



WISCONSIN

State Airport System Plan 2030

Executive Summary



Overview

The Wisconsin State Airport System Plan 2030 is a component of the Wisconsin Department of Transportation (WisDOT) Bureau of Aeronautics (BOA) system planning process. This plan provides an inventory and evaluation of the Wisconsin Airport System's 98 airports and an implementation plan to meet established goals and objectives. A key component of this plan was the development of a Geographic Informational System (GIS) database of the Wisconsin Airport System. This database allows the BOA to continuously assess and monitor various system-wide conditions and performance-related measures. In addition, it allows for the uniform evaluation of various improvements implemented as part of airport planning and programming cycles.

The findings of this plan culminate with investment recommendations, which outline recommended facilities and services on a system-wide level. The investment recommendations are based on an airport report card. The report card details how airports, individually and as a system, are meeting established system goals and measures and how they provide the typical facility and service attributes for their classification.



Purpose and Objectives

The purpose of this plan is to establish a vision, develop and evaluate system goals, and provide a framework to meet current and future needs for the preservation and enhancement of the airport system.

The plan objectives are as follows:

- Improve safety of Wisconsin airports
- Obtain a current inventory of the facilities and services of each airport in the system
- Establish airport system goals, performance measures and benchmarks
- Identify system and airport specific deficiencies, as well as adequacies and surpluses in the system
- Identify potential overlaps or gaps in the system
- Address Federal Aviation Administration's (FAA) departure from ground-based navigational aids to a satellite based system, and how it will affect Wisconsin
- Develop cost alternatives to meet system goals and benchmarks
- Establish a framework for future investments
- Conduct a system-plan environmental evaluation of the results of the system plan
- Develop a method to monitor progress of system goals

Vision and Goals

System Vision Statement

- The Wisconsin State Airport System is a gateway to the world that responsibly and effectively meets business, passenger, freight and recreational air transportation needs while enhancing the economic vitality of Wisconsin communities.

System Goals

- Provide a safe and secure aviation system
- Support a system of airports that is readily accessible from the ground and the air
- Provide airport infrastructure to attract business-supporting economic growth
- Provide a system of airports that meets existing and future needs
- Provide a system of airports that addresses community and environmental compatibility

Airport Classification

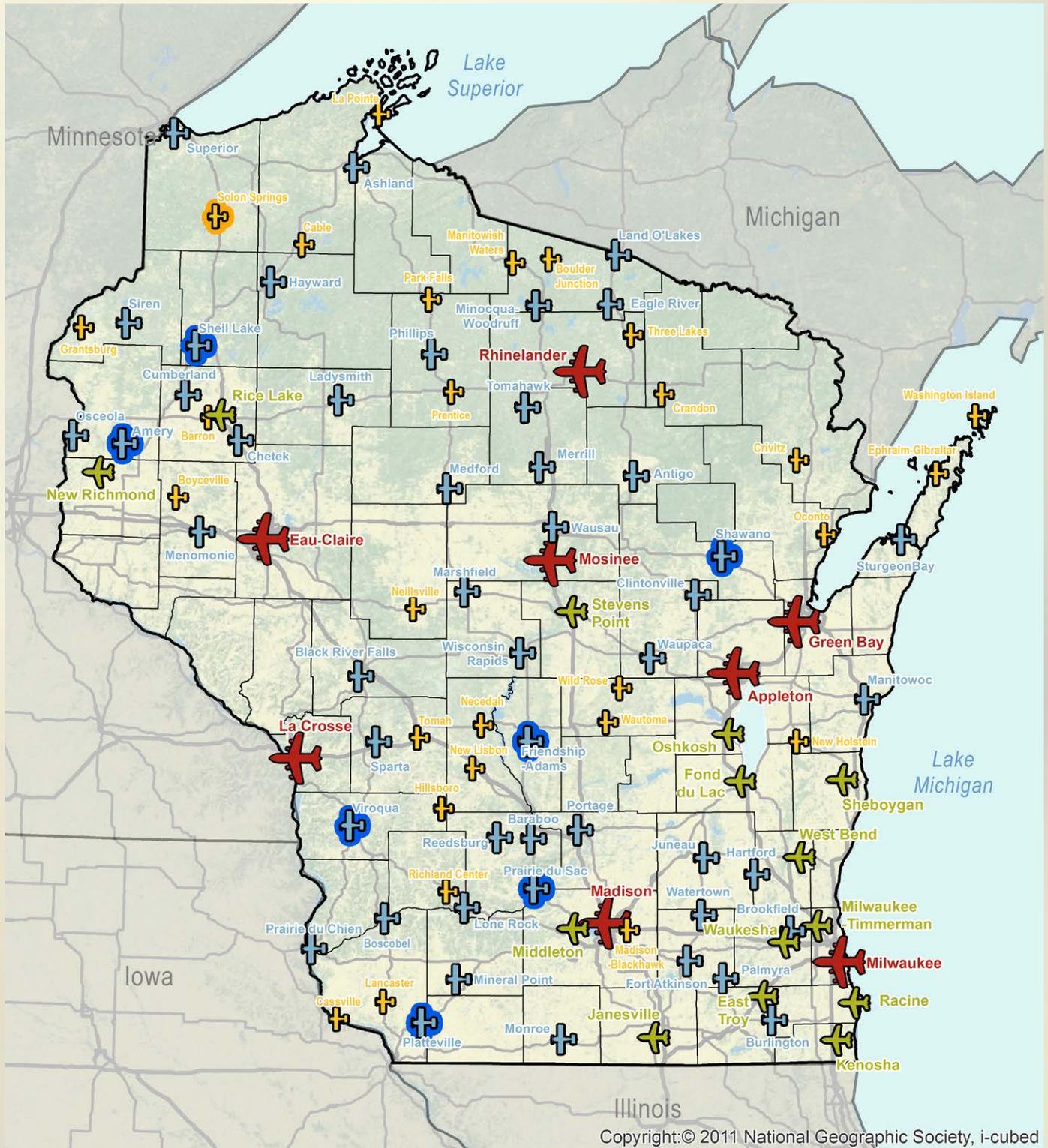
It is important to have a system of airports that supports current as well as long-term air transportation and economic needs. The classification system identifies the role and level of service at each airport to address the transportation needs of its community. While all airports contribute to the economy and transportation infrastructure, not all airports serve the same role or contribute in the same manner. Existing roles are based on current population and economic centers. Future roles are based on forecasted changes in these areas, allowing the state to design a system that functions at its highest level.

Wisconsin airports are identified by four classifications.

- **Commercial Service** – Commercial service airports support regularly scheduled year-round commercial airline service and support the full range of General Aviation (GA) activity to domestic and international destinations.
- **Large GA** – Large GA airports support all GA aircraft that include daily operations of all types of business jets. These airports generally serve as domestic transportation centers and may support international business activity.
- **Medium GA** – Medium GA airports support most single and multi-engine GA aircraft, including those aircraft commonly used by businesses. These airports support regional and in-state air transportation needs.
- **Small GA** – Small GA airports primarily support single-engine GA aircraft but may also accommodate small twin-engine GA aircraft and, occasionally, business aircraft activity.



Wisconsin Airport Classifications



-  Commercial Service
-  Large General Aviation
-  Medium General Aviation

-  Upgrade from Small General Aviation to Medium General Aviation
-  Small General Aviation
-  Downgrade from Medium General Aviation to Small General Aviation

- Major Roads**
-  Interstates
 -  Highways

Forecasts

Forecasts of Wisconsin aviation activity contribute to several aspects of the system plan. The forecasts are used to verify activity levels and based aircraft at individual airports. They also help determine whether existing facilities have sufficient capacity to accommodate future demand. Information collected for 2010 serves as the base year of the forecasts and a benchmark for future comparisons of aviation activity in Wisconsin. Forecast years are 2015, 2020 and 2030.

Factors Influencing Forecasts

- Frontier Airlines discontinued its hub at Milwaukee
- United and Continental Airlines merged, resulting in a consolidation of the two carriers' hub and spoke services
- Delta Airlines merged with Northwest Airlines and a similar reconstruction of Delta's network is on-going
- Most of the commercial turboprop fleet was retired in favor of regional jets
- Business activity has increased
- General aviation experienced a sustained decline
- Air cargo remained flat
- Proposed merger of American Airlines and US Air



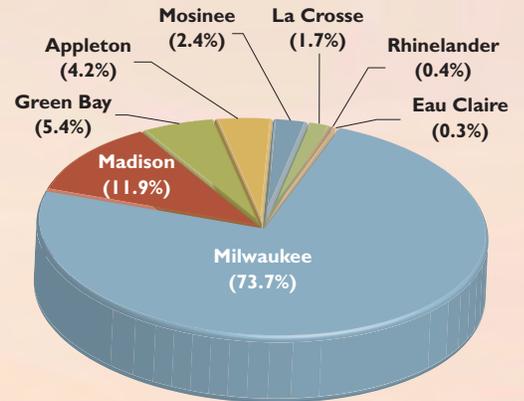
Commercial Service Airports

2000-2010 Impacts to Wisconsin Commercial Service Airports

- Airline industry retirement of turboprop aircraft. Between 2005 and 2010, turboprop operations decreased from 60,368 to 11,613
- Heavy reliance on 50-seat regional jet aircraft service from spoke cities to airline hub airports
- Retirement of small fuel-inefficient jets such as the MD80, DC9-10/30, Avro RJ-85, Boeing 727, F 100s, and BAe 146
 - Served Appleton, Green Bay, Madison and La Crosse in 2000, and accounted for larger-than-average seat capacity during the early part of the decade
- Predominance of regional aircraft for commercial service, accounted for 68 percent of all scheduled service operations in Wisconsin

Commercial Service Airports Enplaned Passengers, 2010

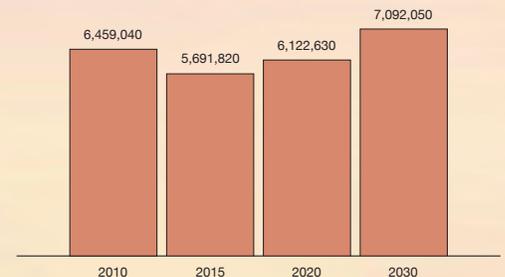
Total Enplanements = 6,459,040



Source: FAA, ACAIS Database, 2010

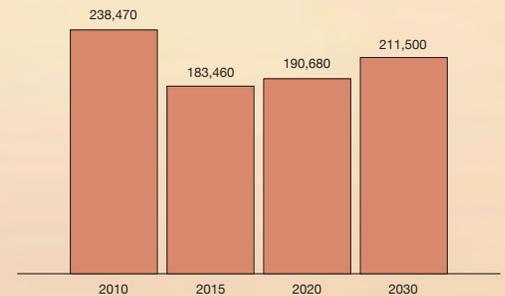
Statewide Forecast of Enplaned Passengers

Given the termination of Frontier Airline flights at Milwaukee, there was a substantial decline in 2011 and 2012 in enplaned passengers. For this reason, the forecasts dip in the first five years and resume growth in later years. Despite early declines in the forecast period, enplaned passengers are projected to increase from 6.5 million in 2010 to 7.1 million in 2030.



Statewide Forecast of Commercial Operations

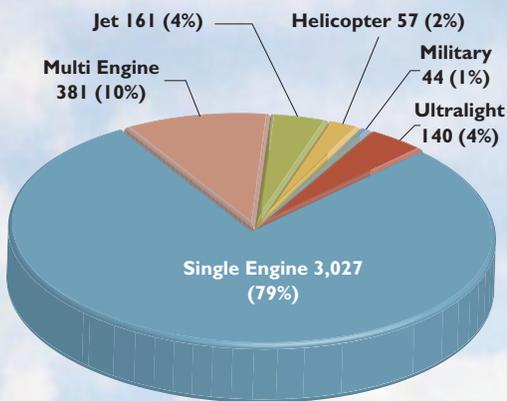
Eighty percent of Wisconsin operations occurred at the General Mitchell International Airport. The first five years of the forecast reflect reduced Frontier Airline flights, as well as the consolidation of United and Continental routes and of Delta and Northwest routes. Furthermore, both Delta and American Airlines are transitioning to larger regional jet aircraft, which results in reductions in frequencies at some cities. Overall, commercial operations are projected to decline each year by .6 percent from 238,470 in 2010 to 211,500 in 2030.



Sources: U.S. DOT T-100 (2010), KRAMER aerotek inc. (Forecasts)

General Aviation Forecasts

Based Aircraft



Based Aircraft by Airport Classification

Airport Classification	2010	Share
Commercial Service	618	16%
Large GA	1,314	35%
Medium GA	1,599	42%
Small GA	279	7%
Total Wisconsin Based Aircraft	3,810	100%

Source: National Based Aircraft Database (April 2010). Non-NPIAS SASP Airports and Commercial Service Airports: FAA 5010 Form.

Based aircraft are registered and housed at a particular airport. Beginning in 2007, the FAA began a multi-year process to obtain more accurate information on based aircraft. Initially, the program sought to assign (by N-number) each aircraft to one specific airport. In addition, the report process sought to remove from the based fleet those aircraft that were not airworthy. By 2009, the FAA's revised counting procedures were mostly in place. However, as a result of this effort, some airports experienced a reduction or change in the reported number of based aircraft. The 2010 inventory of based aircraft reflects a more accurate count using the new procedures. However, it also means that previous counts of based aircraft at Wisconsin airports are not necessarily comparable.

Aircraft Operations

General aviation is the largest component of Wisconsin aviation, occurring at all 98 system airports and at many small private airports and hospital heliports that are not included in the system plan. The largest share of these operations (78 percent) takes place at large and medium general aviation airports in the state. In 2010, there were an estimated 1.9 million general aviation operations in Wisconsin. General aviation aircraft are used for business and personal travel, recreational travel, flight instruction, emergency airlift and agricultural spraying.

General Aviation and Air Taxi Operations

Airport Classification	GA and Air Taxi Operations				2010-2030 CAGR
	2010	2015	2020	2030	
Commercial Service	257,130	264,930	273,190	297,430	0.7%
Large GA	691,060	693,970	698,020	718,670	0.2%
Medium GA	819,200	820,550	822,750	863,110	0.3%
Small GA	166,040	167,340	168,840	196,320	0.8%
Total Wisconsin GA and Air Taxi Operations	1,933,430	1,946,790	1,962,800	2,075,530	0.4%

Sources: Towered airports: FAA Air Traffic Control Tower Traffic Counts. All other SASP airports: FAA 5010 Form (2010), KRAMER aerotek inc. (Forecasts)

Air taxi refers to air charter passenger or cargo aircraft which operate on an on-demand basis.

CAGR – Compounded Annual Growth Rate.



Air Cargo

Air cargo is shipped into and out of commercial service airports as well as some general aviation airports. Typical airport users that are engaged in air cargo include:

- The airlines that carry mail or freight in the cargo hold of commercial aircraft
- Integrated carriers such as FedEx and UPS
- Dedicated all-cargo heavy weight carriers that operate unscheduled charters
- Freight forwarders and logistics companies
- U.S. Postal Service (USPS)

The following charts highlight how the transport of air cargo at Wisconsin's commercial service airports has become increasingly concentrated over the last decade.

Statewide Forecasts of Air Cargo Volumes

Airport Classification	Actual	Forecast (Pounds In and Out)			2010-2030 CAGR
	2010	2015	2020	2030	
Commercial Service	228,206,200	256,896,800	268,642,600	294,029,100	1.3%
Large GA	1,166,000	1,192,100	1,193,200	1,196,300	0.1%
Medium GA	1,771,440	1,774,440	1,777,440	1,782,440	0.0%
Small GA	2,000	2,000	2,000	2,000	0.0%
Total Wisconsin Air Cargo	231,145,640	259,865,340	271,615,240	297,009,840	1.3%

Sources: U.S. DOT T-100 and Airport Records (2010), KRAMER aerotek inc. (Forecasts)
CAGR – Compounded Annual Growth Rate.

Statewide Forecasts of Dedicated Air Cargo Operations

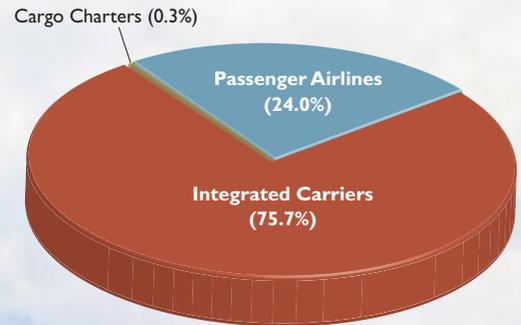
Airport Classification	Actual	Cargo Forecast			2010-2030 CAGR
	2010	2015	2020	2030	
Commercial Service	20,650	21,170	21,480	22,050	0.3%
Large GA	1,140	1,150	1,150	1,150	0.0%
Medium GA	1,560	1,560	1,560	1,560	0.0%
Small GA	0	0	0	0	0.0%
Total Wisconsin Air Cargo	23,350	23,880	24,190	24,760	0.3%

Sources: U.S. DOT T-100 and Airport Records (2010), KRAMER aerotek inc. (Forecasts)
CAGR – Compounded Annual Growth Rate.

Air Cargo Activity

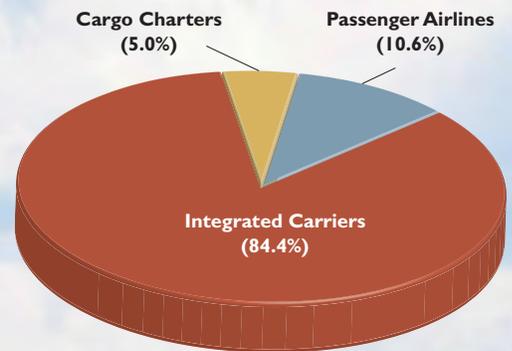
Air Carrier Market Share, 2003

Total Enplaned Cargo = 121,820,100 lbs



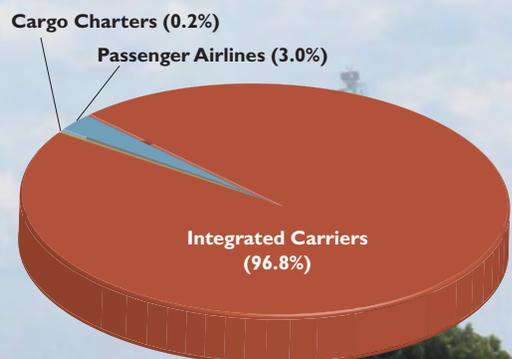
Air Carrier Market Share, 2007

Total Enplaned Cargo = 113,138,496 lbs



Air Carrier Market Share, 2011

Total Enplaned Cargo = 114,405,700 lbs



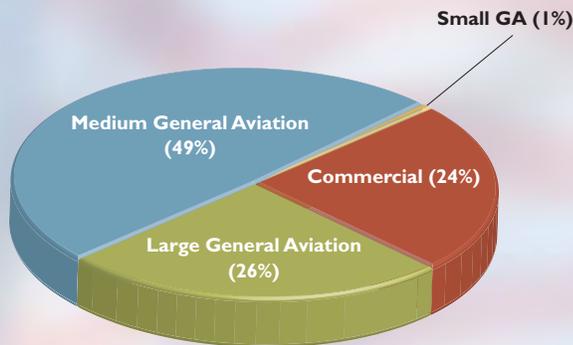


Military

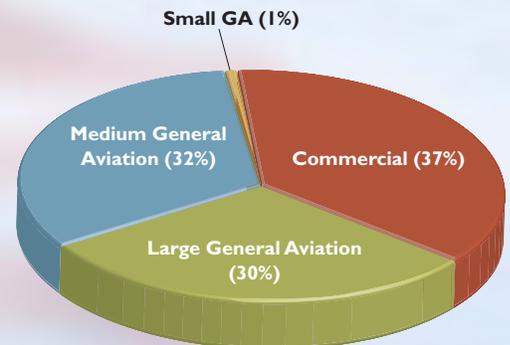
Military operations are a relatively small contributor to activity at public use airports. Volk Field is an important contributor to operations, but it is not part of the state airport system. The Wisconsin Army and Air National Guard units are actively engaged in support of domestic and foreign initiatives. These units operate out of Volk Field, Sparta/Fort McCoy, West Bend, Madison, Green Bay and Baraboo.

Since the last system plan, military operations have become more concentrated at commercial and large general aviation airports, as indicated on the following charts.

2002 Military Operations = 67,627



2010 Military Operations = 47,823



Military Operations: Past and Forcast

Airport Classification	Actual		Forecast		
	2002	2010	2015	2020	2030
Commercial Service	16,270	17,520	17,520	17,520	17,520
Large GA	17,730	14,560	14,570	14,570	14,570
Medium GA	33,170	15,170	15,170	15,170	15,170
Small GA	460	590	590	590	590
Total Wisconsin Military Operations	67,630	47,840	47,850	47,850	47,850

Sources: 2002 Wisconsin State Airport System Plan 2020 (2002), FAA ATADS, Towered Airports: FAA Air Traffic Control Tower Traffic Counts. All other SASP Airports: FAA 5010 Form (2010), KRAMER aerotek inc. (Forecasts)

Challenges for Wisconsin

- Merger between American Airlines and US Airways – impact to service between Wisconsin airports and Chicago O’Hare
- Replacement of 50-seat regional jets with 70-seat aircraft – may impact schedule frequencies
- The impact for General Mitchell International Airport as Southwest Airlines consolidates Air Tran service into its network
- The impact of increasing airline fees on the cost of flying, air passenger demand and choice of airport
- The future eligibility and funding for subsidized service under the Essential Air Service program
- The continued substitution of ground transportation for air cargo and its effect on air cargo activity in Wisconsin
- The stability and containment of fuel prices
- The availability of 100LL avgas for general aviation aircraft, the development of alternative fuels and the rate of conversion of aircraft to use newer types of fuel
- The degree to which general aviation and business aviation recovers from a decade of decline



Typical Facility and Service Attributes

Airport facilities and service attributes (FSAs) largely define the types of aircraft and users that operate at an airport. The FSAs have been established to identify typical facilities and services that meet the attributes established for each classification.

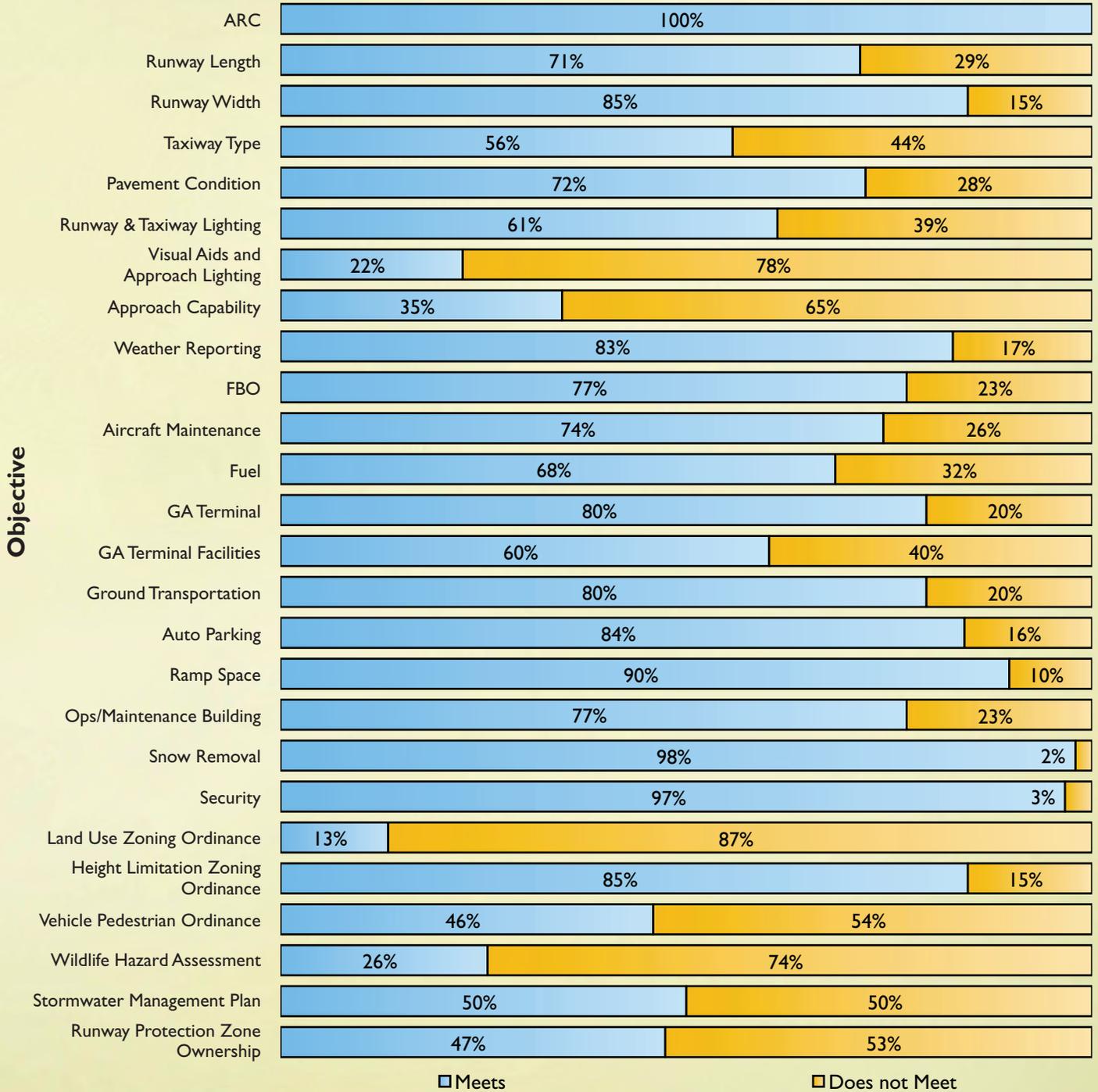
These attributes are not a requirement, rather they provide guidance on items each airport should have in place to best fill its system role and meet the needs of its users. Any investment in an FSA at an airport needs to be justified and approved through the local master planning and environmental process.

Airport FSAs are subdivided by airside, landside, services and administration.

Typical Facility and Service Attributes

	Attribute	Commercial Service Airports	Large General Aviation Airports	Medium General Aviation Airports	Small General Aviation Airports
Airside	Airport Reference Code	C or greater	B or greater	A or greater	A or greater
	Runway length (primary)*	6,700 feet or greater*	5,500 feet or greater*	4,000 feet to 5,499 feet*	3,200 feet to 3,999 feet*
	Runway width (primary)*	150 feet*	100 feet*	75 feet*	60 feet*
	Taxiway type	Full parallel	Full parallel	Full parallel	Turnarounds and parallel taxiway desired
	Pavement condition	Area-weighted PCI of 75 or greater	Area-weighted PCI of 70 or greater	Area-weighted PCI of 70 or greater	Area-weighted PCI of 70 or greater
	Runway/taxiway lighting	HIRL and MITL	HIRL and MITL	MIRL and taxiway reflectors	MIRL and taxiway reflectors
	Visual aids and approach light configuration	Rotating beacon, wind cone, MALSR, REILs, VGSI (VASI/PAPI)	Rotating beacon, wind cone, MALSR, REILs, VGSI (VASI/PAPI)	Rotating beacon, wind cone, MALSF, REILs, VGSI (VASI/PAPI)	Rotating beacon, wind cone, REILs, VGSI (VASI/PAPI)
	Approach capability	Visibility minimum 1/2 mile or less	Visibility minimum 1/2 mile	Visibility minimum 3/4 mile	Visibility minimum 1 mile
	Weather reporting	ASOS or AWOS	ASOS or AWOS	ASOS or AWOS	Not an objective
	Landside	Fixed Base Operator (FBO)	FBO(s) available	FBO(s) available	FBO(s) available
Maintenance		Major airframe & powerplant	Major airframe & powerplant	Minor airframe & powerplant	Not an objective
Fuel		100LL & Jet A to itinerant aircraft	100LL & Jet A to itinerant aircraft	100LL & Jet A to itinerant aircraft	100LL to itinerant aircraft
GA terminal/admin building		GA terminal/ administrative building	GA terminal/ administrative building	GA terminal/ administrative building	GA terminal/ administrative building
GA terminal building services		Phone, restrooms, flight planning/lounge	Phone, restrooms, flight planning/lounge	Phone and restrooms	Phone and restrooms
Ground Transportation		On-site rental car	Rental car availability	Courtesy car/ loaner car	Courtesy car/loaner car
Auto Parking		Lighted auto parking	1/2 space per based aircraft	1/2 space per based aircraft	Not an objective
Ramp space		Tiedowns for 50% of average daily transient aircraft	Tiedowns for 50% of average daily transient aircraft	Tiedowns for 25% of average daily transient aircraft	Tiedowns for 25% of average daily transient aircraft
Operations/maintenance building		Operations/maintenance building	Operations/ maintenance building	Operations/ maintenance building	Not an objective
Snow removal and deicing		Snow removal and deicing	Snow removal	Snow removal	Snow removal
Security		Not an objective	Meet BOA airport security recommendations for large GA airports	Meet BOA airport security recommendations for medium GA airports	Meet BOA airport security recommendations for small GA airports
Administrative		Land use zoning ordinance	Recommended	Recommended	Recommended
	Height limitation zoning ordinance	Recommended	Recommended	Recommended	Recommended
	Vehicle pedestrian ordinance	Recommended	Recommended	Recommended	Recommended
	Wildlife hazard assessment	Recommended	Recommended	Recommended	Recommended
	Stormwater management plan	Recommended	Recommended	Recommended	Recommended
	Fee/easement ownership of existing RPZs	Recommended	Recommended	Recommended	Recommended

System Performance of Typical Facility and Service Attributes



System Goals

Five System Goals were developed early in the planning process to support the vision for the system. Measures were established and presented during outreach events. For each measure, target performance was also determined.

Goal: Provide a Safe and Secure Aviation System for Users and the General Public

Measure	System(98)	Target Performance
Percent of airports with a standard runway safety area	73% (72)	85% (82)
Percent of airports meeting the security measure	97% (87)	97% (87)
Percent of airports with a clear Federal Aviation Regulation Part 77 approach surface	48% (47)	76% (74)
Percent of airports meeting the runway and taxiway lighting facility and service attribute	61% (60)	72% (78)
Percent of airports meeting the taxiway type facility and service attribute	56% (39)	65% (46)
Percent of airports meeting the runway protection zone ownership facility and service attribute	47% (46)	60% (59)
Percent of airports meeting the visual aids and approach lighting configuration facility and service attribute	22% (22)	39% (38)
Percent of airports with a vehicle pedestrian ordinance	46% (45)	100% (98)

Note: () indicates the total number of airports included

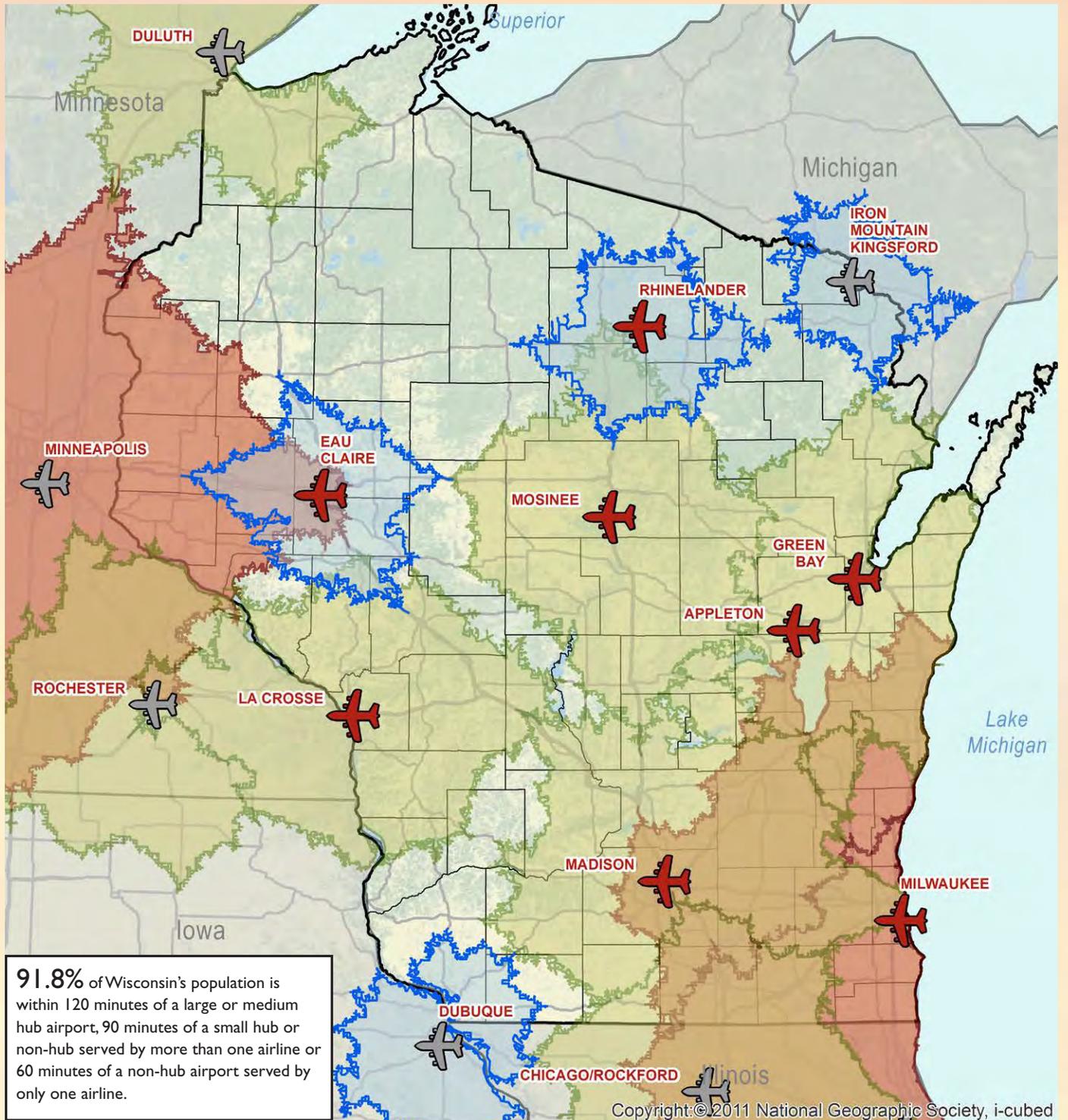
Goal: Support a System of Airports that is Readily Accessible from the Ground and Air

Measure	System	Target Performance
Percent of Wisconsin population within 120 minutes of a large or medium hub, 90 minutes of a small hub or 60 minutes of a primary commercial service	91.8% of Wisconsin population	No Target Performance
Percent of airports meeting the approach capability facility and service attribute	35% (34)	67% (66)
Percent of airports meeting the ground transportation facility and service attribute	80% (78)	100% (98)
Percent of airports meeting the weather reporting facility and service attribute	83% (58)	100% (70)

Note: () indicates the total number of airports included



Commercial Service Airport Accessibility



Commercial Service



Out-of-State Commercial Service



60 Minute Drive Time Area - Eau Claire, Rhinelander, Dubuque (IA) and Iron Mountain (MI)



90 Minute Drive Time Area - Appleton, Green Bay, La Crosse, Madison, Mosinee, Duluth (MN), Rochester (MN) and Rockford (IL)



120 Minute Drive Time Area - Milwaukee, Minneapolis and Chicago (O'Hare)



Goal: Provide Airport Infrastructure to Attract Business-Supporting Economic Growth

Measure	System	Target Performance
Percent of commercial service, large GA and medium GA with jet A fuel	76% (53)	88% (62)
Percent of airports meeting the GA terminal building facility and service attribute	60% (59)	72% (71)
Percent of airports with transient aircraft storage	69% (68)	80% (78)
Percent of airports meeting runway length and width facility and service attribute	69% (68)	83% (81)
Percent of commercial service and large GA airports meeting the ground transportation facility and service attribute	95% (21)	100% (22)

Note: () indicates the total number of airports included

Goal: Provide a System of Airports that Meets Existing and Future Needs

Measure	System	Target Performance
Percent of airports meeting all facility and service attributes	0% (98)	25% (25)
Percent of airports meeting the pavement condition facility and service attribute	72% (62)	86% (74)

Note: () indicates the total number of airports included

Goal: Provide a System of Airports that Addresses Community and Environmental Compatibility

Measure	System	Target Performance
Percent of airports with a land use zoning ordinance	13% (13)	40% (39)
Percent of airports with a height limitation zoning ordinance	85% (83)	100% (98)
Percent of airports meeting the wildlife hazard assessment facility and service attribute	23% (23)	100% (98)
Percent of airports with a stormwater management plan	50% (49)	100% (98)

Note: () indicates the total number of airports included

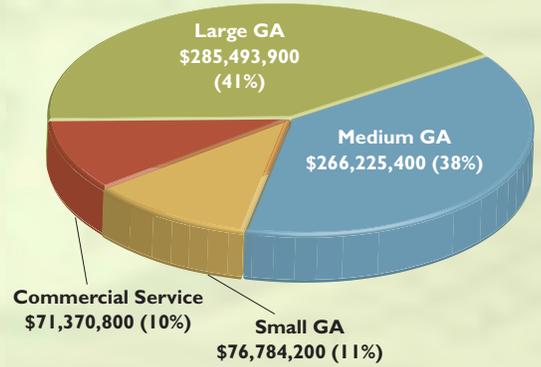
System Plan Investment Recommendations

The system plan investment recommendations are based on the typical facility and service attributes (FSAs), system goals and measures. Individual airports may have different local needs based on their specific users.

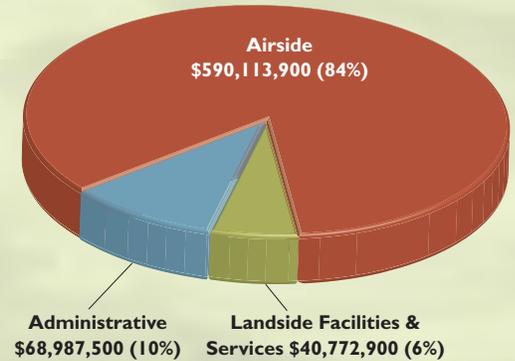
System plan investment recommendation costs should not be interpreted as the total cost for system-wide airport improvements over the 20-year period. Each airport in the system has a five-year Airport Capital Improvement Program (ACIP). The ACIP identifies year by year potential airport improvements and enhancements and is also heavily invested in the maintenance of the airport. Taking into account the airport environment and the needs of the community, the ACIP is initiated by the airport owner and reflects the needs, desires and uniqueness of the airport.

Identification of projects in this study is not a commitment on the part of the FAA or BOA for project funding, nor does it provide project justification. Prior to project implementation, all projects must be justified through the local master planning and environmental process and approved by BOA and FAA, when appropriate.

Costs by Classification



Costs by Project Type



Environmental Justice

Fundamental principals of **Environmental Justice (EJ)** are to:

- Avoid, minimize or mitigate disproportionately high and adverse effects on minority and low-income populations
- Ensure full and fair participation by all potentially affected communities
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

The objectives, strategies and recommendations outlined in this plan do not appear to result in any inherent disproportionate negative impacts to minority and low-income populations. Additional EJ analysis will be completed at the project level. WisDOT is committed to working through the sequencing process to avoid, minimize and mitigate any negative impacts.

System-plan Environmental Evaluation

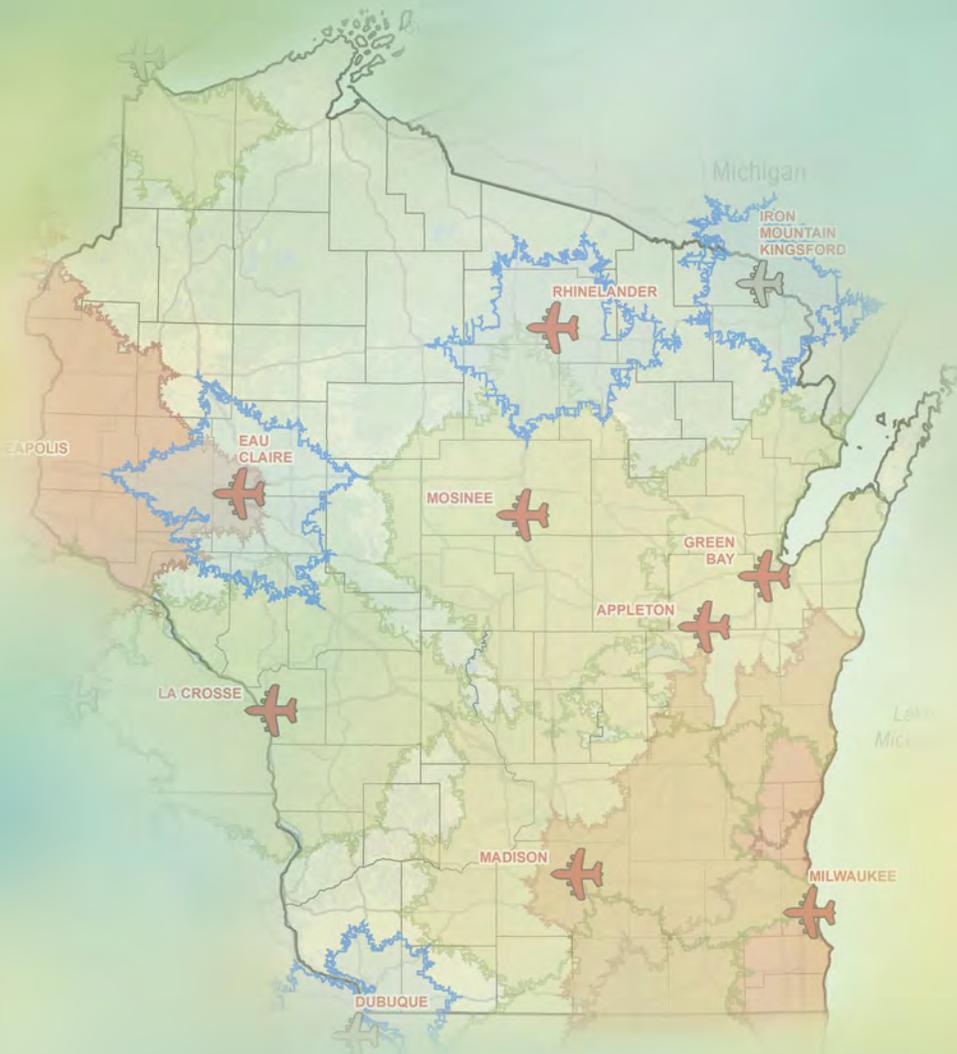
The **System-plan Environmental Evaluation** is a broad-level analysis of the potential impacts to the human environment pursuant to Administrative Code, Trans 400. Two alternatives were evaluated for this plan: the adoption of the SASP update and no action (continued use of the existing plan). All impact categories were evaluated and are outlined in the technical report. The adoption of the SASP update was the proposed alternative.



efficiency **SAFETY**

economic vitality

**global
gateway**



“The Wisconsin State Airport System is a gateway to the world that responsibly and effectively meets the state’s business, passenger, freight and recreational air transportation needs while enhancing the economic vitality and quality of Wisconsin communities.”

