IOWA AVIATION SYSTEM PLAN

AIRPORT SUMMARY REPORT

ESTHERVILLE MUNICIPAL AIRPORT

Prepared for:

IOWA DEPARTMENT OF TRANSPORTATION
OFFICE OF AVIATION

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IOWA AVIATION SYSTEM PLAN - AIRPORT SUMMARY REPORT

This summary is intended to provide a general understanding of the specific information, findings and recommendations from the Iowa Aviation System Plan. An individual airport report was prepared for each public owned airport in Iowa.

INTRODUCTION

The Iowa Department of Transportation Office of Aviation, along with the System Plan Advisory Committee and consultant team, developed a strategic approach by which to identify and evaluate the needs of the Iowa aviation system within the period 2004 to 2024.

The Iowa aviation system is an integral component of the state's transportation network. The aviation system meets aviation and economic needs and links Iowa to the national transportation system. Aviation provides an important and efficient means of transportation for the movement of people and goods. The vision for the Iowa aviation system is to have safe, quality facilities and services that support transportation demands and meet economic development and quality of life needs in the state.

The primary goal of the system plan is to provide a framework that supports informed decisions related to planning and developing the Iowa aviation system. The objectives of this update of the Iowa Aviation System Plan are to:

- Identify and analyze aviation assets, including airspace, ground facilities and services, and needs of the state to assure that aviation performs its role in Iowa's economy and for its citizens.
- Provide continued guidance for development of a system of airports to meet the state's existing and future air transportation needs, projecting five, ten, and 20-year projects and giving guidance to meet needs.
- Build consensus among public policy makers, airport sponsors and users so that the plan's recommendations can be more readily accomplished.

Each airport was assigned to a functional classification. Facility and service objectives were developed for functional classifications. Based on existing facilities and services, recommendations were set forth for each airport.

SYSTEM GOALS

The following five goals and associated performance measures were identified and adopted to guide the Iowa aviation system development and establish the framework for the Iowa Aviation System Plan:

- **Development** – To provide an airport system that meets current and future customer needs.
- **Economic Support** – To promote an aviation system that sustains and enhances Iowa's economy.
- **Safety & Security** – To promote a safe and secure system of airports.
- **Accessibility** – To provide a system of airports that is accessible from both the ground and the air.
- **Education** – To support a system of airports that provides educational and career opportunities and promotes an understanding of the benefits of Iowa's air transportation system.

Performance Measure & Benchmark Summary

Performance Measure: Development

Benchmarks

- Airports meeting aircraft storage objectives
- Airports meeting aircraft parking objectives
- Airports meeting auto parking objectives
- Airports with Pavement Condition Index (PCI) rating of 70 or higher on primary runway
- Airports with current master plan or Airport Layout Plan (ALP)
- Airports included in a local comprehensive plan or with surrounding land use controls/zonings

Performance Measure: Economic Support

Benchmarks

- Airports with jet fuel
- Airports with a runway length of 5,500 feet or greater
- Airports with rental car services
- Airports with a courtesy car available
- Airports with a 24-7 fueling (credit card or FBO)
- Iowa employment within a 30-minute drive time of Commercial or Enhanced Service airport
- Employment growth counties within 30-minute drive time of Commercial or Enhanced Service airport
- Airports supporting air cargo
- Airports with aircraft maintenance

Performance Measure: Safety and Security

Benchmarks

- Airports with clear approaches to primary runway
- Airports with wildlife management plans
- Airports with emergency response plans
- Airports with perimeter fencing
- Airports with controlled access to airfield

Performance Measure: Accessibility

Benchmarks

- Airports with precision approaches
- Airports with any instrument approach
- Airports with approach lighting system (ALS)
- Airports with a precision approach and ALS
- Iowa's Population within 30 minutes of any system airport
- Iowa's population within 30 minutes of a Commercial or Enhanced Service airport
- Iowa's population within 30 minutes of a General Service airport
- Iowa's population within 30 minutes of an airport with a non-precision approach
- Iowa's population within 30 minutes of an airport with a precision approach
- Iowa's population within 30 minutes of an airport with onsite weather reporting equipment
- Iowa's population within 60 minutes of an airport with one or more scheduled commercial airlines
- Iowa's population within 120 minutes of an airport with two or more scheduled commercial airlines
- Iowa's population within 120 minutes of an airport with two or more scheduled commercial airlines or 60 minutes of an airport with one or more scheduled commercial airlines

Performance Measure: Education

Benchmarks

- Airports with on-site flight instruction
- Aviation related training programs connected with local schools
- Airports with public outreach/educational (following National Air Transportation Association (NATA,) National Business Aircraft Association (NBAA,) and Aircraft Owners and Pilots Association (AOPA) guidelines) programs, or hosting functions to bring the non-flying public to the airport

AIRPORT FUNCTIONAL ROLES

Airports within any transportation system contribute to meeting air transportation and economic needs in different ways and at varying levels. While each airport within a system contributes in some way, airports fill different roles. Because airports in the Iowa aviation system play different roles, their needs for facilities and services also vary accordingly.

With input from the Iowa DOT Office of Aviation and the System Plan Advisory Committee, each public owned airport in Iowa was assigned to one of five roles.

RECOMMENDED FUNCTIONAL AIRPORT ROLES

- **Commercial Service Airports** – these airports support some level of scheduled commercial airline service and they support a full range of general aviation aircraft to virtually all domestic and possibly some international destinations.
- **Enhanced Service Airports** – these airports support almost all general aviation aircraft, including most types of business jets; these airports generally serve as transportation centers and economic catalysts for the State.

  Facility and service objectives: 5,500' x 100' runway, parallel taxiway, precision approach, approach lighting, AWOS/ASOS, covered aircraft storage, jet and aviation fuel, full service FBO, and ground transportation
- **General Service Airports** – these airports support most twin and single engine general aviation aircraft and may experience occasional use by business jets. These airports support regional and in-state air transportation needs and local economic development.

  Facility and service objectives: 4,000' x 75' runway, partial parallel taxiway or turnarounds, non-precision approach, AWOS/ASOS, covered aircraft storage, jet and aviation fuel, limited service FBO, and ground transportation.
- **Basic Service Airports** – these airports support primarily single engine general aviation aircraft but may also sometimes accommodate smaller twin-engine general aviation aircraft. These airports support local air transportation, and special use aviation activities.

  Facility and service objectives: 3,000' x 60' runway (paved), 2,500' runway (turf), exits as needed, visual approach, covered aircraft storage, and aviation fuel.
- **Basis Service II Airports** – These airports support local air transportation, special use aviation activities, and may duplicate services in the area.

  No facility and service objectives are specified for these airports.

AIRPORT FACILITY AND SERVICE OBJECTIVE

Airport facility and service objectives were established for the functional roles. These objectives were developed with input from the Iowa DOT Office of Aviation and System Plan Advisory Committee. The facility and services objectives should not be considered a requirement or development standard. Current airport facilities and services were compared to the facility and service objectives. Where existing facilities and services do not meet or exceed the objectives, consideration may be given by the airport owner to develop future facility and services improvements. Development of some facilities would require local support and justification of need through development of an airport master plan or through the environmental documentation process.

No state or federal funding resources are guaranteed or committed by inclusion of specific facility and service improvements in this report.

Facility and service objectives for commercial service airports should, at minimum, equal those developed for enhanced service airports as well as recommendations set forth in a current Airport Master Plan.

Basic Service II airports should meet state minimum safety standards: Runway width 50', visual approach 20:1, wind indicator, and 24 hour public telephone. Additional facility and service objectives were not established for Basic Service II airports.

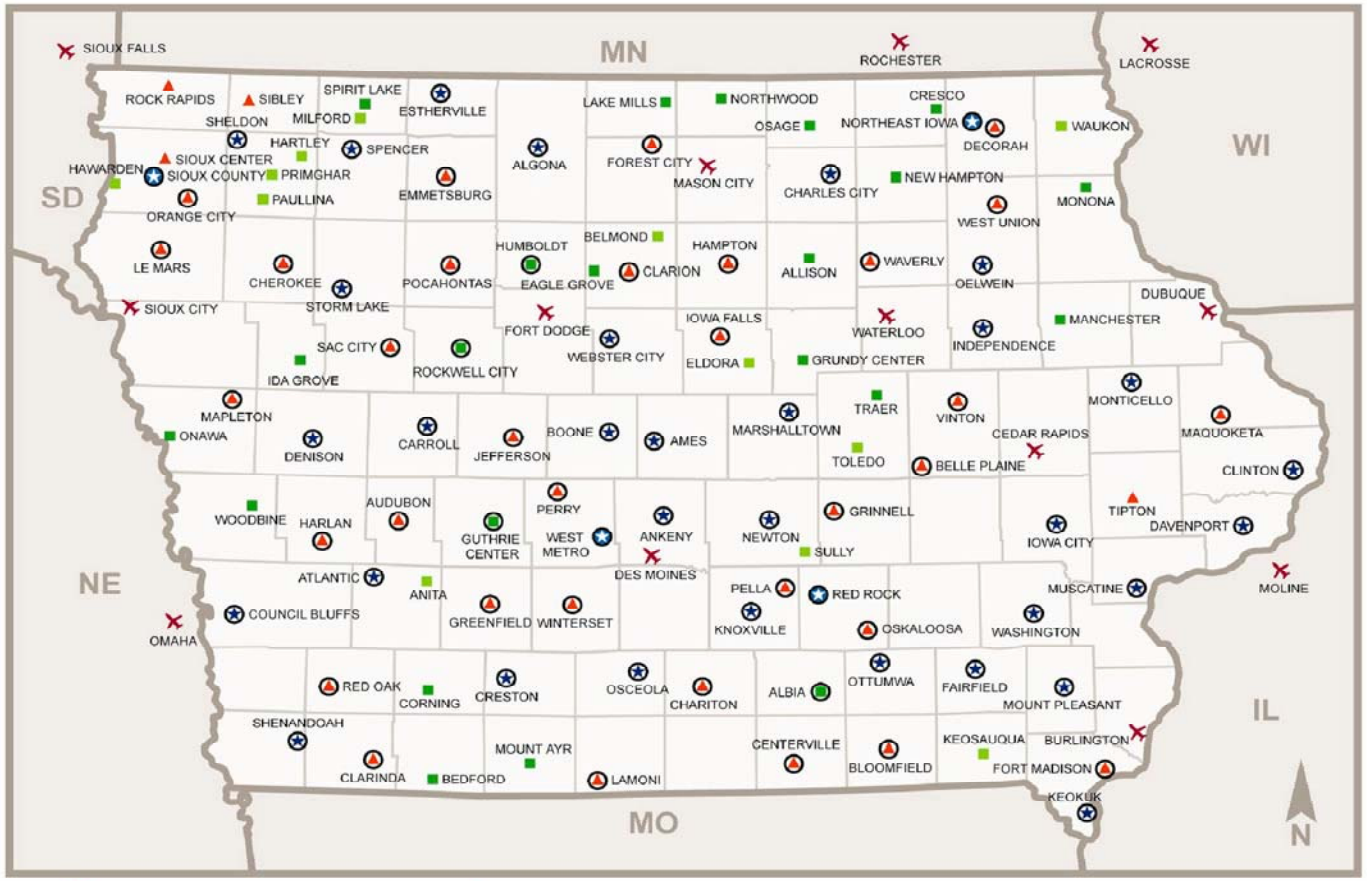
The following table sets forth the facility and service objectives for Enhanced Service, General Service, and Basic Service airports.

FACILITY AND SERVICE OBJECTIVES

	Enhanced Service Airports	General Service Airports	Basic Service Airports
Airport Reference Code (ARC)	C-II	B-II	B-I or Below
Runway Length (Primary)	Minimum 5,500 feet	Minimum Length 4,000 feet	3,000 feet Paved; 2500 feet Turf
Runway Width	100 feet	75 feet	60 feet Paved; 120 feet Turf
Taxiway	Full Parallel	Partial or Turnarounds	Exits as Needed
Approach	Precision	Non-Precision	Visual
Runway Lighting	MIRL/HIRL	MIRL	LIRL (Pilot Controlled)
Taxiway Lighting	MITL/HITL	LITL	Not An Objective
Weather Reporting	AWOS/ASOS	AWOS/ASOS	Not An Objective
Approach Aids	ALS	ALS	Not An Objective
Visual Guidance Slope Indicator (VGSI)	Both Runway Ends	Both Runway Ends	Not An Objective
Runway End Identifier Lights (REILS)	Both Runway Ends	Both Runway Ends	Not An Objective
Rotating Beacon	Rotating Beacon	Rotating Beacon	Not an Objective
Lighted Wind Indicator	Lighted Wind Indicator	Lighted Wind Indicator	Lighted Wind Indicator/Wind Sock
RCO Facilities	RCO Facilities	Not an Objective	Not an Objective
Other Pavement Strength	To Be Determined	To Be Determined	To Be Determined
Covered Storage	For 100% of Based Aircraft	100% of Based Aircraft	100% of Based Aircraft
Aircraft Apron	100% of Daily Transient	50% of Daily Transient	50% of Daily Transient
Terminal/Administration Bldg.	Yes	Not An Objective	Not An Objective
Auto Parking	Spaces equal to 100% of Based Aircraft (paved)	75% of Based Aircraft	50% of Based Aircraft
Fencing	Perimeter	Not An Objective	Not An Objective
Other	Building for Airport Maintenance Equipment	Not An Objective	Not An Objective
Fuel	100LL & Jet A - 24 Hour	100LL & Jet A 24 Hour (as needed)	100LL
FBO	Full Service - 24 Hour	Limited	Not An Objective
Ground Transportation	Rental Car, Taxi or Other	Courtesy Car/Off Site Rental Car	Not An Objective
Food Services	Vending	Vending	Not An Objective
Phone	Yes	Yes	Yes
Restroom	Yes	Yes	Yes
Pilot Lounge	Yes with Weather Reporting	Yes with Weather Reporting	Not An Objective
Security*	*	*	*
Snow Removal	Snow Removal	Snow Removal	Yes

*See the Iowa DOT Security Enhancement Guidelines.

Airports by System Role



ESTHERVILLE MUNICIPAL AIRPORT (EST)
INDIVIDUAL SUMMARY REPORT

The Estherville Municipal Airport is owned and operated by the City of Estherville. An Airport Commission was established by the city to manage the airport. The airport is included in the National Plan of Integrated Airport Systems (NPIAS). The NPIAS identifies the Estherville Municipal Airport as a general aviation airport. The Iowa Aviation System Plan identifies the Estherville Municipal Airport as an Enhanced Service airport.

General aviation airports in Iowa provide an important means of accessing the communities and regions they serve and provide a link to the national transportation system. The Estherville Municipal Airport serves the general aviation needs of Emmet County. The airport is utilized by single engine, twin engine, turboprop, and business jet aircraft along with helicopters. The airport offers a full time fixed-base operator (FBO) that offers fueling, aircraft maintenance, flight instruction, aircraft sales, and charter operations. The airport also offers aircraft parking and hangar storage.

A wide range of aeronautical activities occur at the Estherville Municipal Airport including: personal travel, business travel both local and transient, just-in-time shipping, law enforcement, agricultural and medical transport.

LOCATION MAP

The Estherville Municipal Airport is located in Emmet County. Regional access to the airport is provided by Iowa Highway 9 and Iowa Highway 4. The airport is located approximately 4 miles east of the central business district.

EXISTING FACILITIES

The Estherville Municipal Airport provides two runway facilities. Runway 16/34, the primary runway, is 4,797 feet in length and 75 feet in width. The concrete surfaced runway has a 12,500 pound single wheel loading. The runway is equipped with medium intensity threshold and edge lights. Runways 16 and 34 are equipped with runway end identifier lights (REIL) and precision approach path indicators (PAPI).
A runway rehabilitation project it was completed in 2003. The runway edge and threshold (MIRL) lighting was replaced in 2004.

Runway 6/24 is a turf runway. Runway 6/24 is 2,985 feet in length and 90 feet in width. The runway is marked with yellow cones.

A non-precision instrument (NPI) approach may be made to Runways 16 and 34:

RNAV (GPS) Runway 16, RNAV (GPS) Runway 34, VOR Runway 16
VOR Runway 34, NDB Runway 34

A connecting taxiway provides access from Runway 16/34 to the apron area.

The airport has a rotating beacon, non-directional radio beacon (NDB) and lighted wind indicator. An Automated Surface Observing System (ASOS) is located on the field.

Landside facilities include covered storage facilities for aircraft, terminal building, corporate hangar facility and the FBO maintenance hangar. Iowa Lakes Community College has 4,000 square foot hangar and 1,350 square foot flight instructional facility located on the airport.

There are three tee hangar structures providing 21 stalls for aircraft storage. The corporate (private) owned conventional hangar contains 5,600 square feet. The FBO maintenance hangar (70 x 80) provides 5,600 square feet of area.

The terminal building structure, containing 1,600 square feet, provides space for FBO offices, public queuing area, restrooms, flight planning space and food services.

The existing apron is constrained and does not provide adequate space for aircraft parking or taxilanes. There are three tiedowns.

Eight vehicle parking stalls are provided near the terminal building with space for an additional 20 vehicles near the Iowa Lakes Community College facility.

Fuel (100LL) provided from a 2,000 gallon above ground storage tank. Fuel is dispensed by pump.

The City provides a dwelling on the airport for use by the airport manager.

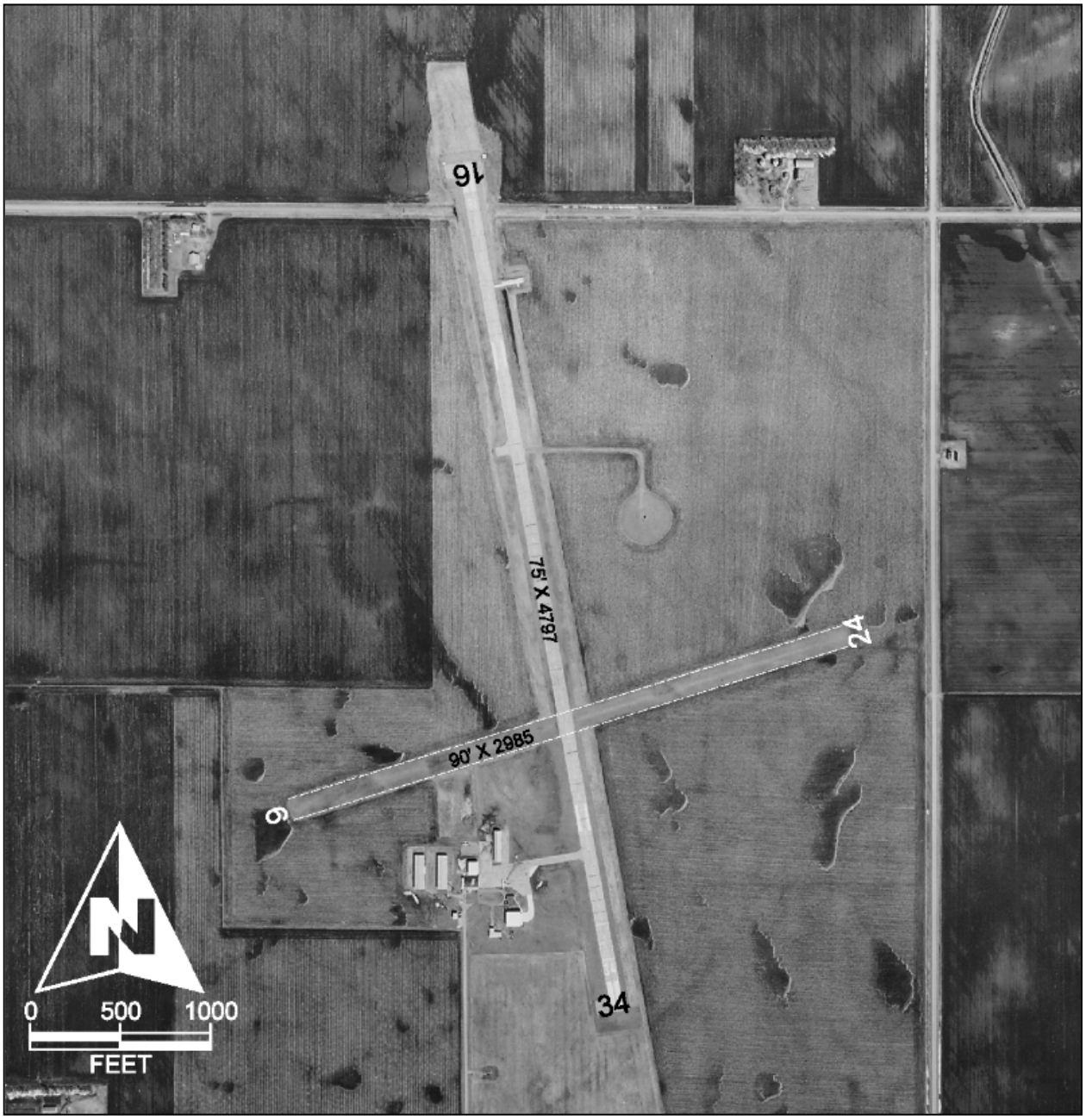
A comprehensive land use plan was adopted by the City of Estherville. The plan depicts land uses compatible with the airport. The City of Estherville has established zoning districts to implement the land use plan. A tall structures zoning ordinance has been adopted by the City of Estherville and Emmet County.

EXISTING SERVICES

Aeronautical services provided by the FBO include charter, aircraft rental, fuel (100LL, Jet A), power and airframe repair and pilot instruction. Fuel is available 24/7. The FBO provides 24/7 on-call service.

The terminal building provides a pilot briefing room, restrooms, offices, pilot lounge, public lounge, vending machines and other amenities. Off-site ground transportation is available. A courtesy car is available at the airport.

ESTHERVILLE MUNICIPAL AIRPORT (EST)



Federal Role: General Aviation Airport
State Role: Enhanced Service Airport

CURRENT AND FORECAST DEMAND

There were 20 aircraft based at the airport in 2003. Of those, there were 18 single engine piston and two multi-engine piston airplanes. The number of based aircraft is forecast to increase to no fewer than 22 in 2022.

There were an estimated 14,818 total annual operations conducted in 2003. The total number of operations is expected to increase to 22,060 in 2022.

Operational Activity	2003	2007	2012	2022
Based Aircraft	20	21	21	22
Annual Operations	14,818	15,887	20,591	22,060
Itinerant Operations	7,873	8,655	11,432	12,236
Local Operations	6,945	7,232	9,159	9,824

Iowa Lake Community College generates approximately 8,000 total annual operations. Of those, 50 percent of the solo operations are itinerant in character while 20 percent of the dual (instructor/student) are itinerant operations. Consequently, 80 percent of the dual activity are local operations, representing touch and go" maneuvers.

Average day activity varies considerably with weather and student activity. Iowa Lakes Community College has 30 to 40 students each of the two semesters. In addition to the Aviation Program Coordinator and Chief Flight Instructor, the program supports three additional flight instructors. The college operates eight airplanes with each flight instructor having an average of five students per day. The program generates approximately 46 to 60 operations per day when weather conditions permit and the students are present.

Approximately 75 percent of graduates go to commuter airlines.

The based aircraft mix and aircraft operational mix are expected to change over the 20 year planning period. Reference may be made to Chapter Four of the 2004-2024 Iowa Aviation System Plan for additional forecast data regarding:

- Based aircraft mix
- Operational mix
- Annual Instrument Approaches
- Annual Instrument Operations

AIRPORT FACILITY AND SERVICE NEEDS

The Estherville Municipal Airport has been classified as an Enhanced Service airport and should provide facilities and services commensurate with its system role.

The following table summarizes current facilities and services, the airport's facility and service objectives, and actions/projects recommended to meet objectives within the context of the system plan. Local airports may have additional projects planned to accommodate local needs and demand.

Airside Facilities	Existing	System Objective	Recommendation
Airport Reference Code	B-II	C-II	None
Primary Runway Length	4,797	5,500 min.	Evaluate
Primary Runway Width	75'	100'	Evaluate
Taxiway	Connecting	Full Parallel	Full Parallel
Approach	NPI	Precision	Evaluate
Runway Lighting	MIRL	MIRL	None
Taxiway Lighting	MITL	MITL	None
Approach Aids	None	ALS	Evaluate
Visual Guidance Slope Indicators (VGSI)	Runway 16/34-PAPI	Both Ends	None
Runway End Identifier Lights (REIL)	Runway 16/34	Both Ends	None
Rotating Beacon	Yes	Rotating Beacon	None
Lighted Wind Indicator	Yes	Lighted Wind Indicator	None
RCO Facilities	Yes	RCO Facility	None
Pavement Strength	12,500 lb SW	To be determined	30,000 DW
Landside			
Covered Storage	35	100 % Based Aircraft	None
Aircraft Apron	3 tiedowns	100% Daily Transient	Expand apron-3,212 SY
Terminal/Admin Building	Yes	Yes	None
Auto Parking	28	Space equal to 100% based aircraft	None
Fencing	Yes	Perimeter	None
Storage	Converted hangar	Building for maintenance	None
Fuel	Yes	100LL, Jet A	None
FBO	Yes	FBO	None
Ground Transportation	Yes	Rental Car, Taxi, Other	None
Food Services	Yes	Vending	None
Phone	Yes	Phone	None
Restroom	Yes	Restroom	None
Pilot Lounge	Yes	Pilot Lounge	None
Security*	*	*	*
Snow Removal	Yes	Snow Removal	None
Other	Heated hangar	De-Icing	None

*Security enhancements for each airport depend on the size and activity at the airport. Each airport is encouraged to complete a security plan that addresses security enhancements recommended by the Transportation Security Administration and the Iowa DOT.

Justification for developing the airport to ARC C-II standards should be documented. Justification is based on regular basis of the airport for airplanes in Approach Category C and Design Group II. Regular basis is defined by FAA as 500 or more annual operations by aircraft in approach Category C and Design Group II.

The facility and services recommendations noted above are based on the Iowa Aviation System Plan facility and service objectives. The airport has a number of site constraints if a runway is designed to accommodate large airplanes (ARC C-II). A detailed evaluation of airport site constraints is recommended. The evaluation should consider all reasonable alternatives to include the "No Project" alternative as well as utilization of an alternative systems airport when necessary.

The evaluation should consider the ability of the site to accommodate a 703 foot runway extension and a precision approach. More specifically, the ARC C-II runway must be able to provide the required runway safety area (RSA), runway object free area (ROFA) and runway object free zone (ROFZ).

The RSA is 400 feet in width and extends out 1,000 feet beyond the threshold. The ROFA is 800 feet in width and extends out 1,000 feet as well.

A precision approach will require a primary surface width of 1,000 feet and a 50:1/40:1 approach slope extending out from the runway for which the precision approach is planned. The airport environs must be able to accommodate a precision instrument approach.

The runway protection zones (RPZ) vary by area. Where a precision approach is being considered, the RPZ is 1,000 feet in width on the inner edge extending out 2,500 feet to a width 1,750 feet on the outer edge.

Sufficient property interest must also be acquired to accommodate an approach light system (ALS).

Where a parallel taxiway is recommended, the runway centerline to taxiway centerline for ARC C-II runways having a precision approach is 400 feet.

There are several improvements noted on the Airport Capital Improvement Program (ACIP) data sheets that should be implemented. These improvements are considered a high priority given the number of operations generated by the Iowa Lakes Community College aviation program.

- Apron reconstruction and expansion
- Reconstruct T-hangar taxilanes
- Construct parallel taxiway to Runway 16/34

SYSTEM DEVELOPMENT COSTS

The following development items were identified on the current ACIP data sheet.

Development Item	2004-2009
Apron rehabilitation expansion	$540,858
Taxilane reconstruction	$91,915
Vehicle Parking	---
Total	**$632,773**

OTHER RECOMMENDATIONS

Airport improvements identified by the airport are noted as follows:

- Precision approach
- Corporate hangar
- Parallel taxiway for Runway 16/34
- Fuel system improvement

There are no other recommendations other than providing for continued maintenance of airport facilities and services provided by the airport. Should substantial use of the airport by airplanes in Approach Category C and Design Group II be documented, other facilities and services required to accommodate aeronautical demand should be implemented.

DEVELOPMENT COSTS - OTHER

Development Item	2004-2009
Precision approach	1,000,000
Corporate hangar	$300,000
Parallel taxiway –Runway 16/34	$1,700,000
Fuel system improvement	$90,000
Total	**$3,090,000**

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