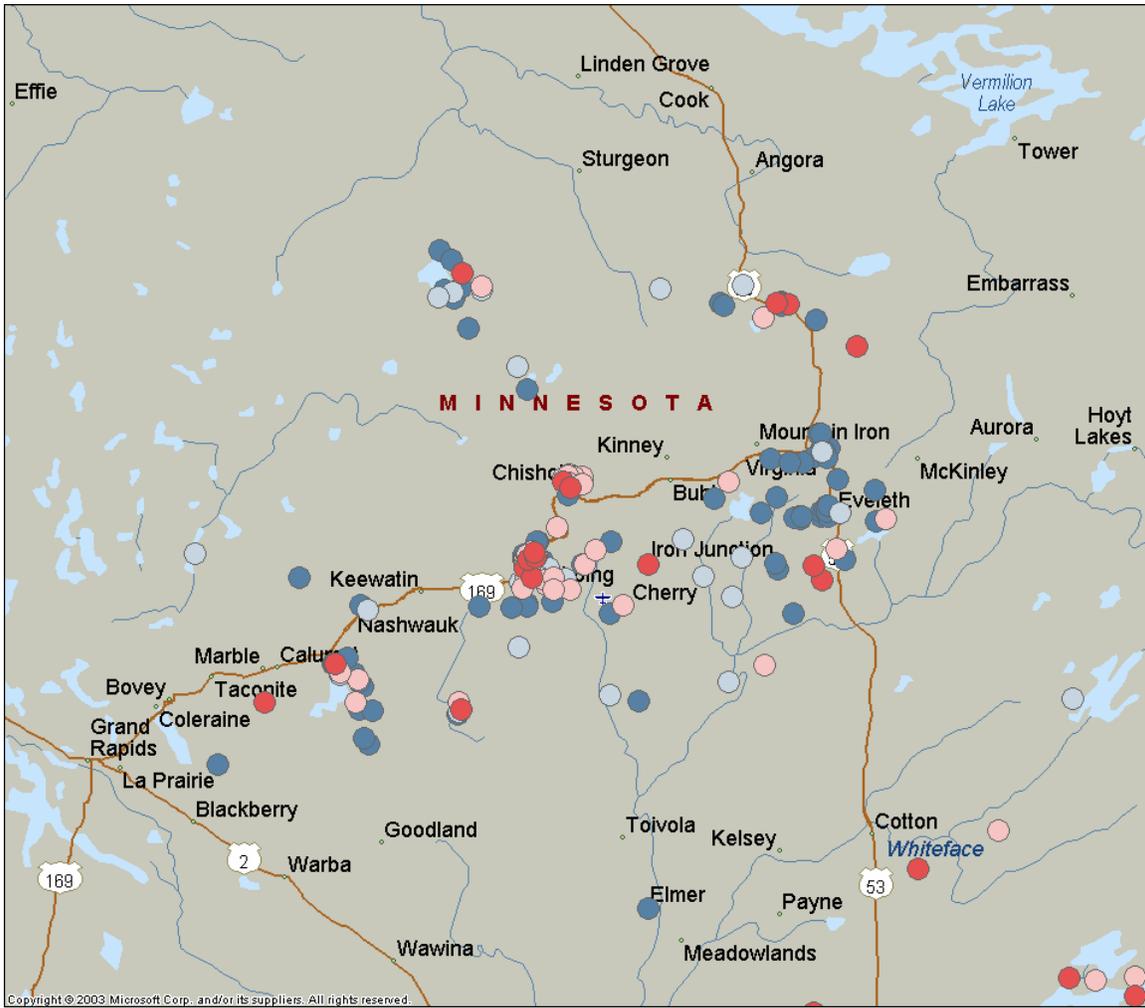
**Exhibit A1-12  
Capture Rate – Brainerd**



Portion of Local Airport Use	
<span style="color: red;">●</span>	75% to 100%
<span style="color: pink;">●</span>	50% to 74%
<span style="color: lightblue;">●</span>	25% to 49%
<span style="color: darkblue;">●</span>	0% to 50%

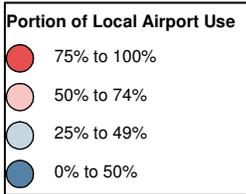
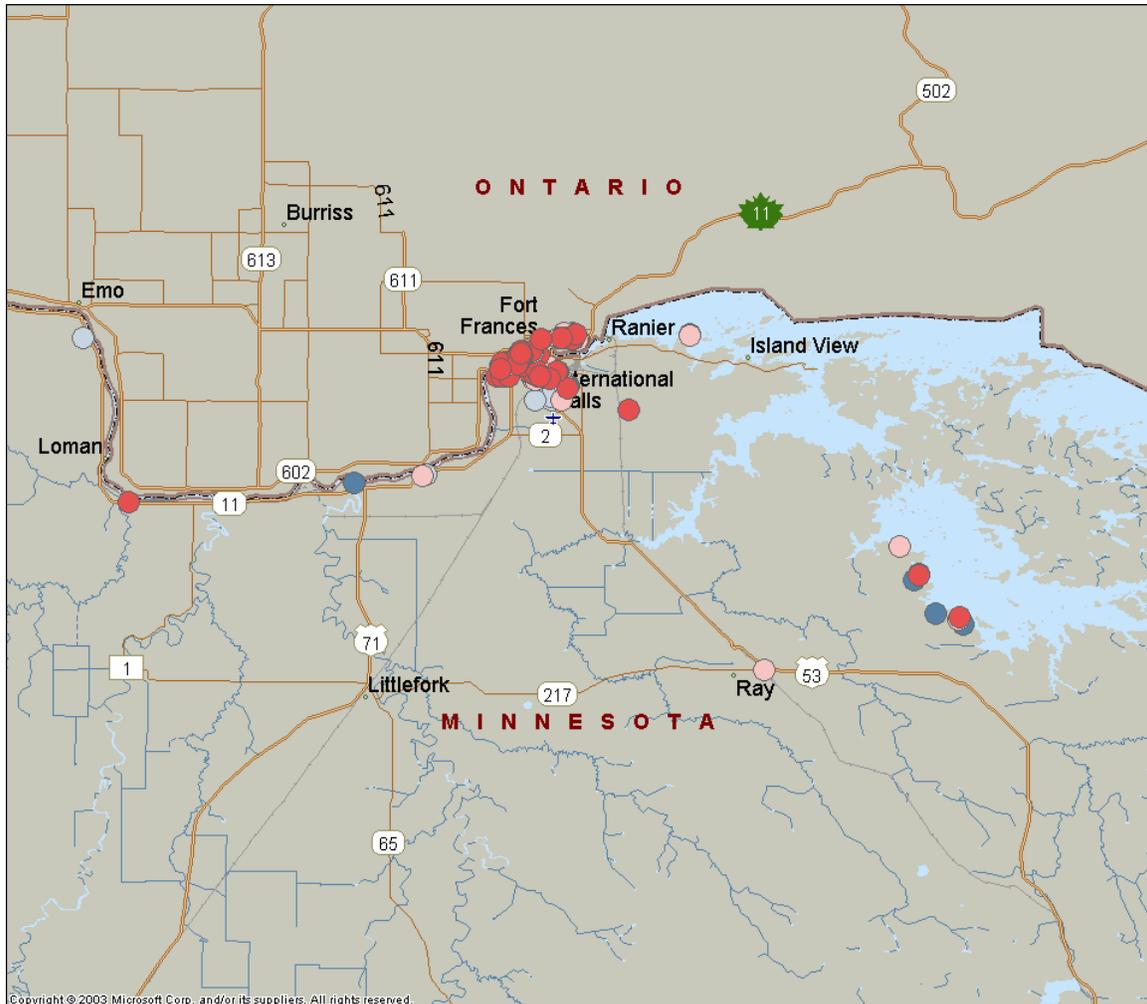
Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Exhibit A1-13  
Capture Rate – Hibbing**



Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

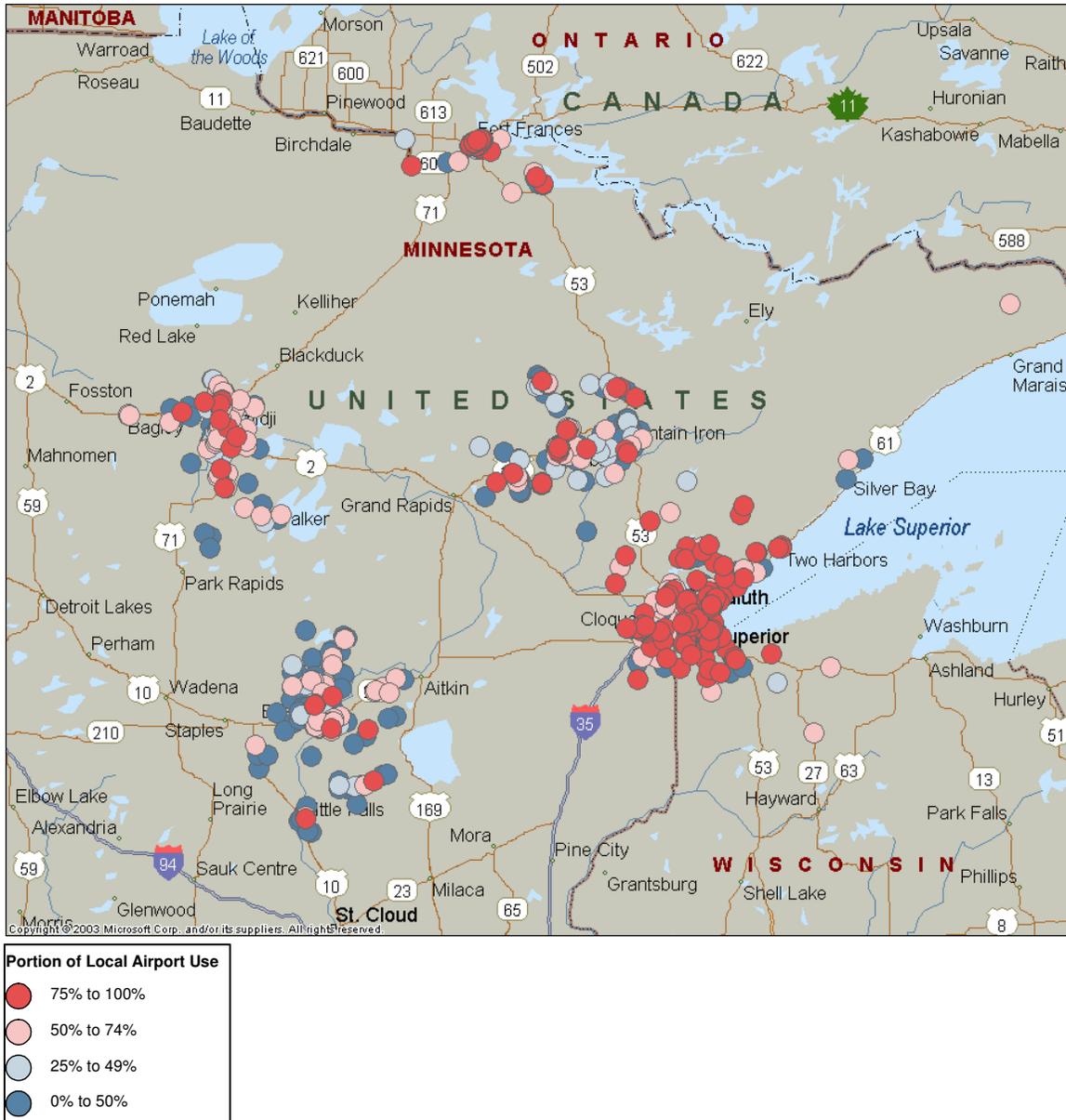
**Exhibit A1-14  
Capture Rate – International Falls**



Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

**Exhibit A1-15** shows that the relative distance between the local airport and other competing airports; this distance plays an important role in determining airport choice. However, while this is important, the scatter in the data for these particular communities shows that when you are relatively far away from the airport and service is minimal, the local airport does not display the same type of magnet effect as is seen in larger communities such as Duluth where airport service is more robust.

**Exhibit A1-15  
Capture Rate – All Airports (Including Duluth)**



Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

## Key Factors Affecting Capture Rates

Although there was some variation in responses between the study communities, the overall results of the survey suggest that the factors influencing airport choice in Minnesota could be grouped into three categories:

- Very important in determining airport choice,
- Moderately important; and in determining airport choice, and
- Unimportant in determining airport choice.

A second way to consider these factors is to group them into two different types of categories:

- Factors that might be influenced by local airport efforts; and,
- Factors that are relatively difficult to influence

Table A1-26 shows how the airport choice factors can be classified:

**Table A1-26**  
**Classification of Airport Factors**

IMPORTANCE	MIGHT BE INFLUENCED	DIFFICULT TO INFLUENCE
<b>Very Important</b>	<ul style="list-style-type: none"> <li>• Fares</li> <li>• Reliability</li> </ul>	<ul style="list-style-type: none"> <li>• Total trip time</li> <li>• Non-stop service</li> </ul>
<b>Moderately Important</b>	<ul style="list-style-type: none"> <li>• Overall airport experience</li> <li>• Easier security</li> <li>• Jet service</li> <li>• More early AM or daily Flights</li> <li>• Service to another airport</li> <li>• Free parking</li> </ul>	<ul style="list-style-type: none"> <li>• Avoiding the drive to MSP</li> </ul>
<b>Relatively Unimportant</b>	<ul style="list-style-type: none"> <li>• Different carriers at MSP</li> <li>• More evening flights</li> </ul>	<ul style="list-style-type: none"> <li>• Business opportunities in MSP</li> <li>• Employer policy</li> </ul>

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

It clearly makes sense to focus efforts on emphasizing and improving those factors that are both important to travelers in the community *and* able to be influenced. These are:

- Cost of ticket (fares)
- Reliability
- Overall airport experience
- Easier security
- Jet service
- More early AM or daily flights
- Service to another airport
- Free Parking

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## Fares

The survey data clearly demonstrates that ticket cost is by far the most important factor in influencing airport choice. In three of the four communities surveyed, this factor is even more important to those who do not use the local airport, suggesting that higher fares are a significant reason why travelers choose to use other airports. Hibbing is the only community surveyed where ticket cost was not as important a factor as limited schedules.

Some passengers are willing to pay a bit more to fly locally and save some time. However, the additional amount that is acceptable to them is relatively low and ranges between \$40-\$56 per ticket. **Table A1-27** compares the average acceptable fare increase to the average amount of time saved<sup>18</sup> by flying locally. In most communities, the travelers surveyed value their time at about \$10 per hour of driving time saved, with Brainerd and Hibbing respondents valuing their time at a slightly higher rate of \$13 per hour of driving time. These low rates are less than the cost of driving to Minneapolis-St. Paul. It is noteworthy that the amount passengers are willing to pay to fly from their local airport is less than the cost of driving to Minneapolis-St. Paul. The true cost of driving is not typically part of the decision to drive.

**Table A1-27**  
**Average Acceptable Fare Increment versus Time Saved**

CATEGORY	BEMIDJI	BRAINERD	HIBBING	INTL. FALLS
Drive time to MSP (in minutes)	290	180	240	340
Avg. Acceptable Fare Increment	\$56.00	\$40.00	\$52.00	\$53.00
Time Value (\$/hour)	\$11.49	\$13.33	\$13.09	\$9.40

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

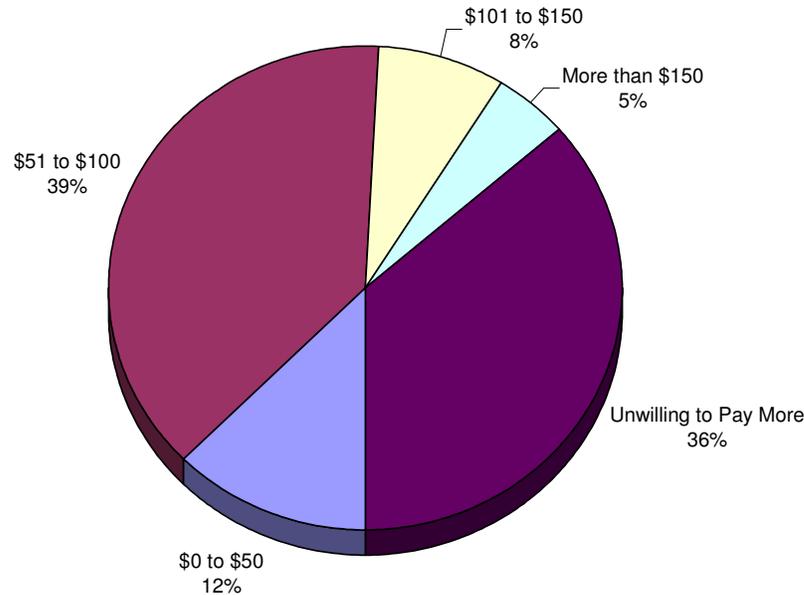
Even though travelers are willing to pay a little more to fly locally, there may be a significant impact when these higher fares are charged. **Exhibit A1-16** illustrates how higher fares can rapidly decrease the available pool of passengers that an airline can draw from. More than one third of the passengers are unwilling to pay any additional amount to fly locally – thus, by charging more for the local fare, a carrier would have essentially reduced the effective size of the local market by about 33 percent. Charging over \$50 more reduces the available passengers by about 50 percent, charging up to \$100 more reduces the market size by 87 percent, and any price increase above \$100 essentially reduces the market size to 5 percent or less.

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<sup>18</sup> Time saved considers only drive time and not connection time or the time it takes to park, check in, security and travel to the gate.

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**Exhibit A1-16**  
**Passenger Willingness to Pay More to Fly Locally (Roundtrip)**



Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

### ***Reliability***

Greater reliability was the most important service improvement cited by respondents in all four communities surveyed with 83 percent of those surveyed ranking this factor as “important”. Common service reliability issues include cancellations, delayed flights, and weather-related delays. It is difficult to quantify the impact that these issues have on the level of support received by the local airport, but it is believed that improved reliability could positively impact utilization of local air service versus choosing other options such as going directly to Minneapolis/St. Paul International.

Although improved reliability is an airline issue, the survey results suggest that this is a worthwhile place to direct some effort – through facility improvements, improved connecting schedules, and additional frequencies.

### ***Overall Airport Experience***

There is a wide range in the perceived quality of local airport experience at the different study airports (see Table A1-17). At Bemidji and International Falls, over three quarters of the respondents viewed the local airport experience as better than Minneapolis/St. Paul International. At Brainerd and Hibbing, just slightly less than 60 percent of the respondents viewed the local experience as better than Minneapolis/St. Paul International.

The importance of this becomes more apparent by looking at the behavior of passengers who view the local experience as better versus those who do not. This is shown in **Exhibit A1-17**. The left column for each community shows the capture rate for those passengers who believe

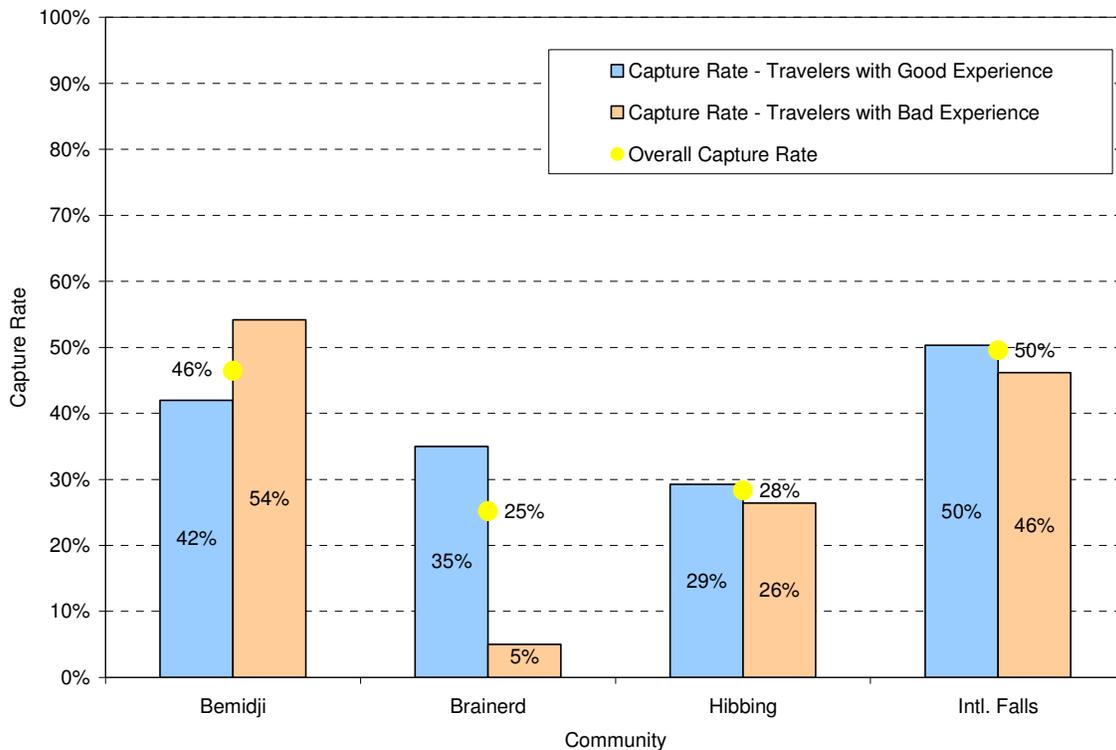
the local experience is better than that at Minneapolis/St. Paul International. Theoretically, this is what the capture rate would be if all of the travelers in the community believed that the local experience was better than Minneapolis/St. Paul International.

The right column for each community shows the capture rate for the respondents who believe that the local experience is worse than that of Minneapolis/St. Paul International. Theoretically, this is what the capture rate would be if all of the travelers in the community believed that the local experience was worse than Minneapolis/St. Paul International.

So, the difference between the two columns represents the range of capture rate that might be influenced simply by the overall airport experience. For Brainerd, Hibbing, and International Falls, the capture rate for travelers with good experiences is greater than the capture rate for travelers with bad experiences, with Brainerd demonstrating the largest range. It is difficult to explain why the data for Bemidji respondents is reversed, but may have to do with the overall convenience of flights and the 241 mile drive to Minneapolis/St. Paul International.

The dots in the figure represent the current overall capture rates for each airport. This is one measure of where each airport currently lies in the range from “all good experiences” to “all bad experiences”. Bemidji and International Falls, in particular, may be able to improve their capture rates by focusing on making the overall airport experience as pleasant as possible. Attachment 1, particularly the sections on facility improvements and customer service, may provide insights on ways in which this might be done at each airport.

**Exhibit A1-17**  
**Capture Rate by Airport Experience**



Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

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## ***Easier Security***

On average, three quarters of those responding to the survey cited easier security as an important factor in their airport decision making process. It is clearly something that people care about. This is most true at International Falls which is on the U.S./Canadian border. For Bemidji respondents, airport choice was least affected by easier security with 69 percent of those surveyed citing this factor as important in influencing their choice of airport.

In general, passengers have become somewhat accustomed to complicated and slow security procedures. Many people even have a vague sense of “patriotic duty” while waiting in a security line these days. So, while easier security is a benefit, slow security is not currently a strong negative. Security is still only a small part of the travel experience and is not as important as the more fundamental issues such as schedules, service, and reliability.

## ***Jet Service***

It is well known that passengers prefer jet aircraft to turboprops. The survey results confirm this with two thirds of the respondents from all four communities surveyed stating that they prefer jet service and that it is an important factor in influencing airport choice. Seventy-five percent of respondents in International Falls cited jet service as important.<sup>19</sup> However, it is generally not as important as other issues. Greater reliability and nonstop flights appear to be more important to passengers than the presence or absence of jet service. Although jet service is important, it should not be the sole focus of air service efforts, nor should its absence be viewed as a roadblock to growth.

## ***Additional Service***

Respondents frequently named service-related factors as “Important” in their decision-making process:

- The presence of an additional (possibly low-fare) carrier
- Service to another airport
- Additional flights (daily, early AM)

Additional flights to Minneapolis was the most often mentioned improvement across the communities, ranging from 27.0 percent of respondents in Bemidji to 37.2 percent of respondents in International Falls. All four communities requested service to Duluth, MN, but the percentage of respondents asking for this additional service was significantly less (less than 5 percent in any given community surveyed.)

Other flight options such as more daily flights, and more early AM flights, as well as service to other airports was viewed as important to roughly 50 percent of the total survey population. Thus, offering a variety of additional service options to current and potential customers would possibly be an effective strategy for improving capture rates across these communities.

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<sup>19</sup> International Falls had a regional jet service this summer (2005).

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## AIRPORT-SPECIFIC ISSUES

The survey data identified several airport-specific issues.

### ***Bemidji***

Bemidji is located in north central Minnesota, almost equidistant between Grand Forks (122 miles to the west) and Duluth (146 miles to the east). Demographically, Bemidji's respondents' are slightly younger than the other communities, have the highest percentage of male respondents across all four communities surveyed, and have an average household income of \$74,000. The average length of residence for respondents in this community is roughly 9 years.

Sixty percent of Bemidji respondents reported flying for personal reasons, 30 percent for business, and 10 percent for both business and personal reasons. This group reported taking roughly 6 ½ trips, on average in the past 12 months of which almost half were from the local airport. Essentially the other half of these trips were taken from Minneapolis/St. Paul International, 241 miles to the south. The local capture rate is estimated at 46 percent.

The highest ranked destination for Bemidji respondents was Las Vegas. Twenty-seven percent of those surveyed requested additional service to Minneapolis.

As is true with the other communities surveyed, ticket cost is the most important factor in influencing airport choice, followed by total trip time. Three quarters of local airport users cited ticket cost as important, while 80 percent of non-users found ticket cost to be important. Thus, lowering ticket costs or educating the community on the true costs of driving are ways to increase the capture rate at Bemidji and reduce the number of travelers driving to alternate airports.

Somewhat important to airport choice is availability of non-stop service, free parking, easier security and preferring not to drive to Minneapolis/St. Paul International. Bemidji respondents strongly perceive the experience at their local airport to be more favorable than the experience at Minneapolis/St. Paul International. This is a significant finding since almost 80 percent of those surveyed in Bemidji perceive this to be true.

There is a willingness to pay more at the local Bemidji Airport to fly locally. Forty one percent of those surveyed in Bemidji indicated that they would be willing to pay between \$50-\$100 more to fly locally, with two thirds of all Bemidji respondents willing to pay some amount more to fly locally. The average acceptable fare increment was calculated at \$56 per ticket. One third of those responding to the survey reported not being willing to pay any additional amount per ticket to fly locally.

Greater reliability is a significant desired service improvement for Bemidji respondents. Eighty-two percent of those surveyed indicated that improvements in reliability were important. About two thirds of those surveyed would like nonstop flights, and 57 percent would like jet aircraft service improvements.

Free response suggestions for those surveyed in Bemidji included lowering the ticket cost, the availability of additional flights from Bemidji to other locations and airports, the availability of carriers other than Northwest Airlines, and jet service.

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In conclusion, the majority of Bemidji respondents perceive the experience at their local airport to be better than Minneapolis/St. Paul International, but that higher ticket prices are constraining capture rates, and resulting in the loss of potential local airport users to Minneapolis/St. Paul International.

### ***Brainerd***

Brainerd is located in central Minnesota, 142 miles north of Minneapolis-St. Paul, and 120 miles southwest of Duluth. Driving time from Brainerd to both cities is roughly 2½ hours. Demographically, Brainerd's respondents are slightly older than respondents in Bemidji and Hibbing. In this survey there was a 4:1 ratio of male to female respondents and an average household income of \$74,000. Respondents in this community have a shorter length of residence compared with the other three communities, surveyed at roughly 8½ years.

Sixty-three percent of Brainerd respondents reported flying for personal reasons; 24 percent for business; and 14 percent for both business and personal reasons. This group reported taking roughly 5½ trips in the past 12 months. Of these trips, one quarter were from the local airport. Essentially the other 75 percent of trips were taken from Minneapolis/St. Paul International. The local capture rate is estimated at 25 percent. Even though Duluth is roughly equidistant to Minneapolis St-Paul, only one percent of Brainerd respondents cited Duluth as their airport of choice. Given service patterns, Brainerd passengers are most likely to use Duluth for service to Detroit.

The highest ranked destination for Brainerd respondents was Phoenix. Mexico was the second highest ranked destination.

Brainerd respondents cited ticket cost more so than any of the other communities included in the survey as the most important factor in influencing airport choice, followed by total trip time, non-stop service, and free parking. Three quarters of local airport users cited easier security as important. Eighty six percent of those not using BRD found ticket cost to be important. Thus, lowering ticket costs might be one very effective way to increase the capture rate in Brainerd and reduce the number of travelers choosing to travel to Minneapolis/St. Paul International for air service.

Somewhat important in airport choice is jet service and the desire not to drive to Minneapolis/St. Paul International. Unfortunately, only 59 percent of those surveyed perceive the experience at their local airport to be more favorable than the experience at Minneapolis/St. Paul International. Greater reliability was mentioned 78 percent of the time. Other areas of perceived needed improvement include more daily flights and service to another hub airport.

There is a willingness to pay more at the local Brainerd Airport to fly locally. However, fewer respondents answered positively to this question. A little over one third of those surveyed in Brainerd indicated that they would be willing to pay \$50- \$100 more to fly locally, with 58 percent of all Brainerd respondents being willing to pay some amount more to fly locally. The average acceptable fare increment was calculated at \$40 per ticket, the lowest amount of the four communities surveyed. Forty-two percent of those responding to the survey reported not being willing to pay any additional amount per ticket to fly locally. Clearly Brainerd is the most price sensitive community of the four surveyed (and the closest to Minneapolis/St. Paul International). Reductions in ticket price along with an improved winter schedule and perceived positive airport experience are key to improving local airport capture rates.

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Free response suggestions for those surveyed in Brainerd included lowering the ticket cost and the availability of additional flights from Brainerd to other locations.

### ***Hibbing***

Hibbing is located in north central Minnesota, 82 miles northwest of Duluth, 110 east of Bemidji, and 221 miles north of Minneapolis-St. Paul. Demographically, Hibbing's respondents fall in the middle of the total survey pool at 48.7 years of age. Average household income is \$66,000 which is the lowest of the four communities surveyed by almost \$10,000. This community is also the most stable in terms of length of residence, at an average of almost 11 years.

Sixty-five percent of Hibbing's respondents reported flying for personal reasons (the highest percentage for the four communities surveyed), only 20 percent for business, and 15 percent for both business and personal reasons. This group reported taking roughly 5 trips in the past 12 months of which only 28 percent were from the local airport. Another 21 percent reported flying from Duluth, and essentially the other 50 percent of these trips were taken from Minneapolis/St. Paul International. Estimated local capture rate is 28 percent. Duluth's close geographic proximity to Hibbing, along with its more substantial flight options has drawn passengers away since Northwest reduced Hibbing's service.

The highest ranked destination for Hibbing respondents is Las Vegas. Florida destinations ranked second.

As is true with the other communities surveyed, ticket cost is the most important factor in influencing airport choice, followed by total trip time, easier security, free parking, and the preference not to drive to Minneapolis/St. Paul International.

Only 58 percent of those surveyed perceive the experience at their local airport to be more favorable than the experience at Minneapolis/St. Paul International. This is the lowest percentage of all four communities surveyed. Greater reliability was mentioned 86 percent of the time as important in improving service, followed by nonstop flights and more daily flights in order of importance. As with the other airports, lowering ticket price and increasing service would be the best ways to improve the local airport's capture rate. However, as an Essential Air Service point, Northwest Airlines has reduced frequencies and schedules to the minimum required and this will make improvements to capture rates nearly impossible.

Respondents in Hibbing are more willing to pay additional dollars to fly locally than any of the other communities surveyed. Almost 45 percent of those surveyed in Hibbing indicated that they would be willing to pay \$50-\$100 more to fly locally, with close to 70 percent of all Hibbing respondents being willing to pay some amount more to fly locally. The average acceptable fare increment was calculated at \$52 per ticket. Thirty percent of those responding to the survey reported not being willing to pay any additional amount per ticket to fly locally. Clearly, Hibbing respondents understand the value of paying more for the convenience of flying locally.

Free response suggestions for those surveyed in Hibbing included lowering the ticket cost and the availability of additional flights from Hibbing as key.

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## ***International Falls***

International Falls is located in northern Minnesota on the U.S./Canadian border, almost 300 miles north of Minneapolis-St. Paul, 158 northwest of Duluth and 234 miles southeast of Winnipeg, Canada. Demographically, International Falls' respondents are slightly older than the other communities at 49.8 years of age and have an average household income of \$76,000, the highest of the four communities surveyed. The average length of residence for respondents in this community is roughly 10 years.

Fifty percent of International Falls' respondents reported flying for personal reasons (the lowest percentage of the four communities surveyed); 32 percent for business; and 18 percent for both business and personal reasons.

The highest ranked destination for International Falls' respondents is Toronto International Airport at 14.8 percent, which is extremely high and demonstrates the close connection to the Canadian economy and/or transportation system.

As is true with the other communities surveyed, ticket cost is the most important factor in influencing airport choice, followed by non-stop service, and total trip time. Eighty-two percent of local airport users cited ticket cost as important. Thus, lowering ticket costs might be one way to increase the capture rate in International Falls and reduce the number of travelers choosing other flight options.

Also important in airport choice is easier security which is not surprising since International Falls is a border town, the availability of jet service, free parking, and preferring not to drive to Minneapolis/St. Paul International. Seventy-six percent of International Falls' respondents surveyed perceive the experience at their local airport to be more favorable than the experience at Minneapolis/St. Paul International.

There is a willingness to pay more at the local International Falls Airport to fly locally. Almost one third of those surveyed in International Falls indicated that they would be willing to pay \$50-\$100 more to fly locally, with a little less than two thirds of all International Falls respondents being willing to pay some amount more to fly locally. The average acceptable fare increment was calculated at \$53 per ticket. Thirty-seven percent of those responding to the survey reported not being willing to pay any additional amount per ticket to fly locally.

Greater reliability is a significant desired service improvement for International Falls' respondents, 87 percent of those surveyed. Seventy percent of those surveyed would like improvements in jet service, and about two-thirds of those surveyed would like nonstop flights.

Free response suggestions for those surveyed in International Falls included lowering the ticket cost, the availability of additional flights from International Falls to other airports, and the availability of jet service.

In conclusion, the majority of International Falls' respondents perceive the experience at their local airport to be better than Minneapolis/St. Paul International, but that higher ticket prices are constraining capture rates, and resulting in the loss of potential local flying customers to Minneapolis/St. Paul International and Winnipeg.

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## Free-Response Service Suggestions By Airport

This appendix lists the free-response suggestions provided by the survey respondents. These suggestions were obtained in response to Question 7.

*Which of the following improvements in service at \_\_\_\_\_ Airport are important to you?*

The respondents were asked to specify "Important" or "Not important" for a variety of possible improvements and were then given the opportunity to provide other suggestions. The items listed here are the suggestions provided, as noted by the telephone representatives conducting the survey.

The suggestions are organized by airport and in the following categories:

- Lower Fares
- Facility Improvements
- Additional service
- Better customer service
- Additional carriers
- Jets / larger aircraft
- Security improvements
- Improved reliability
- Other positive comments

The individual suggestions listed in this appendix should be considered only as a general indication of travelers' requests and as a source of ideas for possible future exploration. While reviewing this data, it is important to maintain focus on large-scale patterns and avoid becoming fixated on statistically insignificant individual responses from a single person or small group.

### ***Bemidji***

#### ***Fares***

- "cheaper price to fly from Bemidji."
- "cost is very high"
- "cost too high to fly from Bemidji"
- "lower cost of ticket"
- "more economical flights and connecting flights"
- "need low ticket prices from Bemidji"
- "only the cost at Bemidji is very high"
- "price is more at Bemidji-Beltrami County Airport."

#### ***Facilities***

- "more inquiry counters."

#### ***Additional Service***

- "more flights to Bemidji from another airport"

#### ***Better Customer Service***

- "more information on arrival/departure"
- "worst service from Mesaba Airline/Northwest."

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**Additional Carriers**

"different airlines for competing"  
"I am sad to see the airline service has reduced."  
"looking for different carriers to fly from Bemidji-Beltrami."  
"looking for United Airlines."  
"need more competition for current carriers"

**Jets**

"bigger aircraft."  
"more bigger planes required"  
"more jet flights"  
"no comfortable seats & aircraft is very small."

**Security**

"security clearance should be better taken care of"

**Reliability**

(no comments)

**Positive Comments**

"happy with service at Bemidji"  
"happy. pretty good service"  
"I think they are doing a good job."  
"it is very good."  
"never had any hassles."  
"very impressed with Bemidji."

**Brainerd****Fares**

"cost competitive"  
"if cost were low to fly from Brainerd, I would fly from here."  
"it costs so much"  
"more flights & low price from Brainerd"  
"need cheaper rates to New York"  
"rates are too high"  
"reasonable prices"  
"should be low cost from Brainerd."  
"want to spend less money"

**Facilities**

"overall improvements should be made"

**Additional Service**

"afternoon flights have to be added"  
"direct flight to Orlando."  
"more early flights"  
"more early flights (5am) and jet flights."  
"more future service to Sacramento."

**Better Customer Service**

"faster service at Brainerd."

**Additional Carriers**

(no comments)

**Jets**

"bring in more jets."

**Security**

"screen people (security) improvement"

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**Reliability**

(no comments)

**Positive Comments**

"experience is good"

"good. easier to use"

"great"

"love to go Northwest"

"satisfactory and pleasant"

"satisfied with Brainerd."

**Hibbing****Fares**

"cheaper rates would be better"

"cheaper rates would be nice."

"cheaper tickets to fly from KLM/Northwest"

"cost factor"

"cost is the main issue."

"flying from Hibbing too costly."

"have more connections/ low cost ticket"

"rates are too high"

**Facilities**

"coffee shop and breakfast"

"decrease congestion/distance at terminal gateway"

"improvements should be better"

"more time, place, people."

**Additional Service**

"better service"

"good, need more flights"

"more flights"

"need more flights."

**Better Customer Service**

"local service should be really taken care."

**Additional Carriers**

(no comments)

**Jets**

"I prefer jet when the price is less."

**Security**

"mid morning flights. security is ridiculous at Hibbing airport."

**Reliability**

"improve flight delays."

**Positive Comments**

"good people"

"great"

"happy with service."

"happy with service."

"pretty good service."

"pretty satisfied with service at Hibbing"

"very fine"

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## ***International Falls***

### ***Fares***

- "cheaper rates"
- "cost of ticket"
- "mainly cost."
- "mostly keep the price down."

### ***Additional Service***

- "Minneapolis-St. Paul Int'l airport has got good connectivity to other airports"
- "more evening flights arrival at Falls."
- "would prefer more incoming flights."

### ***Better Customer Service***

- "in winter warm up the plane before it takes off"
- "make sure that your luggage does not get lost."
- "need to be able to confirm seat"
- "overbooking problems should be avoided"
- "speed is most important."

### ***Additional Carriers***

(no comments)

### ***Jets***

- "more updated aircraft."

### ***Security***

(no comments)

### ***Reliability***

- "greater reliability of local service"

### ***Positive Comments***

- "I am very happy with the services provided at the Falls Airport"
- "quite happy with service at Falls."
- "satisfied with service."

---

## Attachment 2

# Survey Methodology

The survey was conducted via telephone using industry standard methods. The process involved the following steps:

- **Development of the survey questions and script.** The survey questions were developed by the KRAMER aerotek team. The survey questions are described in detail in this report.
- **Establishing the list of potential contacts.** A list of potential contacts was developed by using a number of different criteria that focused on attributes typical of business and pleasure travelers. In addition to business travelers, it was necessary to include travelers choosing to fly for personal reasons in the list of potential contacts to obtain an adequate sample size for each community included in the survey. Contact information and demographic data of the participants was obtained from InfoUSA, a leading provider of marketing lists and demographic data.
- **Conducting the survey.** The survey was conducted using live telephone representatives over a period of time from May 18, 2005 through June 28, 2005. The contacts were randomly selected from the overall list of potential participants.
- **Continuing until an adequate amount of data was collected.** For the survey results to be meaningful, it was necessary to contact a certain minimum number of travelers in each community. This helps to ensure that the results are statistically significant. For this study, a target confidence interval of 95 percent with a +/-5 percent precision was selected as an appropriate level of accuracy. This means that there is a 95 percent chance that the results for the total population of business and pleasure travelers (if every traveler was surveyed) would fall within 5 percent of the results shown here. This level of accuracy is more than adequate for identifying the large-scale patterns, trends, and priorities required for this study.
- **Quality Control.** Various quality control measures were applied to ensure that the data collected was valid and as accurate as possible. These included follow-up calls to some participants, verification of the geographic location of the participants, and checks for outlying data and other unusual results.
- **Processing the data.** After the survey was completed, the raw results were processed in a variety of ways so that patterns could be identified.

A total of 12,555 contacts were dialed for the survey. Of these, 5,506 were unable to be reached. Of those that were reached, 1,397 refused to participate. An additional 4,429 were ineligible to participate because they had not traveled one or more times during the past year. A small number of surveys were excluded because they were incomplete or otherwise found to be inconsistent during the quality control process. **Table A2-1** shows the number of valid surveys completed for each community after all of these exclusions were made.

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**Table A2-1**  
**Number of Surveys Completed by Community**

	<b>BEMIDJI</b>	<b>BRAINERD</b>	<b>HIBBING</b>	<b>INTL. FALLS</b>	<b>TOTAL</b>
<b>Surveys Completed</b>	223	222	222	223	890

Source: 2005 Telephone Survey, KRAMER aerotek, inc.  
Prepared: July 2005.

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## Attachment 3 Individual Airport Origin & Destination Traffic and Average One Way Fares

- Bemidji Regional Airport
- Brainerd Lakes Regional Airport
- Duluth International
- Hector International Airport (Fargo, ND)
- Joe Foss Field Airport (Sioux Falls, SD)
- Grand Forks International Airport
- Chisholm/Hibbing Airport
- International Falls Airport
- Minneapolis/St. Paul International Airport
- Rochester International Airport
- St. Cloud Regional Airport
- Thief River Falls Regional Airport

**Table A3-1**  
**Bemidji Regional Airport**  
**Origin and Destination Passengers/Average One Way Fare**  
**Top 25 Markets**  
**Year Ending IIIQ 2000 and IIIQ 2005**  
**Inbound and Outbound**

2005 RANK	AIRPORT	TOTAL O&D PASSENGERS		AVERAGE ONE WAY FARE	
		2000	2005	2000	2005
1	ST PAUL INTL MN	8,110	4,310	\$98	\$135
2	SKY HARBOR INTL AZ	2,150	2,800	\$198	\$210
3	DENVER INTL CO	1,780	1,660	\$142	\$163
4	MCCARRAN INTL NV	1,680	1,640	\$165	\$197
5	LOS ANGELES INTL CA	1,570	1,580	\$178	\$243
6	WAYNE COUNTY MI	1,370	1,550	\$243	\$240
7	O'HARE INTL IL	1,190	1,520	\$165	\$186
8	SEATTLE/TACOMA IN WA	2,060	1,480	\$218	\$226
9	RONALD REAGAN NTL DC	1,150	1,330	\$246	\$273
10	ORLANDO INTL FL	1,570	1,320	\$174	\$197
11	WM B HARTSFIELD GA	1,580	1,290	\$190	\$212
12	ANCHORAGE INTL AK	790	1,180	\$308	\$338
13	DALLAS/FT WOR INT TX	880	1,140	\$177	\$193
14	LINDBERG FIELD CA	700	1,140	\$210	\$228
15	CHICAGO MIDWAY IL	930	930	\$152	\$180
16	ALBUQUERQUE INTL NM	630	870	\$246	\$266
17	LA GUARDIA NY	750	810	\$234	\$234
18	LAMBERT-ST LOUIS MO	750	810	\$204	\$202
19	BALTIMORE/WASH INTL	370	770	\$239	\$217
20	PHILADELPHIA INTL PA	460	770	\$218	\$172
21	SAN FRANCISCO IN CA	1,100	670	\$203	\$284
22	GEORGE BUSH INTC TX	670	660	\$299	\$261
23	MILWAUKEE	830	630	\$178	\$196
24	TAMPA INTL FL	480	630	\$186	\$198
25	LOGAN INTL MA	1,060	620	\$182	\$208
TOTAL PASSENGERS ALL MARKETS		54,410	55,830	\$191	\$217

Source: USDOT 10 percent sample via DataBase Products

Prepared: February 2006.

Note: Average one way fare - no taxes, no PFC's, no security fees or zero fares, inbound and outbound averages.

**Table A3-2**  
**Brainerd Lakes Regional Airport**  
**Origin and Destination Passengers/Average One Way Fare**  
**Top 25 Markets**  
**Year Ending IIIQ 2000 and IIIQ 2005**  
**Inbound and Outbound**

2005 RANK	AIRPORT	TOTAL O&D PASSENGERS		AVERAGE ONE WAY FARE	
		2000	2005	2000	2005
1	SKY HARBOR INTL AZ	1,620	1,840	\$185	\$214
2	ST PAUL INTL MN	2,770	1,740	\$93	\$107
3	DENVER INTL CO	1,300	1,500	\$151	\$146
4	O'HARE INTL IL	1,070	1,170	\$206	\$204
5	MCCARRAN INTL NV	560	1,120	\$238	\$184
6	DALLAS/FT WOR INT TX	1,330	1,100	\$221	\$208
7	LOS ANGELES INTL CA	990	950	\$221	\$228
8	RONALD REAGAN NTL DC	1,240	910	\$295	\$224
9	SEATTLE/TACOMA IN WA	1,000	900	\$220	\$216
10	ORLANDO INTL FL	750	880	\$173	\$190
11	KANSAS CITY INTL MO	1,340	870	\$120	\$200
12	WM B HARTSFIELD GA	1,330	850	\$247	\$191
13	CHICAGO MIDWAY IL	450	800	\$192	\$158
14	PHILADELPHIA INTL PA	470	800	\$230	\$243
15	SAN FRANCISCO IN CA	770	800	\$210	\$273
16	LINDBERG FIELD CA	400	720	\$264	\$261
17	SW FLORIDA REG FL	450	710	\$245	\$206
18	GEORGE BUSH INTC TX	550	690	\$327	\$236
19	LAMBERT-ST LOUIS MO	610	650	\$218	\$158
20	WAYNE COUNTY MI	680	620	\$251	\$260
21	PORTLAND	640	600	\$211	\$233
22	TAMPA INTL FL	560	590	\$248	\$210
23	BALTIMORE/WASH INTL	180	580	\$195	\$181
24	LA GUARDIA NY	550	500	\$301	\$212
25	PORT COLUMBUS INT OH	190	490	\$340	\$280
TOTAL PASSENGERS		37,620	40,570	\$223	\$218

Source: USDOT 10 percent sample via DataBase Products

Prepared: February 2006.

Note: Average one way fare - no taxes, no PFC's, no security fees or zero fares, inbound and outbound averages.

**Table A3-3  
Duluth International Airport  
Origin and Destination Passengers/Average One Way Fare  
Top 25 Markets  
Year Ending IIIQ 2000 and IIIQ 2005  
Inbound and Outbound**

2005 RANK	AIRPORT	TOTAL O&D PASSENGERS		AVERAGE ONE WAY FARE	
		2000	2005	2000	2005
1	MCCARRAN INTL NV	8,460	14,720	\$173	\$147
2	SKY HARBOR INTL AZ	9,250	10,380	\$193	\$177
3	ORLANDO INTL FL	9,400	9,300	\$183	\$168
4	O'HARE INTL IL	16,220	9,230	\$220	\$168
5	DENVER INTL CO	7,980	8,620	\$157	\$142
6	WAYNE COUNTY MI	8,110	8,100	\$220	\$162
7	RONALD REAGAN NTL DC	5,170	6,520	\$245	\$196
8	LOS ANGELES INTL CA	6,000	6,370	\$211	\$206
9	ST PAUL INTL MN	6,240	6,330	\$137	\$118
10	DALLAS/FT WOR INT TX	4,580	6,280	\$229	\$174
11	WM B HARTSFIELD GA	6,580	5,740	\$196	\$167
12	SEATTLE/TACOMA IN WA	6,630	5,490	\$237	\$227
13	SW FLORIDA REG FL	3,130	5,000	\$170	\$166
14	PORTLAND	3,890	4,790	\$267	\$220
15	CHICAGO MIDWAY IL	1,380	4,700	\$261	\$146
16	SAN FRANCISCO IN CA	5,800	4,650	\$215	\$232
17	LA GUARDIA NY	4,830	4,550	\$258	\$222
18	TAMPA INTL FL	3,510	4,260	\$218	\$201
19	PHILADELPHIA INTL PA	3,720	4,090	\$259	\$192
20	BALTIMORE/WASH INTL	2,420	4,060	\$259	\$202
21	LINDBERG FIELD CA	3,700	4,010	\$212	\$193
22	LOGAN INTL MA	5,420	4,000	\$202	\$251
23	HOPKINS INTL OH	4,190	3,610	\$344	\$263
24	LAMBERT-ST LOUIS MO	2,630	3,500	\$234	\$187
25	KANSAS CITY INTL MO	4,110	3,130	\$134	\$217
TOTAL PASSENGERS		255,480	272,690	\$229	\$199

Source: USDOT 10 percent sample via DataBase Products

Prepared: February 2006.

Note: Average one way fare - no taxes, no PFC's, no security fees or zero fares, inbound and outbound averages.

**Table A3-4**  
**Hector International Airport (Fargo, ND)**  
**Origin and Destination Passengers/Average One Way Fare**  
**Top 25 Markets**  
**Year Ending IIIQ 2000 and IIIQ 2005**  
**Inbound and Outbound**

2005 RANK	AIRPORT	TOTAL O&D PASSENGERS		AVERAGE ONE WAY FARE	
		2000	2005	2000	2005
1	DENVER INTL CO	28,030	38,940	\$181	\$124
2	O'HARE INTL IL	22,580	35,390	\$153	\$154
3	SKY HARBOR INTL AZ	25,350	29,310	\$194	\$191
4	ST PAUL INTL MN	40,290	23,490	\$119	\$147
5	MCCARRAN INTL NV	14,470	20,370	\$166	\$182
6	SEATTLE/TACOMA IN WA	11,460	16,710	\$245	\$228
7	RONALD REAGAN NTL DC	8,780	12,060	\$256	\$202
8	ORLANDO INTL FL	10,220	11,510	\$207	\$204
9	LOS ANGELES INTL CA	9,110	10,750	\$247	\$224
10	LINDBERG FIELD CA	7,120	10,480	\$216	\$220
11	DALLAS/FT WOR INT TX	8,780	10,230	\$252	\$229
12	PORTLAND	7,560	9,740	\$245	\$209
13	SAN FRANCISCO IN CA	7,360	8,170	\$276	\$220
14	LA GUARDIA NY	5,700	6,920	\$279	\$206
15	WM B HARTSFIELD GA	6,450	6,820	\$246	\$228
16	KANSAS CITY INTL MO	7,000	6,520	\$208	\$214
17	WAYNE COUNTY MI	5,660	6,490	\$252	\$246
18	LAMBERT-ST LOUIS MO	6,500	6,150	\$254	\$212
19	GEORGE BUSH INTC TX	3,900	6,110	\$334	\$259
20	JOHN WAYNE INTL CA	4,140	6,110	\$262	\$198
21	NEWARK INTL NY	4,970	5,950	\$277	\$244
22	TAMPA INTL FL	4,270	5,450	\$254	\$205
23	SACRAMENTO METRO CA	3,470	5,320	\$237	\$215
24	MILWAUKEE	5,660	5,200	\$219	\$203
25	SALT LAKE INTL UT	3,520	5,010	\$229	\$211
TOTAL PASSENGERS		426,550	508,630	\$219	\$200

Source: USDOT 10 percent sample via DataBase Products

Prepared: February 2006.

Note: Average one way fare - no taxes, no PFC's, no security fees or zero fares, inbound and outbound averages.

**Table A3-5**  
**Joe Foss Field Airport (Sioux Falls, SD)**  
**Origin and Destination Passengers/Average One Way Fare**  
**Top 25 Markets**  
**Year Ending IIIQ 2000 and IIIQ 2005**  
**Inbound and Outbound**

2005 RANK	AIRPORT	TOTAL O&D PASSENGERS		AVERAGE ONE WAY FARE	
		2000	2005	2000	2005
1	MCCARRAN INTL NV	21,590	45,800	\$154	\$131
2	DENVER INTL CO	23,780	42,080	\$209	\$129
3	O'HARE INTL IL	32,420	38,750	\$135	\$163
4	SKY HARBOR INTL AZ	29,160	28,760	\$155	\$184
5	ORLANDO INTL FL	22,780	18,520	\$150	\$171
6	RONALD REAGAN NTL DC	14,370	17,020	\$177	\$177
7	ST PAUL INTL MN	25,690	16,320	\$207	\$237
8	DALLAS/FT WOR INT TX	16,060	15,900	\$233	\$215
9	WM B HARTSFIELD GA	12,510	14,790	\$202	\$186
10	SEATTLE/TACOMA IN WA	15,020	13,670	\$188	\$209
11	LOS ANGELES INTL CA	16,120	12,120	\$182	\$209
12	LINDBERG FIELD CA	12,880	11,790	\$173	\$182
13	SAN FRANCISCO IN CA	11,510	11,300	\$191	\$199
14	LA GUARDIA NY	9,800	10,570	\$268	\$212
15	GEORGE BUSH INTC TX	7,470	9,010	\$182	\$201
16	CINCINNATI/N KTKY KY	3,110	8,990	\$260	\$172
17	PORTLAND	10,620	8,990	\$191	\$215
18	JOHN WAYNE INTL CA	6,750	7,950	\$183	\$194
19	TAMPA INTL FL	10,640	7,950	\$163	\$196
20	SAN ANTONIO INTL TX	5,830	7,550	\$166	\$185
21	WAYNE COUNTY MI	9,500	7,130	\$168	\$214
22	PHILADELPHIA INTL PA	6,810	6,680	\$255	\$242
23	NEWARK INTL NY	7,190	6,590	\$292	\$228
24	SACRAMENTO METRO CA	6,810	6,540	\$184	\$213
25	DULLES INTL DC	5,390	6,240	\$174	\$174
TOTAL PASSENGERS		639,310	640,600	\$187	\$190

Source: USDOT 10 percent sample via DataBase Products

Prepared: February 2006.

Note: Average one way fare - no taxes, no PFC's, no security fees or zero fares, inbound and outbound averages.

**Table A3-6**  
**Grand Forks International Airport**  
**Origin and Destination Passengers/Average One Way Fare**  
**Top 25 Markets**  
**Year Ending IIIQ 2000 and IIIQ 2005**  
**Inbound and Outbound**

2005 RANK	AIRPORT	TOTAL O&D PASSENGERS		AVERAGE ONE WAY FARE	
		2000	2005	2000	2005
1	ST PAUL INTL MN	21,690	14,810	\$120	\$147
2	SKY HARBOR INTL AZ	9,520	8,710	\$189	\$197
3	SEATTLE/TACOMA IN WA	5,680	5,360	\$240	\$242
4	DENVER INTL CO	5,830	5,090	\$173	\$179
5	MCCARRAN INTL NV	4,670	4,690	\$174	\$201
6	ORLANDO INTL FL	4,620	4,600	\$220	\$207
7	RONALD REAGAN NTL DC	3,610	4,240	\$238	\$241
8	LOS ANGELES INTL CA	4,470	4,000	\$225	\$230
9	DALLAS/FT WOR INT TX	3,430	3,630	\$230	\$220
10	O'HARE INTL IL	5,130	3,440	\$198	\$198
11	PORTLAND	2,900	3,160	\$237	\$228
12	SAN FRANCISCO IN CA	2,900	2,760	\$223	\$229
13	WM B HARTSFIELD GA	2,600	2,740	\$214	\$210
14	LAMBERT-ST LOUIS MO	3,060	2,630	\$255	\$209
15	LINDBERG FIELD CA	2,190	2,410	\$207	\$217
16	BALTIMORE/WASH INTL	1,910	2,240	\$315	\$281
17	WAYNE COUNTY MI	2,340	2,240	\$250	\$253
18	LA GUARDIA NY	2,070	2,060	\$268	\$204
19	SAN ANTONIO INTL TX	1,930	2,030	\$218	\$226
20	NEWARK INTL NY	1,970	1,990	\$300	\$252
21	TAMPA INTL FL	2,310	1,990	\$217	\$210
22	GEORGE BUSH INTC TX	1,250	1,950	\$253	\$219
23	PHILADELPHIA INTL PA	1,790	1,920	\$287	\$245
24	JOHN WAYNE INTL CA	1,530	1,900	\$198	\$221
25	MILWAUKEE	2,030	1,890	\$214	\$208
TOTAL PASSENGERS		173,050	167,910	\$211	\$218

Source: USDOT 10 percent sample via DataBase Products

Prepared: February 2006.

Note: Average one way fare - no taxes, no PFC's, no security fees or zero fares, inbound and outbound averages.

**Table A3-7**  
**Chisholm/Hibbing Airport**  
**Origin and Destination Passengers/Average One Way Fare**  
**Top 25 Markets**  
**Year Ending IIIQ 2000 and IIIQ 2005**  
**Inbound and Outbound**

2005 RANK	AIRPORT	TOTAL O&D PASSENGERS		AVERAGE ONE WAY FARE	
		2000	2005	2000	2005
1	ST PAUL INTL MN	2,230	1,120	\$109	\$122
2	SKY HARBOR INTL AZ	1,410	1,000	\$179	\$211
3	MCCARRAN INTL NV	1,360	980	\$151	\$175
4	SEATTLE/TACOMA IN WA	600	770	\$213	\$253
5	DENVER INTL CO	1,060	700	\$150	\$165
6	LOS ANGELES INTL CA	600	670	\$173	\$207
7	TAMPA INTL FL	380	600	\$268	\$260
8	ORLANDO INTL FL	770	590	\$145	\$168
9	RONALD REAGAN NTL DC	210	500	\$166	\$211
10	O'HARE INTL IL	590	390	\$218	\$161
11	SALT LAKE INTL UT	340	370	\$245	\$246
12	SAN FRANCISCO IN CA	790	350	\$231	\$271
13	ALBUQUERQUE INTL NM	220	340	\$174	\$186
14	CHICAGO MIDWAY IL	330	340	\$140	\$158
15	WM B HARTSFIELD GA	590	330	\$168	\$180
16	DALLAS/FT WOR INT TX	600	330	\$164	\$244
17	PORTLAND	420	330	\$328	\$236
18	ANCHORAGE INTL AK	370	320	\$268	\$332
19	JOHN WAYNE INTL CA	260	310	\$186	\$219
20	LINDBERG FIELD CA	540	300	\$200	\$189
21	LAMBERT-ST LOUIS MO	240	280	\$214	\$183
22	HOPKINS INTL OH	240	250	\$283	\$212
23	CINCINNATI/N KTKY KY	150	250	\$267	\$196
24	MILWAUKEE	500	250	\$168	\$148
25	WAYNE COUNTY MI	300	240	\$189	\$211
TOTAL PASSENGERS		25,770	20,980	\$199	\$209

Source: USDOT 10 percent sample via DataBase Products

Prepared: February 2006.

Note: Average one way fare - no taxes, no PFC's, no security fees or zero fares, inbound and outbound averages

**Table A3-8**  
**International Falls Airport**  
**Origin and Destination Passengers/Average One Way Fare**  
**Top 25 Markets**  
**Year Ending IIIQ 2000 and IIIQ 2005**  
**Inbound and Outbound**

2005 RANK	AIRPORT	TOTAL O&D PASSENGERS		AVERAGE ONE WAY FARE	
		2000	2005	2000	2005
1	ST PAUL INTL MN	5,670	3,850	\$101	\$136
2	O'HARE INTL IL	2,360	1,820	\$173	\$188
3	DENVER INTL CO	1,150	1,370	\$156	\$161
4	WM B HARTSFIELD GA	1,680	1,340	\$172	\$203
5	SKY HARBOR INTL AZ	1,200	1,340	\$182	\$209
6	DALLAS/FT WOR INT TX	1,140	1,150	\$206	\$171
7	MCCARRAN INTL NV	880	1,080	\$154	\$186
8	ORLANDO INTL FL	1,020	1,070	\$177	\$184
9	LAMBERT-ST LOUIS MO	1,040	890	\$199	\$174
10	NASHVILLE	570	800	\$193	\$177
11	INDIANAPOLIS	740	800	\$205	\$199
12	KANSAS CITY INTL MO	1,250	760	\$122	\$168
13	WAYNE COUNTY MI	1,710	730	\$204	\$221
14	GEORGE BUSH INTC TX	530	690	\$301	\$235
15	TAMPA INTL FL	670	690	\$187	\$221
16	PORT COLUMBUS INT OH	400	630	\$268	\$233
17	SEATTLE/TACOMA IN WA	900	620	\$205	\$263
18	MILWAUKEE	630	610	\$156	\$165
19	PHILADELPHIA INTL PA	410	610	\$290	\$198
20	PORTLAND	500	580	\$304	\$251
21	LOS ANGELES INTL CA	510	560	\$173	\$259
22	LINDBERG FIELD CA	330	490	\$209	\$228
23	CINCINNATI/N KTKY KY	850	480	\$175	\$166
24	CHICAGO MIDWAY IL	830	420	\$164	\$161
25	APPLETON	400	400	\$243	\$243
TOTAL PASSENGERS		42,530	40,680	\$193	\$205

Source: USDOT 10 percent sample via DataBase Products

Prepared: February 2006.

Note: Average one way fare - no taxes, no PFC's, no security fees or zero fares, inbound and outbound averages

**Table A3-9**  
**Minneapolis/St. Paul International Airport**  
**Origin and Destination Passengers/Average One Way Fare**  
**Top 25 Markets**  
**Year Ending IIIQ 2000 and IIIQ 2005**  
**Inbound and Outbound**

2005 RANK	AIRPORT	TOTAL O&D PASSENGERS		AVERAGE ONE WAY FARE	
		2000	2005	2000	2005
1	SKY HARBOR INTL AZ	623,450	654,440	\$158	\$142
2	MCCARRAN INTL NV	459,390	631,880	\$118	\$120
3	DENVER INTL CO	566,110	629,800	\$117	\$98
4	O'HARE INTL IL	538,690	613,070	\$232	\$123
5	ORLANDO INTL FL	507,430	607,540	\$136	\$122
6	LOS ANGELES INTL CA	487,190	553,050	\$194	\$152
7	CHICAGO MIDWAY IL	690,650	445,200	\$85	\$93
8	DALLAS/FT WOR INT TX	457,090	434,250	\$165	\$129
9	SAN FRANCISCO IN CA	498,410	427,100	\$224	\$189
10	WM B HARTSFIELD GA	433,390	409,960	\$165	\$135
11	SEATTLE/TACOMA IN WA	390,940	374,450	\$170	\$159
12	LA GUARDIA NY	329,480	332,860	\$304	\$239
13	RONALD REAGAN NTL DC	217,780	315,670	\$264	\$201
14	LOGAN INTL MA	407,840	296,200	\$189	\$220
15	SW FLORIDA REG FL	153,590	290,650	\$168	\$137
16	LINDBERG FIELD CA	239,170	276,110	\$189	\$157
17	NEWARK INTL NY	280,910	272,030	\$309	\$249
18	PHILADELPHIA INTL PA	216,300	255,660	\$271	\$201
19	TAMPA INTL FL	165,270	255,300	\$217	\$149
20	WAYNE COUNTY MI	365,120	249,020	\$166	\$215
21	LAMBERT-ST LOUIS MO	203,460	215,920	\$224	\$175
22	JOHN F KENNEDY IN NY	124,340	212,280	\$137	\$124
23	GEORGE BUSH INTC TX	149,150	183,610	\$275	\$205
24	MIAMI INTL FL	161,410	176,210	\$219	\$157
25	BALTIMORE/WASH INTL	110,850	171,450	\$273	\$181
TOTAL PASSENGERS		14,299,640	15,103,580	\$193	\$166

Source: USDOT 10 percent sample via DataBase Products

Prepared: February 2006.

Note: Average one way fare - no taxes, no PFC's, no security fees or zero fares, inbound and outbound averages

**Table A3-10**  
**Rochester International Airport**  
**Origin and Destination Passengers/Average One Way Fare**  
**Top 25 Markets**  
**Year Ending IIIQ 2000 and IIIQ 2005**  
**Inbound and Outbound**

2005 RANK	AIRPORT	TOTAL O&D PASSENGERS		AVERAGE ONE WAY FARE	
		2000	2005	2000	2005
1	O'HARE INTL IL	24,810	21,400	\$217	\$175
2	SKY HARBOR INTL AZ	8,650	7,910	\$237	\$189
3	RONALD REAGAN NTL DC	7,550	7,830	\$268	\$196
4	DALLAS/FT WOR INT TX	6,660	7,780	\$210	\$156
5	WAYNE COUNTY MI	5,880	7,040	\$194	\$170
6	LA GUARDIA NY	8,220	6,540	\$260	\$220
7	ORLANDO INTL FL	5,790	5,990	\$213	\$169
8	WM B HARTSFIELD GA	6,540	5,210	\$175	\$164
9	DENVER INTL CO	7,550	5,050	\$143	\$151
10	LOGAN INTL MA	7,480	4,610	\$243	\$246
11	PHILADELPHIA INTL PA	4,300	4,600	\$244	\$184
12	MCCARRAN INTL NV	3,070	4,100	\$204	\$185
13	RALEIGH/DURHAM	5,130	4,100	\$268	\$213
14	LINDBERG FIELD CA	5,280	4,080	\$216	\$213
15	LOS ANGELES INTL CA	5,460	3,840	\$261	\$246
16	SAN FRANCISCO IN CA	6,740	3,820	\$253	\$255
17	BERGSTOM INTL TX	4,670	3,570	\$275	\$229
18	SEATTLE/TACOMA IN WA	4,630	3,530	\$244	\$237
19	NEWARK INTL NY	4,380	3,330	\$301	\$273
20	LAMBERT-ST LOUIS MO	2,920	3,330	\$208	\$179
21	JACKSONVILLE INTL FL	1,790	3,120	\$344	\$225
22	MOISANT INTL LA	2,230	3,060	\$262	\$202
23	TAMPA INTL FL	2,570	2,900	\$245	\$188
24	BALTIMORE/WASH INTL	2,050	2,890	\$284	\$201
25	INDIANAPOLIS	2,930	2,770	\$272	\$190
TOTAL PASSENGERS		264,590	246,770	\$233	\$200

Source: USDOT 10 percent sample via DataBase Products

Prepared: February 2006.

Note: Average one way fare - no taxes, no PFC's, no security fees or zero fares, inbound and outbound averages

**Table A3-11**  
**St. Cloud Regional Airport**  
**Origin and Destination Passengers/Average One Way Fare**  
**Top 25 Markets**  
**Year Ending IIIQ 2000 and IIIQ 2005**  
**Inbound and Outbound**

2005 RANK	AIRPORT	TOTAL O&D PASSENGERS		AVERAGE ONE WAY FARE	
		2000	2005	2000	2005
1	SKY HARBOR INTL AZ	1,910	1,440	\$205	\$209
2	MCCARRAN INTL NV	720	1,310	\$160	\$194
3	DALLAS/FT WOR INT TX	1,240	1,220	\$194	\$244
4	ORLANDO INTL FL	1,350	1,040	\$168	\$176
5	ST PAUL INTL MN	1,440	1,040	\$49	\$66
6	O'HARE INTL IL	1,240	1,040	\$241	\$184
7	DENVER INTL CO	1,540	1,030	\$140	\$136
8	RONALD REAGAN NTL DC	970	990	\$224	\$185
9	SEATTLE/TACOMA IN WA	800	930	\$240	\$206
10	LOS ANGELES INTL CA	730	910	\$255	\$221
11	PHILADELPHIA INTL PA	590	880	\$212	\$246
12	KANSAS CITY INTL MO	1,040	860	\$116	\$186
13	LAMBERT-ST LOUIS MO	820	810	\$226	\$184
14	WM B HARTSFIELD GA	1,050	780	\$187	\$188
15	WAYNE COUNTY MI	1,010	780	\$235	\$249
16	CHICAGO MIDWAY IL	1,060	760	\$163	\$148
17	PORTLAND	550	700	\$309	\$231
18	MILWAUKEE	840	690	\$129	\$180
19	LINDBERG FIELD CA	740	680	\$196	\$238
20	EPPLEY AIRFIELD NE	340	650	\$220	\$234
21	NASHVILLE	960	610	\$303	\$221
22	BALTIMORE/WASH INTL	470	610	\$304	\$198
23	TAMPA INTL FL	640	580	\$215	\$193
24	HOPKINS INTL OH	410	560	\$255	\$236
25	CINCINNATI/N KTKY KY	380	550	\$161	\$223
TOTAL PASSENGERS		45,720	43,210	\$225	\$215

Source: USDOT 10 percent sample via DataBase Products

Prepared: February 2006.

Note: Average one way fare - no taxes, no PFC's, no security fees or zero fares, inbound and outbound averages

**Table A3-12**  
**Thief River Falls Regional Airport**  
**Origin and Destination Passengers/Average One Way Fare**  
**Top 25 Markets**  
**Year Ending IIIQ 2000 and IIIQ 2005**  
**Inbound and Outbound**

2005 RANK	AIRPORT	TOTAL O&D PASSENGERS		AVERAGE ONE WAY FARE	
		2000	2005	2000	2005
1	ST PAUL INTL MN	3,580	1,210	\$104	\$128
2	SKY HARBOR INTL AZ	890	570	\$162	\$172
3	MCCARRAN INTL NV	350	360	\$156	\$170
4	WM B HARTSFIELD GA	340	280	\$216	\$247
5	SEATTLE/TACOMA IN WA	540	280	\$186	\$198
6	LOS ANGELES INTL CA	380	230	\$189	\$229
7	MILWAUKEE	290	230	\$193	\$165
8	ORLANDO INTL FL	470	220	\$137	\$187
9	RONALD REAGAN NTL DC	210	190	\$142	\$173
10	DALLAS/FT WOR INT TX	290	190	\$261	\$171
11	LA GUARDIA NY	110	190	\$329	\$170
12	PORTLAND	90	190	\$179	\$241
13	DENVER INTL CO	460	180	\$155	\$153
14	NEWARK INTL NY	70	170	\$300	\$214
15	O'HARE INTL IL	350	160	\$202	\$214
16	LOGAN INTL MA	480	150	\$183	\$227
17	LAMBERT-ST LOUIS MO	70	130	\$227	\$170
18	WAYNE COUNTY MI	400	110	\$263	\$291
19	SACRAMENTO METRO CA	110	110	\$182	\$241
20	GRAND RAPIDS	20	100	\$174	\$135
21	CHICAGO MIDWAY IL	100	100	\$207	\$145
22	PHILADELPHIA INTL PA	50	100	\$366	\$221
23	PITTSBURGH INTL PA	20	100	\$159	\$188
24	CHARLOTTE	160	90	\$270	\$252
25	SPOKANE INTL WA	80	90	\$262	\$223
TOTAL PASSENGERS		14,730	8,810	\$181	\$194

Source: USDOT 10 percent sample via DataBase Products

Prepared: February 2006.

Note: Average one way fare - no taxes, no PFC's, no security fees or zero fares, inbound and outbound averages



## Appendix B: Air Cargo

### INTRODUCTION

The Minnesota Statewide Air Cargo Study (a component of the Minnesota Aviation System Plan) is designed to meet several objectives relative to current and future air cargo activity. Completed in conjunction with the Minnesota Statewide Aviation System Plan, this Air Cargo Study provides a detailed analysis of the current levels of statewide air cargo activity, air cargo airports, service providers, users and development potential.

The Minnesota Statewide Air Cargo Study is presented in five sections:

- I: Air Cargo Industry Overview
- II: Air Cargo Industry Trends
- III: Minnesota Air Cargo System
- IV: Minnesota Air Cargo Development
- V: Conclusions and Recommendations

### AIR CARGO INDUSTRY OVERVIEW

To understand the future needs and development potential of Minnesota's air cargo system, it is helpful to first understand the U.S. air cargo industry. This section provides an overview of the services, carriers and airports utilized in today's air cargo industry, including:

- Air Cargo Aircraft Types
- Air Cargo Carriers
- Air Cargo Services
- Air Mail Overview
- Function of Air Cargo Airports
- Location Criteria for Air Cargo Airports

### AIR CARGO AIRCRAFT TYPES

There are three major aircraft types used for air freighter service: wide-body jets, narrow-body jets, and narrow-body turboprop aircraft. The majority of freighters in service today are converted passenger aircraft that have reached the end of their service life with passenger carriers. Converted freighters tend to be significantly older, noisier, and more susceptible to maintenance problems than their passenger carrier counterparts. Freighters used on international North Atlantic and Pacific routes are usually wide-body jet aircraft with payloads ranging from 80,000 to 234,000 pounds (**Exhibit B-1**).

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### Exhibit B-1: Examples of Wide-body Jet Freighters

Boeing B747



McDonnell Douglas MD-11



Airbus A300



A large share of international air cargo travels in the baggage compartment, or lower deck, of passenger aircraft; this cargo is also referred to as “belly cargo.” The wide-body aircraft that typically serve international routes offer substantial freight capacity. This capacity is increasing with the next generation of aircraft. For example, the new Airbus A330/340 designed for passenger transport has much greater cargo capacity than its predecessors. The Airbus A330/340 offers space for 32 lower deck containers. Aircraft used as dedicated freighters utilize both main deck (the normal passenger area) and lower deck positions (baggage compartments) for freight carriage.

Narrow-body jet aircraft are typically used for short haul domestic routes (**Exhibit B-2**), narrow-body turbo prop aircraft (also called “feeder aircraft”) typically serve small market needs (**Exhibit B-3**). The payloads of narrow body jet aircraft range from 18,000 pounds to 95,000 pounds while the payloads for feeder aircraft range from 2,000 to 10,000 pounds. The upper decks on narrow-body jet aircraft accommodate containers, while the lower deck is bulk loaded in a process where individual pieces of non-containerized freight are placed directly into the aircraft. Feeder aircraft are typically bulk loaded only.

### Exhibit B-2: Examples of Narrow-body Jet Freighters

Douglas DC9-15



McDonnell Douglas MD-80



Boeing B727-100



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### Exhibit B-3: Examples of Narrow-body Turbo Prop Freighters (Feeder Aircraft)

Cessna Caravan



Fairchild Metro III



Shorts SH360



Within the Minnesota air cargo system, feeder aircraft are extensively used to serve communities on intrastate routes. These feeder aircraft also serve large market airports (i.e., Minneapolis, Rochester, and Duluth) within the State on routes where the distance is too great to truck. At these large market (or primary) airports, cargo from feeder aircraft is transferred onto a mix of narrow-body and wide-body aircraft that connect to cargo hub airports across the nation. Minneapolis and Duluth International both support a mix of wide-body and narrow-body all-cargo aircraft. FedEx operates an Airbus A300 daily from Duluth and DHL/Airborne operates a daily DC9-15. At Rochester International, UPS operates narrow-body aircraft (either Boeing B727s or Douglas DC8s depending on schedule and demand), while DHL/Airborne operates a daily B727. All three major express integrators (FedEx, UPS and DHL/Airborne) operate a mix of narrow and wide-body aircraft from Minneapolis-St. Paul International. The Minnesota air cargo system and network will be discussed in greater detail in Section Four of this report.

### AIR CARGO CARRIERS

Air cargo services are provided by several types of carriers that are differentiated by the services they offer for a wide range of customer demands. There are four basic industry segments in the air cargo industry:

- Integrated express operators
- All-cargo carriers
- Commercial service passenger airlines
- On-demand cargo charter carriers

**Integrated express carriers** (e.g., FedEx, UPS, DHL) operate a fleet of scheduled aircraft, trucks, and couriers offering door-to-door delivery service. These carriers operate extensive hub-and-spoke networks providing expansive geographic coverage. In 2003, integrated express carriers accounted for 61 percent of the U.S. domestic air cargo market, yet held only 12 percent of the international market (projected to increase to 31 percent by 2019<sup>1</sup>). All major integrated express carriers serve the Minnesota air cargo market, providing statewide coverage by direct trunk-line hub flights, indirect feeder flights and/or truck service from Minneapolis, Rochester or Duluth.

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**All-cargo carriers** (e.g., Atlas Air Cargo, Gemini) generally operate regular schedules of wide-body aircraft from one major airport to another, such as Chicago to Tokyo. Due to their airport-to-airport service structure, all-cargo carriers are concentrated in large, high volume market airports; geographic coverage is limited. Approximately 10 to 15 percent of the world's air cargo traffic is moved by all-cargo carriers, primarily on long-haul international or trans-continental routes. In 2003, scheduled all-cargo operators accounted for 19 percent of the U.S. domestic market.<sup>2</sup>

**Commercial service passenger airlines** (e.g., Northwest Airlines (NWA), Delta, US Airways) are scheduled passenger airline operators. Belly-space in passenger aircraft operated by these carriers is generally available to move cargo airport-to-airport. Commercial air carriers account for the majority of international air cargo lift, yet provide limited domestic lift. It is estimated that 50 percent of U.S. international air cargo traffic is moved in the cargo holds of passenger aircraft. However, within the U.S. domestic market, commercial carriers account for only 15 to 20 percent of the domestic air cargo – a market dominated by the integrated express carriers. The air cargo market share of commercial passenger carriers, particularly on domestic routes, has declined significantly due to security measures and restrictions brought about by the terrorist attacks of 9/11. Prior to 9/11, it was estimated that commercial passenger carriers accounted for 25 percent of the domestic air cargo market.

**On-demand cargo charter carriers** (e.g., Grand Aire, Air Cargo Masters) are unscheduled air charter operators moving goods from airport-to-airport. The market share of charter cargo operations is minimal, difficult to gauge and often lumped together with all-cargo carriers. Sporadic and unscheduled operations make tracking tonnage difficult; best estimates put on-demand cargo operator market share at 5 percent domestically and 2 to 3 percent internationally.

## **AIR CARGO SERVICES**

Within the four air cargo industry segments previously discussed, carriers offer three primary formats for air cargo service options:

- Integrated express service
- Freight forwarding
- Airport-to-airport

Integrated express carriers move customer materials door-to-door, providing shipment pickup, transport via air or truck, and delivery. Integrated express operators include FedEx, UPS, newly consolidated DHL/Airborne Express, and the U.S. Postal Service (USPS). Express companies provide next day, document, and small package (two to 70 pounds) service to customers. Increasingly, express operators are transporting “heavy” freight, identified as shipments of more than 70 pounds. Burlington Air Express (BAX) is an integrator that specializes as an express “heavy freight” carrier. However, it should be noted that other integrated carriers are now moving to “heavy freight” services. Recently the FedEx station in Duluth, MN began offering heavy package services, and now handles palletized freight up to 2,200 pounds.

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In addition to overnight service, express carriers now offer deferred services, such as second-day and third-day “time-definite” delivery. These expanded service offerings are significantly changing the dynamics of the air cargo industry. Deferred service options are predicted to surpass overnight (express) deliveries of letters, documents, and packages in the near future. In addition, the wider use of facsimiles and e-mail has cut into the overnight letter and document delivery market, and the trend is anticipated to continue. The lower cost deferred delivery does not mean uncertain delivery; most is “time-definite,” meaning guaranteed delivery at a certain time on a certain date. This service is increasingly being used to move “heavy freight.”

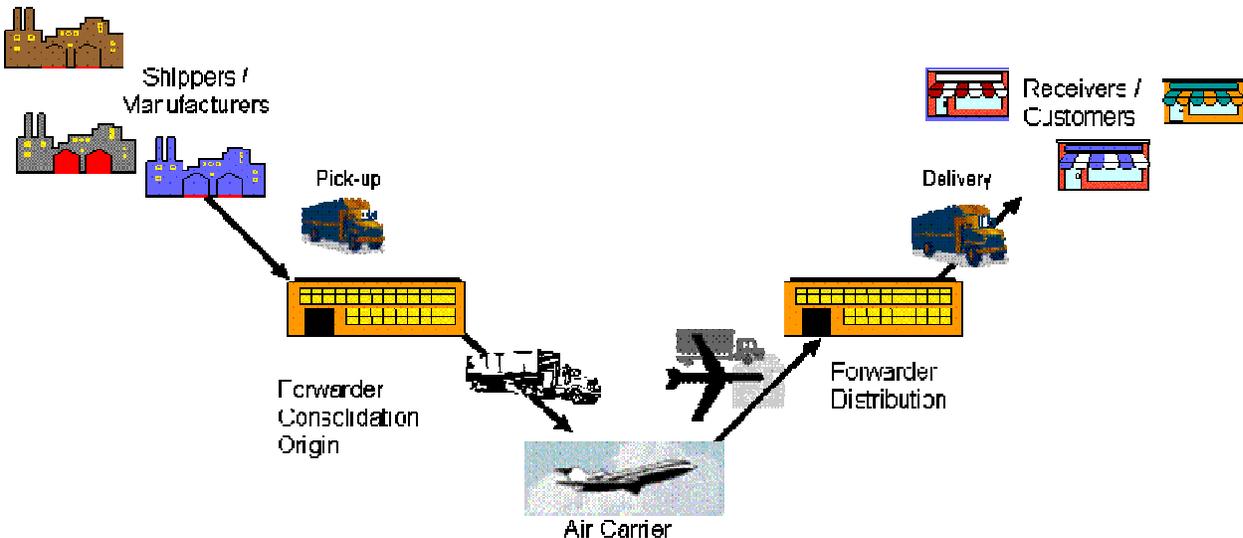
Integrated express carriers operate using a hub-and-spoke system similar to the passenger airline system. The hub is the backbone to the integrated express carrier since it provides connections to each market in the integrator’s system. Each day flights from around the U.S. arrive at integrator hubs where packages are offloaded, sorted by the destination market, and reloaded onto aircraft.

Traditional integrated express service is focused on small-volume, infrequent shippers or higher volume shippers moving products to multiple destinations. This market is often termed the “retail” air cargo market; this market includes individual, private, and business-to-consumer (B-to-C) shippers. However, integrated express carriers are now moving into the “wholesale” market, catering to larger freight movements demanded by manufacturing and distribution operations. This traditional freight forwarder and all-cargo-carrier market includes corporate, block-space (guaranteed capacity shippers), and business-to-business (B-to-B) customers.

Freight forwarding companies handle a wide-range of freight, from small packages that are consolidated into container loads, to oversized, one-time freight shipments. The forwarder acts as a broker between the shipper and the carrier (i.e., all-cargo, commercial passenger or on-demand charter). The forwarder receives a load from a customer (the shipper) and subsequently tenders the shipment to an air cargo carrier or commercial carrier. The carrier moves the shipment airport-to-airport, then tenders the shipment to the forwarder’s agent at another airport. From this point, the forwarder makes the final delivery to the customer. **Exhibit B-4** illustrates the basic steps (moving left to right) in a freight forwarder air cargo shipment.

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## Exhibit B-4: Freight Forwarder Goods Movement Process



Source: Wilbur Smith Associates  
Prepared: 2005

Freight forwarders often act as both the carrier and the shipper. From the perspective of the manufacturer or origin shipper, the forwarder is the carrier, because the freight moves under the under a tariff prepared by the forwarder. Typically, the forwarder consolidates many packages into a container or larger units that are then tendered to either scheduled all-cargo carriers (e.g., Polar Air Cargo) or to commercial passenger airlines (e.g., NWA). From the air carriers' perspective, the freight forwarder is the shipper. In addition to using third-party service providers to move freight from airport-to-airport (i.e., commercial carriers and all-cargo airlines), freight forwarders also often rely on third-party less-than-truck load (LTL) motor carriers to move under consignment to and from the airport.

Airport-to-airport service is provided by all-cargo, on-demand charter and commercial passenger carriers. Freight is dropped off at the airport by the shipper, or the shipper's freight forwarder, and is picked up at the destination airport by the customer, or the customer's agent (i.e., freight forwarder).

All-cargo carriers operate airport-to-airport services for their customers, but do not offer passenger service. All-cargo air carrier examples include Polar Air Cargo, Kitty Hawk, and Northern Air Cargo. All-cargo carriers offer scheduled service to major markets throughout the world using wide-body and/or containerized cargo aircraft.

Commercial airlines also provide air cargo services that tend to vary in scope and size from airline to airline. Industry-wide, between 5 and 16 percent of passenger airline revenues come from cargo. An airline's aircraft fleet is a significant factor in determining the size and amount of cargo the airline can fly. A regional airline with a fleet of turboprop and regional jets cannot accommodate large, bulky shipments. Airlines operating wide-body aircraft, such as the B747,

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B777, and A300, have containerized lower decks (which allow speed in loading and offloading) and generally are capable of handling large, bulky shipments.

## **AIR MAIL OVERVIEW**

Another primary user of air cargo lift is the U.S. Postal Service (USPS). The USPS has the difficult task of delivering mail in a timely, cost effective manner. In recent years increasing costs and constraints on the belly space of domestic passenger aircraft caused the USPS to reevaluate its use of air transport, resulting in a major paradigm shift for mail logistics. The dramatic change in USPS operations included:

- A reduction of staff and budgets, yet moving more mail per employee
- The formation of alliances with the air cargo industry
- Increased reliance on trucking

In the past, USPS formed business alliances and capacity agreements with multiple all-cargo carriers, blurring the distinction between postal and private delivery. However, in August 2001, FedEx and the USPS initiated an exclusive strategic alliance. Through a business agreement, the USPS allowed FedEx to locate FedEx overnight service collection boxes at post offices nationwide and FedEx, in return, provided space on FedEx airplanes for the transportation of Express Mail, Priority Mail, First-Class Mail, and some International mail. This deal brought FedEx approximately 3.5 million pounds of mail each day, enough to fill 30 DC-10-30 freighters. By using one integrated national air transportation network with a highly reliable transportation supplier rather than an assortment of air transportation providers, the USPS hopes to obtain more reliable service, reduce costs, and manage cost growth in future years.

The alliance, coupled with post 9/11 security measures, is also reducing the volume of mail formerly carried by commercial passenger airlines. This cuts into a source of belly revenue that has already been eroded by the increasing use of electronic alternatives to mail and by lower revenue-generating contract rates the USPS pays the airlines. Today, the USPS also relies more heavily on trucking than it has historically. First class mail received at a USPS facility will be trucked if the destination is within 800 miles, and mail destined for points beyond the 800 mile radius is flown.

## **FUNCTION OF AIR CARGO AIRPORTS**

An airport does not need to be a cargo only facility in order to be categorized as an air cargo airport. For the purposes of market and operations analyses, commercial, general aviation and all-cargo airports can each be considered cargo airports if cargo activity is occurring. It is the function of the airport as it relates to air cargo service and activity at the airport that truly determines the airport's categorization within air cargo networks. An airport's cargo function falls into one of three distinct types that are not mutually exclusive:

- Local market station
- Air cargo hub
- International gateway

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**Local Market Station** - The criteria for a local market station, or direct air cargo service (origin and destination [O&D] service to an airport's surrounding market area) generally coincides with large population centers where there is a concentration of industry, commerce, and transportation infrastructure. These "nodes" within a cargo carrier's network are the most common and least complex types of air cargo facility. Local market stations represent the "spoke" in a hub-and-spoke air carrier network. For airport-to-airport service providers, the local market station represents the origin or destination point for the cargo they are transporting.

The sole function of a direct air cargo service facility is to collect outbound air cargo and distribute inbound cargo to the surrounding market area. In order to make direct air cargo service economically feasible, the airport's surrounding market area, or "catchment area," must generate enough inbound and outbound traffic and revenue to offset an air carrier's operational costs at that airport. Minnesota's air cargo airports operate primarily as local market stations.

**Air Cargo Hub** - The exception to direct air cargo service criteria is the location of a hub operation and associated sorting center at an airport or a gateway facility. A hub/sort facility can operate independently of the surrounding market area and local demand for air cargo service. At an air cargo hub, the majority of the material in transit to the hub/sort airport has an origin and destination that does not coincide with that airport's surrounding market area. In effect, the hub generates artificial demand for air cargo facilities and operations as the host airport. Though Minneapolis, Rochester, and Duluth act as consolidation points for feeder aircraft and trucks, they are not considered hub airports. They are merely points where freight is transferred to trunk-line jets for transport to hub airports.

**International Gateway** – To a certain extent, an air cargo gateway is similar to a hub airport in that the gateway airport is not reliant on the surrounding market area to generate sufficient material to justify operations. The gateway functions as a consolidation, distribution, and processing point for international air cargo. As with the air cargo hub, much of the material moving through a gateway airport does not originate, and is not destined for the gateway airport's surrounding market area. Minneapolis-St. Paul International Airport is, in effect, an air cargo gateway due to the belly-freight carried by Northwest Airlines international passenger flights. However, there is currently no scheduled international all-cargo or integrated express activity at any Minnesota airports.

## **LOCATION CRITERIA FOR AIR CARGO AIRPORTS**

The criteria used by air cargo carriers to select and locate an air cargo facility at a specific airport tend to vary with the operational, financial, and strategic objectives of the carrier. Despite varied needs and objectives, it is possible to identify some typical air cargo airport location requirements. These requirements are based on the anticipated use of the air cargo facility and type of air cargo carrier or carriers that may operate there.

**Local Market Station Criteria** - The prime factor for determining direct air cargo service is strong local production and consumption of air cargo intensive commodities within the airport's market area. This can be driven by either large population centers or concentrations of industry requiring, providing, or distributing commodities and products that utilize airfreight at the highest rates. Examples of products utilizing high rates of airfreight include:

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- Aeronautics - Equipment & Parts
  - Automotive - Equipment & Parts
  - Pharmaceuticals
  - Computers & Computer Components
  - Diagnostic Equipment
  - Medical Equipment
  - Software
  - Textiles - Garments
  - Perishables - Flowers, Fruit, Vegetables & Fish
  - Economically Perishable Materials - Printed Material
  - Telecommunications Equipment - Cell Phones, Beepers
  - Photographic film

**Integrated Express Carrier Requirements** - Integrated express carriers (FedEx, UPS, DHL) providing door-to-door overnight service have the most stringent airport market area requirements. Due to the very tight time constraints dictated by both commitments to the customer and operational demands of the carrier's tightly controlled network, the integrated express carrier will most likely serve the airport nearest their customers (or market area). The market area/or catchment area of an express carrier will rarely extend beyond a 60-mile radius of the airport being served. The core market for most integrated express carriers is based on large population centers that drive document and parcel shipments (though industry concentrations are typically a component of this core market).

There is little flexibility for the integrated express carrier to relocate to alternate or competing airports based on any factor or criteria other than, perhaps, a geographical shift in customer base (movement or expansion of the surrounding market area). For example, as the population of Los Angeles grew and expanded inland, integrated express carriers began to shift service eastward to Ontario International Airport from Los Angeles International. Now most integrated express carriers operate at both airports to serve the Los Angeles market (and UPS established a regional hub at Ontario International Airport).

**Freight Forwarder and All-Cargo Airline Requirements** - Freight forwarders (e.g., Eagle Global Logistics and Panalpina) and all-cargo airlines (e.g., Kitty Hawk and Polar Air Cargo) have less stringent location criteria when selecting an airport to locate their air cargo operations. Freight forwarders tend to be more nomadic than integrated express carriers. Their market areas are defined by individual customers rather than large population or industrial centers. Long-term, independent consolidation and distribution stations (other than international gateway facilities) are virtually nonexistent in the freight forwarder community; these services and facilities are contracted to third-party operators. In essence, the freight forwarder's customer location is its local market station, and the nearest airport is the consolidation point. A study conducted for the "*Minneapolis-Saint Paul Task Force*" in 2001 challenges the traditional notions about international air-cargo services through forwarders and scheduled all-cargo carriers. The proposed development of an air cargo *Regional Distribution Center (RDC)* is discussed in detail in Section III.

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Since freight forwarders generally do not operate under the same time constraints as an express integrator, the forwarder can be more selective than an integrator when choosing an airline or airport. Freight forwarders truck shipping materials depending on shipment size and service commitment, anywhere from 200 miles (Eagle Global Logistics) to 600 miles (Panalpina) to an airport. With any given freight forwarder's operation at an airport, or "consolidation point", the airport will act almost as a mini truck-hub.

By not having fixed hubs/station networks throughout the nation, the freight forwarder has a high degree of responsiveness and flexibility when dealing with market fluctuations. The absence of a network, however, limits the freight forwarder's ability to handle numerous small shipments transiting through multiple origins and destinations.

Freight forwarder operations differ from the integrated express carriers in the following ways:

- Provide airport-to-airport versus door-to-door service
- Have higher usage and reliance on truck feeder service
- Do not offer express service
- Have catchment area extend to 600 miles from the airport and encompass several market areas

Since forwarders and all-cargo airlines generally operate under more flexible time constraints than an integrated express operator, there is more flexibility in terms of the location of the airport used to serve the market area. Selection criteria for all-cargo airlines tend to be:

- Access to interstate highways to facilitate trucking
- Location of transportation and distribution infrastructure
- LTL trucking services and facilities
- Core customer base

These criteria tend to present around primary airports in any given market and demonstrate the almost universal co-existence of integrated express carriers, all-cargo airlines, and freight forwarders at every major airport in the nation.

All-cargo carriers rely on freight forwarders to market and generate cargo shipments. Therefore all-cargo carriers will tend to locate at airports with demonstrated freight forwarder cargo volume. If the volume within a given market is not sufficient to economically justify dedicated, scheduled air service, forwarders truck cargo to the nearest airport with available lift or will charter on-demand lift as needed. Note that if time allows, trucking is almost always the preferred and most economical option, being 75 to 90 percent cheaper than air transport.

## **AIR CARGO HUB CRITERIA (NATIONAL AND REGIONAL)**

If an air cargo carrier is considering the location of a hub operation, the single largest concern is central access relative to U.S. population centers. Air cargo hubs are categorized into National or Regional:

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**National Hub** – The location criteria for national air cargo hub operations is driven primarily by proximity to U.S. population centers. As the population center to both the East Coast and Midwest, the Ohio Valley is a preferred location for national air cargo hub operation. National air cargo hubs also require well functioning support networks, such as superior access to multiple interstate highways. Recall that both integrated carriers and freight forwarders often substitute expedited truck service for air service to reduce network costs. Examples of national hubs in the Ohio Valley Region include:

- FedEx                      Memphis International Airport (MEM)
- UPS                              Louisville International Airport (SDF)
- Menlo/Emery              Dayton International Airport (DAY)
- DHL                              Cincinnati/Northern Kentucky International Airport (CVG)
- Airborne Express        Wilmington Airborne Airpark Airport (ILN)
- Kitty Hawk                Ft. Wayne International Airport (FWA)
- BAX Global                Toledo Express Airport (TOL)

**Exhibit B-5** depicts the locations of all U.S. national air cargo hubs. Note that the DHL Cincinnati hub is scheduled to close and operations will merge with Airborne's Wilmington, Ohio, hub. Also scheduled to cease operations is Menlo/Emery's Dayton hub; operations will be shifted to the UPS Louisville hub due to the UPS acquisition of Emery in 2004; Menlo will continue to operate independently as a freight forwarder only.

## Exhibit B-5: U.S. National Air Cargo Hubs



Source: Wilbur Smith Associates  
Prepared: 2005

**Regional Hub** – Criteria for regional hub development is more dependent on a carrier’s network structure than market characteristics (population and industry). Regional hubs were developed by integrated express carriers to divert cargo away from congested national hubs by facilitating intra-region freight flow. Regional hubs, as their name implies, serve a region of the country as a central collection, sort, and distribution facility.

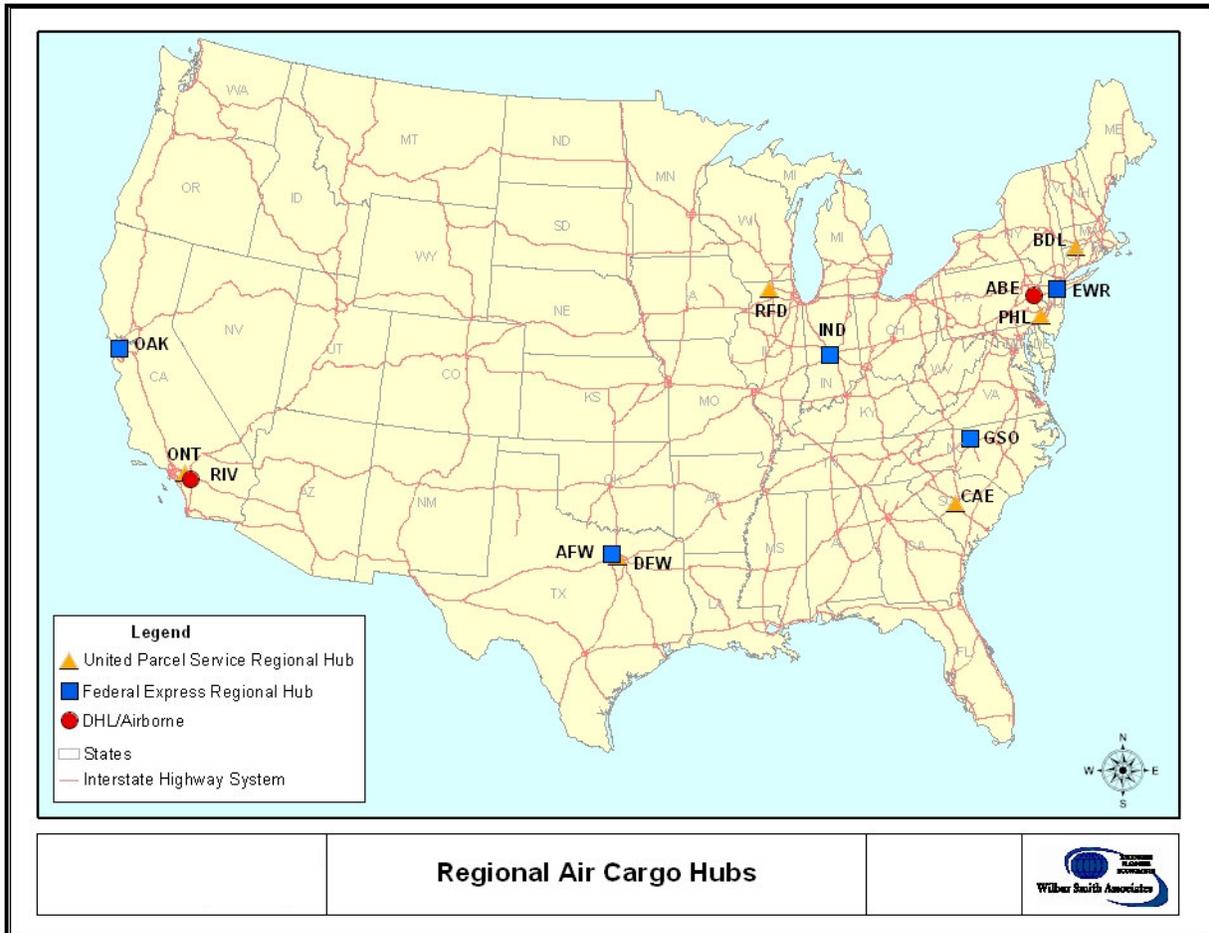
As the air cargo industry stands today, FedEx and UPS are the only two air cargo carriers that operate regional hubs with significant air operations. The size and scope of operations by these two market leaders logistically prevents their operation from a single national hub. However, the newly merged DHL/Airborne does operate two large regional sort centers on the east and west coast, and is planning a number of smaller sort centers throughout the country. Regional hubs, unlike their national hub counterparts, tend to concentrate more heavily on trucking operations for deferred material or intra-region movement of freight. While air cargo aircraft serve these facilities, their primary function is to facilitate truck-to-truck and air-to-truck freight transfer, whereas the national hub’s main function is to facilitate air-to-air transfer of air cargo.

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**Exhibit B-6** depicts the following FedEx, UPS and DHL regional hubs:

- UPS Ontario International Airport (ONT)
- UPS Dallas/Ft. Worth International Airport (DFW)
- UPS Columbia Metropolitan Airport (CAE)
- UPS Greater Rockford Airport (RFD)
- UPS Bradley International Airport (BDL)
- UPS Philadelphia International Airport (PHL)
- FedEx Metropolitan Oakland International Airport (OAK)
- FedEx Fort Worth Alliance Airport (AFW)
- FedEx Piedmont Triad International Airport (GSO)
- FedEx Indianapolis International Airport (IND)
- FedEx Newark Liberty International Airport (EWR)
- DHL Riverside - March Air Reserve Base (RIV)
- DHL Lehigh Valley International Airport (ABE)

## Exhibit B-6: Integrated Express Carrier Regional Hubs



Source: Wilbur Smith Associates  
Prepared: 2005

Because regional hubs differ in focus from national hubs (i.e., truck versus air operations), there is an added dimension to site selection criteria for a regional hub; direct highway access to the airport facility either by, or connecting to, the Interstate Highway System. It is essential that the regional hub facility be in proximity to multiple interstate and interstate highway intersections to provide easy and rapid access to the markets served.

Focusing on the eastern U.S. as an example of regional hub development, FedEx, UPS and DHL all have northeast regional hubs along the Washington, D.C.-Boston corridor (Philadelphia, PA; Newark, NJ; Allentown, PA; and Bradley, CT). These sites were chosen for their proximity and ability to serve the most densely populated areas of the U.S. The importance of proximity to market rule is also applied to regional hub selection. In the southeastern U.S., both UPS and FedEx chose sites in the Carolinas for their regional hubs. Not coincidentally, both hub sites are centrally located on the east coast. By creating efficient north-south flows of material along the coast, intra-region material can bypass national hubs and, in some cases, move solely by truck. These choices reflect network designs that attempt to keep as much material out of national

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hubs as possible, reducing the reliance on aircraft and increasing truck operations. Deferred service shippers (non-express) are the primary beneficiary of these regional sites (Columbia, South Carolina-UPS, and Greensboro, North Carolina-FedEx).

Being within second-day trucking range (500 miles) of major population centers of the northeast and the southeast markets were primary considerations in each carrier's Carolina site selection. This focus on trucking considerations as a major factor in the development of the integrated express carriers regional network (particularly for FedEx) exemplifies a shift from independent truck and air networks to integrated approaches on moving air cargo.

Freight forwarders do not operate hubs (national or regional) in the same manner as express air cargo integrators or all-cargo airlines. Since freight forwarders rely heavily on third-party operators (commercial passenger carriers, all-cargo airlines, LTL trucking) to move material, the forwarders themselves have very little influence on where their third-party contractors locate hub, warehouse, or distribution facilities. The freight forwarder (with the exception of Panalpina in Huntsville, Alabama) locates where ever there is a critical mass of air cargo lift, trucking operations, warehouse, and distribution facilities. Generally, these transportation facilities and services tend to reach critical mass in major market areas near, or on, international airports with wide-body and cargo aircraft service. These markets are generally also served by an extensive network of highways and interstates. Some larger examples include:

- New York – JFK (serving Northeast and Europe)
- Atlanta Hartsfield (serving Southeast and Europe)
- Los Angeles International (serving West Coast and Asia)
- Chicago O'Hare (serving Midwest, Europe and Asia)
- Houston George Bush Intercontinental (serving South, Southwest and Latin America)
- Miami International (serving Southeast and Latin America)

## **INTERNATIONAL GATEWAY CRITERIA**

Location criteria for an international gateway tend to be facility and service-oriented. The primary driver for international gateway selection is an abundance of wide-body lift to international destinations by three sources:

- Commercial passenger carriers (e.g., Northwest, United, Lufthansa)
- Express integrators or all-cargo airlines (e.g., UPS, DHL)
- All-cargo carriers - scheduled or chartered (e.g., CargoLux, Gemini Air Cargo)

Lower deck/belly space on commercial passenger carriers provides approximately half of all international air cargo movement in and out of the U.S. The heavy use of commercial passenger carriers is evident when examining the top U.S. international air cargo gateways in comparison to the largest international passenger embarkation/debarkation airports.

**Exhibit B-7** lists the top 20 continental non-hub U.S. international gateways by tonnage exported and imported. With few exceptions, the largest gateways coincide with airports exhibiting heavy international passenger traffic. Huntsville ranks 14<sup>th</sup> due to international freight

forwarder Panalpina's use of Huntsville as the U.S. gateway and hub for North American business.

**Exhibit B-7: Top Non-Hub International Gateways - 2003  
2003 Annual Tons (Continental U.S.)**

Rank	City	Airport	Scheduled Tons	Charter Tons	Total Tons
1	Miami	MIA	945,296	437,055	1,382,351
2	New York	JFK	822,747	68,386	891,133
3	Los Angeles	LAX	563,456	54,861	618,317
4	Chicago	ORD	489,261	30,625	519,886
5	San Francisco	SFO	276,051	10,035	286,086
6	Newark	EWR	269,519	11,036	280,556
7	Atlanta	ATL	226,288	6,297	232,585
8	Houston	IAH	147,304	8,512	155,815
9	Philadelphia	PHL	151,416	856	152,272
10	Washington DC	IAD	120,330	554	120,883
11	Seattle	SEA	105,123	8,433	113,556
12	Dallas	DFW	96,334	8,638	104,972
13	Boston	BOS	78,455	31	78,486
14	Huntsville	HSV	572	73,647	74,219
15	Detroit	DTW	52,763	39	52,802
16	Portland	PDX	24,164	887	25,051
17	Orlando	MCO	21,324	2,283	23,607
18	Oakland	OAK	21,831	18	21,849
19	Minneapolis	MSP	18,401	2,764	21,165
20	Austin	AUS	7,003	5,192	12,195

Source: FAA T-100 Data

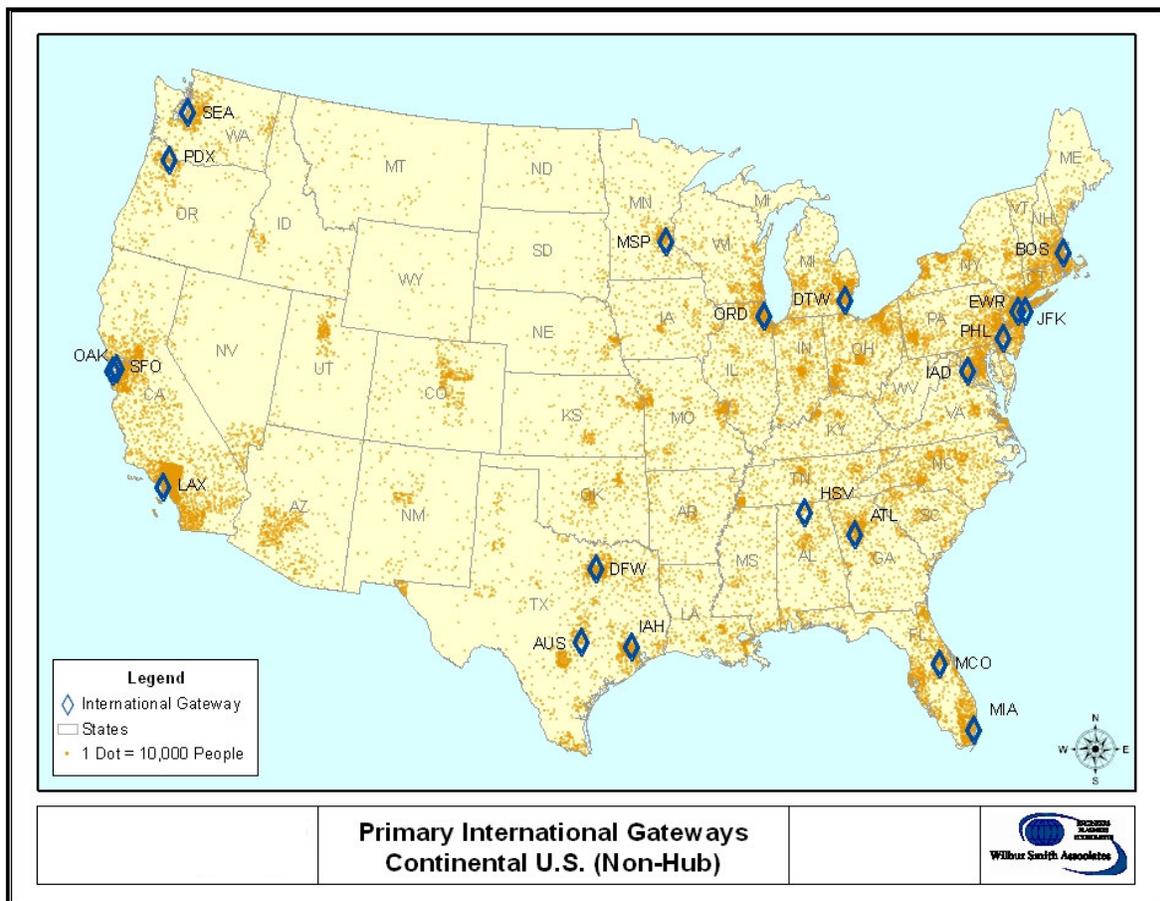
Prepared: 2005

Note that Minneapolis-St. Paul International Airport ranks 19<sup>th</sup> in the continental U.S. non-hub gateways. This is primarily due to the volume of belly-freight transported by Northwest Airlines international flights operation from the airport. Factors contributing to the heavy reliance on commercial passenger carriers for air cargo movement include:

- Competitively priced airport-to-airport service
- Developed international networks
- Domination of international air cargo markets by freight forwarders

Passenger carrier networks cater to the passenger traffic, regardless of the demand for cargo lift. Demand for international passenger lift, as would be expected, is focused on large population centers. **Exhibit B-8** illustrates overlaying gateway locations based on U.S. population density. Each of the top international gateways listed in Exhibit 7 is located in a densely populated area of the U.S. International cargo lift provided by commercial passenger carriers, accounting for 50 percent of international capacity, is nearly always tied to international passenger airports located in major population centers.

## Exhibit B-8: Primary Non-Hub U.S. International Gateways



Source: Wilbur Smith Associates  
Prepared: 2005

Seldom will a passenger carrier change or end an international passenger route due to the lack of air cargo traffic. Strict focus on passenger service, which drives most market and financial decisions, inadvertently subsidizes air cargo movement by passenger revenues. Since the plane is essentially “paid for” by passenger revenues, a commercial passenger carrier can exercise substantial pricing advantages over all-cargo and express integrators when flying international air cargo.

Freight forwarders currently control about 80 percent of international air cargo tonnage and are naturally attracted to the larger international airports shown in Exhibit 8. At these airports, forwarders can gain access to highly developed domestic and international air networks, negotiate highly competitive air service rates, and achieve proximity to large market areas with vital transportation/distribution infrastructure. Freight forwarders utilize either scheduled aircraft (all-cargo carriers or commercial passenger belly space) or operate charter aircraft on a regular basis to serve markets large enough to support dedicated aircraft.

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All-cargo carriers offering international airport-to-airport service also tend to operate at large, commercial airports in major metropolitan areas. Airport-to-airport service relies on ancillary service companies such as freight forwarders, LTL trucking companies, and customs brokers. Due to the international freight volumes generated by commercial passenger carriers, the ancillary companies required to service airport-to-airport air cargo provided by all-cargo carriers are currently in place at large international airports. These airports have achieved a “critical mass” of carriers, trucking, infrastructure, and forwarders that make these airports attractive in terms of cost, efficiency, and flexibility.

Chartered and contracted aircraft flying on international routes can be operated either on a scheduled basis or an on-demand basis. For the purposes of evaluating the support needed for an international gateway facility, it is necessary to focus on scheduled contract aircraft. Scheduled contract aircraft are generally for use by express integrators or freight forwarders. Express integrators use these aircraft to supplement their own fleet of aircraft and provide added flexibility as air cargo demand fluctuates. These aircraft will serve either the integrator’s national hub directly or an international gateway that has a surrounding market area large enough to support a dedicated aircraft (e.g., New York metro area and Los Angeles metro area).

Integrated express carriers move a majority of their international traffic directly from their respective national hubs. International-bound material is collected from locations throughout the U.S. via the integrator’s domestic network and consolidated at the national hub for transit on an integrator-owned or operated aircraft. Through the utilization of the domestic network to collect, consolidate, and distribute international freight via the express integrator’s national hub, the integrator has essentially created a catchment area for its national hub spanning the entire nation. This fact explains why Memphis (FedEx hub), Indianapolis (FedEx hub), Louisville (UPS hub), Cincinnati (DHL hub), and Dayton (Menlo hub) are in the top 25 list of international cargo gateways, despite their location at airports with limited or no international passenger service.

## **AIR CARGO INDUSTRY TRENDS**

This section provides an overview of trends, issues, and growth factors that are expected to impact the air cargo industry’s structure, operations, and dynamics in the future. Understanding these factors can provide insights into future air cargo markets and development potential in Minnesota. Issues discussed and addressed in this section include:

- Industry Consolidation
- Modal Shift
- Declining Availability of Belly Space
- Declining Dollar
- Introduction of the Airbus A380
- Regional Growth Forecasts

## **INDUSTRY CONSOLIDATION**

The market forces that enabled service-oriented express carriers to literally create new markets continue to divert cargo from traditional cargo channels. However, the explosive growth of the

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express carriers in the 1980s and 1990s has moderated. But, as the market matures, distinctions among industry segments and services are blurring. As already discussed, express carriers have started accepting larger, heavier packages, and also offering second and third-day economy services (“deferred service”). These time-definite, economical services have proven highly successful and represent a large growth area for integrators.

Innovations are also taking place among other air cargo players, principally postal organizations, freight forwarders, and LTL companies. Postal organizations are competing with and resembling integrated carriers. As noted earlier, USPS currently contracts with FedEx to handle its express and priority product lines. Deutsche Post several years ago purchased DHL Worldwide Express. More recently Deutsche Post purchased Airborne Express and is now in the process of merging DHL and Airborne’s U.S. operations.

Freight forwarders, anxious to carve out a role in the global transportation and supply chain management business, are also entering into a wide variety of horizontal and vertical partnerships. Panalpina-SwissGlobal, one of the largest international freight forwarders, has advanced a new business model, whereby freight forwarders, on behalf of one or more shippers, use dedicated freighters to provide scheduled service to selected destinations. “Integrated forwarders” are more prevalent in the intercontinental markets, controlling a significant majority of international air cargo.

As time-definite air transport has become the rule rather than the exception, shippers and consumers have grown to expect that a shipment will be handled with care and arrive at the promised time. The focus on service has made shippers and consumers more price sensitive and less mode-sensitive. This trend has opened the door to surface-based competition, particularly in the regional express markets where the line haul is less than 1,000 miles.

## **MODAL SHIFT**

The shift in focus from express to time-definite service, coupled with financial and cost-saving measures, has led to the increasing use of trucks on longer distance routes traditionally reserved for aircraft. This modal shift is particularly pronounced within the integrated express carrier community.

Integrated express carriers, either through acquisitions or contracts, are using trucks to provide overnight service on short-haul segments or to meet longer delivery schedules. UPS began as a road service and expanded into air cargo. FedEx has built extensive ground service capability through the acquisitions of RPS, Inc., Caliber Systems, Inc., American Freightways, and Viking Freight.

Passenger and cargo airlines are also using trucks as a substitute for aircraft. This Road Feeder Service (RFS) is commonly used in the Southeast U.S. by both domestic and international airlines, and also by some of the large domestic heavy-weight integrated carriers such as BAX Global. Among the largest national suppliers of road feeder services are Forwardair, Air Cargo, Inc., Towne Air Freight, and Aeroground.

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Less-than-truckload (LTL) companies have also become major competitors to air freight and enjoy a significant cost advantage over the air freight industry because of lower capital costs for equipment and lower wage scales. To compete effectively in this segment, FedEx has recently formed its own LTL subsidiary, FedEx Freight. Other larger LTL companies competing for time-definite shipments include Consolidated Freightways, Yellow Freight System, Con-Way, and Roadway Express. LTL companies also operate using a hub-and-spoke system similar to the integrated express carriers in which several banks of trucks arrive and depart daily. The key to LTL expansion into traditional air cargo markets is not increased speed of delivery, but time-definite delivery; a service once exclusively in the domain of the integrated express carriers.

The USPS has also increased the use of trucks in the transport of mail in order to reduce costs. Trucking costs of mail per pound is one-tenth of air transport cost. The USPS has made a concerted effort to truck as much mail as possible and still make time schedules. Trucking distances for priority mail and first-class mail now reach as far as 800 miles. Trucking distances were previously limited to 500 miles.

The shift to truck operations, where logistically possible, is not singularly due to the cost benefits of ground versus air transport. In the past one to two years, there has been a fundamental shift in supply chain thinking away from just-in-time (J.I.T.) manufacturing and lean-inventory strategies. Events from September 11, to natural disasters in the far east, to the 2002 dock worker strike on the west coast, have led many logistics managers and purchasing agents to pursue more regional distribution systems, increase safety stock, and warehouse additional inventory. Trends toward more conservative and concentrated supply chains favor trucking over air operations. With the need for speed eliminated in these “cushioned” supply chains, coupled with time-definite service now offered by many LTL carriers, the cost premium required for air cargo transport is often not justified. Whether this is a temporary trend made manifest in uncertain times, or a long-term shift in logistics strategies, remains to be seen.

The increasing use of trucks in air cargo operations underscores the need for air cargo airports to be linked to the interstate system. Air cargo operators are looking at airport connectivity to the highway system when evaluating the suitability of an airport for intensive air cargo operations. One prominent LTL carrier, Forward Air, has located two hubs on-airport at Rickenbacker International in Columbus, Ohio, and Kansas City International, Missouri.

## **DECLINING AVAILABILITY OF BELLY SPACE**

Air cargo operations are, however, increasingly separating from passenger airline operations. Currently, 55 percent of air cargo carrying capacity is in the bellies of passenger aircraft. Use of belly space is decreasing, while use of dedicated all-cargo aircraft is increasing. This change can be attributed to:

- Increased market share held by the integrated express carriers
- Higher passenger load factors
- Increased use of smaller regional jets
- Security restrictions post-September 11

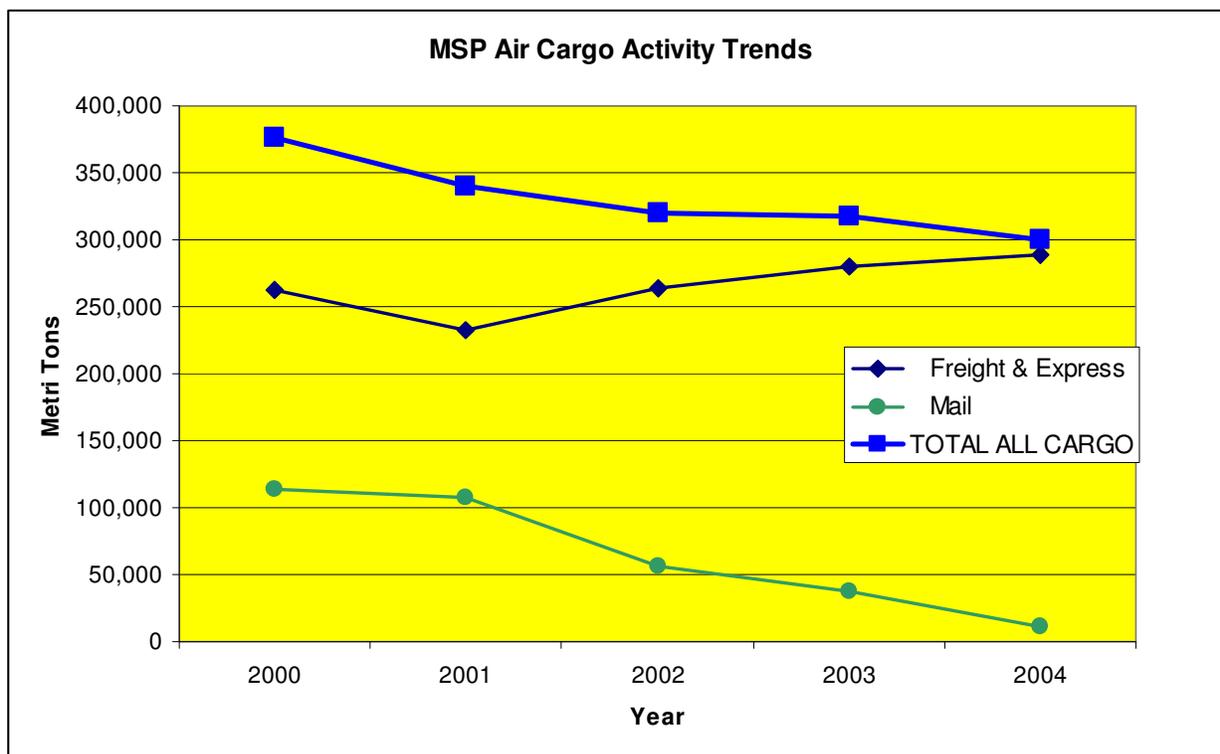
Careful planning, coupled with increased use of regional jets on domestic short-haul routes, has increased the passenger occupancy of many aircraft resulting in more weight and space

requirements for passengers and their baggage and less for cargo. Airlines are also seeking to increase the amount of time aircraft spend in the air and to reduce gate turnaround times, reducing the window of time for loading and offloading cargo.

While there is likely to be a continued market for commercial airline belly cargo, the integrated carriers have been very successful in expanding their markets to capture freight that formerly was the exclusive domain of the heavy cargo carriers (inclusive of commercial carriers). A relevant example in Minnesota is the contract for mail that FedEx negotiated with the U.S. postal service several years ago which had a significant impact on cargo volumes transported in the belly space of Northwest Airlines (NWA) aircraft. In 2000, NWA transported over 297 million pounds of air cargo in and out of MSP; in 2004 it decreased to only just over 93 million pounds.

Most industry forecasts predict continued strong growth for the integrated carrier market, and continuing gradual declines for air cargo moving on commercial passenger airlines, particularly in the domestic market. The national trends apply to Minnesota air cargo movements as well, as suggested by the graphic shown in **Exhibit B-9**.

**Exhibit B-9: Air Cargo Volume at Minneapolis / St. Paul Airport**



Source: Metropolitan Airports Commission – Annual Report Data  
Prepared: 2004

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## DECLINING DOLLAR

The recent decline of the U.S. dollar versus the other major currencies is having an impact on international air cargo in not so unexpected ways. The U.S. is a net importer of goods from around the globe, as indicated by the reoccurring U.S. trade deficit. This net imbalance in trade has led to a backhaul issue for most air cargo carriers; aircraft arrive into the U.S. full, but leave with unused capacity. The declining U.S. dollar is making imports more expensive for the U.S. consumer and U.S. exports more affordable in the global market.

**U.S. to Europe** - Until 2003, the Euro was weak relative to the dollar resulting in meager growth of 1.4 percent (U.S. to Europe) between 1999 and 2004. The decline of the dollar stimulated exports from the United States to Europe as the Euro gained value and increased spending power for Europeans. The appreciation of the Euro against the dollar resulted in an eastbound traffic growth of 5.4 percent in 2004.

**U.S. to Asia** – Westbound transpacific growth, historically driven by the Japanese economy, produced a 3.9 percent annual growth rate between 1999 and 2004, and picked up steam in 2004, reaching 10.7 percent. The 2004 westbound growth increase can be explained in part by the falling dollar coupled with growth in intermediate materials shipped to Asia for final assembly, Japanese demand for United States perishables and seafood, and high consumer demand in Australia.

**U.S. to Latin America** - High commodity prices and a falling dollar fueled southbound North America to Latin America air cargo to 11.7 percent growth in 2004. Strong economic recovery in Argentina and Brazil during 2003 and 2004 has reduced the previous downtrend in the southbound market to an annual average of 1.2 percent decline between 1999 and 2004.

The affects of the falling dollar have either reversed or significantly slowed the erosion of the backhaul market from the U.S. to foreign markets. Whether this trend continues is dependant on the continued devaluation of the dollar in relation to other world currencies.

## INTRODUCTION OF THE AIRBUS A380

The European Airbus A380 has been designed and built as the world's largest passenger airplane. The aircraft boasts a double-decker, twin-aisle design with an oval cross-section fuselage, the first of its kind. Currently, the largest aircraft commercial airports accommodate is the Boeing 747, which has a wingspan of 210 feet and a maximum takeoff weight of approximately 850,000 pounds. By comparison, the wingspan of the A380 is 261 feet and maximum takeoff weight is 1.24 million pounds. The A380 family's baseline passenger aircraft has a capacity of 555 passengers in three classes, and a range of up to 8,000 nautical miles. The freighter version, the A380-800F, will carry a payload of 150 tons (330,000 lbs) over 5,600 nautical miles.

Given the size and design of the aircraft, the A380 will play a limited role in the world's air transport system. For passenger service, it will operate between congested international gateway airports. The freighter version of the A380 will operate on high-volume, long-haul routes. To date, five cargo carriers have ordered freighter versions: FedEx, UPS, Lufthansa, Air

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France, and Emirates. It is anticipated that FedEx and UPS will route their A380s through their respective national hubs on transpacific routes where pure freighter demand is greatest (limited belly capacity in relation to freight demand). Freight density on Air France and Lufthansa all-cargo routes indicate these aircraft will be utilized on Europe-Asia routes and Europe-North America routes. Based on current Air France and Lufthansa gateway usage (both cargo and passenger), the U.S. airports most likely to see A380 freighters are Miami International and New York's JFK, with additional potential at Atlanta's Jackson-Hartsfield International and Chicago's O'Hare International. Emirates' core markets for both freight and passengers are in connecting the Middle East with Europe and Asia. It is anticipated that few, if any, Emirates' freighters will serve U.S. markets in the foreseeable future.

Airports seeking to accommodate the A380 will likely not need lengthy extensions to runways. At sea level under ISA conditions, an A380 with a typical load of 80 percent of maximum payload requires as little as 9,000 feet of runway to take off, according to Airbus' "Airplane Characteristics for Airport Planning" advisory circular. Most international passenger and cargo gateways have runways built to at least 10,000 feet. Taxiways, however, may require redesign to accommodate the A380. While most taxiways are wide enough to accommodate the aircraft (Airbus illustrates the aircraft taxiing on 75-foot and larger taxiways), the wingspan and turning radius of the aircraft may require increased separation of taxiways and additional pavement at taxiway intersections. Likewise, the weight of the aircraft may force some airports to reinforce pavements on taxiways and ramps.

As a result of the design characteristics forced by the plane's size, most airports are not undertaking the costs of accommodating the A380. Airports in the U.S. that have stated they are working to accommodate the aircraft include San Francisco, Los Angeles, Miami, Orlando, and John F. Kennedy in New York. Additionally, Anchorage, Huntsville, Louisville, and Memphis International airports are working to accommodate the aircraft for cargo operations. Overseas airports that are making preparations include Frankfurt, Paris-Charles de Gaulle, Tokyo-Narita, the new Bangkok International Airport, Changi International Airport in Singapore, London's Heathrow, Incheon in Seoul, and Sydney International Airport. The costs to airports for such changes are high; for example, Frankfurt is spending US\$130 million, Los Angeles \$53 million, and Heathrow US\$842 million.

## **REGIONAL GROWTH FORECASTS**

Boeing provides an annual world air cargo forecast which projects growth rates and activity levels by intra-region and region-to-region pairs. The 2004/2005 issue of this forecast has been used to gauge the growth level of the following potential Minnesota Air Cargo targeted air cargo markets:

- Intra-North America
- Latin America-North America
- Europe-North America
- Asia North America

The following is a condensed breakdown of Boeing's World Air Cargo Forecast 2004/2005 for select markets and market pairs as provided by CNS (IATA) *Air Cargo Focus* publication:

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**Intra-North America** - Including the U.S. and Canada, Intra-North America air cargo trade accounts for 26 percent of worldwide air cargo tonnage. The U.S. domestic market, which has grown 31 percent over the past decade, forms 93.8 percent of the North American market. Annualized growth in the 20-year forecast period is placed at 4 percent. Canada's growth is projected at 3 percent (10 years) and 2.6 percent (20 years).

In 2003, integrated express carriers held a 60.9 percent share of the total domestic market, and scheduled freight accounted for 19.3 percent. It is noted that anticipated truck shipments in the time-definite sector could limit further growth in the U.S. and Canadian markets.

**Latin America-North America** - Defined as South and Central America (including Mexico) and the Caribbean Basin, Latin America's trade link with North America comprises 3.6 percent of world air cargo tonnage. South America lays claim to 65.3 percent of the air trade. A distant second is Central America with 26.4 percent, and the Caribbean accounts for the remainder.

Over the next two decades air commerce between the Americas is projected to swell 5.9 percent per year - 6.1 percent northbound; 5.5 percent southbound. Fastest growing among the regional markets will be Mexico and Costa Rica.

**Europe-North America** - This transatlantic market holds approximately an 8 percent share of world air cargo tonnage. (Europe is defined as all 25 members of the European Union, plus Switzerland, Norway, Iceland, Turkey, Romania, Bulgaria, Albania, Gibraltar, and the lands formerly constituting Yugoslavia.)

After declines in 2001 and 2002, this market last year produced 2.5 percent growth. Some reasons behind the soft market decline were weak consumer confidence, falling business investments, and recession in the information technology industry, and possibly a refocusing of trade and investment on Asia. Average annual growth through 2023 is at 5.6 percent - 5.2 percent eastbound; 5.8 percent westbound.

**Asia-North America** – At this time Asia-North America trade accounts for 8.6 percent of global air cargo tonnage. The Asia region is defined as 11 countries, including Australia, New Zealand and Hong Kong. Boeing's forecast characterizes this market's two decade average annual growth as balanced. The eastbound growth average is set at 7.2 percent and westbound at 7.3 percent. These results mirror the expectation of continued Asian economic expansion and slower North American growth.

## **MINNESOTA AIR CARGO SYSTEM**

The Minnesota Statewide Air Cargo System Overview will present a detailed summary of air cargo airport and industry activity within the State of Minnesota. The following sections identify and examine Minnesota air cargo airports, carriers, volume, and forecasted growth.

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## MINNESOTA AIR CARGO AIRPORTS

There are 14 Minnesota airports that support scheduled air cargo operations for integrated and all-cargo carriers. These airports act as local market stations, serving their respective surrounding market areas, or as consolidation points for feeder aircraft and trucks. Minnesota's scheduled service air cargo airports include:

- Minneapolis-St. Paul International Airport (MSP)
- Rochester International Airport (RST)
- Duluth International Airport (DLH)
- Alexandria Municipal Airport (AXN)
- Bemidji-Beltrami County Airport (BJI)
- Brainerd Lakes Regional (BRD)
- Detroit Lakes Airport (DTL)
- Eveleth-Virginia Municipal Airport (EVM)
- Fergus Falls Municipal Airport (FFM)
- Grand Rapids-Itasca County Airport (GPZ)
- Marshall Regional Airport (MML)
- Thief River Falls Regional Airport (TVF)
- Winona Municipal Airport (ONA)
- Mankato Regional Airport (MKT)

**Exhibit B-10** details the scheduled integrated express and all-cargo carriers that operate at these airports and the estimated weekly cargo operations at each. Note that most of the feeder aircraft serving Minneapolis-St. Paul and Rochester International for UPS and DHL are contract carriers. Though they fly scheduled routes for both UPS and DHL, they are often listed as charter flights because they are not owned or operated by the respective integrated express carrier for which they are flying.

## Exhibit B-10: 2004-2005 Scheduled Air Cargo Carriers and Operations by Airport

<b>(Does Not Include On-demand Charter Ops)</b>			
<b>Airport</b>	<b>Code</b>	<b>Ops. per Week</b>	<b>Integrated Express and All-Cargo Carriers*</b>
Minneapolis-St. Paul International	MSP	138	FedEx, UPS, DHL, BAX Global, Kittyhawk
Rochester International	RST	33	FedEx, DHL
Duluth International	DLH	16	FedEx, UPS, DHL
Alexandria Municipal	AXN	5	UPS
Bemidji-Beltrami County	BJI	15	UPS, FedEx
Brainerd Lakes Regional	BRD	10	UPS, DHL
Detroit Lakes	DTL	5	UPS
Eveleth-Virginia Municipal	EVM	5	UPS
Fergus Falls Municipal	FFM	5	UPS
Grand Rapids-Itasca County	GPZ	10	UPS
Marshall Regional	MML	5	UPS
Thief River Falls Regional	TVF	5	UPS
Winona Municipal	ONA	5	UPS
Mankato Regional	MKT	5	DHL

Source: Airport Surveys, OAG Cargo Guide \* May include contracted carriers.  
Prepared: 2004

An additional 18 airports report on-demand charter operations to varying degrees of volume and frequency, ranging from one to 15 percent of total airport operations. Minnesota airports reporting on-demand air cargo activity include:

- Cambridge Municipal Airport (CBG)
- Chisholm-Hibbing Municipal Airport (HIB)
- Two Harbors-Helgeson Airport (TWM)
- Albert Lea Municipal Airport (AEL)
- Baudette International Airport (BDE)
- Fairmont Municipal Airport (FRM)
- International Falls Airport (INL)
- Glenwood Municipal Airport (GHW)
- Granite Falls Municipal Airport (GDB)
- Houston County Airport (CHU)
- Maple Lake Municipal Airport (MGG)
- Red Wing Regional Airport (RGK)
- Roseau Municipal Airport (ROX)
- Rush City Regional Airport (ROS)
- Slayton Municipal Airport (60Y)
- Warroad International Airport (RRT)
- Windom Municipal Airport (MUM)
- Worthington Municipal Airport (OTG)

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Due to their unpredictable and unscheduled nature, on-demand air cargo operations are rarely tracked or reported to airport management, and obtaining specific frequency and volume data is often not possible. As noted earlier, on-demand air cargo represents about 5 percent of total domestic air cargo volume, and has little impact upon integrated express or scheduled all-cargo carrier networks.

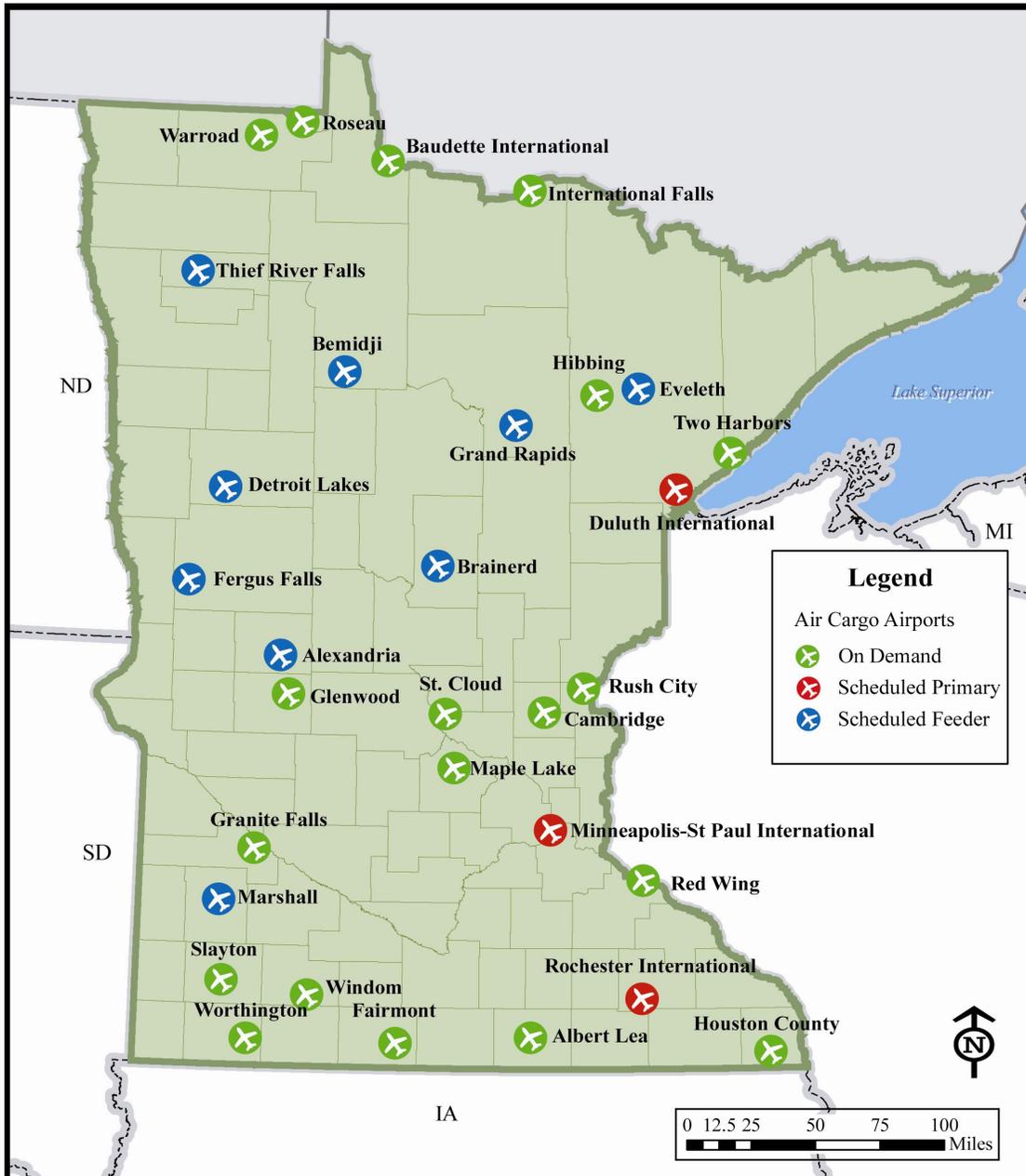
Note that all of Minnesota's commercial passenger service airports also have air cargo service via scheduled passenger airline aircraft. These airports include:

- Bemidji Beltrami County Airport (BJI)
- Brainerd Lakes Regional Airport (BRD)
- Chisholm-Hibbing Municipal Airport (HIB)
- Duluth International Airport (DLH)
- International Falls Airport (INL)
- Grand Rapids/Itasca Co Airport (GPZ)
- Minneapolis-St. Paul International Airport (MSP)
- Rochester International Airport (RST)
- Saint Cloud Regional Airport (STC)
- Thief River Falls Regional Airport (TVF)

An earlier section discussed commercial airline air cargo services, which tend to vary in scope and size from airline to airline. The amount of cargo that can be accommodated is largely dependant upon the size and type of aircraft that an airline is using in a particular market. Other than MSP, RST, and DLH, Minnesota's other commercial service airports are served almost exclusively by smaller regional jets and turboprop aircraft. Turboprop aircraft and regional jets cannot accommodate large, bulky shipments and are typically limited to less than 200 pounds of cargo capacity once passengers and baggage are loaded. These cargo numbers often are not reported to airports by regional airlines due to their limited volume and often sporadic frequency.

**Exhibit B-11** illustrates the location of Minnesota's air cargo airports by service type. Each airport listed may provide multiple air cargo services. For example, Rochester International provides scheduled all-cargo service, on-demand service and scheduled commercial carrier belly-space capacity.

### Exhibit B-11: Minnesota Air Cargo Airports



### Minnesota Aviation System Plan Air Cargo Airports

Source: Wilbur Smith Associates  
Prepared: 2005

## AIRPORT INFRASTRUCTURE

There are basic airside (on-airport) infrastructure requirements that must be met for efficient air cargo operations at a particular airport. Some of the most important requirements include adequate runway length and pavement strength, 24-hour air operations, and a precision instrument approach landing system. **Exhibit B-12** details the primary airside infrastructure at identified Minnesota scheduled air cargo service airports – the runway and associated navigation aids. The ILS (Instrument Landing System) listed in the Table is the premier landing navigation aid that can be employed at an airport. An ILS allows all-weather operations for aircraft equipped with the proper instrumentation.

**Exhibit B-12: Minnesota Air Cargo Airport Runway Infrastructure  
(Primary Runway Characteristics)**

Airport	Number of Runways	Runway Length (Ft.)	Runway Width (Ft.)	Surface Type	Lighting	ILS
Minneapolis-St. Paul International	3	11,006	150	Concrete	HIRL	X
Rochester International	2	9,033	150	Concrete	HIRL	X
Duluth International	2	10,152	150	Concrete	HIRL	X
Alexandria Municipal	2	5,100	100	Asphalt	MIRL	X
Bemidji-Beltrami County	2	6,598	150	Asphalt	HIRL	X
Brainerd Lakes Regional	3	6,500	150	Asphalt	HIRL	X
Detroit Lakes	2	4,500	75	Asphalt	MIRL	None
Eveleth-Virginia Municipal	3	4,219	100	Asphalt	MIRL	None
Fergus Falls Municipal	2	5,639	100	Asphalt	MIRL	X
Grand Rapids-Itasca County	2	5,755	100	Asphalt	HIRL	X
Marshall Regional	2	5,010	100	Asphalt	HIRL	X
Thief River Falls Regional	2	6,503	150	Asphalt	HIRL	X
Winona Municipal	2	5,199	100	Asphalt	MIRL	X
Mankato Regional	2	5,400	100	Asphalt	HIRL	X

HIRL - High Intensity Runway Lighting

MIRL - Medium Intensity Runway Lighting

ILS - Instrument Landing System

Source: Minnesota Aviation System Plan, Chapter 2 – Inventory

Of the Minnesota airports supporting scheduled air cargo service, only the primary runways at Minneapolis-St. Paul International (MSP) and Duluth International (DLH) are long enough to support fully loaded and fueled wide-body aircraft typically used on transcontinental and international routes. Rochester International Airport (RST) may support smaller wide-body aircraft such as the Airbus A300 on shorter domestic routes. Other Minnesota airports supporting scheduled air cargo service typically handle turbo-prop feeder aircraft, though several are capable of accommodating small narrow-body jets such as the Boeing B727 or the DC-9. Runway lengths at Bemidji-Beltrami County (BJI), Brainerd Lakes Regional (BRD), and Thief River Falls Regional (TVF) are currently sufficient to handle these aircraft.

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In addition to basic runway infrastructure requirements listed above, airports need to provide air cargo specific infrastructure, facilities, and services including:

- Adequate ramp space: lighted ramp for night operations; clearly marked aircraft parking pads and taxiways; security fence to prevent loss; and secured gates that allow ease of entry for cargo vehicles.
- Direct access to aircraft and cargo buildings by trucking operations.
- Support services: cargo terminal handling; aircraft handling (maintenance, repair, fueling, etc.); and security.
- On-airport regulatory authorities: U.S. Customs, FAA, U.S. Department of Agriculture.
- De-icing capabilities, aircraft rescue and firefighting (ARFF) facilities, adequate fuel availability.

Smaller airports that support prop or turboprop “feeder” aircraft (generally payloads of under 5,000 pounds) are exempt from many of the above-mentioned criteria. However, for large cargo jet aircraft (payloads of 25,000 to 200,000 pounds per aircraft) to operate efficiently at an airport, the previously listed facilities and services must frequently be provided. **Exhibit B-13** details air cargo specific airside infrastructure and services offered at the identified Minnesota air cargo airports.

### Exhibit B-13: Minnesota Dedicated Air Cargo Facilities

Airport	Dedicated Cargo Ramp	Ramp Square Footage	Number of Cargo Buildings	Building Square Footage	Truck Docks	On-site Customs
Minneapolis-St. Paul International	Yes	n/a	n/a	n/a	n/a	Yes
Rochester International	Yes	330,000	3	115,000	13	Yes
Duluth International	Yes	n/a	2	n/a	n/a	Yes
Alexandria Municipal	No	-	None	-	-	No
Bemidji-Beltrami County	Yes	2,000	None	-	-	No
Brainerd Lakes Regional	No	-	None	-	-	No
Detroit Lakes	No	-	None	-	-	No
Eveleth-Virginia Municipal	No	-	None	-	-	No
Fergus Falls Municipal	No	-	None	-	-	No
Grand Rapids-Itasca County	No	-	None	-	-	No
Marshall Regional	No	-	None	-	-	No
Thief River Falls Regional	Yes	12,000	None	-	-	No
Winona Municipal	No	-	None	-	-	No
Mankato Regional	No	-	None	-	-	No

Source: Wilbur Smith Associates Airport Surveys

Prepared: 2004

### MINNESOTA AIR CARGO NETWORKS

MSP is the state's largest air cargo airport in terms of volume and number of operations, and it is also the consolidation point for FedEx, UPS, DHL/Airborne, and BAX Global feeder aircraft and trucks that serve smaller Minnesota communities. These feeder aircraft and trucks transfer their cargo to larger "trunk-line" jets that fly direct to national or regional hubs. MSP, however, is not considered a hub since there is no sorting, processing, or redirection of the cargo once it arrives; cargo is merely transloaded (transferred) and moved to a hub for sorting. Rochester and Duluth International Airports are Minnesota's two other primary air cargo airports supporting direct flights to national and regional hubs. These airports also serve as freight consolidation points for feeder aircraft and trucked freight from surrounding communities.

There are three developed air cargo networks in Minnesota operated by integrated express carriers UPS, FedEx, and DHL/Airborne. All-cargo carriers BAX Global and Kitty Hawk Air Cargo do provide airport-to-airport scheduled service from MSP to their hubs (Toledo, OH, and Ft. Wayne, IN, respectively); however, they do not conduct intra-state air feeder operations within a structured air network.

Of the three integrated express carriers, UPS utilizes the most aircraft within Minnesota. As illustrated in **Exhibit B-14**, UPS utilizes 12 feeder aircraft into MSP where freight is consolidated and flown to three UPS hubs; Louisville (national hub), Rockford (regional hub), and Philadelphia (regional hub). Through this extensive feeder network, UPS is able to serve the entire Minnesota air cargo market through a single airport providing direct hub service. The

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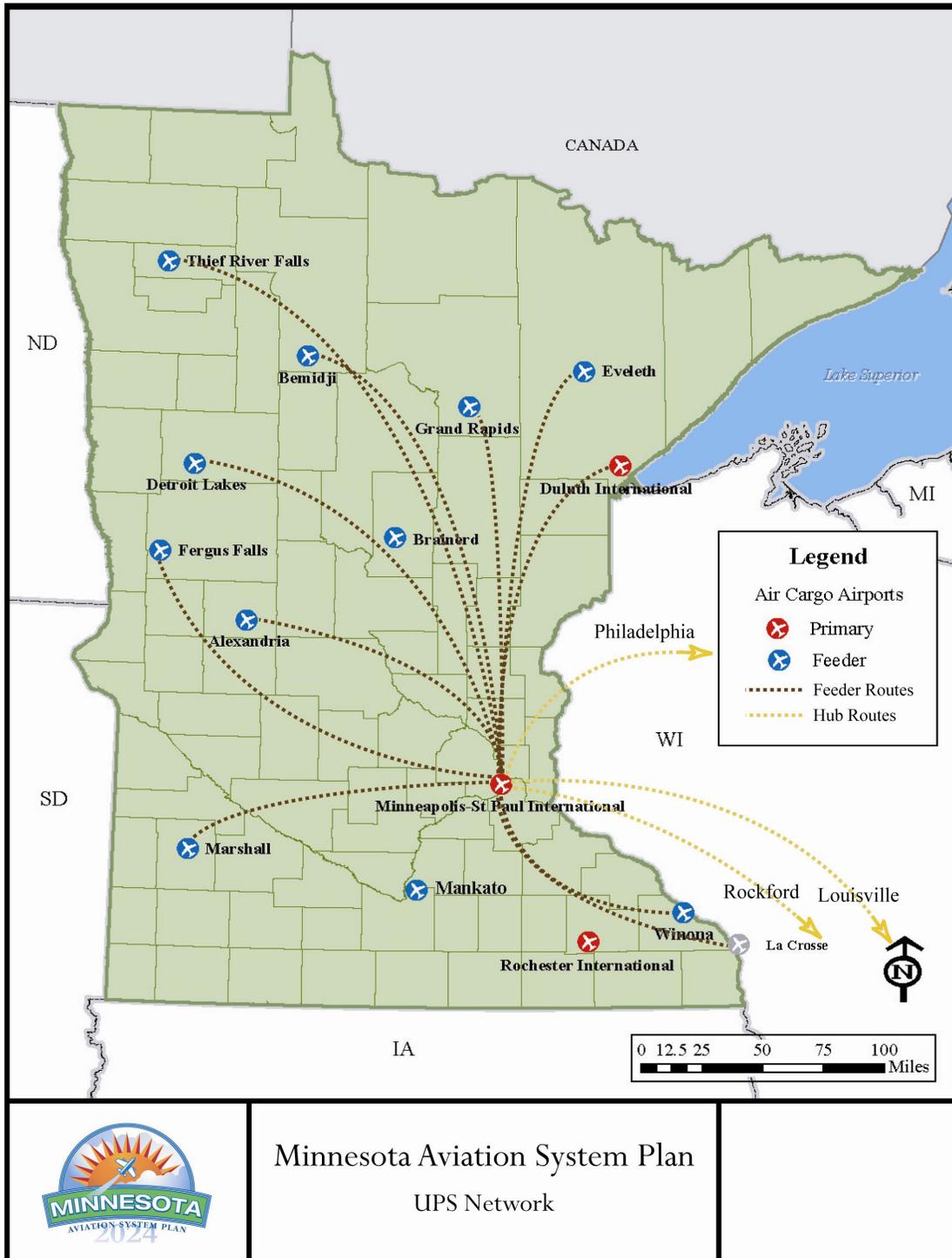
other two integrated express carriers utilize multiple consolidation airports to provide direct hub connectivity.

For the Minnesota market, FedEx utilizes four consolidation airports; three in Minnesota (MSP, RST and DLH) and one in North Dakota (Grand Forks). By using multiple consolidation points disbursed throughout the region, FedEx is able to rely more heavily on trucks for moving freight to an airport where it is flown to multiple hubs. As illustrated in **Exhibit B-15**, FedEx utilizes just two feeder flights in its Minnesota network: Bemidji-Beltrami to Grand Forks, ND, and Wausau, WI, to Rochester. From these four consolidation points, trunk-line routes serve four hubs: Memphis (national hub), Newark (regional hub), Indianapolis (regional hub), and Dallas-Ft. Worth Alliance (regional hub).

The DHL/Airborne network utilizes two consolidation airports, MSP and RST. Three feeder flights serve MSP (including a daily Calgary feeder) where cargo is consolidated and then flown to the DHL national hub in Cincinnati. Two feeder flights also serve Rochester, where the freight is then flown to the Airborne national hub in Wilmington, OH. With the merger of DHL and Airborne, the DHL hub in Cincinnati will be closed by early 2006 and Wilmington will become the DHL national hub. The DHL/Airborne network is illustrated in **Exhibit B-16**.

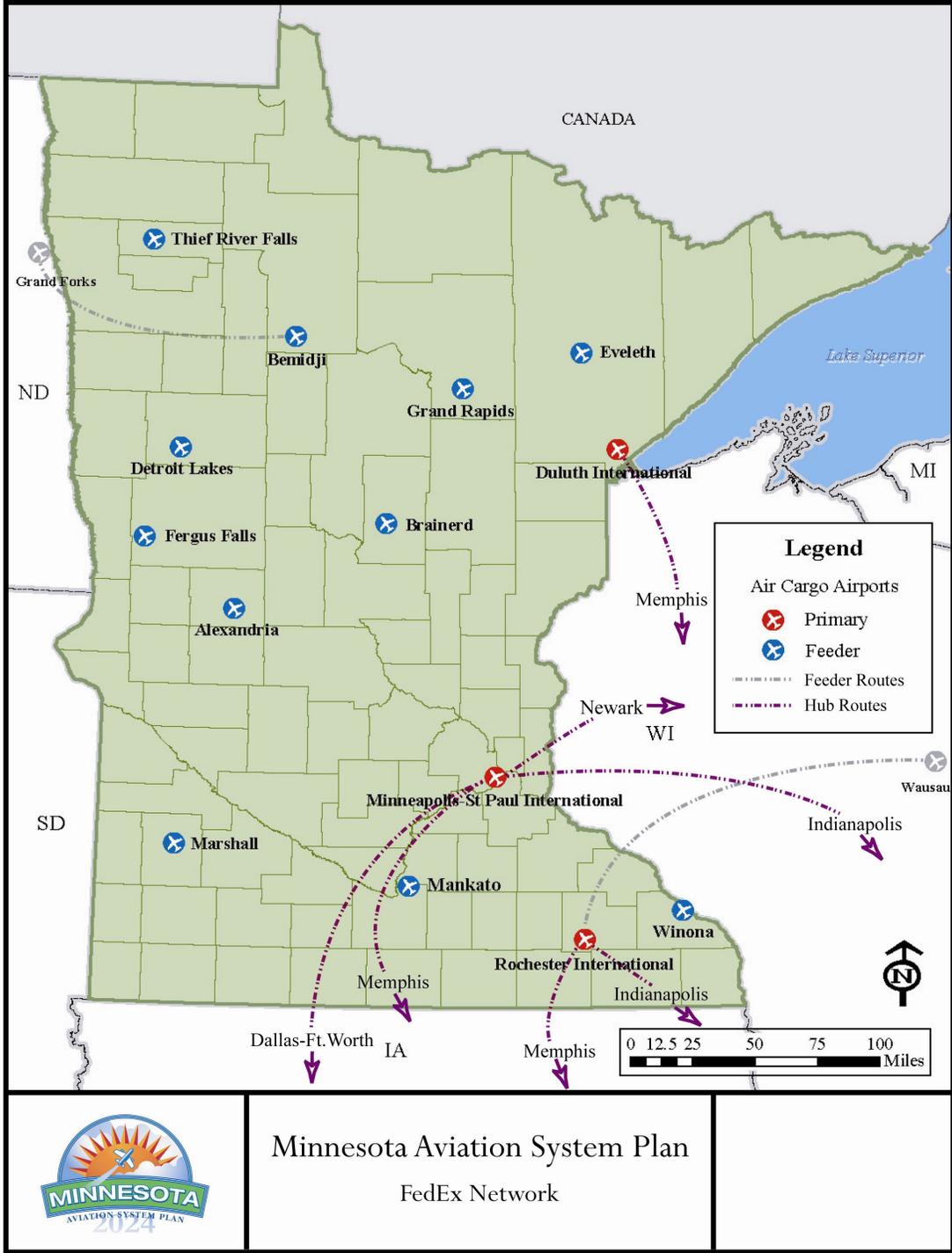
**Exhibit B-17** illustrates the Minnesota integrated express air cargo network in total, inclusive of all express operators.

**Exhibit B-14: UPS Minnesota Air Cargo Network**



Source: Wilbur Smith Associates  
Prepared: 2005

**Exhibit B-15: FedEx Minnesota Air Cargo Network**



Minnesota Aviation System Plan  
FedEx Network

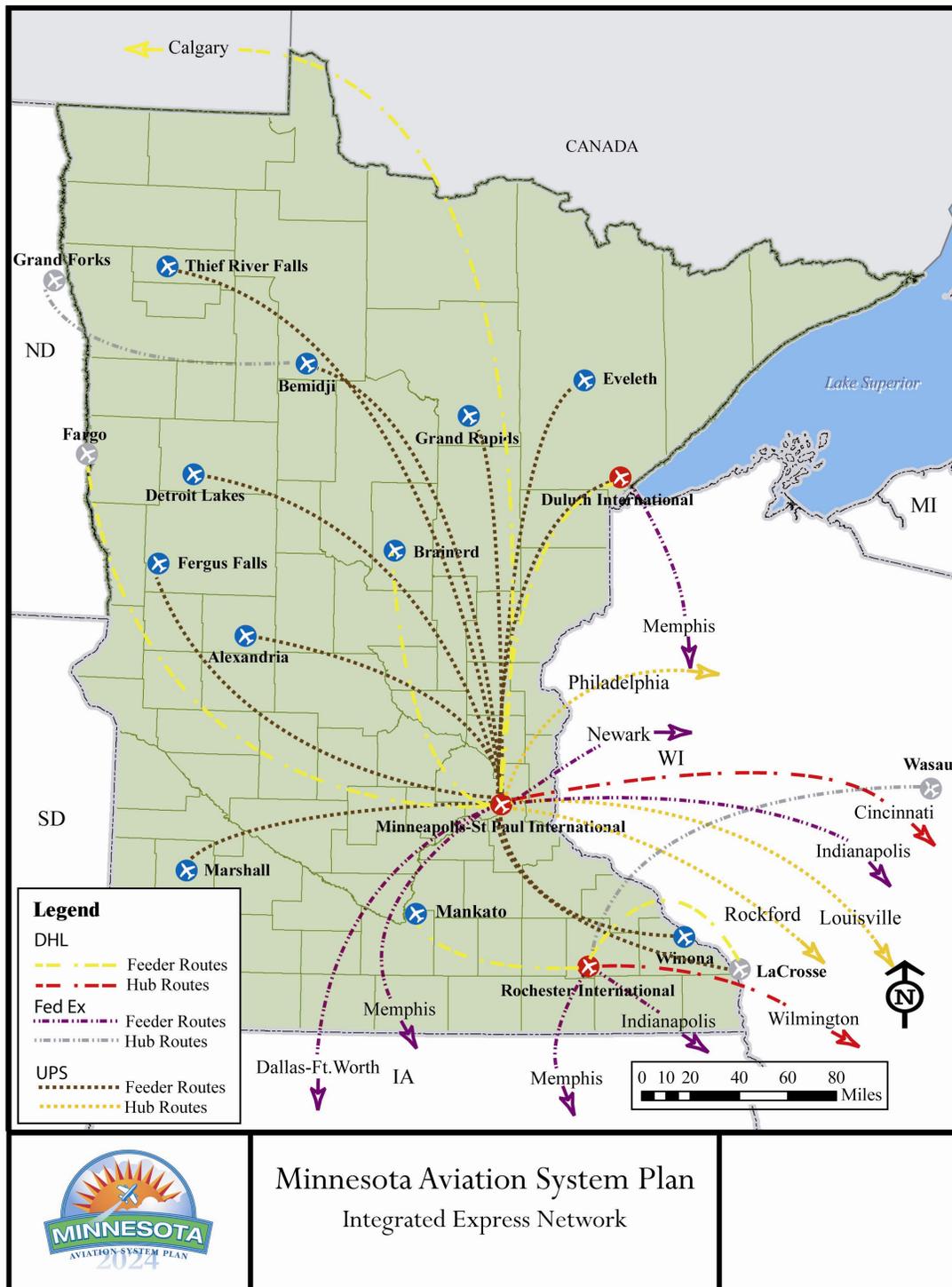
Source: Wilbur Smith Associates  
Prepared: 2005

**Exhibit B-16: DHL/Airborne Minnesota Air Cargo Network**



Source: Wilbur Smith Associates  
Prepared: 2005

**Exhibit B-17: Minnesota Air Cargo Network – All Integrated Express Carriers**



Source: Wilbur Smith Associates  
Prepared: 2005

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## INTERNATIONAL AIR CARGO

Minnesota's access to direct international air cargo service is currently limited to commercial passenger carrier service offerings from MSP (primarily via NWA). Minnesota's other commercial service airports serve domestic passenger markets almost exclusively, and other than DHL's daily feeder flight to Calgary, the integrated express carriers and all-cargo carriers do not serve international markets from Minnesota. Belly space capacity on NWA international flights, coupled with DHL's Calgary service and international charter activity (on-demand cargo flights), MSP moved 21,165 tons of air cargo to and from international destinations in 2004, giving MSP a rank of 19<sup>th</sup> in international tonnage for continental U.S. non-hub airport gateways. It should also be noted however that recently NWA reduced the number of international flights departing from MSP (e.g., in 2005 NWA discontinued direct flights from MSP to London). In the wake of a bankruptcy filing, over the past several years NWA has embarked upon what has been tagged the "Heartland Strategy." The focus of the Heartland Strategy is direct passenger service offerings between NWA's three major hub airports and small to medium sized communities in the Upper Midwest.

For those international markets not served directly by Minnesota air cargo airports, international air cargo (origin and destination) is trucked or flown into and out of the state to surrounding international gateways. According to air carrier and shipper interviews and surveys, Chicago O'Hare International Airport is the primary international gateway utilized by freight forwarders. The air cargo hubs of integrated express carriers (FedEx, UPS, DHL/Airborne) also act as gateways as these carriers consolidate international material at these hubs for international transport.

## MINNESOTA AIR CARGO FORECAST

As illustrated in **Exhibit B-18**, over 91 percent of Minnesota's integrated express and all-cargo carrier air cargo volume is handled through MSP. MSP, RST, and DLH combined account for 98 percent of the state's air cargo volume. Of the state's 14 scheduled service air cargo airports only MSP, RST, DLH, and BJI track and report their air cargo volumes. The remaining scheduled service air cargo airports do not directly track and report feeder air cargo activity. As discussed earlier in this section, much of this feeder activity is considered charter activity since the operators are contracted by the integrated express carriers. Estimates regarding the actual volume of air cargo are based upon the number, type, and frequency of aircraft serving each airport. Since aircraft and operation frequency factors are known, an assumption of an 80 percent load factor, based upon each aircrafts capacity, is utilized to determine daily volume for each airport. This daily volume is then annualized to arrive at the 2004 total air cargo volume estimate for each non-reporting airport. The most common feeder aircraft used is the Beech Queen Air (80 percent load factor capacity of 1,600 pounds), the Cessna C208 Caravan (80 percent load factor capacity of 2,400 pounds), and the Beech B99 (80 percent load factor capacity of 2,500 pounds).

MSP reports a significant amount of belly-freight traffic (commercial passenger carriers) that is not included in the total in Table 5. For 2004, MSP commercial carriers transported nearly 69,000 tons of freight in the belly holds of passenger aircraft (26,900 tons enplaned and 42,000 tons deplaned). Due to its abundance of full-size jet service (particularly international wide-

body service), MSP is the only Minnesota airport that carries a significant volume of belly freight. The majority of other Minnesota airports are primarily served by regional jets and turbo-prop aircraft with limited freight carrying capability.

**Exhibit B-18: Minnesota Cargo Airports - 2004 Domestic Tonnage  
Integrated Express and All-Cargo Carriers**

<b>Airport</b>	<b>Code</b>	<b>Inbound</b>	<b>Outbound</b>	<b>Total Volume</b>	<b>Market Share</b>
Minneapolis-St. Paul International	MSP	127,498	136,217	263,715	91.2%
Rochester International	RST	7,927	9,263	17,190	5.9%
Duluth International	DLH	1,400	1,075	2,475	0.9%
Thief River Falls Regional	TVF	319	638	957	0.3%
Brainerd Lakes Regional	BRD	449	367	816	0.3%
Grand Rapids-Itasca County	GPZ	408	408	816	0.3%
Bemidji-Beltrami County	BJI	225	188	413	0.1%
Alexandria Municipal	AXN	204	204	408	0.1%
Detroit Lakes	DTL	204	204	408	0.1%
Eveleth-Virginia Municipal	EVM	204	204	408	0.1%
Fergus Falls Municipal	FFM	204	204	408	0.1%
Marshall Regional	MML	204	204	408	0.1%
Winona Municipal	ONA	204	204	408	0.1%
Mankato Regional	MKT	127	96	223	0.1%
<b>Total Volume:</b>		<b>139,577</b>	<b>149,476</b>	<b>289,053</b>	<b>100%</b>

Source: WSA Airport Surveys, FAA T-100 Data

Prepared: 2005

Source data for the applied growth rate is derived from the Boeing World Air Cargo Forecast 2004/2005. The Boeing Growth Rate (domestic air cargo) is 4.0 percent through 2024. **Exhibit B-19** contains the forecasted volumes for Minnesota scheduled service air cargo airports through 2024 utilizing Boeing World Air Cargo Forecast 2004/2005 growth rates for domestic U.S. cargo.

**Exhibit B-19: Minnesota Air Cargo Forecast 2004-2024 (Annual Tons)  
Integrated Express and All-Cargo Carriers**

<b>Airport</b>	<b>Code</b>	<b>2004</b>	<b>2009</b>	<b>2014</b>	<b>2019</b>	<b>2024</b>
Minneapolis-St. Paul International	MSP	263,715	320,850	390,363	456,670	577,833
Rochester International	RST	17,190	20,914	25,445	29,768	37,665
Duluth International	DLH	2,540	3,090	3,760	4,398	5,565
Thief River Falls Regional	TVF	957	1,164	1,417	1,657	2,097
Brainerd Lakes Regional	BRD	816	993	1,208	1,413	1,788
Grand Rapids-Itasca County	GPZ	816	993	1,208	1,413	1,788
Bemidji-Beltrami County	BJI	413	502	611	715	905
Alexandria Municipal	AXN	408	496	604	707	894
Detroit Lakes	DTL	408	496	604	707	894
Eveleth-Virginia Municipal	EVM	408	496	604	707	894
Fergus Falls Municipal	FFM	408	496	604	707	894
Marshall Regional	MML	408	496	604	707	894
Winona Municipal	ONA	408	496	604	707	894
Mankato Regional	MKT	223	271	330	386	489
<b>Total Volume:</b>		<b>289,118</b>	<b>351,757</b>	<b>427,966</b>	<b>500,659</b>	<b>633,494</b>

Source: WSA Airport Surveys, FAA T-100 Data, Boeing Air Cargo Forecast

Prepared: 2004/2005

Forecasts for Minnesota air cargo indicate that volume will more than double over the next 20 years, which will create the greatest infrastructure and capacity constraints on MSP. By 2024, MSP is expected to handle nearly 578,000 tons of integrated express and all-cargo carrier traffic annually. This number does not include commercial passenger carrier belly freight which will also increase significantly over the forecast period. The next section will address system impacts, forecasts, and development conclusions in greater detail.

## **MINNESOTA AIR CARGO DEVELOPMENT**

When selecting an airport for air operations, fostering the growth and development of air cargo requires an understanding of the criteria, strategic factors, and decision-making process utilized by air cargo carriers and shippers for air operations. The expansion and evolution of the air cargo industry, in terms of both volume and service levels, require air cargo carriers to continually review not only the capacity of existing operations; but also the opportunities in new markets (customer base), new service offerings, or growth in the airports catchment area. The following sections examine potential growth and development scenarios and their associated impacts on Minnesota transportation infrastructure.

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## **LOCAL MARKET GROWTH**

Local market growth, or growth within an airport's catchment area, will likely drive most increases in Minnesota air cargo activity. The local market growth scenario assumes that current air cargo route and network structure will remain static (i.e., no hub or gateway development) moving into the future and that only the natural growth rate (accepted forecast factors associated with an airport's catchment area) will drive increased usage of existing air cargo airports. Increased volume transiting existing air cargo airports, whether driven by market growth or carrier network development, will place infrastructure demands on both airside air cargo facility capacity and landside access routes handling the additional truck traffic. The primary airside concern for Minnesota air cargo operators will be adequate ramp space for simultaneous aircraft operations, equipment storage and maintenance areas, ramp (airside) access points for trucks and courier vans, and aircraft handling capabilities (either self-handle or third-party contractors).

Economic development activities within air cargo market areas (e.g., location of auto manufacturing plant) or air cargo development plans (e.g., construction of a regional air cargo distribution center) can also dramatically increase regional air cargo growth rates beyond the local market's natural growth rate.

## **HUB AND GATEWAY DEVELOPMENT**

Hub development potential for Minnesota airports remains limited within the realm of existing express integrators and all-cargo carriers. Simply put, the U.S. air cargo industry and air cargo networks are mature and well developed with limited potential for major hub development outside of the existing network structure. Minnesota's proximity to existing national and regional hubs limits the geographic and network necessity to expand hub operations to the west of the Ohio Valley national hubs and regional hubs in Rockford, Illinois, (UPS) and Indianapolis, Indiana (FedEx). Larger Minnesota airports such as MSP, Rochester and Duluth will continue to act as consolidation points for smaller surrounding markets. Expansion of existing market areas for these airports would entail increased consolidation activity and associated air cargo volume. National or regional hub development potential from existing air cargo carriers beyond increased consolidation functions will be unlikely due to geographic and network redundancy of Minnesota's airport locations.

Two scenarios that may open the door for regional or national air cargo hub development in the State of Minnesota would be a new air cargo carrier entry into the U.S. market or the relocation of an existing hub by an existing carrier. A new entrant into the U.S. market (either an integrated express or all-cargo carrier), large enough to offer nationwide service, would necessitate a national hub. However, this scenario remains unlikely due to the relative maturity of the air cargo industry, over capacity of existing carriers, fierce competition, and difficult barriers to enter into the market (e.g., prohibitive capital costs, competition, and regulatory barriers). Relocation of an existing hub, in the near-term, also remains unlikely. Capital investment in airport and facility infrastructure, coupled with carrier network design/operation, limits the potential or desire to relocate existing facilities. Yet the potential may exist in the future as facilities age and become less competitive and/or industrial and population centers shift causing a realignment in a carrier's core market.

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International gateway development potential is predicated upon two factors: 1) The availability of international commercial service flights (lift) out of MSP, and 2) Demand-driven needs from regional shippers, primarily in the Twin Cities Area. International air cargo service from MSP is generally limited to the commercial passenger belly-space on NWA international flights. As discussed earlier in this report, wide-body commercial lift (passenger service) is the core component in attracting and sustaining international air cargo service. Absent such international commercial passenger service, it is likely that international air cargo will continue to be drayed (trucked) to alternate airports such as Chicago O'Hare for international air transit. Additional international lift in the form of all-cargo carrier flights, however, can provide the necessary international service to capture Minnesota's international air cargo leaving the state for air transit. As discussed in section two, all-cargo carrier service is demand driven by specific industry groups or clusters, customers, or freight forwarders. Identifying key Minnesota shippers, leakage of international traffic to competing gateways and air drayage patterns through Minnesota will help identify international air cargo consolidation and capture potential business for all-cargo carriers within the State of Minnesota.

## INCREASING MARKET CAPTURE

Minnesota is home to 19 *Fortune 500* companies, and is the headquarters to over 900 companies with more than \$25 million in annual revenues. In 2004, exports from Minnesota manufacturers totaled \$11.8 billion, up 12.5 percent over 2003.<sup>3</sup> Between 1998 and 2004, exports of manufactured goods from Minnesota have grown 42 percent. In 2004, Minnesota's export shipments of merchandise amounted to \$12.7 billion, up 23 percent over the 2002 total of \$10.3 billion. Nationally, merchandise exports grew by 4.8 percent over the same period. Minnesota ranked 11<sup>th</sup> among all states in terms of dollar growth in exports during the period 2000 - 2004.<sup>4</sup> During the first quarter of 2005, Minnesota exports from manufacturing industries grew by 18 percent, with exports to Canada, China, Korea, and Mexico posting the largest gains.<sup>5</sup>

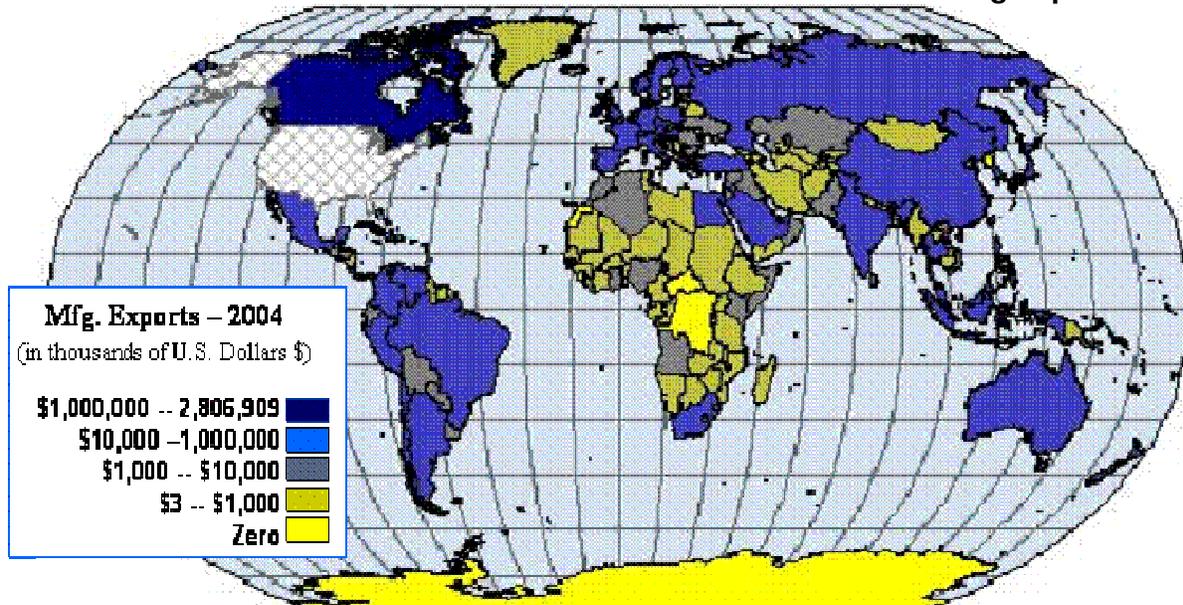
In 2004, Minnesota's manufacturing exports to both Canada and Ireland exceeded \$1 billion dollars. Canada's consumption of Minnesota manufactured products in the heavy industrial and transportation equipment sectors has made Canada Minnesota's perennial leading export market. In the fall of 2005, Canada and the United States also widened their "Open Skies" agreement to allow airlines from each country to pick up passengers or cargo in the other and then fly on to a third. "Under the new rules a Canadian carrier will be able to pick up passengers or cargo in the United States and fly on to another country -- Mexico, perhaps, or somewhere in Europe. And US airlines can pick up passengers or cargo in Canada and fly on to another country."<sup>6</sup>

Ireland ranks second as the destination for Minnesota manufactured products such as medical devices, computers and electronics. (Ireland's ranking in part stems from its importation of medical device materials, which are finished at Irish plants owned by Minnesota device makers).<sup>7</sup> During 2005, China became Minnesota's third-largest trading partner, up from fourth in 2004. Products exported to China from Minnesota include: computers, electronics, electric motors, and optical machinery. Since 1997, Minnesota's exports to China have grown by 70 percent. The map in **Exhibit B-20** shows all of Minnesota's 2004 export markets by value of

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product shipments for all manufactured goods. In addition to the countries already discussed, top export markets by value include: Mexico, Japan, the Netherlands, the United Kingdom, Germany, and France.

**Exhibit B-20: Destination Countries for Minnesota's Manufacturing Exports**



Source: U.S. International Trade Administration, Trade Stats Express  
Prepared: 2004

In recent years, some regional business leaders have expressed concern over the ability of Minnesota's major exporting industries to access international air cargo services in a timely and cost effective manner. These concerns lead to the formation of the "Twin Cities Airport Task Force" (TCATF) in 1999. The TCATF began advocating a more proactive government response to international air cargo services available in Minnesota, supporting the argument with examples of companies who have moved their distribution hubs out of the state: 3M to Dekalb, IL; IBM to Ireland; ADC to New Mexico; and most recently, Medtronic to Memphis, TN.

Shipper interviews, coupled with data from the Global Insights TranSearch commodity flow database, indicate that large quantities of Minnesota air cargo, both inbound and outbound, are being trucked to Chicago for air transit. This trucked freight is known as air drayage. **Exhibit B-21** details the inbound and outbound air drayage volume to and from Chicago for each of Minnesota's BEAs (Bureau of Economic Analysis – Metropolitan Region). Nearly 71,000 tons of Minnesota origin or destination air cargo is trucked to Chicago. This number equates to nearly 195 tons a day, the equivalent of two fully loaded Boeing 747s each day, 365 days a year. It is estimated that the majority of this freight originates from or is destined for international markets not directly served by Minnesota airports.

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### Exhibit B-21: Minnesota - Chicago Air Drayage - 2004 Tons

<b>Minnesota BEA</b>	<b>Inbound Tons</b>	<b>Outbound Tons</b>	<b>Total Tons</b>
Minneapolis-St. Paul	43,845	23,381	67,226
Rochester	1,328	2,258	3,586
Duluth	72	96	168
<b>Total</b>	<b>45,245</b>	<b>25,735</b>	<b>70,980</b>

Source: Reebie TranSearch

Prepared: 2004

Increasing the market capture rate of Minnesota-Chicago air drayage (or eliminating leakage) will require the addition of direct international air cargo service to the Minnesota air cargo system. Efforts to achieve this goal have focused on the development of a regional distribution center with international air cargo service at its core.

#### **TWIN CITIES REGIONAL AIR CARGO DISTRIBUTION CENTER**

The challenge for state and local planning and development agencies is to understand and anticipate what will drive air cargo carrier and air cargo volume growth within Minnesota. Insuring uncongested access to Minnesota air cargo facilities is the primary responsibility of non-airport planning entities. Airport authorities and planning agencies will address airside cargo needs via the airport master planning process. However, intermodal facility and access planning is beyond the scope and authority of most airport agencies.

In 2000, Congressman Jim Oberstar secured a grant to undertake a study to explore strategies for improving international air cargo services from Minnesota. The grant administered through Mn/DOT was used to contract with SITA, an international information technology and telecommunications firm that supplies logistics software applications to the air transport industry. The *"Minneapolis-St. Paul Air Cargo Study"* produced by SITA in December of 2001, noted the declining volumes of international air cargo moving through MSP, and drew attention to the inefficiency of the freight forwarder operating model. The report concluded that stemming the decline of international air cargo volumes at MSP would require dramatic changes to the current operating environment. Included among the recommendations for change were:

- Develop a next generation "Midwest Gateway Regional Distribution Center" (RDC).
- Create an economic development zone next to the RDC to retain and attract businesses to Minnesota.

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Based on the SITA Study, and several follow-up analyses, aviation planners began focusing on the concept of the RDC as a means of creating efficiencies in the freight forwarder markets and generating regional economic development.

In 2002, the Minnesota Foreign Trade Zone Commission, Hennepin County, and the Alliance for Global Competitiveness contracted with KPMG to conduct an economic impact analysis of the proposed RDC and Economic Development Zone. The KPMG Minneapolis/St. Paul Air Cargo Study was completed in August 2002, and among the findings and recommendations of that analysis:

Selected Findings

- Exporting businesses are generally exporting 40 percent of their product today with a goal of 60 percent in the near future.
- Security is a developing need that includes significant additional costs and potential delays.

Recommendations

- Develop a regional distribution center with an associated economic development zone that will be focused on manufacturing and distribution facilities for internationally engaged businesses.
- Incentivize desirable businesses to locate in EDZ, establishing the market to encourage additional capacity.
- Incentivize transportation companies to provide capacity.<sup>8</sup>

The KPMG analysis and a parallel investigation of air cargo origins conducted by Ray Palmer of Palmer Consulting, concluded:

- That sufficient international air cargo volumes exist to support a Minnesota regional distribution hub.
- The desirable location for the proposed RDC is south of the Twin Cities Metropolitan Area. This conclusion was based on market volume mass, surface transportation

***Memphis: The Nation's Headquarters for Biologistics (7/28/2005)***

*When you first walk into the Medtronic Sofamor Danek International Distribution Center just across from the Memphis International Airport, it feels just like any other warehouse. The shelving is stacked to the ceiling. The boxes are clearly marked with bar codes to identify the products...Everything is clean, very clean. And the neatly organized products, some 12,000 different SKUs, are destined for life changing surgery procedures that are just a day away all around the globe.*

*Welcome to the world of biologistics, Medtronic style – Memphis style. The Medtronic distribution facility is one of the many critical components of the international, multi-company, biologistics and distribution network that calls Memphis its home. The airport across the road from this warehouse happens to be the world's busiest cargo airport. The medical distribution industry that has grown up all around this airport under the careful and strategic tutelage of Memphis-based FedEx is a remarkable case study of efficiency.*

- Source: Memphis News Bureau Website  
<http://www.memphisnewsbureau.org>

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distribution routes, reduced metro area truck traffic, and efficient, low travel time roadway access to MSP.<sup>9</sup>

In 2003, a private industry public agency partnership advanced a proposal to the Minnesota Legislature seeking \$2.7 million to pursue first stage development of the proposed RDC. The request sought to create a project development team that would oversee the completion of a RDC site selection analysis, architectural designs for both the physical layout and information system requirements, and marketing plans. The 2003 Legislature did not act on the request.

In 2004, the Foreign Trade Zone (FTZ) Commission again approached the Legislature, but with a somewhat different request. Instead of funding to support additional analyses, the bill submitted to the Legislature asked for the proposed RDC to be designated as part of the Foreign Trade Zone, and for businesses locating there to be granted special tax exempt status. Again in 2004, the Legislature did not respond to the request.

In 2005, The FTZ Commission again found sponsors for a bill creating an International Economic Development Zone. After being included in several bills that died during the session, the provision finally found its way in to the Omnibus Tax Bill, which passed during the first special session of 2005. The following is a synopsis of the major provisions as assembled by the Minnesota House of Representatives Research Office:

#### **Article 10: International Economic Development Zone: Overview**

This article authorizes designation of an international economic development zone within 60 miles (or 90 minutes of driving time) from the Minneapolis-St. Paul International Airport. This zone is intended to stimulate development of a regional distribution center that will increase the capacity and capability to handle international air freight. Qualifying businesses operating in the zones are exempt from sales, income, and property taxes and a refundable jobs credit is available for the portion of increased payroll over \$30,000 and up to \$70,000 per FTE. Individuals who invest in zone businesses would be exempt on their business income attributable to activity in the zone, as well as capital gain taxes on zone investments. The zone (and the tax incentives) would have a maximum duration of 12 years. The tax incentives are very similar to those available under the JOBZ program.<sup>10</sup>

In late 2005, the Greater Metropolitan Airport Foreign Trade Zone Commission (GMAFTZC) issued a request for proposals (RFP), seeking cities interested in hosting the RDC. Provisions of the Economic Development Zone legislation required that cities interested in hosting the proposed RDC be identified by the end of 2005. To meet this requirement the Foreign Trade Zone Commission issued a Request for Proposals (RFP) in October of 2005. At the time of this report, three cities, Rochester, Pine City and Rosemount had submitted responses to the RFP. Once a location for the RDC and Economic Development Zone has been identified, it is hoped that a private developer will step forward to plan, market, and develop the site.

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## **FORWARDER / SHIPPER INTERVIEWS REGARDING AIR CARGO SERVICES**

As part of the Minnesota Aviation System Plan Update, the WSA Team conducted a series of in-person and phone interviews with business shippers, air freight forwarders and trucking companies that handle the drayage portion of air cargo moves. As part of the study the following companies were interviewed:

### Shippers:

- Boise Cascade, Inc. International Falls, MN
- Solvay Pharmaceuticals, Baudette, MN
- Cirrus Aviation, Duluth, MN
- Marvin Windows, Warroad, MN
- Digi-Key Corporation, Thief River Falls, MN
- Jostens Corporation, Minneapolis

### Air Freight Forwarders

- Air Freight Unlimited
- Air Plus Unlimited
- C.H. Robinson
- DFDS Transport, Inc
- Stonepath Logistics (formerly Global Transportation Services)
- K2 Logistics
- Kuehne and Nagel, Inc.
- Nippon Express
- Norman G. Jensen
- Panalpina
- Target Logistics

### Cartage Carriers / Warehouses

- Freight Masters
- Murphy Warehouse Company

Additional shippers were also contacted by phone and email, but many declined to respond. The majority of shippers who did consent to an interview were satisfied with the level of service currently available for both domestic and international air cargo in Minnesota. Most shippers used a variety of air cargo services to fill their needs, including expedited services, charter services, and international freight forwarders. Companies interviewed along Minnesota's northern border indicated that their distance from the Twin Cities was sometimes a hindrance to timely air cargo, but acknowledged that it was a condition they could do little to change. One shipper we spoke to indicated that recent changes in integrator networks meant they no longer received next morning deliveries, even though customers often paid for the service. The earliest next-day deliveries arrive in early afternoon.

When forwarders were asked to rate their impressions regarding the level of air cargo service available to Minnesota's shippers on a scale of 1 (poor) to 5 (excellent), the average response was "4." Forwarders explained that when making international shipments, Minnesota

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companies have a menu of choices: Less time sensitive shipments can be scheduled on dedicated, regular route freighters through Chicago at very reasonable prices; More sensitive cargo can be scheduled on the next available passenger flight via Chicago or MSP - with typical transit times of 2-3 days between shipper and destination airport; extremely urgent packages can reach almost any destination in one day through the large integrators such as UPS, FedEx and DHL.

When asked about market growth, forwarders responded almost unanimously that domestic air cargo shipping has been and continues to be in a severe decline. Three reasons were cited for the lost of domestic air cargo moving in the belly space of passenger planes:

- **Increased security measures in the wake of the terrorist attacks of 9/11:** Forwarders said that unless a shipment is moving under the “Known Shipper” program, the delays for processing have become too arduous for most shippers.
- **Increased efficiency of LTL trucking company networks:** Many representatives we spoke to indicated that trucking networks had become so efficient that many packages deemed “air cargo” never touch a plane, and can be delivered almost anywhere in the country in 2 days.
- **Competitive advantages of integrated carriers:** About half of the freight forwarders we spoke to pointed-out that if you operate aircraft - you are located on the airport. Many also noted that while they were at one time also located on MSP property, the construction of a new runway forced many of them to move to new locations, primarily in Bloomington and Eagan. Some of the relocated forwarders still carried resentment over having to leave their on-airport sites.

Some shippers we spoke with were familiar with the RDC concept or recent proposals, and they indicated that if the RDC would reduce air cargo transit times, while maintaining existing cost structures, it would benefit their competitive position in global markets. Most of the air freight forwarders and cartage carriers we spoke to were familiar with the concept, and several have followed the proposed development closely.

Drayage companies interviewed for the study were uncertain what the RDC would provide in terms of the service / price mix for international air cargo. They indicated that the best prices are offered by scheduled all cargo freighters that fly out of large international gateways such as Chicago-O’Hare. (One forwarder even indicated that they truck freight on a regular basis to Miami for air shipments to South America). Due to the scheduled nature of the destinations, such services typically take several days to arrive at the destination port - but are reasonably priced while still cutting land/sea transit times by more than half. The next level described in the international air cargo price/service mix was the use of commercial passenger flights. Depending on the destination, shipments will be flown from either MSP or O’Hare with typical transit times described as 2-3 days. Premium international air cargo service, with next day delivery is offered through the major integrators at a premium price.

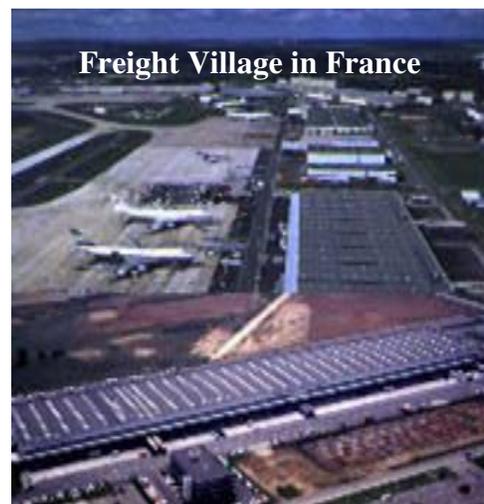
Overall, the biggest appeal for the air cargo RDC concept seemed to hinge on the future of air cargo security requirements. It was pointed out that currently the Transportation Security

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Administration (TSA) is developing programs that will require more cargo screening in the future: screen only 10 percent of all shipments, that the percentage is scheduled to rise to at least 30 percent in the future:

“The Aviation and Transportation Security Act (ATSA), enacted in November 2001, required the screening of all passengers and property, including cargo, United States mail, and carry-on and checked baggage that is carried onboard commercial passenger aircraft....Recently, DHS reported that most cargo on passenger aircraft is not physically inspected.<sup>3</sup> Specifically, according to industry estimates, only a very small percentage of the total cargo placed on passenger aircraft is physically screened or inspected. To enhance air cargo security, Congress recently enacted legislation authorizing \$902 million for air cargo security and required that TSA take additional steps to secure air cargo, including increasing the percentage of cargo being inspected on passenger aircraft.”<sup>11</sup>

However, the GAO report goes on to state that TSA has concluded that screening 100 percent of air cargo is not considered economically feasible at this time, and will instead focus on implementing a plan to screen 100 percent of air cargo that is deemed “at risk.” Proponents of the RDC concept point out that screening all air cargo is not feasible under the current business model, but consolidating all international air cargo at a common facility could change the current paradigm.



In many respects, the proposed RDC development is similar to the “freight village” concept popular in Europe where there have been more than 40 freight village developments. Generally, a freight village is a cluster of quality industrial, intermodal, distribution and logistics buildings located within a secure perimeter where a range of support services are provided to tenant firms and their operations. Freight villages often provide specialty services that are marketed to businesses with similar transport or support service needs. Many European freight villages have an airport as a central element, but generally freight villages have the following attributes:

#### On-site activities

- Integrated distribution
- Smart warehousing/specialized warehousing (e.g., refrigerated)
- Value added production or processing
- Intermodal operations
- Logistics
- Customs operations with Foreign Trade Zone status

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## On-Site services

- Security
- Maintenance and repair of buildings and grounds
- Office space
- Meeting rooms/conference center or space
- Eating facilities – restaurant, cafeteria
- Business services – banking, mail, overnight delivery
- Public transportation and internal transit

The freight forwarders interviewed for this study indicated that that if stricter air-cargo screening requirements become a reality, the RDC concept may offer ways to reduce the associated costs. However, forwarders also raised questions about RDC operations that merit further investigation, e.g.: *Would shipments tendered directly at MSP to the large airlines or integrators first be screened at an off-site location? Would shipments being flown out of Chicago, first be screened in Minnesota and then sealed in transit?* Until such questions are answer, one agent felt the proposed RDC could actually put traditional forwarders at an even greater competitive disadvantage.

Several other forwarders who were familiar with the concept also shared dissenting options about the proposed development. Some stated that assertions about the flow of international air cargo shipments analyzed in the 2001 MSP Air Cargo Study were not representative of the range of services available - but instead focused on only the lowest cost options. Others indicated that since the study in 2001, the forwarding landscape had changed dramatically, citing factors such as increased buy-outs and consolidation in the forwarder industry, increased efficiency of trucking company networks, and the movement toward common information platforms have reduced a number of inherent market inefficiencies.

## **AIR CARGO GROWTH NEEDS**

During interviews, shipper's representatives were asked about their anticipated growth in air cargo service needs. Several of the personnel we spoke to were unable or unwilling to discuss growth projections, but those who did respond typically indicated "no growth" to low or modest growth of 1-2 percent for domestic traffic, and 2-4 percent for international traffic.

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During 2004, the Minnesota Department of Employment and Economic Development (DEED) surveyed nearly 1,000 Minnesota businesses about issues such as global markets; valid responses were received from 165 businesses. The survey and subsequent analysis found that generally larger companies (annual sales in excess of \$25 million) were more likely to consider expanding in locations like Mexico and China. The survey found: “35 percent of companies considering their markets ‘global’ rated non-US locations like Mexico and China their most likely locations for expansion.”<sup>12</sup> Larger companies were also more likely to consider labor and transportation infrastructure as important to their location investment decisions. Overall, the study found that for businesses located in Greater Minnesota, transportation infrastructure ranked 5<sup>th</sup> out of 12 factors considered when making business location decisions (labor availability, labor costs, tax rates, and IT/telecommunications infrastructure all ranked higher than transportation).

During the interviews conducted for the system plan, freight forwarders were asked to share their experience in market growth over the past year. As previously mentioned, without exception forwarders had experienced flat or declining activity in domestic air cargo markets. Responses, however, regarding international markets ranged from relatively flat to “up about 50 percent over last year.” Many forwarders indicated that markets in the “Far East” or specifically “China” had lead strong international market growth, with 25 percent increases a common response. Several forwarders also indicated strong growth in traffic to Europe.

An interesting point came to light during discussions with the major air cargo integrators operating at MSP. One representative interviewed commented, in his view, the “express package” market in Minnesota had changed significantly in the past five years. He explained that several years ago, their express services were often used by businesses attempting to meet critical deadlines in relatively new supply chain management systems, or deal with “emergencies.” He said that typically, more regular express services had been handled by the commercial airlines. Today, however, with the declining amounts of cargo being carried by the

#### **Dubia’s Logistics City – A New Air Cargo Platform**

A new airport development in Dubai is being promoted as the world’s first integrated logistics and multi-modal transport platform. Jebel Ali Airport City (JAAC) a pioneering concept in urban planning of large airports is being spearheaded by the Government of Dubai and its Department of Civil Aviation. The project’s first component which is to be launched at the end of 2007, is Dubai Logistics City (DLC), a free zone for businesses which require, or provide, logistics and multi-modal transport services. When completed the JAAC will cover 140 square kilometers and when completed will comprise aviation, logistics, commercial, residential, educational, recreational, technology and entertainment components. The core of the city will be one of the world’s largest airports, surrounded by a strategic road network linking the airport to the different emirates and other GCC countries, as well as the Jebel Ali Free Zone.

The project will be completed in phases. The first phase is expected to cost \$547 million in U.S. currency and will include the Logistics City and one runway. When completed, the airport will have the capacity to handle 120 million passengers and 12 million tons of cargo annually. JAAC and the DLC will focus on servicing the aviation industry and related business and are being viewed as Dubai’s next major economic activity catalyst and a major commercial, trade and logistics hub for the Middle East.

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major airlines, and improvements to trucking networks, he said the growth in business has come from large companies with headquarters here in Minnesota: *“Large companies with facilities around the country or around the world use express services to ship important company documents overnight...For instance our busiest day is typically Thursdays moving corporate payroll documents.”*

## CONCLUSIONS

In the past five years, there has been a lot of attention paid to air cargo services in Minnesota, especially the availability of international air cargo services to shippers in the Twin Cities. It is also true, however, that during the same time period, there has been substantial changes in the air cargo industry in general, and it appears that the air cargo market will continue to evolve.

Based on our conversations with shippers, forwarders, and carriers (both integrated service providers and drayage companies), most seem to think the market for air cargo services work pretty well, however they also point-out that the competitive nature of the forwarder market results in transport inefficiencies. For instance, one drayage company official said they routinely send trucks only half-full to Chicago O’Hare, even though competing forwarders were approached about sharing space. The RDC concept recently passed several legislative hurdles and appears to be moving forward without substantial public subsidies. While no one involved with the development assumes it to be an “easy sell” to the forwarder community, they all felt strongly that without some intervention the level of international air cargo service in Minnesota is likely to continue declining. The current approach toward using tax incentives to foster a new business model would seem to be worth the relatively low risk. The next steps in the RDC development process should be the construction of a solid business plan, and increased marketing efforts to the forwarder community.

*Integrated service providers* reported relatively strong grow in domestic services due to market conditions (e.g., post 9/11 concerns over cargo on passenger flights) and broader service offerings (heavy weight service and more service options). *Air Cargo Forwarders* generally reported declining demand for domestic services, citing the “*Known Shipper*” rule and other regulations imposed after the terrorist attacks of 9/11 as reasons for declining demand in domestic air cargo. Most forwarders also reported either stable or increasing demand, and in some cases, dramatic increases in the demand for international air cargo services.

While much of the focus on Minnesota’s air cargo needs have focused recently on MSP and the development of the RDC, the services and investments made by integrated carriers at Minnesota’s regional airports such as Duluth, Rochester and Thief River Falls should not be overlooked, and the concept of further consolidating air freight at out-state regional hubs may be a strategy worthy of further investigation for keeping vital regional hubs healthy.

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<sup>1</sup> Boeing World Air Cargo Forecast, 2004/2005

<sup>2</sup> Ibid

<sup>3</sup> Minnesota Department of Employment and Economic Development (MN DEED), web resources at: <http://www.deed.state.mn.us/facts/index.htm>

<sup>4</sup> U.S. Government Export Portal Website: [http://ita.doc.gov/td/industry/otea/state\\_reports/minnesota.html](http://ita.doc.gov/td/industry/otea/state_reports/minnesota.html)  
Accessed on 8/25/05.

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<sup>5</sup> MN DEED, Quarterly Export Statistics

<sup>6</sup> *Air Wise News*, November 13, 2005, accessed via internet at: <http://news.airwise.com/story/view/1131918664.html>

<sup>7</sup> Minneapolis Star Tribune; *B M Trading*, 8/28/2005.

<sup>8</sup> KPMG LLP, *Minneapolis/St. Paul Air Cargo Study: Analysis of Potential Regional Distribution Center and Economic Development Zone*, PowerPoint Presentation Slides, August 19, 2002

<sup>9</sup> The Air Cargo Development Steering Committee, *A Private Industry and Public Agency Partnership Proposal: Minnesota Gateway - International Air Cargo Distribution Center*, February 2003

<sup>10</sup> Minnesota Legislature, Bill Status Web Pages at: <http://www.leg.state.mn.us>

<sup>11</sup> U.S. Government Accounting Office, "Aviation Security: Federal Action Needed to Strengthen Domestic Air Cargo Security", October 2005, Report # GAO-06-76. pp. 1

<sup>12</sup> MN DEED, *Twin Cities and Greater Minnesota Connections: A Business Perspective*, March 2004.



## Appendix C: General Aviation Airport Security

### BACKGROUND

The events of September 11th, 2001 had a profound impact on the aviation industry, with repercussions felt in both commercial and general aviation. The federal government initiated rapid changes to transportation security, creating a new agency called the Transportation Security Administration (TSA). While the TSA is tasked with securing all forms of transportation, its main focus has been on commercial airline service. The TSA took over airport security screening at more than 400 commercial airports in late 2002.

While new security guidelines were put into effect fairly quickly for commercial airports, it was May 2004 before TSA security guidelines for general aviation airports were released.

### PUBLISHED GENERAL AVIATION SECURITY MATERIAL

Many groups representing general aviation have developed security recommendations. Examples of general aviation security recommendations include:

- 1) In December 2002, the National Association of State Aviation Officials (NASAO) published its General Aviation Security document. The document provided many security enhancement recommendations with different security standards applied to different categories of airports. For all airports, NASAO recommended the following:
  - Secure unattended aircraft with anti-theft devices on the aircraft and hangar
  - Standardize the reporting of suspicious activity
  - Develop an airport security plan
  - Develop a public awareness and education program
  - Monitor airport property and users
  - Control movement in the aircraft operating area
  - Prevent unauthorized entry to the aircraft operating area with fencing and access controls, if possible

The NASAO guidelines also recognized that state and local funding is insufficient for costly security enhancements, and NASAO recommended that funding for security initiatives come from the Airport Improvement Program (AIP) and other federal funding sources. Funding for general aviation airports is already very limited and the additional burden of security enhancements could likely go unfunded.

- 2) The Aircraft Owners and Pilots Association (AOPA) put together the AOPA Airport Watch program. It is a nationwide program that educates pilots and airport employees to look for and report suspicious activity using a toll free hotline. While this program requires little in the way of costs, it is not by itself a complete security solution and requires integration into each airport's overall security plan.

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- 3) The National Business Aviation Association (NBAA) developed the TSA Access Certificate (TSAAC) program to catalog the best security practices for business aviation security. This program allows general aviation aircraft operators, after meeting the requirements of the security protocol and being vetted, to fly internationally without having to pass through one of the eight “portal” countries as required by the FAA.

TSA recognizes that many general aviation security measures are excessive in light of the real threat presented by general aviation. AOPA's web site lists numerous reasons as to why the general aviation threat may be overstated, including:

- **Hijackers are not likely to gain access to a general aviation aircraft.**  
The manner in which general aviation aircraft are used ensures that the pilots generally know who and what they are carrying, unlike commercial aviation. This intimate knowledge of passengers and cargo makes hijacking of a general aviation aircraft extremely unlikely.
- **General aviation aircraft are not easily stolen.**  
An aircraft is a high-value item. Even a simple, 30-year-old aircraft can be worth \$40,000 or more. Owners take reasonable precautions to protect that investment.
- **Many General aviation aircraft are incapable of causing significant damage.**  
The typical general aviation aircraft weighs less than a Honda Civic and carries even less cargo. On this basis alone, rental trucks are considered a greater terrorist threat than general aviation.
- **Small airports are secure by their nature.**  
General aviation airports tend to be small, tightly-knit communities. In these environments, where outsiders are easily recognized, suspicious activities are noticed. Since September 11, the vigilance of pilots and others at the airport has increased, and there is an increased willingness to report irregularities to authorities.
- **The general aviation industry has voluntarily taken positive steps to enhance security.**  
In addition to efforts such as AOPA's Airport Watch and NBAA's TSAAC programs, airports and the general aviation industry have implemented numerous security enhancing measures and programs on their own. Industry associations provided the FAA with recommendations on enhancing flight school and FBO security. Working with the U.S. Treasury Department, the General Aviation Manufacturers Association developed and implemented new guidelines on aircraft financial transactions to help flag suspicious dealings.

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## TSA GUIDELINES

Recognizing the shortcomings of the recommendations made by special interest groups, TSA and general aviation stakeholders established a working group to develop security guidelines for general aviation airports. These guidelines sought to avoid any unfunded security mandates.

The Aviation Security Advisory Committee (ASAC) Working Group consisted of representatives from the following organizations:

- Aircraft Owners & Pilots Association
- Airport Consultants Council
- American Association of Airport Executives
- Experimental Aircraft Association
- General Aviation Manufacturers Association
- Helicopter Association International
- National Air Transportation Association
- National Association of State Aviation Officials
- National Business Aviation Association
- United States Parachute Association

The ASAC, working with FAA and TSA officials, produced its recommendations in October 2003, which TSA then turned into its Security Guidelines for General Aviation Airports in May 2004. A copy of this document can be found at the following web address:

[http://www.tsa.gov/public/interapp/editorial/editorial\\_1113.xml](http://www.tsa.gov/public/interapp/editorial/editorial_1113.xml).

TSA guidelines provide airport owners, operators, sponsors, and other entities charged with oversight of general aviation airports a set of federally endorsed security measures. The guidance recognizes, and in fact emphasizes, that every airport is different, and that security enhancements that are appropriate and needed at one airport may not be needed at another. It should be noted that TSA security suggestions for general aviation airports are not applicable to airports requiring a TSA-approved security plan (those required to comply with 49 CFR 1542, Airport Security). For purposes of comparison only, this analysis does include those airports that are required to comply with 49 CFR 1542.

TSA guidance provides consistency to general aviation airports nationwide in terms of security enhancements, while still allowing airports the option of selecting and implementing the security enhancements that best fit the airport's unique situation. The guidance includes a 'General Aviation Airport Characteristics Measurement Tool.' This tool facilitates the evaluation of an airport's relative security risk. Using TSA guidelines, airports can be scored and ranked based on factors such as proximity to population and other sensitive areas, number and type of based aircraft the airport accommodates, runway approach characteristics, and consideration of other types of activities at the airport. The specific criteria and their point scores are summarized (as contained in TSA's measurement tool) in **Table C-1**.

**Table C-1  
TSA Airport Characteristics Measurement Tool**

SECURITY CHARACTERISTIC	POINTS
WITHIN 30NM OF MASS POPULATION AREAS	5
WITHIN 30NM OF A SENSITIVE SITE	4
FALLS WITHIN OUTER PERIMETER OF CLASS B AIRSPACE	3
FALLS WITHIN THE BOUNDARIES OF RESTRICTED AIRSPACE	3
GREATER THAN 101 BASED AIRCRAFT	3
26-100 BASED AIRCRAFT	2
11-25 BASED AIRCRAFT	1
10 OR FEWER BASED AIRCRAFT	0
BASED AIRCRAFT OVER 12,500 LBS.	3
RUNWAY LENGTH GREATER THAN 5,000 FEET	5
RUNWAY LENGTH GREATER THAN 2,000 FEET, UP TO 5,000 FEET	4
RUNWAY LENGTH 2,000 FEET OR LESS	2
HARD SURFACE RUNWAY	1
OVER 50,000 ANNUAL AIRCRAFT OPERATIONS	4
PART 135 OPERATIONS	3
PART 137 OPERATIONS	3
PART 125 OPERATIONS	3
FLIGHT TRAINING	3
FLIGHT TRAINING IN AIRCRAFT OVER 12,500 LBS.	4
RENTAL AIRCRAFT	4
MAINTENANCE, REPAIR, AND OVERHAUL FACILITIES CONDUCTING LONG-TERM STORAGE OF AIRCRAFT OVER 12,500 LBS.	4

Source: TSA, *Security Guidelines for General Aviation Airports*, May 2004.  
Prepared: November 2005.

Scores for individual airports can range from 2 to 55. TSA breaks these scores into four groups, as shown in **Table C-2**. For ease of discussion, within the system planning process, these score range security classification labels have been assigned to a security classification level as described in Table 2.

**Table C-2  
Security Categories**

NUMERICAL SCORE	SECURITY CLASSIFICATION
2 TO 14	Minimum
15 TO 24	Low
25 TO 44	Medium
45 TO 55	High

Source: TSA, *Security Guidelines for General Aviation Airports*, May 2004.  
Prepared: November 2005.

Based on an airport's score for the factors summarized in Table C-1, TSA suggests different sets of security enhancements. These security enhancements, shown in **Table C-3** with related

security classifications, are explained in detail in the TSA document. A brief summary of each enhancement follows Table C-3.

**Table C-3  
Matrix of Security Enhancements**

SECURITY ENHANCEMENT	MINIMUM	LOW	MEDIUM	HIGH
SIGNS	X	X	X	X
DOCUMENTED SECURITY PROCEDURES	X	X	X	X
POSITIVE PASSENGER/CARGO/BAGGAGE ID	X	X	X	X
ALL AIRCRAFT SECURED	X	X	X	X
COMMUNITY WATCH PROGRAM	X	X	X	X
CONTACT LIST	X	X	X	X
LAW ENFORCEMENT OFFICER SUPPORT		X	X	X
SECURITY COMMITTEE		X	X	X
TRANSIENT PILOT SIGN-IN/OUT PROCEDURES		X	X	X
ACCESS CONTROLS			X	X
LIGHTING SYSTEM			X	X
PERSONNEL ID SYSTEM			X	X
VEHICLE ID SYSTEM			X	X
CHALLENGE PROCEDURES			X	X
FENCING				X
HANGAR SECURITY				X
CLOSED CIRCUIT TV				X
INTRUSION DETECTION SYSTEM				X

Source: TSA, *Security Guidelines for General Aviation Airports*, May 2004  
Prepared: November 2005.

### Security Enhancements Suggested for All General Aviation Airports (Including Minimum)

- **Signs** – Signs with warnings against trespassing, tampering with aircraft, and other misdeeds serve as a deterrence measure and should be located in easily seen positions. Signs can also contain information on how to report suspicious activity.
- **Documented Security Procedures** – Providing a written security procedure gives managers an auditable means of ensuring employees and tenants are aware of security issues. It also provides a central source for security information and procedures at the airport. A sample General Aviation Security Plan is included in at the end of this Appendix.
- **Positive Passenger/Cargo/Baggage ID** – A major reason why general aviation is a relatively low security threat is because the majority of people that fly in general aviation aircraft are known by the pilot/operator of the aircraft. Making this an explicit policy, and extending it to include cargo and baggage, can help enhance this aspect of general aviation.
- **All Aircraft Secured** – Properly securing general aviation aircraft serves two purposes. It serves as deterrence to the perceived threat of general aviation aircraft being used by

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terrorists, and it can prevent aircraft from being broken into, tampered with, or even stolen. Using multiple methods of locking aircraft and the hangars in which they are stored will make unauthorized access even more difficult.

- **Community Watch Program** – General aviation airports tend to be small, tightly-knit communities that are familiar with what is going on at the airport. Anything out of the ordinary can be easily recognized by the regular users of the airport. Formalizing a community watch program among these regular users can enhance security through better communication and reporting procedures.
- **Contact List** – A list of key contacts is useful for ensuring that the proper personnel are informed promptly in the event of a security incident. The list should be kept up to date and distributed to all appropriate personnel.

#### **Security Enhancements Suggested for General Aviation Airports Meeting Low Security**

- **Law Enforcement Officer (LEO) Support** – Maintaining a liaison with law enforcement agencies – local, state, and federal – will help by ensuring that these officials are familiar with the airport and its procedures. Ideally, those LEOs that are regularly in the vicinity of the airport can randomly patrol the airfield, serving as a visible deterrent.
- **Security Committee** – The airport's security committee should consist of airport tenants, users, and management. The committee should meet regularly to discuss security issues and assist in developing reasonable security measures for the airport.
- **Transient Pilot Sign-In/Out Procedures** – Establishing sign-in/out procedures assists the airport with identifying transient pilots and their respective aircraft. Airport management can implement this enhancement at smaller airports, while larger airports would need to coordinate this with the airport's FBOs.

#### **Security Enhancements Suggested for General Aviation Airports Meeting Medium Security**

- **Access Controls** – These are the devices on entry points to secure airport areas that can control, limit, and in some cases record, personnel using the access point. Airports employing these devices should be aware of the procedural and design techniques used to prevent unauthorized access through access points.
- **Lighting System** – Airports may consider installing lighting systems in aircraft parking and hangar areas, fuel farms, and access points as appropriate. Care must be taken to ensure that any lighting system does not interfere with aircraft operations.
- **Personnel ID System** – A system of personnel identification can be used for airport employees, tenants, contractors, and other regular users of the airport. More advanced ID systems could be used to control an individual's access to certain parts of the airport.

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- **Vehicle ID System** – A system of vehicle identification can be used for vehicles of airport employees, tenants, contractors, and other regular users of the airport. More advanced ID systems could be used to control the vehicle's access to certain parts of the airport.
  - **Challenge Procedures** – Specific policy and procedures for use in confronting unauthorized personnel on the airport assist in systematically identifying potential security problems while maintaining reasonable levels of customer service.

### **Security Enhancements Suggested for General Aviation Airports Meeting High Security**

- **Fencing** – Fencing the airport property, or only the airfield operations area, can be quite costly, which is why it is suggested only for those airports needing the highest security. Furthermore, fencing serves as a deterrent – it will not keep out a determined intruder. Nevertheless, fencing may be an appropriate enhancement for certain airports, especially when used in conjunction with other enhancements, or if there are other considerations (e.g., wildlife control).
- **Hangar Security** – In addition to adequately locking hangars, their security can be enhanced with highly visible identification markings, which aid in reporting suspicious activity and emergency response, and other information signs. Procedures should be in place to rekey locks when there is a change of tenants.
- **Closed Circuit TV (CCTV)** – A CCTV system assists in the surveillance of an airport. In some cases, CCTV may be used in lieu of airport perimeter fencing. Like fencing, though, it is a costly security enhancement.
- **Intrusion Detection System (IDS)** – An IDS sends a signal to a person monitoring the system when an intrusion or other unwanted event (e.g., fire, power outage, etc.) occurs. That individual can then evaluate the situation and notify the appropriate authorities. An IDS can replace security patrols, but they are generally expensive systems.

The TSA document stresses that these are suggestions, not mandatory requirements, and that each airport should tailor appropriate security measures to its specific operating environment. However, there is one measure that can uniformly benefit all general aviation airports. At a recent TSA briefing, TSA officials stressed that the number one action that general aviation airports can take is promoting awareness of security issues.

### **PUTTING THE GENERAL AVIATION THREAT IN PERSPECTIVE**

As mentioned previously, much of the concern for general aviation security appears to be a reaction to a speculative threat. The General Accounting Office (GAO) stated in a November 2004 report that, while the FBI has claimed that terrorists have examined the use of general aviation for use in attacks, no thorough assessment has been conducted to determine how likely the threat truly is. The GAO report recommends that the Department of Homeland Security develop an implementation plan for executing a risk management approach that will help

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identify threats and vulnerabilities. Minnesota airport managers and sponsors will need to be kept apprised of Homeland Security's efforts to conduct this analysis and any findings that result from it.

The GAO report also stressed that the long-term success in securing general aviation will rely on the TSA continuing its successful partnership with industry associations. Working with groups such as AOPA and NBAA has resulted in the identification of realistic vulnerabilities and the development of workable security guidelines that address those specific vulnerabilities. Enhanced communication and information sharing between these organizations and Minnesota aviation representatives can only help to improve general aviation security in Minnesota.

Using TSA's guidelines, approximately 61 percent of airports being analyzed in this update to the Minnesota Aviation System Plan fall in the "minimum" security category. TSA suggests the following security enhancements for these types of airports:

- Signs
- Documented security procedures
- All aircraft secured
- Positive ID of passengers and cargo
- Community watch program
- Contact list

It is worth noting that most of these suggestions are low cost and are feasible actions for most general aviation airports.

Many Minnesota airports have already implemented security enhancements. No study airport had a score that placed it in the "high" security category. The majority of all study airports, 85 percent, scored in the "low" or "minimum" security categories. **Table C-4** shows the security level category for each of the airports being analyzed in the System Plan.

**Table C-4 (1 of 4)  
Security Level Classification Based on TSA Guidelines**

<b>ASSOCIATED CITY</b>	<b>AIRPORT NAME</b>	<b>SYSTEM ROLE</b>	<b>SECURITY LEVEL</b>
ALBERT LEA	Albert Lea Municipal	Intermediate	Medium
ALEXANDRIA	Alexandria Municipal - Chandler Field	Key	Medium
AUSTIN	Austin Municipal	Key	Medium
BRAINERD	Brainerd Lakes Regional	Key	Medium
BUFFALO	Buffalo Municipal	Intermediate	Medium
HIBBING	Chisholm-Hibbing Municipal	Key	Medium
DULUTH	Duluth International	Key	Medium
INTERNATIONAL FALLS	Falls International	Key	Medium
GRAND RAPIDS	Grand Rapids/Itasca Co - Gordon Newstrom Field	Key	Medium
LITTLE FALLS	Little Falls - Morrison County	Intermediate	Medium
MANKATO	Mankato Regional - Sohler Field	Key	Medium
OWATONNA	Owatonna Degner Regional	Key	Medium
PARK RAPIDS	Park Rapids Municipal	Key	Medium
RED WING	Red Wing Regional	Key	Medium
ROCHESTER	Rochester International	Key	Medium
SAINT CLOUD	Saint Cloud Regional	Key	Medium
MARSHALL	Southwest Minnesota Regional Airport-Marshall/Ryan Field	Key	Medium
WILLMAR	Willmar Municipal-John L Rice Field	Key	Medium
WINONA	Winona Municipal - Max Conrad Field	Key	Medium
AITKIN	Aitkin Municipal - Steve Kurtz Field	Intermediate	Low
BAUDETTE	Baudette International	Key	Low
BEMIDJI	Bemidji Beltrami County	Key	Low
CAMBRIDGE	Cambridge Municipal	Intermediate	Low
CANBY	Canby Municipal - Myers Field	Intermediate	Low
CLOQUET	Cloquet-Carlton County	Intermediate	Low
CROOKSTON	Crookston Municipal - Kirkwood Field	Intermediate	Low
DULUTH	Duluth Sky Harbor	Intermediate	Low
EVELETH	Eveleth-Virginia Municipal	Intermediate	Low
FAIRMONT	Fairmont Municipal	Key	Low
FARIBAULT	Faribault Municipal	Intermediate	Low
FERGUS FALLS	Fergus Falls Municipal - Einar Mickelson Field	Key	Low
HUTCHINSON	Hutchinson Municipal - Butler Field	Intermediate	Low
JACKSON	Jackson Municipal	Intermediate	Low
LITCHFIELD	Litchfield Municipal	Intermediate	Low
MAPLE LAKE	Maple Lake Municipal	Intermediate	Low
MILACA	Milaca Municipal	Landing Strip	Low
MOORHEAD	Moorhead Municipal	Intermediate	Low
MORRIS	Morris Municipal	Intermediate	Low
NEW ULM	New Ulm Municipal	Intermediate	Low
OLIVIA	Olivia Regional	Intermediate	Low

**Table C-4 (2 of 4)  
Security Level Classification Based on TSA Guidelines**

<b>ASSOCIATED CITY</b>	<b>AIRPORT NAME</b>	<b>SYSTEM ROLE</b>	<b>SECURITY LEVEL</b>
PERHAM	Perham Municipal	Intermediate	Low
PIPESTONE	Pipestone Municipal	Intermediate	Low
PRINCETON	Princeton Municipal	Intermediate	Low
RUSH CITY	Rush City Regional	Intermediate	Low
SAUK CENTRE	Sauk Centre Municipal	Intermediate	Low
THIEF RIVER FALLS	Thief River Falls Regional	Key	Low
TWO HARBORS	Two Harbors-Richard B. Helgeson	Intermediate	Low
WARROAD	Warroad International-Swede Carlson Field	Key	Low
WASECA	Waseca Municipal	Intermediate	Low
WORTHINGTON	Worthington Municipal	Key	Low
APPLETON	Appleton Municipal	Intermediate	Minimal
BACKUS	Backus Municipal	Landing Strip	Minimal
BAGLEY	Bagley Municipal	Intermediate	Minimal
BENSON	Benson Municipal	Intermediate	Minimal
BIG FALLS	Big Falls Municipal	Landing Strip	Minimal
BIGFORK	Bigfork Municipal	Intermediate	Minimal
BLUE EARTH	Blue Earth Municipal	Intermediate	Minimal
BOWSTRING	Bowstring	Landing Strip	Minimal
BROOTEN	Brooten Municipal	Intermediate	Minimal
CLARISSA	Clarissa Municipal	Landing Strip	Minimal
COOK	Cook Municipal	Intermediate	Minimal
DETROIT LAKES	Detroit Lakes Municipal - Wething Field	Intermediate	Minimal
DODGE CENTER	Dodge Center Municipal	Intermediate	Minimal
EAST GULL LAKE	East Gull Lake	Landing Strip	Minimal
ELBOW LAKE	Elbow Lake Municipal - Pride of the Prairie	Landing Strip	Minimal
ELY	Ely Municipal	Key	Minimal
FERTILE	Fertile Municipal	Intermediate	Minimal
PRESTON	Fillmore County	Intermediate	Minimal
FOSSTON	Fosston Municipal	Intermediate	Minimal
GLENCOE	Glencoe Municipal - Vernon Perschau Field	Intermediate	Minimal
GLENWOOD	Glenwood Municipal	Intermediate	Minimal
GRAND MARAIS	Grand Marias - Cook County	Intermediate	Minimal
GRANITE FALLS	Granite Falls Municipal/Lenzen-Roe Memorial Field	Intermediate	Minimal
GRYGLA	Grygla Municipal - Mel Wilkens Field	Landing Strip	Minimal
HALLOCK	Hallock Municipal	Intermediate	Minimal
HAWLEY	Hawley Municipal	Intermediate	Minimal
HECTOR	Hector Municipal	Intermediate	Minimal
HENNING	Henning Municipal	Landing Strip	Minimal

**Table C-4 (3 of 4)  
Security Level Classification Based on TSA Guidelines**

<b>ASSOCIATED CITY</b>	<b>AIRPORT NAME</b>	<b>SYSTEM ROLE</b>	<b>SECURITY LEVEL</b>
HERMAN	Herman Municipal	Intermediate	Minimal
HILL CITY	Hill City-Quadna Mountain	Landing Strip	Minimal
CALEDONIA	Houston County	Intermediate	Minimal
KARLSTAD	Karlstad Municipal	Landing Strip	Minimal
MADISON	Lac Qui Parle County - Bud Frye Field	Intermediate	Minimal
LE SUEUR	Le Sueur Municipal	Intermediate	Minimal
LITTLEFORK	Littlefork Municipal - Hanover	Landing Strip	Minimal
LONG PRAIRIE	Long Prairie Airport - Todd Field	Intermediate	Minimal
LONGVILLE	Longville Municipal	Intermediate	Minimal
LUVERNE	Luverne Municipal - Quentin Aanenson	Intermediate	Minimal
MAHNOMEN	Mahnomen County	Landing Strip	Minimal
MCGREGOR	McGregor-Isedor Iverson	Intermediate	Minimal
MONTEVIDEO	Montevide-Chippewa County	Intermediate	Minimal
MOOSE LAKE	Moose Lake - Carlton County	Intermediate	Minimal
MORA	Mora Municipal	Intermediate	Minimal
MURDOCK	Murdock Municipal	Landing Strip	Minimal
NEW YORK MILLS	New York Mills Municipal	Landing Strip	Minimal
ADA	Norman County - Ada-Twin Valley	Intermediate	Minimal
NORTHOME	Northome Municipal	Landing Strip	Minimal
ORR	Orr Regional	Intermediate	Minimal
ORTONVILLE	Ortonville Municipal - Martinson Field	Intermediate	Minimal
PAYNESVILLE	Paynesville Municipal	Intermediate	Minimal
PELICAN RAPIDS	Pelican Rapids Municipal - Lyon's Field	Landing Strip	Minimal
PINE RIVER	Pine River Regional	Intermediate	Minimal
PINECREEK	Piney-Pinecreek Border	Intermediate	Minimal
RED LAKE FALLS	Red Lake Falls Municipal	Intermediate	Minimal
REDWOOD FALLS	Redwood Falls Municipal	Intermediate	Minimal
REMER	Remer Municipal	Landing Strip	Minimal
ROSEAU	Roseau Municipal - Rudy Billberg Field	Intermediate	Minimal
RUSHFORD	Rushford Municipal	Intermediate	Minimal
SAINT JAMES	Saint James Municipal	Intermediate	Minimal
SILVER BAY	Silver Bay Municipal	Intermediate	Minimal
SLAYTON	Slayton Municipal	Intermediate	Minimal
SLEEPY EYE	Sleepy Eye Municipal	Landing Strip	Minimal
SPRINGFIELD	Springfield Municipal	Intermediate	Minimal
STAPLES	Staples Municipal	Intermediate	Minimal
STARBUCK	Starbuck Municipal	Landing Strip	Minimal
STEPHEN	Stephen Municipal	Intermediate	Minimal
TOWER	Tower Municipal	Intermediate	Minimal
TRACY	Tracy Municipal	Intermediate	Minimal
TYLER	Tyler Municipal	Landing Strip	Minimal
WADENA	Wadena Municipal	Intermediate	Minimal
WALKER	Walker Municipal	Intermediate	Minimal

**Table C-4 (4 of 4)**  
**Security Level Classification Based on TSA Guidelines**

ASSOCIATED CITY	AIRPORT NAME	SYSTEM ROLE	SECURITY LEVEL
WARREN	Warren Municipal	Intermediate	Minimal
WASKISH	Waskish Municipal	Landing Strip	Minimal
WELLS	Wells Municipal	Landing Strip	Minimal
WHEATON	Wheaton Municipal	Intermediate	Minimal
WINDOM	Windom Municipal	Intermediate	Minimal
WINSTED	Winsted Municipal	Landing Strip	Minimal

Source: Mn/DOT records.  
 Prepared: November 2005.

The TSA document acknowledges that every airport should view suggested enhancements as a list of options to consider when evaluating the individual circumstances at each airport.

**Table C-5** shows which TSA suggested security enhancements are in place at airports classified in the minimal security category. As can be seen, only seven airports have all of the security enhancements suggested specifically for minimal security airports (indicated by the shaded portion of the table). However, nearly all of these airports make use of security enhancements outside of those that TSA suggests for minimal security airports. Only five of these airports lack security enhancements beyond what TSA suggests.

**Table C-5**  
**TSA Suggested Security Enhancements**  
**Found at Minnesota System Airports Classified as Minimal Security**  
 (Shaded region delineates TSA suggested security enhancements  
 for this classification of airport)

SUGGESTED SECURITY ENHANCEMENT	NUMBER OF AIRPORTS USING SUGGESTED SECURITY ENHANCEMENT
ALL AIRCRAFT SECURED	61
COMMUNITY WATCH PROGRAM	33
CONTACT LIST	60
DOCUMENTED SECURITY PROCEDURES	15
POSITIVE PASSENGER /CARGO /BAGGAGE ID	36
SIGNS	51
LEO SUPPORT	65
SECURITY COMMITTEE	31
TRANSIENT PILOT SIGN-IN/OUT	25
ACCESS CONTROLS	51
CHALLENGE PROCEDURES	25
LIGHTING SYSTEM	58
PERSONNEL ID SYSTEM	0
VEHICLE ID SYSTEM	1
CCTV	2
FENCING	30
SECURE HANGARS	53
IDS	5

Source: Wilbur Smith Associates.  
 Prepared: December 2005.

**Table C-6** shows the TSA suggested security enhancements in use at airports in the low security category. In this category, six out of the 31 airports meet all the minimum TSA suggested security enhancements (indicated by the shaded region). Additionally, all six of those airports have additional security measures in place. In fact, not a single Minnesota airport in the low security category fails to make use of security enhancements beyond those suggested by TSA, meaning that the airports in this category have implemented security enhancements that address the specific security needs of those individual airports.

**Table C-6**  
**TSA Suggested Security Enhancements**  
**Found at Minnesota System Airports Classified as Low Security**  
 (Shaded region delineates TSA suggested security enhancements  
 for this classification of airport)

SUGGESTED SECURITY ENHANCEMENT	NUMBER OF AIRPORTS USING SUGGESTED SECURITY ENHANCEMENT
ALL AIRCRAFT SECURED	29
COMMUNITY WATCH PROGRAM	22
CONTACT LIST	30
DOCUMENTED SECURITY PROCEDURES	11
POSITIVE PASSENGER /CARGO /BAGGAGE ID	26
SIGNS	25
LEO SUPPORT	30
SECURITY COMMITTEE	13
TRANSIENT PILOT SIGN-IN/OUT	11
ACCESS CONTROLS	22
CHALLENGE PROCEDURES	22
LIGHTING SYSTEM	31
PERSONNEL ID SYSTEM	2
VEHICLE ID SYSTEM	1
CCTV	2
FENCING	17
SECURE HANGARS	29
IDS	3

Source: Wilbur Smith Associates.  
 Prepared: December 2005.

**Table C-7** shows the TSA suggested security enhancements in use at airports in the medium security category, including those that TSA suggests airports in the medium security category use, as indicated by the shaded region. None of the airports in this security category use every enhancement suggested by the TSA. However, every single one of these airports uses security enhancements beyond what the TSA suggests.

**Table C-7**  
**TSA Suggested Security Enhancements**  
**Found at Minnesota System Airports Classified as Medium Security**  
(Shaded region delineates TSA suggested security enhancements  
for this classification of airport)

SUGGESTED SECURITY ENHANCEMENT	NUMBER OF AIRPORTS USING SUGGESTED SECURITY ENHANCEMENT
ALL AIRCRAFT SECURED	17
COMMUNITY WATCH PROGRAM	14
CONTACT LIST	18
DOCUMENTED SECURITY PROCEDURES	10
POSITIVE PASSENGER /CARGO /BAGGAGE ID	17
SIGNS	15
LEO SUPPORT	16
SECURITY COMMITTEE	9
TRANSIENT PILOT SIGN-IN/OUT	5
ACCESS CONTROLS	16
CHALLENGE PROCEDURES	12
LIGHTING SYSTEM	19
PERSONNEL ID SYSTEM	5
VEHICLE ID SYSTEM	4
CCTV	4
FENCING	13
SECURE HANGARS	18
IDS	8

Source: Wilbur Smith Associates.  
Prepared: December 2005.

## SECURITY ANALYSIS OF MAC AIRPORTS

A security analysis of the Metropolitan Airports Commission (MAC) general aviation airports was conducted. Like the analysis for the other airports in the state, this analysis relied upon an assessment of airport security level provided by Minnesota officials. Using the Airport Characteristics Measurement Tool found in the TSA's *Security Guidelines for General Aviation Airports*, Minnesota officials scored each MAC general aviation airport. The corresponding security level of each airport is shown in **Table C-8**. Out of the eight MAC general aviation airports, one was classified as low security (Lake Elmo), six fell into the medium security category, and one scored in the high security category (Flying Cloud).

**Table C-8  
TSA Suggested Security Enhancements  
Found at MAC General Aviation Airports**

SUGGESTED SECURITY ENHANCEMENT	NUMBER OF AIRPORTS USING SUGGESTED SECURITY ENHANCEMENT
ALL AIRCRAFT SECURED	8
COMMUNITY WATCH PROGRAM	7
CONTACT LIST	8
DOCUMENTED SECURITY PROCEDURES	6
POSITIVE PASSENGER /CARGO /BAGGAGE ID	7
SIGNS	7
LEO SUPPORT	8
SECURITY COMMITTEE	4
TRANSIENT PILOT SIGN-IN/OUT	4
ACCESS CONTROLS	8
CHALLENGE PROCEDURES	7
LIGHTING SYSTEM	8
PERSONNEL ID SYSTEM	2
VEHICLE ID SYSTEM	7
CCTV	0
FENCING	7
SECURE HANGARS	7
IDS	0

Source: Wilbur Smith Associates.  
Prepared: December 2005.

As shown in Table C-8, the MAC general aviation airports employed a significant number of the security enhancements suggested by the TSA. Lake Elmo Airport, the only low security airport, uses every TSA suggested security enhancement for low security airports except for one – transient pilot sign-in/out. In addition, Lake Elmo has six other security enhancements in place that are above and beyond what TSA suggests.

The medium security airports use 70 percent or more of the TSA suggested security enhancements. Every one of these airports also uses one or more additional security enhancements beyond what the TSA suggests for the medium security level, including secure hangars.

The only high security airport, Flying Cloud, makes use of more than 80 percent of TSA suggested security enhancements.

This is a general analysis of security measures taken by MAC general aviation airports. Without examining each airport's unique security situation, it is impossible to evaluate whether the measures taken by each airport are appropriate and adequate. However, it can be said that these airports have implemented the majority of TSA suggested security enhancements, and, in

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nearly all cases, employ measures beyond those suggested by TSA. Also, it is important to remember that this analysis only considers the security enhancements suggested by TSA. Individual airports may have developed other security measures and strategies that are not suggested by TSA, but are suitable for the airport's unique circumstances.

## **CONCLUSION**

The preceding tables show that the vast majority of Minnesota system airports have security enhancements in place that meet or exceed those suggested by TSA. Tables C-5, C-6, C-7 and C-8 show that Minnesota airports are most likely formulating approaches that are best for each airport's unique needs. This illustrates the unique nature of the security situation at every individual system airport and the need to examine general aviation security on a case-by-case basis. The State should encourage airports to continue addressing security concerns at the local level.

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## Sample General Aviation Airport Security Plan

The following sample security plan has been drawn largely from the TSA guidelines.

# General Aviation Airport Security Procedures

(Airport Name)

(Original Publication Date)

(Date Last Revised)

## TABLE OF CONTENTS

Outline all of the sections of the document with corresponding page number for quick reference.

### SECTION I: DISCLOSURE STATEMENT / SECURITY RESPONSIBILITIES

Distribution of these Security Procedures should be restricted to individuals with a legitimate need for access to them.

Identify the individual who has the responsibility for the development, upkeep and administration of the Airport Security Procedures

### SECTION II: GENERAL INFORMATION

1. **Forward** – Identify the airport owner and the person(s) responsible for airport activities (e.g. State, county, authority, commission).
2. **Introduction and Purpose** – Provide a brief introduction that describes the purpose (what will it be used for) and the need (why was it created) for airport security procedures.
3. **Distribution** – You should list all individuals and agencies that will receive copies of the Airport Security Procedures.

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Example:

- State / Local Police Department
- Fixed Base Operator
- Individual Tenants

**4. Name and Location of Airport**

- Airport Name
- Airport Address
- Normal Business / 24-hour Emergency / Fax Phone Number
- Airport Identifier
- Proximity to nearest major city. List the city and provide a state location map as an attachment.
- Airport Geographical Coordinates: latitude, longitude, elevation.

**5. Airport Activities**

- Types of flight activities (e.g. flight school, State Police, corporate)
- Hours of operation
- Number of annual operations
- Number of based aircraft

**6. Airport Description**

- Size: List the size of the airport in approximate acres or square miles.
- Runways, Taxiways, Ramps: Identify runways and their dimensions, taxiways, and ramp areas. Provide an airport layout plan/diagram as an attachment.
- Buildings:
  - o List the number and types of buildings (offices, hangars, maintenance shops).
  - o List the primary tenants for each of the buildings.
- Airport Tenants:
  - o List hours of operation
  - o List primary and emergency contact information
- Other Airport Facilities

**7. Emergency Phone Numbers** – List all appropriate emergency contact numbers. Include point of contact names and office hours of operation as appropriate (e.g. FSD, alternate contacts).

- All Emergencies 911
- State Police (non-emergency)
- Local Police (non-emergency)
- Local Fire Department
- Airport Director (24 hour contact)
- Airport Facility Supervisor (pager)
- State / Local Aviation Official
- Federal Bureau of Investigation Local Field Office

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- FAA Flight Standards District Office (FSDO)
  - TSA Airport Watch Hot-Line: 866-427-3287
  - Local TSA Federal Security Director

### **SECTION III: DEFINITIONS AND TERMS**

It may be useful to include a list of frequently used terminology to enhance clarity within the document.

### **SECTION IV: ADMINISTRATION**

1. **Airport Operator** – List who operates the airport.
2. **Individual Responsible for Airport Security** – List the responsibilities of this individual. These duties may include:
  - Timely provision of evidence of security measure compliance as may be requested.
  - Maintaining a complete and current list of all individuals with airport access.
  - Maintaining documentation of all training provided in accordance with any current Airport Security Procedures.
  - Maintaining and updating the Airport Security Procedures to reflect the current state of conditions at the airport.
  - Timely distribution of the Airport Security Procedures or specific parts thereof, to appropriate persons or entities.
  - Proper dissemination of all correspondence or other communications with airport tenants and others on security related matters.
  - Daily oversight of security provisions at the airport and ensuring compliance with the Security Procedures.

### **SECTION V: AIRCRAFT MOVEMENT AREA / SECURITY CONTROL**

1. **Aircraft Movement Area** – Describe any area that may be used for landing, take-off, and surface maneuvering of aircraft including all intermediate unpaved sections of the airfield encompassed on the airport property. You should also include a map or diagram as an attachment.
2. **Perimeter Controls** – Describe any perimeter barriers or access controls such as:
  - Fencing
  - Gates
  - Access Control System
  - Airport Locks
  - Key Control System

### **SECTION VI: AIRPORT SECURITY PROCEDURES**

Describe any Airport Security Procedures such as:

- Aircraft security requirements
- Pedestrian/vehicle access

- 
- Challenge procedures
  - Reporting of suspicious behavior

### **SECTION VII: AIRPORT EMERGENCY GRID MAP**

Airport operators may also wish to consider creating an emergency locator map. The map should identify all relevant areas of the airport on a grid map such as:

- Runways
- Ramp areas
- Fence line
- Gates
- Automobile parking areas
- Hydrants
- Emergency shelters
- Buildings
- Hazardous materials sites

This map should be provided to emergency response personnel (fire, EMS, etc.) and law enforcement, as well as airport personnel.

### **SECTION VIII: IDENTIFICATION OF AIRPORT PERSONNEL**

Describe any personnel identification methods/systems and the procedures for those that are currently in use. Such as:

- Airport-issued identification badge(s) or card(s)
- Identification Badge / Card application procedures
- Other acceptable forms of identification
- Accountability of lost/stolen identification badges / cards
- Temporary airport identification badges / cards
- Uniforms which display logo or other identifiable markings

### **SECTION IX: IDENTIFICATION OF VEHICLES**

Describe what methods/systems are used to identify authorized vehicles in the air operations area. The following are examples of methods to identify authorized vehicles:

- Special paint schemes or markings
- Decal in a specified location on the vehicle
- Hang tags

### **SECTION X: LAW ENFORCEMENT**

Describe any agreement(s) and responsibilities that the airport owner/operator(s) may have with law enforcement agencies to provide support, traffic control, police patrols and any emergency responses. Include any written agreements as attachments to the Airport Security Procedures. Also include any methods or systems used (e.g. radios, communications channels, etc.) to directly communicate with law enforcement personnel.

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### **SECTION XI: SPECIAL EVENTS**

Describe any procedures that exist for special events such as:

- Air shows
- VIP Visits
- Events that result in unusual numbers of people at the airport

### **SECTION XII: INCREASED SECURITY THREATS**

Describe how security measures are implemented in accordance with the raising and lowering of the Homeland Security Advisory System as described in Section 3.5.2 of Security Guidelines for General Aviation Airports, published by the TSA.

### **SECTION XIII: AVIATION SECURITY CONTINGENCY PLANS**

Identify and describe all contingency plans and procedures established for security incidents such as:

- Bomb Threats
- Civil Disturbances & Crowd Control
- Air Piracy (Hijacking) Actual or Attempted
- Suspicious/Unidentified Items