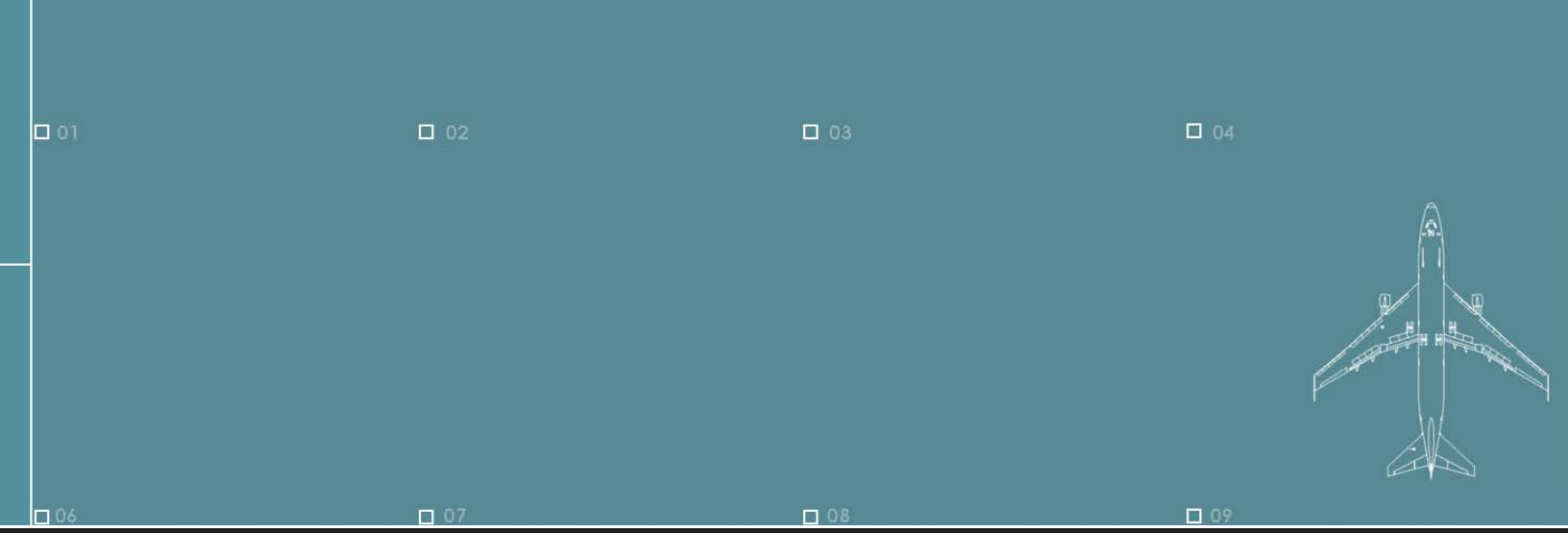

KEARNEY
Regional Airport

Kearney Regional Airport Master Plan Update

Prepared for The City of Kearney

April 2013

KIRKHAM MICHAEI

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KIRKHAM MICHAEI

I. INTRODUCTION & BACKGROUND

Study Objective

A master plan is a comprehensive study of an airport's activities and facilities to identify short, medium, and long term demands. Required improvements to the existing airport facilities are identified to meet the future demands at the Airport while providing a safe, efficient, economical, and environmentally acceptable air transportation facility. The Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*, provides guidance on the preparation of an airport master plan.

The airport master plan provides documentation for the Airport with a strategy for development. According to the FAA AC-150/5070-6B, the airport master plan should meet the following objectives:

- Document the issues the proposed airport development will address
- Justify the proposed airport development through technical, economic, and environmental investigation of the concepts and alternatives
- Provide an efficient graphic representation of the airport development and anticipated land uses in the vicinity of the airport
- Establish a realistic schedule for the implementation of the airport development proposed in the plan, particularly for the short-term capital improvement program
- Propose an achievable financial plan to support the implementation schedule
- Provide sufficient project definition and detail for subsequent environmental evaluations required before the project is approved
- Present a plan adequately addressing the issues and satisfying local, state, and federal regulations
- Document policies and future aeronautical demand to support municipal or local decisions on spending, debt, land use controls, and other policies necessary to preserve the integrity of the airport and its surroundings
- Establish framework for a continuing planning process to monitor key conditions and permit changes in plan recommendations as required

The City of Kearney and Kearney Regional Airport have initiated an update to the Airport Master Plan to achieve the following minimum goals and objectives:

- Update Airport Layout Plan (ALP) drawings to new current design standards
- Revise and update forecasts
- Update aviation activity levels and types
- Update Geographic Information System (GIS) data
- Review surrounding areas for compatible land use as development increases around the airport (specifically industrial areas to the west)

Airport Location and Vicinity

The City of Kearney is located in central Nebraska along the Interstate 80 (I-80) corridor as indicated in **Figure I.1**. Kearney Regional Airport is located in Buffalo County approximately 4 statute miles northeast of the central business district of the City of Kearney, Nebraska. The Airport is adjacent to US Highway 30 and approximately 3.5 miles north of I-80 as illustrated on **Figure I.2**.

Figure I.1 – Location Map

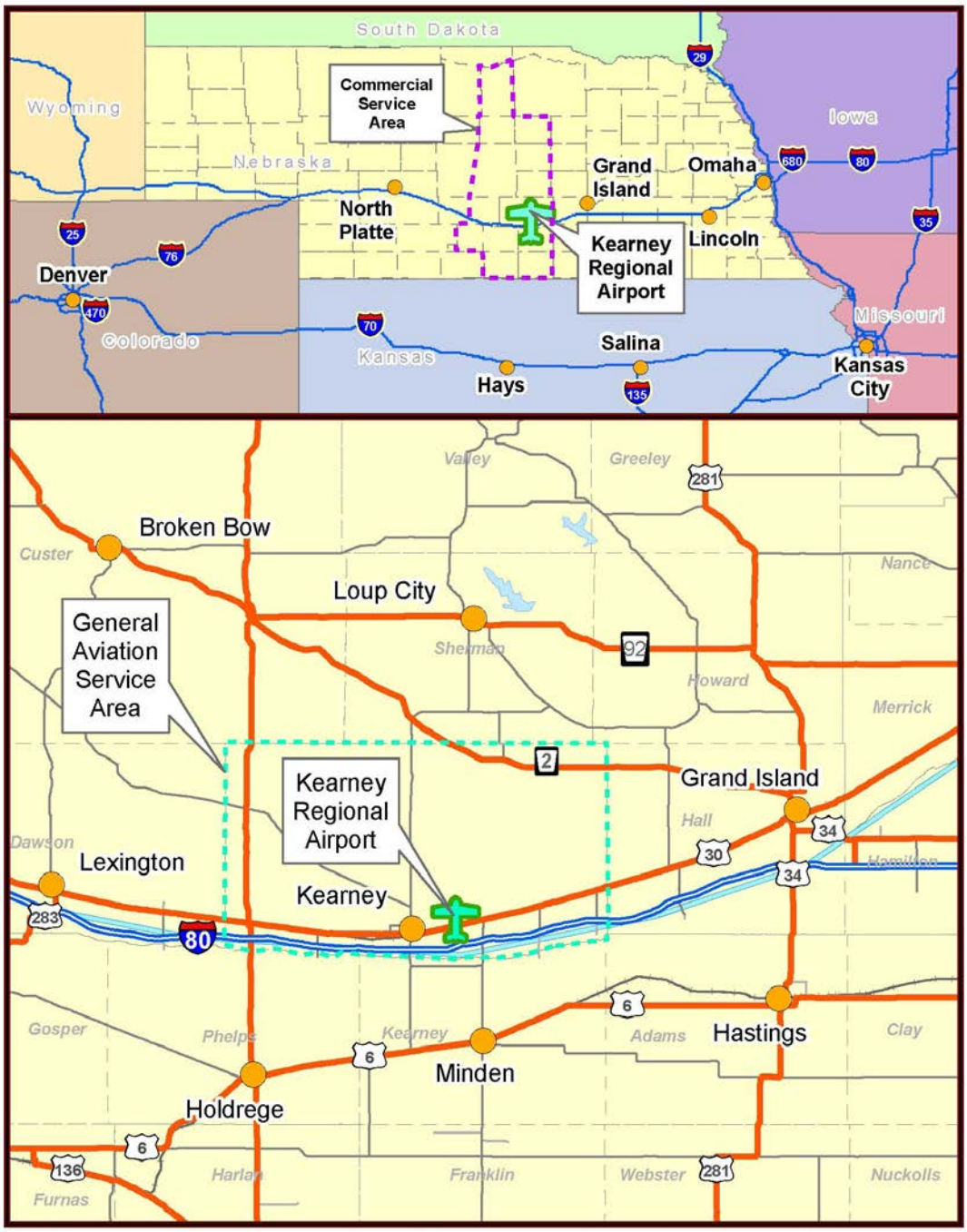
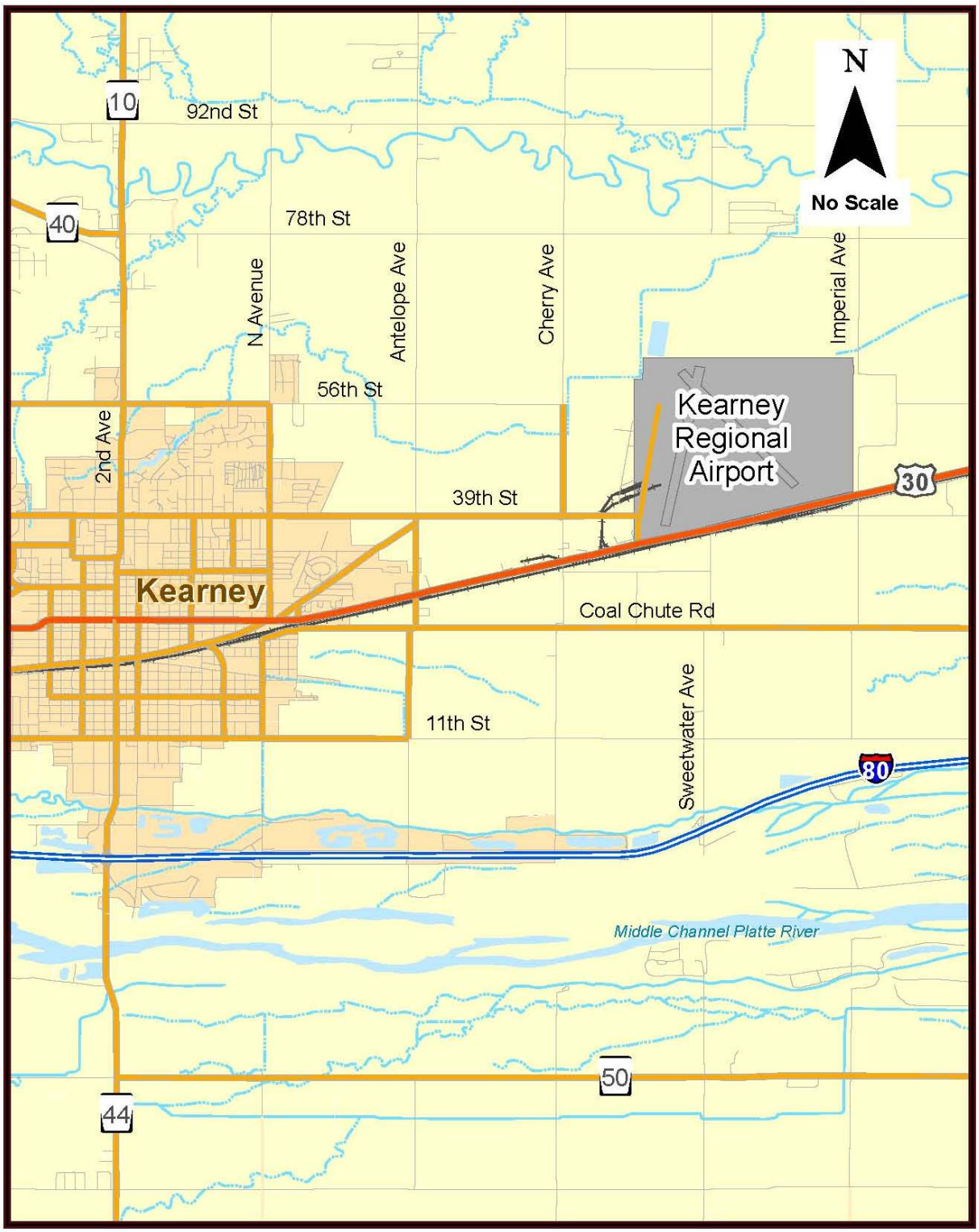


Figure I.2 – Vicinity Map



The Union Pacific Railroad (UPRR) and US Highway 30 border the Airport on the south. The north, east, and northwest sides of the Airport are bordered by agricultural land. The Airport is bordered by industrial uses primarily west and southwest of the Airport as indicated in **Figure I.3**. A portion of the closed northeast runway is currently used as a drag race strip.

Kearney Regional Airport owns approximately 2,100 acres of land of which approximately 450 acres are comprised of aviation related facilities such as runways, taxiways, apron, terminal area, hangars, storage, and airport lease related facilities. The Airport leases approximately 95 acres of land for industrial use and approximately 1,675 acres for agricultural use.

Airports in the vicinity of Kearney Regional Airport are noted in **Table I.1**.

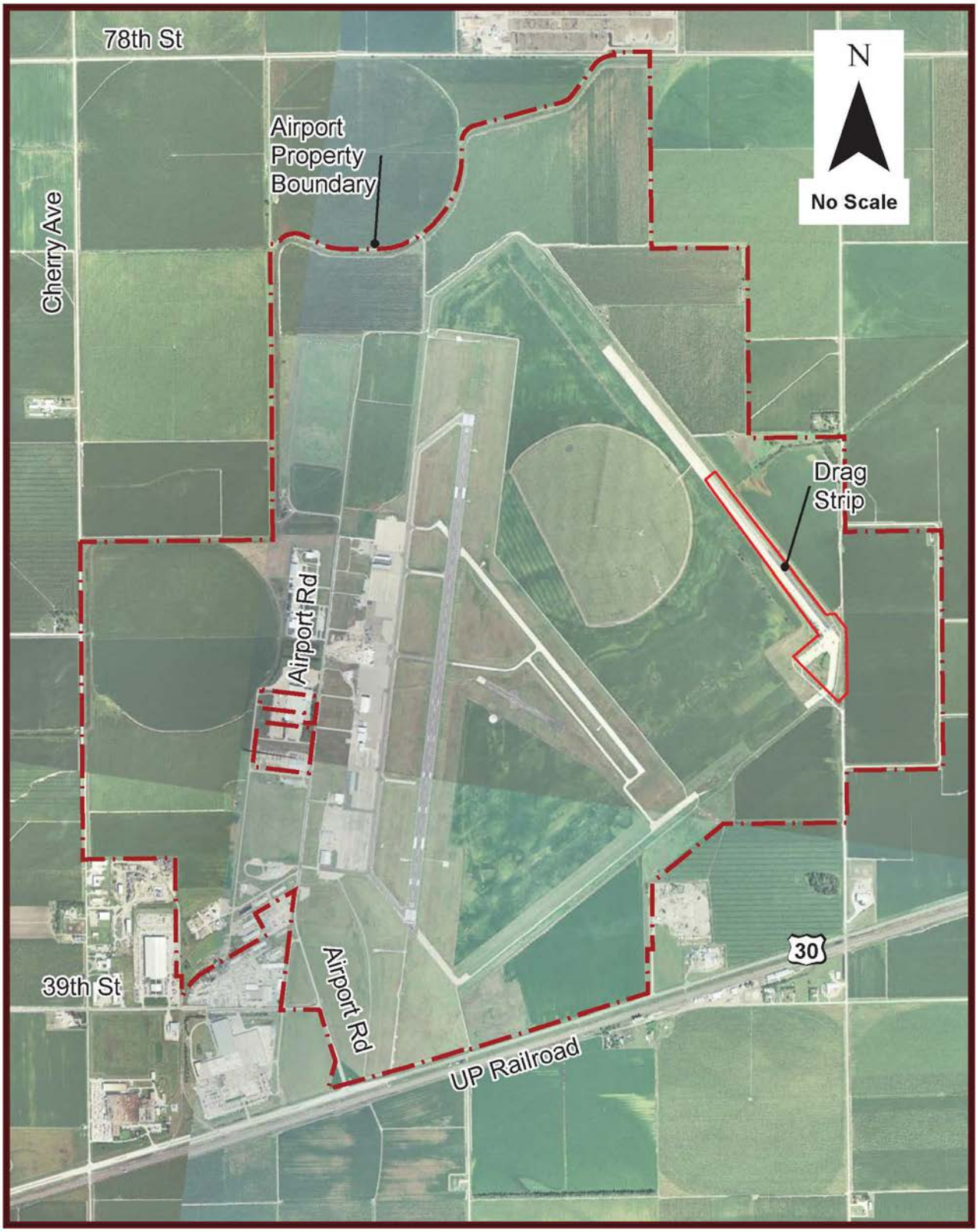
Table I.1 – Area Airports

Airports with Scheduled Commercial Flights		
Airport Name	**Airport Location**	**Distance**
Central Nebraska Regional Airport	Grand Island, NE	35 nm east
North Platte Regional Airport	North Platte, NE	80 nm west-northwest
Hays Municipal Airport	Hays, KS	114 nm south
Lincoln Airport	Lincoln, NE	117 nm east
Salina Municipal Airport	Salina, KS	132 nm south-southeast
Manhattan Regional Airport	Manhattan, KS	143 nm southeast
Eppley Airfield	Omaha, NE	166 nm east-northeast
General Aviation Airports		
Airport Name	**Airport Location**	**Distance**
Pioneer Village Field	Minden, NE	14 nm south
Brewster Field	Holdrege, NE	23 nm southwest
Hastings Municipal Airport	Hastings, NE	27 nm east-southeast

Airport History

In the early 1940's, about four miles east of the City of Kearney, Nebraska, the United States government purchased approximately 2,820 acres of agricultural land for Kearney Army Airfield. The United States War Department obtained, by fee title, approximately 2,241 acres of land and leased an additional 579 acres of ground for Kearney Army Airfield facility. The Kearney Army Airfield facility included the previous Municipal Airfield originally located approximately one-half mile southeasterly of the existing terminal building. The previous airfield consisted of a northwesterly/ southeasterly oriented bituminous runway of approximately 4,000 ft long and other miscellaneous facilities. During World War II, the Kearney Army Airfield also housed the Missouri River Division of the United States Corps of Engineers, Equipment Repair and Storage Depot, in the approximate area where the original Municipal Airfield system was located.

Figure I.3 – Kearney Regional Airport Aerial



In approximately 1949, the United State of America, acting by and through the General Services Administration, transferred to the City of Kearney under the authority of the Federal Property and Administrative Services Act of 1949 (63 Stat. 377) and the Surplus Property Act of 1944 (58 Stat. 765), its holding in the Kearney Army Airfield via Quitclaim Deed dated June 15, 1950, consisting of approximately 2,394 acres. Since the original transfer to the City of Kearney, the City has sold over 420 acres of land. At the time of the original land transfer, the City of Kearney opened to the public what is presently known as Kearney Regional Airport.

In approximately 1959, Kearney Regional Airport began receiving commercial air service from Frontier Airlines. In 1976, Air Nebraska began serving Kearney Regional Airport along with Frontier Airlines. In 1979, Pioneer Airlines was added to the commercial service airlines. In 1980, Frontier Airlines discontinued service to the Airport leaving Air Nebraska and Pioneer Airlines. In 1982, Air Nebraska discontinued service leaving Pioneer Airlines as the only commercial air service to the Airport. In 1986, Pioneer Airlines was replaced by GP Express Airlines as the only commercial air service until 1996 at which time all service was discontinued to Kearney Regional Airport.

In 1997, commercial air service was again re-instated by United Express, now known as Great Lakes Aviation, which is still the current commercial air service provider at Kearney Regional Airport. However, it should be noted, no commercial air service was provided at Kearney Regional Airport from August 1997 through June 1998. Kearney Regional Airport operates under FAA Part 139; therefore, the Airport authorizes large charter operations.

Presently, Kearney Regional Airport owns approximately 1,970 acres of property and the majority of the property is in agricultural use. Much of this farm ground is irrigated and, with normal weather conditions, is very productive.

Since the Airport was established, several improvements have taken place. A list of projects constructed with federal and state funds is included in **Table I.2.**

Airport Role and Services

The National Plan of Integrated Airport Systems (NPIAS) is a nationwide system plan which identifies the airports necessary to provide a safe, efficient, and integrated national aviation system to meet the needs of civil aviation, national defense, and the United States Postal Service. The FAA publishes the NPIAS every two years. An airport must be included in the NPIAS to receive Federal funding under the Airport Improvement Program (AIP). Kearney Regional Airport is classified as a Commercial Service (CS) airport in the NPIAS. CS Airports are defined as public airports which receive scheduled passenger service and have 2,500 or more enplaned passengers per year.

Table I.2 – Project History

Grant Number	Fiscal Year	Grant Total	Project Description
9-25-039-101	1951	$ 14,229	Install Lighting & Repair Runway
9-25-039-6002	1960	$ 19,102	Pave Middle Connecting Taxiway
9-25-039-c403	1964	$ 14,912	Install MIRL on Runway 18/36
9-25-039-604	1966	$ 156,053	Overlay Runway 18/36 & South Connecting Taxiway
8-31-0045-01	1972	$ 170,904	Overlay Apron & North Parallel Taxiway
8-31-0045-02	1973	$ 12,070	Acquire CRF Vehicle
8-31-0045-03	1974	$ 297,077	Overlay Mid-Connecting & South Taxiway
6-31-0045-04	1976	$ 102,828	Construct Fire Station
6-31-0045-01	1977	$ 39,151	Planning Grant
6-31-0045-05	1977	$ 265,914	Overlay Terminal, GA, & AA Areas on Apron
6-31-0045-06	1979	$ 503,250	Pave and Light Connecting Taxiways; Install Beacon, VASI
3-31-0045-001	1982	$ 248,415	Construct Runway
3-31-0045-002	1984	$ 1,043,922	Rehab Taxiway, Install Apron Lighting; Extend Runway; Install Runway Lighting
3-31-0045-003	1987	$ 322,910	Rehab Runway and Taxiway; Expand Apron
3-31-0045-004	1990	$ 141,742	Rehab Runway Lighting; Acquire Aircraft Rescue & Fire Fighting Safety Equip.
3-31-0045-005	1993	$ 435,295	Conduct Airport Master Plan Study; Rehab Apron
3-31-0045-006	1995	$ 1,699,241	Rehabilitate Runway
3-31-0045-007	1995	$ 942,568	Rehab Parking Lot, Apron, & Taxiway; Acquire Handicap Passenger Lift Equip.
3-31-0045-008	2000	$ 519,662	Acquire Aircraft Rescue & Fire Fighting Vehicle; Install Runway Distance-To-Go Signs
3-31-0045-009	2001	$ 80,475	Install Runway Vertical/Visual Guidance System
3-31-0045-010	2002	$ 821,476	Rehab Runway; Security Enhancements; Acquire Snow Removal Equip.
3-31-0045-012	2003	$ 352,390	Install Perimeter Fencing
3-31-0045-013	2004	$ 346,097	Rehab Runway and Taxiway
3-31-0045-014	2004	$ 95,912	Acquire Equipment
3-31-0045-015	2005	$ 949,050	Rehab Apron; Install Misc. Nav Aids
3-31-0045-016	2005	$ 855,733	Construction Snow Removal Equipment Building
3-31-0045-017	2006	$ 546,309	Rehab Runway Lighting; Install Emergency Generator
3-31-0045-018	2006	$ 254,106	Rehab Apron
3-31-0045-019	2008	$ 123,500	Update Airport Master Plan Study
3-31-0045-020	2009	$ 607,133	Rehabilitate Runway
3-31-0045-021	2009	$ 259,662	Acquire Snow Removal Equipment
3-31-0045-022	2009	$ 99,180	Rehabilitate Runway
3-31-0045-024	2010	$ 44,852	Acquire Easement for Approaches
3-31-0045-023	2011	$ 800,359	Construct Parking Lot
3-31-0045-026	2011	$ 166,888	Update Airport Master Plan Study
3-31-0045-027	2012	$ 558,000	Rehabilitate Apron

Source: Previous Master Plan and FAA

In addition to the NPIAS which has a national focus, Aviation System Plans are developed by states to identify a state-wide system of airports to develop a state-wide airport system consistent with state goals for economic development, transportation, land use, and

environmental matters. The Nebraska Aviation System Plan (NASP) is created by the Nebraska Department of Aeronautics (NDA). Kearney Regional Airport is classified as a "National Airport' in the NASP (refer to **Appendix A** for NASP Functional Classification Map). According to the NASP, a National Airport is defined as an airport which maintains a consistent contributing role in enabling the local, regional, and statewide economies to have access to and from the national and worldwide economies. The minimum criteria for the NASP National Airport are provided in **Table I.3**.

Table I.3 - NASP Minimum Criteria Requirement for National Airport Classification

Airport Characteristic	Minimum criteria
Airport Reference Code (ARC)	C-II or Design Aircraft
Runway Length	75% Large Aircraft at 60% Useful Load
Runway Width	75 ft (NPIAS Airports) or for Design Aircraft
Crosswind Runway	As Needed to Meet 95% Coverage
Taxiway	Full Parallel
Navigation aids	Precision Approach
Visual Aids	MALSR, PAPIs
Lighting	MIRL, Beacon
Weather	Automated Weather Reporting
Services	Phone, Restroom, Fixed Based Operator, Maintenance, Jet Fuel, Ground Transportation, RCO/ATCT
Facilities	Terminal Aircraft Apron, Hangars, Auto Parking
Ground Access	Full paved road from associated city to terminal; Roadway signs on and off site

Kearney Regional Airport also is certified through FAA Part 139 requirements. 14 CFR Part 139 requires FAA to issue airport operating certificates to airports that:

- Serve scheduled and unscheduled air carrier aircraft with more than 30 seats
- Serve scheduled air carrier operations in aircraft with more than 9 seats but less than 31 seats
- The FAA Administrator requires to have a certificate

Part 139 does not apply to airports at which air carrier passenger operations are conducted only because the airport has been designated as an alternate airport. Airport Operating Certificates serve to ensure safety in air transportation. To obtain a certificate, an airport must agree to certain operational and safety standards and provide services such as firefighting and rescue equipment. These requirements vary depending on the size of the airport and the type of flights available. The regulation, however, does allow FAA to issue certain exemptions to airports that serve few passengers yearly and for which some requirements might create a financial

hardship. Kearney Regional Airport must meet the following requirements to maintain certification as Class II Part 139 Airport

- Personnel Provisions (§139.303)
- Paved and Unpaved Surfaces (§139.305 and .307)
- Safety Areas (§139.309)
- Marking, lighting and signs (§139.311)
- Snow and Ice Control Plan (§139.313)
- ARFF (§139.315, .317 and .319)
- HAZMAT Handling/Storage (§139.321)
- Traffic/Wind Indicators (§139.323)
- Airport Emergency Plan (§139.325)
- Self-Inspections (negotiated standard)
- Pedestrians and Ground Vehicles (§139.329)
- Obstructing Lighting/Marking (§139.331)
- NAVAIDS (§139.333)
- Public Protection (§139.335)
- Wildlife Hazard Management (§139.337)
- Airport Condition Reporting (§139.339)
- Construction/Unserviceable Areas Marking/Lighting (§139.341)

If the FAA finds that an airport is not meeting its obligations, it often imposes an administrative action. It can also impose a financial penalty for each day the airport continues to violate a Part 139 requirement. In extreme cases, FAA might revoke the airport's certificate or limit the areas of an airport where air carriers can land or takeoff.

The service area of an airport is determined by the distance to other airports providing comparable services. The service area may be determined for commercial service or general aviation users. According to an Air Service Overview study conducted in 2002, Kearney Regional Airport has a commercial service area covering approximately 13 counties in Nebraska as indicated in **Figure I.1**. These boundaries are predominately determined by the adjacent airports at Grand Island and North Platte, Nebraska (refer to **Figure I.1** and **Table I.1**) which also provide scheduled commercial flights. The boundaries of the commercial service area for Kearney Regional Airport identified in the Air Service Overview Study are still considered valid because comparable services at surrounding airports have not significantly changed since 2002. The majority of commercial service users at Kearney Regional Airport are from the City of Kearney and surrounding communities. The primary source for passengers for commercial service at Kearney Regional Airport is Buffalo County and larger communities in the area such as Holdrege, Lexington, Minden, and Broken Bow. Larger airports located in Omaha and Lincoln attracts users from the commercial service area of Kearney Regional Airport because they offer more destinations and services.

The service area for general aviation at Kearney Regional Airport is determined by airports in the vicinity which provide general aviation services (refer to **Figure I.1** and **Table I.1**). However, none of these airports can match the services provided at Kearney Regional Airport. Because the major nearby communities have general aviation airports, the general aviation service area of Kearney Regional Airport is primarily limited to Buffalo County as indicated in **Figure I.1**.

Great Lakes Aviation is the only commercial service provider based at Kearney Regional Airport. They provide regularly scheduled flights to Denver International Airport.

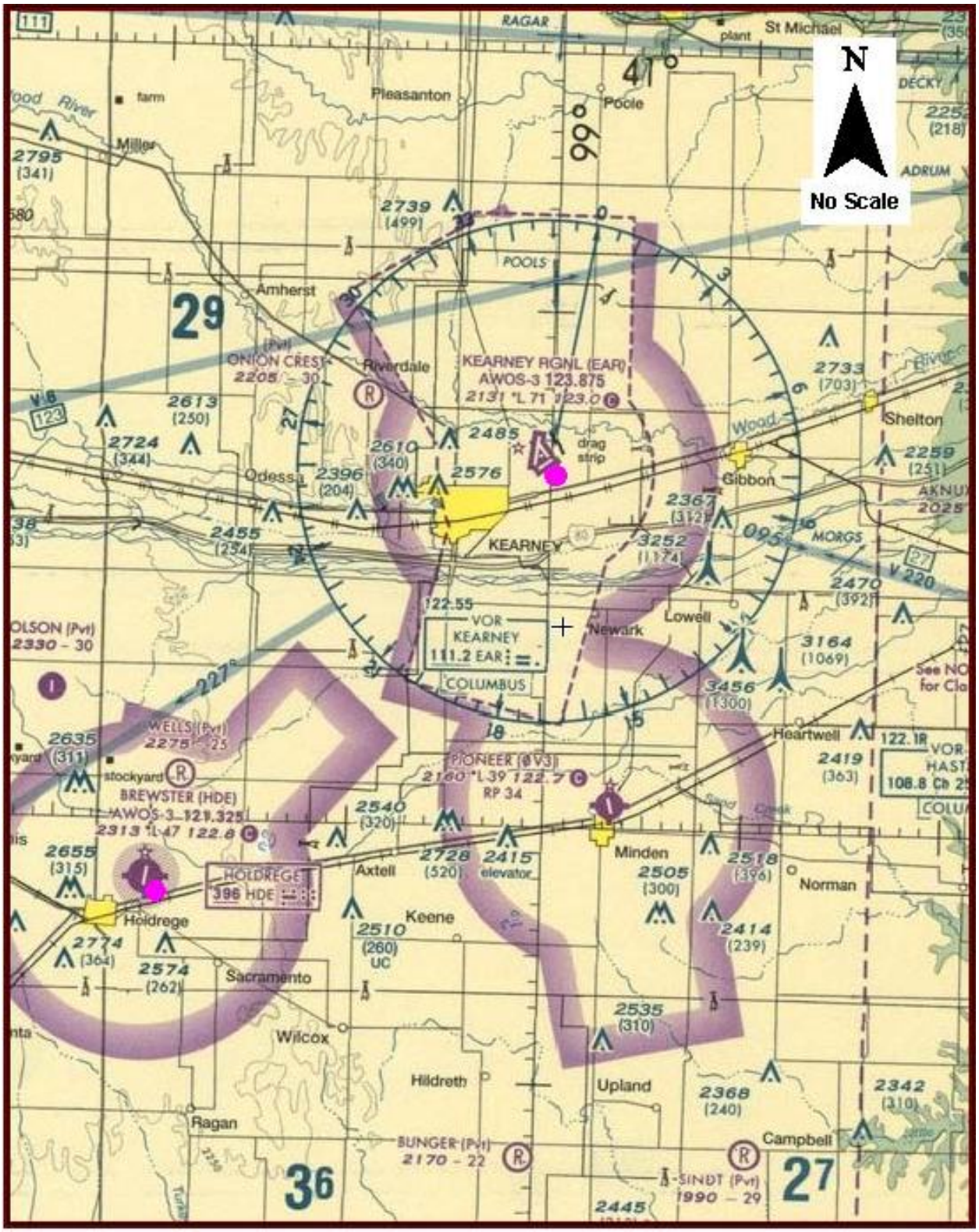
A Fixed Based Operator (FBO) is a business located at the Airport providing a variety of services including flight training, charter services, maintenance, aircraft rental/sales, or aerial spraying application. There are four FBOs at Kearney Regional Airport. Otis Air Service, replacing the former FBO Air Midway, will provide a variety of services including charter flights, fuel, pilot training, and aircraft rental. Li'l Red Aero provides full-service aircraft maintenance and repair. Aircraft maintenance is conducted near the FBO hangar and the north portion of the apron. Buffalo Air Service provides aerial application services from the Airport. Rodgers Helicopter Service provides medical and air ambulance services with helicopters. The City of Kearney Fire Department also maintains an Aircraft Rescue and Fire Fighting (ARFF) vehicle at the Airport.

Airspace and Air Traffic

The National Airspace System (NAS), established and regulated by the FAA, consists of various classifications of airspace. The classifications are necessary to ensure the safety of aircraft utilizing airport facilities during periods of inclement weather, with the primary function of separating air traffic operating under Instrument Flight Rules (IFR) or Visual Flight Rules (VFR). Pilots flying in controlled airspace are subject to Air Traffic Control (ATC) requirements and must either follow IFR or VFR regulations. These regulations, which include combinations of operating rules, particular aircraft equipment, and pilot certification, vary depending on the class of airspace. These regulations are described in Federal Aviation Regulation (FAR) Part 71 and Part 91. Each of the airspace classes is classified as controlled, uncontrolled, special use, or other airspace.

Federal Airways, called Victor Airways (VA), have been established for aircraft using VOR navigational facilities. VAs are corridors of airspace eight miles wide and are located at an elevation from 1,200 feet MSL to 18,000 feet MSL between VOR navigational facilities. The airspace in the vicinity of Kearney Regional Airport is depicted on the Omaha Sectional Aeronautical Chart, included in **Figure I.4**. Airspace within the vicinity of Kearney Regional Airport is classified as Class E airspace due to the lack of an ATC Tower. The VAs leaving Kearney Regional Airport connects to Hastings VOR/DME (V 220) and McCook VOR/DME (V 220).

Figure I.4 – Omaha Sectional Aeronautical Chart



Demographic Data

Population trends are one major factor affecting aviation activity trends, thus it is important to examine the historic population trends in the City of Kearney and Buffalo County as provided in **Table I.4**.

Table I.4 – Area Population

Year	City of Kearney Population	% Growth per year	Buffalo County Population*	% Growth per year
1950	12,115	-	25,134	-
1960	14,210	1.016	26,236	1.004
1970	19,181	1.030	31,222	1.018
1980	21,158	1.010	34,797	1.011
1990	24,396	1.014	37,447	1.007
2000	27,431	1.012	42,259	1.012
2007	30,129	1.013	44,976	1.009
2010	-	-	*45,988*	*1.007*
2020	-	-	*49,783*	*1.008*
2030	-	-	*52,104*	*1.005*

Source: Projections obtained from Nebraska Bureau of Business Research

As indicated, the City of Kearney has consistently had similar or greater population growth than Buffalo County. Because the population of Buffalo County is expected to continue to increase through 2030, the population for the City of Kearney would also be expected to increase through 2030 at the same or greater rates than Buffalo County.

Although the economy for the majority of the State of Nebraska is primarily dependent on agriculture, the City of Kearney has a diversified workforce. A list of some major employers in and near Kearney, Nebraska is included in **Table I.5**.

Surface Transportation Network

US Highway 30 is a major east-west corridor located on the south side of Kearney Regional Airport. I-80 is another major east-west corridor located approximately 3.5 miles south of the Airport. Nebraska Highway 10 travels north-south and travels through the City of Kearney. Currently, a project is under way for Nebraska Highway 10 to bypass the City of Kearney. The Nebraska Highway 10 bypass is planned to be located approximately 2.5 miles east of the City of Kearney and approximately 1 mile west of the Airport. The close proximity of the Nebraska Highway 10 bypass will further improve highway access to the Airport, providing more direct access from I-80. Nebraska Highway 44 provides access to areas south of Kearney.

Airport Road is the primary access to Kearney Regional Airport connecting to US Highway 30. 39th Street intersects Airport Road north of US Highway 30 and travels west into the City of Kearney. Airport Road is currently being realigned to the east to provide additional land for the expansion of a local industry. However, Airport Road will still have access to both US Highway 30 and 39th Street (refer to **Figure I.3)**.

Due to the close proximity of I-80 to the City of Kearney, vehicular travel is a major competitor with the Airport. Potential users of Kearney Regional Airport may choose to travel by vehicle instead of flying due to the convenient access to I-80. Also, potential airport users may choose to travel to the Airports in Omaha or Lincoln, which are also located on the I-80 corridor, because they offer more choices in destinations. Additionally, with a major UPRR corridor traveling through the City of Kearney and with the close proximity to I-80, most freight and cargo going to and from the City of Kearney is transported by train or truck.

Table I.5 – Major Area Employers

Company	Type
Baldwin Filters	Industry/Manufacturing
Brown Transfer Company	Transportation
Cabela's	Industry/Manufacturing
City of Kearney	Government
Charter Communications, Inc.	Business/Commercial
Frontier Communications Company	Business/Commercial
Eaton	Industrial/Manufacturing
First National Bank	Business/Commercial
Good Samaritan Hospital	Healthcare
Kearney Hub	Media
Kearney Public Schools	Education
Leprino Foods Company	Industry/Manufacturing
Marshall Engines	Industry/Manufacturing
Nebraska Public Power District	Utility
Schreiber Foods	Industry/Manufacturing
Source Gas	Utility
The Buckle	Business/Commercial
University of Nebraska at Kearney	Education
Buffalo County	Government

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KEARNEY
Regional Airport

Section II
Aviation Activity Inventory

KIRKHAM MICHAEI

II. AVIATION ACTIVITY INVENTORY

The data in this section was obtained from various sources including FAA 5010 Forms, the previous master plan, FAA Terminal Area Forecasts (TAF), airport records, interviews with the Airport Manager, FBOs, and other major users of the Airport. The historical and current trends documented in this section serve as a basis for the selection of the critical aircraft and the forecast developments.

Aviation Operations

This section presents a general overview of historic and current passenger and aviation activity trends observed at Kearney Regional Airport. This section focuses on the number and types of operations.

Kearney Regional Airport is presently utilized on a daily basis by a scheduled commuter airline. The Airport also serves a wide variety of general aviation aircraft ranging from small single-engine piston aircraft to more sophisticated business jets. The Airport is frequently utilized by medium to large business jets.

Commercial Airline Activity

Commercial Airline activity refers to the aircraft operations which have a primary purpose of transporting passengers or cargo on established routes. The FAA has three classifications for commercial airline activity: certified air carrier, commuter air carriers, and air taxi.

Certified Air Carrier

A company certified by the FAA and operating aircraft having more than 60 passenger seats or 18,000 pounds payload is classified as a Certified Air Carrier. Currently, there are no certified air carriers operating at Kearney Regional Airport.

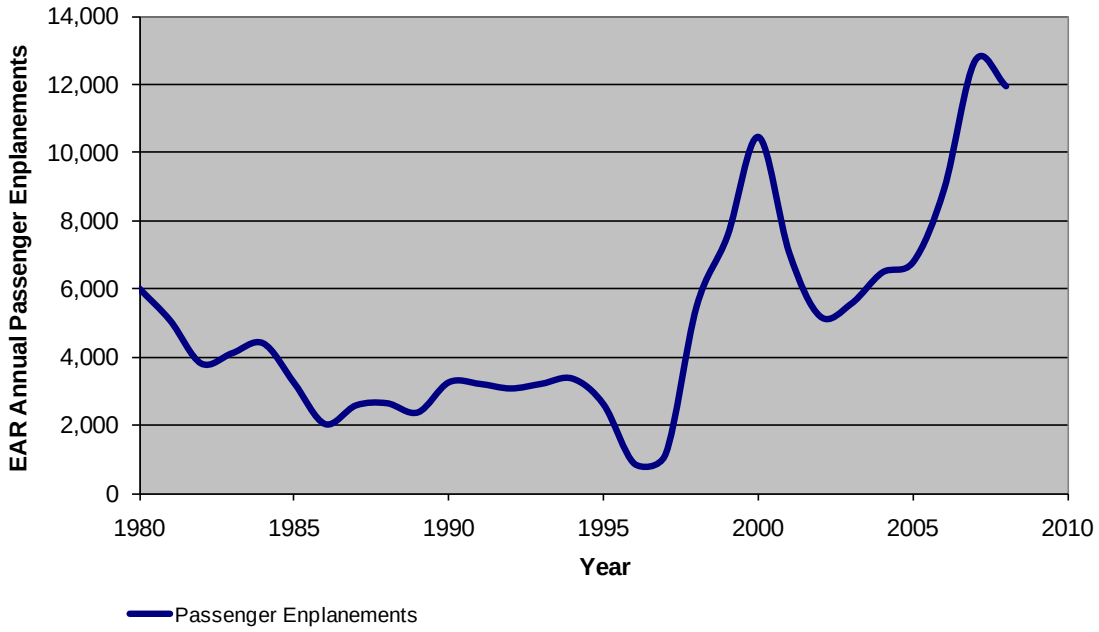
Commuter Air Carrier

A commuter air carrier is defined as a company which operates aircraft designed to accommodate no more than 60 passenger seats and provides scheduled passenger service of five or more round-trip flights per week on at least one route according to published flight schedules. Two components of commuter air carriers include enplaned passengers and commercial aircraft operations.

Passenger Enplanements

Enplaned passengers refer to the number of passengers boarding and departing from commercial aircraft at the Airport. Passenger enplanements are the best indicator of demand for commercial airline activity. Historic passenger enplanement information is included in **Table II.1**.

Table II.1 – Historic Passenger Enplanements



Year	Annual Passenger Enplanements		Year	Annual Passenger Enplanements
1980	6,007		1995	2,597
1981	5,063		1996	851
1982	3,803		1997	1,138
1983	4,107		1998	5,475
1984	4,398		1999	7,557
1985	3,233		2000	10,463
1986	2,024		2001	7,042
1987	2,573		2002	5,184
1988	2,636		2003	5,562
1989	2,367		2004	6,479
1990	3,252		2005	6,789
1991	3,204		2006	8,936
1992	3,070		2007	12,707
1993	3,209		2008	11,956
1994	3,358			

Source: 2000 to 2008 data from FAA (1980 to 1999 data was not available from FAA and was obtained from previous Master Plan and Airport Manager records)

Historic passenger enplanements for Kearney Regional Airport have not been steady. Between 1980 and 1990 passenger enplanements steadily declined. Airline deregulation and cuts in funding to the Essential Air Service (EAS) during this period were large contributors to the decline of passenger enplanements. Further, air service to smaller airports suffered as fares increased and frequency decreased,

while larger airports in the area, including Denver International Airport, Lincoln Airport, and Eppley Airfield in Omaha, were experiencing improved service and more competitive fares during this period. After 1990, passenger enplanements remained steady until 1996. The sudden drop in passenger enplanements from 1996 to 1997 is due to the loss of the commercial airline service with Great Plains Express Airlines at Kearney Regional Airport and Central Nebraska Regional Airport in Grand Island, Nebraska in July 1996. During the month of July 1997 Great Lakes Aviation, under a code-sharing agreements with United Airlines, reinstated commercial airline service to Kearney Regional Airport. After commercial service was re-opened, annual passenger enplanements rapidly increased from 1998 to 2001. Again, after 2001 a drastic decrease in passenger enplanements was observed at Kearney Regional Airport. This trend was observed nationwide due to the major economic and social impacts caused by the September 11, 2001 terrorist acts involving the use of commercial aircraft. This downward trend in passenger enplanements continued into 2002. From 2002 until the present, the annual passenger enplanements have steadily increased to reach over 12,700 in 2007.

Commercial Aircraft Operations

Commercial aircraft operations refer to the actual number of take-offs and landings by commercial aircraft. Currently, there are three scheduled flights per day on weekdays, and two flights on weekend days. Based on this data, the estimated yearly commercial aircraft operations at Kearney Regional Airport are 988 operations per year.

Air Taxi

Air taxi refers to a company operating aircraft designed to have no more than 60 passenger seats or a cargo payload of 18,000 pounds and carries cargo or mail on either a scheduled or on-demand basis and/or transports passengers by an on-demand basis only. The air taxi operations were broken down into two sub-categories based on type of cargo: charter flights for transporting passengers, and air cargo for the transportation of goods and freight.

Charters

A charter company is defined as a company which transports passengers on aircraft with no more than 60 passenger seats and operates flights by on-demand basis only. There is one FBO at Kearney Regional Airport which provides charter services, Otis Air Service. The previous FBO, Air Midway, conducted approximately 200 charters per year. During the data collection phase in August 2008, Otis Air Service indicated they operate one aircraft at Kearney Regional Airport which is primarily utilized for training. However, when the aircraft is not needed for training, charter flights may conducted. Otis Air Service plans to acquire additional aircraft to be reserved for providing charter flights. The number of charter flights by Otis Air Service would be

expected to reach similar numbers of charter flights as the previous FBO. Charter companies based in other airports, such as Lincoln and Omaha, Nebraska, conduct charter operations to and from Kearney Regional Airport.

Air Cargo

The air cargo industry includes businesses which provide services transporting no more than a cargo payload of 18,000 pounds of freight by air on scheduled routes or by an on-demand basis. Suburban Air Freight and Fed-Ex both operate out of Kearney Regional Airport. Each company has approximately one flight in and out of the Airport on a daily basis.

Military

Military operations include operations conducted by military aircraft for military exercise purposes. Kearney Regional Airport has consistently experienced 300 military operations per year since 1998 based on FAA 5010 forms. Recently, military activity at Kearney Regional Airport has decreased to approximately 30 operations per year. The military operations at Kearney Regional Airport consists of helicopters such as Blackhawks, Rangers, Schnooks, and similar aircraft.

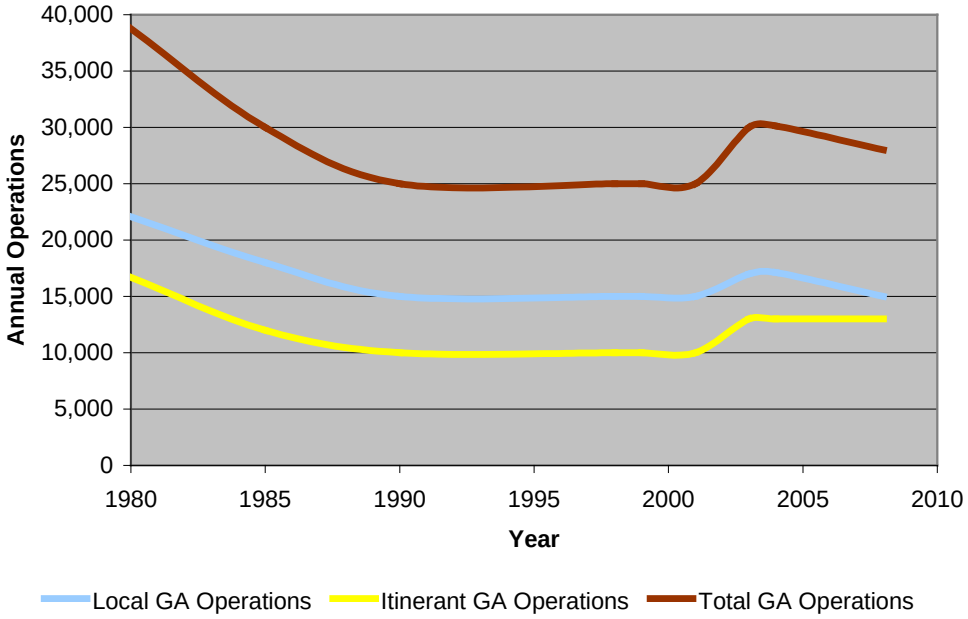
General Aviation

General Aviation (GA) is defined as aircraft operations which include all other aviation activity not classified as commercial or military operations. Several factors can be used to determine the GA activity at an airport including number of based aircraft and area population.

Itinerant vs. Local Operations

A local operation is defined as a take-off or landing operation conducted by aircraft which operate in the vicinity of the airport or which simulate approaches or touch-and-go operations at the airport, such as flight training. Itinerant operations are conducted by aircraft which have a specific origin or destination at another location. **Table II.2** indicates the historic GA operations by type.

Table II.2 – Historic General Aviation Operations



	GA Operations		
Year	**Local**	**Itinerant**	**Total**
1980	22,060	16,700	38,760
1985	18,000	12,000	30,000
1990	15,000	10,000	25,000
1998	15,000	10,000	25,000
1999	15,000	10,000	25,000
2001	15,000	10,000	25,000
2003	17,000	13,000	30,000
2004	17,125	13,000	30,125
2008	15,000	13,000	28,000

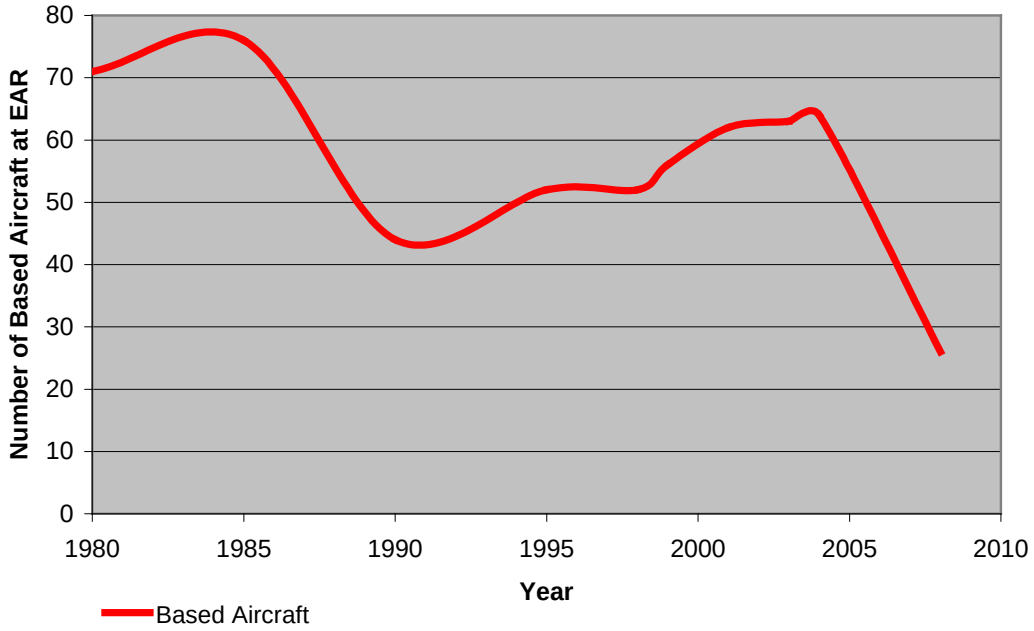
**Note: Historic FAA 5010 Forms indicated a significant change in 1999 from itinerant to local operations; after reviewing local trends, it appears the operations were transposed.*

Source: Historic 5010 forms

Based Aircraft

The number of based aircraft is typically the best indicator of GA activity at an airport such as Kearney Regional Airport and is dependent upon the socio-economic conditions of the area. Historic numbers of based aircraft at Kearney Regional Airport are included in **Table II.3**.

Table II.3 – Historic Based Aircraft



Year	Based AC
1980	71
1985	76
1990	44
1995	52
1998	52
1999	56
2001	62
2003	63
2004	64
2008	26

Source: Historic 5010 forms and Airport Manager

The drop in aircraft between the mid-1980's to the early 1990's reflects the decline GA experienced nationwide during this period. Since the early 1990's, the number of based aircraft at Kearney Regional Airport has steadily increased until 2004-2005 when it again declined. A portion of the recent large decrease in the number of based aircraft can be attributed to the recent change in FBOs and a tornado in the spring of 2008 which destroyed several buildings and damaged several aircraft.

Day/Night Operations

Because Kearney Regional Airport is a non-towered airport, the actual night operations are not known. However, adequate lighting and navigational aids are provided to accommodate night operations. In discussions with the Airport Manager, the number of night operations is likely minimal and the current hours of operation are adequate for the time of day when most aircraft utilize the Airport.

Aircraft Data

This section presents a general overview of operations by the type of aircraft at Kearney Regional Airport. This section focuses on number of operations by type of aircraft for use in determination of the critical aircraft.

Fleet Mix and Number and Type of Operations

The following data was obtained through surveys administered to Airport users and through conversations with the individual users. A copy of the survey is included in **Appendix B**.

Great Lakes Aviation, the only commercial service airline at Kearney Regional Airport, utilizes Beechcraft 1900D aircraft and has seating for 19 passengers. The airline previously operated an Embraer EMB-120 Brasilia aircraft which seats 30 passengers.

Otis Air Service will provide charters, 100LL and Jet A fuel, flight training, aircraft rental, and other general aviation services. During August 2008, Otis Air Service indicated they operate a Cessna 172 aircraft and plan to acquire more aircraft in the future.

Buffalo Air Service, another FBO at the Airport, provides aerial application services and operates two Air Tractor 502B aircraft. As indicated by Buffalo Air Service in August 2008, up to five flights per day can typically be expected during the typical peak period from early July to early September.

Rodgers Helicopter Service provides medical and air ambulance services for the area. They utilize only helicopters and no fixed-wing aircraft.

The Buckle Corp, a business based in Kearney, Nebraska, owns two aircraft based at Kearney Regional Airport. The aircraft include a Cessna Citation CJ1 and a Cessna Citation Sovereign. During August 2008, The Buckle Corp indicated both aircraft are flown to and from the Airport almost on a daily basis.

Suburban Air Freight and Fed-Ex each operate one aircraft at Kearney Regional Airport. Both companies also conduct one flight in and out of the Airport per day during August 2008. Suburban Air Freight operates a Beech C99 aircraft and Fed-Ex operates a Cessna 208 Caravan.

Various other large aircraft are occasionally observed at Kearney Regional Airport. A Boeing 737-200 has utilized the Airport about once a year for the past four to five years to transport people for events at the University of Nebraska at Kearney. This aircraft requires special permission to land at Kearney Regional Airport. Also, Gulfstream GIV aircraft have been

observed at Kearney Regional Airport; however, they are not frequent. The Gulfstream GIV is typically observed one or two times a year.

Typical GA aircraft at Kearney Regional Airport include Gulfstream GIII, Hawker 800XP, and Beech King Air 200 and 300 and similar aircraft. A summary of the fleet mix and types of operations for Kearney Regional Airport is included in **Table II.4**.

Table II.4 – Frequent Aircraft Observed at Kearney Regional Airport

Operator	Aircraft	Number of Annual Operations by Type	
		Itinerant	Local
Great Lakes Aviation	Beechcraft 1900D	990	-
Otis Air Service*	Cessna 172	400	1,000
Buffalo Air Service	Two Air Tractor 5-2B	-	500
The Buckle	Cessna Citation CJ1	550	-
The Buckle	Cessna Citation Sovereign	550	-
Suburban Air Freight	Beech C99	620	-
Fed Ex	Cessna 208 Caravan	620	-
Various	Boeing 737-200	2	-
Various	Gulfstream GIV	4	-

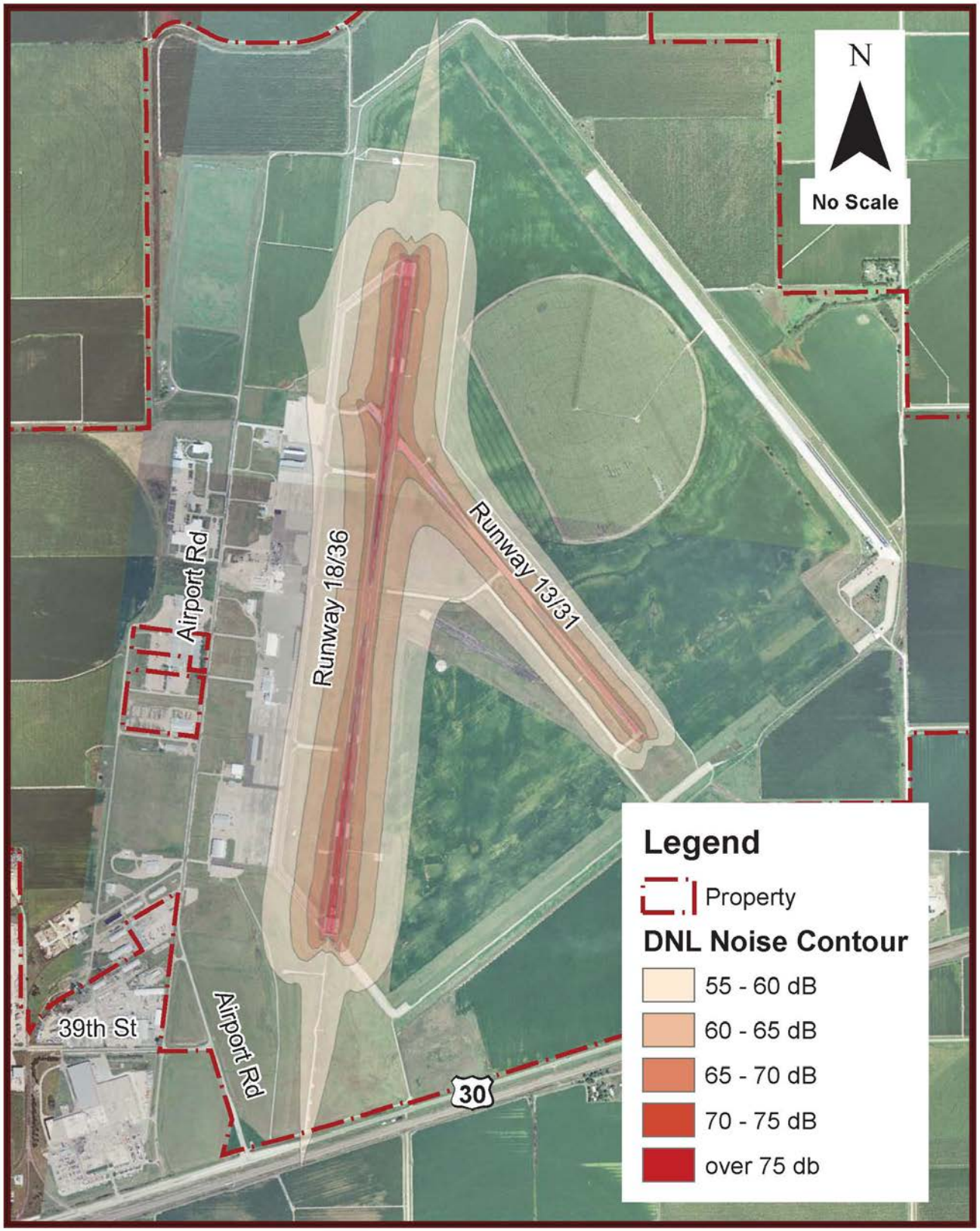
**NOTE: Estimates based on Previous FBO, Air Midway*

Source: Data as of August 2008 from Airport Manager, Great Lakes Aviation, Otis Air Service, Buffalo Air Service, The Buckle Corp

Noise Abatement Procedures

According to FAA guidance, areas of significant noise exposure are those which experience noise levels of 65 dB Day-Night Average Sound Level (DNL) or higher. As indicated in **Figure II.1**, the 65 dB DNL noise contours with the current aircraft fleet at Kearney Regional Airport are within airport property. Given the primarily agricultural uses in the runway approaches, it is not expected future noise impacts will be a concern unless major land-uses changes occur and larger aircraft more frequently utilize Kearney Regional Airport.

Figure II.1 – Noise Contours



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KEARNEY
Regional Airport

Section III
Airport Facilities Inventory

KIRKHAM MICHAEI

III. AIRPORT FACILITIES INVENTORY

The data obtained in the following sections was taken from various sources including the most current FAA 5010 Form, site visits, previous master plan, and discussions with the Airport Manager.

Runways

Table III.1 provides information on the two active runways at Kearney Regional Airport. **Figure III.1** indicates the location of the runways.

Table III.1 – Runway Data

	Runway	
	18/36	**13/31**
Design Group	II	II
Approach Category	C	B
Type	Primary	Crosswind
Length (ft)	7,094	4,498
Width (ft)	150	75
Pavement Type	Asphalt	Concrete
Pavement Condition	Good	Good
Pavement Strength (in 1,000 lbs for S (Single) and D (Dual) Landing Gears)	48 S 73 D	30 S 38 D

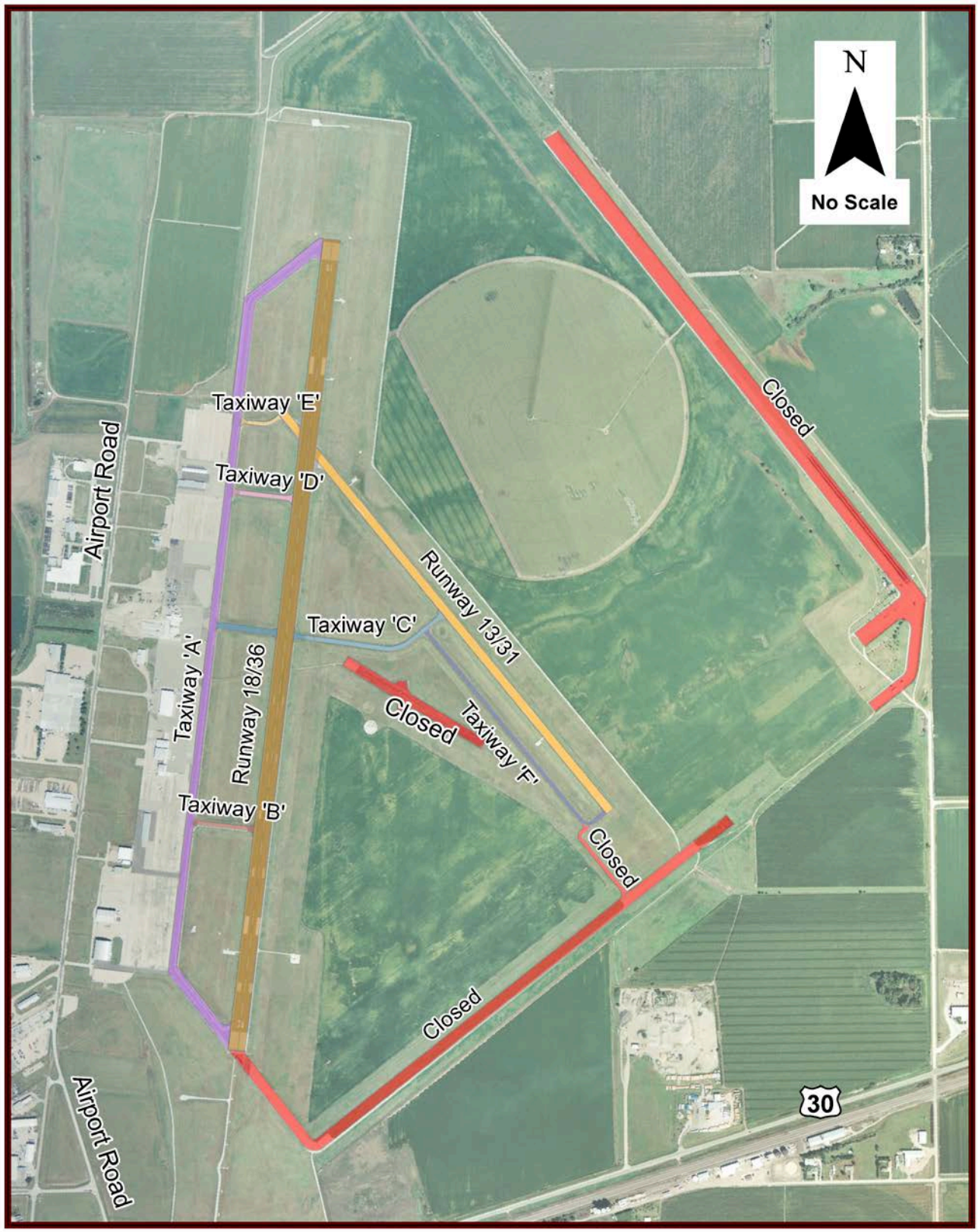
Taxiways

Table III.2 provides a summary of the existing taxiway system at Kearney Regional Airport. **Figure III.1** indicates the location of the taxiways.

Table III.2 – Taxiway Data

	Taxiway					
	A	**B**	**C**	**D**	**E**	**F**
Design Group	II	II	II	II	II	II
Type of Taxiway	Parallel (Rwy 18/36)	Connector (Rwy 18/36)	Connector (Rwy 18/36, 13/31)	Connector (Rwy 18/36	Connector (Rwy 18/36)	Partial-Parallel (Rwy 18/36)
Width (ft)	35	40	50/35	40	35	35
Pavement Type	Asphalt	Concrete	Asphalt/ Concrete	Concrete	Concrete	Concrete
Pavement Condition	Good	Good	Good	Good	Good	Good

Figure III.1 – Runway and Taxiway Facilities



Aircraft Apron

Figure III.2 illustrates the apron area and the various uses. **Table III.3** also provides details on the apron.

Table III.3 – Aircraft Apron Data

	Apron Area			Totals
	GA	Commercial	Others	
Area (Square Yards)	27,455	9,765	138.980	176,200
Number of Tiedowns	15	4	12	31
Pavement Type	Asphalt	Asphalt	Asphalt/Concrete	-
Pavement Condition	Good	Good	Fair to Poor	-

Lighting, Marking, and Signs

Table III.4 summarizes the lighting and marking for airfield facilities located at Kearney Regional Airport.

A Marking and Signing Plan was completed for Kearney Regional Airport in 2006 and is included in **Appendix C**.

Fuel Tanks

The FBO Otis Air Service provides fueling services with 100LL and Jet A fuel. The fuel storage tanks are located on the south end of the apron as indicated in **Figure III.2**. The FBO operates two fueling trucks, one for 100LL and one for Jet A fuel, to provide fuel to aircraft.

Drainage System

Most of the property at Kearney Regional Airport is agricultural and has a surface and ditch drainage system. Several storm sewer laterals consisting of storm sewer pipes from 15” to 72” diameter outfall serve the apron and terminal area. The outfall runs to the northeast and to an open ditch which eventually drains to the Wood River Watershed.

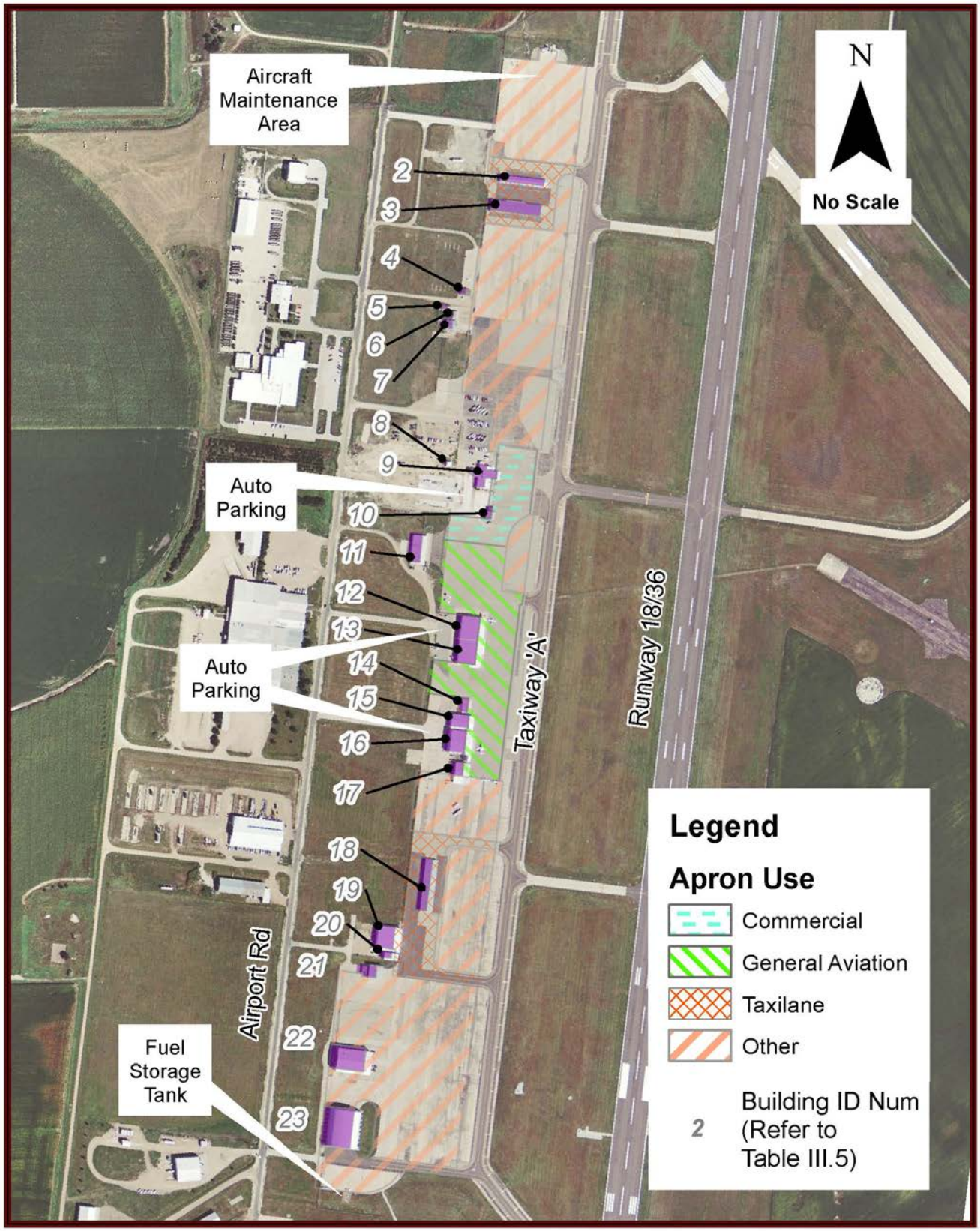
According to visual inspections, the inlets are currently in fair condition and the storm sewer effectively drains water off the apron.

Table III.4 – Lighting and Marking Data

Airfield Facility	Lighting	Markings
Runway 18/36	Edge (HIRL), REIL (Rwy 18), Threshold	18 -Non-Precision Instrument/ 36 Precision Instrument
Runway 13/31	Edge (MIRL), Threshold	Non-Precision Instrument
Taxiway 'A'	Edge (MITL)	Centerline, Enhanced Centerline, Edge, Holdline, Surface Painted Holding Position Sign, Shoulder, VOR Receiver Checkpoint
Taxiway 'B'	Edge (MITL)	Centerline, Enhanced Centerline, Holdline, Surface Painted Holding Position Sign
Taxiway 'C'	Edge (MITL)	Centerline, Enhanced Centerline, Holdline, Surface Painted Holding Position Sign
Taxiway 'D'	Edge (MITL)	Centerline, Enhanced Centerline, Holdline, Surface Painted Holding Position Sign
Taxiway 'E'	Edge (MITL)	Centerline, Enhanced Centerline, Holdline, Surface Painted Holding Position Sign
Taxiway 'F'	Edge (MITL)	Centerline, Enhanced Centerline, Edge, Holdline, Surface Painted Holding Position Sign
Apron	-	Taxilane Centerline, Taxiway Edge, Tiedown,

NOTE: HIRL – High Intensity Runway Lights
MIRL – Medium Intensity Runway Lights
MITL – Medium Intensity Taxiway Lights

Figure III.2 – Apron Areas and Airport Structures



Airport Structures

Figure III.2 illustrates the location of the structures on airport property used for aviation purposes at Kearney Regional Airport. **Table III.5** provides details for each airport structure.

Table III.5 – Airport Structure Data

ID Num	Building Use	Address	Owner
2	7-Place T-Hangar	6039 Airport Rd	Kearney Regional Airport
3	10-Place T-Hangar	6035 Airport Rd	Kearney Regional Airport
4	Hangar	None	Buffalo Air Service
5	Hangar	None	Buffalo Air Service
6	Hangar	None	Buffalo Air Service
7	Office	5735 Airport Rd	Buffalo Air Service
8	Emergency Generator/Vault	None	Kearney Regional Airport
9	Terminal	5145 Airport Rd	Kearney Regional Airport
10	Airport Management/ Fire Station	5139 Airport Rd	Kearney Regional Airport
11	Nebraska Department of Aeronautics Office	5065 Airport Rd	Nebraska Department of Aeronautics
12	FBO Hangar	4985 Airport Rd	Kearney Regional Airport
13	FBO Hangar	4985 Airport Rd	Kearney Regional Airport
14	Hangar	4865 Airport Rd	Kearney Regional Airport
15	Corporate Hangar	4855 Airport Rd	Others
16	Corporate Hangar	None	Others
17	Corporate Hangar	4845 Airport Rd	Others
18	10-Place T-Hangar	None	Others
19	FBO Hangar	4601 Airport Rd	Others
20	Hangar	4595 Airport Rd	Others
21	Hangar	4585 Airport Rd	Others
22	Snow Removal Equipment Storage	None	Kearney Regional Airport
23	Open Bay Hangar	4335 Airport Rd	Kearney Regional Airport

Automobile Parking

The automobile parking location at Kearney Regional Airport is included in **Figure III.2**. There are approximately 100 parking spaces available near the terminal and administration building. Near the FBO hangar, there are approximately 40 additional parking spaces. These parking spaces do not include areas located near hangars or empty pavement adjacent to the existing parking lots which can be utilized as parking and are separated from the apron.

Air Cargo Facilities

There are no Air Cargo facilities located at Kearney Regional Airport. Suburban Air Freight stores their aircraft on the apron and loads cargo onto a truck directly on the apron. Fed-Ex utilizes a hangar (Building 1 from **Figure III.2**) and also has trucks which are loaded with the cargo. However, cargo is not stored in the hangar.

Airport Utilities

The Airport originally was serviced by two potable water wells that are no longer in service. The Airport is connected to the City of Kearney's water supply and the existing water lines vary from 6" to 10" in diameter. The Airport has an adequate supply of water for potable and fire fighting activities. **Figure III.3** shows the approximate location of the water line on the airport property.

The Airport has approximately 16 agricultural oriented wells for both gravity and center pivot type irrigation systems used for the agricultural portions of the airport property.

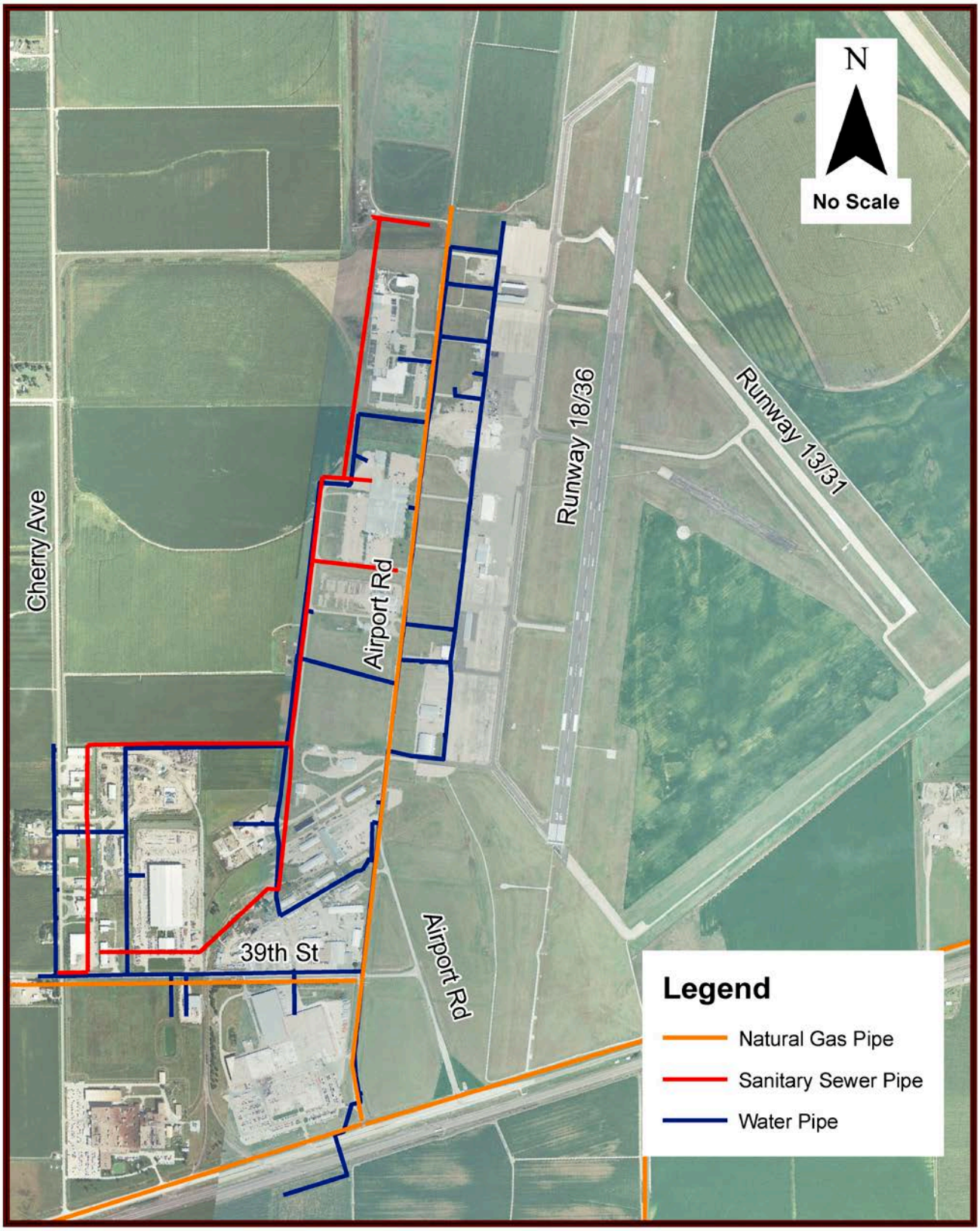
Kearney Regional Airport is also connected to the City of Kearney's sanitary sewer system. The system consists of a series of 8" and 10" sanitary sewer mains. **Figure III.3** shows the approximate location of the sanitary sewer system on the airport property.

Kearney Regional Airport is served with natural gas by Northwestern Public Service Company and KN Energy. **Figure III.3** shows the approximate location of the natural gas line on the airport property.

Kearney Regional Airport is served by two power companies. The basic airport facility and a portion of the irrigation well systems are supplied by Nebraska Public Power District (NPPD). The power to the remaining irrigation wells is supplied by Dawson County Public Power.

Telephone service to the Airport is provided by the General Telephone Company. In addition, an AT&T transcontinental underground telephone cable bisects the northern portion of the airport property. The cable passes just north of the apron area and crosses under parallel Taxiway A and Runway 18/36.

Figure III.3 – Airport Utilities



Instrument Approaches

The current published approach types for each runway at Kearney Regional Airport are included in **Table III.6**. The published approach plates are included in **Appendix D**.

Table III.6 – Instrument Approaches

Runway	Published Instrument Approaches
18	GPS, VOR
36	GPS, VOR, ILS, NDB
13	VOR

Because there is no Air Traffic Control Tower located at the Airport, there are limited means to accurately record the number of instrument approaches. Because there is no instrument approach data for Kearney Regional Airport, instrument approach patterns were reviewed at Central Nebraska Regional Airport in Grand Island Nebraska. Central Nebraska Regional Airport has a control tower and has records of total operations and instrument approaches. Central Nebraska Regional Airport was selected as a comparison to Kearney Regional Airport because both airports offer similar services, have similar instrument approaches, and experience similar weather patterns due to their relatively close proximity (35 nautical miles). From review of the approach data at Central Nebraska Regional Airport, approximately 40% of the operations utilize instrument approaches. This is typically higher than is observed at other airports in Nebraska primarily due to the presence of commercial service and training activity at the Airport. Based on this information, Kearney Regional Airport has an estimated 11,200 annual instrument approach operations in 2008.

Visual and Navigational Aids

The Visual and Navigational Aids located at Kearney Regional Airport are provided in **Table III.7**. **Figure III.4** illustrates the location of the Visual and Navigational Aids on the Airport.

Obstructions

According to the preliminary airspace review, an obstruction exists approximately 6,000 feet southwest of Runway 36. The obstruction is a water tower located at Eaton Corporation on the northeast corner of US Highway 30 & Cherry Avenue. The water tower obstructs the horizontal surface by approximately 8 feet and currently is marked with an orange/white checkerboard hazard-marking pattern.

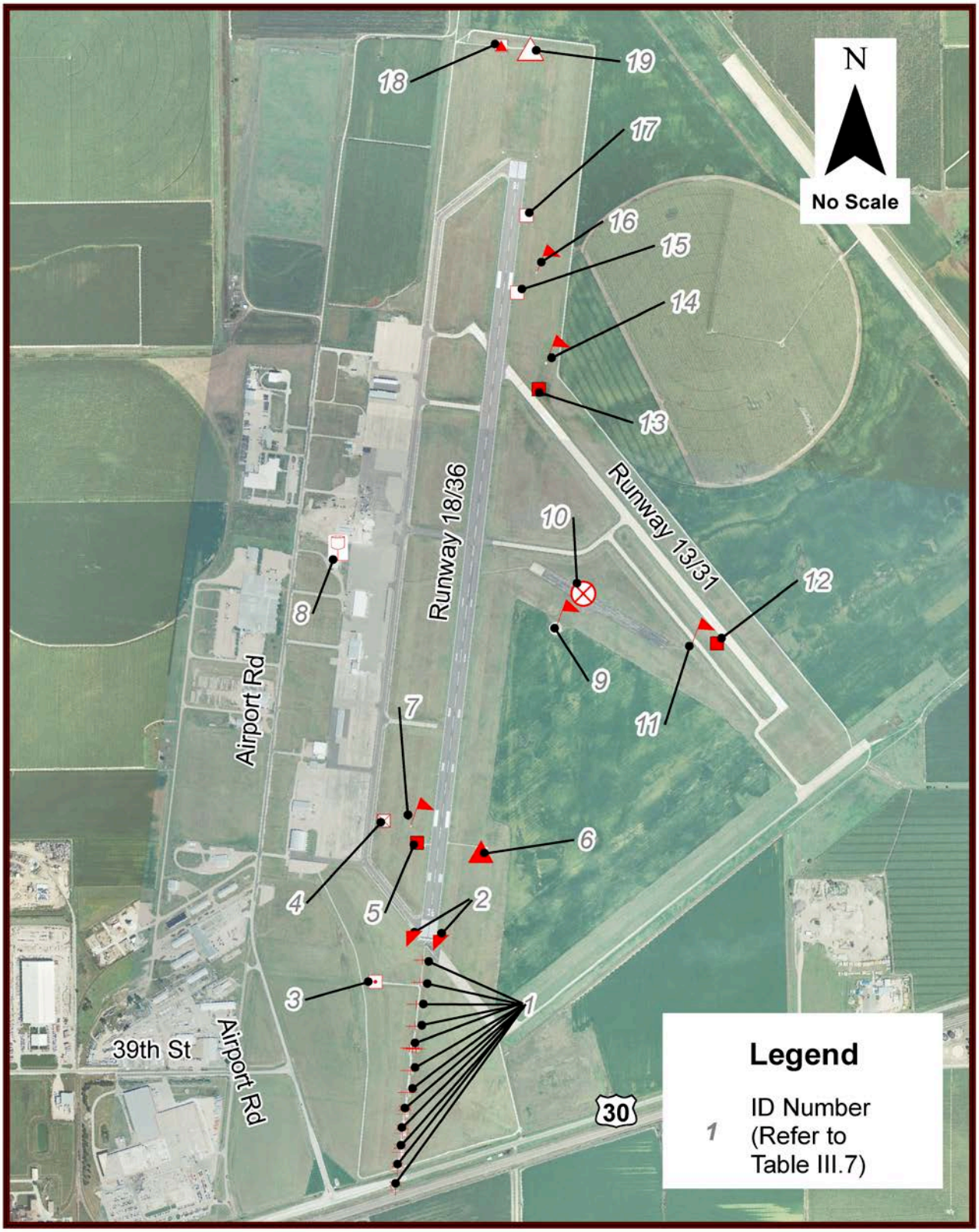
Table III.7 – Visual and Navigational Aids Data

ID Num	Navigational Aid	Service
1	Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR)	Runway 36
2	Runway End Identification Lights (REILs)	Runway 36
3	MALSR Equipment Building	Runway 36
4	Automated Weather Observation System (AWOS) III	All
5	Precision Approach Path Indicator (PAPI)	Runway 36
6	Glide Slope Antenna and Equipment Building	Runway 36
7	Windcone	Runway 36
8	Non-Directional Beacon (NDB)	Runway 36
9	Windcone	All
10	Very High Frequency Omni-directional Ranging (VOR)	Runway 18, 36, 13
11	Windcone	Runway 31
12	Precision Approach Path Indicator (PAPI)	Runway 31
13	Precision Approach Path Indicator (PAPI)	Runway 13
14	Windcone	Runway 13

Table III.7 – Visual and Navigational Aids Data (cont.)

ID Num	Navigational Aid	Service
15	Visual Approach Slope Indicator (VASI)	Runway 18
16	Windcone	Runway 18
17	Visual Approach Slope Indicator (VASI)	Runway 18
18	Localizer Equipment Building	Runway 18
19	Localizer Equipment	Runway 18

Figure III.4 – Visual and Navigational Aids



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KEARNEY
Regional Airport

Section IV
Aviation Forecasts

KIRKHAM MICHAEI

IV. AVIATION FORECASTS

The data in this section was obtained from various sources including FAA 5010 Forms, the previous master plan, FAA Terminal Area Forecasts (TAF), airport records, interviews with the Airport Manager, FBOs, and other major users of the Airport. The forecasts presented in this section are based on the historic and current trends documented in a previous section.

Critical Aircraft

Aircraft are categorized by the FAA using the Airport Reference Code (ARC). The ARC relates operational and physical characteristics of aircraft to airport design standards, such as runway length and width as well as other geometric elements. The ARC has two components: Aircraft Approach Category which is based on aircraft approach speed (or 1.3 times the stall speed) and the Aircraft Design Group which is based on the wingspan or tail height of the aircraft, whichever is the most restrictive. The Aircraft Approach Category is divided into five categories and the Aircraft Design Group is divided into six categories as listed in **Table IV.1**.

Table IV.1 – ARC Aircraft Approach Categories and Design Groups

ARC Aircraft Approach Categories	
Approach Category	**Approach Speed (knots)**
A	Less than 91
B	91 up to 121
C	121 up to 141
D	141 up to 166
E	166 and Greater

ARC Aircraft Design Groups		
Aircraft Design Group	**Wingspan (feet)**	**Tail Height (feet)**
I	Less than 49	Less than 20
II	49 up to 79	20 up to 30
III	79 up to 118	30 up to 45
IV	118 up to 171	45 up to 60
V	171 up to 214	60 up to 66
VI	214 up to 262	66 up to 80

When the approach category and the airplane design group are combined, this is called the Airport Reference Code (ARC), and is shown as follows: A-I, A-II, B-II, C-IV, etc. It should be noted that these codes should not be confused with approach minima codes such as CAT-I, CAT II or CAT III. Approach minima codes have three alphabetic letters in the prefix; ARCs have a single letter in the prefix.

Critical aircraft determination is based on the operation numbers of the most demanding aircraft. The FAA requires a minimum of 500 annual itinerant operations for the critical aircraft, either by current operations or a reasonable forecast over the 20-year planning period. An aircraft operation is defined as a take-off, landing, or activity designed to simulate a take-off or landing.

As previously mentioned, discussions were held with major users at the Airport and their annual itinerant operations were estimated based on their information. **Table IV.2** indicates the ARC and existing number of annual itinerant operations for the aircraft (refer to Section II and **Table II.5**)

Table IV.2 – Number of Itinerant Operations by Aircraft and ARC

Aircraft	ARC	Number of Annual Itinerant Operations
Beechcraft 1900D	B-II	990
Cessna 172	A-I	1,400
Two Air Tractor 5-2B	B-II	500
Cessna Citation CJ1	B-I	550
Cessna Citation Sovereign	C-II	550
Beech C99	B-I	620
Cessna 208 Caravan	B-II	620
Boeing 737-200	C-III	4
Gulfstream GIV	D-II	8
Gulfstream GV	C-III	2

Source: Airport Manager, Great Lakes Aviation, Otis Air Service, Buffalo Air Service, The Buckle Corp

Table IV.3 summarizes the estimated existing number of annual operations by ARC based on major users of the Airport.

Table IV.3 – Existing Annual Itinerant Operations by ARC

ARC	Existing Annual Itinerant Operations
A-I	1,400
B-I	1,170
B-II	2,110
C-II	550
C-III, D-II, and larger	10

NOTE: *These estimates are not inclusive of all aviation activity at Kearney Regional Airport*

According to **Table IV.3,** the most demanding aircraft that exceeds 500 annual itinerant operations is the C-II ARC. The C-II operations are completed by The Buckle Corp, a national company based in Kearney, Nebraska. The Buckle is expected to maintain a similar number of annual operations over the short-term period due to the current national economic downturn. However, over the long-term, their operations would be expected to increase.

Great Lakes Aviation (the current commercial service provider at Kearney Regional Airport) currently utilizes a Beechcraft 1900D (B-II ARC classification). Prior to 2008, Great Lakes Aviation was operating an Embraer EMB-120 Brasilia aircraft (C-II ARC classification). Great Lakes Aviation (or the commercial service provider at the time) would be expected to switch back to the Embraer EMB-120 (or similar) aircraft with additional seating capacity as commercial service demand increases rather than increase the number flights. Therefore, in the future, the C-II ARC operations would include the 990 annual commercial service operations.

As noted, the existing 550 annual itinerant operations for C-II aircraft in **Table IV.3** are not inclusive of all aviation activity at the Airport. From discussions with the Airport Manager, other aircraft classified in the C-II category, not included in **Table IV.2 and IV.3**, are frequently observed at Kearney Regional Airport. In addition to the aircraft listed in **Table IV.2**, there are typically more than three to four C-II type aircraft observed at the Airport on average per week which are equal to an additional 416 annual C-II operations.

According to the FAA *Aerospace Forecast Fiscal Years 2008-2025*, long-term business jet growth is expected to increase more than other smaller personal aircraft. This trend is also expected over the long term planning period at Kearney Regional Airport. Business jets typically are categorized in the C-II, C-III, D-II and other large aircraft categories. Thus, the number of operations for aircraft in these ARCs would be expected to increase over the long-term planning period. According to the FAA *Aerospace Forecast Fiscal Years 2008-2025*, projects a 3.7 percent annual increase in these business jet aircraft through 2025.

In the short term (5-year period), the growth rate for C-II business-type aircraft operations was assumed to be minimal due to the current national economic downturn. For the mid and long term (10 and 20 year periods), the 3.7 percent annual increase from the Aerospace Forecast Fiscal Years 2008-2025 was utilized to determine C-II aircraft operations. **Table IV.4** summarizes the total current C-II aircraft operations and the future forecasted operations.

Table IV.4 – C-II Aircraft Forecasted Annual Itinerant Operations

Year	Airline C-II Operations	Total Annual C-II Itinerant Operations
2008 (Current)	0	966
2013 (5 Year Forecast)	*0*	*1,000*
2018 (10 Year Forecast)	*0*	*1,200*
2028 (20 Year Forecast)	*990*	*2,400*

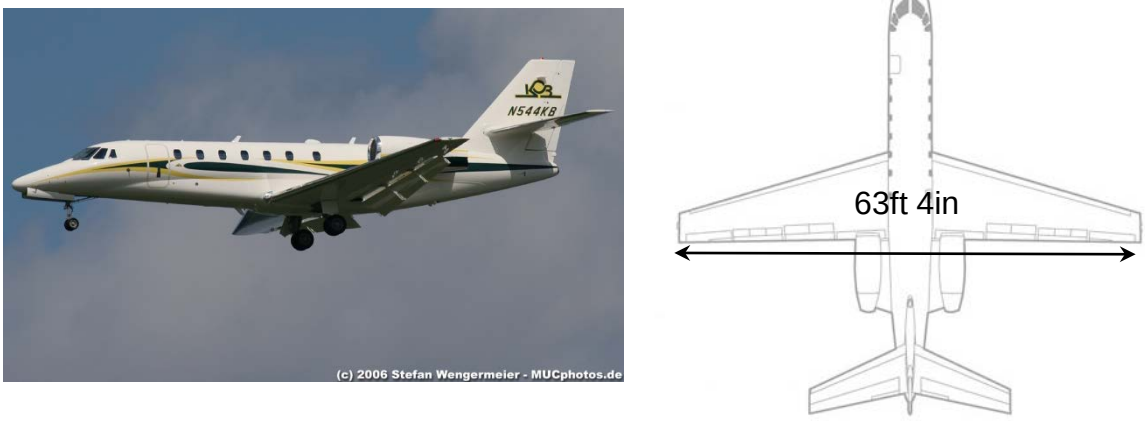
Source: Airport Manager and forecasts by Kirkham Michael

Aircraft larger than C-II including C-III and D-II ARC (Boeing 737-200 and Gulfstream G IV as included in **Table IV.2**) also utilize Kearney Regional Airport. These aircraft have approximately 10 annual estimated operations per year. It should be noted the Airport Manager has reported these aircraft have exceeded 10 annual operations in previous years. During the planning period these aircraft should be taken into consideration; however, their annual operations are not expected to exceed 500 even with the anticipated growth of business jet aircraft.

It is recommended to use a Cessna Citation Sovereign (C-II ARC classification), shown in **Figure IV.1**, for the critical aircraft for the existing and ultimate conditions. This recommendation is based on the following results from the analysis discussed in this section:

- The current annual C-II operations are more than 500
- The annual operations by C-II aircraft are expected to increase over the planning period due to:
    - Potential for commercial service provider to switch back to a larger aircraft (C-II classification) during the planning period as commercial service demand increases
    - Increase in national business jet trends
- The low number and infrequent nature of existing annual operations by C-III, D-II, and larger aircraft

Figure IV.1 – Cessna Citation Sovereign Aircraft (C-II ARC)



Aviation Operations

This section presents a general overview of the development of the passenger and aviation activity trend forecasts for Kearney Regional Airport. This section focuses on the number and types of operations.

Commercial Airline Activity

Certified Air Carrier

Currently, there are no Certified Air Carrier operations at Kearney Regional Airport. As the demand for air travel in the area increases, it would be more likely that an aircraft with 30 or fewer seats would be utilized instead of a larger aircraft with 60 or more seats.

Commuter Air Carrier

The forecasts developed for the passenger enplanements and the commercial aircraft operations are based on the following assumptions:

- The current commercial airline service will continue to provide service to Denver International Airport and will not add service to other destinations
- No additional commercial airline service providers will offer service at Kearney Regional Airport
- Factors which largely affect the number of passenger enplanements, such as flight schedules, ticket pricing, and reliable service, will remain fairly constant through the planning period in comparison with other airports in the vicinity

The first assumption is reasonable because Kearney Regional Airport historically has provided only one service to the Denver International Airport. The second assumption is reasonable because the Airport has not had more than one commercial air carrier since 1982. Given recent national economic and aviation trends, it is unlikely more than one commercial air carrier will be located at Kearney Regional Airport during the short term period.

The third assumption is also realistic. The flight schedule is not likely to vary much because the commercial air carrier will likely keep flight schedules during desired time frames. The ticket price at Kearney Regional Airport relative to the ticket pricing at other competing airports in Grand Island, Lincoln, and Omaha, will likely remain the same as the existing amount. Finally, the reliability of the airline service will likely remain at similar levels.

If any of these assumptions significantly change during the planning period, it is recommended to update the forecasts in this section to reflect the latest conditions. By updating the forecasts after any significant change, the Airport can ensure they are able

to provide the needed services and capacity for the increased demand, or move an improvement project further into the future for decreased demand.

Passenger Enplanements

Commercial service activity forecasts are developed based on the passenger enplanement forecasts. The passenger enplanement forecasts are also used to identify the need for improvements to existing terminal facilities to accommodate future passenger demands.

The FAA TAF includes passenger enplanement forecasts. Typically for General Aviation and small Commercial Service airports, such as Kearney Regional Airport, the TAF passenger enplanement forecasts provide a constant estimate of passenger enplanement for the planning period. After review of the TAF, this is the case for Kearney Regional Airport. The most current TAF estimates 7,727 passenger enplanements per year for the planning period. During 2007, there were over 12,500 passengers enplaned at Kearney Regional Airport. In addition, the population in the service area is expected to increase during the planning period. Because the existing passenger enplanements are higher than the TAF estimates and the Airport is expected to experience increased growth in passengers, the passenger enplanement estimate provided in the TAF was not utilized for the forecasts. A trend analysis was utilized because it would be able to provide better estimates of the passenger enplanement forecasts.

The trend analysis included examination of trends from the historic data between the period of 1999 and 2007. The analysis period was selected to begin in 1999 because commercial air service was re-instated at Kearney Regional Airport during 1997. The data for 1998 was excluded from the analysis period because a large amount of growth was observed between 1997 and 1998, largely due to the re-instatement of commercial air carrier service. The increase in the passenger enplanements after 1997 was mainly due to two factors: new demand from economic growth and increases in population; and existing demand which was displaced due to the loss of air service at the Airport. The year of 1999 was assumed to be the first year since 1997 which experienced more growth in passenger enplanements due to the new demand for air service, rather than the return of the displaced demand. The analysis period from 1999 to 2007 had an average growth rate of 6.6% per year. The period of 1999-2007 was selected as the analysis period because the dominant cause of growth assumed during this period was from new demand for airline service.

During the trend analysis, the recommended forecast from the previous Master Plan for Kearney Regional Airport was also analyzed. The forecasts from the previous Master Plan did capture the general trend of the annual passenger enplanements. As part of this update to the Master Plan, three additional forecasts were developed

from the trend analysis: Low, Moderate, and Aggressive Growth Forecasts. **Table IV.5** includes the results of the forecasts.

The Low Growth Forecast was based on the observed linear growth trend of annual passenger enplanements during the analysis period (1999-2007). The Low Growth Forecast has a 1.8% average annual growth rate. Because the Low Growth Forecast follows a linear trend, the increase in the forecast of passenger enplanements remains constant every year.

The Moderate Growth Forecast is based on the observed exponential growth trend of annual passenger enplanements during the analysis period. The Moderate Growth Forecast has a 2.6% average annual growth rate. Because the Moderate Growth Forecast follows an exponential trend, the increase in the forecasted passenger enplanements grows every year.

Because the previous Master Plan forecast captured the general trend of passenger enplanements for the analysis period, the growth rate from the previous Master Plan forecast was utilized to develop the Aggressive Growth Forecast. The Aggressive Growth Forecast has a 3.2% average annual growth rate. This forecast follows a linear trend; this indicates the annual increase in passenger enplanements is the same every year.

Table IV.5 – Passenger Enplanement Forecasts

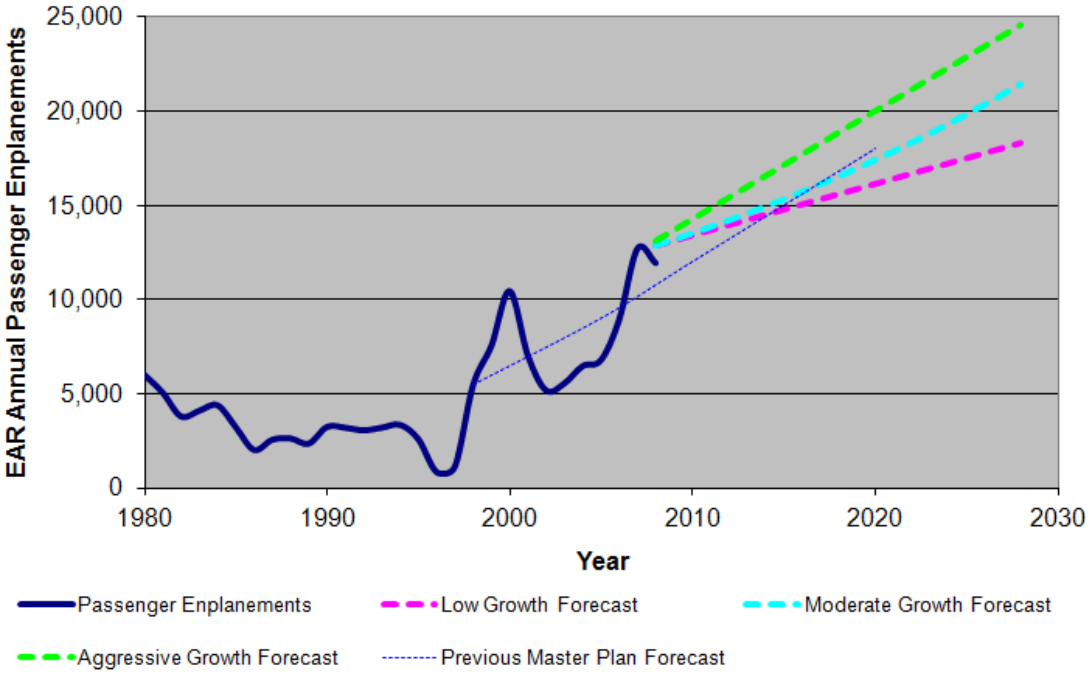


Table IV.5 (continued)

Year	Historical Passenger Enplanements	Low Growth Forecast	Moderate Growth Forecast	Aggressive Growth Forecast
1980	6,007	-	-	-
1985	3,233	-	-	-
1990	3,252	-	-	-
1995	2,597	-	-	-
1996	851	-	-	-
1997	1,138	-	-	-
1998	5,475	-	-	-
1999	7,557	-	-	-
2000	10,463	-	-	-
2001	7,042	-	-	-
2002	5,184	-	-	-
2003	5,562	-	-	-
2004	6,479	-	-	-
2005	6,789	-	-	-
2006	8,936	-	-	-
2007	12,707	-	-	-
2008 (Current)	11,956	-	-	-
2013 (5 Year Forecast)	-	*14,229*	*14,582*	*16,351*
2018 (10 Year Forecast)	-	*15,602*	*16,541*	*19,491*
2028 (20 Year Forecast)	-	*18,348*	*21,445*	*25,773*

Source: Great Lakes Aviation, FAA, and forecasts by Kirkham Michael

The Moderate Growth Forecast provides the most similar forecasted values for the enplanements as the previous Master Plan and it provides the most realistic scenario based on current economic factors: slower growth in the short-term followed by increased growth rate in the future. For these reasons, **the recommended annual passenger enplanement forecast for Kearney Regional Airport is the Moderate Growth Forecast.**

Commercial Aircraft Operations

Currently, the commercial service airline, Great Lakes Aviation, operates aircraft with a 19-seat passenger capacity, Beechcraft 1900-D with ARC B-II, with approximately 988 scheduled flights per year. Based on this information, the current passenger enplanement capacity is approximately 18,772 passenger enplanements per year. According to the selected forecast, the number of passengers enplaned will exceed this number near the year 2022. Great Lakes will likely switch back to the 30-seat

passenger aircraft, Embraer EMB-120 Brasilia (C-II ARC) or similar, by the end of the planning period. With a 30 seat capacity aircraft and the same current schedule, there will be a capacity of approximately 29,640 passengers, which is larger than the forecasted enplaned passengers for the planning period.

Because the forecasted number of passenger enplanements through the planning period can be accommodated by the current flight schedule with 30-passenger seat aircraft, the number of annual commercial aircraft operations are not anticipated to significantly change throughout the planning period.

Air Taxi

Air taxi forecasts are used to estimate the future operations for on-demand flights carrying less than 60 passengers and scheduled on-demand flights for less than 18,000 pounds of cargo. The forecasts for the air taxi operations are divided into two categories based on the type of cargo: charter flights for transporting passengers and air cargo for the transportation of goods and freight.

Charters

The current FBO, Otis Air Service, located at Kearney Regional Airport only provides charter services on a limited basis. Otis Air Service plans to provide charter services in the near future. The previous FBO conducted approximately 200 charter flights per year. It is anticipated Otis Air Service would reach or exceed the 200 annual charter flights (400 charter operations per year) during the planning period.

Other charter companies based at other airports currently conduct charter operations to and from Kearney Regional Airport. These charter operations are infrequent and can vary significantly between months. The number of charter operations from these companies (not based at Kearney Regional Airport) would also be expected to generally increase through the planning period as the area around Kearney continues to grow.

Air Cargo

Two freight/shipping companies, Suburban Air Freight and FedEx, currently operate out of Kearney Regional Airport with one flight in and one flight out per day which totals four operations per day. The four operations per day are expected to continue throughout the planning period because no significant changes in shipping needs to this area are foreseen. Suburban Air Freight utilizes a Beech C99 (ARC of B-II) and Fed Ex utilizes a Cessna Caravan (ARC of B-II).

Military

The current military operations at Kearney Regional Airport consist of helicopters with an approximate total of 30 operations per year. This number is expected to remain constant throughout the planning period. However, these operations should be monitored and if military fixed-wing aircraft begin to utilize the Airport, the forecasts should be reviewed and updated as required.

General Aviation

General Aviation (GA) is an important part of Kearney Regional Airport's aviation activity. The GA forecasts are used to identify capacity needs to the airfield facilities to meet future demand. Two components of GA were included in the forecasts: type of operations and number of based aircraft.

Itinerant vs. Local Operations

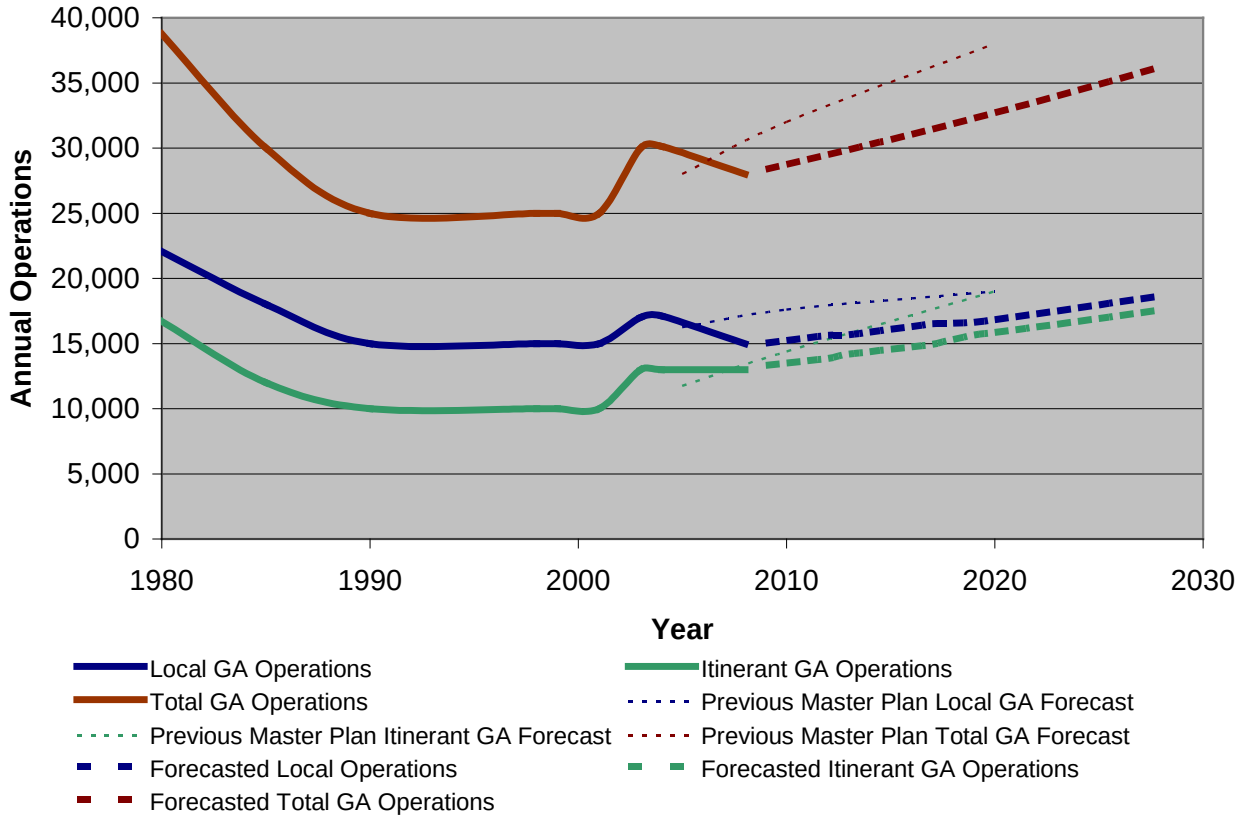
Local operations are primarily those conducted for training purposes; they consist of operations undertaken within sight of the airport. Itinerant operations consist of aircraft with a specific origin or destination not at the same airport. Kearney Regional Airport has more local than itinerant GA operations due to the FBO Otis Air Service, which provides pilot training.

As previously noted, the historic GA operations were obtained from FAA 5010 forms which are estimates of airport operations that do not have control towers. The FAA 5010 forms were not available for every year during the period from 1980 to 2008. Thus, a trend analysis would not be an appropriate forecast method due to the estimated nature and scatter of the available data.

The FAA TAF itinerant and local operation forecasts for Kearney Regional Airport were reviewed. A constant forecast for the itinerant and local operations was observed, which is typical for GA and small Commercial Service airports. A constant number of future GA operations are not the trend expected because Kearney Regional Airport is anticipated to experience growth during the planning period due to increasing population, business, and industry in the area.

The previous Master Plan forecasts were also reviewed and are included in **Table IV.6**. It was decided these forecasts did not fully capture the general trend of the GA operations. The average growth rate for total GA operations from the previous Master Plan was approximately 2.6% per year. It was decided, given recent economic and aviation trends, this grow rate is high for the total GA operations for Kearney Regional Airport. As a result, the forecasts from the previous Master Plan were not utilized.

Table IV.6 – General Aviation Operation Forecasts



	GA Operations			%
Year	Local	Itinerant	Total	Local
1980	22,060	16,700	38,760	56.9%
1985	18,000	12,000	30,000	60.0%
1990	15,000	10,000	25,000	60.0%
1998	15,000	10,000	25,000	60.0%
1999	15,000	10,000	25,000	60.0%
2001	15,000	10,000	25,000	60.0%
2003	17,000	13,000	30,000	56.7%
2004	17,125	13,000	30,125	56.8%
2008 (Current)	15,000	13,000	28,000	53.6%
2013 (5 Year Forecast)	*15,681*	*14,187*	*29,868*	*52.5%*
2018 (10 Year Forecast)	*16,567*	*15,293*	*31,860*	*52.0%*
2028 (20 Year Forecast)	*18,670*	*17,583*	*36,253*	*51.5%*

Source: Historic 5010 forms and forecasts by Kirkham Michael

The FAA publishes national aerospace forecasts every year, which can be used as a source for guidance in developing aviation forecasts. The document provides estimates of growth for aviation activity. The most recent publication, *FAA Aerospace Forecasts for 2008-2025*, estimated 1.3% average growth per year for GA activity at airports with control towers. Although Kearney Regional Airport does not have a control tower, this growth rate seems to be reasonable for the total GA forecasts. **An average growth rate of 1.3% per year was used to develop the total GA operations at Kearney Regional Airport.** The forecast of total GA operations is included in **Table IV.6**.

Historically, the local operations have consisted of 50% to 60% of the total GA operations. Because local operations are primarily training exercises and aerial applications, they would be expected to increase at a lower rate than itinerant operations. The percent of local operations would be expected to decrease through the planning period because the local operations are anticipated to increase at a lower rate than the itinerant operations. The percent of local operations used for the forecast is included in **Table IV.6**.

Based Aircraft

The number of based aircraft provides an indication of the need for GA facilities, such as hangars and fuel facilities.

Historical numbers of based aircraft were obtained from FAA 5010 forms. The information on these forms are estimates for airports without control towers. The based aircraft estimates are typically easier to track than the number of operations. However, a trend analysis of historical data may not produce reasonable forecasts because the data is not a complete set because there are only limited years of data available.

The FAA TAF was also reviewed for the forecasts of based aircraft. It was observed the TAF does not account for the current decline in aircraft due to the loss of an FBO and damage to aircraft from a tornado in the spring of 2008. Thus, the forecasts from the TAF were not considered to be practical.

The FAA Aerospace Forecasts for 2008-2025 provide a growth rate for the active GA aircraft fleet. The estimated average growth rate for the number of active GA aircraft was reported at 1.3% per year. Due to the conditions at the Airport, it was determined not to utilize this growth rate because there is expected to be a rapid increase in based aircraft as damaged aircraft are replaced and the new FBO acquires additional aircraft.

The forecast for based aircraft in the previous Master Plan was also reviewed and was not included in this analysis because it provided low values.

The selected forecast for the based aircraft has an average growth rate of approximately 8.0% per year for the first 10 year period. This growth rate was selected to account for the rapid increase in based aircraft as damaged aircraft from the tornado are replaced and new aircraft are acquired by Otis Air Service. **After the year 2018, the average growth rate was assumed at approximately 1.0% per year.** An average annual growth rate which was lower than the FAA Aerospace Forecast was selected for the last 10 year period. This is due to the high growth rate utilized for the first 10 year period. The selected forecasts for the based aircraft at Kearney Regional Airport are included in **Table IV.7**.

Table IV.7 – Based Aircraft Forecast

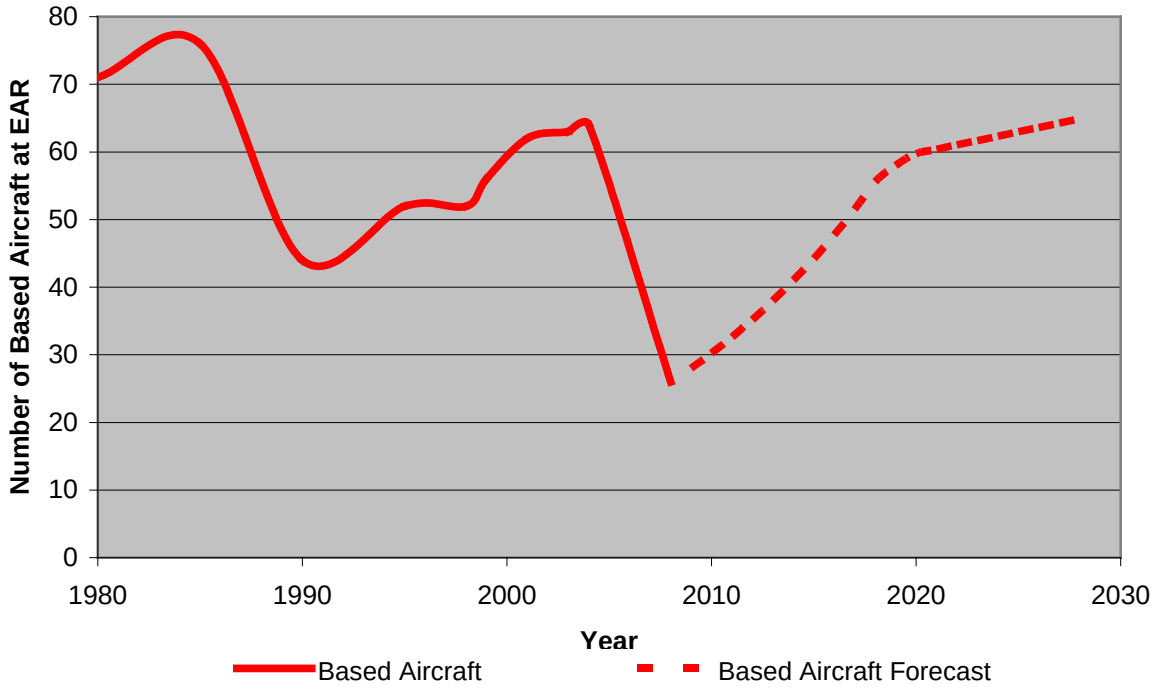


Table IV.7 (continued)

Year	Historic	Forecasted
1980	71	
1985	76	
1990	44	
1995	52	
1998	52	
1999	56	
2001	62	
2003	63	
2004	64	
2008 (Current)	26	
2013 (5 Year Forecast)		*38*
2018 (10 Year Forecast)		*56*
2028 (20 Year Forecast)		*65*

Source: Airport Manager, Historic 5010 forms, and forecasts by Kirkham Michael

Instrument Approaches

An instrument approach forecast was developed by examining instrument approach patterns at Central Nebraska Regional Airport in Grand Island because this airport has similar operations and approaches when compared to Kearney Regional Airport and is in close proximity. From the data obtained for Grand Island, it was estimated approximately 40% of the total aircraft operations utilize the instrument approaches. The forecasts developed for the instrument approaches are provided in **Table IV.8**.

Table IV.8 – Forecasted Annual Instrument Approach Operations

Year	Annual Instrument Approach Operations
2008 (Current)	11,200
2013 (5 Year Forecast)	*12,344*
2018 (10 Year Forecast)	*13,141*
2028 (20 Year Forecast)	*14,898*

Source: forecasts and estimates by Kirkham Michael

Design Period Activity Forecasts

The capacity analysis and determination of future facility requirements for the Airport are based on the design day or design hour activity levels. To avoid the construction, operation, and maintenance costs of additional capacity which would rarely be used, design day and design hour activity levels should not be the absolute busiest period, but they should be representative of the busy periods. Facilities designed at this level will provide a comfortable level of service for the majority of the time. During unusually high activity periods, airport facilities can be expected to experience more crowded conditions and longer, but not unreasonable or intolerable, processing times.

The design periods were developed for three aspects of the Airport activity: passenger enplanements, GA aircraft operations, and vehicle parking.

Passengers

There is only one commercial air service provider at Kearney Regional Airport and no additional providers are anticipated during the planning period. For the passenger forecast, it is assumed the current service route is anticipated to remain the same during the planning period. With these assumptions, the number of passenger enplanements is limited to the size of the aircraft. The current aircraft utilized by Great Lakes has 19 seats (Beechcraft 1900D). If one arrival and one departure occur within the same hour, the largest amount of passengers expected in the terminal area is 38 passengers per hour. However, this is the busiest period, so it is recommended to use approximately 85% of the busiest scenario. This equates to approximately 34 passengers per hour for the design hour.

During the planning period, it is anticipated the commercial air service provider will utilize a larger aircraft with 30 seats (Embraer EMB-120 or similar). If one arrival and one departure occur within the same hour, the largest amount of passengers expected in the terminal area toward the end of the planning period is 60 passengers per hour. The 85% of the 60 passengers per hour is approximately 52 passengers per hour for the design hour. The forecasts developed for the passenger design period are provided in **Table IV.9**.

Table IV.9 – Passenger Design Period Activity Forecasts

	Year			
	2008 (Current)	**2013 (5 Year Forecast)**	**2018 (10 Year Forecast)**	**2028 (20 Year Forecast)**
Design Hour Passenger	34	34	34	52
Design Hour Passenger Arrivals	17	17	17	26
Design Hour Passenger Departures	17	17	17	26

Source: forecasts and estimates by Kirkham Michael

General Aircraft Operations

The monthly general aviation operation information is not available for Kearney Regional Airport because the Airport does not have an air traffic control tower. Typically, the peak month for GA operations activity is from 10% to 12% of the total annual GA operations. The peak month for GA aircraft operations for Kearney Regional Airport was assumed as 12% of the annual operations based on historic records for fuel sales. The design day is the average day in the peak month and was calculated by dividing the peak month by 30. The busy day is defined as a busy day of a typical week during the peak month. This measure is primarily used to determine GA ramp space requirements. It is assumed the busy day has approximately 40% more operations than the design day; therefore the busy day is 1.4 time the design day. The final measure determined for GA operations is the design hour which is the peak hour within the design day. This measure is primarily used in the analysis of the airfield demand and capacity. The design hour is assumed as 20% of the design day. The results from the calculations for the GA operations peaking measure are included in **Table IV.10**.

Table IV.10 – General Aviation Operation Peaking Measures

	Year			
	2008 (Current)	2013 (5 Year Forecast)	2018 (10 Year Forecast)	2028 (20 Year Forecast)
Total Annual GA Operations	28,000	29,868	31,860	36,253
Peak Month GA Operations	3,360	3,584	3,823	4,350
Design Day GA Operations	112	119	127	145
Busy Day GA Operations	157	167	178	203
Design Hour GA Operations	22	24	25	29

Source: forecasts and estimates by Kirkham Michael

Vehicle Parking

The landside operations are important in providing adequate parking spaces for the required demand. At Kearney Regional Airport, there is separate parking for the terminal area (commercial) and GA operations and both areas were examined separately.

Terminal Area Vehicle Parking

During a weekday, there are three scheduled arrival and three scheduled departure flights at Kearney Regional Airport. This number is assumed to be the same throughout the planning period. The design day passenger enplanements was calculated by the design hour of passenger enplanements times 3 flights per day. The design day for parked passenger vehicles was assumed at approximately 85% of the design day passenger enplanements, meaning approximately 85% of passengers enplaned will leave a vehicle parked at the airport until they return. The design day for parked passenger vehicles also assumes all return flight passengers do not have vehicles parked at the airport. Finally, the design day parked vehicles assumes an extra 15% of vehicles for airport staff and other people not boarding a flight. **Table IV.11** includes the forecasts for the design day for parked vehicles at the terminal area.

Table IV.11 – Terminal Area Design Period Activity Forecasts

	Year			
	2008 (Current)	2013 (5 Year Forecast)	2018 (10 Year Forecast)	2028 (20 Year Forecast)
Design Hour Passenger Enplanements	17	17	17	26
Design Day Passenger Enplanements	51	51	51	78
Design Day Parked Passenger Vehicles	44	44	44	67
Design Day Parked Vehicles	66	66	66	101

Source: forecasts and estimates by Kirkham Michael

General Aviation Vehicle Parking

Typically for GA, there is assumed to be two persons per GA operation design hour (one pilot and one passenger). For each person during the design hour, there is assumed to be 0.8 vehicles. **Table IV.12** includes the GA vehicle parking peak hour forecasts.

Table IV.12 – General Aviation Design Period Activity Forecasts

	Year			
	2008 (Current)	2013 (5 Year Forecast)	2018 (10 Year Forecast)	2028 (20 Year Forecast)
Design Hour GA Operations	22	24	25	29
Design Hour Persons	44	48	50	58
Design Hour Vehicles	36	39	40	47

Source: forecasts and estimates by Kirkham Michael

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KEARNEY
Regional Airport

Section V
Facility Requirements

KIRKHAM MICHAEI

V. FACILITY REQUIREMENTS

The purpose of this section is to determine the present and future facilities needs of Kearney Regional Airport. Future needs are determined based on the current facilities ability to accommodate existing and forecasted enplanements, operations, based aircraft, and aviation activity throughout the planning period. The discussion of existing facilities is included in Section III.

Runways

Wind Coverage

Wind coverage refers to the percentage of time the wind blows in the same direction as the runway orientation. According to the FAA Advisory Circular 150/5300-13, the combined wind coverage for airports should be 95% at 10.5 knots. Kearney Regional Airport's wind analysis was conducted utilizing data supplied by the National Oceanic and Atmospheric Administration for the weather reporting station near the Airport. Results of the wind analysis are presented in **Table V.1**.

Table V.1 – Runway Wind Coverage

Runway	All Weather (knots)			
	10.5	13	16	20
18/36	89.8%	94.5%	98.0%	99.4%
13/31	84.1%	91.3%	96.9%	99.2%
Combined (All)	96.9%	98.8%	99.7%	99.9%

Source: National Oceanic and Atmospheric Administration, Kearney Regional Airport, Kearney, NE, Period: 1998-2008

The existing runway configuration at Kearney Regional Airport provides more than 95 percent wind coverage for all crosswind components during all weather and IFR conditions above 10.5 knots.

Capacity

Airfield capacity is an estimate of aircrafts which can be processed through the airfield system during a specific time period with acceptable levels of delay. The airfield demand capacity analysis methods provided by the FAA in AC 150/5060-5, Airport Capacity were utilized for Kearney Regional Airport. The methods identify the existing annual capacity, referred to as the annual service volume and hourly capacity, at an airport based on the current operational characteristics. The level of delay acceptable to a particular airport may differ from the level of delay deemed acceptable at a similar airport. As a result, the level of delay can influence the estimated capacity for a given airfield. Some major factors also affecting airfield capacity include

the runway configuration, weather conditions, and aircraft fleet mix. **Table V.2** provides a summary of the airfield capacity analysis.

The results of the 2028 capacity analysis indicate Kearney Regional Airport is expected to have a peak hour utilization rate of approximately 26% for VFR and 25% for IFR, and an annual utilization rate of approximately 20%. Based on these results, the existing runway system is expected to have sufficient capacity to accommodate the forecasted number of aircraft operations during the planning period.

Table V.2 – Existing and Future Runway Capacity

Capacity Type	2008	2028
Hourly Capacity		
VFR	77	77
IFR	57	57
Peak Hour Operational Demand		
VFR	15	20
IFR	10	14
Hourly Capacity Utilization		
VFR	19.5%	26.0%
IFR	17.5%	24.6%
Annual Operational Capacity	200,000	200,000
Forecast Annual Operational Demand	29,000	37,500
Annual Capacity Utilization	14.5%	18.8%

Source: Estimates by Kirkham Michael

Dimensional Standards

At a minimum, runways must have the proper length, width, and strength to meet FAA recommended design standards to safely accommodate the critical aircraft. The FAA AC 150/5325-4B provides guidance for determination of the required runway length. FAA runway length calculations are based on aircraft performance, not insurance requirements. The Critical Aircraft is utilized in the determination of the required runway length. Utilizing the methodology in AC 150/5300-4B for the Cessna Citation Sovereign, the required runway length for the primary runway is approximately 7,000 feet. The assumptions and calculations for the runway length are included in **Appendix E**.

According to AC 150/5325-4B, crosswind runways should have a length adequate to accommodate the less demanding airplane design group. The crosswind runway at Kearney Regional Airport is recommended to accommodate aircraft typical of the B-II ARC. Great Lakes Aviation currently utilizes a Beechcraft 1900D aircraft (B-II ARC) for commercial service

operations. With Runway 13/31 built to B-II ARC standards, commercial flights could be accommodated during periods when the primary runway is not able to be utilized due to weather or closed for construction. The assumptions and calculations for the runway length are included in **Appendix E**. **Table V.3** outlines the runway length requirements at Kearney Regional Airport.

Table V.3 – Recommended Runway Lengths

Runway	Runway Length Standard	Runway Length Actual
18/36	7,000’	7,094’
13/31	5,100’	4,498’

The existing length of the primary runway, Runway 18/36, is adequate to accommodate the critical aircraft and FAA minimum requirements. Runway 13/31 would need to be extended 602 feet to accommodate the Beechcraft 1900D aircraft, to a total length of 5,100 feet. The following section includes discussion on alternatives considered for the extension of Runway 13/31.

FAA AC 150/5300-13 provides the dimensional standards for use in runway design. Runway 18/36 will have an ARC of C-II, and Runway 13/31 will have an ARC of B-II. **Table V.4** provides a summary of the dimensional standards for runways at Kearney Regional Airport.

Table V.4 – Runway Dimensional Standards

	Standard	Rwy 18/36	Standard	Rwy 13/31
	ARC C-II	Actual	ARC B-II	Actual
Runway Width	100’	150’	75’	75’
Runway Safety Area (RSA)	400’ x 9,094’	400’ x 9,094’	150’ x 5,098’	150’ x 5,098’
Runway Object Free Area (ROFA)	800’ x 9,094’	800’ x 9,094’	500’ x 5,098’	500’ x 5,098’
Runway Object Free Zone (ROFZ)	400’ x 7,494’	400’ x 7,494’	***400’ x 4,898’***	***250’ x 4,898’***
Centerline Separation: Runway to Taxiway	400’	650’ (Twy ‘A’)	240’	240’ (Twy ‘F’)

The current standard width for the ROFZ for Runway 13/31 is 400 feet, while the width listed in the previous ALP was 250 feet. According to FAA 150/5300-13, the ROFZ should preclude taxiing and parked aircraft and object penetrations, with the exception of visual and navigational aids. The existing ROFZ surface for Runway 13/31 can be designated to the standard width without any modifications to the airfield.

Based on the Critical Aircraft (Cessna Citation Sovereign, C-II ADG), the standard width for Runway 18/36 is 100 feet and currently the runway exceeds the standard width by 50 feet. During the development of the Master Plan, discussions were held with the Airport Manager and

City Staff pertaining to the non-standard width on Runway 18/36. They foresee increasing demand for large aircraft, such as B-737 and GV, to utilize the Airport generated by various athletic and other activities at the University of Nebraska at Kearney. The larger types of aircraft which would increase for this activity are classified in the ADG IV which has a standard 150 foot runway width.

As previously mentioned, FedEx and other large corporate users frequently utilize the Airport. The potential exists for FedEx to occasionally utilize MD-11 or similar type cargo aircraft at the Airport. These types of aircraft are classified in the ADG IV which has a standard 150 foot runway width. Other commercial service airports in Nebraska with similar enplanements and activity as Kearney Regional Airport were reviewed. The similar airports reviewed all maintain at least one runway at 150 feet in width.

FAA has preliminarily indicated if the runway surface is rehabilitated (overlay, slurry, etc.), the runway width could be maintained at 150 feet. If the runway will require a complete reconstruction or other expensive activity (such as concrete whitetopping), the runway width may be reduced to 100 feet. However, FAA has indicated the runway width requirement for Runway 18/36 should be reviewed prior to future pavement rehabilitation/reconstruction projects on of the runway.

Pavement Strength and Condition

Pavement strength is an important characteristic of a runway and is used to ensure the safety and efficient operation for aircraft. The critical aircraft for Kearney Regional Airport, the Cessna Citation Sovereign, has a maximum gross takeoff weight of 30,300 lbs. In addition, the aircraft utilized by the airlines, Beechcraft 1900D and Embraer EMB-120 Brasilia, have weights of 17,120 lbs and 26,378 lbs respectively. The larger aircraft, which occasionally utilize Kearney Regional Airport, do not occur with enough frequency to base pavement strength on the requirements of those aircraft. The existing pavement strengths for both runways should be adequate for the planning period. The activity of larger aircraft should be monitored and if a significant increase is observed, the pavement strength should be re-evaluated to ensure the runways can accommodate the larger aircraft.

The pavement on Runway 18/36 is aging and several overlay projects have been undertaken during the life of the pavement. Runway 18/36 will likely require rehabilitation/reconstruction of the pavement during the planning period. As a part of this project, it is recommended to review the required runway width prior to design/construction. Runway 13/31's pavement conditions should be monitored and are expected to only require routine maintenance throughout the planning period.

Taxiways

Dimensional Standards

The FAA AC 150/5300-13 provides the design standards for taxiways. Because both runways at Kearney Regional Airport have an ADG classification of II, all taxiways have this same classification. **Table V.5** provides a summary of the review of the taxiway dimensional standards at Kearney Regional Airport.

The existing taxiway system at Kearney Regional Airport meets or exceeds the minimum FAA standards for taxiway dimensions.

Table V.5 – Taxiway Dimensional Standards

	Standard	Taxiway (Actual)					
	ADG II	A	B	C	D	E	F
Centerline Separation: Taxiway to Taxiway	105’	N/A	1,720’ (to Twy C)	1,170’ (to Twy D)	615’ (to Twy E)	N/A	N/A
Taxiway Width	35’	35’	40’	50’/35’	40’	35’	35’
Taxiway Shoulder Width	10’	32’	None	None	None	None	None
Taxiway Safety Area Width	79’	79’	79’	79’	79’	79’	79’
Taxiway Object Free Area Width	131’	131’	131’	131’	131’	131’	131’

During the taxiway system review, it was noted the intersection of Taxiway A at the Runway 18/36 ends is not at the typical 90 degree intersection. An angled runway/taxiway intersection can hinder the sight distance for aircraft taxiing to the runway end and looking back on the runway for other approaching aircraft. During future reconstruction of Taxiway A, it is recommended to extend Taxiway A to provide 90 degree intersections at the Runway 18/36 ends.

The FAA AC 150/5300-13 allows for the design of taxiway width based on specific aircraft characteristics. The taxiway width requirements were reviewed for the larger aircraft observed at Kearney Regional Airport (as indicated to **Table II.4**). Based on the calculations, it is recommended to plan for a width of 40 feet on Taxiway A to accommodate the following aircraft:

- ✈ Embraer EMB120 Brasilia (Potential future use for Airlines – 990 ops/year)
- ✈ Gulfstream GV (Infrequent – Approx. 2 ops/year)
- ✈ Boeing 727-200 (Infrequent – Approx. 4 ops/year)

The airline at Kearney Regional Airport is currently using a Beechcraft 1900D aircraft. They were previously using the Embraer EMB120 Brasilia aircraft and indicated if passengers increased, they would likely switch back to the Embraer EMB120 Brasilia (or similar aircraft). In addition, occasionally several aircraft (GV and 737-200) currently utilize EAR which justify a taxiway width of 40 feet. It is recommended to plan for a width of 40 feet on Taxiway A to allow the Airport to accommodate this aircraft in the future. FAA reviewed and approved the 40 foot taxiway width (refer to **Appendix E**).

Pavement Condition

Several pavement overlay projects have been completed during the lifetime of Taxiway A. Taxiway A will likely require rehabilitation/reconstruction of the pavement during the planning period. Currently, the pavement on all other taxiways at Kearney Regional Airport is in good condition and should continue to be monitored and require only routine maintenance throughout the planning period.

Aircraft Apron

Pavement Condition

A pavement rehabilitation project was recently completed at Kearney Regional Airport for the active apron areas. Pavement conditions should continue to be monitored for the active areas and is expected to require only routine maintenance throughout the planning period.

Taxilanes

Dimensional standards for taxilanes are defined in FAA AC 150/5300-13. Because both runways have an ADG classification of II, all taxilanes also have the ADG classification of II. **Table V.6** provides a summary of the existing taxilanes at Kearney Regional Airport. The existing taxilanes at Kearney Regional Airport were reviewed and it was determined all of the taxilanes meet or exceed the standards listed in **Table V.6**.

Table V.6 – Taxilane Dimensional Standards

	Standard ADG I	Standard ADG II
Centerline Separation: Taxilane to Taxilane	64’	97’
Centerline Separation: Taxilane to Fixed or Immoveable Object	39.5’	57.5’
Taxilane Object Free Area Width	79’	115’
Taxilane Wingtip Clearance	15’	18’

Tiedowns

Tiedowns are used to anchor aircraft parked on the apron. Typically at Kearney Regional Airport, itinerant aircraft primarily utilize tiedowns. FAA AC 150/5300-13 and AC 20-35C provide guidance on the tiedown standards. The FAA provides an Apron Calculator worksheet to determine the number of tiedowns required for an airport. A copy of the completed Apron Calculator worksheet is included in the **Appendix E**. **Table V.7** provides a summary of tiedown needs at Kearney Regional Airport.

Table V.7 - Summary of Tiedown Demand/Capacity

	Existing Capacity (2008)	Forecasted Demand (2028)
Tiedowns	19	25

The existing tiedown dimensions meet FAA standards and are expected to require only routine maintenance. Approximately six additional tiedowns should be planned to accommodate future demand through the planning period. **Figure V.1** indicates the proposed location of additional tiedowns. The Airport Manager should monitor the need for additional tiedowns.

Apron Areas

Adequate apron space needs to be provided for safe and efficient movement of aircraft and aircraft parking. Aircraft with different purposes have different space requirements, including commercial, transient, and general aviation aircraft. The FAA provides an Apron Calculator worksheet to determine the future apron requirements for transient aircraft. Apron areas for based aircraft were assumed at a standard of 300 SY per aircraft. **Table V.8** provides a summary of the apron area’s capacity for Kearney Regional Airport.

Figure V.1 – Proposed Terminal Area Improvements

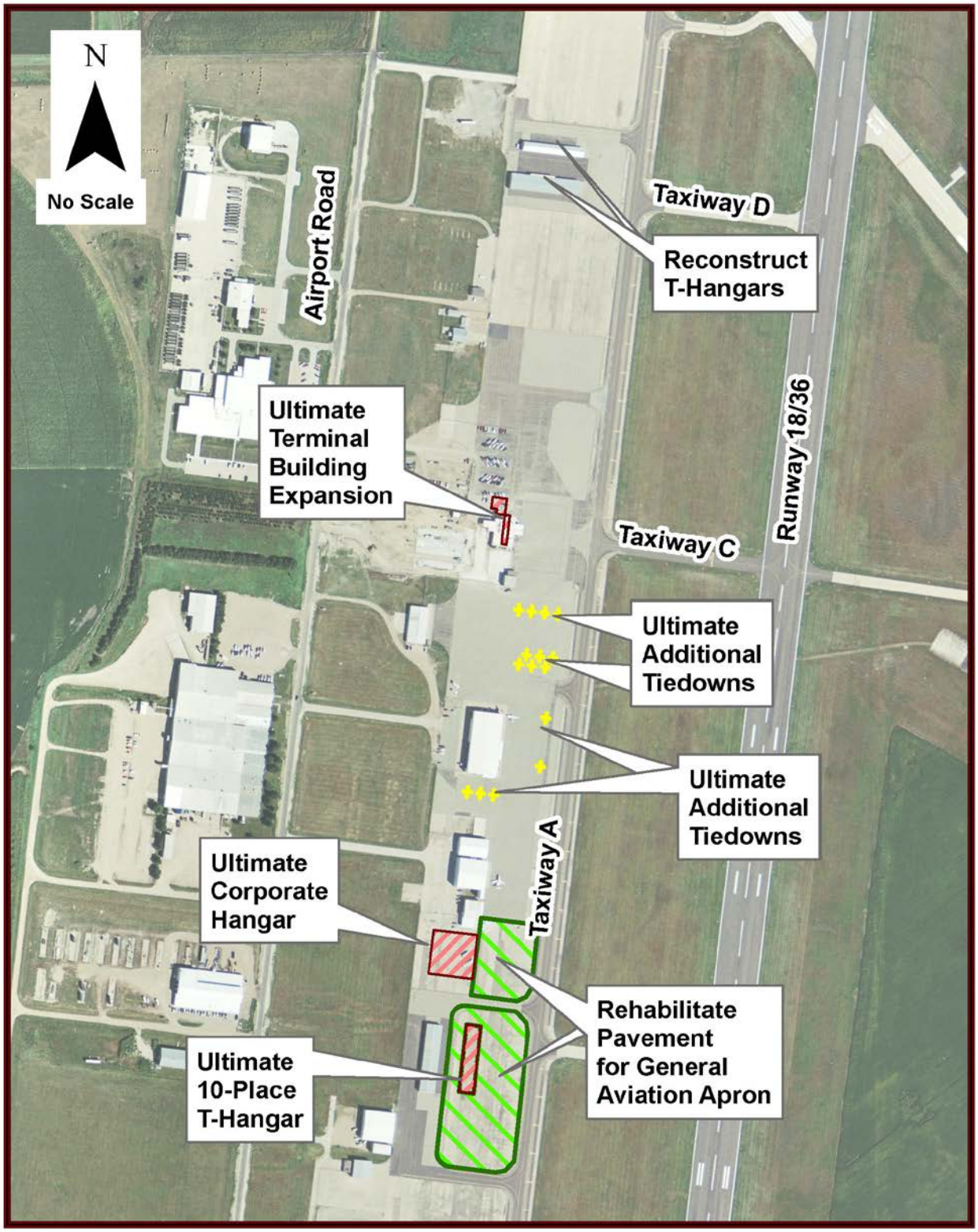


Table V.8 – Summary of Apron Area Demand/Capacity

	Existing Capacity (2008)	Forecasted Demand (2028)
General Aviation Apron: Transient Aircraft Based Aircraft	27,455 SY - -	49,500 SY 30,040 SY 19,500 SY (for 65 Based Aircraft)
Commercial Service/ Terminal Apron	9,765 SY	750 SY (for 1 Commercial Service Aircraft)

NOTE: Measurements are Approximate

The existing apron area for General Aviation is anticipated to be inadequate to accommodate future demand. It is recommended to provide an additional 22,045 SY of apron for General Aviation use during the planning period. The Airport Manager should monitor the use of the General Aviation apron areas and provide additional apron space when needed. **Figure V.1** indicates areas of apron which could be rehabilitated to provide additional General Aviation apron.

The existing apron area for commercial service/terminal aircraft exceeds the forecasted demand and is large enough to accommodate several additional commercial aircraft. The Airport Manager should monitor both general aviation and commercial apron areas through the planning period and provide additional apron space if required.

Lighting, Markings, and Signs

Lighting

Airport lighting improves safety by enhancing visibility of the airfield during days with poor visibility and at night. FAA AC 150/5340-30B provides standards for airfield lighting.

All of the runway and taxiway lighting systems are in good condition and are in compliance with FAA regulations. It is recommended to install Runway End Identification Lights (REILs) on Runway 13 and 31 to enhance the identification of the runway during night operations. The PAPIs on Runway 13/31 will need to be moved with the shift/extension of the runway. The runway edge light spacing was reviewed and it was determined the existing lighting could be utilized with the runway extension/shift.

The condition of the existing lighting should be monitored and are expected to only require routine maintenance through the planning period.

Markings

Pavement markings provide guidance to pilots both on the ground and in the air. The FAA provides standards for airfield markings in AC 150/5340-1J.

Kearney Regional Airport is currently undergoing a project to upgrade existing airfield pavement markings to comply with the most current FAA regulations for Part 139 compliance. The condition of the pavement markings should be monitored and the airfield pavement markings are expected only to require routine maintenance during the planning period. **Table V.9** provides a summary of holdline marking locations at Kearney Regional Airport. As indicated in the table, all holdlines meet the runway separation requirements.

Table V.9 – Taxiway Holdline Marking Location Standards

	Standard	Taxiway					
	ADG II	A	B	C	D	E	F
Holdline Position Marking Location (Rwy 18/36 C-II)	250’	250’	250’	250’	250’	-	-
Holdline Position Marking Location (Rwy 13/31 B-II)	200’	-	-	200’	-	200’	200’

Signs

Airport signage provides direction and guidance to pilots on the ground. Most commonly used signs are direction signs, mandatory instruction signs, taxiway and runway location signs, and runway distance remaining signs. Signs should be lighted for lighted runways and taxiways and be in compliance with FAA AC 150/5340-18E.

The signage system for Kearney Regional Airport was recently updated to meet the requirements of the FAA AC 150/5340-18C. The sign system is expected to remain in good condition through the planning period. Routine maintenance of signs would be expected through the planning period. Kearney Regional Airport should also update signs per changes in Part 139 requirements.

Landside Facilities and Access

Terminal Building and Airport Services

The terminal area is an important aspect because it provides an interface between landside and airside transportation. The airport terminal area is considered a gateway to the community and

therefore it should reflect the character of the citizens in the community it serves. The FAA provides guidance for the planning and design of terminal building facilities at non-hub airports in AC 150/5360-9.

An expansion and renovation project is currently being planned for the terminal building to allow for more efficient utilization of the existing building space and update the terminal facility, and to provide an additional 1,800 SF of space. The expansion is along the east side of the existing terminal building, toward the commercial service/terminal area apron.

There are car rental services available at the Airport. Additional terminal space and services should be planned to accommodate the projected increase in passengers. **Table V.10** provides a summary of the required terminal area spaces and services.

Table V.10 - Summary of Terminal Building Areas and Services

	Existing (2008)	Forecasts (2028)
Annual Enplaned Passengers	11,834	21,445
Design Hour Passengers	-	52
Total Terminal Building Area (SF)	5,200	9,500
Lobby/Waiting Areas	770	770
Circulation	130	1,880
Departure Area/Lounge	400	1,000
Rest Rooms	220	500
Ticket Counter (LF)	15	15
Airline Administration and Operations	760	1,750
Baggage Claim Area	0	325
Baggage Claim Counter (LF)	0	10
Concessions	0	600
Building Mechanical (SF)	575	1,600

NOTE: Measurements are Approximate

Any future expansion of the terminal building facility is recommended to the north of the existing building due to the commercial apron to the east, auto parking to the west, and the airport administration/fire station to the south.

Based on an Air Service Study conducted in October 2002, more people would consider utilizing Kearney Regional Airport if they provided an eastern flight destination in addition to the current service to Denver, Colorado. This would make the Airport a more attractive alternative and enable Kearney Regional Airport to attract more passengers in the market area. Kearney Regional Airport should update the October 2002 Air Service Study and conduct an economic analysis to determine if acquisition of another airline service to an eastern destination is

feasible. The forecasts developed in this Master Plan do not include the acquisition of another airline for two reasons:

- Acquisition of an additional airline service may be difficult and may take a long time to complete
- Acquisition of an additional airline service would not be expected to occur during the short term planning period given the current economic conditions

Airport Administration and ARFF

The existing Airport Management building is located south of the terminal building. Attached to the Administration Building is another building which houses the Airport Rescue and Fire Fighting (ARFF) Equipment.

Part 139 airports are required to provide ARFF equipment and services. The Airport recently purchased new ARFF equipment to replace old aging equipment and to comply with revised FAA Part 139 regulations. The current ARFF building does not provide adequate space for the new equipment. Additional space is needed to house the new equipment. In addition, the City has expressed interest in storing some of their firefighting equipment at the Airport. A new ARFF building is proposed north of the terminal building to accommodate both the Airport and the City's needs for equipment storage. The portion of the building needed to house the City's equipment would not be eligible for FAA funding participation.

FBO and Fuel

FBO facilities are adequate for the existing tenants. The need for additional hangars for new and/or existing FBOs should be monitored by the Airport Manager and added as the need arises throughout the planning period.

The existing fuel farm is large enough to accommodate the projected level of operation and is expected to remain in good condition throughout the planning period. However, actual fuel usage should be monitored and additional fuel storage provided if the need arises.

Hangars

At airports which experience extreme weather conditions, it is desired to provide a hangar for all based aircraft. As previously mentioned, Kearney Regional Airport recently experienced a change in a FBO which decreased the number of based aircraft. The number of based aircraft is, however, expected to increase rapidly over the short term as a new FBO acquires additional aircraft. **Table V.11** provides a summary of the hangar aircraft positions and building areas.

Table V.11 - Hangar Aircraft Storage

	Existing (2008)	Forecasts (2028)
Based Aircraft	26	65
T-Hangars:		
Positions	27	37
Area (SF)	29,775	41,025
Open-Bay/Corporate Hangars:		
Positions	15	20
Area (SF)	83,175	107,175
TOTAL		
Positions	42	57
Area (SF)	112,950	148,200

NOTE: Areas of Hangars and Number of Positions for Open-Bay/Corporate Hangars are Approximate

The two hangars on the north end of the apron (Buildings No. 2 and 3 in **Figure III-2**) are deteriorating and may need to be replaced during the planning period. In addition, one new 10-place t-hangar is proposed to be constructed during the planning period to accommodate increasing based aircraft. A corporate/conventional hangar is also planned to provide additional space for the projected number of based aircraft during the planning period. The Airport Manager should monitor the utilization of hangar space throughout the planning period and hangars should be constructed as the need arises to store additional aircraft.

Airport Access

Currently, Kearney Regional Airport can be accessed from US Highway 30 and 39th Street via Airport Road. The City of Kearney's Comprehensive Plan includes a bypass facility along Cherry Avenue, located east of Kearney Regional Airport. This bypass would connect to I-80, and span US Highway 30 and the UPRR Railroad. The Airport should plan on constructing a new access from the proposed Nebraska Highway 10 bypass to the terminal area. The new connection would improve access to the Airport by providing a more direct access from the Airport to I-80, which would likely benefit the Airport and the surrounding businesses and industries. In addition, this would provide an opportunity to redesign the entrance to the terminal building and make it more efficient by constructing a one-way loop system to improve pick-up and drop-off operations. This will create a more efficient flow of vehicles and pedestrians, as well as allow for a new aesthetically pleasing entrance to the Airport. **Figure V.2** provides a concept of the proposed airport access and circulation improvements.

Instrument Approaches

Based on the capacity of the IFR operations, and the total number of forecasted instrument approaches, the current instrument approaches at Kearney Regional Airport should be

adequate for the planning period. In discussions with the Airport Manager, no changes to the existing instrument approaches are needed; however, the instrument approaches should be monitored during the planning period.

The implementation of the FAA NextGen system, air navigation is making Global Positioning System (GPS) technology and data more available and useable for air navigation. The Localizer Performance with Vertical Guidance (LPV) approach utilizes WAAS GPS infrastructure being implemented as part of NextGen. The LPV approach currently offers the lowest minimums with GPS equipment and can almost reach precision (ILS) approach conditions. In addition, the ILS approach does not require the Airport to build or maintain new infrastructure on the Airport. Because of these benefits, it is recommended to plan for LPV approaches on Runway 13/31. Although the LPV can have precision-like approach conditions, the FAA considers them a non-precision approach. Runway 18/36 currently has an ILS and is considered a precision runway, therefore, LPV approaches would not be necessary for this runway.

Visual and Navigational Aids

Visual and Navigational Aids provide information to pilots based on their horizontal and vertical position by providing data regarding the aircraft's alignment, height and distance, rotation, and information concerning the rate of descent and the rate of closure with the desired path. FAA AC 150/5340-30D provides standards for Visual Aids at airports, and FAA standards for Navigational Aids are provided in specific FAA circulars.

Typically, it is recommended to replace VASI with PAPI because of the age of VASI technology and it can be difficult to find replacement parts for VASIs. There is one existing VASI on Runway 18 and it is owned and maintained by the FAA. It is also recommended to install REILs on Runway 13/31 after or in conjunction with the proposed shift/extension.

There are currently supplemental windcones on Runway 13/31. These windcones would need to be relocated with the runway extension/shift. The existing supplemental windcones are in good condition and could be moved instead of needing to install new equipment.

The existing visual and navigational aids are in good condition and should provide the desired function during the planning period. Routine maintenance of the visual and navigational aids is the only activity anticipated.

Land

Ownership

FAA regulations state airports should have adequate control of various airport areas, including the RPZ, OFA, RSA, BRL, etc. Kearney Regional Airport owns most of the required land in fee.

The remaining required land tract, located in the Runway 36 RPZ, is under easement. The FAA has approved Kearney Regional Airport's ownership of the RPZ easement. The Airport is not required to obtain in fee or easement any additional land to be in compliance regulations. Several tracts have been released/sold to local businesses and industries on the southwest side of the Airport property.

Land-Use Compatibility and Zoning

The primary purpose of regulating land-use around an airport is to prevent incompatible development from occurring. Land uses sensitive to noise (such as schools, residential areas, high concentrations of people, etc). Other incompatible land-uses can cause safety concerns for aircraft including tall structures, wildlife attractants, and other uses which generate visual obstructions such as steam, smoke, or light. Zoning is the most effective method to prevent incompatible land use from occurring.

The Airport currently leases land for agricultural and industrial uses and industrial land uses exist to the west of the Airport. Currently, there are no incompatible land uses identified around Kearney Regional Airport.

According to the City of Kearney Comprehensive Plan, the areas west of the Airport are planned to be future industrial/mixed land uses. These parcels are located along the proposed access road to Cherry Avenue as indicated in **Figure V.2**. All development in this area should be coordinated with Kearney Regional Airport and the FAA to ensure compatibility with the Airport. Generally, industrial land uses are acceptable depending on the height of structures and amount of emissions they release.

According to the City of Kearney Comprehensive Plan, the other areas surrounding the Airport (including the Runway 13 approach) are planned to remain agricultural/open space.

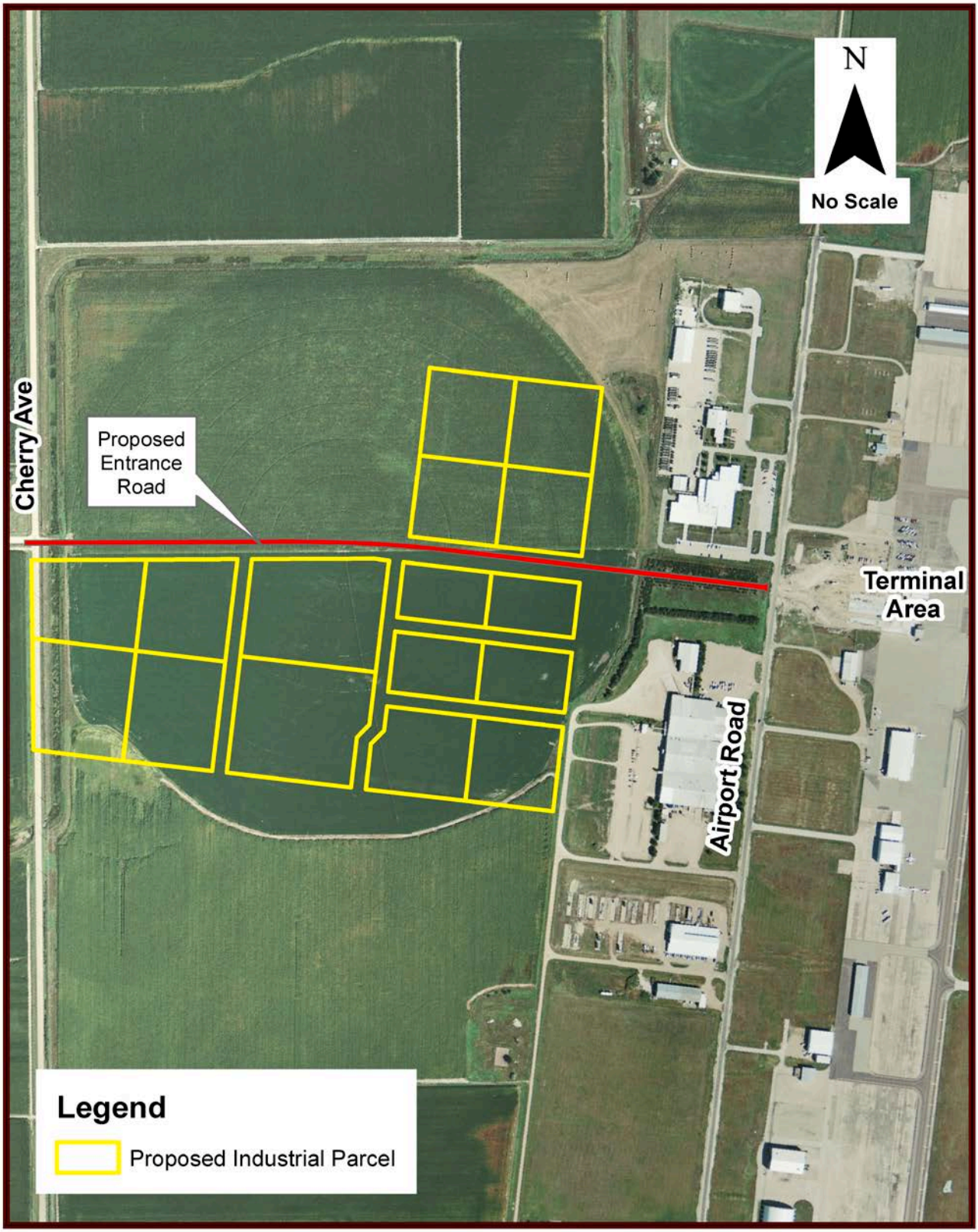
Part 139 Requirements

Kearney Regional Airport is currently Part 139 certified and it is recommended the Airport Manager continue to monitor changes in Part 139 requirements and take action to ensure the Airport retains the certification.

Utilities

The City of Kearney owns, operates, and maintains most of the utilities to Kearney Regional Airport. No significant increases in demand for utility services are anticipated at Kearney Regional Airport during the planning period. All utility connections are in good condition and should remain adequate throughout the planning period.

Figure V.2 – Proposed Airport Access and Zoning



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KEARNEY
Regional Airport

Section VI
Improvement Alternatives

KIRKHAM MICHAEI

VI. IMPROVEMENT ALTERNATIVES

As discussed in Section III, there are two existing active runways at Kearney Regional Airport. The intersection of Runway 13/31 and Runway 18/36 has been determined to be a safety alert area and alternatives were developed to address the safety concerns. This section provides a summary of the safety concerns and the analysis of the alternatives for the development.

Background Information

An FAA Safety Team performed a Safety Assistance Visit to Kearney Regional Airport in January 2010 and identified the intersection of Runway 13/31 and Runway 18/36 as a high alert area. According to the results of the visit, the angle of Taxiway E along with the proximity of the approach end of Runway 13 with Runway 18/36 creates limited visibility for Runway 13 and 18 departures. The recommendations were to relocate Runway 13/31 and eliminate Taxiway E. Initial concepts for the shift of Runway 13/31 were developed maintaining the existing 4,500 ft runway length. However, in December 2010, FAA approved an ultimate length for Runway 13/31 of 5,100 feet which is an extension of 600 feet from the existing runway length. As a result, further analysis and development of Runway 13/31 shift alternatives were required that would not contain any obstructions to the approach surface and would address the safety concerns identified by FAA.

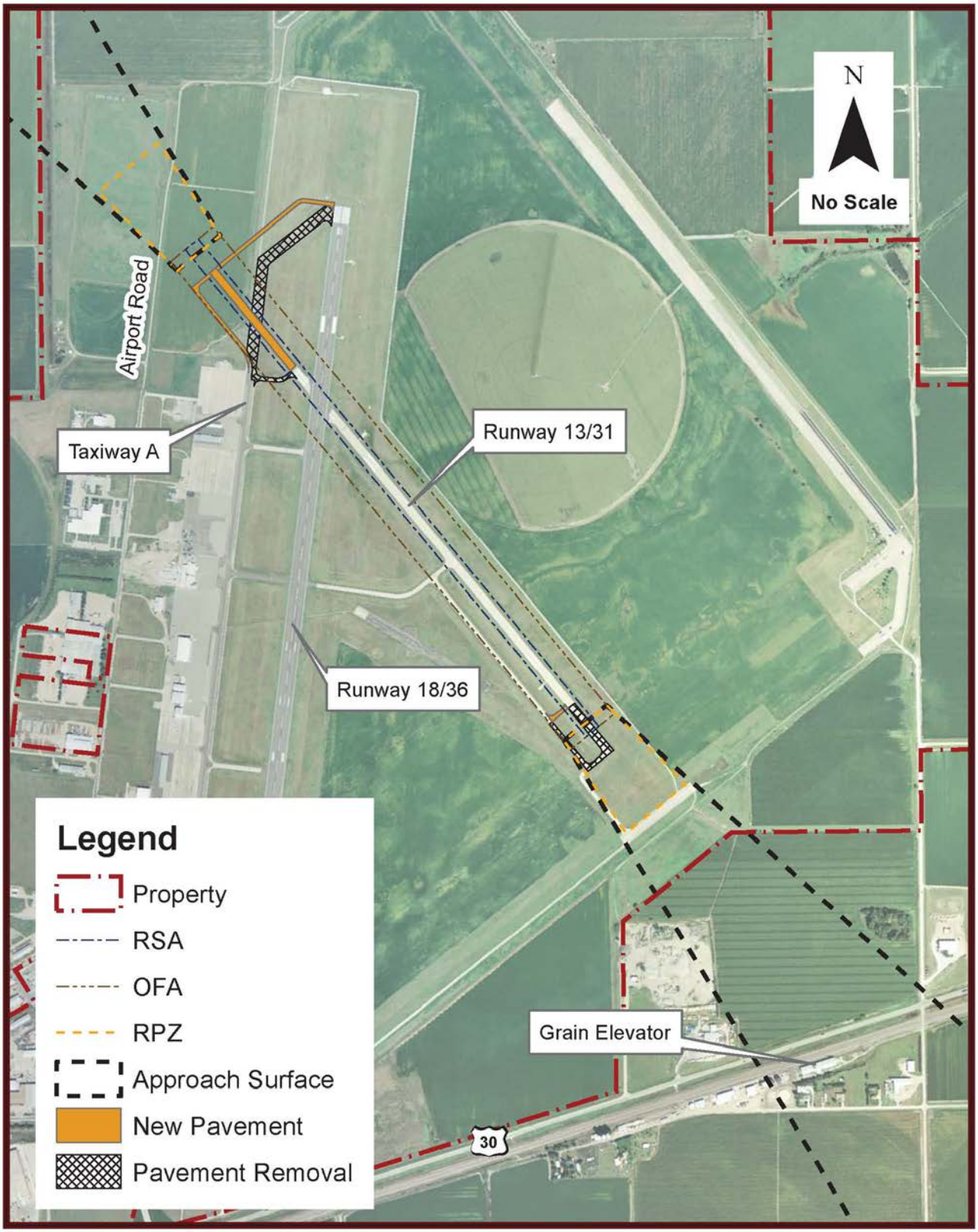
Alternatives Development

The initial proposed alternative for addressing the safety concerns was to shift Runway 13/31 southeast to locate Runway 13 outside of the Runway 18/36 Object Free Area (OFA) on the east. When FAA approved the ultimate length of 5,100 feet for the runway, it was found that there were potential obstructions to the approach surface with this runway shift alternative. As a result, other alternative concepts were developed. These alternatives addressed the safety concerns of the angle of Taxiway E and the close proximity of the approach end of Runway 13 to Runway 18/36.

Alternative 1 – Shift and Extend Runway 13/31 to the Northwest; Realign Taxiway A. Alternative 1 addresses the safety concern of the close proximity of the approach end of Runway 13 to Runway 18/36 by shifting the end of Runway 13 to the northwest which places the intersection of the runways closer to the middle of Runway 13/31 to reach a total runway length of 5,100 feet for Runway 13/31. Alternative 1 also involves the removal of Taxiway E and a realignment of Taxiway A which eliminates the limited visibility problem for Runway 13 and Runway 18 departures. The layout of Alternative 1 is included in **Figure VI-1**.

Alternative 2 – Shift and Extend Runway 13/31 to the Southeast; Extend Runway 13/31 Parallel Taxiway. Alternative 2 addresses the safety concern of the close proximity of the approach end of Runway 13 to Runway 18/36 by shifting Runway 13 to the southeast (Runway 13

Figure VI.1 – Runway 13/31 Alternative 1



outside of Runway 18/36 OFA) which removed the Runway 13/31 and Runway 18/36 intersection to reach a total runway length of 5,100 feet for Runway 13/31. Alternative 2 also involves the removal of Taxiway E which makes Taxiway C the only access to Runway 13/31 from the apron area. The layout of Alternative 2 is included in **Figure VI-2**.

Alternative 3 – New Runway 300 feet northeast of Runway 13/31 Shift; Utilize Existing Runway 13/31 as Parallel Taxiway. Alternative 3 addresses the safety concern of the close proximity of the approach end of Runway 13 to Runway 18/36 by removing the runway intersection. The Alternative consists of constructing a new 5,100 feet long Runway 13/31 northeast 300 feet of the existing runway and utilizing the existing Runway 13/31 pavement for a parallel taxiway. The layout of Alternative 3 is included in **Figure VI-3**.

Alternative 4 – New crosswind runway location and/or alignment. Alternative 4 consists of removing Runway 13/31 and constructing a new crosswind 5,100 feet long runway at another location and/or alignment in order to eliminate the existing safety concerns for Runway 13/31. The Alternative also includes construction of a full-length parallel taxiway. The optimal location and/or alignment was not determined because this alternative was removed from consideration during the screening process.

Alternatives Screening

In order to compare each alternative, a set of screening factors was developed. The amount of land required to be purchased, pavement construction, pavement removal, earthwork cut and fill, runway intersections, obstructions and removals, operational impacts and overall cost were all factors that were considered for each alternative.

Alternatives 3 and 4 were eliminated from further consideration by the screening factors because these alternatives would have the highest land acquisition and pavement construction and removal quantities. The high quantities of these resources for these alternatives would translate into the highest-cost alternatives. Alternative 2 represented the original concept, but as previously mentioned, Runway 31 would have obstructions in the 34:1 approach slope. The Airport Manager also mentioned the land required for Alternatives 2 and 3 is valuable farmland that would be very costly to acquire. Alternative 2 with the Runway 31 approach limitations and only access to Runway 13/31 via Taxiway C make Alternative 1 the desired alternative Runway 13/31 shift. The Airport Manager preferred Alternative 1 and this was selected as the preferred alternative.

Another step in the alternatives screening process included coordination between Kearney Regional Airport, NDA, and FAA. A meeting was held to discuss the alternatives, screening factors, and the preferred alternative. The Airport, NDA, and FAA were in agreement with proceeding with the preferred alternative, Alternative 1.

Figure VI.2 – Runway 13/31 Alternative 2

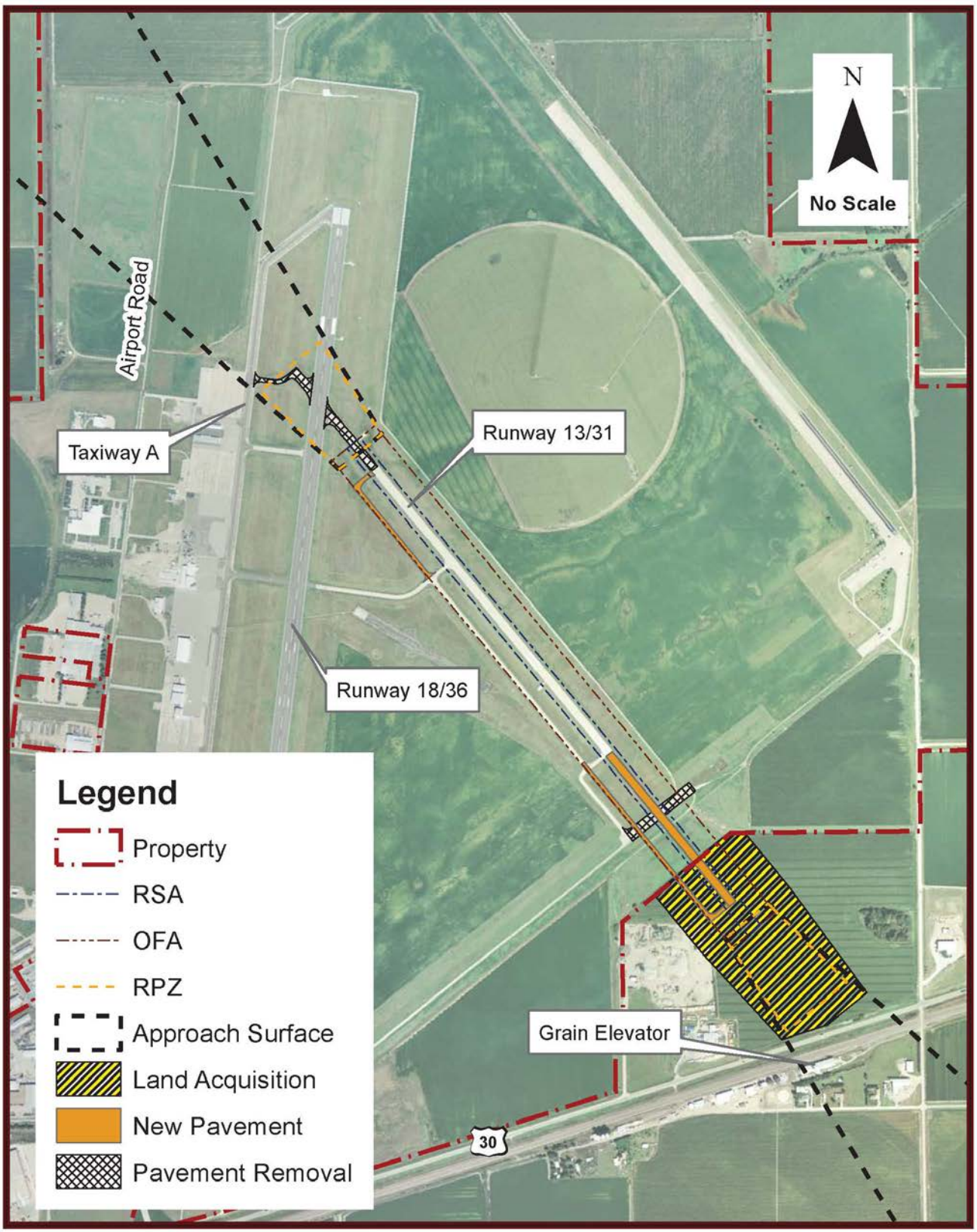


Figure VI.3 – Runway 13/31 Alternative 3

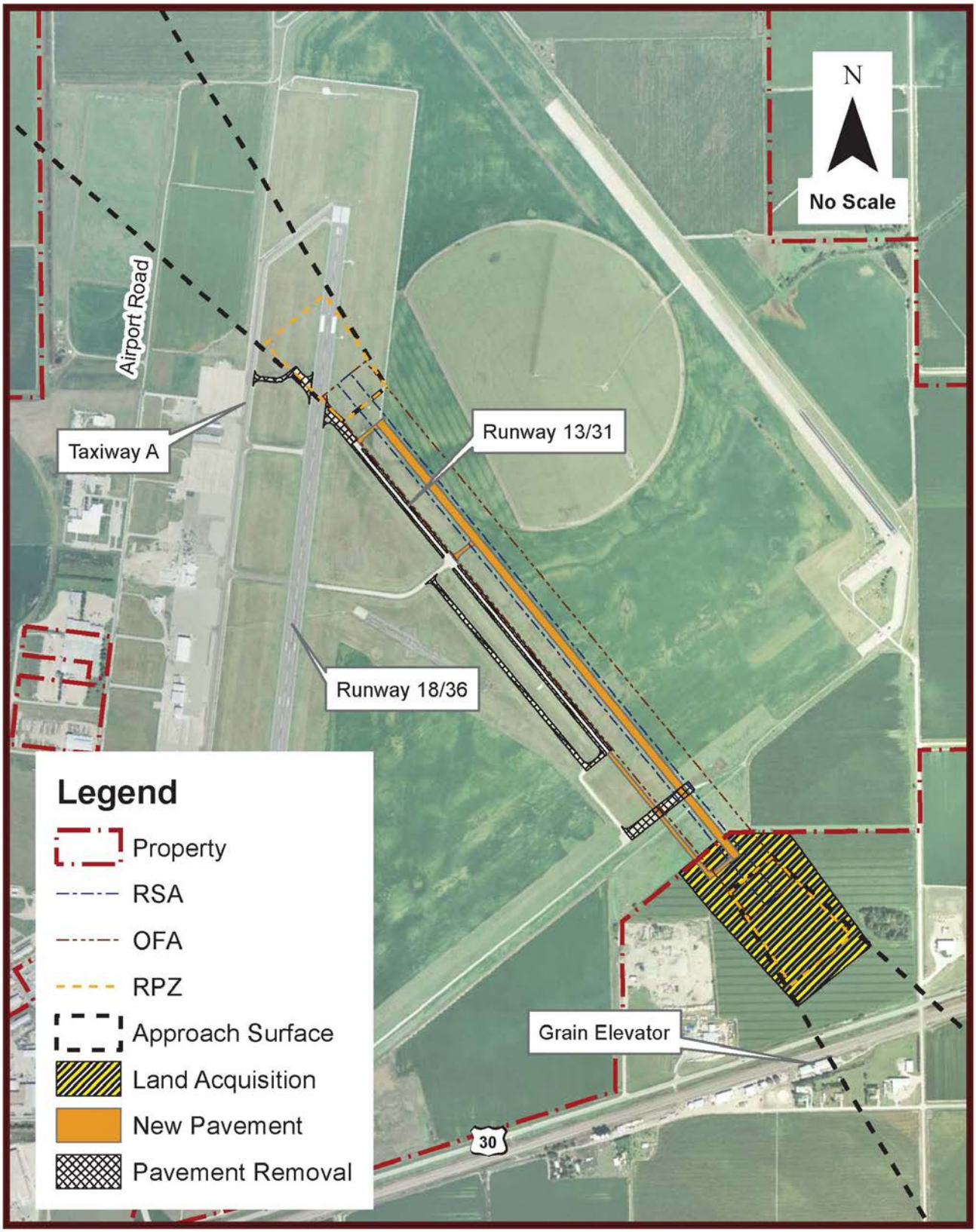


Table VI.1 – Alternatives Screening

Screening Criteria	Alternatives			
	1	2	3	4
Land Requirements	0 acres	40 acres (34:1 at Rwy 31) OR 30 acres (20:1 at Rwy 31)	33 acres	Depends on selected location/ alignment
Pavement Construction	19,700 SY	32,700 SY	56,200 SY	71,000 SY
Pavement Removal	28,800 SY	28,200 SY	50,900 SY	50,900 SY or more
Earthwork Cut/ Fill	6,300 CY / 2,200 SY	700 CY / 6,400 CY	14,000 CY / 4,100 CY	Depends on selected location/ alignment
Rwy/Rwy Intersections	1	0	0	0 or 1
Obstructions/ Removals	Realignment of airport access road off Rwy 13 end	34:1 Grain tower on Rwy 31 (20:1 clear)	Trees on Rwy 31 transitional surface	Depends on selected location/ alignment
Operations	Longer travel along Twy A to reach Rwy 18	Limited Approach to Rwy 31 due to Obstruction; All aircraft utilizing Rwy 13/31 cross 18/36 on Twy C	All aircraft utilizing Rwy 13/31 cross 18/36 on Twy C	Depends on selected location/ alignment

Recommendations

Alternative 1 is the recommended improvement to resolve the existing safety concerns at the Airport. Alternative 1 is expected to be the lowest cost alternative because it does not require any land acquisition and has the lowest amount of pavement construction and removal of the alternatives considered. The land required for acquisition with Alternative 2 is valuable farmland that would be very costly to acquire. In addition, the operational difficulties of Alternative 2 with the Runway 31 approach limitations and required crossing of Runway 18/36 to access Runway 13/31 make Alternative 1 the desired alternative Runway 13/31 shift/extension.

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KEARNEY
Regional Airport

Section VII
Environmental Overview

KIRKHAM MICHAEI

VII. ENVIRONMENTAL OVERVIEW

The FAA is obligated by statutory and regulatory requirements to evaluate the impacts a proposed development presents to the environment. This involves a systematic and multidisciplinary approach for the purpose of assuring compliance with various Federal regulations including, but not limited to: the National Environmental Policy Act (NEPA), Clean Air Act, Airport and Airway Improvement Act. FAA Order 5050.4, "National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects" establishes the FAA official policy on meeting these requirements. The FAA may not proceed with programming and funding any AIP project until the environmental review is complete.

As the proponent of the improvement, the airport owner is responsible for identifying all environmental issues. The type and size of project may affect the extent of the environmental review. Environmental documentation is completed for a proposed project and then submitted to the FAA. The FAA is responsible for independently analyzing and evaluating the environmental consequences identified in the sponsor's environmental documentation. FAA may proceed with programming and funding a project if a favorable determination is reached.

The purpose of the environmental overview as part of this ALP is to:

- identify environmental resources located in the vicinity of the airport.
- avoid selection of an improvement which may cause significant impacts to environmental resources (if possible).
- provide base information for the completion of environmental documentation for the proposed improvements.

The environmental review was conducted utilizing the information in the FAA's *Environmental Desktop Reference for Airport Actions*. **Table VII.1** summarizes the environmental review conducted as part of this ALP. Information on the requirements, regulations, and policies of various resources can be found in the FAA document. More detailed analysis and/or coordination with other agencies may be required during the preparation of the environmental documentation for some of the resources as noted in the table.

Table VII.1 – Environmental Review Summary

Resource	Description	Impacts/Coordination
Air Quality	Kearney Regional Airport is not located within a non-attainment or maintenance area and air quality analysis is not required	No anticipated impacts
Biotic Resources	All of the proposed projects would occur on areas previously disturbed by airport development or farmland; None of the projects include destruction of native habitat	No anticipated impacts; Coordinate with Nebraska Game and Parks Commission during development of project
Coastal Resources	Kearney Regional Airport is not located near a coast	No anticipated impacts

Table VII.1 – Environmental Review Summary

Resource	Description	Impacts/Coordination
Compatible Land Use	The existing and future land uses around the Airport are agriculture and industrial which are compatible land uses with the Airport	No anticipated impacts; Conversion of agricultural areas to Airport use
Construction	Due to the scope of the proposed projects, temporary closures of the Airport may be necessary in order to maintain safety during construction; Other short-term impacts may occur to air quality or noise with construction activities	Coordinate with City/Airport to schedule Airport closures to minimize impacts to Airport users during construction
Section 4(f) Resources	Properties which would qualify under Section 4(f) (public parks, recreation, wildlife, or historic properties) are not located in areas to be disturbed by construction of proposed projects	No anticipated impacts
Threatened and Endangered (T&E) Species	Suitable habitat for T&E species is not located in areas to be disturbed by construction of proposed projects; Several T&E species have habitat along the Platte River, located south of Airport including: piping plover, interior least tern, river otter, whooping crane; The Airport is also located within the primary flight corridor of the whooping crane	No anticipated impacts; Coordinate with US Fish and Wildlife Service during development of projects to determine specific impacts and mitigation An increase in air traffic within the vicinity of T&E species habitat would be expected regardless of the implementation of the proposed projects at Kearney Regional Airport; In addition, the preferred alternative for shifting Rwy 13/31 would move the approach surface farther north from the Platte River and T&E species habitat
Energy Supplies, Natural Resources, and Sustainable Design	Proposed future projects would increase the electrical usage of the Airport for lighting and electrical and natural gas usage for hangars; The additional energy demands of the proposed projects is not expected to exceed capacity of the existing supply systems; The resources required for the construction of the proposed projects are in adequate supply within the vicinity of the Airport	No anticipated impacts
Farmlands	Farmland on and surrounding Airport property is classified as Prime Farmland (soil map type included in **Appendix F**)	Some proposed projects would convert farmland to aeronautical use; Coordinate with NRCS and complete AD 106 form to determine impacts

Table VII.1 – Environmental Review Summary

Resource	Description	Impacts/Coordination
Floodplains	100-year floodplain exists along the property line on the northwest portion of the Airport following Airport Draw (map included in **Appendix F**)	All proposed projects at Kearney Regional Airport are expected to occur outside of the 100-year floodplain; No anticipated impacts
Hazardous Materials	Three facilities on Airport property have NDEQ programs (active and inactive) which have the potential to be impacted by proposed projects including: leaking storage tanks and petroleum release remediation (NDEQ list of programs located in **Appendix F**)	Coordinate with NDEQ and EPA during development of projects to determine impacts and mitigation
Historic and Archeological Properties	Information provided by the Nebraska State Historical Society identified several documented archeological/historic sites located near (but not on) Airport property	The documented historic and archeological sites provided by the Nebraska State Historical Society do not appear to be impacted with any of the proposed projects; Coordinate further with Nebraska State Historic Preservation Office and Nebraska State Historical Society during environmental review process
Induced Socioeconomic Impacts	Proposed airport improvements would not require the relocation of any residences or businesses because existing structures would not need to be acquired and relocated; Businesses and industries in the area could benefit with an improved airport facility	Proposed projects would increase safety and accessibility to Kearney Regional Airport for all users which could benefit local business and industries utilizing the Airport
Light Emissions and Visual Effects	Although some proposed projects include lighting, the areas surrounding the Airport are primarily agricultural fields and industries which are not sensitive to light emissions	No anticipated impacts
Noise	The proposed projects at Kearney Regional Airport would not meet thresholds to require noise analysis	No anticipated impacts; The shift of Rwy 13/31 to the northeast would not cause noise impacts because land underneath the approach is farmland
Social Impacts	Proposed airport improvements would not require the relocation of any residences or businesses because existing structures would not need to be acquired and relocated	Proposed projects would increase safety and accessibility to Kearney Regional Airport for all users

Table VII.1 – Environmental Review Summary

Resource	Description	Impacts/Coordination
Solid Waste	Solid waste generated by Kearney Regional Airport would not be expected to substantially increase with the proposed improvements; Construction and demolition activities may result in a substantial temporary increase of solid waste generation, however, recycling, salvage, reuse, and disposal options could be implemented into the design	No anticipated impacts; Consider implementing recycling, salvage, reuse, and disposal options during design
Water Quality	Airport Draw is located on the north and west sides of Kearney Regional Airport; Groundwater wells exist within the vicinity of proposed Airport projects (map with registered wells located in **Appendix F**); Kearney Regional Airport is not located within a Wellhead Protection Area	No anticipated impacts with the completion of Storm Water Pollution and Prevention Plan and National Pollutant Discharge Elimination System permits as applicable for the proposed projects Proposed projects have the potential to impact registered wells; Coordination would need to occur with NDEQ if any registered wells would be impacted with any project
Wetlands	Scattered wetlands exist on Airport property (USFWS National Wetlands Inventory map included in **Appendix F**); Based on site visits and review of aerial photography, some ditches may also contain wetland areas	The areas expected to be disturbed by proposed projects do not appear to contain wetland areas with the exception of some ditches; Conduct wetland review during the development of future projects; Coordinate with US ACE to determine wetland impacts and mitigation requirements
Wild and Scenic Rivers	Rivers near Kearney Regional Municipal Airport are not designated as wild or scenic	No anticipated impacts
Cumulative Impacts	With development throughout the area, farm and agricultural land is expected to continue to be converted to other uses (residential, commercial, industrial, etc.);	No anticipated impacts; While some proposed projects would convert existing farmland to Airport use, the contribution to the conversion of farmland of the projects at the Airport would be minor because some of the land could still be leased for farming
Environmental Justice	Proposed airport improvements would not require the relocation of protected populations because existing structures would not need to be acquired and relocated; Proposed airport improvements would not inhibit protected populations from utilizing the Airport	Proposed projects would increase safety and accessibility to Kearney Regional Airport for all users including protected populations
Section 6(f) Resources	No properties which have received Land and Water Conservation Funds are located near Kearney Regional Airport	No anticipated impacts

01 02 03 04

06 07 08 09

KEARNEY
Regional Airport

Section VIII
Improvement Phasing and Cost Estimates

KIRKHAM MICHAEI

VIII. IMPROVEMENT PHASING AND COST ESTIMATES

Improvements recommended for Kearney Regional Airport involve efficiency enhancements, safety upgrades, airfield capacity, and supporting landside facilities. Work should be completed in phases as dictated by activity levels and availability of funds. Recommendations are given in response to present conditions, which should be periodically reviewed to determine the continued applicability of recommendations.

Improvement Phasing

Recommendations are listed in three phases:

- Phase I includes projects considered to have the most immediate need (0–5 years).
- Phase II projects are considered to have a clear need, but are less essential (6-10 years).
- Phase III includes long-term projects in which the present need is less certain (11-20 years).

Other projects recommended, but not supported by state or federal guidelines, are included as local/private-only funding. These should be constructed based on need and as local/private funds become available, because they will not receive federal or state aid.

The recommended projects in their respective phases are included in **Table VIII.1 – Improvement Phasing Schedule and Costs. Figures VIII.1** through **VIII.4** show the improvements by phase. The actual implementation of the airport improvement projects should be reassessed based on availability of funds as well as the timing of the need and demand for the recommended facilities and improvements.

Funding Sources

It is recommended that the City and Airport keep up-to-date on airport funding sources available to them during the planning period. The FAA's website (http://www.faa.gov/airports/central/aip/sponsor_guide/media/0100.pdf) is kept current on Airport Improvement Program (AIP) eligible projects. The information presented also includes a check-list for Typical AIP Development Projects. Nebraska Department of Aeronautics (NDA) also has a State Aid Program that can offer funding assistance for various projects which can be located on their website (*http://www.aero.state.ne.us/sap.htm*). There are also loan programs for hangars and fuel systems.

Cost Estimates

Generalized cost estimates for the proposed improvements were prepared using information from the City of Kearney Airport Capital Improvement Plan (ACIP) provided by the City of Kearney. **Table VIII.1** lists the cost estimates for each recommended improvement and provides a breakdown of the costs into three categories: local, state, and federal shares. The local share must be paid for by a local public entity such as the City or a private contributor.

Table VIII.1 – Improvement Phasing Schedule and Costs

Year	Task	Project Description	Local Share	State Share	Federal Share	Total Cost
Phase I Projects (0-5 Years) 2013 – 2017						
2013	1	New ARFF Station (Eligible 2-Bays)	$209,484	-	$1,885,360	$2,094,844
2013	2	Apron/Approach Rehab for Storage Hangar	$83,948	-	$755,527	$839,475
2013	3	Parking and Vehicle Traffic Area Pavement Rehabilitation	$30,967	-	$278,698	$309,665
2013	4	New ARFF Station (Non-Eligible Additional 1-Bay)	$355,796	-	-	$355,796
2013	5	Construct Corporate Hangar (150' x 160')	$1,590,000	-	-	$1,590,000
2014	6	Acquire ARFF Vehicle (1,500 gallons)	$69,000	-	$621,000	$690,000
2016	7	Replace Existing 7-Place T-Hangar	$800,000	-	-	$800,000
2017	8	Replace Existing 10-Place T-Hangar	$1,140,000	-	-	$1,140,000
Phase I Projects Subtotal			**$4,279,195**	**$0**	**$3,540,585**	**$7,819,780**
Phase II Projects (6-10 Years) 2018 – 2022						
2018	9	Shift/Extend Runway 13/31 (Safety Improvements)	$394,825	-	$3,553,420	$3,948,245
2019	10	Rehabilitate Rwy 18/36 & Twy A (Preliminary Study/Design)	$8,000	-	$72,000	$80,000
2020	11	Reconstruct Pavement on Runway 18/36 and Taxiway 'A'	$1,085,000	-	$9,765,000	$10,850,000
2022	12	Construct Access Road to Nebraska Highway 10 Bypass (Cherry Avenue)	$1,675,000	-	-	$1,675,000
Phase II Projects Subtotal			**$3,162,825**	**$0**	**$13,390,420**	**$16,553,245**

(table continued on following page)

Year	Task	Project Description	Local Share	State Share	Federal Share	Total Cost
Phase III Projects (10-20 Years) 2023 – 2033						
2025	13	Mill and Overlay Asphalt Apron, Taxiways, and Taxilanes	$125,000	-	$1,125,000	$1,250,000
2025	14	Rehabilitate Apron	$51,725	-	$465,525	$517,250
2025	15	Construct New 10-Place T-Hangar	$1,230,000	-	-	$1,230,000
2028	16	Expand/Remodel Terminal Building (1,980 SF)	$915,000	-	-	$915,000
2030	17	Joint Seal and Concrete Repair Runway 18/36 and Taxiway A	$137,500	-	$1,237,500	$1,375,000
Phase III Projects Subtotal			**$2,459,225**	**$0**	**$2,828,025**	**$5,287,250**

Source: City of Kearney Airport Capital Improvement Plan, 2012

NOTE: Future costs not adjusted for inflation

Cost obtained from grant awarded for project

NOTE: FAA funding levels changed in 2012 from 95% to 90%; Future projects area assumed at a FAA funding level of 90%, however, this is subject to change

Figure VIII.1 - Phase I Improvements

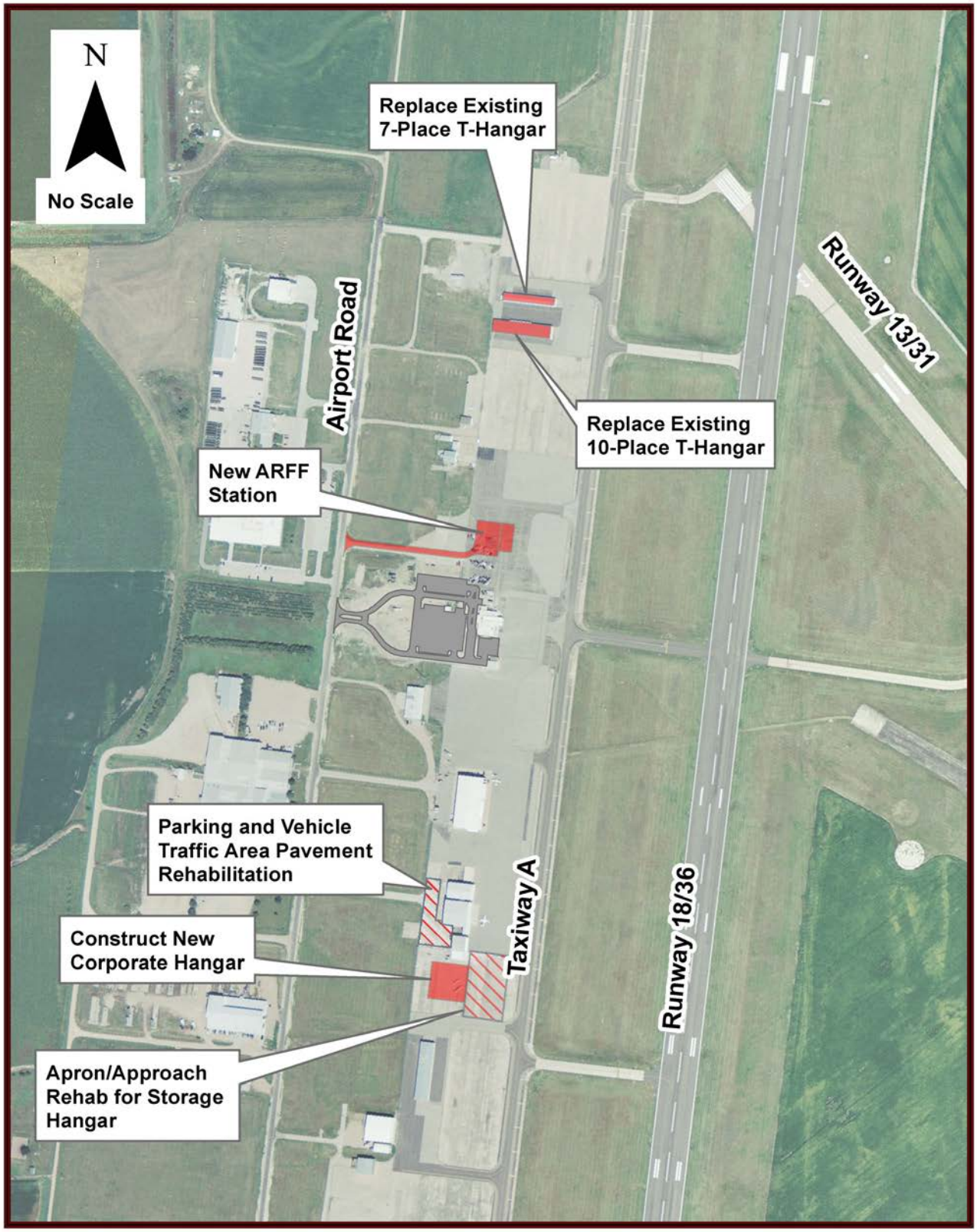


Figure VIII.2 - Phase II Improvements

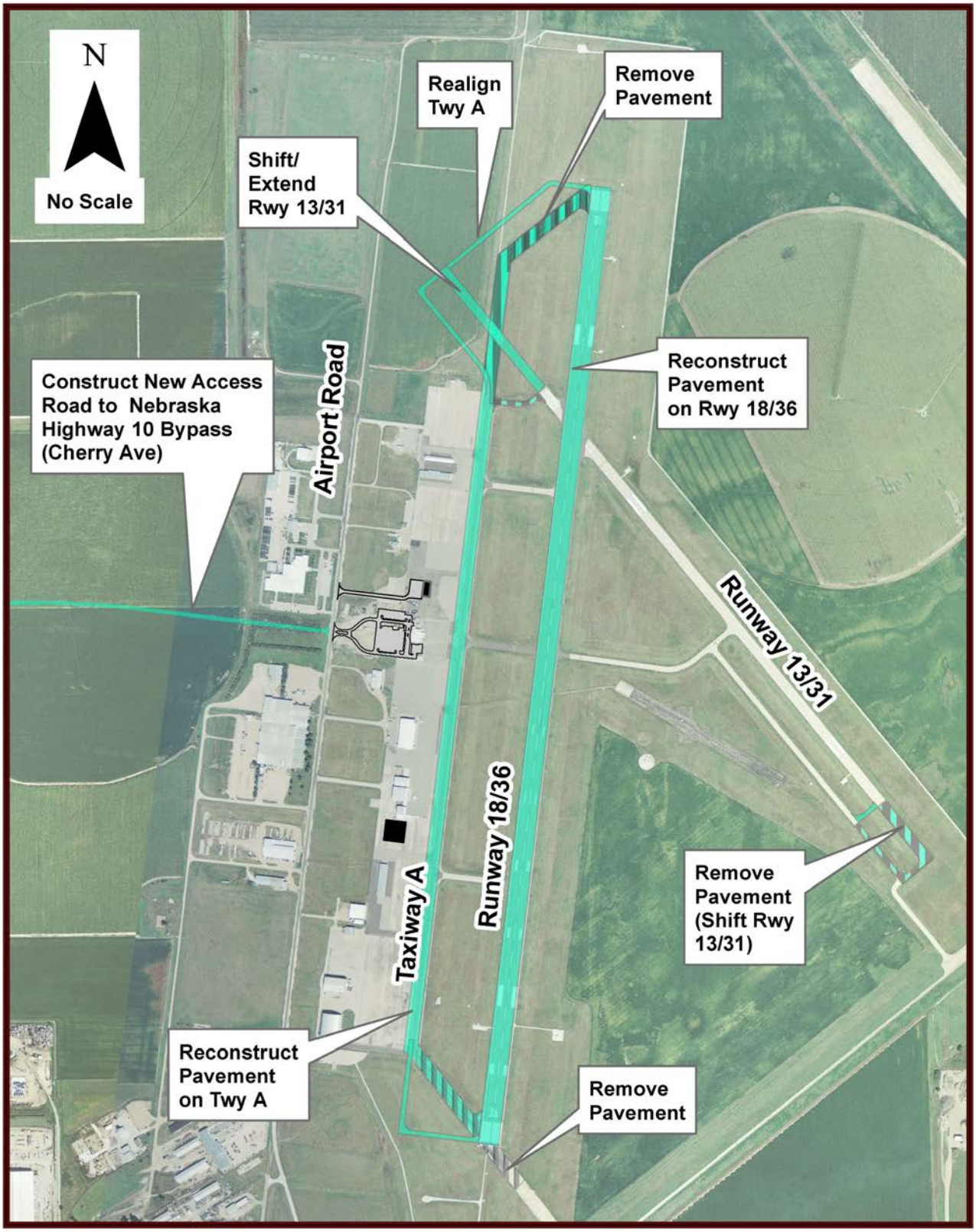
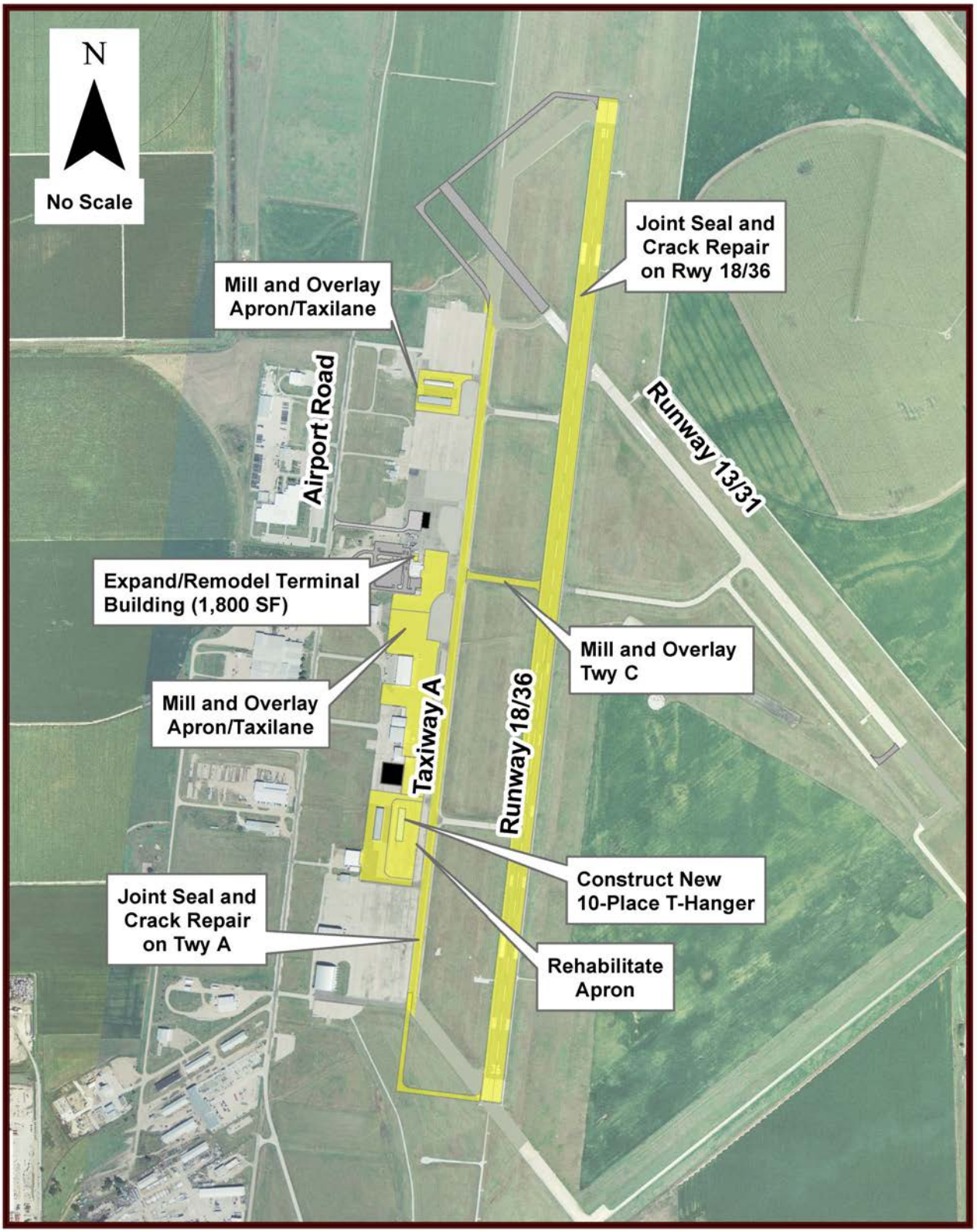


Figure VIII.3 - Phase III Improvements



Appendix A

NASP Functional Classification Map

EXHIBIT 4-1

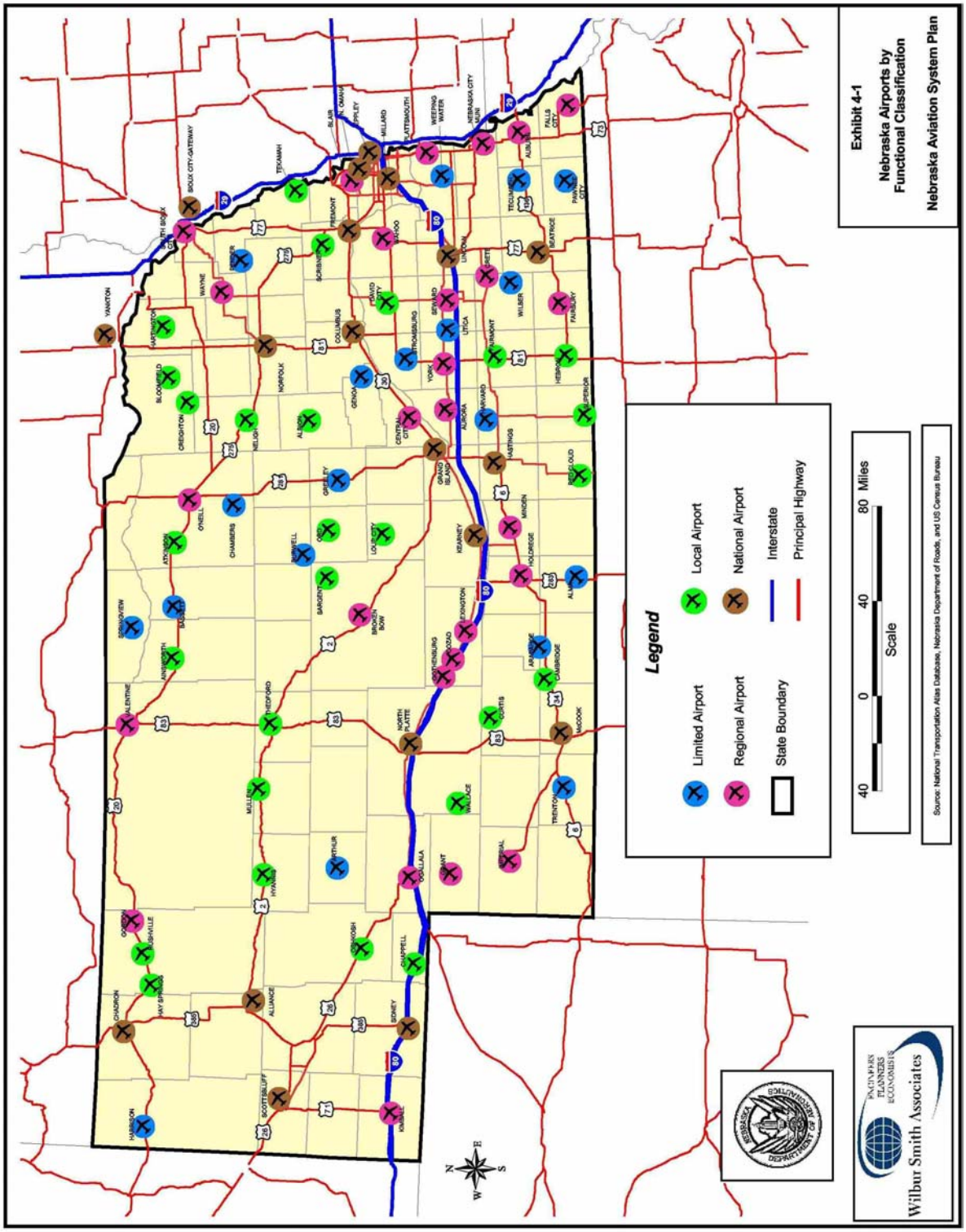


Exhibit 4-1
Nebraska Airports by
Functional Classification
Nebraska Aviation System Plan
Legend
Local Airport
National Airport
Interstate
Principal Highway
Limited Airport
Regional Airport
State Boundary
40 0 40 80 Miles
Scale
Source: National Transportation Atlas Database, Nebraska Department of Roads, and US Census Bureau
Wilbur Smith Associates

Appendix B

Airport User Survey

Dear Airport User:

The City of Kearney, Nebraska is in the process of updating the Airport Layout Plan for the Kearney Regional Airport (EAR).

An inventory of users, enplanements, and types of aircraft will be beneficial in the planning of future improvements at the airport. In order to maintain and enhance the airport runways and facilities, please take a few moments to complete the following and return to Jim Lynaugh, Airport Manager, at your earliest convenience to the address that follows:

Jim Lynaugh
Airport Manager
5145 Airport Road
Kearney, NE 68848

Aircraft No. 1: Make and Mode _____

Required Runway Length @ Gross Wt. _____

Aircraft No. 2: Make and Model _____

Required Runway Length @ Gross Wt. _____

Aircraft No. 3: Make and Model _____

Required Runway Length @ Gross Wt. _____

Current Annual Trips To or From Hebron:

Aircraft No. 1 _____

Aircraft No. 2 _____

Aircraft No. 3 _____

Comments: _____

_____

_____

_____ _____
Signature Date

_____
Printed Name and Company/Organization

Contact Information (Mailing Address, Phone Number, and E-Mail Address):

_____

_____

_____

Appendix C

Marking and Signing Plans

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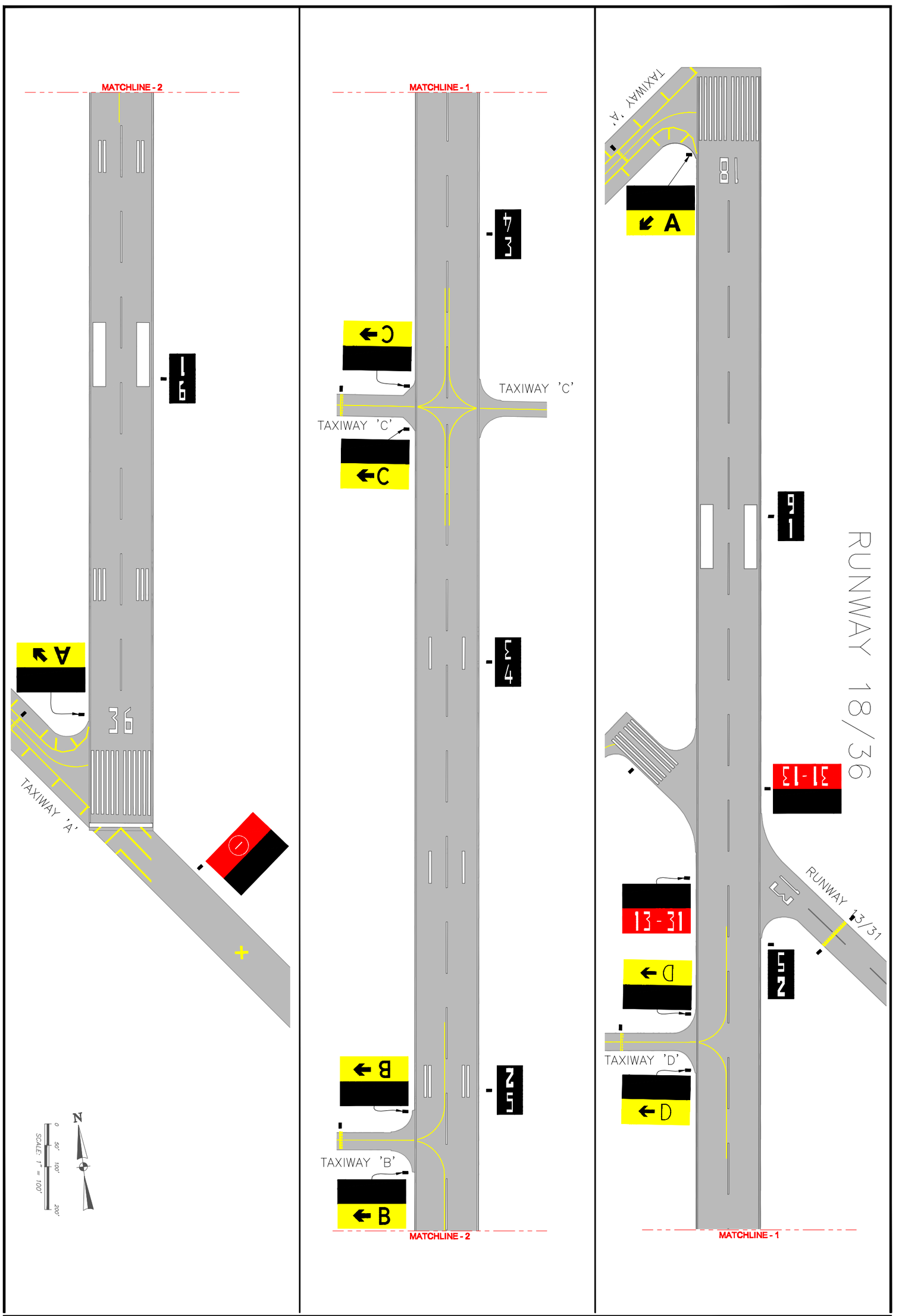
NOV-29-2006 10:40:55 creinke



SHEET 1	date 11/06 designed checked km no.	MARKING AND SIGNING PLAN FOR RUNWAY 18/36	MARKING AND SIGNING PLAN KEARNEY MUNICIPAL AIRPORT KEARNEY NEBRASKA	revisions	KIRKHAM MICHAEL

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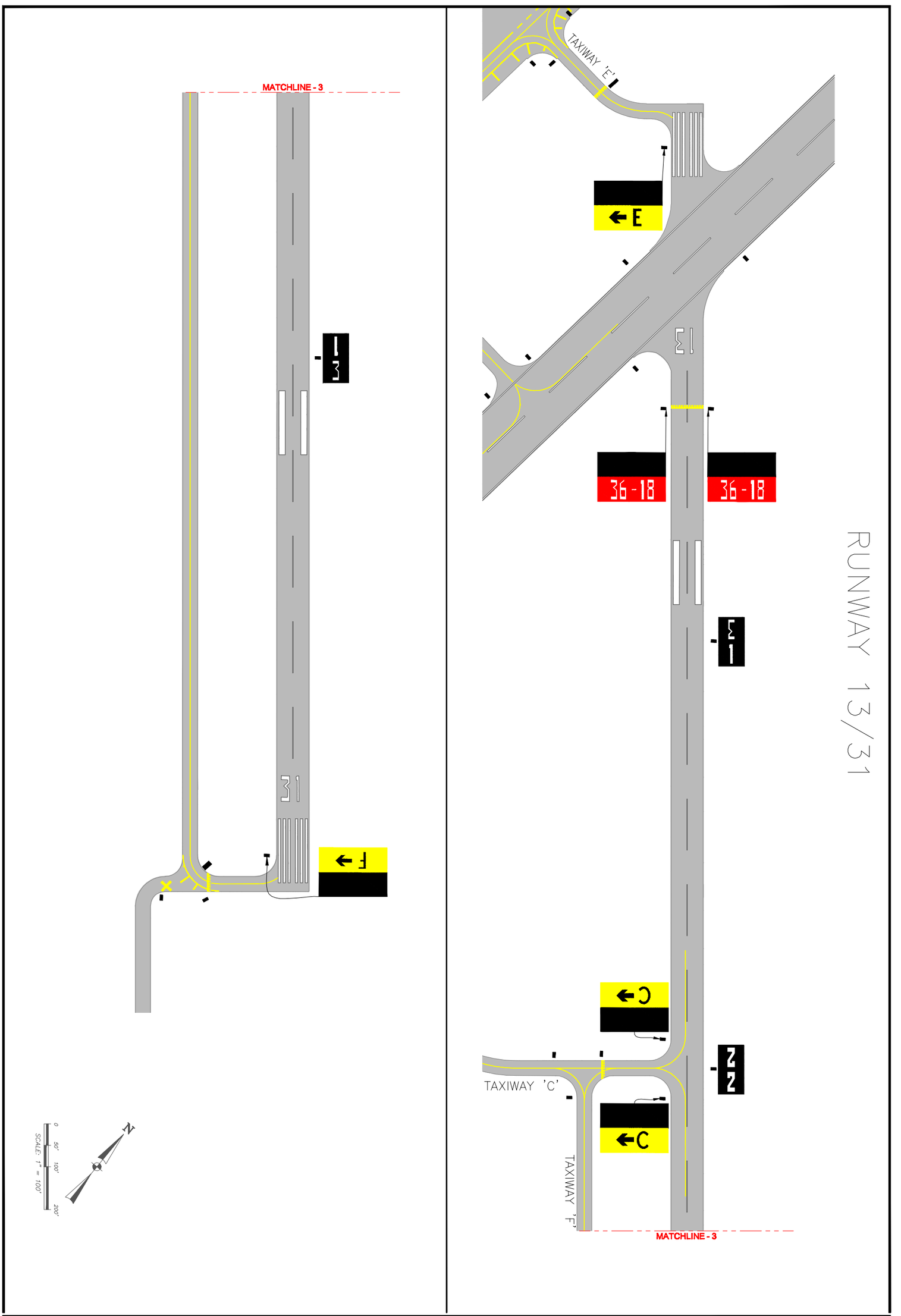

SHEET 2	date 11/06 designed checked km no.	MARKING AND SIGNING PLAN FOR RUNWAY 13/31	MARKING AND SIGNING PLAN KEARNEY MUNICIPAL AIRPORT KEARNEY NEBRASKA	revisions	KIRKHAM MICHAEL

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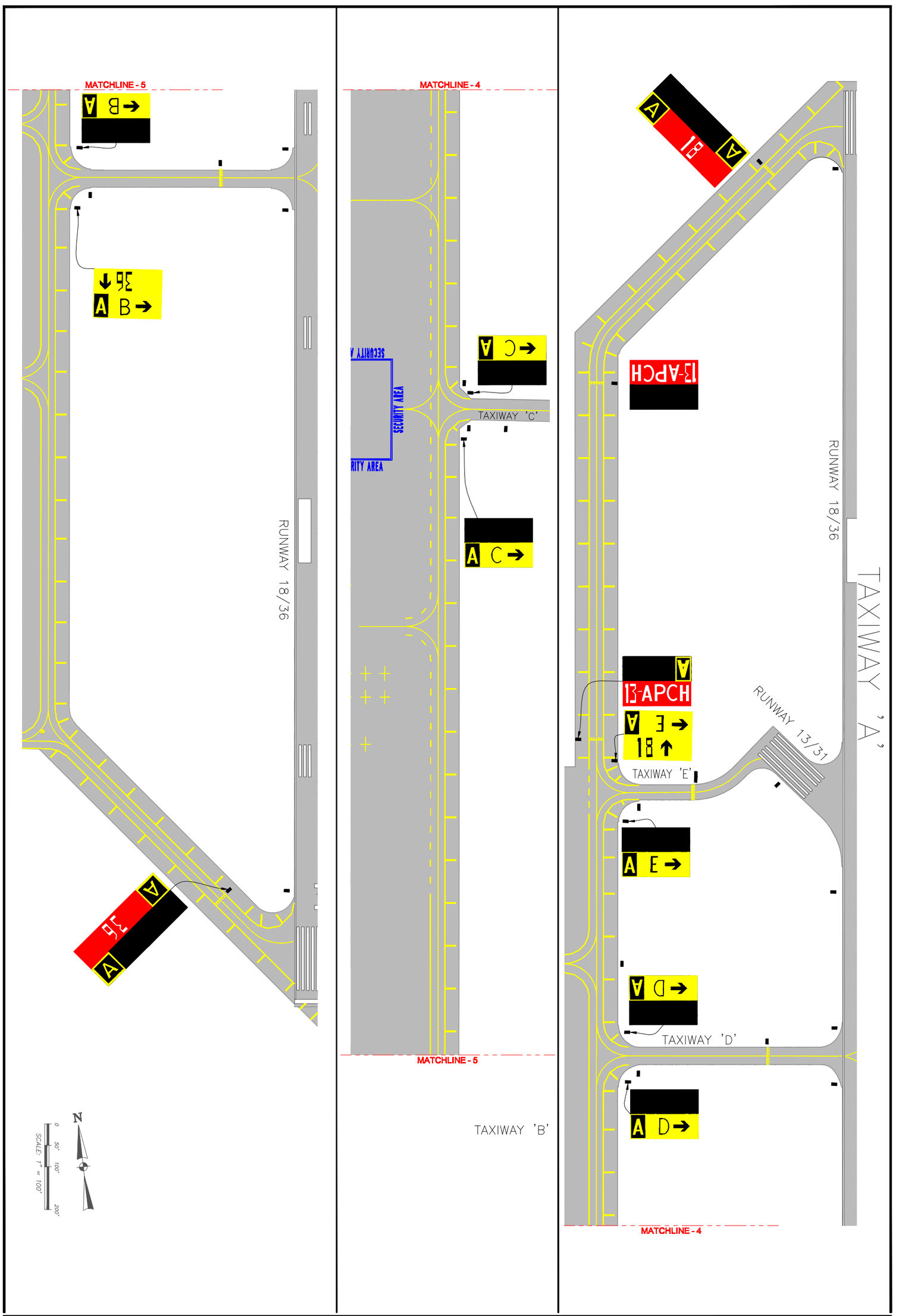

SHEET	date	MARKING AND SIGNING PLAN FOR TAXIWAY 'A'	MARKING AND SIGNING PLAN KEARNEY MUNICIPAL AIRPORT	revisions	KIRKHAM MICHAEL
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	checked				
	km no.				

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KIRKHAM MICHAEL

revisions

NEBRASKA

MARKING AND SIGNING PLAN
KEARNEY MUNICIPAL AIRPORT

KEARNEY

MARKING AND SIGNING PLAN
FOR TAXIWAY 'B' - 'D'

SHEET 4

date 11/06
designed
checked
km no.

TAXIWAY 'F'

TAXIWAY 'E'

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KIRKHAM MICHAEL

revisions

MARKING AND SIGNING PLAN
KEARNEY MUNICIPAL AIRPORT

NEBRASKA

KEARNEY

MARKING AND SIGNING PLAN
FOR TAXIWAYS 'E' & 'F'

SHEET 5

date designed 11/06
checked
km no.

APRON

TAXIWAY 'E'

TAXIWAY 'D'

TAXIWAY 'C'

TAXIWAY 'A'

←A→

←18-13

36 →

SECURITY AREA

SECURITY AREA

SECURITY AREA

MATCHLINE - 6

TAXIWAY 'B'

TAXIWAY 'A'

TAXIWAY 'A'

MATCHLINE - 6

N

0 50' 100' 200'

SCALE: 1" = 100'

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KIRKHAM MICHAEL

revisions

NEBRASKA

MARKING AND SIGNING PLAN
KEARNEY MUNICIPAL AIRPORT

KEARNEY

MARKING AND SIGNING PLAN
FOR APRON

date 11/06
designed
checked
km no.

SHEET 6

Appendix D

Airport Approach Plates

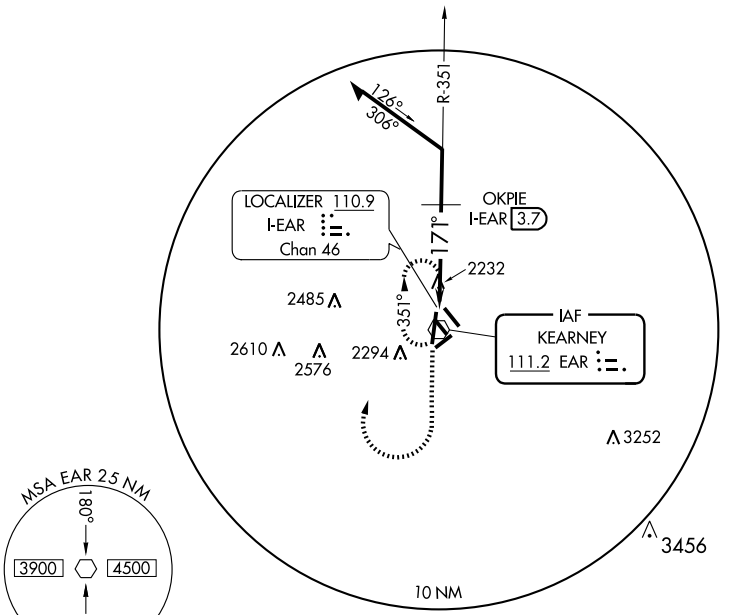
VOR EAR	APP CRS		
111.2	171°	Rwy Idg	7094
		TDZE	2131
		Apt Elev	2131

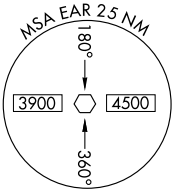
VOR RWY 18

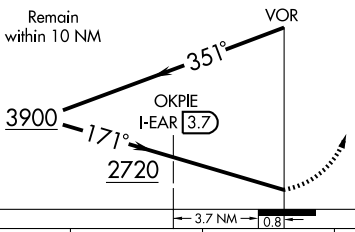
KEARNEY RGNL (EAR)

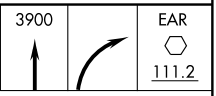
MISSED APPROACH: Climb to 3900 then right turn direct EAR VOR and hold.

AWOS-3	MINNEAPOLIS CENTER	UNICOM
123.875	119.4 278.8	123.0 (CTAF) L

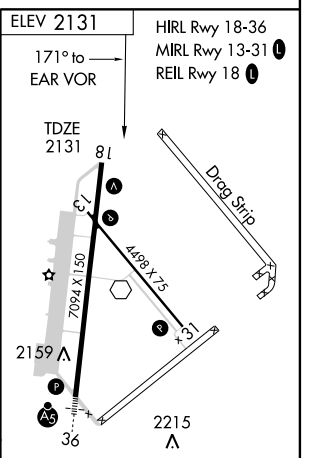








CATEGORY	A	B	C	D
S-18	2720-1	589 (600-1)	2720-1½ 589 (600-1½)	2720-1¾ 589 (600-1¾)
CIRCLING	2720-1	589 (600-1)	2720-1½ 589 (600-1½)	2720-2 589 (600-2)
OKPIE MINIMUMS				
S-18	2580-1	449 (500-1)	2580-1¼ 449 (500-1¼)	2580-1½ 449 (500-1½)
CIRCLING	2600-1	469 (500-1)	2600-1½ 469 (500-1½)	2700-2 569 (600-2)



Knots	60	90	120	150	180
Min:Sec					

NC-2, 03 JUL 2008 to 31 JUL 2008

ILS RWY 36
KEARNEY RGNL (EAR)

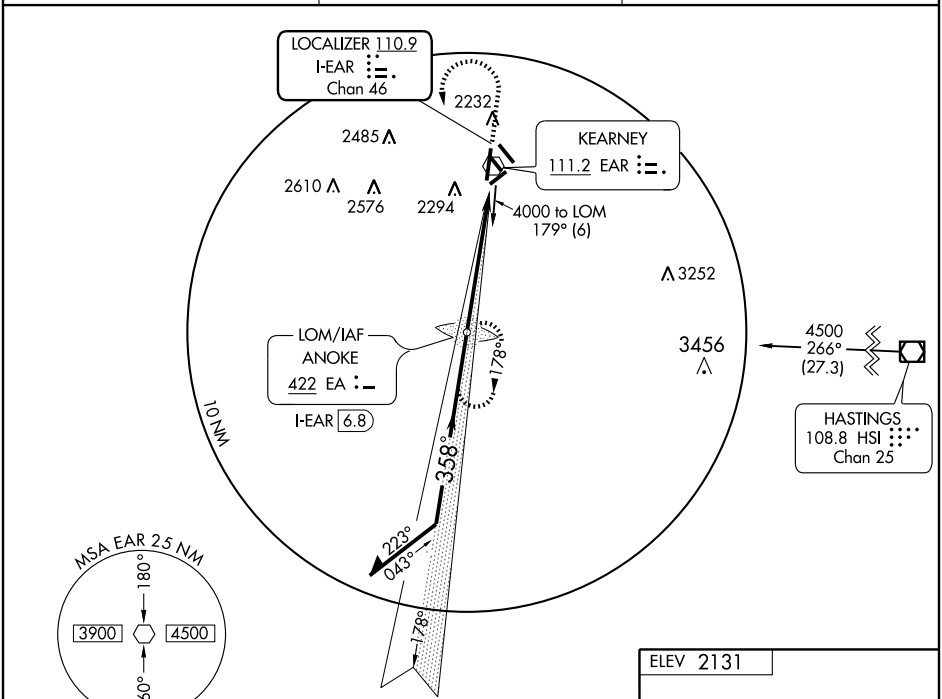
LOC/DME I-EAR	APP CRS	Rwy Idg	7094
110.9	358°	TDZE	2131
Chan 46		Apt Elev	2131

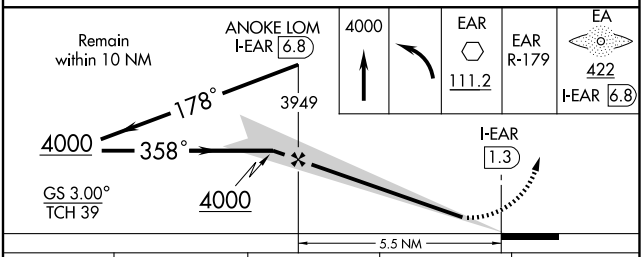
NA

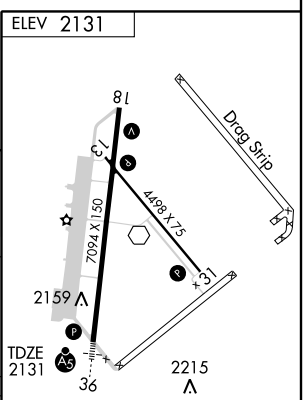
MALSR

MISSED APPROACH: Climb to 4000 then left turn direct EAR VOR, then via EAR R-179 to ANOKE LOM/INT/I-EAR 6.8 DME and hold.

AWOS-3	MINNEAPOLIS CENTER	UNICOM
123.875	119.4 278.8	123.0 (CTAF)







CATEGORY	A	B	C	D
S-ILS 36	2331-½	200 (200-½)		
S-LOC 36	2540-½ 409 (500-½)		2540-¾ 409 (500-¾)	
CIRCLING	2600-1 469 (500-1)		2600-1½ 469 (500-1½)	2700-2 569 (600-2)

FAF to MAP 5.5 NM

Knots	60	90	120	150	180
Min:Sec	5:30	3:40	2:45	2:12	1:50

NC-2, 03 JUL 2008 to 31 JUL 2008
NC-2, 03 JUL 2008 to 31 JUL 2008

LOM ANOKE	APP CRS	Rwy Idg	7094
422 EA	358°	TDZE	2131
		Apt Elev	2131

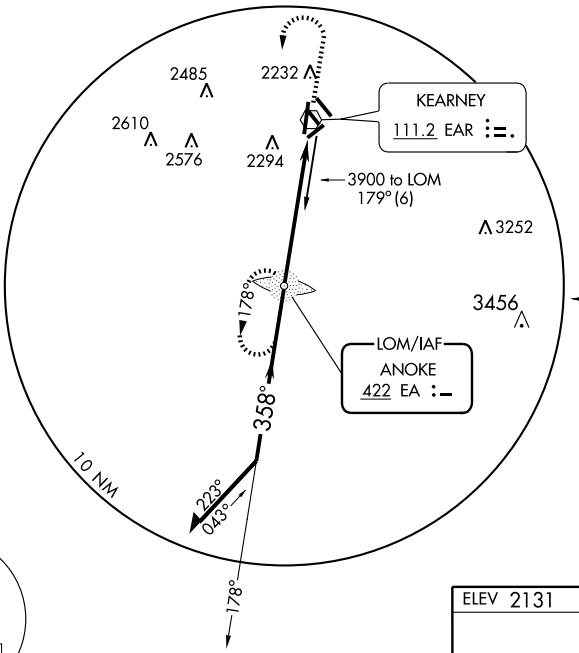
NDB RWY 36
KEARNEY RGNL (EAR)

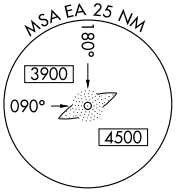
NA

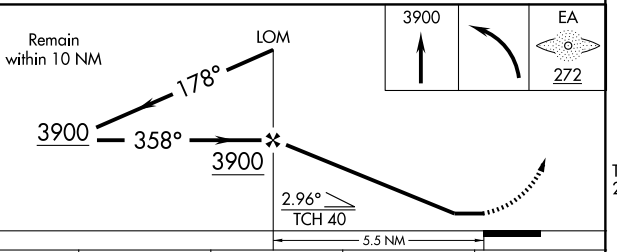
MALSR

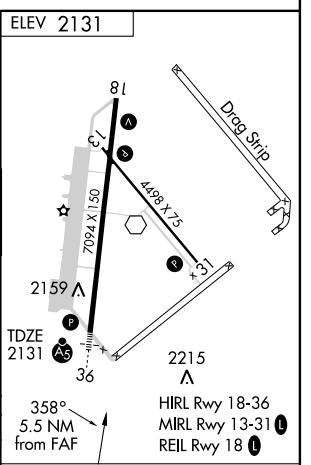
MISSED APPROACH: Climb to 3900 then left turn direct EA LOM and hold.

AWOS-3	MINNEAPOLIS CENTER	UNICOM
123.875	119.4 278.8	123.0 (CTAF) L









CATEGORY	A	B	C	D
S-36	2600-¾ 469 (500-¾)			2600-1¼ 469 (500-1¼)
CIRCLING	2600-1 469 (500-1)		2600-1½ 469 (500-1½)	2700-2 569 (600-2)

FAF to MAP 5.5 NM

Knots	60	90	120	150	180
Min:Sec	5:30	3:40	2:45	2:12	1:50

NC-2, 03 JUL 2008 to 31 JUL 2008

WAAS CH **86213** **W18A**	APP CRS **178°**	Rwy Idg **7094** TDZE **2131** Apt Elev **2131**

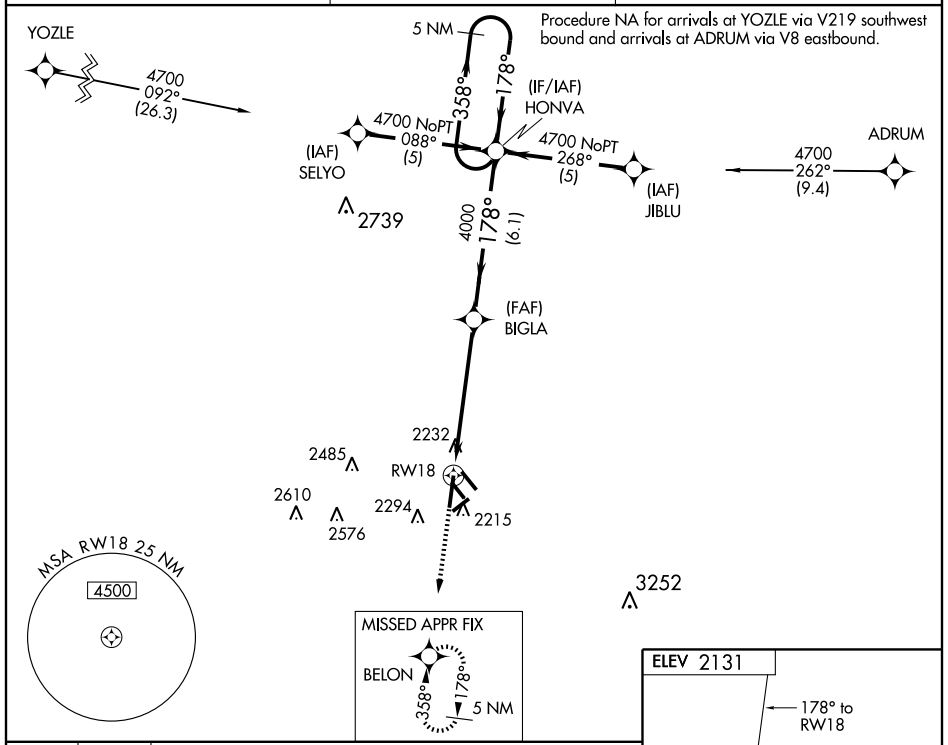
RNAV (GPS) RWY 18

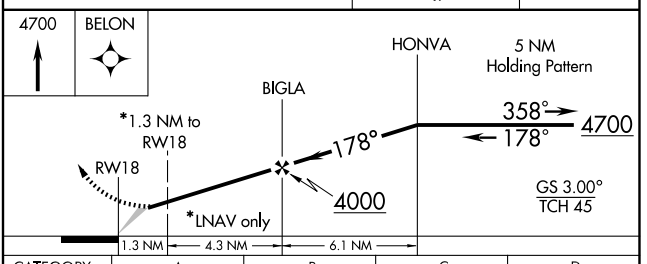
KEARNEY RGNL (EAR)

T A BARO-VNAV NA below -19°C (-2°F). DME/DME RNP-0.3 NA. If local altimeter setting not received, use Brewster Field altimeter setting and increase all DAs/MDAs 80 feet. BARO-VNAV and VDP NA when using Brewster Field altimeter setting.

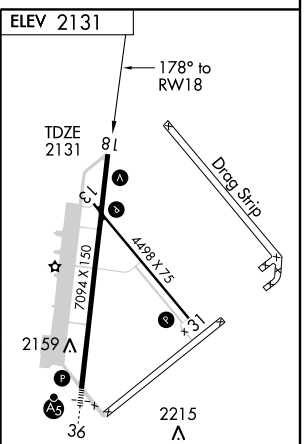
MISSED APPROACH: Climb to 4700 direct BELON and hold.

AWOS-3	MINNEAPOLIS CENTER	UNICOM
123.875	**119.4 278.8**	**123.0** (CTAF) L





CATEGORY	A	B	C	D
LPV DA	2470-1¼		339 (400-1¼)	
LNAV/VNAV DA	2520-1½		389 (400-1½)	
LNAV MDA	2600-1 469 (500-1)		2600-1¼ 469 (500-1¼)	2600-1½ 469 (500-1½)
CIRCLING	2600-1½ 469 (500-1½)			2700-2 569 (600-2)



NC-2, 03 JUL 2008 to 31 JUL 2008

RNAV (GPS) RWY 36

KEARNEY RGNL (EAR)

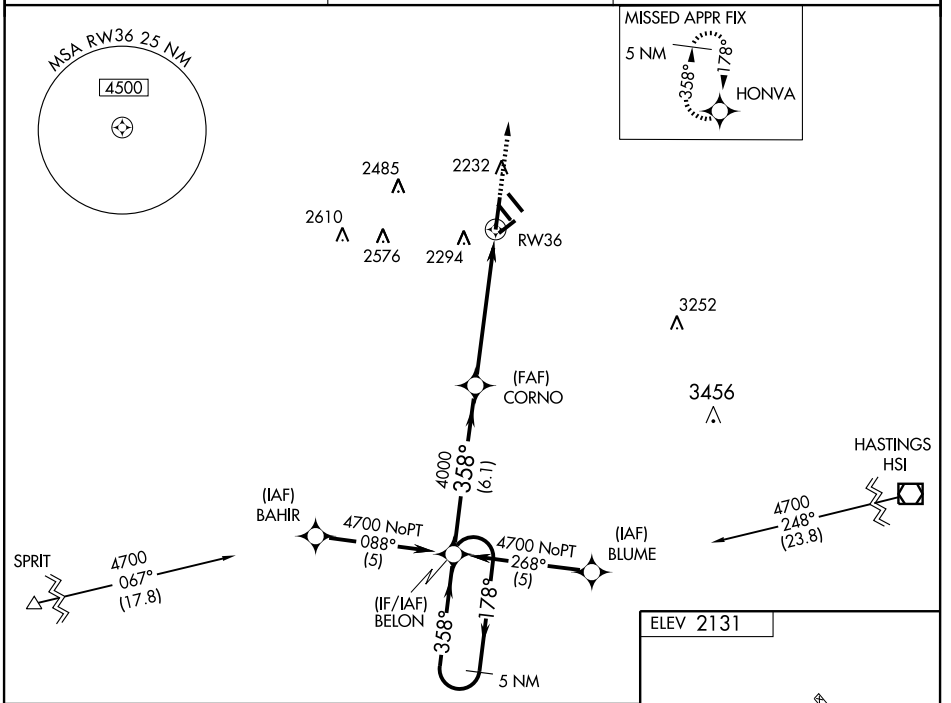
WAAS	APP CRS	Rwy Idg	7094
CH 90113	358°	TDZE	2131
W36A		Apt Elev	2131

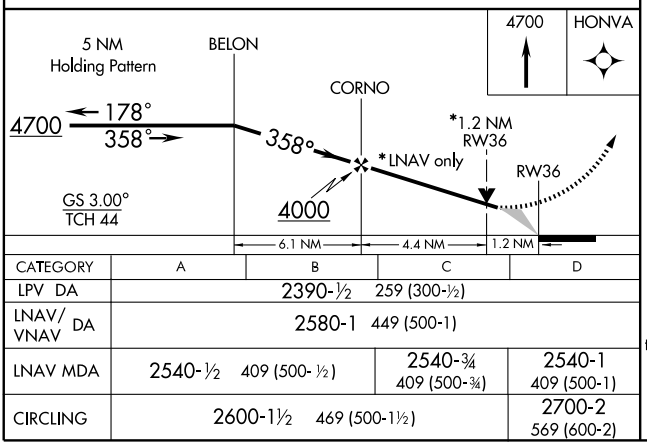
BARO-VNAV NA below -19°C (-2°F). DME/DME RNP-0.3 NA. If local altimeter setting not received, use Brewster Field altimeter setting and increase all DAs/MDAs 80 feet. BARO VNAV and VDP NA when using Brewster Field altimeter setting. For inoperative MALSR, increase LPV visibilty all Cats to 1 mile, increase LNAV Cat D visibilty to 1¼ mile.

MALSR

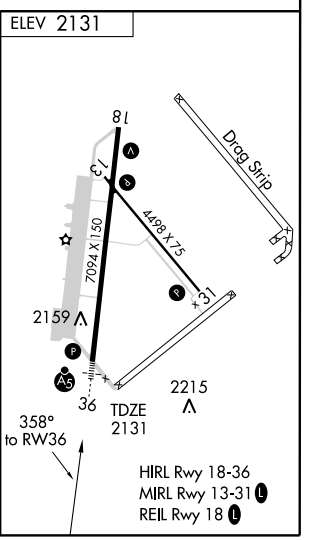
MISSED APPROACH: Climb to 4700 direct HONVA and hold.

AWOS-3	MINNEAPOLIS CENTER	UNICOM
123.875	119.4 278.8	123.0 (CTAF) L





CATEGORY	A	B	C	D
LPV DA	2390-½ 259 (300-½)			
LNAV/VNAV DA	2580-1 449 (500-1)			
LNAV MDA	2540-½ 409 (500-½)		2540-¾ 409 (500-¾)	2540-1 409 (500-1)
CIRCLING	2600-1½ 469 (500-1½)			2700-2 569 (600-2)



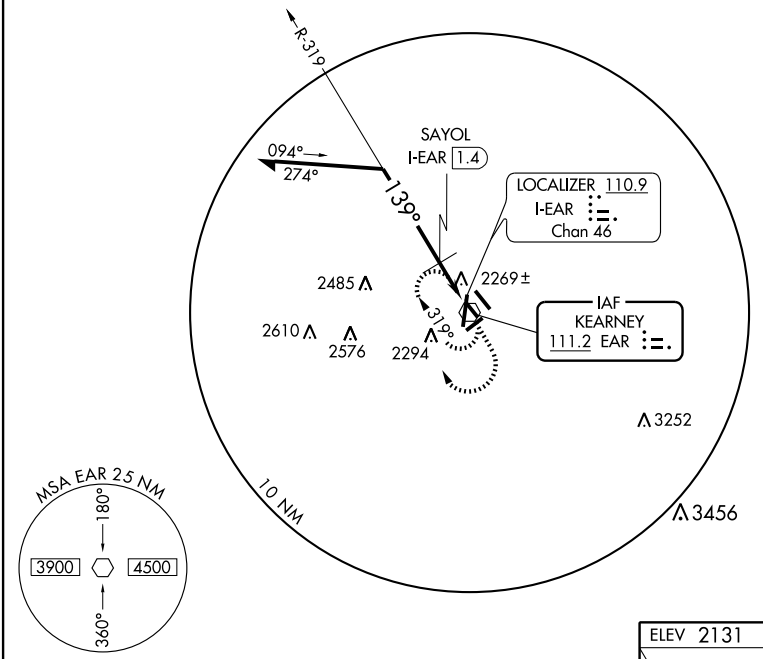
NC-2, 03 JUL 2008 to 31 JUL 2008

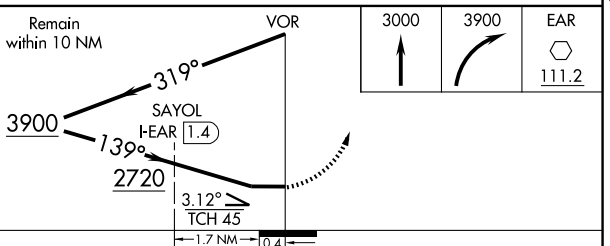
VOR EAR	APP CRS	Rwy Idg	4497
111.2	139°	TDZE	2130
		Apt Elev	2131

VOR RWY 13
KEARNEY RGNL (EAR)

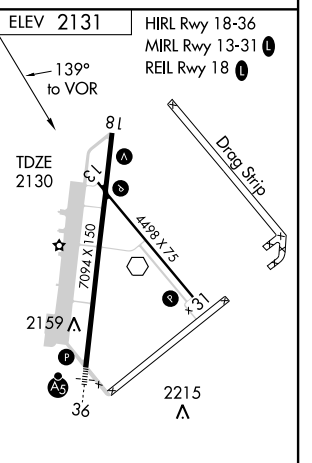
MISSED APPROACH: Climb to 3000 then climbing right turn to 3900 direct EAR VOR and hold.

AWOS-3	MINNEAPOLIS CENTER	UNICOM
123.875	119.4 278.8	123.0 (CTAF) L





CATEGORY	A	B	C	D
S-13	2720-1	590 (600-1)	2720-1½ 590 (600-1½)	2720-1¾ 590 (600-1¾)
CIRCLING	2720-1	589 (600-1)	2720-1½ 589 (600-1½)	2720-2 589 (600-2)
SAYOL FIX MINIMUMS				
S-13	2520-1	390 (400-1)		2520-1¼ 390 (400-1¼)
CIRCLING	2600-1	469 (500-1)	2600-1½ 469 (500-1½)	2700-2 569 (600-2)



Knots	60	90	120	150	180
Min:Sec					

NC-2, 03 JUL 2008 to 31 JUL 2008
NC-2, 03 JUL 2008 to 31 JUL 2008

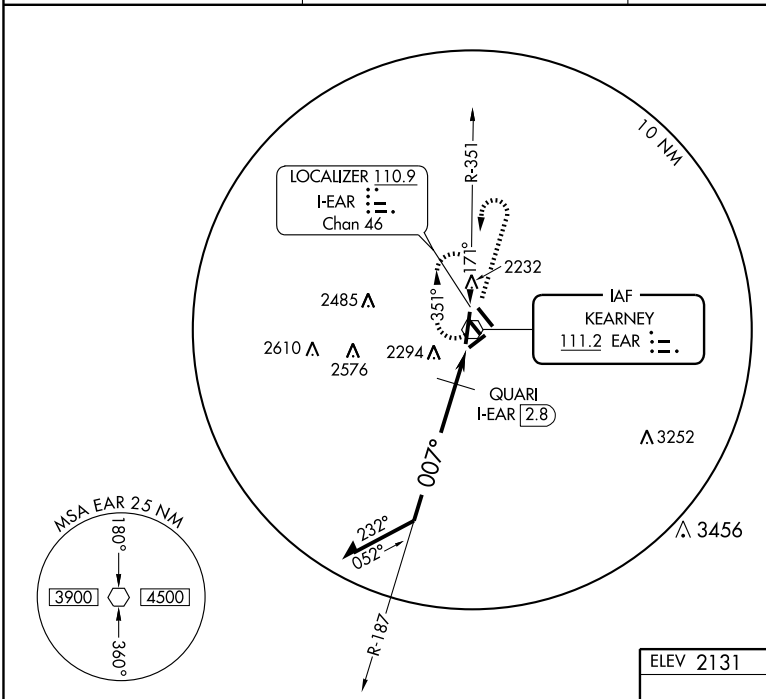
VOR EAR	APP CRS		
111.2	007°	Rwy Idg	7094
		TDZE	2131
		Apt Elev	2131

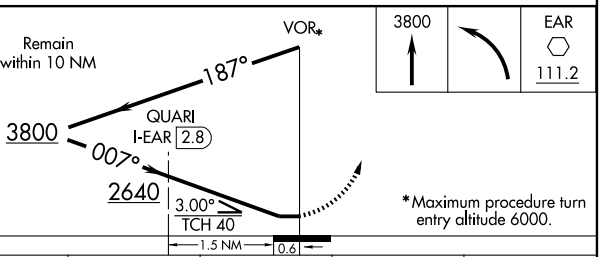
VOR RWY 36
KEARNEY RGNL (EAR)

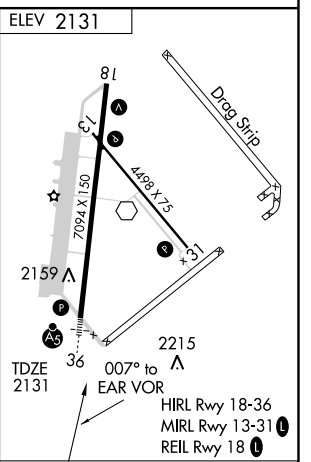
MALSR

MISSED APPROACH: Climb to 3800 then left turn direct EAR VOR and hold.

AWOS-3	MINNEAPOLIS CENTER	UNICOM
123.875	119.4 278.8	123.0 (CTAF) L







CATEGORY	A	B	C	D
S-36	2640-½	509 (600-½)	2640-1	509 (600-1)
CIRCLING	2640-1	509 (600-1)	2640-1½ 509 (600-1½)	2700-2 569 (600-2)
	QUARI FIX MINIMUMS			
S-36	2560-½	429 (500-½)	2560-¾ 429 (500-¾)	2560-1 429 (500-1)
CIRCLING	2600-1	469 (500-1)	2600-1½ 469 (500-1½)	2700-2 569 (600-2)

Knots	60	90	120	150	180
Min:Sec					

NC-2, 03 JUL 2008 to 31 JUL 2008

Appendix E

Airport Facility Calculations

Apron Size Calculations for Transient Aircraft

Airport	Kearney Regional Airport
Location	Kearney, Nebraska

NOTE: (You can calculate size of apron based upon total annual ops or you may develop an estimate of annual operations based upon number of based aircraft)

1. Calculate the total annual operations

			Small GA 250 ops / AC	Med GA 350 ops / AC	Reliever 450 ops / AC	Busy Reliever 750 ops / AC
Enter number of based aircraft →	65					
Enter number of operations per aircraft →	575					
Total Annual Operations →			37500		37,375	

2. Busiest Month (% of Annual Ops)

Enter % of Annual Ops that occur in busiest month →	12			
Busiest Month Operations →		4,500		4,485

3. Busiest Day (40%>Avg Day)

Enter Busiest Month (e.g. August) →	Jul			
Avg Day Busy Month →		145		145
Busiest Day 40% > avg. day →		203		203

4. # Itinerant Aircraft

Enter % of Itinerant Operations →	50			
# Itinerant Aircraft operations →		102		101
# Itinerant Aircraft Landing Operations →		51		51
Enter % of Itinerant Operations on ground →	50			
# Itinerant AC on ground (assume 50%) →		25		25

5. Apron area

# square yards per aircraft →	1075			
Apron Area (sq yds) →		27,308		27,217

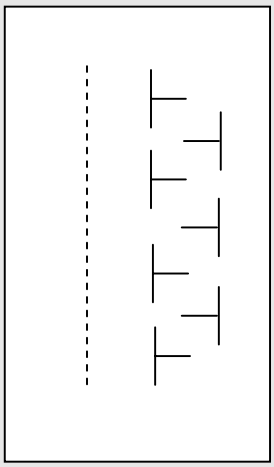
6. Planned Apron (10%>)

# square yards →		30,039		29,939

520

Note: 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. Assume 50% of operations itinerant if no records. Planning areas shown assume 10' clearance between wingtips, taxilane on edge places taxilane on edge of apron

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



Location/Project Information	
Airport	Kearney Regional Airport (EAR)
Project	Master Plan Update
FAA AIP No.	3-31-0045-019
KM Project No.	0808226

Aircraft Characteristics	
Make	Cessna
Model	680 Citation Sovereign
Wingspan (ft)	63.25
Maximum Certified Takeoff Weight (lbs)	Over 12,500 but less than 60,000
Passenger Seats	Less than 10
Percent of Fleet	75
Percent Useful Load	90
Engine Type	Turbojet

AC 150/5325-4B Chapter	Chapter 3, Figure 3-1

Airport Characteristics	
Temperature (F)	90
Airport Elevation (ft)	2131
Runway High Point Elevation (ft)	2128.4
Runway Low Point Elevation (ft)	2131.2

BASE RUNWAY LENGTH (FT)	6,800

Runway Length Adjustments	
Runway Gradient	30
Wet/Slippery Runway	200

RECOMMENDED RUNWAY LENGTH (FT)	7,030

Location/Project Information	
Airport	Kearney Regional Airport (EAR)
Project	Master Plan Update
FAA AIP No.	3-31-0045-019
KM Project No.	0808226

Aircraft Characteristics	
Make	Beechcraft
Model	1900D
Wingspan (ft)	57.9
Maximum Certified Takeoff Weight (lbs)	17,000
Passenger Seats	10 or more passenger seats
Percent of Fleet	75
Percent Useful Load	60
Engine Type	Turboprop

AC 150/5325-4B Chapter	Chapter 3, Figure 3-1

Airport Characteristics	
Mean Daily Max Temp of Hottest Month (F)	85
Airport Elevation (ft)	2131
Runway High Point Elevation (ft)	2130.1
Runway Low Point Elevation (ft)	2126.6

BASE RUNWAY LENGTH (FT)	5,100

Runway Length Adjustments	
Runway Gradient	40
Wet/Slippery Runway	0

RECOMMENDED RUNWAY LENGTH (FT)	5,140

Kearney Regional Airport
Runway 13/31 Length FAA Approval

From: doug.anderson@faa.gov [mailto:doug.anderson@faa.gov]
Sent: Friday, December 10, 2010 10:18 AM
To: Nick Gordon
Cc: Lannin, Anna; Eric Johnson; Steve Irons
Subject: Re: EAR Master Plan Status Update

Your right, you did not include the wet runway adjustment, I read your spreadsheet wrong. However, when I looked at it again and what happened is you determined the length, then rounded to 5100' then added 40' for gradient, then rounded again to 5200'. Without the first rounding, and then adding the 40' for gradient, I come up with 5063' which rounds to 5100'. So the justified length would be 5100'.

I went back to the first message you sent me (not the status update email) when I did the review, so I did not look at the taxiway. But, then I responded to the second message, and then I must have missed it, but as you can see below, my email program deletes attachments when replying, can you please resend and I will take a look.

Thank you,

Douglas R. Anderson, P.E.
Airport Planning Engineer - Nebraska
FAA/ACE-611E
901 Locust
Room 335
Kansas City, MO 64106

Ph: 816.329.2624
Fax: 816.329.2611
email: doug.anderson@faa.gov

Central Region Website:
http://www.faa.gov/airports/central/

-----Original Message-----
From: Nick Gordon <ngordon@kirkham.com
To: Doug Anderson/ACE/FAA@
Cc: "Lannin, Anna" <anna.lannin@nebraska.gov>, Eric Johnson <ejohnson@kirkham.com>, Steve Irons <sirons@kirkham.com
Date: Friday, December 10, 2010 09:54
Subject: RE: EAR Master Plan Status Update

Doug,

Thanks for reviewing the runway length calculations for Runway 13/31 at Kearney Regional Airport in Kearney, Nebraska. I would like to provide clarification in regard to the Wet/Slippery Runway length adjustment. In my runway length calculations (see attached), I had added 40' to the base runway length

based on the Runway Gradient (Section 304 paragraph a in AC 150/5325-4B) to get a total of 5,140'. I then rounded up to the nearest 100' to arrive at the total runway length of 5,200'. Do you agree with the runway length adjustment for the Runway Gradient and with rounding the total runway length to 5,200'?

Also in a previous e-mail (see attached) I had provided justification for additional taxiway width on Taxiway 'A'. Have you had a chance to review this as well?

Please feel free to contact me with any questions.

Thanks,

KIRKHAM MICHAEL

Nick Gordon

402-952-3882 phone
402-255-3850 fax
ngordon@kirkham.com

-----Original Message-----
From: doug.anderson@faa.gov [mailto:doug.anderson@faa.gov]
Sent: Thursday, December 09, 2010 3:21 PM
To: Nick Gordon
Cc: Lannin, Anna; Eric Johnson; Steve Irons
Subject: Re: EAR Master Plan Status Update

Nick,

I have reviewed your runway length calculations. Based on my calculations, the crosswind runway at EAR would be justified for a length of 5100'. This differs from your determination of 5200' due to you adding an adjustment for wet pavement which is not allowed for a turbo-prop powered aircraft. This is explained in paragraph, 304.b of AC 150/5325-4B.

Thank you,

Douglas R. Anderson, P.E.
Airport Planning Engineer - Nebraska
FAA/ACE-611E
901 Locust
Room 335
Kansas City, MO 64106

Ph: 816.329.2624
Fax: 816.329.2611

Kearney Regional Airport
Runway 13/31 Length FAA Approval

email: doug.anderson@faa.gov

Central Region Website:
http://www.faa.gov/airports/central/

_____

-----Original Message-----
From: "Nicholas Gordon" <ngordon@kirkham.com>
To: Doug Anderson/ACE/FAA@FAA, "Lannin, Anna" <anna.lannin@nebraska.gov>
Cc: "Irons, Steve" <sirons@kirkham.com>, "Johnson, Eric" <ewj@kirkham.com>
Date: Friday, September 17, 2010 04:42 PM
Subject: EAR Master Plan Status Update

Doug/Anna,

I am providing you with a status update on the Kearney Regional Airport Master Plan project since I will be out of the office the following two weeks on vacation (Sept 20 - Oct 1).

The Runway 13/31 length justification was submitted to FAA 9/15/2010 (e-mail attached) per our meeting with FAA on August 26th, 2010. From the results of the meeting, the runway length needs to be approved before the Runway Safety Improvements project can begin.

We have a few outstanding comments from Anna to complete before we are ready to re-submit the narrative and the ALP drawings. One of the outstanding issues (and mentioned during the August 26th FAA meeting) is the FAA approval of taxiway width for Taxiway 'A' of 40 feet (see attached files - this information will be included in revised narrative report).

I plan to work on the revisions on the EAR Master Plan once I am back from vacation (October 4) and re-submit the narrative and ALP plans by October 15 with all of the NDA comments addressed (except for the Runway 13/31 improvements). If we do not receive FAA comments on the proposed Taxiway 40' width by October 8, we will submit the drawings with the current 35'width and would revise the drawings at a later time.

Thanks,

Nicholas Gordon
402-952-3882

(Embedded image moved to file: pic22619.gif)

_____

-----Original Message-----
From: "Nicholas Gordon" <ngordon@kirkham.com>
To: "Doug Anderson" <doug.anderson@faa.gov>

Kearney Regional Airport
Runway 13/31 Length FAA Approval

Cc: "Johnson, Eric" <ewj@kirkham.com>
Date: Wednesday, September 1, 2010 4:00 PM
Subject: EAR Rwy 13/31 Length Justification

Doug,

As discussed in our meeting last week, I am providing you with runway length calculations and justification for the crosswind runway (13/31) at Kearney Regional Airport. I have attached a PDF with all of the information I used to determine the runway length. Utilizing the methodology in FAA AC 150/5325-4B and the information on the attached PDF file, I calculated a length of approximately 5,200' for the crosswind runway.

The following summarizes the justification:

The runway length calculations were based on the Beechcraft 1900D aircraft because this is what the airlines is currently utilizing at EAR. Currently, if the airlines is unable to land at EAR due to unfavorable conditions on the main runway, they must land at Grand Island Regional Airport. With the crosswind at the recommended length of 5,200', EAR would be able to accommodate the airlines during periods of high cross winds on the main runway (18/36) and periods when the main runway is closed for construction. The runway is proposed to be designed at B-II standards, which is consistent with the Beechcraft 1900D aircraft.

As we have already discussed, we need to finalize the proposed length of Rwy 13/31 before we can begin the additional study for the shift/relocation of the runway as part of the current Master Plan update project. We are working on finalizing comments received from NDA on the ALP narrative and drawings, and will submit the revised documents to you once the revisions are complete.

Please let me know if you have any questions or comments.

Thanks,

Nicholas Gordon
402-952-3882

[attachment "Rwy 13-31 Length Calcs-Data.pdf" deleted by Doug Anderson/ACE/FAA] [attachment "Taxiway Width Justification.pdf" deleted by Doug Anderson/ACE/FAA] [attachment "Taxiway Width Calcs.pdf" deleted by Doug Anderson/ACE/FAA] (Embedded image moved to file: pic23971.gif) [attachment "Rwy 13-31 Length Calcs-Data.pdf" deleted by Doug Anderson/ACE/FAA]
----- Message from Nick Gordon <IMCEAEX-_O=KIRKHAM+20MICHAEL_OU=EXCHANGE +20ADMINISTRATIVE+20GROUP+20+28FYDIBOHF23SPDLT+29_CN=RECIPIENTS_CN=NICK +20GORDON@kirkham.com> on Fri, 17 Sep 2010 21:42:02 +0000

Kearney Regional Airport Master Plan Update

KM-1109236

Taxiway Width Calculations

AIP 3-31-0045-26

Aircraft Make and Model:	Embraer Brasilia EMB200
Main Gear Track (ft):	22
Undercarriage Width (Ft.):	25.3
Taxiway Edge Safety Margin:	7.5

Taxiway Width	
Minimum Taxiway Width = Undercarriage width + 2(taxiway edge safewty margin)	
	Min. Width = 40.3

Aircraft Make and Model:	Gulfstream GV
Main Gear Track (ft):	16.174
Undercarriage Width (Ft.):	18.6001
Taxiway Edge Safety Margin:	10

Taxiway Width	
Minimum Taxiway Width = Undercarriage width + 2(taxiway edge safewty margin)	
	Min. Width = 38.6

Aircraft Make and Model:	Boeing 737-200
Main Gear Track (ft):	17.166
Undercarriage Width (Ft.):	19.7409
Taxiway Edge Safety Margin:	10

Taxiway Width	
Minimum Taxiway Width = Undercarriage width + 2(taxiway edge safewty margin)	
	Min. Width = 39.7

Kearney Regional Airport
Taxiway A Width FAA Approval

From: doug.anderson@faa.gov [mailto:doug.anderson@faa.gov]
Sent: Wednesday, May 18, 2011 10:48 AM
To: Nick Gordon
Subject: RE: EAR Master Plan Status Update

I don't see that I have ever replied to this. I concur with the 40' taxiway width.

Thank you,

Douglas R. Anderson, P.E.
Airport Planning Engineer - Nebraska
FAA/ACE-611E
901 Locust
Room 335
Kansas City, MO 64106

Ph: 816.329.2624
Fax: 816.329.2611
email: doug.anderson@faa.gov

Central Region Website:
http://www.faa.gov/airports/central/

From Nick Gordon <ngordon@kirkham.com>
To: Doug Anderson/ACE/FAA@FAA
Cc: "Lannin, Anna" <anna.lannin@nebraska.gov>, Eric Johnson <ejohnson@kirkham.com>, Steve Irons <sirons@kirkham.com>
Date: Friday, December 10, 2010 02:06 PM
Subject: RE: EAR Master Plan Status Update

Doug,

I have attached the calculations and justification for a 40 feet width for Taxiway 'A' at Kearney Regional Airport in Kearney, Nebraska for your review and approval. We will update the ALP accordingly based on your recommendations. Please let me know if you have any questions.

Thanks,

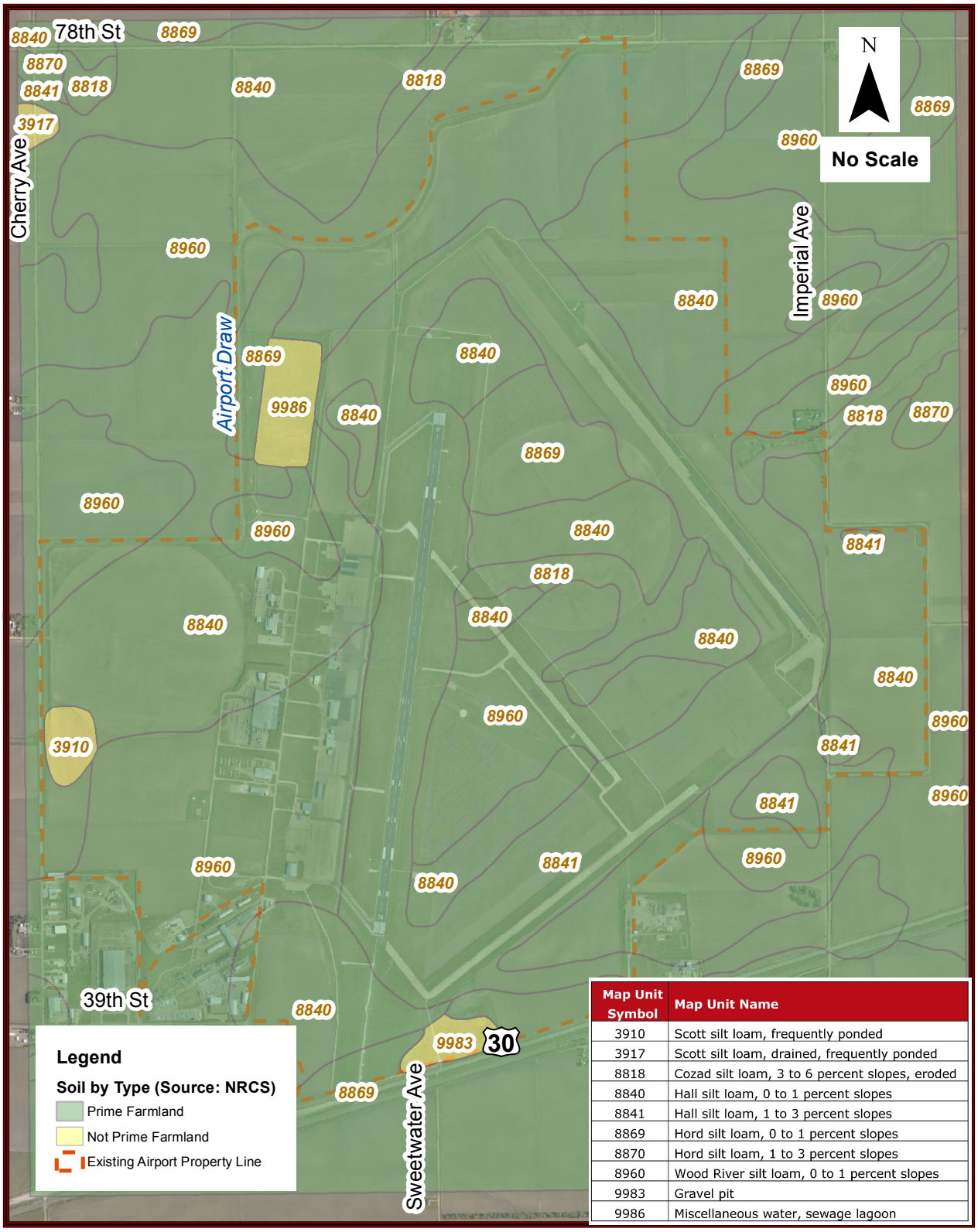
KIRKHAM MICHAEL

Nick Gordon

402-952-3882 phone
402-255-3850 fax
ngordon@kirkham.com

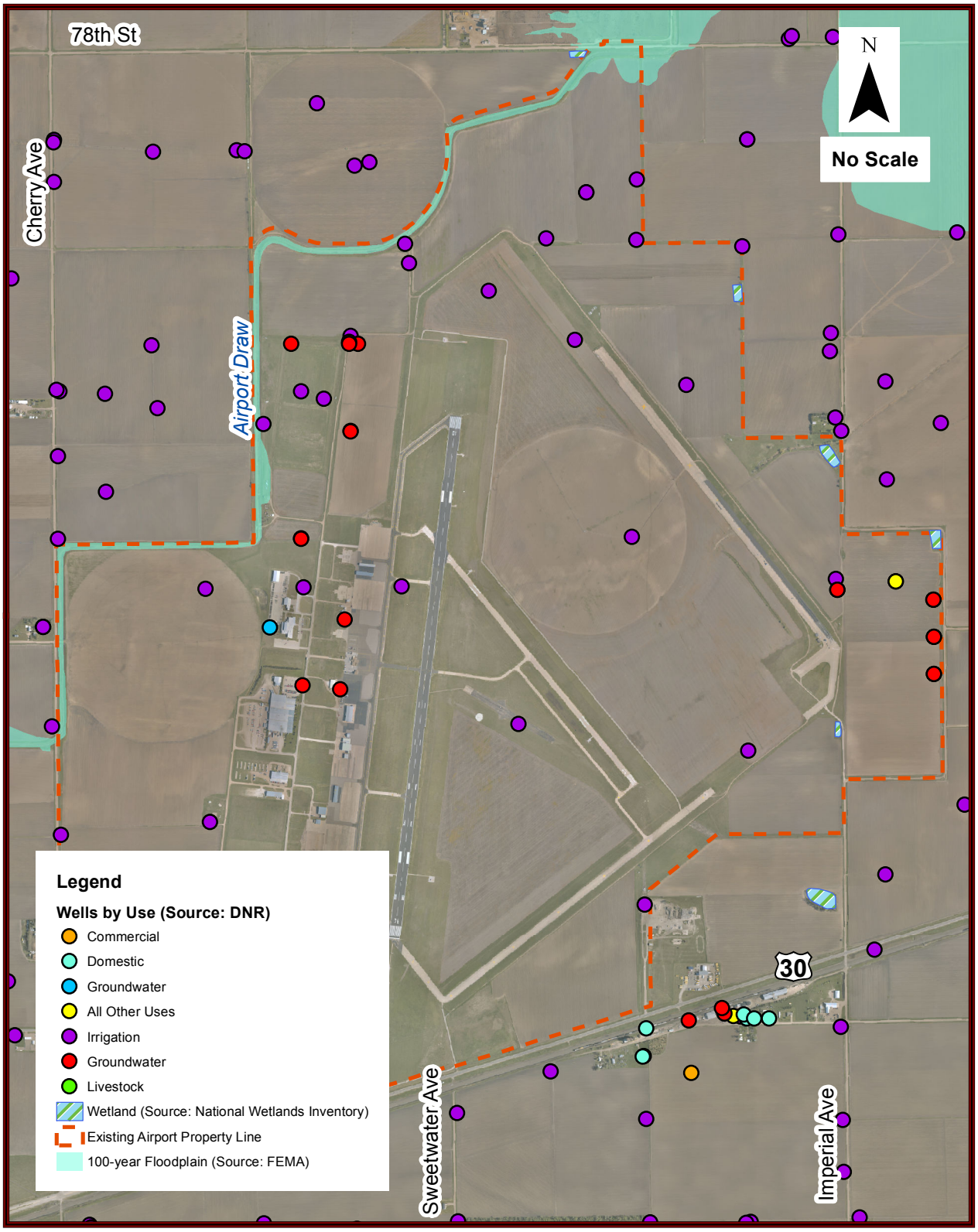
Appendix F

Environmental Resource Data



Map Unit Symbol	Map Unit Name
3910	Scott silt loam, frequently ponded
3917	Scott silt loam, drained, frequently ponded
8818	Cozad silt loam, 3 to 6 percent slopes, eroded
8840	Hall silt loam, 0 to 1 percent slopes
8841	Hall silt loam, 1 to 3 percent slopes
8869	Hord silt loam, 0 to 1 percent slopes
8870	Hord silt loam, 1 to 3 percent slopes
8960	Wood River silt loam, 0 to 1 percent slopes
9983	Gravel pit
9986	Miscellaneous water, sewage lagoon

Soil and Farmland Type in Vicinity of Airport



Floodplain, Wetlands, and Wells in Vicinity of Airport

NDEQ Program Selected Facility Report

Facility Record #1

FACILITY DATA:

Facility ID: 2452 **Status:** Closed

Facility Name/Location: **County:** Buffalo

Buffalo Air Services Inc
5735 Airport Rd
Kearney, NE 68847-9778

Directions: N Side Hwy 30, 2 Mi NE of Kearney

MAPPING COORDINATES:

Latitude: 40.735532 **Longitude:** 99.016989 **Datum:** 83 **Source:** LEGAL

Coordinate Description: Section Centroid

NDEQ PROGRAMS:

Acronyms:	Program Description:	Program ID:	Program Status:
TL3	SARA Title III	00010 00113	Active
LST	Leaking Storage Tanks	121489-99-0001	Inactive

Facility Record #2

FACILITY DATA:

Facility ID: 2763 **Status:** Operating

Facility Name/Location: **County:** Buffalo

Air Midway
4985 Airport Rd
Kearney, NE 68847-3772

Directions: 1.5 Mi E on Hwy 30, 1 Mi N on Airport Rd, W side

MAPPING COORDINATES:

Latitude: 40.725652 **Longitude:** 99.012651 **Datum:** 83 **Source:**

GPS-DIF

Coordinate Description: 15 ft west of NW corner of Bldg.

NDEQ PROGRAMS:

Acronyms:	Program Description:	Program ID:	Program Status:
LST	Leaking Storage Tanks	021199-99-0020	Inactive
LST	Leaking Storage Tanks	122298-CT-0921	Inactive
LST	Leaking Storage Tanks	122298-CT-1625	Inactive
LST	Leaking Storage Tanks	122298-CT-0923	Inactive
LST	Leaking Storage Tanks	AP3374	Inactive
PRR	Petroleum Release Remediation	122298-CT-0923	Inactive
PRR	Petroleum Release Remediation	122298-CT-0923 5449	Inactive
PRR	Petroleum Release Remediation	122298-CT-1625	Active
PRR	Petroleum Release Remediation	122298-CT-0921	Inactive
IWM	Integrated Waste Management	021199-99-0020	Inactive

Facility Record #3

FACILITY DATA:

Facility ID: 57500 **Status:** Operating

Facility Name/Location: **County:** Buffalo

Kearney Municipal Airport
5139 Airport Rd
Kearney, NE 68847-3750

Directions: 4 Mi East Northeast, N of Hwy 30, E of Cherry Rd

MAPPING COORDINATES:

Latitude: 40.727340 **Longitude:** 99.012438 **Datum:** 83 **Source:** GPS-DIF

Coordinate Description: 15 yards W of passenger terminal

NDEQ PROGRAMS:

Acronyms:	Program Description:	Program ID:	Program Status:

LST	Leaking Storage Tanks	10068-DDB-1530	Inactive
PCS	NPDES Permits and Compliance	NE0112844	Inactive
PCS	NPDES Permits and Compliance	NER000233	Active
LST	Leaking Storage Tanks	032693-FB-1200	Inactive
RCR	Resource Conservation Recovery	NEP000000289	Inactive
SF	Superfund	NEN000703226	Active
PCS	NPDES Permits and Compliance	NER112585	Inactive

Appendix G

Detailed CIP Cost Estimates

New ARFF Station (Eligible 2-Bays) (2013)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	Site Preparation and Mobilization	1	LS	$ 90,000.00	$ 90,000.00
2	Construction Staking	1	LS	$ 10,000.00	$ 10,000.00
3	Temporary Airport Fence (move Const. Site Outside Perimeter Security Fence)	1	LS	$ 7,000.00	$ 7,000.00
4	Remove Airport Security Fence	250	LF	$ 12.00	$ 3,000.00
5	Saw Pavement	650	LF	$ 8.00	$ 5,200.00
6	Pavement Removal, Approximately 9-11" Thick	5,500	SY	$ 7.50	$ 41,250.00
7	Earthwork	1	LS	22,500.00	$ 22,500.00
8	Electrical Service (including Duct, Cable)	1	LS	25,000.00	$ 25,000.00
9	Water Service	1	LS	20,000.00	$ 20,000.00
10	AARF Facility (2 Bays)	5,000.0	SF	275.00	$ 1,375,000.00
11	8" Thick PCC pavement (Access Road)	1,900.0	SY	45.00	$ 85,500.00
12	6" Thick PCC Pavement (POV Parking Lot)	600	SY	38.00	$ 22,800.00
13	Concrete Sidewalk (5" Thick)	600	SF	7.00	$ 4,200.00
14	Airport Security Fence (8' Tall Chain Link with 3-Strand Barbed Wire)	200	LF	30.00	$ 6,000.00
15	Automatic Fence Gate	1	LS	15,000.00	$ 15,000.00
16	Pavement Marking	1	LS	2,000.00	$ 2,000.00
	Sub Total				$ 1,734,450.00
	Engineering, Testing, Admin.				$ 360,394.00
				TOTAL COST ESTIMATE	**$ 2,094,844.00**

Date of Cost Estimate : March 27, 2012

Apron/Approach Rehabilitation for Storage Hangar (2013)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	Site Preparation and Mobilization	1	LS	$ 35,000.00	$ 35,000.00
2	Safety Measures	1	LS	$ 3,000.00	$ 3,000.00
3	Construction Staking	1	LS	$ 7,500.00	$ 7,500.00
4	Tie Downs	20	EA	$ 500.00	$ 10,000.00
5	14" Asphalt Overlay/Pavement/Sand Base Removal (Apron Rehabilitation)	8,925	SY	$ 8.00	$ 71,400.00
6	4" Perforated Subdrain Pipe	800	LF	$ 20.00	$ 16,000.00
7	Storm Sewer Pipe	700	LF	50.00	$ 35,000.00
8	Drainage Structures (MHs, Inlets, Etc.)	5	EA	1,500.00	$ 7,500.00
9	Subgrade Preparation	1	LS	12,500.00	$ 12,500.00
10	Borrow	1,000.0	CY	10.00	$ 10,000.00
11	Non-Woven Goetextile Fabric (Apron Rehabilitation)	6,865.0	SY	5.00	$ 34,325.00
12	4" P-209 Crushed Aggregate "Drainable" Base Course (Apron Rehabilitation)	6,865	SY	12.00	$ 82,380.00
13	9" P-501 P.C. Concrete Pavement (Apron Rehabilitation)	6,865	SY	45.00	$ 308,925.00
14	6" NDOR P.C. Concrete Pavement	2,060	SY	35.00	$ 72,100.00
15	Painting	1	LS	5,000.00	$ 5,000.00
16	Fence & Gate Relocation	1	LS	15,000.00	$ 15,000.00
	Sub Total				$ 725,630.00
	Engineering, Testing, Admin.				$ 113,844.50
				TOTAL COST ESTIMATE	**$ 839,474.50**

Date of Cost Estimate : May 31, 2012

Parking and Vehicle Traffic Area Pavement Rehabilitation (2013)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	Site Preparation & Mobilization	1	LS	$ 25,000.00	$ 25,000.00
2	Safety Measures	1	LS	$ 2,000.00	$ 2,000.00
3	Construction Staking	1	LS	$ 7,500.00	$ 7,500.00
4	14" Asphalt Overlay/Pavement/Sand Base Removal (Swale)	4,200	SY	$ 8.00	$ 33,600.00
5	Storm Sewer Pipe	300	LF	50.00	$ 15,000.00
6	Borrow	1,750	CY	10.00	$ 17,500.00
7	Subgrade Preparation	1	LS	10,000.00	$ 10,000.00
8	Drainage Structures (MHs, Inlets, Etc.)	3.0	EA	1,500.00	$ 4,500.00
9	6" NDOR P.C. Concrete Pavement	4,200	SY	35.00	$ 147,000.00
10	Painting	1	LS	5,000.00	$ 5,000.00
	Sub Total				$ 267,100.00
	Engineering, Testing, Admin.				$ 42,565.00
				TOTAL COST ESTIMATE	**$ 309,665.00**

Date of Cost Estimate : May 31, 2012

New ARFF Station (Non-Eligible Additional 1-Bay) (2013)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	ARFF Facility Bay (1-Bay)	1,200	SF	$ 225.00	$ 270,000.00
2	Pavement Removal	500	SY	$ 7.50	$ 3,750.00
3	Earthwork	1	LS	$ 2,500.00	$ 2,500.00
4	8" Thick PCC Pavement (Access Road)	600	SY	$ 45.00	$ 27,000.00
5	Airport Security Fence (8' Tall Chain Link with 3-Strand Barbed Wire)	150	LF	$ 30.00	$ 4,500.00
	Sub Total				$ 307,750.00
	Engineering, Testing, Admin.				$ 48,046.00
				TOTAL COST ESTIMATE	**$ 355,796.00**

Date of Cost Estimate : March 27, 2012

Construct Storage Hangar (150' x 160') (2013)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	Mobilization	1	LS	$ 48,750.00	$ 48,750.00
2	Site Preparation	1	LS	$ 18,750.00	$ 18,750.00
3	Clearing and Grubbing	1.0	AC	$ 1,200.00	$ 1,200.00
4	Embankment (Established Quantity)	1,350	CY	$ 20.00	$ 27,000.00
5	Over-Excavation	175	CY	$ 30.00	$ 5,250.00
6	Remove Asphalt	160	SY	$ 20.00	$ 3,200.00
7	Remove Fence	200	LF	$ 2.50	$ 500.00
8	Corporate Hangar, Complete	24,000	SF	$ 47.00	$ 1,128,000.00
9	12-inch Subgrade Preparation	500	SY	$ 15.00	$ 7,500.00
10	8-inch PCC	500	SY	$ 47.00	$ 23,500.00
11	6-foot Fence	200	LF	$ 30.00	$ 6,000.00
12	Seeding	1.0	AC	$ 4,000.00	$ 4,000.00
13	Mulch	0.5	AC	$ 2,000.00	$ 1,000.00
14	Silt Fence	300	LF	$ 7.00	$ 2,100.00
	Sub Total				$ 1,276,750.00
	Engineering, Testing, Admin.				$ 313,250.00
				TOTAL COST ESTIMATE	**$ 1,590,000.00**

Date of Cost Estimate : June, 2012

Replace Existing 7-Place T-Hangar (2016)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	Mobilization	1	LS	$ 20,000.00	$ 20,000.00
2	Site Preparation	1	LS	$ 6,500.00	$ 6,500.00
3	Over-Excavation	50	CY	$ 50.00	$ 2,500.00
4	Remove Concrete	1,600	SY	$ 8.50	$ 13,600.00
5	Remove Existing T-Hangar, Complete	1	LS	$ 12,500.00	$ 12,500.00
6	7-Place T-Hangar, Complete	8,320	SF	$ 65.00	$ 540,800.00
7	12-inch Subgrade Preparation	650	SY	$ 15.00	$ 9,750.00
8	8-inch PCC	650	SY	$ 47.00	$ 30,550.00
	Sub Total				$ 636,200.00
	Engineering, Testing, Admin.				$ 163,800.00
				TOTAL COST ESTIMATE	**$ 800,000.00**

Date of Cost Estimate : June, 2012

Replace Existing 10-Place T-Hangar (2017)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	Mobilization	1	LS	$ 30,000.00	$ 30,000.00
2	Site Preparation	1	LS	$ 10,000.00	$ 10,000.00
3	Over-Excavation	75	CY	$ 50.00	$ 3,750.00
4	Remove Concrete	2,100	SY	$ 8.50	$ 17,850.00
5	Remove Existing T-Hangar, Complete	1	LS	$ 17,500.00	$ 17,500.00
6	10-Place T-Hangar, Complete	12,060	SF	$ 65.00	$ 783,900.00
7	12-inch Subgrade Preparation	750	SY	$ 15.00	$ 11,250.00
8	8-inch PCC	750	SY	$ 47.00	$ 35,250.00
	Sub Total				$ 909,500.00
	Engineering, Testing, Admin.				$ 230,500.00
				TOTAL COST ESTIMATE	**$ 1,140,000.00**

Shift/Extension Rwy 13/31 (2018)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	Mobilization	1	LS	200,000.00	$ 200,000.00
2	Site Preparation	1	LS	100,000.00	$ 100,000.00
3	Remove Existing Concrete Pavement	17,000	SY	11.00	$ 187,000.00
4	Cold Mill Asphalt	14,000	SY	6.00	$ 84,000.00
5	Remove Rock/Gravel Surfacing	2,300	SY	15.00	$ 34,500.00
6	Remove Pavement Markings	25,000	SF	1.00	$ 25,000.00
7	Remove Fence	1,670	LF	2.50	$ 4,175.00
8	Remove and Salvage Existing Taxiway Ligh	75	EA	250.00	$ 18,750.00
9	Remove and Salvage Existing Threshold Light	16	EA	250.00	$ 4,000.00
10	Remove and Salvage Existing Runway Light	7	EA	250.00	$ 1,750.00
11	Remove and Salvage Runway/Taxiway Signs	8	EA	400.00	$ 3,200.00
12	Remove and Salvage Windcone	1	EA	500.00	$ 500.00
13	Remove and Salvage PAPI	2	EA	750.00	$ 1,500.00
14	Clearing and Grubbing	5	AC	1,000.00	$ 5,000.00
15	Embankment (Established Quantity)	37,500	CY	6.50	$ 243,750.00
16	Over Excavation	27,500	CY	12.00	$ 330,000.00
17	12-inch Compacted Subgrade	23,000	SY	3.00	$ 69,000.00
18	6-inch Asphalt Millings / Crushed PCC Base	23,000	SY	4.50	$ 103,500.00
19	Smoothness Test	1	LS	20,000.00	$ 20,000.00
20	7-inch P.C.C. (P-501 Concrete Mix)	23,000	SY	45.00	$ 1,035,000.00
21	Pavement Markings (White)	28,500	SF	1.00	$ 28,500.00
22	Pavement Markings (Yellow)	3,000	SF	1.25	$ 3,750.00
23	Pavement Marking (Black Outline)	9,500	SF	1.00	$ 9,500.00
24	Surface Painted Hold Position Signs	200	SF	2.00	$ 400.00
25	L-849 Style 'E' REIL	2	EA	15,000.00	$ 30,000.00
26	Install Salvaged PAPI Unit	2	EA	2,500.00	$ 5,000.00
27	Threshold Lights - Base Mount	16	EA	635.00	$ 10,160.00
28	M.I.R.L. Runway Lights - Base Mount	14	EA	635.00	$ 8,890.00
29	M.I.T.L. Taxiway Lights - Base Mount	72	EA	635.00	$ 45,720.00
30	Retro-Reflective Signs	6	EA	1,750.00	$ 10,500.00
31	Supplemental Windcone	1	EA	5,000.00	$ 5,000.00
32	Conduit 2" PVC Schedule 40	8,700	LF	2.50	$ 21,750.00
33	Conduit 2" PVC Schedule 80	350	LF	4.50	$ 1,575.00
34	Directional Boring	350	LF	25.00	$ 8,750.00
35	In-Ground Electrical Box	24	EA	400.00	$ 9,600.00
36	Ground Rods	125	EA	35.00	$ 4,375.00
37	#8 5kV Cable	9,100	LF	1.50	$ 13,650.00
38	#8 Counterpoise Wire	9,100	LF	2.00	$ 18,200.00
39	Electrical Vault Work	1	LS	10,000.00	$ 10,000.00
40	Fence (Class 'B')	3,000	LF	4.25	$ 12,750.00
41	Access Gate	3	EA	1,250.00	$ 3,750.00
42	4" Underdrain Pipe, Complete	11,200	LF	15.00	$ 168,000.00
43	Underdrain Headwall, Complete	2	EA	400.00	$ 800.00
44	Gravel Surfacing	350	CY	40.00	$ 14,000.00
45	Gravel Embedment	2,500	SY	6.00	$ 15,000.00
46	Seeding	5	AC	1,500.00	$ 7,500.00
47	Mulching	5	AC	600.00	$ 3,000.00
48	Erosion Control, Class 1C	45,000	SY	3.00	$ 135,000.00
49	Silt Fence	15,000	LF	5.50	$ 82,500.00
	Sub Total				$ 3,158,245.00
	Engineering, Testing, Admin.				$ 790,000.00
				TOTAL COST ESTIMATE	**$ 3,948,245.00**

Date of Cost Estimate : September 2012

Reconstruct Pavement on Runway 18/36 and Taxiway 'A' (2020)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	Mobilization	1	LS	$ 350,000.00	$ 350,000.00
2	Site Preparation	1	LS	$ 60,000.00	$ 60,000.00
3	Clearing and Grubbing	13	AC	$ 800.00	$ 10,400.00
4	Remove Asphalt	57,475	SY	$ 5.00	$ 287,375.00
5	Remove Concrete	137,400	SY	$ 6.00	$ 824,400.00
6	Remove Existing Taxiway Light	47	EA	$ 325.00	$ 15,275.00
7	Embankment, Established Quantity	10,300	CY	$ 8.00	$ 82,400.00
8	Over-Excavation	5,200	CY	$ 12.00	$ 62,400.00
9	Subgrade Preparation	155,666	SY	$ 1.50	$ 233,499.00
10	4-inch Rock Base	155,666	SY	$ 3.50	$ 544,831.00
11	8-inch PCC	155,666	SY	$ 37.00	$ 5,759,642.00
12	4-inch Underdrain	22,500	LF	$ 9.00	$ 202,500.00
13	Pavement Markings	142,150	SF	$ 0.75	$ 106,612.50
14	Black Outline	78,200	SF	$ 0.50	$ 39,100.00
15	Seeding	15	AC	$ 600.00	$ 9,000.00
16	Mulching	15	AC	$ 300.00	$ 4,500.00
17	Silt Fence	4,800	LF	$ 4.00	$ 19,200.00
18	Conduit 2" PVC Schedule, 80	100	LF	$ 4.50	$ 450.00
19	Conduit 2" PVC Schedule, 40	2,400	LF	$ 3.00	$ 7,200.00
20	#8 5kV Cable	2,500	LF	$ 2.00	$ 5,000.00
21	#8 Counterpoise Wire	2,500	LF	$ 2.50	$ 6,250.00
22	M.I.T.L Taxiway Lights - Base Mount	30	EA	$ 625.00	$ 18,750.00
23	Ground Rods	30	EA	$ 50.00	$ 1,500.00
	Sub Total				$ 8,650,284.50
	Engineering, Testing, Admin.				$ 2,199,715.50
				TOTAL COST ESTIMATE	**$ 10,850,000.00**

Date of Cost Estimate : June 2012

Construct Access Road to Proposed Nebraska Highway 10 Bypass (Cherry Avenue) (2022)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	Mobilization	1	LS	$ 80,000.00	$ 80,000.00
2	Site Preparation	1	LS	$ 12,500.00	$ 12,500.00
3	Clearing and Grubbing	12.0	AC	$ 800.00	$ 9,600.00
4	Excavation	6,250	CY	$ 6.00	$ 37,500.00
5	Excavation, Borrow	28,600	CY	$ 11.00	$ 314,600.00
6	12-inch Subgrade Preparation	16,667	SY	$ 2.75	$ 45,834.25
7	9-inch PCC	16,667	SY	$ 47.50	$ 791,682.50
8	24-inch Culvert Pipe	140	LF	$ 45.00	$ 6,300.00
9	4" Yellow Pavement Marking	8,450	LF	$ 0.75	$ 6,337.50
10	Seeding	8.0	AC	$ 800.00	$ 6,400.00
11	Mulch	8.0	AC	$ 400.00	$ 3,200.00
12	Silt Fence	7,800	LF	$ 3.00	$ 23,400.00
	Sub Total				$ 1,337,354.25
	Engineering, Testing, Admin.				$ 334,338.56
				TOTAL COST ESTIMATE	**$ 1,675,000.00**

Date of Cost Estimate : June, 2012

Mill and Overlay Asphalt Apron, Taxiways, and Taxilanes (2025)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	Mobilization	1	LS	$ 55,000.00	$ 55,000.00
2	Site Preparation	1	LS	$ 20,000.00	$ 20,000.00
3	Cold Milling Asphalt	52,300	SY	$ 6.00	$ 313,800.00
4	Taxiway / Apron Markings	50,000	SF	$ 1.00	$ 50,000.00
5	Black Outline Markings	10,000	SF	$ 1.00	$ 10,000.00
6	4-inch Asphalt Surfacing	11,300	TON	$ 47.50	$ 536,750.00
	Sub Total				$ 985,550.00
	Engineering, Testing, Admin.				$ 264,450.00
				TOTAL COST ESTIMATE	**$ 1,250,000.00**

Date of Cost Estimate : June 2012

Rehabilitate Apron (2025)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	Mobilization	1	LS	$ 25,000.00	$ 25,000.00
2	Site Preparation	1	LS	$ 7,500.00	$ 7,500.00
3	Remove Concrete	4,000	SY	$ 7.00	$ 28,000.00
4	Concrete Surface Milling	15,000	SY	$ 4.25	$ 63,750.00
5	12-inch Subgrade Preparation	4,000	SY	$ 3.25	$ 13,000.00
6	6-inch PCC	4,000	SY	$ 27.50	$ 110,000.00
7	4-inch Asphalt Surfacing	3,000	TON	$ 55.00	$ 165,000.00
	Sub Total				$ 412,250.00
	Engineering, Testing, Admin.				$ 105,000.00
				TOTAL COST ESTIMATE	**$ 517,250.00**

Date of Cost Estimate : June 2012

Construct New 10-Place T-Hangar (2025)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	Mobilization	1	LS	$ 30,000.00	$ 30,000.00
2	Site Preparation	1	LS	$ 14,000.00	$ 14,000.00
3	Over-Excavation	150	CY	$ 30.00	$ 4,500.00
4	Remove Concrete	3,850	SY	$ 8.50	$ 32,725.00
5	10-Place T-Hangar, Complete	12,060	SF	$ 65.00	$ 783,900.00
6	12-inch Subgrade Preparation	2,500	SY	$ 3.50	$ 8,750.00
7	8-inch PCC	2,500	SY	$ 42.00	$ 105,000.00
8	Taxilane Markings	250	SF	4.50	$ 1,125.00
9	Black Outline Markings	500	SF	4.25	$ 2,125.00
	Sub Total				$ 982,125.00
	Engineering, Testing, Admin.				$ 245,531.25
				TOTAL COST ESTIMATE	**$ 1,230,000.00**

Date of Cost Estimate : June, 2012

Expand/Remodel Terminal Building (2028)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	Mobilization	1	LS	$ 45,000.00	$ 45,000.00
2	Site Preparation	1	LS	$ 10,000.00	$ 10,000.00
3	Remove Asphalt	333	SY	$ 15.00	$ 4,995.00
4	Terminal Building, Complete	1,980	SF	$ 335.00	$ 663,300.00
5	12-inch Subgrade Preparation	115	SY	$ 15.00	$ 1,725.00
6	8-inch PCC	115	SY	$ 50.00	$ 5,750.00
	Sub Total				$ 730,770.00
	Engineering, Testing, Admin.				$ 184,230.00
				TOTAL COST ESTIMATE	**$ 915,000.00**

Date of Cost Estimate : June, 2012

Joint Seal and Concrete Repair Runway 18/36 and Taxiway 'A' (2030)
Kearney Regional Airport
Kearney, Nebraska

Item No.	Description	Estimated Quantity	Units	Unit Price	Amount
1	Mobilization	1	LS	$ 55,000.00	$ 55,000.00
2	Site Preparation	1	LS	$ 20,000.00	$ 20,000.00
3	Remove Pavement Markings	220,350	SF	$ 0.25	$ 55,087.50
4	Remove Concrete	7,800	SY	$ 6.00	$ 46,800.00
5	Over-Excavation	5,200	CY	$ 12.00	$ 62,400.00
6	Joint Seal Removal and Replacement	206,200	LF	$ 1.50	$ 309,300.00
7	Subgrade Preparation	7,800	SY	$ 3.25	$ 25,350.00
8	4-inch Rock Base	7,800	SY	$ 8.00	$ 62,400.00
9	8-inch PCC	7,800	SY	$ 40.00	$ 312,000.00
10	Pavement Markings	142,150	SF	$ 0.75	$ 106,612.50
11	Black Outline	78,200	SF	$ 0.50	$ 39,100.00
	Sub Total				$ 1,094,050.00
	Engineering, Testing, Admin.				$ 280,950.00
				TOTAL COST ESTIMATE	**$ 1,375,000.00**

Date of Cost Estimate : June 2012

Appendix H

Airport Layout Plans

Kearney Regional Airport (EAR) Airport Layout Plan Updated And Approved By FAA After incorporating The Following Changes:

1. Reconstruction of Taxiways A, C, and Connector Taxiways and
2. Expansion of the Airport Terminal Parking Lot

Approval Provided By Justin Collier (FAA, State Airport Planner) On March 30, 2022