



Aviation System Plan 2010-2030 Executive Summary



Introduction

The *Iowa Aviation System Plan* provides a detailed overview of the Iowa aviation system. It evaluates existing conditions and makes recommendations for future development of the air transportation system to meet the needs of users over the next 20 years. Federal, state and local decision makers will use this plan as a guide for future investment and activity decisions to maintain and develop, as necessary, the airports in the state of Iowa.

Iowa's air transportation system plays a critical role in the economic development of the state and quality of life for Iowans. Airports are key transportation centers and economic catalysts, moving people and goods timely and efficiently. A 2009 Iowa Department of Transportation (DOT) study determined that the Iowa air transportation system contributes about \$5.4 billion a year to Iowa's economy and supports an estimated 47,034 jobs.

Maintaining and developing the airports' infrastructure and services is critical to the continued health of Iowa's economy and quality of life for Iowans. This plan provides the necessary information and recommendations to keep Iowa's air transportation system healthy.



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Why the Iowa Aviation System Plan?

The Iowa Aviation System Plan provides a guide for the Federal Aviation Administration (FAA), the Iowa DOT, and airport sponsors to use in maintaining and developing the air transportation system to serve the aviation needs of the state. Overall, the Iowa Aviation System Plan provides three basic functions:

- 1) document the existing system including both facilities and services;
- 2) assess the level of performance of the existing system in meeting established goals and objectives; and
- 3) develop recommendations for airport sponsors, the Iowa DOT and the FAA to enhance the system to meet the needs of aviation users.

The FAA uses the *Iowa Aviation System Plan* as a tool for decision making and as a supplement to the national system plan, the National Plan of Integrated Airport Systems (NPIAS), which guides the national airspace and airport development.

This plan provides detailed information and a guide for Iowa DOT Office of Aviation to support activities to meet the vision for safe, quality facility and services that support air transportation demands. The extensive inventory of facilities and services provides a comprehensive database of the existing aviation system. The system performance assessment provides a benchmark for where the system is today and forms the foundation to measure future development.

Local airport sponsors and airport management can use the plan to better understand the role their airport plays in the state and use it as a guide to improve facilities and services for their aviation users. This document provides valuable information for decisions makers within the local community.



Iowa Aviation System Vision

To have safe, quality facilities and services that support air transportation demands while meeting economic and quality of life needs in the state.



Planning Process

The *Iowa Aviation System Plan* was developed through comprehensive data collection, analysis and significant public involvement. The process was guided by the System Plan Technical Advisory Committee, a citizen advisory committee comprised of individuals involved in many different aspects of aviation. In addition, valuable input was received at five well attended public input meetings.

The planning process included the development of the following:

- Goals, objectives, and performance measures.
- Inventory of existing aviation facilities and infrastructure.
- Updated airport roles.
- Forecast of aviation operations.
- Facility and service targets.
- Discussion of emerging trends and technologies.
- System recommendations.

This comprehensive process centered on data analysis and public involvement that was critical in the development of a meaningful and useful planning document.

This process is consistent with the Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-7 *The Airport System Planning Process*.





The System's Future

Projections from the FAA's Terminal Area Forecast (TAF) data indicate that both commercial enplanements and based aircraft counts are expected to rise over the course of the planning period. Commercial enplanements for the State are projected to increase from 1.5 million in 2008 to 3.1 million by the year 2030. The FAA also projects that the number of based aircraft will increase from 2,809 to 3,603 by the year 2030.

To handle additional passengers and aircraft, it is important for airports to be maintained and developed, as necessary, to accommodate system users. There are a wide variety of aviation system users which require airports to provide an adequate level of facilities and services to meet their diverse needs.

Forecast	2015	2020	2025	2030
Enplanements	2,077,056	2,140,134	2,645,329	3,150,526
Based Aircraft	2,986	3,187	3,387	3,603
Operations	998,121	1,063,906	1,130,612	1,203,399



Airport Roles

Airports in Iowa serve varying types of users and levels of demand. Realizing the different level of support each airport provides to the system is important to the planning process. Five roles were identified to classify airports based upon the function they serve as well as their capability of supporting general types of aircraft. Each role is defined by a set of criteria based upon the level of infrastructure and services provided at each airport. In some instances, special criteria, such as the availability of commercial airline service or type of runway surface, also influenced classification.

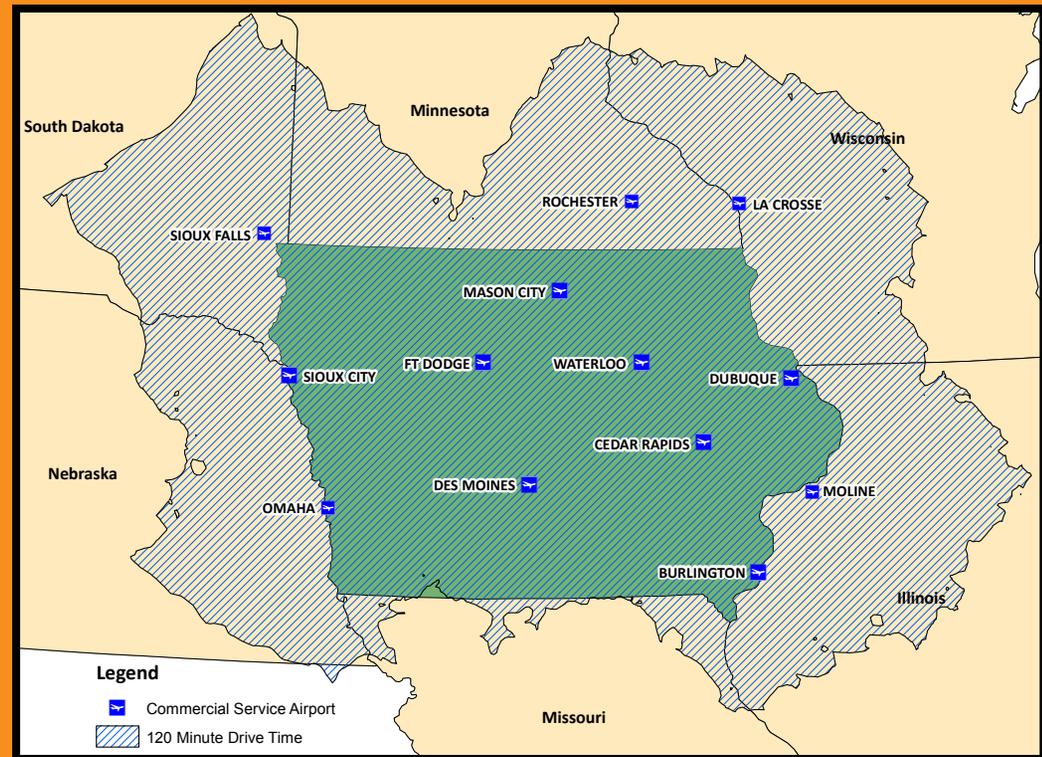
Commercial Service Airports



Commercial Service

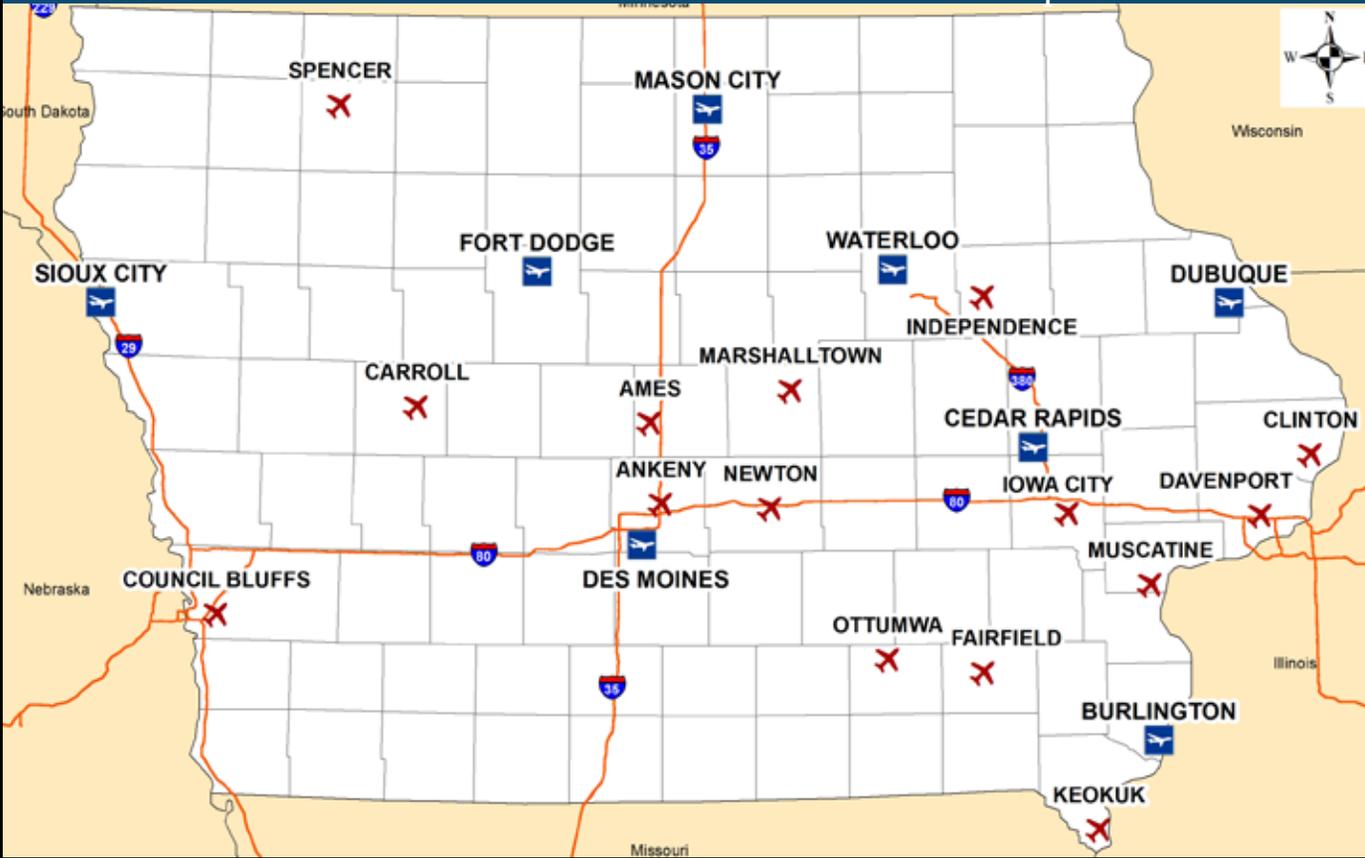
These airports support some level of scheduled commercial airline service, have the infrastructure and services available to support a full range of general aviation activity, and meet most needs of the aviation system and serve as essential transportation and economic centers of the state.

The eight Commercial Service airports in Iowa play an essential role in moving people and goods. They serve an important role in the economic development of the state by supporting business retention and attraction and by providing the necessary air transportation services businesses demand. Commercial Service airports also serve a critical transportation need to Iowans wanting to travel and visitors coming into the state.



Iowa's eight Commercial Service airports are located in commercial centers to provide access within a 120-minute drive to 99 percent of Iowans. Airports located in Des Moines and Cedar Rapids offer non-stop flights to several destinations on numerous carriers while the other six Commercial Service airports offer more limited service.

Commercial Service & Enhanced Service Airports



Commercial Service Airport

Bold - eligible for federal funding

Enhanced Service Airport

Enhanced Service

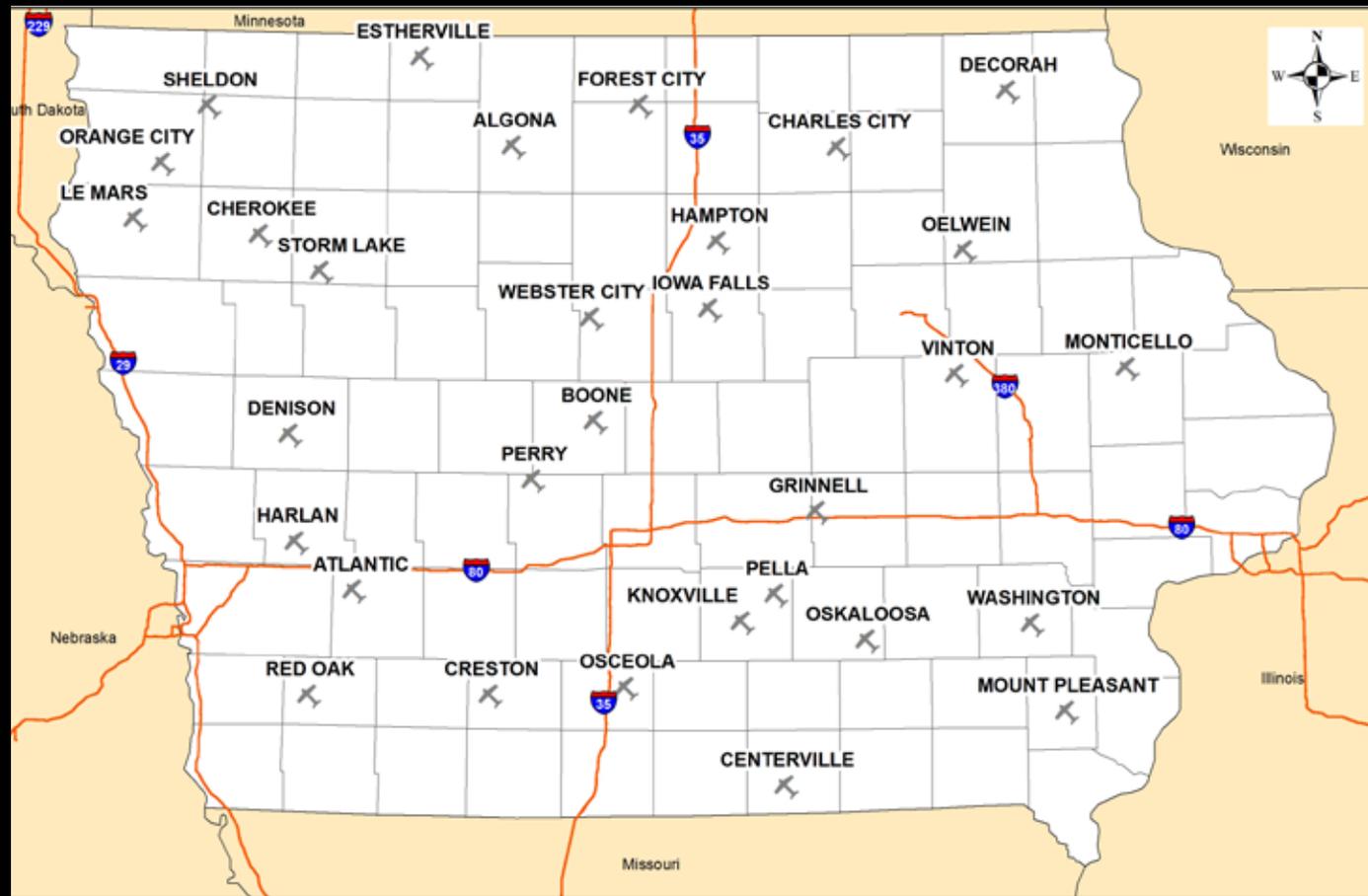
Enhanced Service airports have runways 5,000 feet or greater in length with facilities and services that can accommodate a full range of general aviation activity, including most business jets. These airports serve business aviation and are regional transportation centers and economic catalysts. Specific criteria for this role include:

- 5,000 foot or greater paved runway
- Airport Reference Code (ARC) of C-II or greater
- Full-time staffing during regular weekday and weekend business hours
- Availability of the following based services:
 - o Aircraft maintenance and repair
 - o Flight training
 - o Rental aircraft
 - o Aircraft charter
- Airport or Fixed Base Operator (FBO) staffing 24 hours a day
- Availability of jet fuel
- Weather observing system located on airport (ASOS or AWOS)



Enhanced Service Airports

General Service Airports



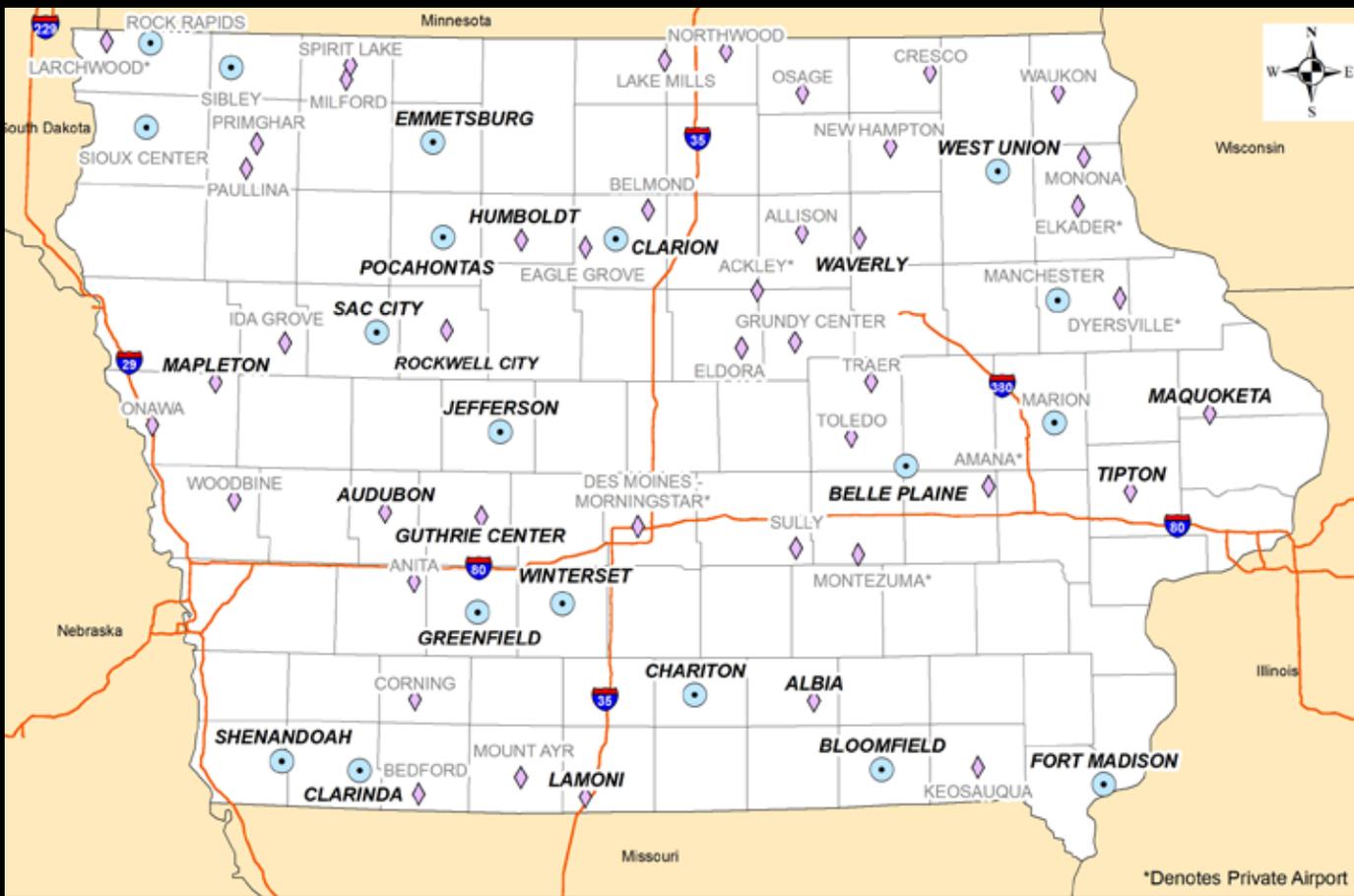
 General Service Airport

Bold - eligible for federal funding

General Service

General Service airports have runways 4,000 feet or greater in length with facilities and services customized to support most general aviation activity, including small to mid-size business jets. These airports serve as a community economic asset. Specific criteria for this role include:

- 4,000 foot or greater paved runway
- Availability of the following based services:
 - Aircraft maintenance and repair
 - Flight training
 - Rental aircraft
 - Aircraft charter
- Staffing during regular business hours



● Basic Service Airport
 Bold and italic - eligible for federal funding
 ◆ Local Service Airport

Basic Service

These airports have runways 3,000 feet or greater in length with facilities and services customized to meet local aviation demands. Specific criteria for this role include:

- 3,000 feet or greater paved runway
- Availability of aircraft fuel
- Some availability of airport or FBO personnel or on-call availability 24 hours

Local Service

These airports support local aviation activity with little or no airport services, and include:

- Turf runways
- Airports not meeting criteria in any other roles



Basic & Local Service Airports

Airport Targets

Facility and service targets were established to help airports, within a specific role, meet the needs of their users. While not all targets are required for inclusion in a particular role, these are recommended levels of service and/or facility targets appropriate for the type of use associated with each role. Airports are encouraged to meet or exceed suggested targets for their role to satisfy local and aviation system needs.

The targets are separated into two main categories: airside and landside facilities, and services. Targets for each role vary based on the needs of aviation users for that role. The Enhanced Service airports, for example, will have more targets to meet the needs of business users. There are fewer targets for Local Service airports since they serve users with fewer requirements for operation. In the table below, targets for Commercial Service airports are combined with Enhanced Service targets, since in most categories, Commercial Service airports will exceed targets. Targets required for inclusion in a role are highlighted in red in the following facility and service tables.

Facilities

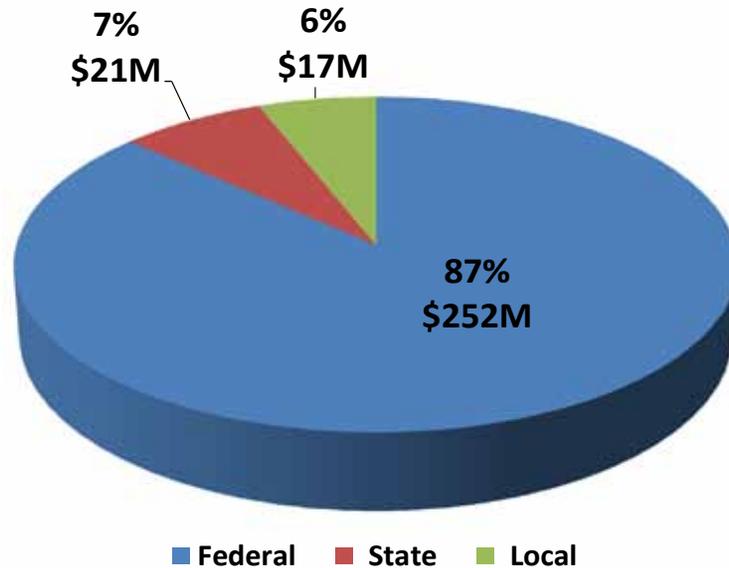
Target Description	Commercial/Enhanced Service Targets	General Service Targets	Basic Service Targets	Local Service Targets
Airside				
Airport Reference Code	C-II	B-II	B-I or below	A-I
Primary Runway Length	Minimum 5,000 ft	Minimum 4,000 ft	3,000 ft	Not an objective
Primary Runway Width	Minimum 100 ft	Minimum 75 ft	Minimum 60 ft	Minimum 50 ft
Type of Parallel Taxiway	Full parallel	Turnarounds meet standards (both ends)	Exits as needed	Not an objective
Type of Runway Approach	Vertical guidance	Non-precision	Visual	Visual
Runway Lighting	MIRL	MIRL	LIRL	Not an objective
Taxiway Lighting	MITL	MITL	Not an objective	Not an objective
Visual Guidance Slope Indicator	Both runway ends (or ILS)	Both runway ends	Not an objective	Not an objective
Runway End Identifier Lights - as required	Both runway ends (or ILS)	Both runway ends	Not an objective	Not an objective
Rotating Beacon	Yes	Yes	Yes	Not an objective
Lighted Wind Indicator	Yes - multiple as needed	Yes	If open for night	If open for night
RCO Facilities	Tower or RCO	Not an objective	Not an objective	Not an objective
Wind coverage or crosswind runway	Crosswind runway or 95% wind coverage for NPIAS facilities	Crosswind runway or 95% wind coverage for NPIAS facilities	Not an objective	Not an objective
Landside				
Covered storage	100% of based aircraft	100% of based aircraft	100% of based aircraft	Not an objective
Overnight storage for business aircraft	Typical average aircraft/business user demand	Typical average aircraft/business user demand	Not an objective	Not an objective
Aircraft apron	100% of average daily transients	100% of average daily transients	50% of average daily transients	Not an objective
Terminal/administration building	Yes	Yes	Waiting area	Not an objective
Paved entry/terminal parking	Yes	Yes	Not an objective	Not an objective

Services

Target Description	Commercial/Enhanced Service Targets	General Service Targets	Basic Service Targets	Local Service Targets
Services				
Fuel (type & hours)	100LL & Jet A - 24 hour - single point	100LL	100LL	Not an objective
Weekday hours of operation	Standard business hours, after hours on-call	Standard business hours, after hours on-call	On-call	Not an objective
Weekend hours of operation	Standard business hours, after hours on-call	Standard business hours, after hours on-call	On-call	Not an objective
Ground transportation	Courtesy car/car rental available	Courtesy car/car rental available	Not an objective	Not an objective
Food & Beverage	Vending	Vending	Not an objective	Not an objective
Posted contact info	Yes	Yes	Yes	Yes
Internet access	Yes	Yes	Not an objective	Not an objective
Restroom	Yes	Yes	Yes	Not an objective
Pilot area	Yes	Yes	Not an objective	Not an objective
Security	Security plan	Security plan	Security plan	Security plan
Snow removal	Timely snow removal	Timely snow removal	Snow removal	Not an objective
Rental aircraft	Based	Based	Not an objective	Not an objective
Flight training	Available	Available	Available	Not an objective
Aircraft maintenance/repair	Based	Based	Not an objective	Not an objective
Aircraft charter	Based	Available	Available	Not an objective
Weather reporting/flight planning capabilities	Yes	Yes	Not an objective	Not an objective



Airport Development Investment Funding Sources 2005-2010



Development Categories

Airside Development

- Runways
- Taxiways
- Apron
- Airfield Signage

Airside Safety

- AWOS
- Lighting
- NAVAIDS
- Obstruction Removal
- RSA Improvements

Revenue Producing

- Fuel Farms
- Hangars

Landside Development

- Airport Rescue and Fire Fighting (ARFF) Buildings
- Buildings
- Drainage
- Equipment
- Fencing
- Road/Parking Lots
- Snow Removal Equipment (SRE) Buildings
- Terminal
- Electrical Vault

Planning

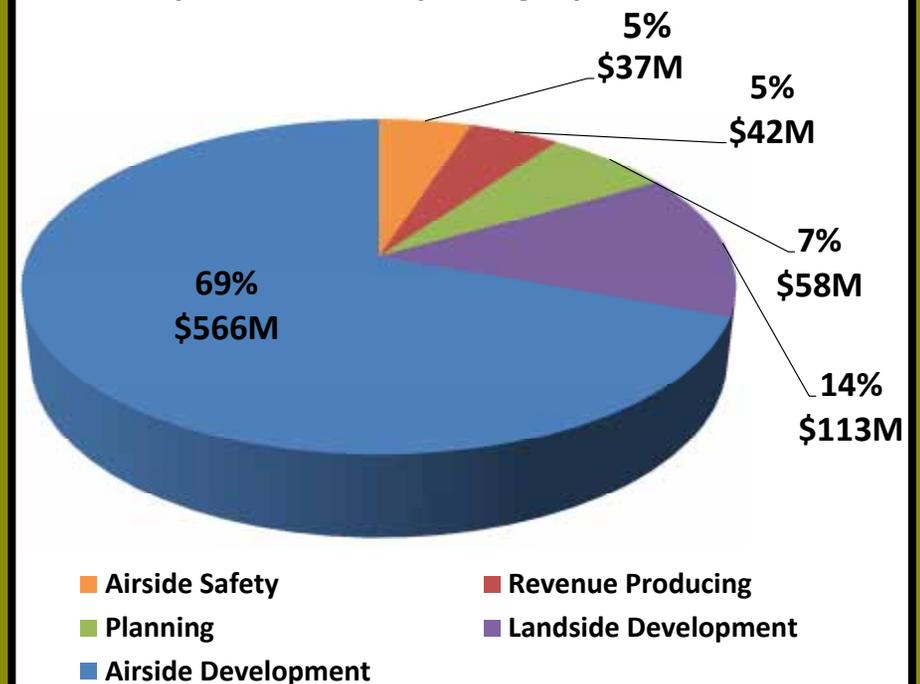
- Environmental
- Planning Studies
- Miscellaneous

Funding

Significant funding has been invested into the existing infrastructure of Iowa airports. Between 2005 and 2010, \$290 million has been invested through federal, state and local sources to develop and maintain the aviation system. In order to maintain the level of service at these airports and invest in appropriate future development, funding from the federal Airport Improvement Program (AIP), the state, and local communities continues to be necessary. Iowa has 78 airports eligible for the federal program, which is funded exclusively with aviation user fees and administered by the FAA.

Based on the system plan findings, it is estimated that the system will need \$816 million over the next 20 years to meet the needs identified in the system plan. This is spread over a number of project types such as runway construction, hangar development, planning studies and obstruction removal.

System Needs by Category 2011-2030



System Performance

The following pages present the system's current performance in meeting the goals and objectives. Establishing specific goals provides the structure for the future development of the aviation system. Identifying specific objectives needed to realize the goals and establishing performance measurement criteria provides a method to evaluate how well the system meets these goals. Established goals are expected to facilitate meeting existing and future user needs, as well as provide guidance for decision making, planning and infrastructure investment. This will provide a platform for the development and evaluation of the entire system. The analysis presented here was used to develop recommendations to improve the system to meet the needs of users in the future.

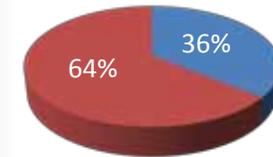
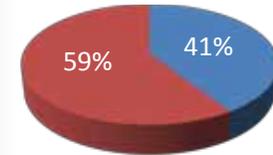


Safety and Security - provide a safe and secure system of airports.

Objective: Aircraft approaches should be clear of obstructions.

Performance measures:

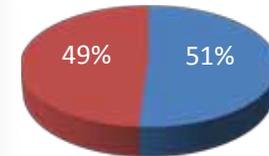
- Primary runway approaches – 41% of airports have no obstructions to both ends of primary runways.
- All runway approaches – 36% of airports have no obstructions to all runway ends.



Objective: All airports should have an emergency response plan appropriate for their airport role.

Performance measure:

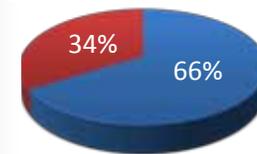
- 51% of airports have emergency response plans



Objective: All airports should have an airport security plan appropriate for their airport role.

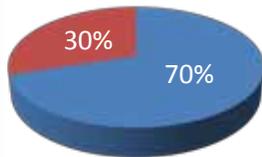
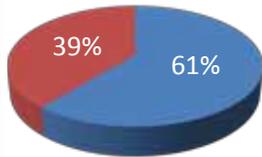
Performance measure:

- 66% of airports have airport security plans.



 % not meeting  % meeting

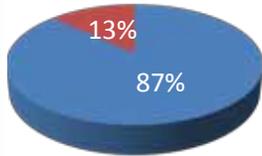
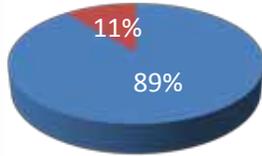
Infrastructure and User Support – provide an airport system that meets current and future user needs.



Objectives: Airports meet, or work toward meeting, all of the facility and at least 75% of service targets identified for their specific role.

Performance measures:

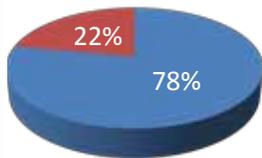
- Facility targets – 61% of airports meet all of the facility targets for their airport role.
- Service targets – 70% of airports meet at least 75% of service targets for their role.



Objective: All airports maintain pavements to have a pavement condition index (PCI) of 70 or greater.

Performance measures:

- Primary runways – 89% of primary runways have a PCI of 70 or greater.
- Airport overall pavements – 87% of airports have an overall PCI of 70 or greater.



Objective: All based aircraft are stored in covered hangars.

Performance measure:

- 78% of airports store all based aircraft in covered hangars.

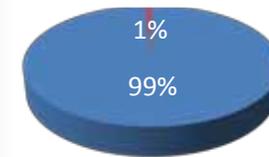
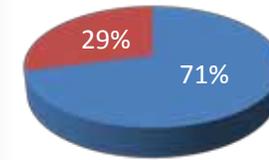
Goal : Accessibility

Accessibility – provide a system of airports that is adequately accessible from both the ground and the air.

Objective: Most lowans are within an acceptable drive time to a Commercial Service or Enhanced Service airport.

Performance measures:

- 71% of lowans within a 30-minute drive time to a Commercial Service or Enhanced Service airport
- 99% of lowans within a two-hour drive of a Commercial Service airport.



Objective: Most lowans are within a 30-minute drive time to an airport with weather reporting capabilities.

Performance measure:

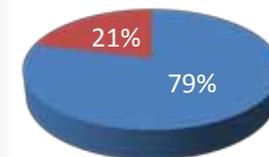
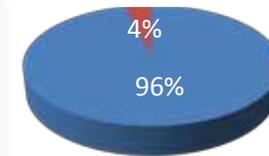
- 92% of lowans within a 30-minute drive time to an airport with weather reporting equipment.



Objective: Most lowans are within a 30-minute drive time to an airport with instrument approaches.

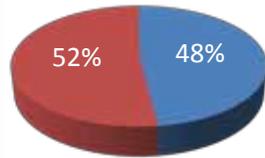
Performance measures:

- 96% of lowans within a 30-minute drive time to an airport with a nonprecision instrument approach.
- 79% of lowans within a 30-minute drive time of an airport with an approach with vertical guidance.



 % not meeting  % meeting

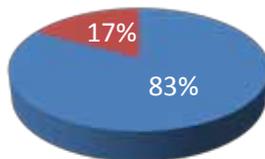
Education and Outreach – provide local aviation education opportunities that promote understanding, safety, utilization, and career development.



Objective: Airports should establish regular communication programs such as newsletters, press releases, websites or social media.

Performance measure:

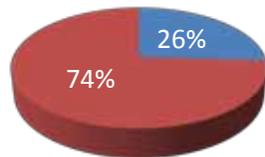
- 48% of airports have regular communication programs.



Objective: Commercial Service, Enhanced Service, and General Service airports should have rental aircraft and regular flight instruction at the airport.

Performance measure:

- 83% of Commercial Service, Enhanced Service, and General Service airports have rental and flight instruction.



Objective: Airports host pilot safety programs.

Performance measure:

- 26% of all airports host pilot safety programs.

Education and public outreach enhances the aviation system by improving decision makers' and non-aviation users' understanding of airport uses, benefits, and safety needs. Education for the aviation community enhances safety and use of the system. Education and outreach may also foster new interest in aviation and strengthen community bonds.

Three additional objectives important to enhancing the education and outreach goal that were not measured include airports hosting:

- Annual aviation events such as air shows and fly-ins that bring people to the airport to experience aviation.
- Additional types of public events such as open houses and business receptions.
- Organized youth educational activities such as Young Eagles or youth camps.

These type of events support educational outreach efforts for local airports and the statewide system.

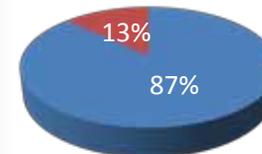
Planning – establish local planning to guide the development and operation of airports in Iowa.

Objective: Airports should have a current master plan or airport layout plan.

Performance measure:

- 87% of airports have a current master plan or airport layout plan.

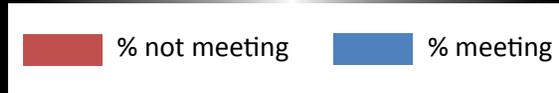
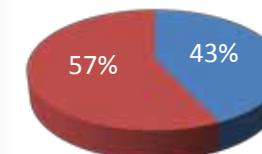
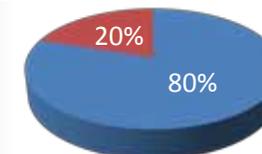
(Commercial Service and Enhanced Service - every 8 years, General Service - every 10 years, Basic Service should have a plan, and none needed for Local Service airports unless eligible for federal funding.)



Objective: Airports should protect air space and viability of airports with local height zoning ordinances and compatible land use.

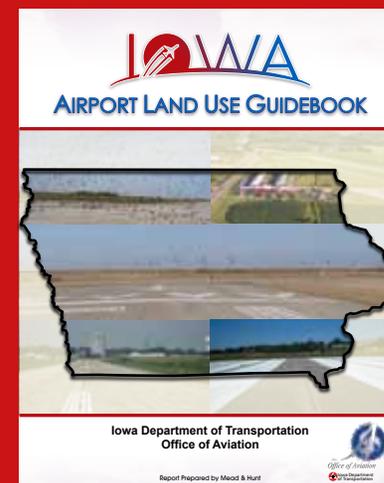
Performance measures:

- 80% of airports have height zoning ordinances.
- 43% of airports have city or county comprehensive planning that address compatible land use around airports.

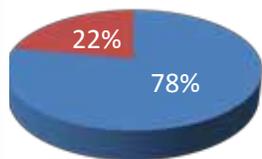


Airports need to become engaged in local community planning efforts so that they are integrated in strategic activities and protect the airport from incompatible development.

Land use planning and height zoning can have significant impact on the preservation and continued use of an airport. The Office of Aviation initiated a land use study in 2008, the *Iowa Airport Land Use Guidebook*, which provides guidance on techniques to preserve the existing infrastructure and protect the airport from the encroachment of incompatible land uses. Airports are encouraged to use the guidebook in implementing local land use and height regulations.



Economic Support – support economic development through the airport transportation system.



Objective: Most employment in Iowa is within a 30-minute drive time to a Commercial Service or Enhanced Service airport.

Performance measure:

- 78% of employment is within a 30-minute drive time to a Commercial Service or Enhanced Service airport.

Air transportation is a key contributor to Iowa's economy, supporting more than 47,000 jobs statewide and contributing more than \$5.4 billion annually. The 2009 report *Uses and Benefits of Aviation in Iowa* documents the economic impact and uses of air transportation by various sectors of the economy. Airports are important assets to communities and businesses. Airports that partner with local economic development organizations can potentially enhance the impact that the airport has on the local and state economy.

An additional performance measure established for this goal is the percentage of airports that have coordinated with local economic development agencies, chambers of commerce, and city and county officials to include airport advantages in business promotion materials. Airports are encouraged to facilitate this coordination.



Trends & Technologies

NextGen

The NextGen system is the transformation of the National Airspace System (NAS) from a ground-based system of air traffic control to a satellite-based system of air traffic management. The evolution of the airport system is important to meet future user demand and to avoid gridlock in the air and on the ground. The NextGen system will support continued growth and increased safety of aircraft operations while reducing the environmental impact of aviation operations.

Several technologies will support the NextGen system including the Global Positioning System (GPS), advances in weather forecasting, data networking, and digital communications. When NextGen becomes fully operational for and available to the entire aviation community, it will allow a greater number of aircraft to safely fly closer together on more direct routes. This will result in reduced delays and benefits for the economy and environment through reduced carbon emissions and fuel consumption.



Sustainability

Airports are becoming increasingly interested in addressing sustainability issues. The FAA's Sustainable Master Plan Pilot Program identifies sustainable actions as those that:

- Reduce environmental impacts.
- Help maintain high and stable levels of economic growth.
- Help achieve social progress through a broad set of actions that ensure organizational goals are achieved in a way that is consistent with the needs and values of the local community.

Sustainability is anticipated to be an important topic affecting the operation of airports in Iowa throughout the next 20 years. Some initiatives that airports may implement to increase sustainability include:

- Recycling construction material to reduce the quantity of waste and the need for off-site materials.
- Airfield lighting improvements using Light Emitting Diodes (LED) for airfield lights.
- Green building construction.
- Using alternative energy sources for airfield energy needs (solar, wind, geo thermal, etc.).

Aircraft Related Topics

The increased use of light sport aircraft (LSAs), very light jets (VLJs) and unmanned aerial vehicles (UAVs) are expected to change the industry with more pilots able to be licensed and more aircraft entering the system. The VLJs are also expected to increase corporate aviation's ability to reach smaller markets using airports with smaller facilities, thus increasing business use. UAVs impact on the industry is just beginning to be seen, with most of their use associated with government related functions; however, changes are expected in the future that may impact airspace, storage and use of these aircraft.



Recommendations

The *Iowa Aviation System Plan* identified areas where action can be taken to better meet the needs of aviation users. Five public input meetings were held to gather information from system users on their concerns and suggestions on how to meet their needs. The System Plan Technical Advisory Committee also provided input for recommendations to address future planning and development efforts. The recommendations are designed to help guide the decisions of the Iowa DOT Office of Aviation, the FAA, airport administrators, and policy makers to effectively use available resources to meet the needs of users of the air transportation system for the next 20 years.

A number of recommendations were set forth for each of these groups which combine to provide for a stronger aviation system. Some of the general recommendations that include participation by both the Office of Aviation and Airport Sponsors include:

- Continue approach obstruction mitigation to clear runway approaches.
- Continue to implement height zoning and compatible land use planning.
- Develop and use an airport operational checklist to assist with general aviation airport inspections.
- Continue wildlife mitigation on- and near- airports.
- Facilitate and develop strategic planning between airports and local communities.
- Implement a method to count aircraft operations at non-towered airports.
- Continue regular PCI inspections and pavement preservation.
- Continue federal, state and local investment to maintain and develop, as necessary, airport infrastructure and services.



Summary

The Iowa aviation system is an integrated network of users, aircraft, businesses, airports, technologies, and support services that support a tremendous economic engine and transportation resource for the state and the nation. There has been a significant effort expended over the past decade to assess and analyze the needs of the system to determine where improvements are necessary. This was done to target very specific areas that fulfill the infrastructure and service needs of a wide variety of users. The Iowa DOT Office of Aviation, in conjunction with the FAA and the individual owners and operators of each airport, continue to work to meet these goals and objectives to maintain a safe, efficient and effective aviation system.

The *Iowa Aviation System Plan* will guide the Iowa DOT Office of Aviation, the FAA and individual airports in the continued growth of the aviation system and preservation of existing and future infrastruc-

ture. This plan supports sustainable planning efforts through the recommendation of projects that will enhance the system without over-extending resources. The Iowa DOT and the FAA both recognize that funds may not be available to act on all of the objectives outlined in the system plan. By identifying facilities and services that are considered desirable for airports in Iowa, the Iowa DOT and the FAA are not committing development funds.

The *Iowa Aviation System Plan* provides a 20-year outlook for Iowa's airport needs. As airports in the state continue to evolve, responding to the changes in the communities they serve, the facility and service objectives established in this plan should serve as a general guide and reference for balanced development.





Aviation System Plan 2010-2030



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