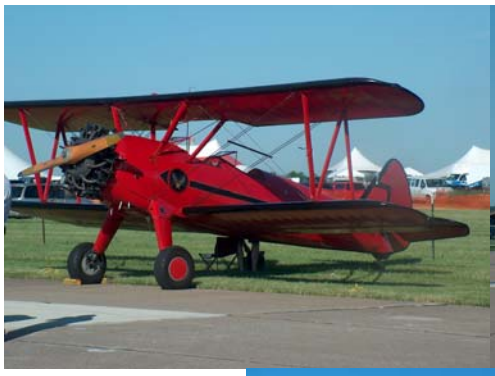
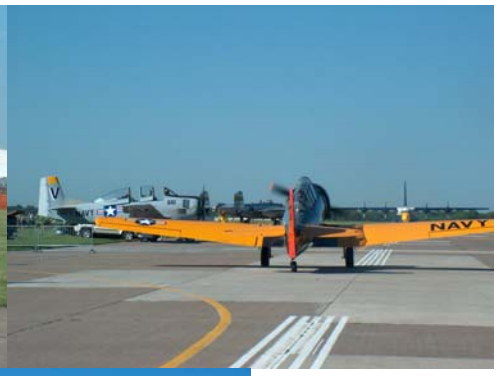
AIRPORT MASTER PLAN UPDATE

FOR

DAVENPORT MUNICIPAL AIRPORT

Prepared For
The Davenport Airport Commission





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AIRPORT MASTER PLAN UPDATE

Davenport Municipal Airport

Introduction

This report presents the ALP Update for the Davenport, Iowa Municipal Airport. The purpose of this Master Plan Update was to provide the information needed for a realistic short-range (5 year) plan including an airport capital improvement plan. This Report also identifies planning and design issues for intermediate range (6-10 years), and long range (11-20 years). The ALP Update will also simplify the formulation phase of Airport Improvement Program (AIP) development projects.

The approach to this Master Plan Update is a step-by-step approach with the basic elements as follows:

- Existing Conditions and Issues (inventory)
- Forecasts
- Facility Requirements
- Alternative Analysis
- Airport Layout Plan
- Plan Implementation (Capital Improvement Plan)
- Categorical Exclusion Checklist

Each element builds upon the results of the previous element. The goal of this Report is to determine how to best accommodate these needs in a responsible manner to the surrounding environment and the local citizens. It is important to note that airport development should be consistent with national and state aviation goals. Development inconsistent with those goals will not be funded by the FAA.

SECTION 1
EXISTING CONDITIONS AND ISSUES

A thorough inventory of current conditions is essential to an effective master plan. The proposals and projections developed in this plan are supported by the investigation of existing conditions and services of the airport and community. This section is a compilation of all physical facilities and services, and an assessment of current and past activity. The information was collected with on-site inventories of the airport and from reports and data pertaining to Davenport Municipal Airport, the City of Davenport, and the airport's service area. Also included in this section are national and state aviation plans.

EXISTING AIRPORT FACILITIES

The existing airport facilities were inventoried using current documents and an on-site inspection. Airport facilities described at the Davenport Municipal Airport are:

- *Airfield Facilities*
  - *Runways and Taxiways*
  - *Marking, Lighting, Navigational, and Approach Aids*
  - *Weather Indicators*
  - *Communications*
  - *Airport Traffic Patterns*
  - *Obstruction Evaluation*

- *Landside Facilities*
  - *Terminal Building*
  - *Aircraft Parking*
  - *Public and Employee Parking*
  - *Hangars*
  - *Fuel Facilities*

Airfield Facilities

The existing runway system at Davenport Municipal consists of the primary northwest-southeast Runway 15/33 and the secondary northeast-southwest Runway 3/21. The following table displays information regarding the airfield at Davenport:

EXISTING AIRFIELD FACILITIES		
	RUNWAY 15/33	RUNWAY 3/21
Approach Category-Design Group	C-II	B-II
Runway Length	5,511’	4,001’
Runway Width	100’	100’
Pavement Surface	PCC	PCC
Pavement Strength		
Single Wheel	68K	68K
Dual Wheel	93K	93K
Approach Surface Slope	50:1 / 34:1	34:1 / 34:1
Runway Lighting	MIRL	Nonstandard MIRL
Runway Markings	Precision Instrument	Non-Precision Instrument
Navigational Aids	ILS/GPS	GPS/VOR
Visual Approach Aids	MALSR/VASI-4L-REIL	VASI-4L

Table 1

Runways and Taxiways

Runway 15/33 is the primary runway at Davenport Municipal. This runway is classified as an Aircraft Approach Category C, and an Airplane Design Group II. A C-II classification indicates a facility to accommodate all aircraft up to and including those that have approach speed between 121 and 140 knots and a wingspan between 49 and 79 feet.

Runway 3/21 is the secondary runway at Davenport. This runway is classified as an Aircraft Approach Category B, and an Airplane Design Group II. A B-II classification indicates a facility to accommodate all aircraft up to and including those that have approach speed between 91 and 121 knots and a wingspan also between up to 49 and 79 feet.

Runway 15/33 has a full parallel taxiway. The width is nonstandard of 50’. There is a partial parallel taxiway to Runway 21 with a standard width of 35’. The entrance taxiway to Runway End 21 has a nonstandard width of 40’. There is also a taxiway at the Runway 3/21 and 15/33 intersection which is a safety issue. Taxiway B approaches the runway/runway intersection at an acute 43° angle to Runway 3/21. Aircraft may not be visible at Runway 21 approach and is a high risk for incursion. Mitigation of this safety issue is discussed in the Alternative Analysis section.

Marking, Lighting, Navigational, and Visual Aids

The runway approach for Runway 15 is classified as precision instrument approaches. Runway 33 is non-precision. Runway 15/33 is equipped with medium intensity runway lighting (MIRL), and visual approach slope indicators (VASI). Runway 15 has a 2,400’ medium intensity approach lighting system with runway alignment indicator lights (MALSR). Runway approaches for Runway 3/21 are classified as non-precision instrument approaches and include nonstandard medium intensity runway lighting (MIRL) and a 4-Box VASI. The lighting for Runway 3/21 is nonstandard as it has only six threshold lights on each end (should be 8) and the lenses are clear for entire length of runway.

The airport is equipped with a Very High Frequency Omnirange (VOR) radio beacon with Distance Measuring Equipment (DME), Figure 1, located 8 nautical miles northeast of the airport. The VOR is an electronic aid that radiates azimuth and distance information and is used for making non-precision instrument approaches.


Figure 1. VOR

The airport's instrument landing system consists of the following electronic components and visual aids:

a. Glide Slope The glide slope provides vertical guidance for aircraft during approach and landing on Runway 15, Figure 2.


Figure 2. Glide Slope

b. Outer Marker A marker located approximately 5.5 nautical miles from the threshold of Runway 15 along the extended centerline. Figure 3.


Figure 3. OuterMarker

c. Localizer Provides course guidance to the runway, located on Runway 33 End. Figure 4.


Figure 4. Localizer

d. Approach Lights Medium Intensity Approach Light System with Threshold Bar located near the threshold of Runway 15. Figure 5.


Figure 5. Approach Lights

Runway 15/33 and 3/21 are equipped with VASI's on both runway ends. The VASI system provides visual descent guidance information during the approach to landing by radiating a directional pattern of high intensity red and white focused light beams. The light beams indicate to the pilot that the aircraft is on course, too high, or too low with respect to the glide slope. Each of the VASIs consist of a four bar light located at the left sides of the runways. Figure 6 illustrates the VASI-4.


Figure 6. VASI

Runway 15 is also equipped with a 2,400' medium intensity approach lighting system with runway alignment indicator lights (MALSR). The MALS portion consists of a threshold bar and nine other five-light bars; the RAIL portion consists of 5 sequenced flashers. The RAIL lights flash in sequence toward the runway threshold at the rate of twice per second. This system is used on ILS Category I runways and achieves ½ mile precision approaches. Figure 7.


Figure 7. RAIL

The airport has a rotating beacon, Figure 8, which serves as a visual aid for the airport. The rotating beacon emits two rotating beams of light spaced 180 degrees apart to indicate the location of the airport. One beam is white in color and the other is green indicating a public use airport. The beacon is located near the terminal building approximately 865' east of Runway 3/21 and 1385' east of Runway 15/33.


Figure 8. Rotating Beacon

Weather Indicators

Davenport Municipal has a federally installed and maintained Automated Surface Observing System (ASOS), Figure 9, which provides information on cloud height, visibility, wind speed, and direction, temperature, dew point and other weather information. Also located at the airport, is the National Weather Service (NWS) Quad Cities Weather Forecast Office (WFO). The Quad Cities WFO provides warnings, forecasts, and other hydro-meteorological information to the public, media, emergency management and the aviation community, 24 hours per day, 365 days per year.

Figure 9. ASOS and Quad Cities (WFO)

A lighted wind cone, Figure 10, which gives pilots the approximate local wind strength and direction, is located west-southwest of the terminal building. Another wind cone is located near the end of Runway 21.

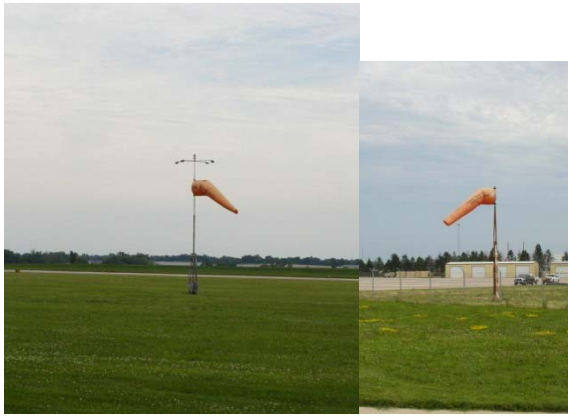


Figure 10. Primary and Supplemental Wind Cone

Communications

Davenport Airport has a Remote Communications Outlet (RCO), Figure 11, available for pilots using the airport. This enables pilots to contact other aircraft and the fixed base operator (FBO) to announce their intentions before entering taxiways, runways, or landing and takeoff patterns.

Figure 11. RCO Tower

Davenport has a UNICOM frequency available for pilots using the airport. This enables pilots to contact other aircraft and the fixed base operator (FBO) to announce their intentions before entering taxiways, runways, or landing and takeoff patterns. The Davenport frequency is 123.0 M.

Airport Traffic Patterns

Davenport Municipal has seven published approaches as follows:

Runway	Approach	Height Above Touchdown (HAT)	Required Visibility
15	ILS	200’	½ Mile
15	LPV	250’	½ Mile
33	RNAV (GPS)	409’	1 Mile
3	RNAV (GPS)	390’	1 Mile
3	VOR	490’	1 Mile
21	RNAV (GPS)	430’	1 Mile
21	VOR	490’	1 Mile

Table 2

Obstruction Evaluation

Line of sight issues were evaluated for Runways 15/33 and 3/21. According to Advisory Circular 150/5300-13; “An acceptable runway profile permits any two points five feet above the runway centerline to be mutually visible for the entire runway length”. The line of sight for existing Runway 15/33 and Runway 3/21 is acceptable.

Slopertown Road runs east-west directly north of Runways 15 and 21. This road penetrates the 15' vertical clearance for the Runway Approach Surface. The existing ALP drawings show this road being relocated. Runway 15/33 and 3/21 Object Free Areas (OFA) and Runway Safety Areas were also evaluated from the existing Airport Layout Plan. The OFA off the end of Runway 15 crosses Slopertown Road which is a paved road currently serving agricultural and residential interests. This is a safety problem if an aircraft were to undershoot, overrun or veer off the runway. Plus, the OFA is limited to air navigation or aircraft ground maneuvering purposes. Any expansion is restricted for Runway End 21 due to, again, Slopertown Road. All other OFA and RSA areas are clear with the RSA being properly graded.

According to Advisory Circular 150/5200-33A, for airports serving turbine-powered aircraft, the FAA recommends a separation distance of 10,000 feet for any hazardous wildlife attractant. The Scott Area Landfill is located approximately 14 miles southwest of the airport. This is well beyond the 10,000 foot separation and is not considered a wildlife attractant. Also, the distance is beyond the recommended 5-mile range to protect approach, departure and circling airspace for the airport and will not hinder airport expansion or precision approaches.

Landside Facilities

Landside facilities are essential to the daily general aviation operations at the Davenport Municipal Airport. Landside facilities are located to the east side of the airport. These facilities include the following:

Terminal Building

The 5,200 square foot terminal building was constructed in 1950. This building is currently being replaced with a new terminal building under construction and was completed in 2010. The cost of the 7,460 square foot terminal building and attached 20,000 square foot hangar was $3 million using private funds. The building houses the FBO who provides fuel, private charter, flight training, and an onsite FAA testing center for written exams.

Aircraft Parking

The main apron to the new terminal building provides only 5,785 square yards of area that may accommodate up to 5 Group II itinerant aircraft. An additional 9,778 square yards of apron area is used by based aircraft.

Public and Employee Parking

Vehicular parking is available throughout the terminal area and at the FBO's facility. The airport can accommodate at least 150 vehicles.

Hangars

Davenport Municipal currently has 78 T-hangar spaces and eleven conventional hangars. The eleven conventional hangars have storage capacity for approximately 38 aircraft depending on stacking, aircraft size, and space utilization. The T-hangars are located toward Runway End 21 and have direct access to the parallel taxiway of Runway 3/21. The conventional hangars are separately located within the terminal area.

Fuel Facilities

24 hour fueling is available by the FBO. The fuel facilities consist of two 10,000 gallons of underground storage for Jet A and two 10,000 gallons of underground storage for AvGas located south of the FBO's office.

NATIONAL AND STATE AVIATION PLANS

Airport planning is executed at the national, state, and local level. The national plan is more broad, whereas local plans are more detailed and specific. At the national level, the National Plan of Integrated Airport Systems provides a large scale emphasis of what is necessary for the overall national system of airports. State plans determine the extent, type, nature, location, and timing of airport needs in the state to establish a viable, balanced and integrated system of airports. Local plans (airport master plans) provide guidelines for future airport development that will satisfy aviation demand in a financially feasible manner, and at the same time, resolve the aviation, environmental and socioeconomic issues related to the airport.

National Plan of Integrated Airport Systems

The National Plan of Integrated Airport Systems (NPIAS) is a Federal Aviation Administration report to the United States Congress which reviews and considers recommendations on the status of the national airport system. It identifies the needs of the system to meet future demands and also identifies the role of each airport. The NPIAS also provides an estimated cost of maintenance to assure the airports will continue their role in the success of the national system.

The 2009-2013 NPIAS identifies 3,356 and 55 proposed public-use airports that are significant to the national air transportation system and therefore, eligible to receive grants under the Federal Aviation Administration Airport Improvement Program (AIP). The report estimates that over the next 5 years, there will be a 21 percent increase for costs of eligible infrastructure development for all segments of civil aviation over the last report issued 2 years ago. Infrastructure development needs are driven by a need to expand facilities, maintenance due to age of facilities, and changing aircraft technology requiring airport facilities to update or replace equipment and infrastructure.

The Davenport Municipal Airport is identified in the NPIAS as a *general aviation* type airport. The 2,564 general aviation airports in the NPIAS account for the second largest percentage of development costs (19 percent of $49.7 billion), an increase of 24 percent over estimated costs in the 2007 report. General aviation airports, with an average of 35 based aircraft, account for 41 percent of the Nation's general aviation fleet. These airports are the most convenient source of air transportation for about 19 percent of the population and are particularly important to rural areas. The NPIAS shows Davenport Municipal Airport having 108 based aircraft in year 5 and the estimated 5-year costs for airport improvements that are eligible for Federal development grants under the Airport Improvement Program is $14,039,000.

Iowa Aviation System Plan

The Iowa Department of Transportation's Office of Aviation has updated the Iowa Aviation System Plan. The Aviation System Plan will be used by the Iowa DOT, the FAA and airport sponsors to help guide the development of Iowa's airports by balancing State vs. airport development objectives and helping to identify major development needs. The following five goals were identified to 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 airport 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 promote an understanding of the benefits of Iowa's air transportation system.

As a result of the Aviation System Plan Update, airports were classified into five roles to serve the aviation needs for the State of Iowa. The five classifications are as follows:

✈**Commercial Service Airports** – airports that support some level of scheduled commercial airline service and a full range of general aviation aircraft.

✈**Enhanced Service Airports** – airports that support almost all general aviation aircraft, including most types of business jets and generally serve as transportation centers.

✈**General Service Airports** – airports that support most twin and single engine general aviation aircraft and occasional use by business jets and support regional and interstate air transportation needs and local economic development.

✈**Basic Service Airports** – airports that support primarily single engine general aviation aircraft and support local air transportation, recreational flying, and special use aviation activities.

✈**Basic Service II Airports** – airports that support local air transportation, special use aviation activities, and may be in close geographical proximity to one or more other system airports. No facility and service objectives are specified for these airports.

The system planning consisted of assessing socio-economic growth, coverage, activity served, facilities provided, and services provided. A mathematical model scored and weighted the airports into these classifications. The plan classified Davenport Municipal as an Enhanced Service Airport. The system plan is flexible, meaning the current classification of a particular airport may change as facilities and other factors change. The following Table outlines existing facilities and services at the Davenport Airport versus Enhanced Service classifications:

Davenport Airport Existing Facilities	Enhanced Service Facility and Service Objectives
ARC C-II	ARC-C-II
5,511' x 100' Runway	5,500' x 100' Runway
Parallel Taxiway	Parallel Taxiway
Precision Approach	Precision Approach
Med. Intensity Runway Lighting	Med. Intensity Runway Lighting
MALSR	ALS
RCO Facilities	RCO Facilities
Full Service FBO	Full Service FBO
Ground Transportation	Ground Transportation
Pilot Lounge	Pilot Lounge
Covered Aircraft Storage	Covered Aircraft Storage
Jet and 100LL Aviation Fuel	Jet and 100LL Aviation Fuel

Table 3

REGIONAL AIRPORT SIGNIFICANCE

The function of the Davenport Municipal Airport is to serve the general aviation needs of the City of Davenport and Scott. It also serves five surrounding county areas; notably, Clinton, Cedar, Johnson, Muscatine, and Rock Island.

Davenport Service Area

Common factors in choosing which airport to use for service are proximity, runway length, and airport facilities. For most general aviation purposes proximity is the most important requirement. Two service areas are shown for Davenport Municipal. One service area around Davenport has been approximated by drawing a boundary line half the distance between Davenport and other adjacent communities with other general aviation airports with similar facilities. The other is approximated by drawing a boundary line half the distance between Davenport and other larger airports. This service area takes into account the commercial service airports, notably Quad-Cities, Burlington, Cedar Rapids, and Dubuque. These are geographic service areas and do not take into account other factors such as hangar space and other airport amenities, community factors, and other business related factors. The following exhibits the service areas for the Davenport Municipal Airport:

DAVENPORT SERVICE AREA

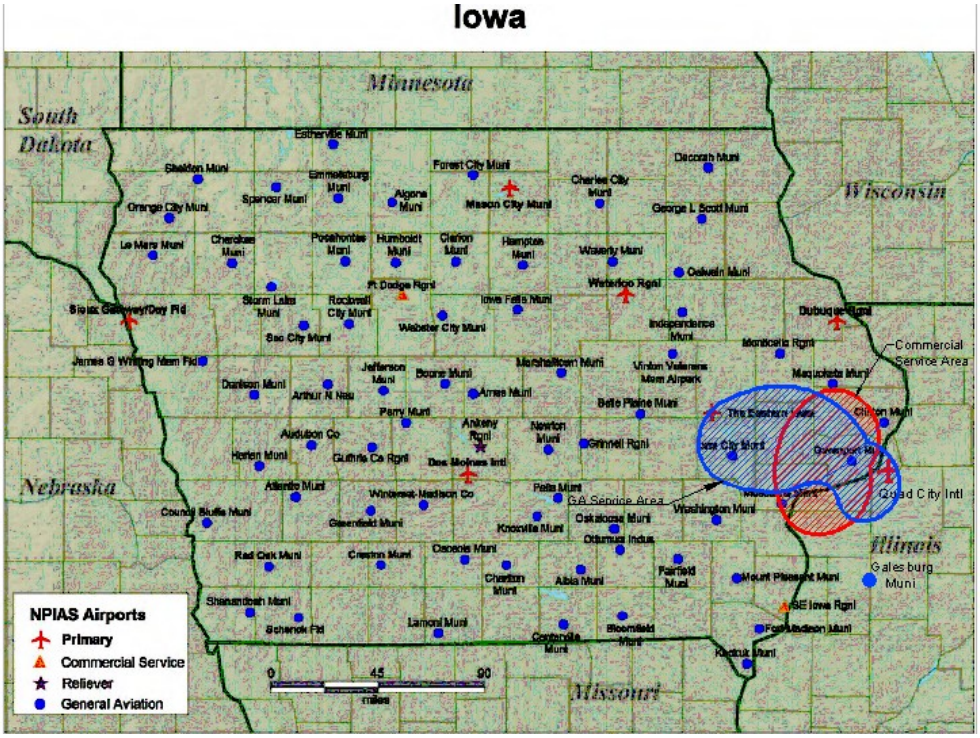


Figure 1

Neighboring Airport Facilities

An important factor in determining the facility needs of the Davenport Municipal Airport is to look at the airport facilities of neighboring communities. Table 4 compares the primary runway lengths and the estimated July 2008 US Census population of Davenport and other nearby general aviation airports.

NEIGHBORING GENERAL AVIATION AIRPORTS			
Community	**2008 EstimatedPopulation**	**Primary Runway Length (ft.)**	**Distance Traveled for Equal or Better Facilities**
Davenport	**100,827**	**5,501**	**0 Miles**
Clinton	26,407	5,204	27 Miles
Maquoketa	5,908	3,300	37 Miles
Tipton	3,012	3,000	41 Miles
Muscatine	22,504	5,500	42 Miles
Galesburg, Illinois	31,181	5,791	55 Miles
Iowa City	67,831	5,004	56 Miles
Washington	7,254	4,000	76 Miles

Table 4

Davenport has the ability to accommodate the business jet aircraft with their 5,500' runway that other neighboring airports would not. Namely, in evaluating business jet traffic that Davenport has and comparing with the service area, most of the jet traffic is requiring more than 5,000 feet.

WIND AND TEMPERATURE

Local weather conditions have a significant role in the planning and development of an airport. Temperature, wind direction and speed are influential components in deciding runway length and optimum runway orientation.

Temperature

When air is heated, it expands and therefore has less density. Since an increase in temperature makes the air less dense, on a hot day the aircraft

- takeoff run will be longer
- rate of climb will be slower, and
- landing speed (ground speed) will be faster.

To ensure that the runways will be useable by the critical aircraft during the hottest months of the year, the mean daily maximum temperature is used. In Davenport, the mean daily maximum temperature of the hottest month is 86.1˚.

Wind

Wind has a considerable effect on aircraft performance during takeoffs and landings. Generally, the lighter the aircraft, the more its performance will be affected by wind, but all aircraft are affected to some degree. During takeoff, a headwind will increase aircraft performance by shortening the takeoff run and increasing the angle of climb. Conversely, a takeoff with a tailwind will contribute to the aircraft running out of runway or being unable to clear obstructions. During landing, a headwind will steepen the approach angle and shorten the landing roll. Also during both takeoffs and landings, a crosswind component will tend to push the aircraft across rather than down the runway. It is therefore important that runways be aligned with the prevailing wind for that area.

Wind data specific to Davenport is available for period of record between 1999 and 2008. Wind data requested includes all-weather conditions, IFR conditions with ceiling less than 1000 feet and/or visibility less than 3 miles, and closed conditions with ceiling less than 200 feet and/or visibility less than 0.5 mile. Runway wind coverage analysis was performed using Airport Design for Microcomputers. Windroses are plotted on Sheet 2 of the Airport Layout Plan and the analysis of the existing wind coverages are shown in the following table:

WIND COVERAGE												
	ALL-WEATHER CONDITIONS (knots)				IFR CONDITIONS (knots)				Closed Conditions (knots)			
Runway	10.5	13	16	20	10.5	13	16	20	10.5	13	16	20
15/33	85.65%	92.11%	97.21%	99.22%	80.93%	88.87%	95.71%	98.61%	89.51%	93.57%	97.31%	99.01%
3/21	83.73%	89.85%	95.60%	98.44%	79.59%	87.29%	94.54%	97.95%	90.92%	93.94%	96.55%	98.40%
Combined	94.31%	97.51%	99.03%	99.75%	91.50%	96.07%	98.31%	99.48%	95.17%	97.35%	98.66%	99.69%

Table 5

The desirable wind coverage is at least 95%. The table above shows that the existing orientation of the runways is for the most part favorable. For example; during All-Weather Conditions with a crosswind at 10.5 knots, the combined wind coverage is slightly less than 95% which means that small piston aircraft will have less than preferred wind conditions 5.69 percent of the time. The table also shows that with a crosswind at 13 knots during IFR conditions, an ARC B-II aircraft has only 88.87% wind coverage on Runway 15/33. This means that turbo prop aircraft will need the crosswind runway 11.13 percent of the time. Analysis of the crosswind runway will be discussed in later sections of this narrative.

AIR TRAFFIC ACTIVITY

Air traffic activity is an important factor in determining the appropriate types of facilities which should be planned for the Davenport Municipal Airport. The activities studied as part of this Master Plan Update include the following:

- *Based Aircraft*
- *Aircraft Mix*
- *Aircraft Operations (Local and Itinerant)*
- *Operational Fleet Mix*
- *Critical Design Aircraft*
- *Instrument Approaches*

Based Aircraft

The number of based aircraft has remained fairly steady between 1990 and 2009 with a slight decline between 1999 and 2001. Peak based aircraft numbers occurred in the mid 2000's. Current aircraft N Numbers and aircraft models were obtained from the FBO. An Airport Reference Code (ARC) was also assigned to each aircraft (the derivation of the ARC is outlined in later sections of this ALP Narrative). Table 6 depicts historic and current total based aircraft, (helicopter and military not included) while Table 7 depicts the current aircraft that are based in Davenport. Davenport currently has 83 single engine piston aircraft, 9 multi-engine piston aircraft, 6 turbo props and 2 jets. This information is presented in the following tables:

BASED AIRCRAFT					
Year	**Total**	**Year**	**Total**	**Year**	**Total**
1990	90	1997	97	2004	96
1991	90	1998	97	2005	102
1992	90	1999	82	2006	94
1993	90	2000	82	2007	95
1994	88	2001	84	2008	90
1995	90	2002	86	2009	100
1996	90	2003	86		

Table 6 Source: APO/TAF, FBO Records

CURRENTLY BASED AT DAVENPORT MUNICIPAL								
N'Number	**Model**	**ARC**	**N'Number**	**Model**	**ARC**	**N'Number**	**Model**	**ARC**
N2583H	Ercoupe 315C	A-I	N1106Y	Cessna 150	A-I	N67614	Cessna 152	A-I
N71902	Luscombe 8A	A-I	N61VL	Lancair 320/235	A-I	N200FW	Grumman AA-5B	A-I
N30853	Cessna 177	A-I	N3568R	Beech A23	A-1	N227LL	Cessna 150	A-I
N99750	Cessna 172	A-I	N6909B	Piper Tri-Pacer	A-I	N4749C	Thorp T-18C	A-I
N1951W	Beech Sport B19	A-I	N34594	Cessna 177	A-I	N5782T	Cessna 172	A-I
N5473F	Alon A-2A	A-I	N12QC	Challenger II	A-I	N387JS	Star Duster SA-300	A-I
N522JW	Piper Archer II	A-I	N860T	Beach S35	A-I	N2314E	Cessna 172	A-I
N128MS	RV12	A-I	N8735D	Piper Tri-Pacer	A-I	N63053	Cessna 150	A-I
N7421W	Piper Arrow	A-I	N1410U	Cessna T-210	A-I	N7163T	Cessna 172	A-I
N6874A	Cessna 172	A-I	N628KL	Challenger II	A-I	N2460U	Piper Archer II	A-I
N725BT	T-Bird II	A-I	N5341P	Piper Comanche	A-I	N56198	Piper Cherokee	A-I
N818WD	American Champion 8KCAB	A-I	N83988	Piper Saratoga	A-I	N736QB	Cessna 172	A-I
N109LT	Challenger II	A-I	N22BL	Cessna Skymaster	A-I	N5729U	Piper Cherokee	A-I
N195FA	Cessna 182	A-I	N6108E	Beech Bonanza	A-I	N8072P	Piper Commanche	A-I
N31663	WACO VKS-7F	A-I	N6274J	Piper PA-32-300	A-I	N1809A	Beach Bonanza	A-I
N9405V	Mooney M20E	A-I	N541CA	Piper Archer II	A-I	N2123A	Piper Archer II	A-I
N30988	Cessna 177	A-I	N29FJ	Pitts S1D	A-I	N9429S	Beech Bonanza	A-I
N8656A	Beech Bonanza	A-I	N14TC	QUICKIE	A-I	N532CM	Piper Arrow	A-I
N17PF	Q200	A-I	N38716	Piper Turbo Arrow	A-I	N44014	Piper Warrior	A-I
N3830S	Cessna 172	A-I	N625PR	Beech Bonanza	A-I	N46023	Interstate S-1B1	A-I
N5701V	Beech 95-C55 Baron	A-I	N759EU	Cessna 182	A-I	N166BV	Beech Barron	A-I

N1497F	Cessna 172	A-I	N4332V	Cessna 195	A-I	N1804E	Beech Bonanza	A-I
N12BN	VARIEZE	A-I	N880CK	Cessna 180	A-I	N4344R	Beech Baron	A-I
N9726T	Cessna 172	A-I	N556DM	Boeing Stearman	A-I	N924DW	Christen Eagle	A-I
N72742	Cessna 140	A-I	N14377	WACO UMF-5	A-I	N3877H	Mooney M20J	A-I
N194WE	VANS RV-9A	A-I	N413J	Beach Baron	A-I	N8038F	Cessna 150	A-I
N62HL	Cirrus SR-22	A-I	N365JP	Cirrus SR-22	A-I	N8261K	Beech A36	A-I
N25496	Beech A36	A-I	N858PB	Beech Baron	A-I	N52671	Cessna 172	A-I
N6038R	Beech A36	A-I	N547CA	Piper Cherokee	A-I	N542CA	Piper Warrior	A-I
N545CA	Piper Cherokee	A-I	N563CA	Piper Arrow	A-I	N126DR	Piper Chieftain	B-I
N1944E	Cessna 340A	B-I	N564CA	Beech 100	B-I	N81LP	Cessna 421	B-I
N764CA	Beech B200	B-II	N67CQ	Beech C90	B-II	N4488L	Beech C90	B-II
N527PM	Beech C90	B-II	N95VE	Cessna 500	B-II	N613BA	Beech B300	B-II
N568JC	Cessna 560	B-II						

Table 7 Source: July, 2009 FBO Records

Aircraft Mix

Table 8 depicts this information which shows the total based aircraft including the number of piston engine, multi engine, and jet aircraft that have been based at Davenport.

AIRCRAFT MIX									
Year	**Piston**	**Multi/ Turbo**	**Jet**	**Total**	**Year**	**Piston**	**Multi/ Turbo**	**Jet**	**Total**
1990	85	5	0	90	2000	72	10	0	82
1991	85	5	0	90	2001	74	10	0	84
1992	85	5	0	90	2002	74	12	0	86
1993	85	5	0	90	2003	74	12	0	86
1994	76	12	0	88	2004	80	15	1	96
1995	78	12	0	90	2005	83	18	1	102
1996	78	12	0	90	2006	78	15	1	94
1997	85	12	0	97	2007	78	15	2	95
1998	85	12	0	97	2008	80	15	2	97
1999	72	10	0	82	2009	83	15	2	100

Table 8 Source: APO TAF, FBO Records

Aircraft Operations

Aircraft operations are difficult to quantify at airports without control towers since there is no continuous monitoring. However, sources such as airnav.com and Airport Master Records (5010s) can be useful in estimating recent past and current activity. These sources say current annual operations total 27,744. The breakdown of operations is 44% local, 52% itinerant, and 4% air taxi. Historically, according to FAA TAF, the breakdown has been similar going back to 1990. The following table shows aviation activity at Davenport Municipal for the years 1990 – 2009:

DAVENPORT AVIATION ACTIVITY									
Year	**Itinerant Air Taxi**	**Itinerant General Aviation**	**Local General Aviation**	**Total**	**Year**	**Itinerant Air Taxi**	**Itinerant General Aviation**	**Local General Aviation**	**Total**
1990	1,500	23,000	19,000	43,500	2000	500	23,000	19,200	42,700
1991	500	23,000	19,000	42,500	2001	316	14,567	12,160	27,043
1992	500	23,000	19,000	42,500	2002	316	14,567	12,160	27,043
1993	500	23,000	19,000	42,500	2003	316	14,567	12,160	27,043
1994	500	23,000	19,200	42,700	2004	316	14,567	12,160	27,043
1995	500	23,000	19,200	42,700	2005	316	14,567	12,160	27,043
1996	500	23,000	19,200	42,700	2006	1,017	14,567	12,160	27,444
1997	500	23,000	19,200	42,700	2007	1,017	14,567	12,160	27,444
1998	500	23,000	19,200	42,700	2008	1,017	14,567	12,160	27,444
1999	500	23,000	19,200	42,700	2009	1,017	14,567	12,160	27,444

Table 9 Source: Master Records, APO TAF

Operations per Based Aircraft

The previous discussion showed that the number of local general aviation currently amounts to 44% of total operations. Table 10 outlines recent past and current operations per based aircraft. The operations per based aircraft were calculated by dividing the number of based aircraft into the number of local operations instead of assuming the NPIAS standard for determining total operations.

OPERATIONS PER BASED AIRCRAFT							
Year	**Based Aircraft**	**Number of Local Operations**	**Operations Per Based Aircraft**	**Year**	**Based Aircraft**	**Number of Local Operations**	**Operations Per Based Aircraft**
1990	90	19,000	212	2000	82	19,200	234
1991	90	19,000	212	2001	84	12,160	144
1992	90	19,000	212	2002	86	12,160	142
1993	90	19,000	212	2003	86	12,160	142
1994	88	19,000	216	2004	96	12,160	126
1995	90	19,200	214	2005	102	12,160	120
1996	90	19,200	214	2006	94	12,160	130
1997	97	19,200	198	2007	95	12,160	128
1998	97	19,200	198	2008	97	12,160	126
1999	82	19,200	234	2009	100	12,160	122

Table 10

Operational Fleet Mix

A sample totaling 5,000 operations was taken by Carver Aero, Inc. from January 2nd 2008 through December 29th 2008. The sample included any operation including itinerant piston and based aircraft. With 44% being local operations, the sample is reduced to an estimated 2,800 itinerant operations of which 224 or 8.0% were from turbo prop and 357 or 12.8% were from jets. The following is a listing of itinerant operations from the sample period for itinerant turbo and jet traffic only. The list also shows model of aircraft and an assigned Airport Reference Code (ARC).

DAVENPORT 2008 TURBO/JET ITINERANT OPERATIONS							
Company/ Owner	**ARC**	**Make & Model**	**Total Ops**	**Company/ Owner**	**ARC**	**Make & Model**	**Tota l Ops**
Ozinga Aviation LLC	A-II	Cessna 208	2	MBC Air LLC	C-I	Beech 400	4
Radio Flyer LLC	A-II	Pilatus PC-12	61	JPT Associates LLC	C-I	Beech 400	1
PLS Leasing LLC	A-II	Pilatus PC-12	2	CS Flight Services	C-I	Beech 390	4
Heiniger Leasing LLC	A-II	Pilatus PC-12	1	Gabriel Investments	C-I	IAI 1124A	1
Sanford Group LLC	A-II	Pilatus PC-12	7	Sierra American Corp	C-I	Learjet 24D	1
SRB Aerial Applicators	A-II	Air Tractor AT-502	1	BSN Equipment LLC	C-I	Eclipse EA 500	1
Strohl Aviation LLC	A-II	Air Tractor AT-402	1	**TOTAL ARC C-I OPERATIONS – 12**			
TOTAL ARC A-II OPERATIONS – 75				Sierra American Corp	B-II	Falcon 20	5
Flying Solo LLC	B-I	Cessna 525	1	Pilot Corp	B-II	Falcon 20	2
Moore Enterprises	B-I	Cessna 525	1	Harsco Corp	B-II	Falcon 50	2
Citation Shares	B-I	Cessna 525	26	Iowa Land & Bld Corp	B-II	Falcon 50	1
358K LLC	B-I	Cessna 525	1	Real World Tours Inc	B-II	Falcon 50	1
Boyd Aviation LLC	B-I	Cessna 525	1	CFA Aviation LLC	B-II	Falcon 50	2
Bank of America	B-I	Cessna 525	1	Klein Tools Inc	B-II	Falcon 50	1
Swift Properties LLC	B-I	Cessna 525	4	Dufresne Inc	B-II	Cessna 500	2
Midwest Flying Service	B-I	Piper PA-31	1	Jet Sales LLC	B-II	Cessna 500	1
Phoenix Leasing Co	B-I	Piper PA-31	1	Mid Continent Corp	B-II	Cessna 500	1
LH Piper LLC	B-I	Piper PA-31	2	Northern Air Inc	B-II	Cessna 550	2
BCM Enterprises	B-I	Beech B90	1	Citation Shares	B-II	Cessna 550	3
Southern Stars LLC	B-I	Beech B90	1	F-4 LLC	B-II	Cessna 550	2
Jim Hawk Group Inc	B-I	Beech B100	2	Steel Warehouse Co	B-II	Cessna 550	1
Air Quest LLC	B-I	Falcon 10	1	California Oregon Inc	B-II	Cessna 550	1
AVN Air LLC	B-I	Falcon 10	1	Republic Aviation	B-II	Cessna 550	2
Metal Exchange Corp	B-I	Mitsubishi MU-300	2	Jet Air Inc	B-II	Cessna 550	2
Astrid Contract Inc	B-I	Mitsubishi MU-2B-25	1	Freydays Jet Leasing	B-II	Cessna 550	110
Electronic Industries	B-I	Socata TBM	1	Window World Inc	B-II	Cessna 560XL	2
J Fergus Inc	B-I	Socata TBM	1	Citation Shares	B-II	Cessna 560XL	33
425JH LLC	B-I	Cessna 425	8	Wellmark Inc	B-II	Cessna 560XL	1
Capital Holdings LLC	B-I	Gulfstream 695B	1	Blackwell Aviation	B-II	Cessna 560XL	3
Supreme Indiana Mgt	B-I	Cessna 501	2	Wells Fargo Finance	B-II	Cessna 560	6
TOTAL ARC B-I OPERATIONS – 61				Southern Cross Air	B-II	Cessna 560	2
				Centennial Mgt Inc	B-II	Cessna 560	1
Elliot Aviation	B-II	Beech C90	12	Gary-Williams Energy	B-II	Cessna 560	3
A&L Enterprise LLC	B-II	Beech C90	14	Muscatine Corp	B-II	Cessna 560	1
Cobb Aviation LLC	B-II	Beech C90	12	JayGee Holdings Inc	B-II	Cessna 560	1
3GF Enterprises LLC	B-II	Beech C90	2	Bank of America	B-II	Cessna 560	3

JAB Aire LLC	B-II	Beech C90	2	Crown Credit Co LTD	B-II	Rockwell 65	2
Distributers Dev	B-II	Beech C90	4	Con Air Charter LLC	B-II	BAE Jetstream 31	1
True North Air LLC	B-II	Beech C90	2	**TOTAL ARC B-II OPERATIONS – 328**			
Corporate Flights LLC	B-II	Beech C90	14	Unknown	B-III	Convair 580	1
Rice Air LLC	B-II	Beech C90	2	**TOTAL ARC B-III OPERATIONS – 1**			
Michigan Corp Serv	B-II	Beech C90	14	Flying J Transport Inc	C-II	Cessna 680	2
BOMAC Air LLC	B-II	Beech B200	2	Citation Shares	C-II	Cessna 680	1
Roy Delarue Tours	B-II	Beech B200	1	AML Leasing LLC	C-II	Cessna 750	2
Blue Cross/Shield	B-II	Beech B200	6	Pilot International	C-II	Cessna 750	1
FC Stone Group Inc	B-II	Beech B200	3	OliverStone LLC	C-II	BAE 125 800A	2
Patterson Aviation	B-II	Beech B200	5	Nationwide Mutual	C-II	Hawker 800 XP	2
Buffalo Air LLC	B-II	Beech B200	1	Elevation Travel	C-II	Hawker 800 XP	1
Bering Air Inc	B-II	Beech B200	1	Air Orange	C-II	Canadair CL-600	1
Flight King LLC	B-II	Beech B200	1	CIT Group Financial	C-II	Gulfstream G200	1
Leisure Air LLC	B-II	Beech B200	1	**TOTAL ARC C-II OPERATIONS – 13**			
Max Air Inc	B-II	Beech B200	2	Kraft Foods Aviation	C-III	Gulfstream G-V	1
Front Range Aviation	B-II	Beech B200	1	First Oregon Corp	C-III	Bombardier 700	2
Clement Aviation LLC	B-II	Beech B200	1	**TOTAL ARC C-III OPERATIONS – 3**			
Dashdale Aviation	B-II	Beech B200	2	Gurley Leep Cadillac	D-I	Learjet 31A	48
Elliot Aviation	B-II	Beech B200	4	WalMart	D-I	Learjet 31A	7
Sterling Aviation	B-II	Beech B200	3	Unknown	D-I	Learjet 35A	2
Synergy International	B-II	Beech 300	3	Lapair LLC	D-I	Learjet 35A	5
Ingram Industries	B-II	Beech 300	1	Jet Air Inc	D-I	Learjet 35A	4
Bemis Manufacturing	B-II	Beech 300	2	Maritime Sales	D-I	Learjet 35A	4
L & K Inc	B-II	Beech 300	2	Distinctive Sky LLC	D-I	Learjet 45	2
Superior Industries Int.	B-II	Beech 300	1	Asphalt Materials Inc	D-I	Learjet 45	2
Hartmoor Aviation	B-II	Beech 300	1	McWane Inc	D-I	Learjet 45	2
Twin Disc Inc	B-II	Beech 300	1	Northern Air Inc	D-I	Learjet 45	1
Hero Leasing LC	B-II	Beech 300	1	Polygon Air Corp	D-I	Learjet 55	4
Flying J Transport Inc	B-II	Cessna 441	1	McLane Co	D-I	Learjet 60	3
Donald Aircraft LLC	B-II	Cessna 441	2	Bandag Inc	D-I	Learjet 60	2
Unknown	B-II	Embraer 110	1	**TOTAL ARC D-I OPERATIONS – 86**			
				MJG JetCorp LLC	D-II	Gulfstream G-II	2
				TOTAL ARC D-II OPERATIONS – 2			
				TOTAL ITINERANT TURBO/JET OPS – 581			

Table 11

Current Design Aircraft

The FAA has divided the turbojet powered fleet (business jets) into two classes, airplanes that make up 75 percent of fleet and airplanes that make up 100 percent of fleet. The FAA groups the business jets according to performance capability as contained in the FAA-approved airplane manuals under an assumed loading condition. The groupings are published on Table 3-1 and 3-2 in *FAA AC 150/5325-4B* and are included in the Appendix.

Therefore, breaking down the sample table reveals the following:

- 326/2800 or 11.64% of itinerant operations from 75% of Fleet.
- 25/2800 or 0.89% of itinerant operations from remaining 25% of Fleet.
- 134/2800 or 4.79% of itinerant operations from Small Airplanes Having 10 or More Passenger Seats. And
- 0.21% Operations from Regional Jets and Aircraft with MTOW Greater than 60,000lbs.

From Table 9 above, Davenport has 14,567 annual itinerant operations. Therefore, the critical aircraft group that makes regular use of Davenport is 75% of Fleet with 1,696 operations (11.64% x 14,567). This group consists of only the turbojet powered fleet within a maximum certificated takeoff weight of more than 12,500 pounds up to and including 60,000 pounds. Also, 130 (0.89% x 14,567) operations are from 100% of Fleet and 30 operations are from regional jets or aircraft with maximum takeoff weight of greater than 60,000lbs.

Identifying further the most demanding aircraft at Davenport, the following Table displays the most frequent aircraft operations from the 75% of Fleet grouping:

Davenport Critical Aircraft	
Aircraft	**# of Operations**
Cessna 500	142*
Cessna 525	182
Cessna 560	413*
Cessna 550	640
Learjet 31A	286

Table 12

** Number of Operations include operations from based aircraft*

There are four corporate operators that make regular use of Davenport Municipal using the above five jet aircraft. The destination of these flights can be as close as Mishawaka, Indiana or as far away as Phoenix, Arizona. The following outlines the four corporate operators and their aircraft with operations at Davenport.

Owner	Aircraft	Range
Van East Aviation	Cessna 500	1215nm
Citation Shares	Cessna 525	1485nm
Freydays Jet Leasing	Cessna 550	1900nm
Citation Shares	Cessna 560XL	2080nm
Gurley Leep Automotive	Learjet 31A	1266nm

Gurley Leep Automotive has car dealerships and franchises in Indiana and Michigan. They recently purchased Lujack's North Park Auto Plaza in Davenport making Gurley Leep the 30th largest dealership in the country. It is expected the flights to continue with an average of two operations per week for the Learjet. Citation Shares, Freydays Jet Leasing, and Van East Aviation all provide scheduled transport to destinations all over the country. Citation Shares also operate a Cessna 680 Citation Sovereign which had operations out of Davenport but not enough to include in this study. It is anticipated that with runway improvements, this aircraft will be able to make regular use of Davenport.

Along with the two classes of the business turbo/jet fleet (75% of fleet and 100% of fleet), the FAA uses the system of Airport Reference Codes (ARC) to determine the appropriate design standards for an airport. This system combines the most demanding approach speed (1.3 times stall speed) with the most demanding wingspan to determine the airport reference code for an airport. Again, the derivation of the ARC is more detailed in later sections of this ALP Narrative.

From the sample:

- 390/2800 or 13.93% of itinerant operations from Category B Operations.
- 28/2800 or 1.0% of itinerant operations from Category C Operations.
- 88/2800 or 3.14% of itinerant operations from Category D Operations.

And

- 418/2800 or 14.93% of itinerant operations from Design Group II Operations.

Extrapolating for total itinerant operations, there are 2,174 Design Group II operations, 2,030 Category B operations, 146 Category C operations and 458 Category D operations. According to the sample, the current design Airport Reference Code should be B-II using the specific design aircraft of within 75% of fleet. However, for this class of aircraft, the infrastructure would look like an ARC C-II airport. And, with the number of operations from the remaining 25% of fleet, it is recommended that the current ARC should remain as C-II using the Hawker 800XP as the specific design aircraft representing the 100% of fleet category.

Instrument Operations

An instrument operation is any aircraft operation conducted in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal control facility or air route control center (ARTCC). And instrument approaches are defined as an approach made to an airport with an Instrument Flight Rules (IFR) flight plan. IFR operations take place under the following conditions:

- When visibility is less than 3 miles or ceiling is at below the minimum initial approach altitude.
- Where no weather reporting service is available at non-tower airports, the following criteria, in descending order, is used to determine valid instrument approaches:
  - A pilot report
  - If the flight has not canceled its IFR flight plan prior to reaching the initial approach fix
- The official weather as reported for any airport located within 30 miles of the airport to which the approach is made.

The number of instrument operations may be used as a basis for determining justification for improvements such as landing and approach aids.

Davenport Municipal is within the Chicago Air Traffic Control Center (ARTCC)[ZAU]. The estimating ratio to determine Annual Instrument Operations and Annual Instrument Approaches are: 0.244052 x Itinerant Operations and 0.164311 respectively. For year 2009, Annual Instrument Operations are 0.244052 x 14,567 = **3,555** and Annual Instrument Approaches are 0.164311 x 14,567 = **2,394**.

SOCIOECONOMIC CHARACTERISTICS

Davenport is located along the Mississippi River in Scott County and serves as the County Seat. Davenport is Iowa's third largest city and is one of the Quad Cities, along with neighboring Bettendorf, and the Illinois cities of Moline, East Moline, and Rock Island. The city's biggest labor industry is manufacturing with John Deere being the largest employer in the Quad Cities. Davenport is also the headquarters for department store Von Maur and publisher Lee Enterprises. The Quad Cities is also home to the Rock Island Arsenal which is the largest government owned weapons manufacturing arsenal in the U.S. Davenport along with the Quad Cities also serves as a regional healthcare, educational, retail, local government, and employment center for persons living in a four county area (Scott, Clinton, Muscatine, and Rock Island County in Illinois). Davenport is served by three major transportation being Interstate 80, Interstate 280, and Interstate 274 which are vital for the city's commercial activity. The Quad City International Airport in Moline, Illinois is the closest commercial airport and major railroads include the Iowa Interstate Railroad and the Iowa, Chicago and Eastern.

Recent past socioeconomic information related to Davenport, the four county area, and the State of Iowa has been collected for use in forecasting activity at the airport. This information is used to forecast the number of based aircraft and operations at the airport, and developed to define the potential facilities required to maintain or upgrade the airport's level of service. These forecasts are based on the economic strength of the region and its ability to sustain this strong economic base over a given period of time. These forecasts also provide valuable insight to the direction and character of the community and the airport.

There are many factors that can be evaluated to give an indication of future demands on an airport facility. Past aviation can sometimes be extrapolated to indicate future activity. Trends in demographics such as population and economic factors can be important indicators. As the population and economy grow, so does aviation activity. Conversely, as the population and economy decline, aviation activity decreases. Socioeconomic information was gathered with relation to population, employment, and income.

Population

U.S. Census Bureau shows Davenport's population had an increase in population of 3.2% between 1990 and 2000. And the estimated 2008 population shows an increase of 2.5% to 100,827 persons.

The four county region consisting of Scott, Clinton, Muscatine, and Rock Island Counties had an increase in population of 2.2% between the years 1990 and 2000, and another slight increase of 0.33% to an estimated 2008 400,972 persons. The State of Iowa has had an increase in population of 5.3% between 1990 and 2000, and

an estimated slight increase in population of 1.9% between 1990 and 2008 to 2,983,360 persons. These figures are illustrated in Figure 13.

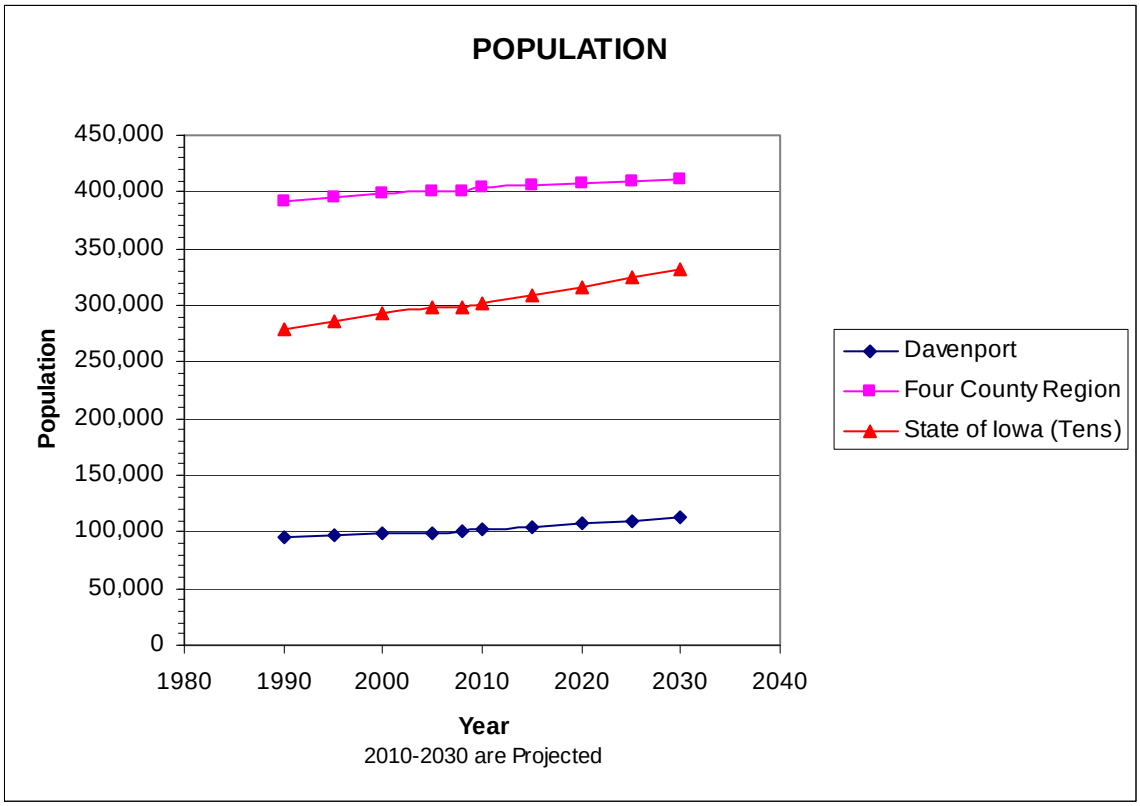


Figure 13. Population for Davenport, Four County Region, and the State of Iowa

The trend shows that the population is stable to increasing in this area. Future population projections were extrapolated using current census estimates and projecting these trends into the future. Realizing that Davenport has an economic "pull" from the region surrounding Davenport consisting of about 401,000 persons; it is projected that the city's population and the four county region will increase slightly in the short term, then increase proportional to the State of Iowa.

Employment

Employment levels correlate well with aviation activity. In particular, the manufacturing sector, which tends to have a high propensity for air travel, usually has the strongest correlation.

Total employment trends for the four county region and the State of Iowa have all been positive in the 1990s. Projections for future non-farm employment indicate positive trends for the area, and the State of Iowa. Between 1990 and 2000, total non-farm employment in the region grew by 14.5%. However, between 2000 and 2007, employment only increased slightly by 3.2%. Projecting to year 2030, the area's employment is expected to grow proportional to the State of Iowa growth rate.

Figure 14 shows the increase in employment for the four county region and the State of Iowa.

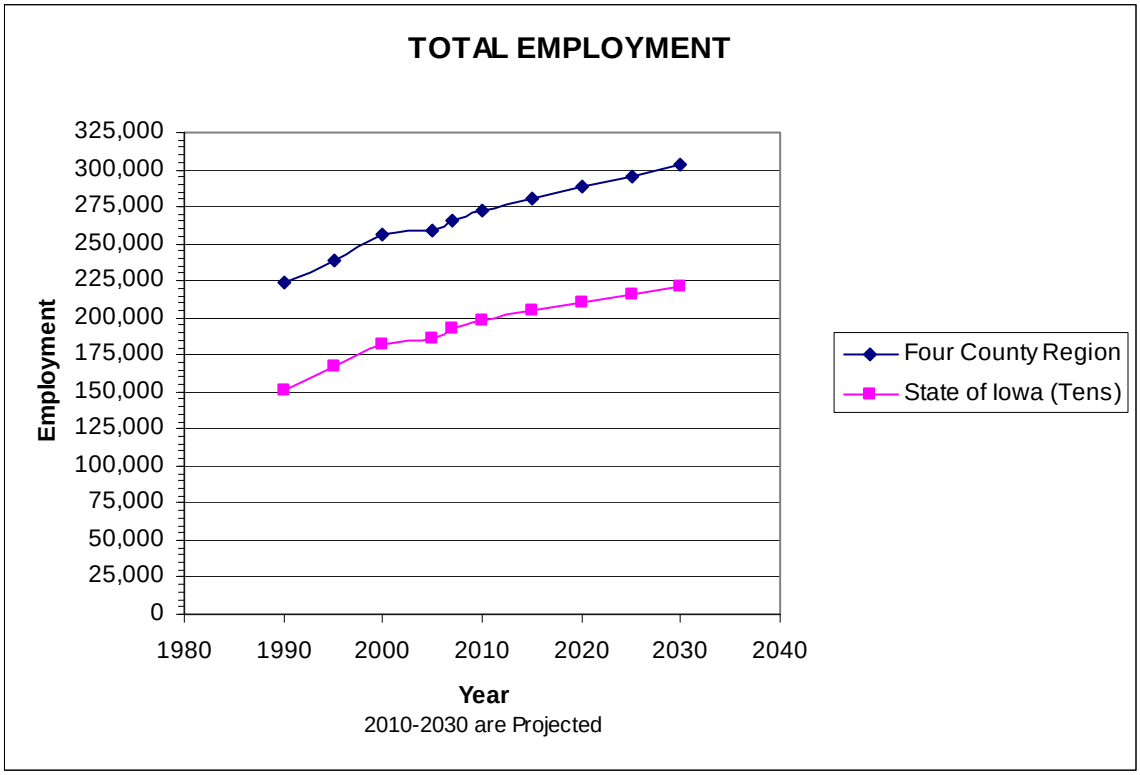


Figure 14. Total Employment for the Four County Region and the State of Iowa

Manufacturing employment in the four county area has seen an increase between 1990 and 2000 of 3.8%. However, manufacturing employment decreased by 14.9% between 2000 and 2005. Manufacturing employment has improved the last two years by 3.8% for a total of 38,245 employed in manufacturing for the area. The State of Iowa has also seen an 11.5 percent decrease between 2000 and 2005 in manufacturing employment but has also improved the two years with projected growth expected to increase. Manufacturing employment for the area is projected to increase paralleling State of Iowa projections. Manufacturing earnings statistics are in Figure 15.

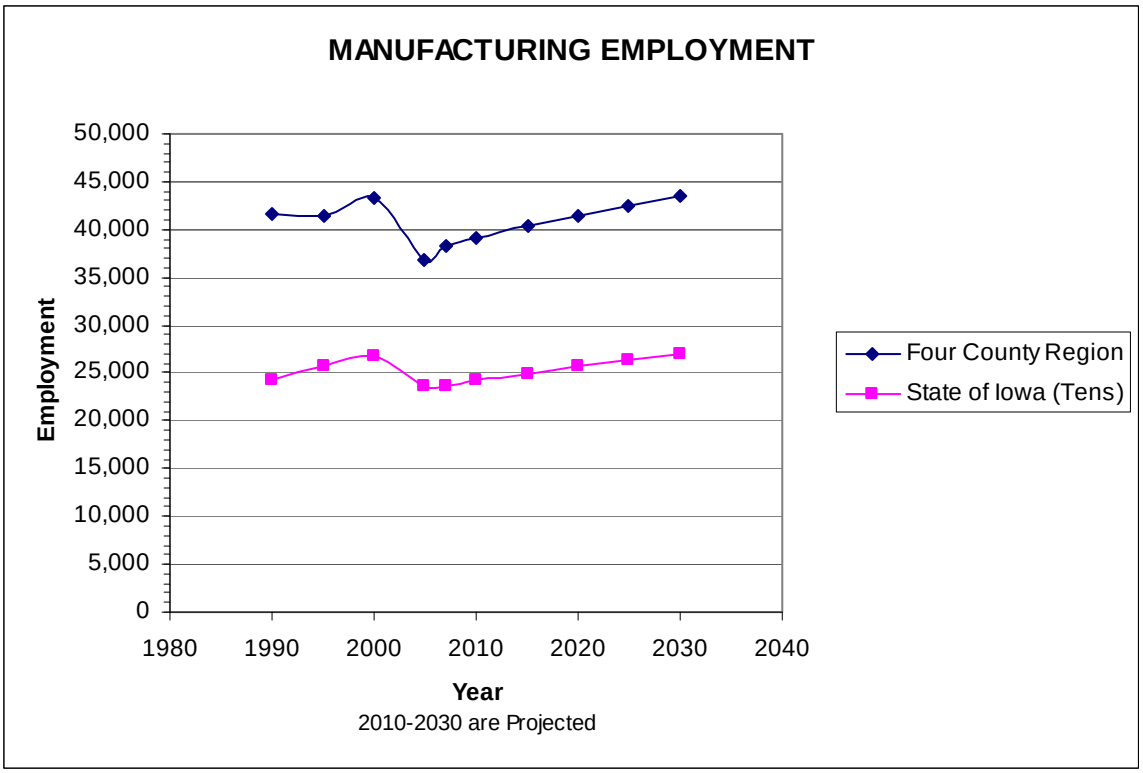


Figure 15. Manufacturing Employment for the Four County Region and the State of Iowa

Income

Another way of correlating airport use is by earnings from industry. Earnings of persons employed by industry in the four county region had an average annual growth rate of 5.2 percent in the 90's and 2000 through 2007 the growth rate was 3.54 percent. Manufacturing also saw large growth in the 90's, a slight decrease between 2000 and 2005, but grew again to 2007. Figure 16 represents total industry and manufacturing earnings in the four county region. Projections assume that earnings growth remains steady with manufacturing earnings maintaining about 21% of total industry.

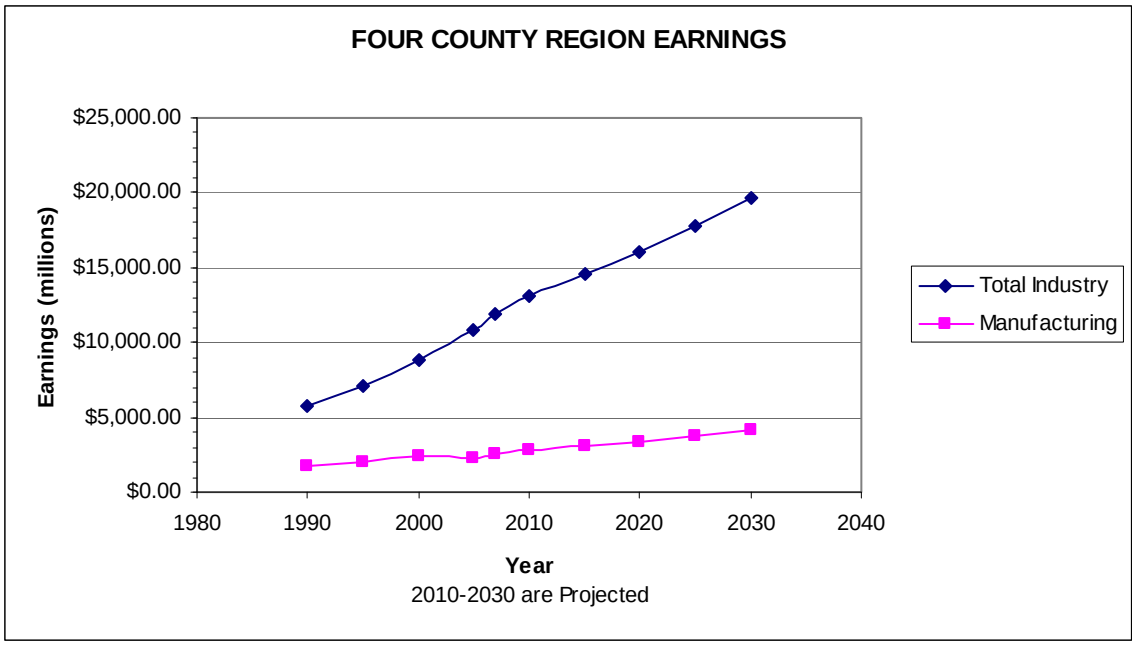


Figure 16. Four County Earnings

For the State of Iowa, the average annual growth rate of total industry earnings was 7.7 percent from 1990 through 2007. Manufacturing has been decreasing slightly the total industry share but still sees about 19% of total. The following figure represents recent past and projected growth of manufacturing and industry earnings for the State of Iowa.

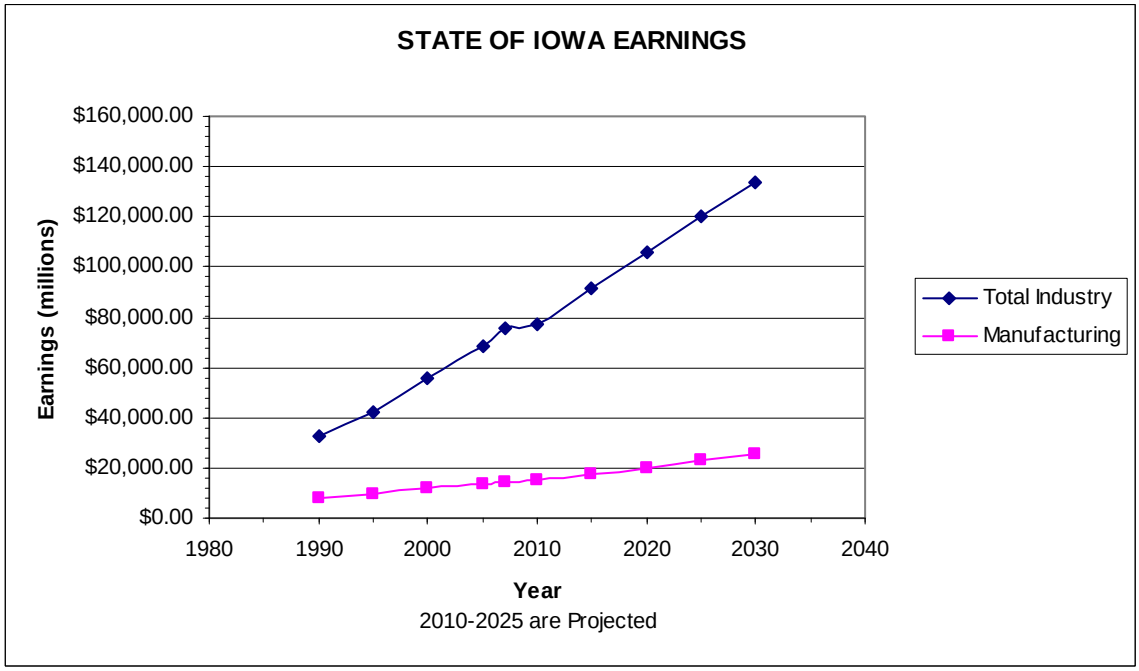


Figure 17. State of Iowa Earnings

PLANNING AND ZONING

Land Use

Area land use adjacent to airport property is mainly agricultural. Runway 15 has a road obstruction and Runway 33 has an obstructing fence. A soccer field complex is located within the airport property but outside the safety areas and building restriction lines. There does not appear to be any other environmental concerns. Section 5 will briefly discuss the impact categories of an environmental review for existing and future development of Davenport Municipal Airport. Any future city planning should discourage residential and non compatible development.

Davenport Municipal Airport Zoning Regulations

The City of Davenport and Scott County has adopted a tall structure ordinance. This ordinance establishes airport height zones in accordance with FAA Part 77 Objects Affecting Navigable Airspace regulations.

SUMMARY

The information discussed in Section One provides the basis upon which the remaining components of the airport planning process will be developed. Information collected on the current airport facilities and the area economic issues will help in determining the adequacy of the existing airport and how the airport will accommodate forecasts of aviation activity and its associated facility requirements.

SECTION 2
AVIATION DEMAND FORECASTS

This section develops forecasts which define future air transportation demands for Davenport Municipal Airport. The purpose of aviation demand forecasts are to:

- **Anticipate Demand.** The aviation and airport system is constantly growing and changing. The major force that drives this growth is demand.

And,

- **Schedule Project Implementation.** Forecasts allow airports to time the implementation of projects to coincide with the demand for them. Building facilities too early wastes funds; creating a budget shortfall. Not building facilities in time to meet demand may cause business and development opportunities to go to another locality.

This section will examine local and regional aviation trends. It is the analysis of these trends and other important influences that will form the underlying decision in the development of forecast models.

FORECASTING APPROACH

Information at both the local and regional levels is needed for the understanding of historical aviation trends and the forecasting of facility requirement demands. Aviation demand forecasts are developed by combining these past trends in aviation activity, the aviation industry, and the local perception of the airport and its activity. Past trends include information on based aircraft, recorded operations, and socio-economic patterns on population and employment. Analyzing these trends is the initial process of developing aviation demand forecasts.

The second process of demand forecasting is to project the trends into the future using various techniques and assumptions. These projections will form a range of tendencies in which the actual growth should be identified. These tendencies may be altered by possible changes in employment, aviation, and/or new construction in the region and around the airport. Employment opportunities, especially manufacturing, can have a large impact on aviation activity. The expansion or removal of an industry can essentially shift the level and nature of aviation demand in a community, like Davenport. New legislation and advances in aviation technology can also alter these aviation trends.

Aviation forecasts should only be used as a general indication of future demand. There are many factors that may have a tendency to be altered, any one can change aviation trends. Variations in the demand forecast should be expected, anticipated, and airport decisions need to have some flexibility in order to respond to actual activity and changes in aviation.

DESIGNATING A FORECAST MODEL

The next step in preparing an airport forecast is to select appropriate methods to develop the forecast. Trends such as population, employment, based aircraft, and aircraft operations need to be analyzed to differentiate between the forecast models and choose the suitable methodology and technique.

Regression analysis will be looked at first as the forecast model. Most regression models for aviation demand use gross economic measures like population, earnings, and employment. This technique is based on the theory that the item being forecast such as based aircraft is dependent on some factor of the economy such as manufacturing earnings. This technique uses the change in the independent economic variable to predict the dependent aviation forecast variable.

When the statistical correlation is weak among variables being forecast and independent economic variables, local aviation growth can be compared with state and national trends. This is a technique called share analysis. Share analysis assumes that forecasts of larger aggregates are used to derive forecasts for smaller area (ie, the local share of based aircraft).

These techniques do not take into account any unforeseen exterior influences; such as an industry abruptly leaving or moving to the local area.

GENERAL AVIATION ACTIVITY

General aviation activity, defined as all fragments of civil aviation except commercial operations, comprises almost every operation at Davenport Municipal Airport. Specific elements of this activity need to be projected into the future to define the proper facilities required at the airport. The projections for general aviation activity that need to be made are:

- *Based Aircraft*
- *Based Aircraft Fleet Mix*
- *Aircraft Operations*
- *Operational Fleet Mix*
- *Critical Design Aircraft*
- *IFR vs. VFR Operations*

Despite the impacts of September 11, 2001 and its aftermath, concerns about pandemics, and high fuel prices, general aviation activity remains stable. The FAA Aerospace Forecast Fiscal Years 2009-2025 assumes the demand for business jets will expand at a more rapid pace than that of piston aircraft. FAA forecasts the number of active general aviation aircraft to increase at an average annual rate of 1.0 percent by 2025. For piston, the average annual increase is only 0.1 percent after a decline

through 2013. The number of turbo-prop aircraft is projected to grow by 3.2 percent and for jet, FAA forecasts the fleet to increase by 4.8 percent a year. Also, the General Aviation Manufacturers Association (GAMA) reports very strong business jet shipments in 2008. And corporate and fractional ownerships of general aviation airplanes grew by 4.9 percent. This trend is expected to continue as safety/concerns for corporate staff, combined with flight delays with commercial aircraft have made fractional/corporate, and charter flights practical alternatives.

***Very Light Jets**

Davenport, with its existing facility and service area, should be ready to accommodate Very Light Jets (VLJ's or Micro Jets). A Very Light Jet is an aeroplane, smaller and lighter than conventional business jets with a minimum take-off weight of less than 10,000 pounds. They have seating between three and six passengers and will be able to land on shorter runways providing flight services to airfields not currently used by business jets. They will also be cheaper to operate and the first VLJ's entered service in 2006.

Based Aircraft

The projection of based aircraft is an important indicator of general aviation demand. All other projections are based on these numbers and are dependent on its accuracy. There are presently 100 based aircraft at Davenport Municipal.

A statistical correlation was found between historic based aircraft and total industry earnings which show an increase in based aircraft. Then a share analysis was performed using local based aircraft share and the state's share. The share analysis also shows an increase in based aircraft.

Statewide, the number of active general aviation aircraft is expected to expand by 17.83 percent to year 2022. This number does not include sport aircraft such as ultralights and for the purpose of planning for FAA standards, this ALP Update is restricted to reciprocating, turbo, or jet aircraft. Assuming this growth rate extends to year 2030, the State's fleet is expected to increase from about 2,600 in 2009 to 2,982 aircraft by year 2030. The share analysis shows that based aircraft at Davenport has a historic average share of 3.5% of the State's based aircraft. The low projections are from the share analysis and the high projections are from the correlation with the medium projection being a best fit compromise of the low and the high estimates. Projected based aircraft are presented in Table 13:

PROJECTED BASED AIRCRAFT				Projected State's Based Aircraft
Year	Low	Medium	High	
2010	92	100	108	2623
2015	95	103	110	2705
2020	98	105	112	2798
2025	101	108	115	2890
2030	104	111	118	2982

*Table 13 *Other Aircraft Such as Gliders/Ultralights Not Included.*

As of January 2010, Davenport reports 108 based aircraft.

Based Aircraft Fleet Mix

It is important to project general aviation aircraft fleet mix based at the Davenport Municipal Airport so that facilities to accommodate these aircraft are provided. Preparations can be made from this Master Plan Update based on the projections of the type and number of aircraft that will be utilizing the airport.

Projections of aircraft fleet mix are based on the projected based aircraft and historical fleet mix trends. It is estimated that the fleet mix will remain with a majority of the based aircraft representing the piston engine category. Currently, Davenport bases 6 turboprop and 2 jets. Table 14 presents the projected aircraft fleet mix for Davenport Municipal Airport. The medium (most likely) estimate for turbo-jet takes into account the local history and national forecasted trends that indicate an increase in turbo-jet aircraft ownership with particular attention given to the introduction of micro jets. The low estimate assumes forecasts will follow recent past trends with about 6-7 based turboprop and 2-4 based jet aircraft.

PROJECTED FLEET MIX												
Year	Total			Piston			Turbo-Prop			Jet		
	Low	Med	High	Low	Med	High	Low	Med	High	Low	Med	High
2010	92	100	108	84	91	98	6	6	6	2	3	4
2015	95	103	110	87	92	96	6	7	8	2	4	6
2020	98	105	112	88	92	95	6	8	10	3	5	7
2025	101	108	115	90	92	93	7	10	14	4	6	8
2030	104	111	118	93	93	93	7	11	15	4	7	10

Table 14

Aircraft Operations

An aircraft operation is defined as any takeoff or landing that is performed at an airport by any aircraft. Aircraft operations are important to project because they give an annual account on the use of the airport so facilities can be planned to accommodate the projected activity.

Over the previous 20 years, Davenport averaged 176 operations per based aircraft. As discussed previously, operations per based aircraft were calculated instead of using the NPIAS standard of 350 operations for estimating total operations. Davenport is assumed to be a medium activity airport with moderate to high level of itinerant traffic and low to medium use by based aircraft (the standard average is 350). However, with the high number of based aircraft at Davenport, using the 176 number of local operations, which equates to 400 total annual operations, instead of the standard average of 350 total annual operations per based aircraft is reasonable. Table 15 presents projected operations for years 2010-2030.

PROJECTED OPERATIONS							
Year	**Based Aircraft**			**Operations Per Based Aircraft**	**Total Local Operations**		
	Low	**Med**	**High**		**Low**	**Med**	**High**
2010	92	100	108	176	16,192	17,600	19,008
2015	95	103	110	176	16,720	18,128	19,360
2020	98	105	112	176	17,248	18,480	19,712
2025	101	108	115	176	17,776	19,008	20,240
2030	104	111	118	176	18,304	19,536	20,768

Table 15

There are two types of operations associated with general aviation, *local* and *itinerant*. In general, local operations are arrivals and departures of aircraft which operate in the local traffic pattern and are known to be arriving from within a 20 mile radius. Also, simulated instrument approaches or low passes are considered to be a local operation. Itinerant operations include all arrivals and departures other than local. It is projected that itinerant business and air taxi traffic will remain on average at 56% with local traffic accounting for 44%. Table 16 presents a summary of anticipated local and itinerant operations.

PROJECTED OPERATIONAL BREAKDOWN									
Year	Local			Itinerant and Air Taxi			Total		
	Low	Med	High	Low	Med	High	Low	Med	High
2010	16,192	17,600	19,008	20,608	22,400	24,192	36,800	40,000	43,200
2015	16,720	18,128	19,360	21,280	23,072	24,640	38,000	41,200	44,000
2020	17,248	18,480	19,712	21,952	23,520	25,088	39,200	42,000	44,800
2025	17,776	19,008	20,240	22,624	24,192	25,760	40,400	43,200	46,000
2030	18,304	19,536	20,768	23,296	24,864	26,432	41,600	44,400	47,200

Table 16

Operational Fleet Mix

The types of operations at Davenport Municipal Airport need to be forecasted to identify the aircraft use of the airport. Recognizing which aircraft are using the airport and how often will provide information to plan necessary facility improvements.

As discussed in Section 1, 8.1% of Davenport's current annual total itinerant activity is conducted by turboprop and 12.7% are conducted by jets. With the area served by Davenport, the steady economy in the four county region, and the expected rise in the use of business jet aircraft; turboprop/jet operations are expected to increase by 35% (State's forecast) of the annual activity by year 2030. These numbers are depicted in Table 17.

PROJECTED OPERATIONAL MIX									
Year	Total Itinerant Operations			Turbo			Jet		
	Low	Med	High	Low	Med	High	Low	Med	High
2010	20,608	22,400	24,192	1,670	1,814	1,960	2,618	2,844	3,072
2015	21,280	23,072	24,640	1,874	2,032	2,170	2,940	3,186	3,404
2020	21,952	23,520	25,088	2,090	2,238	2,388	3,276	3,510	3,744
2025	22,624	24,192	25,760	2,314	2,474	2,634	3,628	3,878	4,130
2030	23,296	24,864	26,432	2,548	2,718	2,890	3,994	4,262	4,532

Table 17

Design Aircraft

As previously discussed, the current design Airport Reference Code is C-II using the specific design aircraft of within 100% of fleet. From the sample in Section 1, 25 out of 357 or 7.0% of itinerant jet operations are from the remaining 25% of fleet. Also, 215/357 or 60.2% are from Design Group II itinerant jet aircraft and 88/357 or 24.6% are from Category D.

PROJECTED DESIGN AIRCRAFT OPERATIONS												
Year	Projected Jet Operations			Itinerant 25% of Fleet Operations			Itinerant Design Group II Jet Operations			Itinerant Category D Operations		
	Low	Med	High	Low	Med	High	Low	Med	High	Low	Med	High
2010	2,618	2,844	3,072	184	200	216	1,576	1,712	1,850	646	702	758
2015	2,940	3,186	3,404	206	224	238	1,770	1,918	2,050	724	786	840
2020	3,276	3,510	3,744	230	246	262	1,972	2,114	2,254	808	866	922
2025	3,628	3,878	4,130	254	272	290	2,184	2,336	2,488	894	956	1,018
2030	3,994	4,262	4,532	280	298	318	2,406	2,566	2,730	984	1,050	1,118

Table 18

Along with the number of operations from Group II aircraft, Davenport should plan for an Airport Reference Code of D-II. The Airport has had limited operations from a specific aircraft in this category, however, with Davenport having a pavement strength of 93,000 pounds DWL, and having operations from some regional jets and aircraft with MTOW over 60,000 pounds, the airport should plan for the probability of accommodating other D-II aircraft in the fleet such as the Gulfstream IV. This aircraft has a wingspan of 77'-10" and a maximum takeoff weight of 73,200 lbs. In addition, with the number of operations from aircraft in the remaining 25% of fleet, Davenport should plan their facilities to accommodate 100% of fleet at a minimum. The next sections will discuss both possibilities for Davenport to accommodate.

Instrument Operations

Section 1 discusses the estimating ratio for determining Annual Instrument Operations. However, the 2009 Chicago ARTCC forecasts an average annual growth of 1.1% for General Aviation from 2009-2025. Assuming instrument operations at Davenport follows the same forecast to 2030; the estimating ratio is changed to the following rate, i.e., 0.244052 + 1.1% for year 2010, 0.244052 + 2.2% for year 2011, and so on. The same is also assumed for Instrument Approaches. The following table forecasts annual instrument operations:

PROJECTED ANNUAL INSTRUMENT OPERATIONS/APPROACHES									
Year	**Annual Itinerant Operations**			**Annual Instrument Operations**			**Annual Instrument Approaches**		
	Low	**Med**	**High**	**Low**	**Med**	**High**	**Low**	**Med**	**High**
2010	20,608	22,400	24,192	5,084	5,526	5,968	3,422	3,720	4,018
2015	21,280	23,072	24,640	5,546	6,012	6,422	3,734	4,050	4,324
2020	21,952	23,520	25,088	6,044	6,476	6,906	4,068	4,358	4,648
2025	22,624	24,192	25,760	6,576	7,032	7,488	4,428	4,734	5,042
2030	23,296	24,864	26,432	7,154	7,636	8,118	4,816	5,140	5,464

Table 19

SUMMARY

The preceding sections have generated the future trends in various aviation demand categories that can be anticipated at Davenport Municipal Airport. Forecasting is a primary determinant of future investment in the airport and provides justification for major capital improvement projects that use federal funds. Section Three will translate these forecasts and incorporate the existing airport facilities to determine what facilities will need to be improved or added to accommodate the projected demand.

SECTION 3
FACILITY REQUIREMENTS

Section 1 described current issues and this section will provide potential solutions and the need for proposed actions. The Facility Requirements section will also cover what, if any, additional facilities will be required to accommodate forecasted activity by applying airport planning criteria to determine airside and landside facility requirements.

Generally, the process for applying airside and landside requirements is to determine the Airport Reference Code and select the lowest approach minimums for each runway. Then the associated design criteria for the items under consideration such as runway length, width, and safety area standards are applied.

AIRPORT REFERENCE CODE

The first step in identifying facility requirements is to designate the *Airport Reference Code* (ARC). The designation of the appropriate ARC design standards for the planning and development of the airport facilities is based primarily on the operational and physical characteristics of the aircraft expected to operate at the airport. This *Critical Design Aircraft* is defined as the most demanding category of aircraft which makes 500 or more itinerant operations per year. These 500 itinerant operations are required by the FAA to justify the construction of new or improved facilities, yet 250 operations are enough to warrant the planning for these facilities. This Airport Reference Code (ARC) of that aircraft has important characteristics which relate to its approach speed and size and are defined in two categories. The first component, depicted by a letter, is the *Aircraft Approach Category* and relates to aircraft approach speed. The second component, depicted by a Roman numeral, is the *Airplane Design Group* and relates to airplane wingspan. Generally, runway standards are related to aircraft approach speed, airplane wingspan, and designated or planned approach visibility minimums.

The Federal Aviation Administration has set standards for the planning and design of airport facilities. These standards include criteria which relate to aircraft size and performance. According to Federal Aviation Administration Advisory Circular (AC) 150/ 5300-13, Airport Design, the *Aircraft Approach Category* is a grouping of aircraft based on 1.3 times their stall speed in their landing configuration at their certified landing weight. The categories are as follows:

Category A: Speed less than 91 knots
Category B: Speed between 91 knots and 121 knots
Category C: Speed between 121 knots and 141 knots
Category D: Speed between 141 knots and 166 knots
Category E: Speed 166 knots or more

The *Airplane Design Group* is a grouping of airplanes based on wingspan. The groups are as follows:

Group I: Up to but not including 49 feet
Group II: 49 feet up to but not including 79 feet
Group III: 79 feet up to but not including 118 feet
Group IV: 118 feet up to but not including 171 feet
Group V: 171 feet up to but not including 214 feet
Group VI: 214 feet or greater

Examples of aircraft in various ARCs are as follows:

Small Airplane (An airplane of 12,500 pounds or less maximum certified take-off weight.)

A-I Beech Baron E55, Beech Bonanza A-36 Cessna 150, Cessna 177
B-I Beech Baron 58, Beech King Air B100, Cessna 402, Piper Navajo
B-II Beech King B200

Large Airplane (An airplane of more than 12,500 pounds maximum certified take-off weight.)

B-I Gates Learjet 28/29, Rockwell Sabre 40, Rockwell Sabre 60
C-I Gates Learjet 24, Gates Learjet 25, Jet Commander, Westwind
B-II Cessna Citation II, Cessna Citation III, Gulfstream I, Rockwell Sabre 65
C-II Gulfstream III, Rockwell Sabre 80
D-I Learjet 31, 35

Combining the critical aircraft's approach category and design group identifies a coding system which sets criteria for airport layouts. The aircraft approach speed relates to the runway and runway related facilities while the aircraft wingspan relates to separation criteria involving taxiways and turnarounds. In order to develop this system, the ARC of the critical aircraft needs to be determined. This will enable the application of the appropriate design criteria.

The Iowa DOT's Aviation System Plan recommends Davenport Municipal Airport to remain as an Enhanced Service Airport. It is considered by the State of Iowa to be a transportation center for business jets and is an economic stimulus for the state by providing facilities that accommodates turboprop and jet business aircraft.

The current ARC for Davenport is C-II from aircraft within the 100% of fleet. Also, as previously mentioned, with the pavement strength at Davenport coupled with a runway length beyond 5,500 feet, it will attract more operations from Regional Jets and other aircraft with maximum takeoff weights greater than 60,000 lbs. Therefore, this section will describe the facilities necessary for 100% of Fleet and then for a Regional Jet.

Initially this section will identify the characteristics of 100% of fleet requirements using the Hawker 800XP as the specific design aircraft compared with the characteristics of the existing Davenport Municipal Airport facilities (see ALP Supplement in Appendix B). Secondly, ultimate facility requirements will be planned to accommodate Regional Jets and other aircraft with maximum takeoff weight greater than 60,000 lbs. using ARC D-II and the Gulfstream G-IV as the design aircraft. Advisory Circular 150/5325-4B and FAA Airport Design Software will be used for facility requirement planning for 100% of fleet category and the Gulfstream Airport Planning Manual will be consulted for planning on the ultimate ARC D-II (see Appendix A). The elements discussed for Facility Requirements include:

- *Runway Requirements*
- *Taxiway Requirements*
- *Electronic, Visual, and Satellite Aids to Navigation*
- *Airspace Requirements*
- *General Aviation Requirements*
- *Support Facilities*

These requirements are based on the forecast design aircraft, the number of based aircraft, and the type and number of annual aircraft operations.

RUNWAY REQUIREMENTS

The existing runway system at Davenport Municipal has been analyzed for its adequacy through a number of criteria. The requirements for runway improvements have been based on the following information:

- *Dimensional Criteria*
- *Orientation*
- *Length*
- *Width*
- *Pavement Design Strength*

Dimensional Criteria

As previously discussed, the process for applying airside and landside requirements is to determine the Airport Reference Code and select the lowest approach minimums for each runway.

Approach visibility minimums are the required vertical and horizontal visibilities for certain operations. The vertical visibility is expressed in terms of a ceiling height; i.e., the height in feet above ground level (AGL) of a layer of clouds covering at least 5/8 of the sky. The horizontal visibility is expressed in terms of miles and/or fractions of miles. Visibility minimums are often expressed as VFR (ceiling at least 1,000 feet and visibility at least 3 miles), IFR (ceiling less than 1,000 feet or visibility less than 3 miles), or closed (ceiling less than 200 feet or visibility less than 0.5 mile). Approaches are defined as nonprecision or precision which are related to both the accuracy of the electronic instrumentation and the required visibility minima. Davenport currently has precision instrument approaches for Runway 15 and nonprecision approaches for Runways 33, 3, and 21.

It is anticipated that the approach visibilities for Runway 33 and 3 should be planned as near precision with visibility minimums being greater than or equal to ¾ mile, and Runways 15 and 21 will remain as is.

Orientation

A crosswind runway should be made available when the primary runway orientation provides less than 95 percent wind coverage for any aircraft that conducts more than 500 operations a year at the airport. Allowable crosswinds are based on the Airport Reference Code (ARC) and are shown in the following.

Airport Reference Code (ARC)	Allowable Crosswind
A-I, B-I	10.5 Knots
A-II, B-II	13 Knots
C-II	16 Knots

Analyzing the wind conditions at Davenport, Runway 15/33 has 97.21% coverage for the 16 knot crosswind component and 92.11% coverage for the 13 knot crosswind component. Therefore, the primary runway provides adequate wind coverage for ARC C-II aircraft but slightly less than adequate for ARC B-II. However, the combined coverage is 97.51% at 13 knots for ARC B-II. The combined coverage of 94.31% at 10.5 knots means that small piston aircraft will have unfavorable wind conditions 5.69 percent of the time. This means that with 79.2 percent of all itinerant traffic being piston, the number of operations effected could be 1,120 annually. However, it is not a good investment to re-orient or build a new cross wind runway to accommodate even this level of small piston aircraft and the runway orientation should remain as is.

Runways are aligned and numbered relative to magnetic north. Correcting for magnetic variation in epoch year 2010, the actual magnetic bearing of Runway 15/33 is 149.0 degrees. For Runway 3/21, the magnetic bearing is 29.0 degrees. The existing runway numbering is correct.

Length

Runway length is a function of several aircraft and airport site specific factors including airport elevation above sea level, temperature, wind velocity, airplane operating weights, takeoff and landing flap settings, runway surface condition (dry or wet), effective runway gradient (change in elevation along the length of the runway), and presence of obstructions in the vicinity of the airport. Using Advisory Circular 150/5325-4B, the figures in Chapter 3 are based on the assumption of no obstructions, zero wind, dry runway surfaces, and zero effective gradient.

Weather greatly affects air density, which in turn impacts the performance of an aircraft; the higher the elevation of the airport, the lower the air density. Another density factor is air temperature, which varies throughout the year. The warmer the temperature, the less dense the air, and the poorer the resulting performance of the airplane. Performance is also impacted by a contaminated runway condition: wet, snow or ice.

With 0.89% of operations at Davenport being within the remaining 25 percent of Fleet, both classes of business jet aircraft need to be considered. Therefore, Figure 3-2 is used with a Mean Daily Maximum Temperature of 86.1°F (Moline-Quad Cities) and an airport elevation of 753 feet.

For business jets within the 100 percent of fleet operating on a regular basis (more than 500 itinerant annual operations), the recommended runway length ranges from **5,510** feet at 60 percent useful load to **8,320** feet at 90 percent useful load for Davenport Municipal Airport following the FAA guidance.

Per the FAA guidance in *FAA AC 150/4325-4B*, useful load is the difference between the maximum allowable structural gross weight and operating empty weight. The useful load consists of passengers, cargo, and usable fuel. The FAA design guidance provides only two useful load percentages, 60 percent and 90 percent. A curve for 100 percent useful load was not developed by the FAA because many of the airplanes used to develop the curves were operationally limited in the second segment of climb.

The runway condition, whether dry or wet or contaminated with snow or ice impacts performance. By regulation, as discussed in *FAA AC 150/4325-4B*, the runway length for jet powered airplanes obtained from the 60 percent useful load curves are increased by 15 percent or up to 5,500 feet, whichever is less, and the 90 percent useful load curves are also increased 15 percent or up to 7,000 feet, whichever is less. No adjustment is necessary by regulation for turboprop

airplanes.

For takeoff, the runway gradient is also considered. The runway length is increased at the rate of 10 feet for each foot of elevation difference between the high and low points of the runway centerline.

Apply Necessary Adjustments to Consider Local Conditions

As shown previously, the FAA recommended runway length guidance identifies the need for at least 5,510 feet to accommodate 100 percent of business jets at 60 percent useful load and up to 8,320 feet at 90 percent useful load. There are a number of conditions that demonstrates that the runway length would need more than the FAA baseline of 5,500 feet. They most commonly occur with higher useful loads, required increased landing distances (wet conditions), required increased takeoff distances (runway gradient).

For takeoff operations, using the 60 percent useful load curve, the runway length is increased by 100' for the 10' difference in runway gradient. The resulting length is 5,610 feet. For landing operations; using the 60 percent useful load curve, the runway length is increased by 15% for wet and slippery conditions or up to 5,500 feet, whichever is less. For this example, the takeoff length controls resulting in a runway length of **5,600** feet.

Runway lengths are significantly influenced by useful load. From above, in order to accommodate 100% of business jets at 90% useful load, the recommended runway length is 8,320 feet. This length will provide more optimal use of the business aircraft and allow longer ranges with less fuel stops. Therefore, the 5,600' length should be considered as a minimum.

Ultimate Length Alternative

With Davenport having a planned Airport Reference Code of D-II, a pavement strength of 93,000 pounds DWL, and having operations from some regional jets and aircraft with MTOW over 60,000 pounds, the airport should plan for the probability of accommodating other D-II aircraft in the fleet such as the Gulfstream IV. Making the G-IV the ultimate critical design aircraft and since it has a maximum takeoff weight of over 60,000 lbs., the manufacturer's Airport Planning Manual (APM) was consulted. The following data and calculations are derived from the General Dynamics (Gulfstream Aerospace Corporation's) APM with appropriate sections of the G-IV Airport Planning Manual included in the appendix.

DATA:

Airplane……Gulfstream G-IV
Mean Daily Maximum Temperature……86.1˚F
Airport Elevation……753 Feet
Maximum Design Landing Weight……58,500 lbs
Maximum Design Takeoff Weight……73,200 lbs
Maximum Difference in Runway Centerline Elevation……-0.20%
Average Annual Headwind (All Weather)……8.6 Knots
Average Annual Tailwind (All Weather)…… 9.6 Knots
Temperature Adjustment (Above Standard)……17.9˚ C
Flaps for Takeoff…… 20˚

CALCULATIONS:

Landing Length Requirement – In the wet runway table from the APM, interpolate between 55,000 lbs. and 60,000 lbs. and between 0 feet and 2000 feet to get a landing distance of 3,940 feet. Then increase the landing distance by 25% for every 10 knots of tailwind. Increase the landing distance by 5% for every 10E above standard. Then increase landing distance by 10% for every 1% of downhill slope. Also, for the wet runway conditions, increase landing distance by 7% for one engine inoperative or one thrust reverser inoperative landings.

Wind adjustment = 3940(25%/10kt)x9.6kt = 946 feet
Temperature adjustment = 3940(5%/10E)x17.9EC = 353 feet
Gradient adjustment = 3940(10%/1%)x0.2% = 79 feet
Engine/Thrust inoperative adjustment = 3940x7% = 276
Landing Length Required = 3940+946+353+79+276 = 5594 Feet **(5,600')**

Takeoff Length Requirement – To ensure conservatism, use the next higher weight, altitude, and temperature table. Interpolation between tables is not recommended.

Enter Takeoff Planning Chart (see Appendix) for wet runway, flaps 20E, pressure altitude at 1000 feet and 30EC. The required takeoff field length for 74,600 lb. maximum takeoff weight is 6,910 feet. Adjusting for wind and slope, decrease by 2% for each 5 knots of headwind and increase by 18% (flaps 20˚) for each 1% of slope.

Wind adjustment = 6910(2%/5kt)x8.6kt = 238 feet
Slope adjustment = 6910(18%/1%)x0.2% = 249 feet
Takeoff Length Required = 6910-238+249 = 6921 Feet

Rounding to nearest 100', the ultimate ARC D-II runway should be planned for **6,900** feet.

Length (Crosswind)
The crosswind runway should be able to accommodate aircraft in the 75% of Fleet and, in particular, turbo-prop Small Airplanes Having 10 or More Passenger Seats such as the Beech 300. Using Advisory Circular 150/5325-4B and Figure 3-1 with the same elevation and temperature variables, the recommended length is 4,735 feet. Adding 10 feet for each foot of difference in runway centerline elevation and rounding up, the total is **4,800'** for takeoff. No adjustment is necessary for wet and slippery runways on turbo-prop powered airplanes for landing operations.

Runway Width
The primary runway, 15/33, at Davenport is currently 100 feet wide. This width is adequate for approach categories A, B, C and D. Runway 3/21 is currently 100 feet wide which is also adequate for approach categories A, B and C. The ultimate width for Runway 3/21 should be 75', however, it is recommended for the existing runway to remain and be maintained at 100 feet until major reconstruction is needed. At that time, the required width would be re-evaluated. The following represents the minimum widths for various design groups and approach categories:

Approach Category	Airplane Design Group		
	I	II	III
A&B visual runways and runways not lower than ¾-statute mile approach visibility minimums	60 ft.	75 ft.	100 ft.
A&B runways with lower than ¾-statute mile approach visibility minimums	100 ft.	100 ft.	100 ft.
C&D	100 ft.	100 ft.	100 ft.

Pavement Strength
The pavement should be designed for the maximum takeoff weight of the Critical Design Aircraft. Pavement strength is based on the pavement thickness and pavement material. Runways 15/33 and 3/21 both have a pavement strength of 68,000 pounds single wheel load (SWL) and 93,000 pounds dual wheel load (DWL). This is adequate for the existing and ultimate critical design aircraft.

TAXIWAY REQUIREMENTS

Taxiways are important facilities in the runway system for several reasons. Access taxiways are necessary to provide movement between the aircraft aprons and the runways. Exit taxiways are used for aircraft to exit the runway after landing. The sooner aircraft exit the runway, the more time the runway is available for takeoffs and other landings. And parallel taxiways connect the access and exit taxiways. Taxiways are necessary with increased activity to provide safe and efficient use of the airfield.

Runway 15/33 at Davenport has a full parallel taxiway [A]. There are 3 exit taxiways [B], [D] and [E]. Taxiway [B] is the taxiway connecting at the runway/runway intersection which should be removed as previously discussed. Taxiway [D] connects to the runway at 2,450' from Runway End 33, and Taxiway [E] connects at 1290' from Runway End 33. The taxiway system is all 50' which is above standard for C-II, which is 35'. It is suggested to maintain this 50' width for all taxiways until major reconstruction is needed, then, at that time the widths will be re-evaluated.

Runway 3/21 has a partial parallel taxiway to Runway End 21. Aircraft must back taxi from Runway End 3 for about 2,100'. In general, an airplane is on the runway an extra 3/4 of a second for each 100 feet it remains on the runway. This means that aircraft back taxiing from Runway End 3 is on the runway an additional 16 seconds. This may sound negligible; however, small aircraft and turbo props will utilize the crosswind runway 22.24% of the time during all weather conditions. Since small and turbo prop aircraft make up 82.4% of all operations, currently this could affect over 4,000 aircraft operations. It is suggested that Davenport Municipal should plan for a full parallel taxiway to Runway End 3. This may be accomplished by continuing Taxiway [D] toward Runway End 3. This would allow for near perpendicular intersection to Runway 15-33.

LANDING AND SAFETY DEVICES

Aids to navigation provide pilots with information to assist them in locating the airport and to provide horizontal and/or vertical guidance during landing. Navigational aids also permit access to the airport during poor weather conditions. The need for new or additional navigational aids is a function of fleet mix, the percentage of time that poor weather conditions are present, and the cost to users of not being able to use the airport when it is not accessible. Navigational aids include approach lighting systems (ALS), Visual Glide Slope Indicators (VGSI), and global positioning systems (GPS), such as the Wide Area Augmentation System (WAAS).

Airport navigational aids and lighting are designed in accordance with FAA standards. This involves specific standards for the following:

- Navigational Aids
- Glideslope Indicators
- Approach Lighting Systems
- Runway Lighting
- Wind Direction and Weather Reporting
- Pavement Marking and Signs

Navigational Aids

Navigational aids (NAVAID) at airport facilities serve two primary functions for airport operations. They provide guidance to a specific runway or to the airport itself. The difference between a precision and a non-precision navigational aid is that a precision approach provides electronic descent, alignment, and position guidance on a unique glide path. A non-precision navigational aid provides position and alignment, or possibly only position information. The need for navigational aids is determined by design standards based on safety considerations and operational needs. The eligibility of an airport for navigational aids is determined by its type, purpose, and volume of aviation activity expected at the airport.

As discussed in Section 1, Davenport has a precision approach for Runway 15 and non-precision approach for Runway 33. Runway 3/21 has non-precision approaches with visibilities of 1 mile. With the advance of near precision approaches, Runway 3 should be planned for a new WAAS approach. This will provide for visibility minimums to be ¾ mile or greater.

Davenport's rotating beacon is 856' feet southeast of Runway 3/21 centerline and 1,375 feet east of Runway 15/33 centerline. The minimum distance from the runway centerline to the rotating beacon is 750 feet. This is so that the beams will not interfere with the pilot's vision.

Glideslope Indicators

Currently Runways 3/21 and 15/33 are equipped with 4-box visual approach slope indicators (VASI-4) which are owned and maintained by the FAA. The FAA Air Traffic Organization, Technical Operations, control the existing systems and will determine when or if to replace.

Approach Lighting Systems

The 1,400' Medium Intensity Approach Light System with RAILS (MALSR) for Runway 15 is also owned and maintained by the FAA. For any extension to Runway 15/33 the MALSR would need to be relocated. No ALS system is planned for Runway 3/21.

Runway Lighting

The medium intensity runway lights for Runway 15/33 should be replaced with high intensity with any runway extension project. With Runway 15 being precision instrument, the edge lighting should be high intensity. Runway 3/21 has nonstandard medium intensity edge lighting. They have clear lenses the entire runway length and only 6 threshold lights. A lighting project should include placing 8 threshold lights at each end and correcting the colors of the lenses.

Runway End Identifier Lights (REILS) to remain at Runway End 33 and REILS should also be installed at each end of Runway 3/21.

Wind Direction and Weather Reporting

It is suggested that Davenport install lighted supplementary wind cones near the approaches for Runways 3, 15, and 33. There is an existing wind cone near Runway End 21. Davenport Municipal already has a federally installed and maintained Automated Surface Observing System (ASOS) which provides information on cloud height, visibility, wind speed, and direction, temperature, dew point and other weather information.

Pavement Marking and Signs

The pavement markings for Runway 3/21 may remain as non precision. And Runway 15/33 should remain marked as precision. Davenport's airfield is well defined with mandatory, location, and direction signs. The signs may be relocated and additional signs will be necessary for any expansion of the runways and taxiways to denote holding positions and taxiway/runway locations.

AIRSPACE REQUIREMENTS

The following outlines the current FAA FAR Part 77 (objects affecting navigable airspace) runway category:

Runway	Part 77 Runway Category	
15	PIR	Precision Instrument Runway
33	C	Visibility Minimums Greater than ¾ Mile
3	C	Visibility Minimums Greater than ¾ Mile
21	C	Visibility Minimums Greater than ¾ Mile

The existing airspace classifications for Runway 15/33 are adequate for existing and ultimate use of the airport. However, alternates for Runway 3 will be shown for a near precision approach with visibilities as low as ¾ mile (Part 77 Category – D) versus existing with visibility minimums of 1 mile.

GENERAL AVIATION REQUIREMENTS

General aviation includes business aviation, flight training, recreational, agricultural, law enforcement, and a variety of other uses and activities. These users need storage facilities, transient aprons, auto parking, and vehicle access from adjacent roads.

Aprons

Total apron requirements should provide adequate space for the following: tie-down of itinerant aircraft, tie-down of local aircraft, fueling area, short-term parking, loading and unloading, FBO operations, and aerial spray operations. With proper planning, the apron will accommodate the maximum number of aircraft while maintaining ease of ingress and egress. The apron should be planned with a certain degree of flexibility and expandability.

Aprons for transient aircraft should be located separately from based aircraft. The aircraft parking area is a section of the apron that needs to be adequate for transient aircraft and those based aircraft that are not stored in hangars. The parking area required can generally be projected based on the forecast of itinerant operations. A general design practice provides for computing parking spaces for itinerant aircraft is as follows:

1. Assume 50% of the busiest day itinerant aircraft are on the apron at a given time,

2. The busiest itinerant day is assumed to be 10% busier than the average day,

3. Allow 1600 square feet of apron for each transient aircraft, increase the amount by at least 10% to accommodate expansion for at least the next 2-year period, and

4. Add appropriate taxilane area, also

5. Provide tie-down for each transient aircraft.

The following spreadsheet calculates the apron area needed for the forecasted number of operations at Davenport:

With the high percentage of transient aircraft operations and based on this calculation, Davenport ultimately will need 25 tie-downs. The planned apron area needed for the projected number of itinerant aircraft is 29,212 square yards. The spreadsheet assumes Davenport will be providing tie-downs for group II aircraft with a taxilane at the apron edge. This apron will be for itinerant aircraft and be located at the new terminal building location. The existing apron area for the based aircraft is adequate. This will require a significant expansion to the existing 5,785 SY apron and the number of tie-downs needed for the short term is 22.

Hangars

The current trend of general aviation aircraft is toward the larger, more sophisticated, and more expensive aircraft. These aircraft owners typically desire hangar space to protect their investment.

Hangar space requirements are in two forms, T-hangars and conventional hangars. The majority of aircraft owners will prefer to store their aircraft in T-hangars, the most economical form of aircraft storage for individual owners. Some owners, typically corporate aircraft owners, may prefer to hangar their aircraft in an individual conventional hangar.

Hangar space should be provided for the number and mix of based aircraft at the airport as shown in Table 14 in Section 2. In addition, providing for one or two extra spaces for itinerant aircraft is desirable; this also provides a space for attracting new based aircraft. The existing T-hangars are in fair to poor condition and can store up to 78 Group I aircraft. Two additional 8 stall T-Hangars is suggested for the projected number of piston aircraft. In addition, the eleven conventional hangars can store up to 38 aircraft. The airport should plan on having the ability to accommodate up to 15 based Group II aircraft and, to attract economic development and in turn based aircraft, it is suggested to construct another conventional hangar of which should be large enough to store the design aircraft; an ARC D-II.

Vehicular Access

With the new terminal building, Davenport should reconfigure auto parking and auto access to the terminal. Auto parking should be paved with the number of stalls to accommodate employees, visitors, and vendors. It is anticipated this number should total about 100 or roughly the same number as based aircraft and be located throughout the hangar areas with restricted access. By reconfiguring the vehicular and ground access, it will provide the FBO's customers and the airport's tenants easy access to the FBO facilities.

SUPPORT FACILITIES

Support facilities at Davenport Municipal include a broad set of purposes that help with the safe and efficient operation of the airport. Included with Davenport's support operations and facilities are: Aircraft Rescue and Firefighting, Airport Maintenance, Fuel Facilities, and Aircraft Maintenance.

Aircraft Rescue and Firefighting

Davenport Airport currently has no scheduled air service and none is anticipated during this planning period. Therefore, Davenport Municipal does not have an on-site Aircraft Rescue and Firefighting (ARFF) station. The airport uses the Davenport Fire Department as the first call responders.

Airport Maintenance

Davenport's Municipal Airport maintenance is under the direction of the City of Davenport's Public Works Director. The Director and his staff perform a wide variety of services to ensure that airport tenants and users have a safe, efficient, and reliable environment. Snow removal service is provided by the fixed base operator (FBO). The FBO uses a straight truck, a tractor, and a loader which are stored at the airport to remove snow from the runways, taxiways, apron areas, and entrance drive, etc. This operation is adequate for the Davenport Airport however, it is suggested to acquire new Snow Removal Equipment (SRE) through the FAA's Airport Improvement Program.

Fuel Facilities

The FBO at Davenport provides fuel facilities for AvGas and Jet-A. Fuel storage requirements are typically based upon maintaining a two-week supply of fuel during an average month. The current fuel facility is expected to accommodate the projected increase in jet and turboprop activity at the Davenport Municipal Airport.

Aircraft Maintenance

The FBO at Davenport provides aircraft maintenance. The current services provided include a licensed airframe and power plant mechanic with IA rating. The existing maintenance facilities are adequate for existing and ultimate use. The FBO has suitable storage and shop space for equipment and tools. The office space for the FBO is located in the new terminal building with excellent facilities for lounge, restrooms, computer and telephones. There is adequate auto parking and ground access which provides the FBO's customers easy access to the FBO facilities.

SUMMARY

The purpose of this section has been to gain insight into the facilities that need to be provided in order to meet aviation demands that are projected for Davenport Municipal through the year 2030. These demands include improvements to both the airside and landside facilities at the airport.

Plans and specifications should be in accordance with the requirements for the D-II category of aircraft within either the 100% of Fleet Category or Regional Jet depending on the conclusions of the next section. In addition, Davenport should plan for providing remedies for the conditions described in Section 1 such as the relocation of Slopertown Road (see attached coordination letter).

The next step in this Master Plan is to develop alternatives to accommodate the demands and issues. An alternative will be chosen that will best accommodate the projected operations and a capital improvement program will then be developed to accomplish the appropriate alternative and meet the projected needs at Davenport Municipal.

Apron Size Calculations for Transient Aircraft

Airport	DAVENPORT MUNICIPAL
Location	DAVENPORT, IOWA

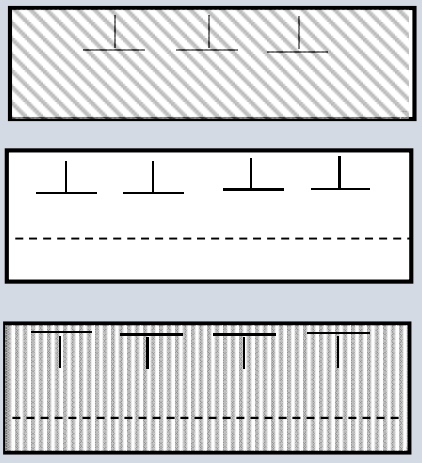
Existing Apron
square yards → 5785

Calculations are based upon guidance established within Appendix 5 to AC 150/5300-13. User may calculate size of apron based upon total annual ops or user may develop an estimate of annual operations based upon number of based aircraft.

	Based Aircraft	OR	Total Annual Ops
1. Calculate the total annual operations			
Enter number of based aircraft →			
Enter number of operations per aircraft [1] →			
Total Annual Operations →	0		24,864
2. Busiest Month (% of Annual Ops) [2]			
Enter % of Annual Ops that occur in busiest month →	20		
Busiest Month Operations →	0		4,973
3. Busiest Day (10%>Avg Day)			
Enter Busiest Month (e.g. August) →	Jul		
Avg Day Busy Month →	0		160
Busiest Day 10% > avg. day →	0		176
4. # Itinerant Aircraft			
Enter % of Itinerant Operations [3] →	56		
# Itinerant Aircraft operations →	0		99
# Itinerant Aircraft Landing Operations →	0		49
Enter % of Itinerant Operations on ground →	50		
# Itinerant AC on ground (assume 50%) →	0		25
5. Apron area			
# square yards per aircraft [4] →	1075		
Apron Area (sq yds) →	0		26,556
6. Planned Apron (10%>)			
# square yards →	0		29,212

NOTES:
1. Ops/Based Aircraft:
   Small GA-250 Med GA-350 Reliever-450 Busy Reliever-750
2. Amount of activity can be determined from fuel sales or from actual operations counts. For example if month with highest fuel sales accounts for 20% of annual sales, use 20% of annual as busy month. If actual traffic counts available, use those.
3. Assume 50% of operations are itinerant if no records are available.
4. Planning areas shown assume 10' clearance between wingtips. Taxilane @ edge places taxilane on edge of apron.
5. Users requiring assistance or reasonable accommodation may contact the FAA Central Region at 816-329-2600.

Apron Area	w/o Taxilane	w/Taxilane @ edge	w/Taxilane
Group I	360	755	960
Group II	490	1,075	1,385



SECTION 4
AIRPORT ALTERNATIVES DEVELOPMENT AND EVALUATION

This section provides for the identification of alternatives to address existing issues and facility requirements as identified in Sections 1 and 3 of this narrative. Alternatives will be evaluated through their strengths, weaknesses and other implications and then a preferred alternative will be identified.

Since this Master Plan covers a 20 year period, the recommended alternative should be functional through various stages of the plan and be flexible enough to meet unforeseen future conditions.

The elements considered for various alternatives are as follows:

- Airside Needs:
  - *5,600' Primary Runway*
  - *6,900' Primary Runway*
  - *4,800' Cross Wind Runway*
  - *Road Rerouting*
  - *Further Expansion Possibilities*
- Terminal Area Needs
  - *Hangar Space and Location*
  - *Apron Expansion*
  - *Auto Parking*

ALTERNATIVES AND EVALUATION

Several alternatives are presented herein. Each alternative is presented to address the elements listed above. Strengths and weaknesses were evaluated along with estimated costs. Each alternative was presented to the Airport Advisory Committee and a preferred alternative was chosen based on these factors plus other circumstances such as social and political elements. Estimated costs are based on 2009 dollars with the assumption that costs for concrete, asphalt, steel, wiring, etc. will stabilize. Also, a $1.5 million cost was inserted for MALSR and/or localizer relocation. This equipment is owned and maintained by the FAA and the relocation and/or replacement of the system will be paid for with AIP funds.

AIRSIDE NEEDS

Runway 15/33 – 5,600' Length

The 5,600' length alternatives are to accommodate the 100% of Fleet Category.

Alternate I

Alternate I involves maintaining the existing 15 threshold and constructing a 90' extension to Runway End 33. This alternative does not require any new land acquisition or relocation of the MALSR. However, the Object Free Area passes slightly over Slopertown Road which necessitates the rerouting of the paved county road. Also, the localizer antenna would need to be relocated to at least 1,000' from the proposed Runway End 33 threshold. The runway edge lighting would be replaced with HIRL. The existing exit taxiways are removed and replaced with exit taxiways located at the proposed runway ends.

Alternate II

Alternate II involves maintaining the existing 33 threshold and constructing a 90' extension to Runway End 15. This alternative does require some new land acquisition for the Runway Protection Zone and the relocation of the MALSR. Again, the Object Free Area passes slightly over Slopertown Road which necessitates the rerouting of the paved county road. The runway edge lighting would be replaced with HIRL. The existing exit taxiway to End 15 is removed and replaced with an exit taxiway located at the proposed runway end.

Runway 15/33 – 6,900' Length

The 6,900' length alternatives are to accommodate Regional Jets and 100% of Fleet Category with higher than 60% useful load.

Alternate I

This alternate shows a 6,900'x100' Runway 15/33 with a 300' extension to End 33 and a 534' extension to the northwest (the existing 555' of runway to remain depending on pavement condition). The 300' is the maximum extension available to the 33 End due to the location of Interstate 80. Slopertown Road is closed beyond a proposed cul-de-sac toward Runway End 15 and Buttermilk Road is completely rerouted around the safety areas and beyond an existing residence. With the closure of Slopertown, the extension of Blackhawk Trail is then needed for vehicular traffic. The standards applied are ARC D-II and regional jets with maximum takeoff weight of more than 60,000 pounds. Land acquisition for the Runway Object Free Area (ROFA), the Runway Protection Zone (RPZ), and 35' Building Restriction Line (BRL) is needed which includes one, residential acreage. This same acreage will need to be purchased for the rerouting of Buttermilk Road. Also the relocation of approach lighting is necessary

along with the localizer. The 50' parallel taxiway is extended to new Runway Ends 15 and 33. Runway edge lighting is replaced with HIRL.

Alternate II

This alternate shows a 6,900'x100' Runway 15/33 with an 834' extension to the northwest (the existing 555' of runway to remain depending on pavement condition). Slopertown Road is closed beyond a proposed cul-de-sac toward Runway End 15 and Buttermilk Road is completely rerouted around the safety areas and beyond an existing residence. Again, with the closure of Slopertown, the extension of Blackhawk Trail is then needed for vehicular traffic. The standards applied are ARC D-II and regional jets with maximum takeoff weight of more than 60,000 pounds. Land acquisition for the Runway Object Free Area (ROFA), the Runway Protection Zone (RPZ), and 35' Building Restriction Line (BRL) is needed which includes one, residential acreage. This same acreage will need to be purchased for the rerouting of Buttermilk Road. Also the relocation of approach lighting is necessary along with the localizer. The 50' parallel taxiway is extended to new Runway End 15. Runway edge lighting is replaced with HIRL.

Runway 3/21

To accommodate ARC B-II aircraft, a 4,800 foot cross wind runway is needed. Although 75' in width is standard, the runway is shown to remain at 100' until major reconstruction is warranted then the required width will be re-evaluated. Elements to consider include the location of existing roads, commercial development along the approach of End 21 and to not limit further expansion possibilities.

Alternate I

The 21 threshold is located as existing and an 800' extension is constructed to Runway End 3.The Object Free Areas under this alternative are all within existing airport property. Some land acquisition will be needed for the proposed Runway Protection Zone. The approach visibilities are shown to be ¾ mile to Runway 3 and greater than ¾ mile for Runway 21. The lighting is reconfigured to standard and extended. Slopertown Road would need to be closed due to required clearances to Runway 21 approach and takeoff. There is also a commercial site at the approach to Runway 21 which makes this alternative less preferable. The standard separation distance for a parallel taxiway is 240 feet, however, the taxiway out to proposed End 3 is shown to be 500' to match the existing separation.

Alternate II

The existing 21 threshold is relocated 200' southwest to provide 15' of clearance over Slopertown Road and a 1,000' extension is constructed to Runway End 3. The existing taxiway to End 21 is to remain and used as

taxiway for the Iowa Army National Guard. The lighting is reconfigured to standard and extended. Some land acquisition will be needed for the proposed Runway Protection Zone. The approach visibilities are shown to be ¾ mile to Runway 3 and greater than ¾ mile for Runway 21. A taxiway is shown to the Runway End 3 extension.

TERMINAL AREA NEEDS

Both alternatives include the development around the new terminal building currently being constructed including a larger apron area for itinerant traffic, auto parking, fuel facilities, and another aviation related building. The seven existing T-hangars are eventually replaced with new T-hangars. Also, rectangular and conventional hangars are added to accommodate the various mix of aircraft that are based at Davenport including at least 8 more spaces for Group II aircraft.

CHOSEN ALTERNATE

The chosen alternate is the 6,900' Runway 15/33 using Alternate II and the 4,800' Runway 3/21 using Alternate II (closing Slopertown Road for approach clearances to Runway 21 was not feasible). Although the 5,600' alternates appear to accommodate 100% of fleet at 60% useful load, it severely restricts existing and expected aircraft operations at higher useful loads. As discussed in the previous section, the runway length required for 90% useful load was 8,320 feet. This would be the maximum length with the 5,600' length being the minimum. Also, with the existing pavement strength, Davenport can accommodate greater than 60,000 pounds maximum takeoff weight. The following points further highlight the argument for the chosen alternate:

- Cost – Spending over $3,000,000 for another 90 feet of pavement is not an effective use of funds. A road will need to be realigned, ROW purchased, and the ILS would need to be relocated along with an approach survey.

- Existing Infrastructure – Along with the pavement strength, Davenport offers wider parallel taxiways at 400' minimum centerline separation from the runways.

- Operations – The 6,900' length allows more efficient haul length and safety for current based and itinerant operations plus allows Davenport to accommodate the larger regional jets which can only operate at Davenport under favorable weather conditions.

SUMMARY

Through meetings with Davenport, Scott County, the City of Eldridge and Airport Staff, the chosen alternative was selected based mainly on the current and anticipated needs for the airport. The social cost of land acquisition is not expected to be a significant factor. It is recognized that the development and expansion of Davenport Municipal Airport provides an extremely important component within the area's transportation infrastructure.

ALTERNATIVE ANALYSIS
DAVENPORT AIRPORT
YR 2009 COSTS

RUNWAY 15/33

Proposed 5,600'x100' Runway 15/33
Alternate I

Slopertown Road Relocation

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	ROW Acquisition	1	LS	$20,000.00	$20,000.00
2	Grading	6,800	SY	$8.00	$54,400.00
4	Subbase	2,020	SY	$16.00	$32,320.00
5	PCC Paving	1,680	SY	$50.00	$84,000.00
6	Misc. Construction			10%	$17,072.00
7	Engineering & Admin.			20%	$37,558.00
	TOTAL				$245,350.00

90' Runway End 33 Extension (Including Exit Taxi)

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Pavement Removal	15520	SY	$8.00	$124,160.00
2	Grading	3900	SY	$10.00	$39,000.00
3	Aggregate Base	6985	SY	$18.00	$125,730.00
4	PCC Paving	6125	SY	$55.00	$336,875.00
5	HIRL	1	LS	$290,000.00	$290,000.00
6	Relocate Localizer	1	LS	$1,500,000.00	$1,500,000.00
7	Pavement Painting	1	LS	$90,000.00	$90,000.00
8	Seeding	1	LS	$10,000.00	$10,000.00
9	Misc. Construction			10%	$251,576.50
10	Engineering & Admin.			20%	$553,468.50
	TOTAL				$3,320,810.00

TOTAL ALTERNATE I **$3,566,160.00**

Proposed 5,600'x100' Runway 15/33
Alternate II

Slopertown Road Relocation

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	ROW Acquisition	1	LS	$30,000.00	$30,000.00
2	Grading	9,100	SY	$8.00	$72,800.00
4	Subbase	2,870	SY	$16.00	$45,920.00
5	PCC Paving	2,190	SY	$50.00	$109,500.00
6	Misc. Construction			10%	$22,822.00
7	Engineering & Admin.			20%	$50,208.40
	TOTAL				$331,250.00

90' Runway End 15 Extension (Including Exit Taxi)

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Environmental	1	LS	$40,000.00	$40,000.00
2	Land Acquisition	1	LS	$25,000.00	$25,000.00
3	Pavement Removal	12140	SY	$8.00	$97,120.00
4	Grading	1710	SY	$10.00	$17,100.00
5	Aggregate Base	2430	SY	$18.00	$43,740.00
6	PCC Paving	2080	SY	$55.00	$114,400.00
7	HIRL	1	LS	$290,000.00	$290,000.00
8	Relocate MALSR	1	LS	$1,500,000.00	$1,500,000.00
9	Pavement Painting	1	LS	$90,000.00	$90,000.00
10	Seeding	1	LS	$10,000.00	$10,000.00
11	Misc. Construction			10%	$216,236.00
12	Engineering & Admin.			20%	$488,714.00
	TOTAL				$2,932,310.00
	TOTAL ALTERNATE II				**$3,263,560.00**

Proposed 6,900'x100' Runway 15/33
Alternate I

Land Acquisition for Runway End 15 RPZ & Safety Area

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Land Acquisition by Fee	58.2	Acres	$7,000.00	$407,400.00
2	Land Acquisition by Fee	1	LS	$500,000.00	$500,000.00
3	Survey & Descriptions	7	Each	$3,000.00	$21,000.00
4	Appraisals	7	Each	$5,000.00	$35,000.00
5	Negotiations	7	Each	$5,000.00	$35,000.00
6	Environmental	1	LS	$50,000.00	$50,000.00
7	Admin. & Legal			20%	$209,680.00
	TOTAL				$1,258,080.00

Slopertown Road Cul-de-Sac

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Grading	4,040	SY	$8.00	$32,320.00
2	Subbase	990	SY	$20.00	$19,800.00
3	PCC Paving	870	SY	$50.00	$43,500.00
4	Misc. Construction			10%	$9,562.00
5	Engineering & Admin.			20%	$21,033.00
	TOTAL				$126,215.00

West Blackhawk Trail Extension

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	ROW Acquisition	1	LS	$500,000.00	$500,000.00
2	Excavation & Grading	22,900	CY	$7.00	$160,300.00
3	Subbase	24,400	SY	$18.00	$439,200.00
4	PCC Paving	17,200	SY	$50.00	$860,000.00
5	Misc. Construction			10%	$195,950.00
6	Engineering & Admin.			20%	$431,090.00
	TOTAL				$2,586,540.00

Buttermilk Road Realignment

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	ROW Acquisition	1	LS	$90,000.00	$90,000.00
2	Excavation & Grading	9,800	CY	$7.00	$68,600.00
3	Subbase	10,600	SY	$18.00	$190,800.00
4	PCC Paving	7,400	SY	$50.00	$370,000.00
5	Misc. Construction			10%	$71,940.00
6	Engineering & Admin.			20%	$158,270.00
	TOTAL				$949,610.00

534' Runway End 15 Extension

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Pavement Removal	7360	SY	$8.00	$58,880.00
2	Grading	10630	SY	$5.00	$53,150.00
3	Aggregate Base	6580	SY	$18.00	$118,440.00
4	PCC Paving	5990	SY	$55.00	$329,450.00
5	HIRL	1	LS	$355,000.00	$355,000.00
6	Relocate MALSR	1	LS	$1,500,000.00	$1,500,000.00
7	Pavement Painting	1	LS	$98,100.00	$98,100.00
8	Seeding	1	LS	$15,400.00	$15,400.00
9	Misc. Construction			10%	$252,842.00
10	Engineering & Admin.			20%	$556,248.00
	TOTAL				$3,337,510.00

300' Runway End 33 Extension (Includes Exit Taxi)

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Pavement Removal	1800	SY	$8.00	$14,400.00
2	Grading	12200	SY	$5.00	$61,000.00
3	Aggregate Base	8065	SY	$18.00	$145,170.00
4	PCC Paving	7200	SY	$55.00	$396,000.00
6	Relocate Localizer	1	LS	$1,500,000.00	$1,500,000.00
8	Seeding	1	LS	$12,600.00	$12,600.00
9	Misc. Construction			10%	$212,917.00
10	Engineering & Admin.			20%	$468,413.00
	TOTAL				$2,810,500.00

Parallel Taxiway Extension to Runway End 15

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Grading	7,750	SY	$5.00	$38,750.00
2	Aggregate Base	8,715	SY	$18.00	$156,870.00
3	PCC Paving	7,670	SY	$55.00	$421,850.00
4	Taxiway Lighting Extension	1	LS	$25,000.00	$25,000.00
5	Misc. Construction			10%	$64,247.00
6	Engineering & Admin.			20%	$141,343.00
	TOTAL				$848,060.00

TOTAL ALTERNATE I **$11,916,515.00**

Proposed 6,900'x100' Runway 15/33
Alternate II

Land Acquisition for Runway End 15 RPZ & Safety Area

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Land Acquisition by Fee	73	Acres	$8,000.00	$584,000.00
2	Land Acquisition by Fee	1	LS	$500,000.00	$500,000.00
3	Survey & Descriptions	7	Each	$3,000.00	$21,000.00
4	Appraisals	7	Each	$5,000.00	$35,000.00
5	Negotiations	7	Each	$5,000.00	$35,000.00
6	Environmental	1	LS	$50,000.00	$50,000.00
7	Admin. & Legal			20%	$245,000.00
	TOTAL				$1,470,000.00

Slopertown Road Cul-de-Sac

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Grading	4,040	SY	$8.00	$32,320.00
2	Subbase	990	SY	$20.00	$19,800.00
3	PCC Paving	870	SY	$50.00	$43,500.00
4	Misc. Construction			10%	$9,562.00
5	Engineering & Admin.			20%	$21,318.00
	TOTAL				$126,500.00

West Blackhawk Trail Extension

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	ROW Acquisition	1	LS	$500,000.00	$500,000.00
2	Excavation & Grading	22,900	CY	$6.00	$137,400.00
3	Subbase	24,400	SY	$12.00	$292,800.00
4	PCC Paving	17,200	SY	$45.00	$774,000.00
5	Misc. Construction			10%	$170,420.00
6	Engineering & Admin.			20%	$374,920.00
	TOTAL				$2,249,540.00

Buttermilk Road Realignment

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	ROW Acquisition	1	LS	$500,000.00	$500,000.00
2	Excavation & Grading	9,800	CY	$7.00	$68,600.00
3	Subbase	10,800	SY	$18.00	$194,400.00
4	PCC Paving	9,730	SY	$50.00	$486,500.00
5	Misc. Construction			10%	$124,950.00
6	Engineering & Admin.			20%	$274,550.00
	TOTAL				$1,649,000.00

834' Runway End 15 Extension

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Pavement Removal	7360	SY	$8.00	$58,880.00
2	Grading	16140	SY	$5.00	$80,700.00
3	Aggregate Base	10170	SY	$18.00	$183,060.00
4	PCC Paving	9280	SY	$55.00	$510,400.00
5	HIRL	1	LS	$355,000.00	$355,000.00
6	Relocate MALSR	1	LS	$1,500,000.00	$1,500,000.00
7	Pavement Painting	1	LS	$98,100.00	$98,100.00
8	Seeding	1	LS	$23,400.00	$23,400.00
9	Misc. Construction			10%	$280,954.00
10	Engineering & Admin.			20%	$618,096.00
	TOTAL				$3,708,590.00

Parallel Taxiway Extension to Runway End 15

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Grading	11,860	SY	$5.00	$59,300.00
2	Aggregate Base	10,635	SY	$18.00	$191,430.00
3	PCC Paving	9,355	SY	$55.00	$514,525.00
4	Taxiway Lighting Extension	1	LS	$25,000.00	$25,000.00
5	Misc. Construction			10%	$79,025.50
6	Engineering & Admin.			20%	$173,849.50
	TOTAL				$1,043,130.00

TOTAL ALTERNATE II **$10,246,760.00**

RUNWAY 3/21

Proposed 4,800'x100' Runway 3/21
Alternate I

Land Acquisition for Runway End 3 RPZ

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Land Acquisition by Fee	32.7	Acres	$7,000.00	$228,900.00
2	Survey & Descriptions	2	Each	$3,000.00	$6,000.00
3	Appraisals	2	Each	$5,000.00	$10,000.00
4	Negotiations	2	Each	$5,000.00	$10,000.00
5	Environmental	1	LS	$50,000.00	$50,000.00
6	Admin. & Legal			20%	$60,980.00
	TOTAL				$365,880.00

800' Runway End 3 Extension

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Excavation & Grading	6700	CY	$10.00	$67,000.00
2	Aggregate Base	9750	SY	$18.00	$175,500.00
3	PCC Paving	8890	SY	$55.00	$488,950.00
4	MIRL	1	LS	$220,000.00	$220,000.00
5	Pavement Painting	1	LS	$71,000.00	$71,000.00
6	Seeding	1	LS	$24,100.00	$24,100.00
7	Misc. Construction			10%	$104,655.00
8	Engineering & Admin.			20%	$230,235.00
	TOTAL				$1,381,440.00

Parallel Taxiway Extension to Runway End 3

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Grading	26,910	SY	$5.00	$134,550.00
2	Aggregate Base	13,840	SY	$18.00	$249,120.00
3	Drainage Structures	1	LS	$32,000.00	$32,000.00
4	PCC Paving	11,800	SY	$55.00	$649,000.00
5	Taxiway Lighting Extension	1	LS	$35,000.00	$35,000.00
6	Misc. Construction			10%	$109,967.00
7	Engineering & Admin.			20%	$241,923.00
	TOTAL				$1,451,560.00
	TOTAL ALTERNATE I				**$3,198,880.00**

Proposed 4,800'x100' Runway 3/21
Alternate II

Land Acquisition for Runway End 3 RPZ

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Land Acquisition by Fee	34.4	Acres	$7,000.00	$240,800.00
2	Survey & Descriptions	2	Each	$3,000.00	$6,000.00
3	Appraisals	2	Each	$5,000.00	$10,000.00
4	Negotiations	2	Each	$5,000.00	$10,000.00
5	Environmental	1	LS	$50,000.00	$50,000.00
6	Admin. & Legal			20%	$63,360.00
	TOTAL				$380,160.00

1000' Runway End 3 Extension

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Relocate 21 Threshold	1	LS	$60,000.00	$60,000.00
2	Excavation & Grading	8165	CY	$10.00	$81,650.00
3	Aggregate Base	12135	SY	$18.00	$218,430.00
4	PCC Paving	11115	SY	$55.00	$611,325.00
5	MIRL	1	LS	$260,000.00	$260,000.00
6	Pavement Painting	1	LS	$74,000.00	$74,000.00
7	Seeding	1	LS	$32,000.00	$32,000.00
8	Misc. Construction			10%	$127,740.50
9	Engineering & Admin.			20%	$281,024.50
	TOTAL				$1,686,170.00

Parallel Taxiway Extension to Runway End 3

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Grading	33,630	SY	$5.00	$168,150.00
2	Aggregate Base	14,690	SY	$18.00	$264,420.00
3	Drainage Structures	1	LS	$32,000.00	$32,000.00
4	PCC Paving	12,515	SY	$55.00	$688,325.00
5	Taxiway Lighting Extension	1	LS	$37,000.00	$37,000.00
6	Misc. Construction			10%	$118,989.50
7	Engineering & Admin.			20%	$261,775.50
	TOTAL				$1,570,660.00
	TOTAL ALTERNATE II				**$3,636,990.00**

CHOSEN ALTERNATE

Proposed 6,900'x100' Runway 15/33 Alternate II and 4,800' Runway 3/21 Alternate II

Land Acquisition for Runway End 15 RPZ & Safety Area

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Land Acquisition by Fee	73	Acres	$8,000.00	$584,000.00
2	Land Acquisition by Fee	1	LS	$500,000.00	$500,000.00
3	Survey & Descriptions	7	Each	$3,000.00	$21,000.00
4	Appraisals	7	Each	$5,000.00	$35,000.00
5	Negotiations	7	Each	$5,000.00	$35,000.00
6	Environmental	1	LS	$50,000.00	$50,000.00
7	Admin. & Legal			20%	$245,000.00
	TOTAL				$1,470,000.00

Slopertown Road Cul-de-Sac

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Grading	4,040	SY	$8.00	$32,320.00
2	Subbase	990	SY	$20.00	$19,800.00
3	PCC Paving	870	SY	$50.00	$43,500.00
4	Misc. Construction			10%	$9,562.00
5	Engineering & Admin.			20%	$21,318.00
	TOTAL				$126,500.00

West Blackhawk Trail Extension

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	ROW Acquisition	1	LS	$500,000.00	$500,000.00
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Buttermilk Road Realignment

Item	Description	Quantity	Unit	Unit Cost	Total Cost
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Item	Description	Quantity	Unit	Unit Cost	Total Cost
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4	PCC Paving	9280	SY	$55.00	$510,400.00
5	HIRL	1	LS	$355,000.00	$355,000.00
6	Relocate MALSR	1	LS	$1,500,000.00	$1,500,000.00
7	Pavement Painting	1	LS	$98,100.00	$98,100.00
8	Seeding	1	LS	$23,400.00	$23,400.00
9	Misc. Construction			10%	$280,954.00
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5	Misc. Construction			10%	$79,025.50
6	Engineering & Admin.			20%	$173,849.50
	TOTAL				$1,043,130.00

TOTAL 6,900' X 100' RUNWAY 15/33 **$10,246,760.00**

Land Acquisition for Runway End 3 RPZ

Item	Description	Quantity	Unit	Unit Cost	Total Cost
1	Land Acquisition by Fee	34.4	Acres	$7,000.00	$240,800.00
2	Survey & Descriptions	2	Each	$3,000.00	$6,000.00
3	Appraisals	2	Each	$5,000.00	$10,000.00
4	Negotiations	2	Each	$5,000.00	$10,000.00
5	Environmental	1	LS	$50,000.00	$50,000.00
6	Admin. & Legal			20%	$63,360.00
	TOTAL				$380,160.00

1000' Runway End 3 Extension

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5	Taxiway Lighting Extension	1	LS	$37,000.00	$37,000.00
6	Misc. Construction			10%	$118,989.50
7	Engineering & Admin.			20%	$261,775.50
	TOTAL				$1,570,660.00
	TOTAL 4,800' X 100' RUNWAY 3/21				**$3,636,990.00**
	TOTAL PROGRAM COST				**$13,883,750.00**

SECTION 5
ENVIRONMENTAL OVERVIEW

The purpose of an Environmental Overview is to recognize which environmental factors could affect the development at Davenport Municipal Airport.

This review has addressed the impact categories in accordance with the impact categories listed in FAA Order 1050.1E and 5050.4. An examination of the affected environment will identify important background material such as a discussion of previous development, existing and planned land uses, concurrence with local and regional plans, and the homogeneity between the proposed development and the adjacent environment. A brief examination of each potential impact area has been developed and studied. The environmental overview will determine if further environmental studies will be required in accordance with the National Environmental Policy Act of 1969 (NEPA). Environmental reviews must be completed to the satisfaction of the FAA Central Region Environmental Specialist prior to any land acquisition or work toward an ultimate runway extension is undertaken. This project has been reviewed by various government environmental agencies. None of the agencies had any objections to the airport expansion and their responses are included at the end of this chapter.

PROJECT NARRATIVE

The Davenport Municipal Airport is located approximately 6 miles north of the Davenport central business district in Scott County, Iowa. There are currently 100 registered aircraft based at the airport. Expected growth in the operations and usage, and safety concerns has placed demands on the airport causing need for expansion and for updating the safety areas. The planned changes can be summarized in the following general categories; primary runway extension with relocated approach lighting, crosswind runway extension and a partial parallel taxiway. The following is a description of each of these general areas:

The ultimate primary runway configuration is a 6,900'x100' Runway 15/33 with an 834' extension to the northwest (the existing 555' of runway to remain depending on pavement condition). Slopertown Road is closed beyond a proposed cul-de-sac toward Runway End 15 and Buttermilk Road is completely rerouted around the safety areas and beyond an existing residence. With the closure of Slopertown, the extension of Blackhawk Trail is then needed for vehicular traffic. This extended runway will allow larger aircraft, which are already using the airport, to safely operate at the airport. Development items would include the acquisition of land in fee for the runway safety areas, the grading, paving, and lighting of the extended runway, the relocation of approach lighting and the installation of high intensity runway edge lighting.

For the cross wind runway, the existing 21 threshold is relocated 200' southwest to provide 15' of clearance over Slopertown Road and a 1,000' extension is constructed to Runway End 3. The existing taxiway to End 21 is to remain and used as taxiway for the Iowa Army National Guard. The lighting is reconfigured to standard and extended. Development items include land acquisition for the proposed Runway Protection Zone, grading and PCC paving of the extension, and a taxiway to proposed Runway End 3.

AIR QUALITY

According to the FAA Order 5050.4A, AAirport Environmental Handbook,@ an air quality analysis is required for general aviation airports whose forecast operations exceed 180,000 annual adjusted total operations. The forecasts presented in this report project between 41,600 and 47,200 total operations for the year 2030. Therefore it is determined that no air quality analysis is required.

Air pollutants around an airport are primarily generated by aircraft operations and surface vehicles. The additional surface traffic and related air pollutants generated by the airport are considered to be relatively insignificant. Therefore, this discussion will confine itself to the air pollutants generated by aircraft operations. The additional air pollutants generated by aircraft operations is expected to be insignificant and will not contribute materially to exceeding applicable air quality standards.

All required permits shall be secured for any activities that may affect the air quality. Construction activities should be in accordance with FAA Advisory Circular 150/5370-10C, Standards for Specifying Construction of Airports.

COASTAL RESOURCES

This impact category has been considered as part of this assessment, but this category is not applicable to the proposed project and thus there will be no impacts.

COMPATIBLE LAND USE

The existing airport property and the immediate vicinity are currently under both the City of Davenport and Scott County Zoning regulations. Operation of the airport is compatible with these zoning designations. There is also an existing Airport Tall Structure Zoning Ordinance in effect by the City which sets forth standards for the height of objects in the vicinity of the airport. It is recommended that these zoning ordinances be amended to include any additional limitations as a result of the proposed expansion.

Based on the discussion of noise and probable impacts discussed throughout this report, it is anticipated that the proposed project will not include any incompatible land usage with the surrounding environment.

CONSTRUCTION IMPACTS

Construction impacts are short term in nature and generally terminate upon the completion of the construction activity. The following are some common construction impacts.

Noise - During construction, the major sources of noise will be earthmoving equipment, paving equipment, and trucks hauling materials and equipment to the construction site.

Water Resources - Disturbed areas, as a result of construction activities, will be subject to soil erosion. This will potentially contribute to an increase in stream turbidity.

Air Quality - Air quality can be affected by a number of construction activities. Construction equipment will generate emissions with operation of diesel and gasoline engines and create dust while moving on-site or to and from the construction site.

These construction impacts can be mitigated by timing construction activity so that the noisiest construction will take place during a more tolerable time of day, construction of silt fences and other measures to reduce the amount of non storm water discharges, and using water on haul roads to control dust.

DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F)

Section 4(f) lands are defined as any publicly owned park, recreation area, wildlife and waterfowl refuge of national, state, or local significance, and any publicly or privately owned historic site of national, state, or local significance. It is believed that there are no Section 4(f) lands adjacent to the airport. Prior to any development, an environmental assessment will be required which will determine the existence of such sites by contacting the National Park Service, the Iowa Department of Natural Resources, and the Scott County Conservation Board.

Land surrounding the airport is mostly privately held and in agricultural production, commercial and industrial usage. The airport property is publicly owned and much of it is also in agriculture production, recreation (soccer fields) and industrial/commercial use. Therefore, no adverse impacts are anticipated in regard to Section 4(f) lands.

FARMLANDS

According to the Farmland Protection Policy Act (FPPA), the U.S. Department of Agriculture has developed criteria under which the environmental impacts and the conversion of farmland to non-agricultural uses can be assessed. This process is used to analyze the alternatives for proposed development to insure that consideration is given to the preservation of agricultural lands.

A cursory review of the farmland was completed using digital soil survey maps of the airport location. According to this preliminary review, approximately 80 percent of the proposed project area is farmland. In order to determine the exact amount of farmland at the site of the proposed development, the Natural Resources Conservation Service must be contacted and a Farmland Conversion Impact Rating form must be completed. This should take place prior to project development and during the environmental assessment.

To mitigate the negative impact of removing farmland from production, only the

minimum amount of farmland, as dictated by Federal Aviation Administration standards, is proposed for acquisition and removal from agricultural production.

FISH, WILDLIFE, AND PLANTS

In order to determine the quality and character of existing wildlife and vegetation, the anticipated impact, and that the proposed project does not jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species, the U.S. Fish and Wildlife Service, the Iowa Department of Natural Resources, the Scott County Conservation Board, and the Natural Resources Conservation Service were contacted. Their responses did not indicate whether there are rare or significant natural communities or that there would be significant impacts on biotic communities.

A cursory visual inspection of the proposed project area reveals that existing wildlife habitat consists of fence rows, farm fields, and a few areas of tree cover. Wildlife would typically include species such as the ring-neck pheasant, bobwhite quail, geese, cottontail rabbit, and associated predators.

Development of the proposed airport improvements should not interfere or displace the wildlife. Most of the airport improvements are mainly being planned in existing aviation areas.

FLOODPLAINS

Floodplains are defined as those areas that would be inundated by a 100-year flood. The proposed site and development areas are not in the vicinity of any floodplains, floodways, or flood prone areas. In addition, the proposed development will not significantly increase runoff affecting nearby drainage ways and creeks. Therefore, no adverse flood hazards are anticipated as a result of the proposed development.

HAZARDOUS MATERIALS, POLLUTION PREVENTION, AND SOLID WASTE

No hazardous materials are anticipated to be generated by the construction or operation of the proposed development.

However, increased fuel dispensing is anticipated in proportion to the projected increase in operations. The fuel facilities will continue to be monitored in accordance with the current requirements of the Iowa Department of Natural Resources and EPA.

Small amounts of solid waste will be generated during construction and operation of the airport after improvements are made. The quantity of material will remain relatively insignificant and will not affect the capacity of area landfills.

Waste from the airport is disposed of at the Scott Area Landfill. The landfill is located approximately 15 miles southwest of the airport. This distance is beyond the 10,000 foot separation from wildlife attractants which FAA recommends for airports serving turbine-powered aircraft.

HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES
There are two primary areas of concern in this category. The first has to do with the identification and preservation of any properties that are in or eligible for inclusion in the National Register of Historic Places that would potentially be impacted by this project. The second provides for the preservation of significant scientific, prehistoric, historical, archaeological, paleontological, or cultural data that may be destroyed or irreparably lost due to this project.

Prior to any development, an environmental assessment will be required which will determine the existence of such sites by contacting the Office of the State Archaeologist, the State Historical Society of Iowa, and the Scott County Historic Preservation Society. The Office of the State Archaeologist and the State Historical Society of Iowa recommend that the best way to determine whether proposed future improvements will affect any significant historic properties is to conduct an archaeological and architectural survey by a professional, qualified consultant and review the survey by SHSI prior to any ground disturbing activities associated with the airport expansion. The purpose of the survey is to locate and evaluate any presently unidentified archaeological or historic sites which may be affected by the proposed project. If cultural remains are encountered during construction, work must cease in the immediate area and Federal regulations pertaining to emergency discovery situations must be followed. Work can continue in the project area(s) where no cultural materials are present. The FAA Central Region Airports Division and the State Historic Preservation Officer (SHPO) must be notified for evaluation of the situation by a qualified professional. The FAA will determine whether the Advisory Council on Historic Preservation needs to be contacted in accordance with 36 CFR Part 800.

LIGHT EMISSIONS AND VISUAL IMPACTS
Runway and taxiway edge lighting, a beacon, visual approach slope indicators (VASI's), approach lighting, and runway end identifier lights (REILs) are the lighting improvements or relocations that are anticipated to occur with the proposed development. Generally these types of lights do not create an annoyance with adjacent light uses. All light fixtures will be set at a positive vertical angle where applicable. No adverse light emission impacts are anticipated due to the combination of the rural setting and the proximity of any light sensitive areas. If any impacts from light emissions do occur, they will be mitigated by shielding.

NATURAL RESOURCES AND ENERGY SUPPLY
Development of the proposed airport facilities will not deplete the supply of natural resources in the area by any significant amount. Losses due to the construction of this project will include the manpower, fuel, and the building materials used. The only natural resources in the area to be used in the construction will be the limestone used in the paving materials. There are a number of quarries in the area which will be able to supply this without significantly depleting their available resources.

As a result of the expansion of the facilities, additional demands will be placed on power sources. Additional electrical power will be required for the extended runway and taxiway light systems. Electrical power demands will be minimized by using a radio control system for adjustment of light intensities. A lighting extension/relocation

project will use higher efficiency bulbs, and possibly new cable.

NOISE

According to the FAA Order 5050.4A, AAirport Environmental Handbook,@ a noise analysis is required for Group I and II airplanes on utility or transport type airports whose forecast operations exceeds 90,000 annual adjusted total operations or 700 annual adjusted jet operations. 2009 data depict that total annual operations were 27,444 and total jet operations were 3,512. The forecasts presented in this report project between 41,600 and 47,200 total operations and between 3,994 and 4,532 jet operations for the year 2030. However, the Cessna Citation 500 and any other jet aircraft producing levels less than the propeller aircraft under study may be counted as propeller aircraft rather than jet aircraft. Therefore, a noise analysis is not expected to be a necessity for Davenport Municipal Airport prior to airport improvements since jet aircraft producing higher than propeller levels is not expected to have more than two operations per day. The 65 DNL noise contour is shown on the Land Use Drawing. It should be noted that the noise contour is 99% inside airport property.

SECONDARY (INDUCED) IMPACTS

Induced socioeconomic impacts are developments not directly associated with the proposed improvements. They may include such things as changes in the business and economic activity, population and growth trends, and public service requirements in the Davenport area.

The only effect the proposed improvements are anticipated to have on economic and population trends are viewed as positive. While the proposed improvements will not cause changes in these areas, the improvements will support current growth trends in population and employment. Expanded facilities and increased activity are anticipated to have only minor impacts on public service demands. Trash collection will see a slight increase in demand and these services are anticipated to have little or no effect on existing capacity. The effect on police and fire protection will have no material changes in demand as a result of these proposed improvements.

SOCIOECONOMIC IMPACTS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

Socioeconomic impacts, environmental justice, and children's environmental health and safety are those effects or disruptions on the human environment that are a result of the development and operations of the proposed improvements.

The proposed improvements will require some acquisition of land around the existing airport. Ultimately, the City desires to plan for upgrading the primary runway to an ultimate length of 6,900 feet with relocated approach lighting. This development may require the acquisition and/or relocation of one residence. Most of the property to be acquired is currently in agricultural crop production or pasture.

Improvements proposed will not create disproportionately high adverse impacts on minority or low income families and will not increase health or safety risks towards children.

The improvements will not result in the loss or degradation of parks, recreation areas, schools, or other facilities or amenities contributing to the quality of life in the Davenport and Scott County area.

WATER QUALITY

The proposed improvement area lies on relatively low ground in proximity to the Mississippi River. Impervious surfaces include runway, taxiway, and apron pavement along with hangar and building roofs. These impervious areas will increase surface runoff. This will be offset by the seeding and maintenance of grass areas adjacent to the paved areas. Grass areas will have a greater tendency to absorb surface runoff than the previously cultivated fields. Therefore, it is anticipated that there will be no significant increase in surface runoff due to the improvements.

During construction, the requirements of FAA Advisory Circular 150/5370-10C Standards for Specifying Construction of Airports should be followed to minimize adverse impacts on water quality. It is recommended that all disturbed areas be seeded as soon as possible and adjacent areas be protected with silt fence and other appropriate erosion measures.

WETLANDS

Wetlands are defined in Executive Order 11990, Protection of Wetlands as Athose areas that are inundated by surface or groundwater with a frequency sufficient to support and under normal circumstances does or would support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds.@ Long and short term impacts associated with the destruction or modification of wetlands are to be avoided.

The U.S. Fish and Wildlife Service, the Army Corps of Engineers, the Iowa Department of Natural Resources, the Natural Resources Conservation Service, and the Scott County Conservation Board were contacted.

WILD AND SCENIC RIVERS

This impact category has been considered as part of this assessment, but this category is not applicable to the proposed project and thus there will be no impacts.

AGENCY DOCUMENTATION

The following are response letters from agencies that replied from our inquiry:

SECTION 6
AIRPORT LAYOUT PLAN

The Airport Layout Plan depicts existing facilities and proposed developments as determined from the review of activity forecasts, facility requirements, and alternatives development and evaluation. One alternative was selected based on development costs, consensus among airport stakeholders, airport safety issues, and the ability to accommodate projected aviation activity at the airport.

The five functions of the Airport Layout Plan are:

- To be eligible for financial assistance under the terms of the Airport and Airway Improvement Act of 1982 (AIP). The airport must keep its ALP current and follow that plan since it is a grant assurance requirement of the AIP.

- An ALP provides a blueprint for airport development by depicting proposed facility improvements. The ALP provides a guideline by which the airport sponsor can ensure that development maintains airport design standards and safety requirements, and is consistent with airport and community land use plans.

- The ALP is a public document that serves as a record of aeronautical requirements, and as a reference for community deliberations on land use proposals and budget planning.

- The ALP enables the City of Davenport and the FAA to plan for facility improvements at the airport. It allows the FAA to anticipate budgetary and procedural needs. The ALP also allows the FAA to protect the airspace required for facility or approach procedure improvements.

- The ALP can be a tool for the City of Davenport, including development groups and airport maintenance staff.

The **Airport Layout Plan** for Davenport consists of the following drawings:

- Cover Sheet
- Airport Layout Drawing
- Pavement Marking Plan
- Airport Airspace Drawing
- Inner Portion of the Approach Surface Drawings
- Plan and Profiles
- Existing / Ultimate Terminal Layout Plan
- Airport Land Use Map
- Airport Property Map
- Departure Surface Drawings

The above set of drawings are included at the end of this section in 11 by 17 format. They have also been printed in 22 by 34 format to concur with current FAA standards.

DESIGN STANDARDS

Section 3 identified Davenport Municipal Airport as being used for business general aviation for both existing and future. The existing Airport Reference Code is C-II and ultimately should be designed as ARC D-II.

AIRPORT LAYOUT DRAWING

The Airport Layout Drawing is a graphical representation of the existing and ultimate airport facilities. It represents the development improvements which will allow the Davenport Airport to accommodate the projected aviation forecasts and existing activities.

The Airport Layout Drawing (Sheet 2 of 17) depicts the proposed airport developments, such as the runways, taxiways, and terminal area. Some of the important information detailed on the ALP includes; wind rose analysis, airport reference point, topographic and elevation information, building restriction lines, runway and taxiway details, runway protection zone details, aircraft approaches, and data tables.

Runway 15/33

The Runway 15 threshold is to be extended 834' northwest (the existing 555' of runway to remain depending on pavement condition) for an ultimate length of 6,900 feet with the width to remain at 100 feet. Runway End 15 to remain with the CAT I ILS system. End 33 to remain with visibilities lot lower than 1-mile. Both ends are shown for approach visibilities of not lower than ¾ mile. Runway End 15 is planned for the relocation of Medium Intensity Approach Lighting System with Sequenced Flashing Lights (MALSR) and relocated VASI system. Runway lighting will should be High Intensity (HIRLs) replacing the medium intensity runway lights (MIRLs).

The parallel taxiway will be extended to ultimate Runway End 15. The existing entrance taxi to relocated Runway End 15 and the taxiway to the runway-runway intersection will be removed.

Runway 3/21

Runway End 21 to be relocated 200 feet southwest for clearance over Slopertown Road and a 1,000' extension is constructed to Runway End 3 for an ultimate length of 4,800 feet. The 100' width will remain until major reconstruction is necessary then the width will be evaluated and possibly narrowed to standard ARC B-II 75 feet. The approach visibilities are shown to be ¾ mile to Runway 3

and greater than ¾ mile for Runway 21. A taxiway is shown to the Runway End 3 extension.

PAVEMENT MARKINGS PLAN

The Pavement Markings Plan (Sheet 2A and B of 17) is a part of the Airport Layout Drawing and shows existing and ultimate pavement markings such as the Aiming Point Markings, Touch Down Zone Markings, Holding Position Markings, Runway Centerlines, and Threshold Markings. Runway markings will remain as precision for Runway 15/33 and nonprecision for Runway 3/21.

AIRPORT AIRSPACE DRAWING

The Airport Airspace Drawing for the Davenport Airport is based on Part 77 of the Federal Aviation Regulations, Objects Affecting Navigable Airspace. This drawing depicts obstacle identification surfaces for the full extent of all airport development. The object of these regulations is to use local zoning regulations and land use planning to regulate the height of objects in and around the airport. This will preserve the airspace and approaches to all runway ends from hazards which might affect the safe and efficient operation of the airport.

The Airport Airspace Drawing (Sheets 3, 4, 5 of 17) depicts the Part 77 critical surfaces which maintain compliance for the Davenport Airport. The surfaces will remain the same with a Part 77 Category PIR Runway 15 with precision approaches and a Part 77 Category C Runway 33 with nonprecision approaches. For Runway 3, the recommended improvements include a Category D with non precision approach with Runway 21 remaining the same Category C. The Categories identified determine the surface heights and dimensions required.

The drawing also shows a profile view of the approach surfaces for Runway 15/33 and Runway 3/21. These views represent the physical features in the orientation of the runway such as; topographic changes, roadways and clearances, and tall structures. These drawings represent the Part 77 slopes and also the obstructions beyond the runway protection zone. The Part 77 slope begins 200 feet from each runway end. For Runway 15 approach, the slope extends outward at a 50:1 slope to a distance of 10,000 feet then at a slope of 40:1 for the next 40,000 feet. For Runways 3, 21 and 33 approaches, the slope extends outward at a 34:1 slope, out to a distance of 10,000 feet. The Obstruction Tables identify the intrusions, if any, for each runway.

The Airport Airspace Drawing also has included on it an Isometric Section of the Part 77 surface. This visual aid gives a three dimensional view of the airspace surfaces and shows exactly what happens off of each runway end.

INNER PORTION of the APPROACH SURFACE DRAWINGS

These drawings contain the plan and profile view of the inner portion of the approach surface to the runway and a tabular listing of all surface penetrations. The drawings depict the obstacle identification approach surfaces contained in 14 CFR Part 77, Objects Affecting Navigable Airspace. The Inner Portion of the Approach Surface Drawings for Runways 15/33 and 3/21 (Sheets 6, 7, 8 and 9 of 17) depict the Part 77 approach surfaces out to the point they reach an elevation of 100 feet above the airport elevation and include the current and proposed Runway Protection Zones (RPZs). The two views are used to identify any obstructions (present or future), which may be roadways, buildings, or trees that are located off each runway end.

The ultimate Runway 15 has precision approaches with visibility minimums of ½ mile which includes a runway protection zone with dimensions 1,000 X 1,750 X 2,500. The approach slope begins 200 feet from the end of the runway and rises at a ratio of 50:1. Runways 33 and 21 have non-precision approaches with visibility minimums of not lower than 1 mile. The approach slopes for Runways 33, 3 and 21 begin 200 feet of the end of the runway and rises at a ration of 34:1. Runway 33 has a runway protection zone with dimensions of 500' X 1,010' X 1,700'. Runway 3's protection zone is 500' X 700' X 1,000' and Runway 21's protection zone is 1,000' X 1,510' X 1,700' for a near precision approach with visibilities of not lower than ¾ mile.

PLAN AND PROFILE

The Plan and Profile drawings (Sheets 10 and 11 of 17) are primarily used to show runway line-of-sight. An acceptable runway profile permits any two points five feet above the runway centerline to be mutually visible for the entire runway length. Existing and Ultimate Runways 15/33 and 3/21 does meet these line of sight standards.

EXISTING / ULTIMATE TERMINAL LAYOUT PLAN

The Terminal Area Layout plan (Sheet 12 of 17) presents a large-scale depiction of areas with significant terminal facility development. The improvements needed for Davenport include expanding the apron for the new terminal/administration building. This area is the new focal point of the airport and the apron should accommodate the existing and projected itinerant traffic. New hangars of various sizes are shown along with taxiways to accommodate expected and growing number of based aircraft. The 35' Building Restriction Line is shown and its location is based on a 1,000' primary surface for Runway 15/33 and a 500' primary surface for Runway 3/21.

AIRPORT LAND USE MAP

The Airport Land Use Map (Sheet 13 of 17) depicts the land uses within the airport property boundary. It also shows land uses and zoning (existing and future) in the area around the airport. Included in this drawing, the 65 DNL noise contour is depicted.

This shows the area of the Day-Night Average Sound Level (DNL) 65 dBA. The Airport Land Use Drawing is developed to identify suitable uses of the airport property, either being used strictly for aviation purposes or for other suitable land uses. The land must be utilized in a manner that will be compatible with the functional design of the airport facility. Planning for the land uses on the airport creates systematic development and efficient use of space.

AIRPORT PROPERTY MAP

The Airport Property Map (Sheet 14 of 17) depicts the airport boundary, the various tracts of land that were acquired to develop the airport, and the method of acquisition. It includes a table which shows the various tracts of land that may be released from airport ownership. The map also shows proposed ultimate property lines for the Davenport Airport by fee simple title and by aviation easements.

DEPARTURE SURFACE DRAWINGS

The Departure Surface Drawings (sheets 15, 16, and 17 of 17) depicts the departure surface of Runways 15, 33 and 3. The departure surface starts at the Departure End of Runway (DER) and slopes upward at a slope of 40:1. There are no penetrations to this surface; therefore, no reductions to Takeoff Distance Available (TODA) and should have no affect on existing or future departure procedures.

SUMMARY

The purpose of the Airport Layout Plan (ALP) is to provide City officials with basic guidelines for making decisions associated with future development at Davenport Municipal Airport. The ALP uses projected aviation activity to plan development to suffice short, intermediate, and long range needs. Airport planning is successful only if flexibility is adopted into the future developments of the airport. Aviation demands are not likely to develop on an even time line, creating the importance of the ALP to become a working document that changes as the needs of the airport change. The ALP has taken into consideration developments that go beyond the twenty year planning period that will ease improvements at Davenport. By using the recommendations and guidelines established in the ALP, the City and the airport can maintain its long term success of providing a first-class air transportation hub to the community and its users.

SECTION 7
IMPLEMENTATION PLAN

This Master Plan evaluates airport development needs based on current and forecasted activities, environmental factors and operational efficiency. Implementing development at Davenport Municipal will require sound and educated judgment from the City and airport staff if the Master Plan is to become a useful decision making tool for the airport. Two of the most important influencing factors the city must be aware of are aviation activity and timing. These two components must be used as decision making instruments for future implementation of the ALP.

It is important for the City of Davenport to schedule a timeline for budgeting purposes, yet it is important for them to know that airport improvements are typically based on aviation activity at the airport and not on an exact schedule. The Master Plan Update has been designed to be implemented on airport activity levels to establish justification for the development of new or improved facilities. It is recommended to develop an airport program that is flexible enough to adapt to future airport usage and implement a development strategy that creates an environment that allows safe and efficient use of the airport.

CAPITAL IMPROVEMENT PROGRAM

In order to better plan the future of the Davenport Municipal Airport, a Capital Improvements Plan should be completed, continually reviewed, and revised. This process includes a probable timeline of construction projects and the cost of each proposed improvement. The estimated costs used in this phase were determined using real material costs and the cost of similar airport construction projects completed in the area. The timeline of project development is analyzed in three stages which will help the airport committee with airport expansion and improvement for the next 20 years. The costs are based on 2010 dollars.

Stage I Developments

Stage I developments are the preliminary improvements to the airport that cover the first five year period from 2012 through 2016. These developments are associated with land acquisition, road relocation, and other pavement improvements. Stage I developments total $8,796,500 and include the following items:

Land Acquisition for Runway 15/33 Extension to 6,900'

This project should begin at least 2 years prior to the construction of an extension to Runway End 15. It should include all the land necessary for the ultimate runway extension including safety areas and out to building restriction lines.

ROW acquisition for the extension of Blackhawk Trail Road Extension is also included. Environmental and archeology survey should be included in this item. The project is expected to involve land acquisition in fee and easement, platting, surveying, negotiations, etc. The budgeted cost for this project should total $1,870,000.

Terminal Apron Expansion
The 2009 Pavement Condition Index report shows the apron for the new location of the Terminal as needing major rehabilitation to reconstruction. Also, since this apron is now the focal point for itinerant activity, a larger apron is needed for improved maneuverability and to accommodate the anticipated number of tie downs. The project includes pavement removal and rehabilitation, expanding PCC apron area, and new tie downs. The budgeted cost for this project should be $1,200,000.

Rehabilitate Runway 15/33
The pavement for Runway 15/33 may be approaching the end of its life. There is deterioration at joints causing movement of slabs, durability cracking, and is susceptible to freeze-thaw. It is anticipated that initially, a pavement analysis will be completed, and, based on the analysis; plans and specs for the improvements will be completed. The budgeted costs for this project include the pavement analysis, design, and construction including patching, slab replacement, and joint sealing is $966,000. Total construction costs may differ with analysis and design, i.e., overlay needed, thickness of overlay, etc.

Runway 3 Approach Panel Replacement
Runway 3 approach is in need of rehabilitation. The pavement has problems with cracking, spalling, and has joint seal damage. It is anticipated that a state grant for panel replacements will be awarded for this project with a federal grant to be awarded at a later date for complete runway rehabilitation. The cost for panel replacements is anticipated to be $450,000 including a state grant for up to $200,000.

West Blackhawk Trail Extension
Davenport and Scott County should be closing roads that interfere with airport expansion and rerouting/extending roads to maintain vehicular traffic infrastructure. Prior to closing Slopertown Road, West Blackhawk trail should be extended to Buttermilk Road. The ROW should be previously acquired from the Land Acquisition for Runway 15/33 Extension to 6,900' described above. This project includes grading, drainage, and PCC paving of the road extension. This project should total $1,589,500.

Slopertown Road Cul-de-Sac
After West Blackhawk Trail is extended, Slopertown Road is closed where it interferes with Runway 15/33 safety areas ending with a Cul-de-Sac. The grading and PCC paving for this item should be $126,500.

Buttermilk Road Realignment
Buttermilk Road is then realigned away from Runway End 15 safety areas. This project also includes ROW acquisition, grading, drainage, and PCC paving of the realignment. One residence may need to be acquired and is included in the costs. This project should total $1,649,000.

Taxiway to East Apron Reconstruction
According to the 2009 Pavement Condition Index report, Taxiway D extending east from Taxiway A and including the apron is in need of reconstruction. The pavement includes problems with cracking, spalling, shattered slabs and has joint seal damage. The total cost to reconstruct is anticipated to be $945,500.

Stage II Developments
Stage II developments consist of extending Runway 3/21 to 6,900 feet, improvements to the existing airport facilities and other projects that are demand driven such as hangar construction. These improvements cover the second five year period from 2017 through 2021. The improvement projects should take precedent over revenue generating projects such as hangar construction. Stage II developments total $6,957,000 and include the following items:

Runway End 15 Extension
This project includes removing the runway-runway intersection taxiway and the exit taxiway to existing End 15. Project assumes the existing 555' beyond the existing threshold is suitable and an 834' extension is constructed for a total runway length of 6,900 feet. The MALSR system will be relocated and the runway edge lighting will be changed to high intensity. The total cost of this project should be $3,758,500.

Parallel Taxiway Extension to Runway End 15
This project may coincide with the runway extension and consists of extending the PCC pavement and taxiway lighting to the new end of Runway 15. The budgeted cost for this project is $1,093,000.

Rehabilitate Parallel Taxiway to Runway End 21
This project consists of crack filling, partial PCC patching and slab replacement. The total cost of this project should be $253,500.

Rehabilitate Runway 3/21
In addition to the panel replacement project in Stage I, it is anticipated to rehabilitate entire Runway 3/21 at this time. Costs include joint/crack sealing, patching and panel replacement for a budget of $935,000.

T-Hangar Replacement
This project provides for replacing the old 10 stall T-Hangars labeled 9a-9i in the Terminal Layout Plan with south facing 8 stall rectangular hangars. The budget for removals, new foundation, and new hangar should be $560,000 for each hangar.

Corporate Hangar Construction
To attract and accommodate based corporate aircraft to Davenport Municipal, a large 100' x 100' conventional hangar is proposed. The airfield facilities are very convenient for business aviation and there is interest in a corporate aircraft basing at Davenport. The budgeted cost for the hangar should total $357,000. It is anticipated this hangar will be situated with easy access to the proposed apron expansion. It can be financed through an Iowa DOT GAVI grant along with a public/private partnership.

Stage III Developments
Stage III developments are secondary improvements which are also demand driven. These improvements cover the last ten year period of the planning study from 2022 through 2031 and are mainly associated with another terminal apron expansion, extending the cross wind Runway 3/21 and other landside projects such as more hangars. Stage III developments total $6,551,000 and include the following items:

Land Acquisition for Runway End 3 RPZ
This project should begin around 1 to 2 years prior to the construction of an extension to Runway End 3. It should include all the land necessary for the ultimate runway extension including safety areas and out to the building restriction lines. Environmental and archeology survey should be included in this item. The project is expected to involve land acquisition in fee and easement, platting, surveying, negotiations, etc. The budgeted cost for this project should total $380,000.

Terminal Apron Expansion
This project expands the terminal apron to the south and east of the terminal building. It is anticipated that access and more tie-downs will be warranted for this project. The budgeted costs should be $1,090,000.

1000' Runway End 3 Extension
This project includes relocating End 21 threshold 200' southwesterly and extending Runway 3/21 by 1000' for a 4,800' X 100' runway. One hundred feet in width is what the budgeted cost includes however, it may only be justified for a 75' width extension. Project included new Medium Intensity Runway Lights with a total budgeted cost of $1,816,000.

Parallel Taxiway to Runway End 3
This project may coincide with the runway extension and consists of extending the PCC pavement and taxiway lighting to the new end of Runway 3. Dependent on amount of funding, there will economy of scale to attach this project to the Runway 3/21 extension. However, separately, the budgeted cost for this project is $1,620,500.

T-Hangar Replacement
Same description as in Stage II.

Corporate Hangar Construction
To attract and accommodate based corporate aircraft to Davenport Municipal, a large 100' x 100' conventional hangar is again proposed when warranted. The budgeted cost for the hangar should total $524,500. Included in this cost is apron and taxiway access. It can be financed through an Iowa DOT GAVI grant along with a public/private partnership.

T-Hangar Replacement
Same description as in Stage II. Also, as shown on the Terminal Area Plan, a new 10 stall Hangar may be considered when need arises.

FUNDING STRATEGIES
Financing the development and operation of the Davenport Municipal Airport will not be subsidized from strictly one source. A system has been developed to incorporate funding from three basic institutions; federal, state, and local resources. Each institution has its own priorities and rules of financing certain developments.

Most of the financing for airport improvements comes from federal and state grants, supported with matching dollars from a local sponsor. Federal grants are currently set up to account for 95 percent of an airport project, with the local sponsor accepting 5 percent. State grants have been designed to account for up to 85 percent of an airport project such as hangars and airside development such as taxiway, apron, and security fencing, with the local sponsor being responsible for the remaining percentages.
Caveat: State grants are more competitive and the more local funding available, the

better chance of being award a grant. For planning purposes, it was assumed a 15% local match (or up to $200,000) for all proposed state grants. Local money may come from several sources including; City budget, airport capital, donations, and other private financial contributions.

Table 20 defines the development costs and categories them into funding sources:

CAPITAL IMPROVEMENT PROGRAM (2010 Costs)				
	FAA	**IDOT**	**Local**	**Total**
Stage I Developments (2012-2016)				
Land Acquisition for RWY 15/33 Ext.	1,776,500		93,500	1,870,000
Terminal Apron Expansion	1,140,000		60,000	1,200,000
Rehabilitate Runway 15/33	917,700		48,300	966,000
Runway 3 Approach Panel Replacement		200,000	250,000	450,000
West Blackhawk Trail Extension	1,510,025		79,475	1,589,500
Slopertown Road Cul-de-Sac	120,175		6,325	126,500
Buttermilk Road Realignment	1,566,550		82,450	1,649,000
Taxiway to East Apron Reconstruction	898,225		47,275	945,500
Stage I Totals	*$7,929,175*	*$200,000*	*$667,325*	*$8,796,500*
Stage II Developments (2017-2021)				
Runway End 15 Extension	3,570,575		187,925	3,758,500
Parallel Taxiway Extension to Runway End 15	1,038,350		54,650	1,093,000
Rehabilitate Parallel Taxiway to Runway End 21	240,825		12,675	253,500
Rehabilitate Runway 3/21	888,250		46,750	935,000
T-Hangar Replacement		200,000	360,000	560,000
Conventional Hangar Development		200,000	157,000	357,000
Stage II Totals	*$5,738,000*	*$400,000*	*$819,000*	*$6,957,000*

	FAA	IDOT	Local	Total
Stage III Developments (2022-2031)				
Land Acquisition for Runway End 3 RPZ	361,000		19,000	380,000
Terminal Apron Expansion	1,035,500		54,500	1,090,000
1000' Runway End 3 Extension	1,725,200		90,800	1,816,000
Parallel Taxiway Extension to Runway End 3	1,539,475		81,025	1,620,500
T-Hangar Replacement		200,000	360,000	560,000
Conventional Hangar Development		200,000	324,500	524,500
T-Hangar Replacement		200,000	360,000	560,000
Stage III Totals	*$4,661,175*	*$600,000*	*$1,289,825*	*$6,551,000*
TOTAL PROGRAM COSTS	**$18,328,350**	**$1,200,00**	**$2,776,150**	**$22,304,50**

Table 20

PROGRESSIVE PLANNING

The City of Davenport is a forward looking community dedicated to the growth and productivity of its industrial base and its citizens. The airport should follow in the footsteps of the community leaders and be dedicated to the growth of the city. The primary purpose of planning is to make the airport safer. After safety, the purpose of planning is to make the airport more efficient. An efficient airport contributes to a productive and competitive economy. Realizing the improvements suggested in this Master Plan Update will help the airport reach this goal of serving the economic growth and protecting the community's investment.

Progressive Planning for the Davenport Municipal Airport means that this Master Plan Update must be flexible, adapt with changes in aviation activity, and adjust around financial backing. Airport planning is not a one time effort. It must be continually reviewed and improved upon to adapt itself as a useful decision-making instrument for the future of aviation in Davenport. By having a working plan, the airport will be able to make adjustments in the development schedule to safely and efficiently deal with unanticipated demands or variations in aviation forecasts.

Appendix A

Gulfstream GIV Operational Information – Landing Field Length
Gulfstream GIV Operational Supplement – Takeoff Distances

Appendix B

ALP Supplement – Recommended Runway Length

INTRODUCTION

Letters of commitment have been received to justify the extension of Runway 15/33 at the Davenport Municipal Airport. Some of the letters may be vague and open to some interpretation. For instance, when the letter specifies different categories of aircraft, the total number of anticipated operations is approximated by equally dividing the number of operations to each class of aircraft. Or, since the Kaiser/Wells Fargo letter did not mention number of operations, a probable number was extrapolated from the 2008 Turbo/Jet itinerant operations (Table 11), in Master Plan Narrative.

AIR TRAFFIC ACTIVITY

From the letters, the type of aircraft and anticipated number of annual itinerant jet operations are broken down as follows:

REGIONAL JETS		
Company	**Type of Aircraft**	**Anticipated Annual Operations**
KaiserAir / Wells Fargo	Gulfstream G-IV Canadair Challenger	32*
Flight Options	Canadair Challenger Embraer EMB-135	10**
John Deere	Gulfstream G-V Gulfstream 550	34***
NetJets	Gulfstream G-IV Gulfstream 550	12
	Total	**88**

Table 1

* Calculated as: 6 Wells Fargo operations from sample of 2,800 itinerant operations multiplied by 14,567 annual itinerant operations. And assuming Wells Fargo would operate their Regional jets if facilities were available instead of Cessna 560.

** Assumed based on prior history, 26 total from Flight Options

*** Assumes facilities available for John Deere's regional jets including supplier's G-V.

100% of Fleet		
Company	**Type of Aircraft**	**Anticipated Annual Operations**
CitationAir	Cessna 750	6
Flight Options	Hawker 800XP	10**
Heartland Aviation	Citation III	6
John Deere	Citation X	34*
NetJets	Hawker 800XP Citation X Gulfstream 200	12**
Nestle Purina	Bombardier Challenger	20**
Van East Aviation	Cessna S550***	208**
Travel Management Co.	Hawker 800XP Cessna S550	90 **
Blackwell Aviation	Cessna S550***	200**
	Total	**586**
	Total Heavily Loaded	**540**

Table 2

* Includes operations from suppliers.

** Heavily Loaded

*** Projected Operations with assumed purchase of S550

75% of Fleet (All Heavily Loaded)		
Company	**Type of Aircraft**	**Anticipated Annual Operations**
CitationAir	Cessna 525B	58
CitationAir	Cessna 560XL	44
CitationAir	Cessna 680	6
Flight Options	Hawker 400XP	6
Heartland Aviation	Citation II	6
Gurley Leap	Learjet 31A	100
Iowa 80 Group	Raytheon 390 Embraer EMB-500	150
NetJets	Hawker 400XP	6
Van East Aviation	Cessna 500*	208
Travel Management Co.	Hawker 400XP	44
Blackwell Aviation	Cessna 560XLS*	150
	Total	**798**

Table 3

***** Current Aircraft (plan to purchase larger if facilities available)

Design Aircraft
From Table 2, the operations exceed 500 in the 100% of fleet category. The specific critical design aircraft within this category is the Cessna S550. This aircraft has an approach speed of 107 knots, a wingspan of 52'-3", a maximum take off weight of 15,100 pounds, tail height of 15' and seating for up to 10 passengers.

Also, based on the letters, the aircraft in both the 75% and 100% of fleet are anticipated to be heavily loaded. Therefore, runway length for both classes are computed and compared.

Runway Length
Using Advisory Circular 150/5325-4B recommended runway lengths were computed. These requirements are based from the following variables:

- Critical design aircraft
- Airport elevation
- Maximum difference in runway centerline elevation
- Mean daily maximum temperature of the hottest month
- Pavement surface conditions (wet & slippery vs. dry)

Since most of the operations are heavily loaded, the 90 percent useful load curve is used. The specific aircraft that is projected to be the most demanding is the Citation S550, the airport elevation is 753', the maximum difference in runway centerline elevation is 10', the mean daily maximum temperature of the hottest month is 86.1 degrees, and the pavement surface conditions are assumed to be wet and slippery.

Using the above variables, and from Figure 3-2, "100% of Fleet at 90 Percent Useful Load" for the Runway Length Curve, the recommended length is 8,320 feet (see Figure 3-2). This length is not feasible and it is not anticipated that the Citation S550 needs the full 8,320 feet for enough operations to justify. Therefore, Figure 3-1, 75% of Fleet at 90 Percent Useful Load is considered. Using the same variables, the recommended runway length is 6,476'. For takeoff, the recommended length is increased by 10 feet for each foot of elevation difference to get 6,576 feet. For a wet and slippery runway (landing operations only), the length is increased by 15 percent or up to 7,000', whichever is less. 6476 feet plus 15% equals 7,447'. Therefore, the 7,000' length is recommended.

RECOMMENDATIONS

The Airport Master Plan, currently being updated, identifies the Gulfstream G-IV as the ultimate design aircraft. Although there are not enough operations to justify expanding Davenport's facilities to accommodate this aircraft, it is the most frequent regional aircraft operating or would operate in Davenport based on the letters. From the Master Plan Narrative, the G-IV requires a 6,900 foot runway. This length would also accommodate any of the maximum loaded 75% of Fleet operations and many of the fully loaded 100% of Fleet category operations. It is recommended that Davenport should begin proceedings to develop the 6900 foot runway as shown in the ultimate configuration for the Master Plan.

DAVENPORT MUNICIPAL AIRPORT

ADDENDUM NO. 1 TO THE AIRPORT MASTER PLAN UPDATE

AUGUST 2014

PREPARED FOR:
City of Davenport, Iowa

PREPARED BY:

building strong communities.

DES MOINES METRO
1360 NW 121st Street
Clive, Iowa 50325
P 515.964.1229
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The preparation of this document may have been supported, in part, through Airport Improvement Program (AIP) financial assistance from the Federal Aviation Administration (Project Number 3-19-0024-14-2009) as provided under Title 49 U.S.C., Section 47104.

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INTRODUCTION

This Addendum No. 1 revises the Airport Master Plan Update prepared by Clapsaddle-Garber Associates, Inc. of Marshalltown, Iowa dated December of 2012. The purpose of Addendum No. 1 is to address Davenport Municipal Airport (DVN) desired changes to the Master Plan Update. The following are the highlights of the major changes:

- Extended the ultimate Runway 15/33 length from 6,900 feet to 7,201 feet.
- Extended the ultimate Runway 3/21 length from 4,800 feet to 5,001 feet.
- Revised the full parallel taxiway system for Runway 3/21.
- Added a full parallel taxiway system on the west side of Runway 15/33.
- Relocated North Division Street further to the west outside the Runway 15 RPZ.
- Relocated West Blackhawk Trail Extension further to the north outside the Runway 15 RPZ.
- Created a proposed airport related development area south of Slopertown Road.
- Revised the proposed development area east of the Runway 33 end.
- Relocated the Fuel Farm Facility.
- On the Airport Property Map, revised ownership references made to the Davenport Airport Commission to the Davenport Airport.

CHANGES TO SECTION 1: EXISTING CONDITIONS AND ISSUES

No changes were made to this section.

CHANGES TO SECTION 2: AVIATION DEMAND FORECASTS

Design Aircraft

As stated in Section 2 of the Airport Master Plan Update, the airport should plan for the probability of accommodating other D-II aircraft in the fleet such as the Gulfstream IV (G-IV). The design aircraft will not be limited solely to the G-IV aircraft as stated in Section 2. It will include other D-II aircraft listed in the 100 percent of fleet as shown in Table 3-2 of FAA AC 150/4325-4B, *Runway Length Requirements for Airport Design.*

CHANGES TO SECTION 3: FACILITY REQUIREMENTS

Ultimate Runway 15/33 Length

The ultimate Runway 15/33 length was extended from 6,900 feet to 7,201 feet. Runway lengths are significantly influenced by an aircraft's useful load. For business jets within the 100 percent of fleet as identified in Table 3-2 of FAA AC 150/4325-4B, the recommended runway length ranges from 5,510 feet at a 60% useful load to 8,320 feet at a 90% useful load.

The Airport Master Plan Update stated the airport should plan for the probability of accommodating other D-II aircraft in the fleet such as the G-IV. With the required runway lengths ranging from 5,510 feet to 8,320 feet, there was no sound justification for limiting the critical design aircraft to the G-IV. There is justification for providing greater flexibility and ultimately accommodating other D-II aircraft beyond the G-IV.

Furthermore, with a 6,900 foot ultimate runway length there would be approximately 300 feet of additional length available to provide the maximum runway length possible giving the physical constraints on each runway end. It makes logical sense to extend the ultimate length to the maximum possible without relocating the existing railroad spur. The maximum length was determined to be 7,201 feet while still providing the necessary clearances for the Runway 15 end safety area, runway object free area, and height clearances for the approach/ departure surfaces required by FAA standards.

An ultimate length of 7,201 feet will allow the airport to achieve the goal of providing the maximum length possible given the existing physical constraints (railroad spur to the north and Interstate 80 to the south). Furthermore, an ultimate length of 7,201 feet will eliminate the need to relocate the Instrument Landing System (ILS) system a second time from 6,900 to 7,201 feet as future demand surpasses the ultimate critical design aircraft which was identified as the G-IV.

In summary, the ultimate Runway 15/33 length has been revised from 6,900 feet to 7,201 feet to provide greater flexibility with D-II aircraft in the 100 percent fleet and avoid having to possibly relocate the ILS system more than once.

Ultimate Runway 3/21 Length

The ultimate Runway 3/21 length was extended from 4,800 feet to 5,001 feet. The previous Airport Master Plan stated the crosswind runway should be able to accommodate aircraft in the 75% of fleet as shown in Table 3-1 of FAA AC 150/5325-4B and turbo-prop Small Airplanes Having 10 or More Passengers Seats such as the Beech 300. However the ultimate crosswind length determination was only planned for turbo-prop powered airplanes and not turbojet powered operations which require an adjustment for wet and slippery runways which is applicable to landing operations only.

As a result, the Airport desired to extend the ultimate Runway 3/21 to a minimum length of 5,001 feet to accommodate turbojet powered aircraft which require minimum runway lengths of 5,000 feet during wet and slippery conditions.

Taxiway Requirements

The Airport Master Plan Update suggested a full parallel taxiway be provided for Runway 3/21 to the Runway 3 end by means of continuing Taxiway D toward the Runway 3 End. The Airport has modified the full parallel taxiway layout by continuing Taxiway B versus extending the angled Taxiway D. The continuation of Taxiway B will provide a true full parallel taxiway system, provide a more standard airfield layout, and increase the operational efficiency of the airport.

In addition, a full parallel taxiway system on the west side of Runway 15/33 was added. The parallel taxiway system is planned to accommodate a proposed aviation related development area where the soccer fields are currently located. The taxiway has been planned for a 75' width to accommodate aircraft up to Taxiway Design Group (TDG 5). The Airport intends to attract an aviation related use development such as an aircraft Maintenance, Repair, and Overhaul (MRO) facility, an aircraft manufacturing/final assembly plant, or an air cargo heavy freight facility.

Wind Direction and Weather Reporting

The existing Automated Surface Observing System (ASOS) location is in direct conflict with the proposed aviation related development area. The ultimate location for the ASOS has been revised south of the Runway intersection.

Fuel Facilities

The underground fueling systems were installed in the early 1950's. The system has deteriorated to a point that the airport is spending excessive amount of operating capital trying to prevent fuel from leaking into the soil. Additionally, the insurance costs for an underground system can be eliminated by going to an above ground system. The existing fueling systems need to be removed and replaced and the Airport intends to install four (4) 10,000 gallon above ground storage tanks, a self-service and full-service fuel dispensing system, and a fuel containment system.

The previous location was identified in the center of the ultimate apron area. The location has been revised to the very east side of the ultimate apron expansion to provide additional aircraft parking stalls on the ultimate apron area.

City Administration Building

The existing terminal facility is located in conjunction with the private FBO building operated by Carver Aero. The City ultimately wants to construct a City owned administration building that will become the terminal building separate from the private FBO building. The ultimate City Administration Building has been located just north of the existing FBO building.

CHANGES TO SECTION 4: AIRPORT ALTERNATIVES AND EVALUATION

Runway 15/33 – 6,900' Length (Alternate II)
The ultimate Runway 15/33 length was extended from 6,900 feet to 7,201 feet. The alternate was revised to show a 7,201'x100' Runway 15/33 with a 1,135' extension to the northwest (the existing 555' of runway to remain depending on pavement condition. Slopertown Road will need to be closed at least to the edge of the Runway Object Free area and primary surface. In addition, North Division Street needs to be relocated further to the west. North Division Street was relocated further west to accommodate for the proposed aviation related development in the soccer field area and outside the ultimate Runway 15 Runway Protection Zone (RPZ). The revised layout will also eliminate having the ultimate N. Division Street and Railroad crossing intersection on the extended runway centerline.

In addition, the ultimate West Blackhawk Trail Road extension was relocated further to the north. With Runway 15/33 being extended from 6,900 feet to 7,201 feet, the West Blackhawk Trail Extension would coincide with the ultimate Runway 15 RPZ. The West Blackhawk Trail Extension was shifted slighting to the north to not conflict with the ultimate Runway 15 RPZ.

Runway 3/21
The ultimate Runway 3/21 length was extended from 4,800 feet to 5,001 feet to accommodate turbojet powered aircraft which require minimum runway lengths of 5,000 feet during wet and slippery conditions.

Terminal Area Needs
The existing terminal facility is located in conjunction with the private FBO building operated by Carver Aero. The City ultimately wants to construct a City owned administration building that will become the terminal building separate from the private FBO building. The ultimate City Administration Building has been located just north of the existing FBO building.

Chosen Alternate
The ultimate Runway 15/33 length was extended from 6,900 feet to 7,201 feet. The 7,201' length allows higher useful loads, more efficient haul lengths and safety for current based and itinerant operations plus allows Davenport to accommodate the larger regional jets which can only operate at Davenport under favorable weather conditions.

The ultimate Runway 3/21 length was extended from 4,800 feet to 5,001 feet.

CHANGES TO SECTION 5: ENVIROMENTAL OVERVIEW

Project Narrative
The ultimate primary Runway 15/33 configuration has been extended from 6,900' x 100' to 7,201' x 100' feet with a 1,135' extension to the northwest. A portion of Slopertown is to be closed and North Division Street is to be relocated further west to accommodate for the proposed aviation related development in the soccer field area and outside the ultimate Runway 15 Runway Protection Zone (RPZ).

With the closure of Slopertown Road, the extension of Blackhawk Trail is needed for vehicular traffic. The ultimate layout as illustrated in the Airport Master Plan Update would coincide with the ultimate Runway 15 RPZ. The West Blackhawk Trail Extension was shifted slighting to the north to not conflict with the ultimate Runway 15 RPZ.

Air Quality
No additional impacts were identified beyond what is stated in the Airport Master Plan Update.

Coastal Resources
No additional impacts were identified beyond what is stated in the Airport Master Plan Update.

Compatible Land Use
With the ultimate runway lengths increasing on the Runway 3 and Runway 15 ends, it is recommended to amend the Airport's Tall Structure Zoning Ordinance as a result of the proposed expansion.

The proposed Runway 15 ultimate extension and the proposed development off Slopertown will now impact the soccer fields. In addition, several homes/farmsteads appear to be over 50-years old and will need to be evaluated for historical significance.

Construction Impacts
No additional impacts were identified beyond what is stated in the Airport Master Plan Update.

Department of Transportation Act, Section 4(F)
The proposed Runway 15 ultimate extension and the proposed development off Slopertown will now impact the soccer fields. Prior to any development, an environmental assessment will be required which will determine the existence of Section 4(f) land sites by contacting the National Park Service, the Iowa Department of Natural Resources, and the Scott County Conservation Board.

Farmlands
With the revised proposed airport expansion, there will be additional impacts to farmland. To mitigate the negative impact of removing farmland from production, only the minimum amount of farmland, as dictated by FAA standards, is proposed for acquisition and removal from agricultural production.

Fish, Wildlife, and Plants
No additional impacts were identified beyond what is stated in the Airport Master Plan Update.

Floodplains
The large proposed aviation related development area where the soccer fields are currently located may significantly increase runoff affecting nearby drainage ways and creeks. The environmental assessment will need to investigate strategies to minimize these impacts.

Hazardous Materials, Pollution Prevention, and Solid Waste
No additional impacts were identified beyond what is stated in the Airport Master Plan Update.

Historical, Architectural, Archaeological, and Cultural Resources
The proposed Runway 15 ultimate extension and the proposed development off Slopertown will impact several homes/farmsteads which appear to be over 50-years old. These homes/farmsteads will need to be evaluated for historical significance.

Light Emissions and Visual Impacts
The MALSR lights for the ultimate Runway 15 extension will be in very close proximity to the existing farmstead off North Division Street. It is proposed to relocate the farmstead in these area due to the light emissions and visual impacts.

Natural Resources and Energy Supply
No additional impacts were identified beyond what is stated in the Airport Master Plan Update.

Noise
No additional impacts were identified beyond what is stated in the Airport Master Plan Update.

Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks
The proposed development may require the acquisition and/or relocation of one additional residence/farmstead. Most of the property to be acquired is currently in agricultural crop production or pasture.

In addition, the proposed Runway 15 ultimate extension and the proposed development off N. Division Street will now impact the soccer fields.

North Division Street will be relocated further to the west outside the Runway 15 RPZ.

Water Quality
No additional impacts were identified beyond what is stated in the Airport Master Plan Update.

Wetlands
No additional impacts were identified beyond what is stated in the Airport Master Plan Update.

Wild and Scenic Rivers
No additional impacts were identified beyond what is stated in the Airport Master Plan Update

CHANGES TO SECTION 6: AIRPORT LAYOUT PLAN

The Airport Layout Drawings have been revised and are included with Addendum No. 1. Sheets No. 1 through No. 23 dated May 2014 depict the revisions to all of the drawings. Below is a summary of the significant changes made to the ALP drawings:

- Extended the ultimate Runway 15/33 length from 6,900 feet to 7,201 feet.
- Extended the ultimate Runway 3/21 length from 4,800 feet to 5,001 feet.
- Revised the full parallel taxiway system for Runway 3/21.
- Added a full parallel taxiway system on the west side of Runway 15/33.
- Relocated North Division Street further to the west outside the Runway 15 RPZ.
- Relocated West Blackhawk Trail Extension further to the north outside the Runway 15 RPZ.
- Created a proposed airport related development area south of Slopertown Road. The proposed Slopertown cul-de-sac shown on the Runway 15 end has been revised to show a proposed circle access drive with potential commercial lots. The circle drive will allow future development to occur to the north and connect via the West Blackhawk Trail Road Extension.
- Revised the proposed development area off the Runway 33 end. The area has been revised to illustrate additional aviation related development areas. Perpendicular taxiways have been extended to provide access to these aviation related development areas.
- Relocated the Fuel Farm Facility.
- On the Airport Property Map, ownership references made to the Davenport Airport Commission ownership has been revised to the Davenport Airport as the Commission is no longer in existence. As of 2013, the Davenport Airport Commission is no longer in existence.

CHANGES TO SECTION 7: IMPLEMENTATION PLAN

Capital Improvement Program

Due to the revised airport development shown on the ALP drawings, adjustments to the implementation plan have been summarized below:

Land Acquisition

Land Acquisition for the ultimate Runway 15/33 Extension to 7,201' will require the acquisition of the land inside the extended Runway 15 RPZ. This includes acquiring the entire Parcel A (28.63 acres), Parcel B (15.73 acres) and Parcel N (5.38 acres).

In addition, due to the planned aviation related development area dedicated for an aircraft MRO facility or an air cargo heavy freight facility, N. Division Street will be relocated further to the west outside the Runway 15 RPZ. This will require the acquisition of Parcels, A1 (5.3 acres), C1 (2.74 acres), the entire Parcel D (15.6 acres), H (4.59 acres), I (26.68 acres), J (39.18 acres), K (6.1 acres), L (8.26 acres), and M (13.16 acres).

Home/Farmstead Acquisition

It is anticipated the proposed development shown on the ALP drawings will require the acquisition and/or relocation of three (3) homes/farmsteads. The first residence to be relocated is located in Parcel B (15.73) acres owned by Avery Partners, LLC. The second residence is located in Parcel D (15.6 acres) owned by Phyllis Green. The last relocation is located in Parcel K (6.1 acres) which is currently owned by Keppy Farms, LC.

Stage I Developments

West Blackhawk Trail Extension

ROW acquisition for the extension of West Blackhawk Trail was increased further to the north outside the Runway 15 RPZ.

Slopertown Road Cul-de-Sac

The proposed Slopertown cul-de-sac shown on the Runway 15 end has been revised to show a proposed circle access drive with potential commercial lots. The circle drive will allow future development to occur to the north and connect via the West Blackhawk Trail Road Extension.

North Division Street Realignment

North Division Street was relocated further west to accommodate for the proposed aviation related development in the soccer field area and outside the ultimate Runway 15 Runway Protection Zone (RPZ). The revised layout will also eliminate having the ultimate N. Division Street and Railroad crossing intersection on the extended runway centerline.

Stage II Developments

Runway End 15 Extension

The ultimate primary Runway 15/33 configuration has been extended from 6,900' x 100' to 7,201' x 100' feet with a 1,135' extension to the northwest. Project assumes the existing 555' beyond the existing threshold is suitable and a 1,135' extension is constructed for a total runway length of 7,201 feet.

Stage III Developments

1,000' Runway 3 End Extension.

Extended the ultimate Runway 3/21 length from 4,800 feet to 5,001 feet. This project includes relocating the Runway 21 threshold 200' southwesterly and extending Runway 3/21 by 1,201' for a 5,000' x 100' runway.

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Appendix A:
RESOLUTION ABOLISHING AIRPORT COMMISSION

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City of Davenport

2013-243

Committee: Finance
Department: Legal
Contact Info: Tom Warner 326-7735
Ward: All

Action / Date
FC 07/02/13
CC1 07/10/13
FC 07/17/13
CC2 JUL 24 2013
CC3. JUL 24 2013

Subject: ORDINANCE amending Chapter 2.56 entitled "Airport Commission" by abolishing the commission and replacing it with an Iowa Code Chapter 392 administrative agency.

Recommendation: Pass the ordinance.

Background:

This ordinance abolishes the Airport Commission. Airport operations are now overseen by a fulltime professional, with experience in airport management.

ORDINANCE NO. 2013-243

ORDINANCE amending Chapter 2.56 entitled "Airport Commission" by abolishing the commission and replacing it with an Iowa Code Chapter 392 administrative agency

BE IT ENACTED BY THE CITY COUNCIL OF THE CITY OF DAVENPORT, IOWA:

Section 1. That Chapter 2.56 of the Davenport Municipal Code is hereby amended to abolish the Airport Commission and read as follows:

Chapter 2.56

Davenport Municipal Airport Administrative Agency

2.70.010 Established.

There is hereby established the Davenport Municipal Airport Administrative Agency ("DMAAA").

2.70.020 Purpose.

The DMAAA shall oversee, manage, operate and work to promote the Davenport Municipal Airport.

2.70.030 Members and terms.

The DMAAA's governing board shall consist of three members appointed by the Mayor. One member shall be experienced in airport management, one member shall be experienced in public works operations, and one member shall have general business and economic development experience. All appointments after the initial appointments (except appointments to vacancies which shall be for the remainder of the term) shall be for a term of 2 years. The initial terms shall be as follows: the member with airport management background shall be appointed for 3 years; the member with public works experience shall be appointed for two years; and the final member shall be appointed for one year.

Regardless of the foregoing language concerning term length, all members serve at the pleasure of the Mayor and may be removed at any time by him.

Members shall serve without compensation.

TRANSITION RULE: During the interim period between the creation of this agency and the appointment of its members the affairs of the agency shall by conducted by the City staff person currently charged with airport management with oversight and veto power vested in the Director of Public Works.

2.70.040 Duties and powers.

The DMAAA shall have all necessary, proper and lawful powers to fulfill its purpose, but shall not have any powers under division V of Chapter 384 of the Iowa Code.

2.70.050 Contract and lease review by Council.

The contracting, purchasing, and leasing authority of the DMAAA is subject to review as provided in Davenport Municipal Code Chapter 2.12 and the state code.

SEVERABILITY CLAUSE. If any of the provisions of this ordinance are for any reason illegal or void, then the lawful provisions of this ordinance, which are separable from said unlawful provisions shall be and remain in full force and effect, the same as if the ordinance contained no illegal or void provisions.

REPEALER. All ordinances or parts of ordinances in conflict with the provisions of this ordinance are hereby repealed.

EFFECTIVE DATE. This ordinance shall be in full force and effective after its final passage and publication as by law provided.

First Consideration July 10, 2013

Second Consideration July 24, 2013

Approved July 24, 2013

William E. Gluba
Mayor

Attest: Jackie L Holecek

Jackie Holecek, CMC
Deputy City Clerk

Published in the Quad City Times on August 6, 2013

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Appendix B:
SCOTT COUNTY APPROVAL LETTER

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BOARD OF SUPERVISORS
600 West Fourth Street
Davenport, Iowa 52801-1030

Office: (563) 326-8749
Fax: (563) 328-3285
E-Mail: board@scottcountyiowa.com

July 30, 2014

City of Davenport
226 West 4th Street
Davenport, IA 52801

RE: Davenport Municipal Airport – Runway Extension

To Whom It May Concern:

It is our understanding that the City of Davenport is in the process of updating the Airport Master Plan, Airport Layout Plan and the Capital Improvement Plan for the Davenport Municipal Airport.

As part of that discussion, it includes the construction of a new primary runway, known as Runway 15/33. As part of the recommendations from the Federal Aviation Administration, the proposed new runway would extend 7,201 feet by 100 feet and would cross Slopertown Road and 155th Avenue. Although this runway is in the distant future, it would require extensive planning and an environmental assessment of the area, which would include the closure of Slopertown Road, the relocation of 155th Avenue, and the extension of Blackhawk Trail Road. As part of the environmental assessment process, there would be public meetings and hearings that would be required before any road closures and other items are completed.

With that said, the Scott County Board of Supervisors would support the further investigation and study of this regional improvement for the Davenport Municipal Airport. The City of Davenport and the City of Eldridge will need to coordinate and plan the road connections for this project and have been meeting to determine those responsibilities. We of course would be required to hold future public meetings in regard to this closure and relocation and yet at the same time support the merits of the study that needs to be taken in order to move forward.

Sincerely,

Larry Minard, Chair
Scott County Board of Supervisors

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Appendix C:
DAVENPORT APPROVAL LETTER

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City of Davenport

226 West Fourth Street • Davenport, Iowa 52801
Telephone: 563-326-7711 Fax: 563-326-6145

August 25, 2014

City of Davenport
226 West 4th Street
Davenport, IA 52801

RE: Davenport Municipal Airport – Runway Extension

To Whom It May Concern:

It is our understanding that the City of Davenport is in the process of updating the Airport Master Plan, Airport Layout Plan and the Capital Improvement Plan for the Davenport Municipal Airport.

As part of that discussion, it includes the construction of a new primary runway, known as Runway 15/33. As part of the recommendations from the Federal Aviation Administration, the proposed new runway would extend 7,201 feet by 100 feet and would cross Slopertown Road and 155th Avenue. Although this runway is in the distant future, it would require extensive planning and an environmental assessment of the area, which would include the closure of Slopertown Road, the relocation of 155th Avenue, and the extension of Blackhawk Trail Road. As part of the environmental assessment process, there would be public meetings and hearings that would be required before any road closures and other items are completed.

With that said, the City of Davenport would support the further investigation and study of this regional improvement for the Davenport Municipal Airport. We of course would be required to hold future public meetings in regard to this closure and relocation and yet at the same time support the merits of the study that needs to be taken in order to move forward.

If in the meantime we can be of further assistance, please let us know.

Sincerely

Craig Malin, City Administrator
City of Davenport

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Appendix D:
ELDRIDGE APPROVAL LETTER

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Hometown With A Vision
City of Eldridge
305 N. 3rd St. • P.O. Box 375
ELDRIDGE, IOWA • 52748-0375
(563) 285-4841 • FAX (563) 285-7376

August 20, 2014

City of Davenport
226 West 4th Street
Davenport, IA 52801

RE: Davenport Municipal Airport – Runway Extension

To Whom It May Concern:

It is our understanding that the City of Davenport is in the process of updating the Airport Master Plan, Airport Layout Plan and the Capital Improvement Plan for the Davenport Municipal Airport.

As part of that discussion, it includes the construction of a new primary runway, known as Runway 15/33. As part of the recommendations from the Federal Aviation Administration, the proposed new runway would extend 7,201 feet by 100 feet and would cross Slopertown Road and 155th Avenue. Although this runway is in the distant future, it would require extensive planning and an environmental assessment of the area, which would include the closure of Slopertown Road, the relocation of 155th Avenue, and the extension of Blackhawk Trail Road. As part of the environmental assessment process, there would be public meetings and hearings that would be required before any road closures and other items are completed.

With that said, the Eldridge City Council would support the further investigation and study of this regional improvement for the Davenport Municipal Airport. We of course would be required to hold future public meetings in regard to this closure and relocation and yet at the same time support the merits of the study that needs to be taken in order to move forward.

If in the meantime we can be of further assistance, please let us know.

Sincerely

Martin P. O'Boyle
Mayor

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