# INVENTORY

The airport layout plan (ALP) update and narrative is intended to provide the airport sponsor (Holdrege Airport Authority), Federal Aviation Administration (FAA), and the Nebraska Department of Transportation (NDOT) with a document that depicts the most current plans, reflects new policies, and delivers a clear concept for future airport improvements that may be needed over the next 20 years at Brewster Field Airport (HDE). This document focuses primarily on the development direction and facility changes that have taken place since the completion and approval of the previous airport master plan. A full FAA Advisory Circular (AC) 5300-18B survey will also be collected in association with the updated ALP and narrative report. This dataset will be conformed to FAA and National Geodetic Survey (NGS) standards and will be usable for obstruction identification and possibly by the FAA for changes or additional instrument approach procedure development. The survey data will be uploaded into the Airport Data Information Portal (ADIP).

Information provided in this section serves as the baseline for the remainder of the report, which is compiled using a wide variety of resources, including: applicable planning documents and financial reports; on-site visits; interviews with airport staff, tenants, and users; aerial and ground photography; federal, state, and local publications; and project record drawings.

The primary purpose of this study process is to guide future development and provide updated justification for projects for which the airport may request funding participation through federal and state airport improvement programs. Coffman Associates, a national airport consulting firm specializing in airport master planning and environmental studies, prepared this plan with input and consultation of the airport sponsor.

The Brewster Field Airport Layout Plan Update and Narrative Report is being prepared in accordance with FAA requirements, including AC 150/5300-13B, *Airport Design*; AC 150/5070-6B, *Airport Master Plans*; FAA ARP Standard Operating Procedure (SOP) 2.00 and 3.00. The following outlines the study background, objectives, elements, and process.

## STUDY PARTICIPATION

The Brewster Field ALP Update and Narrative Report is of interest to many within the local community and region, including local citizens and businesses, community organizations, City of Holdrege and Phelps County officials, airport users and tenants, and aviation organizations. To assist in the development of the study, the city has identified a group of stakeholders to act in an advisory role as the plan progresses. The Holdrege Airport Authority, some members of the City of Holdrege City Council and Phelps County officials, and airport users comprise the study's Planning Advisory Committee as they have a vested interest in the future development of HDE. Members of the Advisory Committee will meet at designated points during the planning process to review draft study materials and provide comments to help ensure a realistic and viable plan is developed. A community outreach program will also be established to allow members of the public to review and comment on the study as it develops.

## *PROCESS*

The Brewster Field ALP Update and Narrative Report is prepared in a systematic fashion pursuant to the scope of services that was coordinated with Holdrege Airport Authority and the FAA. The study includes several elements:

- **Study Initiation** – Development of the scope of services, budget, and schedule.

- **Inventory** – Inventory of facility and operational data and wind data. This step establishes existing airfield facility conditions and capacities and identifies existing environmental conditions at the airport.

- **Forecasts** – Aviation demand levels at the airport (based aircraft and operations) are forecasted to establish the existing and ultimate critical aircraft per FAA AC 150/5000-17. The forecasting approach utilizes the FAA's *Terminal Area Forecast* (TAF), as well as regional and local socioeconomic and aviation trends. The forecasts will ultimately be submitted to FAA for review and approval.

- **Facility Requirements** – Determinations will be made for the airport's facility requirements for existing, short-term, intermediate-term, and long-term timeframes based upon both the critical aircraft and updated forecasts. An Obstacle Action Plan will be developed detailing existing and potential obstructions to applicable approach and departure surfaces.

- **Alternatives** – Evaluation of various development alternatives to accommodate current and forecasted facility needs for airside and landside facilities.

- **Airport Layout Plan Drawings** – Coordination with the advisory committee will result in the selection of a recommended development concept. Airport layout plans will be developed to depict the recommended development concept. The drawings will meet the requirements of FAA's Standard Operating Procedure (SOP), *Standard Procedure for FAA Review and Approval of Airport Layout Plans (ALPs)*, effective date October 1, 2013. The updated ALP set will be included as an appendix to this study. An environmental overview will identify any potential environmental concerns that must be addressed prior to the implementation of the recommended development program. A recycling plan will also be included.

- **Airport Development Schedules and Cost Estimates** – Development schedules will be prepared for the recommended concept, and potential federal and state aid for specific projects will be identified. A five-year Capital Improvement Program (CIP) will be prepared to identify capital funds required by the city/county to accomplish each proposed stage of improvements for the airport.

- **Final Drawings and Reports** – Final report documentation will include a technical report (printed and digital formats) and full-size/full-color copies of report exhibits, and drawings produced for the study.

## *SWOT ANALYSIS*

A SWOT analysis is a strategic business planning technique used to identify **S**trengths, **W**eaknesses, **O**pportunities, and **T**hreats associated with an action or plan. This exercise involves identifying an action, objective, or element, and then identifying the internal and external forces that are positively and negatively impacting it. The internal forces include attributes of the airport and market area that may be considered strengths or weaknesses, while the external forces are those outside the airport's control, such as the aviation industry as a whole or the economy. These manifest as opportunities or threats.

A SWOT analysis was conducted with the Advisory Committee in June 2022. A summary of this exercise and discussion is included below.

| | | |
|---|---|---|
| **S**<br>STRENGTHS | • Dedicated and Proactive Board Members<br>• Community Support<br>• Close proximity to Highway 6/34<br>• Strong population base<br>• Ample developable property<br>• Airport is in the NPIAS | • 4,701' runway can accommodate jets/large aircraft<br>• On-site weather reporting equipment (AWOS)<br>• Generates revenue to fund projects<br>• Critical medical site<br>• Significant amount of aerial spray operations and two based operators |
| **W**<br>WEAKNESSES | • Limited aircraft storage capacity (hangars)<br>• Not enough ground support to meet operations | • Runway needs to be repaved<br>• Upgrades to airport facilities |
| **O**<br>OPPORTUNITIES | • Room for improvement in community communication<br>• Community outreach to establish better awareness<br>• Flight training<br>• Has a strong economic Impact | • Demand of private development on the airfield<br>• Land can be leased or sold for potential business development<br>• Steady growth rate in the level of operations and based aircraft count<br>• Provide hotel transportation<br>• Interest in the near term from significant industrial company (Rogers & Dickinson) |
| **T**<br>THREATS | • Challenge to acquire needed land | • Fuel cost is at an all-time high<br>• Difficult to secure a funding stream |

ALS: Approach Lighting System
AWOS: Automated Weather Observation System
CBP: U.S. Customs and Border Protection
FBO: Fixed Base Operator
NPIAS: National Plan of Integrated Airport Systems
RVR: Runway Visual Range
TAF: Terminal Aerodrome Forecast

## AIRPORT BACKGROUND

*Airport Entry Signage*

Brewster Field Airport (HDE) is situated approximately two miles northeast of the City of Holdrege, in Phelps County, Nebraska. Located near the geographic midpoint of the county, Holdrege is served by U.S. Highway 6/34, which runs east/west, and U.S. Highway 183, which runs north/south through the city. As the county seat, Holdrege had an estimated population of 5,491 in 2021, while Phelps County recorded an estimated population of 8,937 residents.[1] Today, the airport encompasses approximately 413 acres of land at an elevation of 2,313 feet above mean sea level (MSL). The location of the airport is illustrated in its localized environment on **Exhibit 1**. Brewster Field Airport is known for its agricultural activity and travel by medical professionals providing essential services to the City of Holdrege. The area is home to two significant manufacturers, Becton Dickinson (BD), an international manufacturer and marketer of medical equipment and suppliers, and Allmand Brothers, a worldwide exporter of construction equipment. Holdrege also experiences significant economic impact from healthcare, agriculture and related industries, professional services, and retail.

In addition to notable manufacturers and agricultural activities, HDE has cultural attractions including The Tassel, a state of the art performing art center, and the Nebraska Prairie Museum, which draws visitors from Lincoln and Denver, as well as from across the United States. Recreational activities include the North and South Parks, which are known for their hiking trails and exceptional bird watching sites.

Holdrege Aviation, an FBO providing fuel and aircraft maintenance at the airport, oversees the day-to-day activities at HDE, while the Holdrege Airport Authority has the oversight of the airport property and facilities.

## CLIMATE

Climate plays an important role in airport planning, and preparing for weather conditions enhances the use of an airport. For example, high temperatures and humidity can increase runway length requirements for some aircraft, predominant winds dictate primary runway orientation, and cloud cover percentages and frequency of inclement weather determine the need for navigational aids and lighting. Knowledge of these weather conditions during the planning process allows the airport to prepare for any improvements that may be needed on the airfield.

[1] U.S. Census Bureau, 2021 Decennial Census

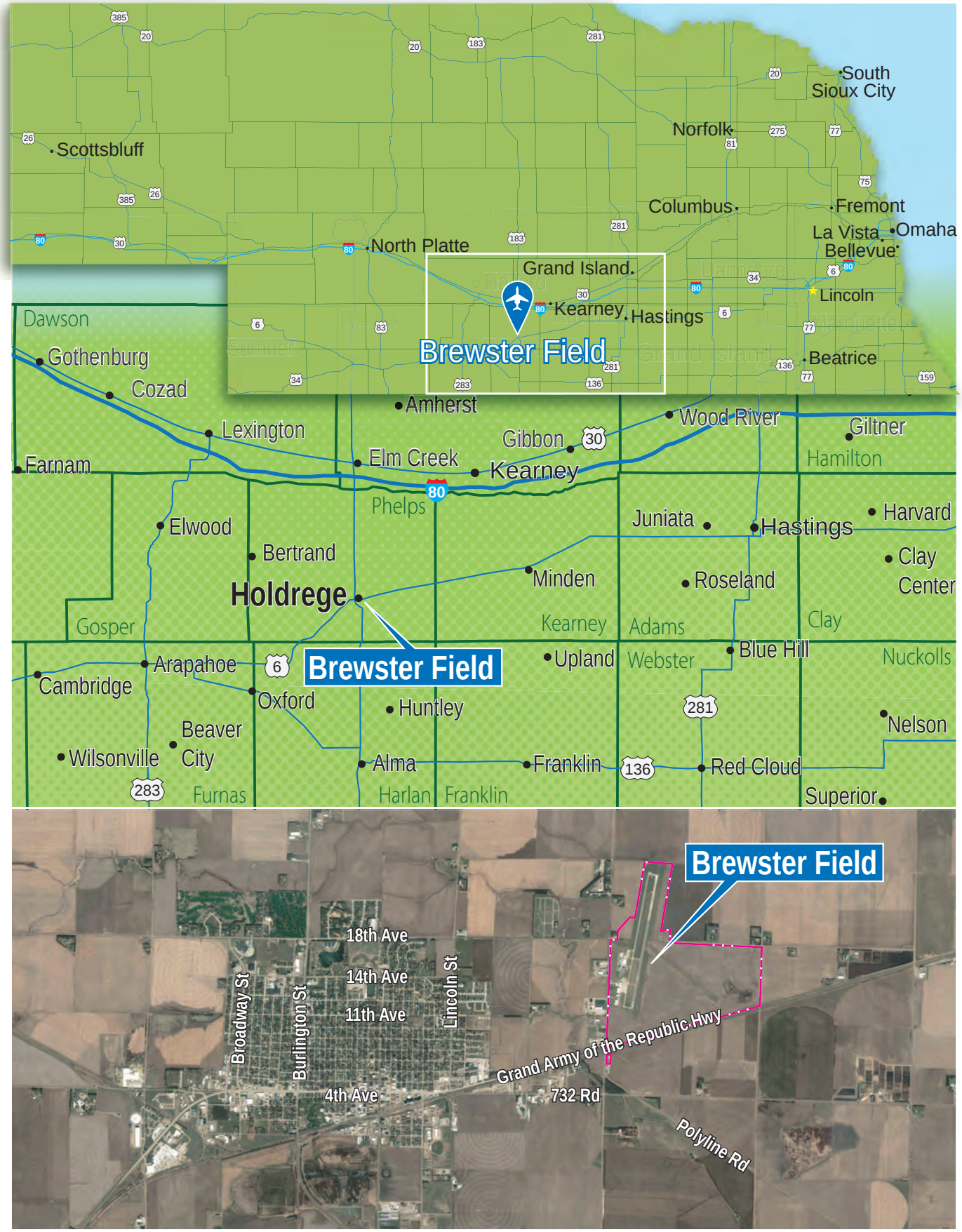



Exhibit 1
LOCATION/VICINITY MAP

The chart in **Figure 1** summarizes temperature data sourced from the National Oceanic and Atmospheric Administration (NOAA) weather station in Holdrege, Nebraska. The data shown represents total weather observations between 1991 and 2020. The hottest month is July, with a mean maximum high temperature of 87.3 degrees Fahrenheit (°F), while January is the coldest month with minimum average temperature of 13.2 degrees (°F). Precipitation is most abundant during the month of May, which receives an average of 4.42 inches of rain. During the winter months, the most snowfall recorded is in February with an average of 7.0 inches.

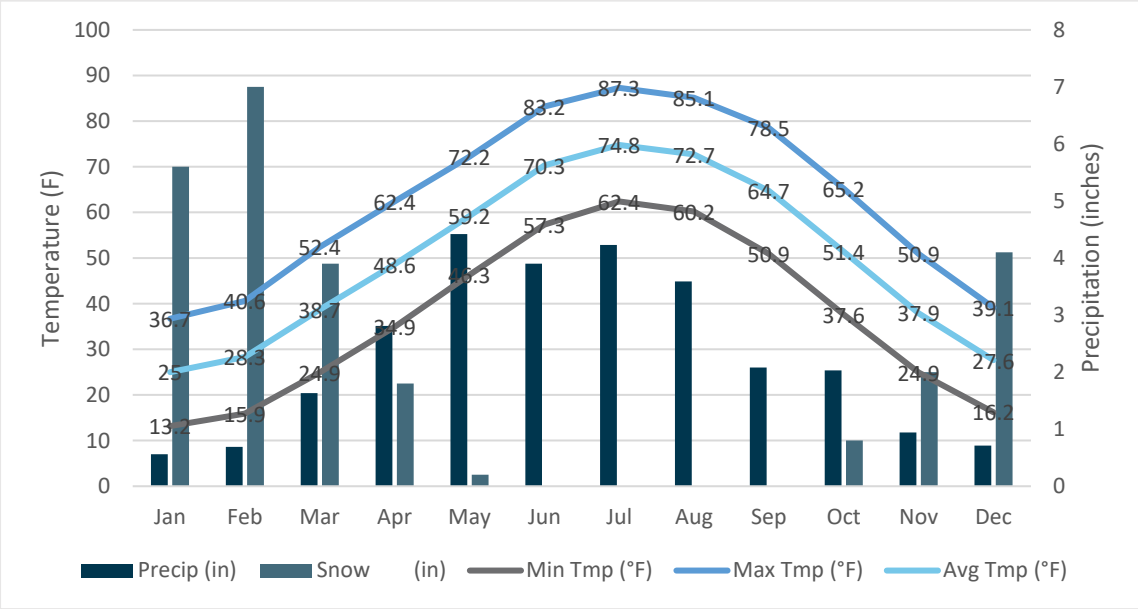
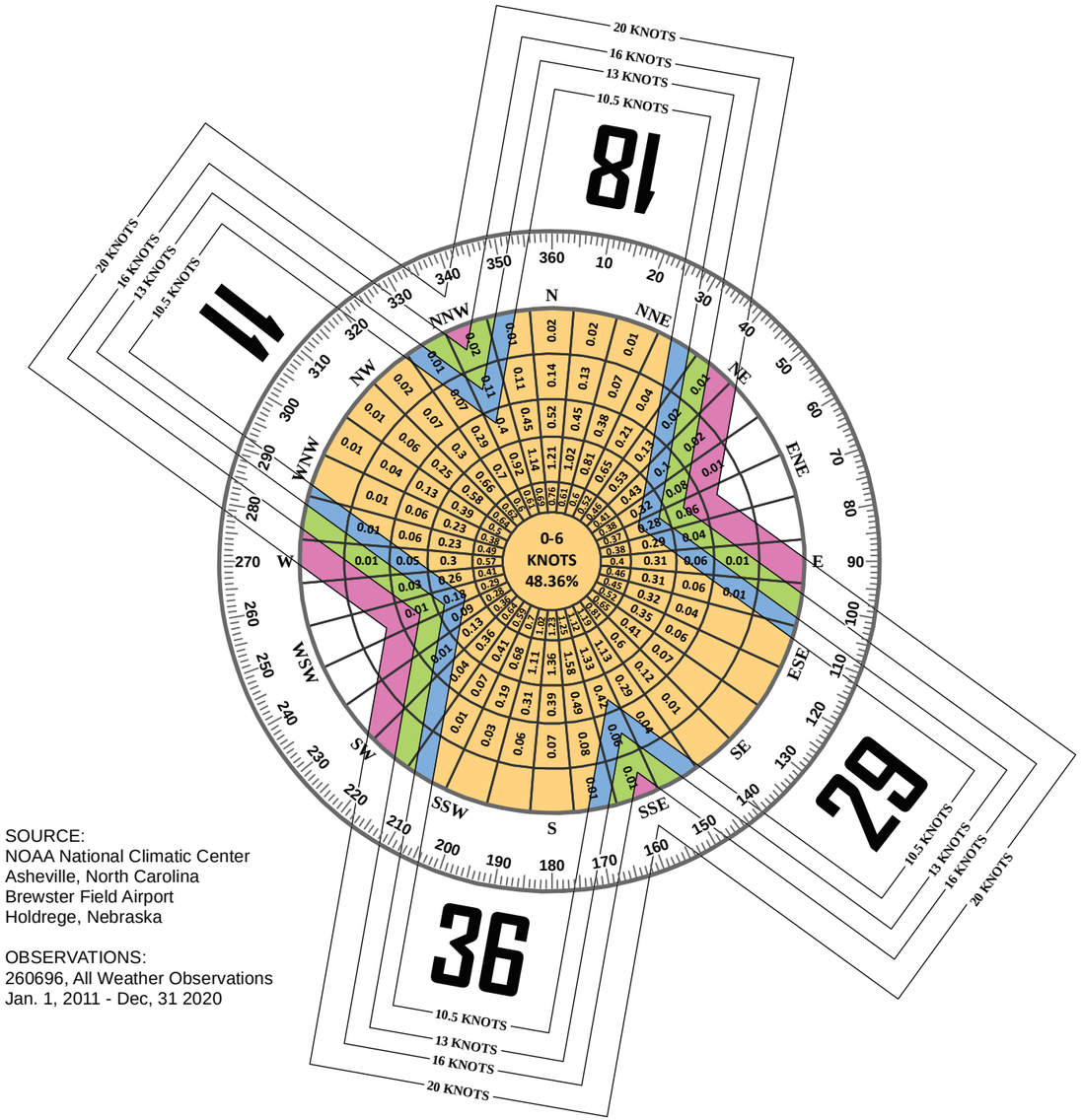



*Figure 1 – Climate Data for Holdrege, NE*

Wind data has also been collected from the airport's on-site automated weather observation system (AWOS), including wind speeds, direction, and gusts. A total of 260,696 observations of wind direction and other data points were made over a 10-year period beginning January 1, 2011, and ending December 31, 2020, which is the most recent data available for this airport. Predominant wind patterns for the locality generally dictate the primary runway orientation and, potentially, the need for crosswind runway(s). Ideally a runway should be aligned with the prevailing wind to have the greatest impact in safety and efficiency for all aircraft types. Planes depart and land into the wind to minimize takeoff roll and landing distances. Construction of two runways may be necessary to meet FAA requirement for crosswind components. Brewster Field Airport is also served by a crosswind runway as the primary runway does not meet FAA's 95 percent crosswind component threshold.

**Exhibit 2** presents the associated wind coverage for the runway system at HDE. In all weather conditions, the primary runway, Runway 18-36 provides 91.96 percent coverage for 10.5 knot crosswind components, 95.72 percent coverage for 13 knots, 98.61 percent for 16 knots, and 99.65 percent for 20 knots. The facility requirements section, presented later in this report, includes additional information as it pertains to wind coverage and runway orientation.

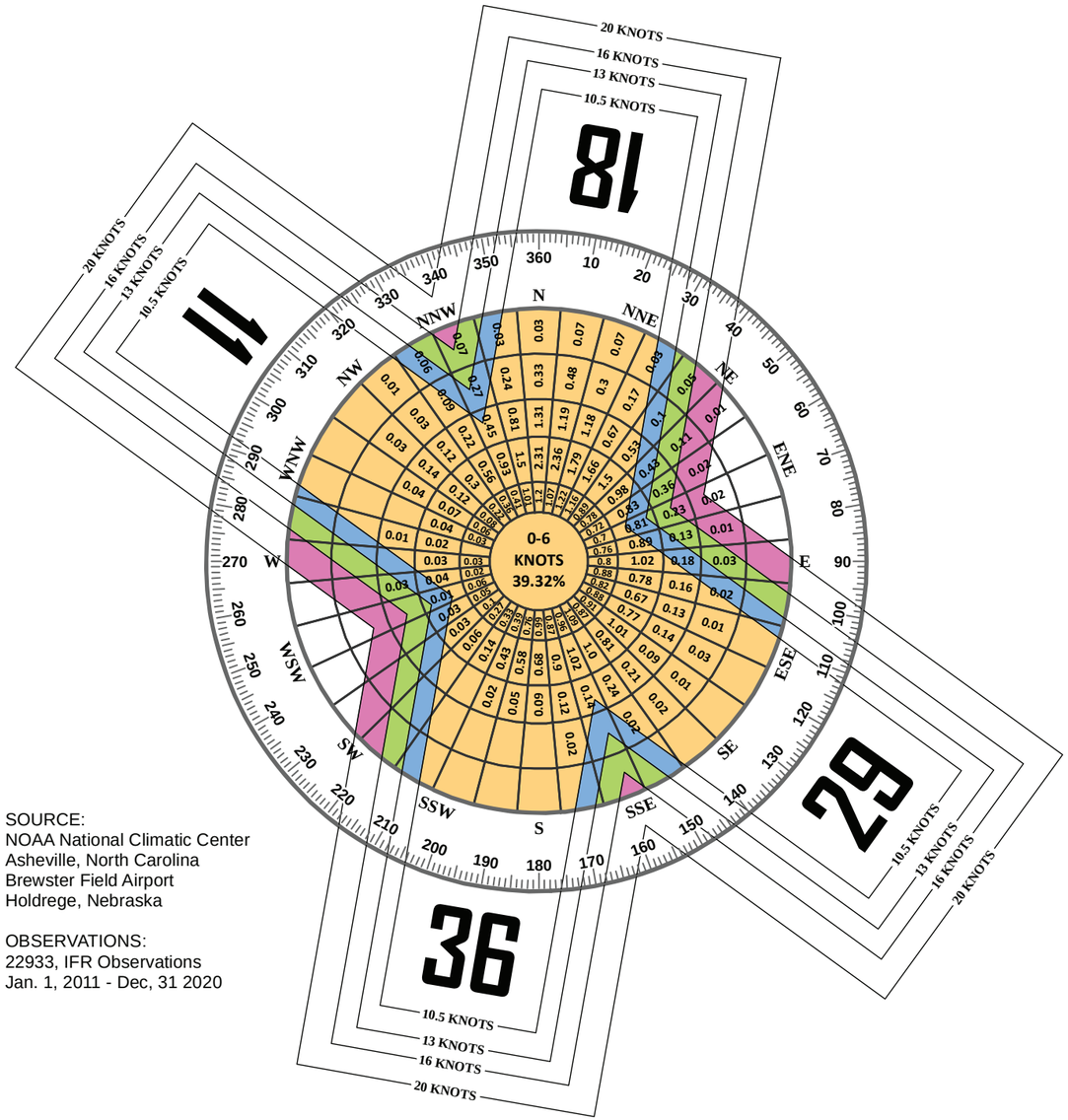
| ALL WEATHER WIND COVERAGE | | | | |
|---|---|---|---|---|
| Runways | 10.5 Knots | 13 Knots | 16 Knots | 20 Knots |
| Runway 18/36 | 91.96% | 95.72% | 98.61% | 99.65% |
| Runway 11/29 | 85.51% | 91.73% | 96.83% | 99.19% |
| All Runways | 98.34% | 99.55% | 99.91% | 99.99% |




SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Brewster Field Airport
Holdrege, Nebraska

OBSERVATIONS:
260696, All Weather Observations
Jan. 1, 2011 - Dec, 31 2020

| IFR WIND COVERAGE | | | | |
|---|---|---|---|---|
| Runways | 10.5 Knots | 13 Knots | 16 Knots | 20 Knots |
| Runway 18/36 | 89.02% | 94.03% | 98.17% | 99.62% |
| Runway 11/29 | 76.80% | 85.05% | 92.91% | 97.76% |
| All Runways | 96.27% | 98.63% | 99.67% | 99.97% |




SOURCE:
NOAA National Climatic Center
Asheville, North Carolina
Brewster Field Airport
Holdrege, Nebraska

OBSERVATIONS:
22933, IFR Observations
Jan. 1, 2011 - Dec, 31 2020

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## *ECONOMIC IMPACT*

In 2019, Nebraska Department of Transportation, Division of Aeronautics (NDOT DOA) undertook an Economic Impact Study to determine the impact and relationship of airports in Nebraska within the state's economy. The *Nebraska Aviation Counts* project examined economic benefits provided by the state's 80 airports. Impact types include: direct impacts, which account for activities by on-airport businesses and visitors who spend at locations such as hotels and restaurants; indirect impacts, which include any portion of direct impacts that are used to purchase goods or services within the state; induced impacts, which are portions of direct and indirect revenues that are paid to on-airport workers and spent on goods and services within the state; and total economic impacts, which are the sums of direct, indirect, and induced impacts.

As summarized in **Table 1** and **Figure 2**, when combined with the multiplier impact, aviation activity at the airport generated $8.2 million in total economic impact output, created 95 jobs, and paid out $3.1 million to its full-time employees.

**TABLE 1 | Aviation Economic Impact**

| | HDE | All Nebraska System Airports |
|---|---|---|
| Total Economic Activity | $8.2 million | $8.6 billion |
| Total Payroll | $3.1 million | $3.5 billion |
| Total Employment | 95 jobs | 90,300 jobs |

*Source : Nebraska Aviation Counts, NE DOT (2019)*

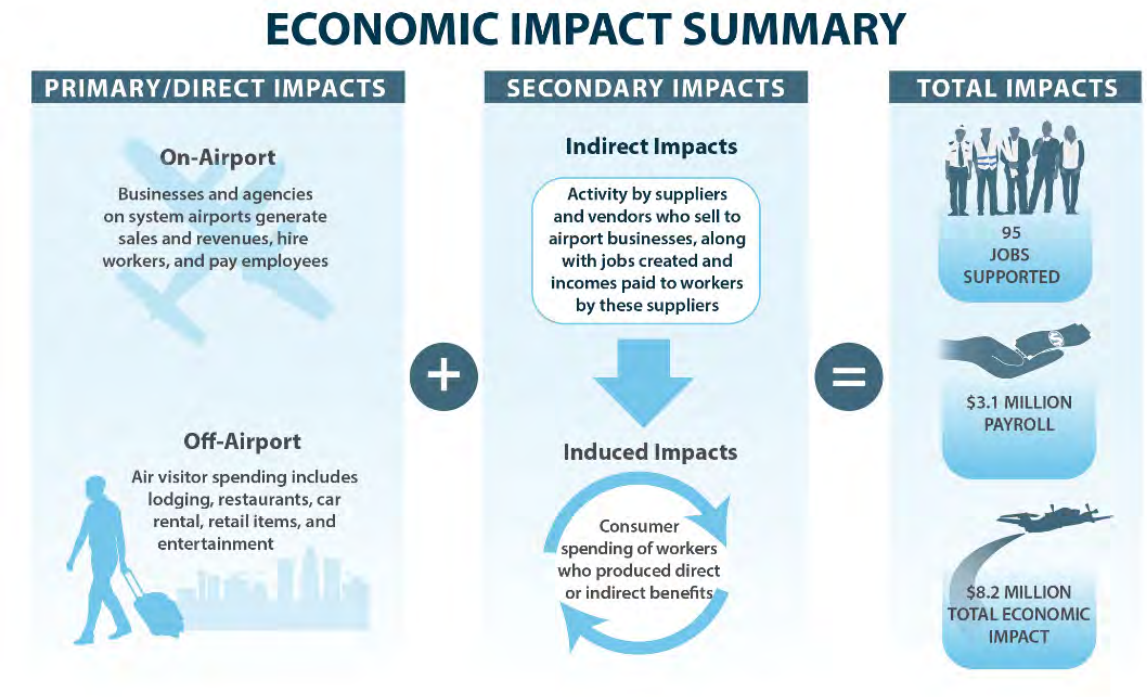



*Figure 2 – HDE Economic Impact Summary*

## AIRPORT ADMINISTRATION

The airport is owned by the City of Holdrege, but the City has given care, custody, and control of the airport to the Holdrege Airport Authority, who are responsible for the management and operation of the airport. The Airport Authority is a local government entity existing under the Constitution and the laws of the State of Nebraska, including the *Nebraska Airport Authorities Act of 1959*. The Airport Authority is governed by Board Members consisting of five members who are elected by the citizens of the city; they serve terms of six years. The Airport Authority is governed by the Open Meetings Act and includes the Authority Chair, Secretary, three airport authority members, and an airport manager. The airport is managed by Holdrege Aviation, which was appointed by the Airport Authority. The Airport Authority Chairperson is the designated Liaison Officer and, therefore, has frequent contact with the Airport Manager and direct, independent access to the Airport Authority Members.

## AIRPORT SYSTEM PLANNING ROLE

An airport's role, both nationally and regionally, also plays a critical role in facility planning. At the national level, the FAA's *National Plan of Integrated Airport Systems* (NPIAS) categorizes airports based on their importance to national air transportation. Airports included within the NPIAS are qualified for federal funding through the Airport Improvement Program (AIP). On the national level, Brewster Field Airport is included in the NPIAS. On the regional and state levels, the airport is included in the 2002 *Nebraska Aviation System Plan* (NASP). The local planning document is the Brewster Field Airport Master Plan, which was updated and approved in 1996.

### FEDERAL AIRPORT ROLE

HDE is classified as a general aviation (GA) airport in the NPIAS. GA airports are further classified into one of four categories: National, Regional, Local, and Basic. The airport falls into the Local GA category. Local GA airports are located near large population centers, but not necessarily in metropolitan areas, and accommodate flight training and emergency services. Local GA airports account for 40 percent of all NPIAS airports.

### STATE AIRPORT ROLE

The Nebraska Aeronautics Commission was created by the 1945 Legislature to insure citizen input in the planning, design, and operation of the state aeronautics system. The commission acts as a liaison between the public and the Nebraska Department of Transportation regarding aeronautics matters.

The commission oversees the development and implementation of NASP, which was updated in 2002. An update to the NASP is currently underway. The primary purpose of a state airport system plan is to study the performance and interaction of the entire aviation system. The objective of the NASP is the identification, preservation, and enhancement of the aviation system to meet current and future demand. The NASP also provides guidance on how to maximize the system benefits of airport investments and how to align federal priorities with state and local objectives.

According to the NASP, there are 80 public-use airports that make up the state's airport system. Brewster Field Airport is identified as a Regional Airport. Regional airports maintain a supporting role to the local and regional economies and connecting it to the state and national economies. In the NASP, it further defines the requirements for regional airports. For example, the airports should have an aircraft reference code (ARC) of a B-II or greater and have a primary runway length intended to meet the needs of 100 percent of small aircraft with less than 10 passenger seats. Other necessities include non-precision, partial parallel taxiways, PAPI's/MIRL, and landside facilities to meet aviation needs.

## *GRANT HISTORY*

To assist in ongoing capital improvements, the FAA and the Nebraska Department of Transportation, Division of Aeronautics (NDOT DOA) provide funding to HDE through the Airport Improvement Program (AIP). There are two types of state grants: state-only grants and matching grants for federal projects. The state grants can provide a portion of the sponsor's share of some of the federal projects. According to the current State Grant Program, federal projects over $500,000 are eligible to receive a matching two percent grant from the state. The Nebraska Aeronautics Commission allocates state funds as grants to eligible projects each October. State-only grants are available to all public-use airports, but only airports that are part of the NPIAS are eligible to receive federal AIP funding as well. HDE, which is included in the NPIAS, is eligible to receive both federal and state-only grants.

Between 2003 and 2020, the airport received AIP funding from the FAA for a variety of projects**,** including acquisition of land, rehabilitation of a runway, and construction of hangars. Table 2 summarizes the AIP grants received by the airport since 2003, which totals approximately $3.6 million.

**TABLE 2 | AIP Grant History - Brewster Field Airport**

| Grant Date | Grant Number | Project Description | Grant Amount |
|---|---|---|---|
| 2003 | 3 | Rehabilitate Runway – 18-36 | $378,000 |
| 2005 | 4 | Expand Apron, Improve Fuel Farm | $273,797 |
| 2006 | 5 | Acquire Snow Removal Equipment | $102,600 |
| 2007 | 6 | Acquire Land for Approaches | $178,125 |
| 2008 | 7 | Acquire Easement for Approaches [Acquire 10.97 acres easement for RPZ for runway 36.] | $45,600 |
| 2010 | 8 | Construct Building | $584,342 |
| 2012 | 9 | Rehabilitate Runway – 18-36 | $182,000 |
| | 10 | Acquire Miscellaneous Land | $163,421 |
| 2013 | 11 | Rehabilitate Runway Lighting – 18-36, Rehabilitate Taxiway Lighting | $601,200 |
| 2017 | 12 | Construct Building (3 Bay Box Hangar) | $763,300 |
| 2020 | 13 | Seal Runway Surface/Pavement Joints | $324,000 |
| | | **AIP Grants Total** | **$3,596,385** |

*Source: Airport Grant History*

# *AIRSIDE FACILITIES*

Airport facilities are functionally classified into two broad categories: airside and landside. The airside category includes those facilities directly associated with aircraft operations. The landside category includes those facilities necessary to provide a safe transition from surface-to-air transportation and support aircraft servicing, storage, maintenance, and operational safety.

## AIRSIDE FACILITIES

### Runways

Airside facilities include runways, taxiways, airfield lighting, and navigational aids. Airside facilities at Brewster Field Airport (HDE) are identified on **Exhibit 3**. The airport configuration at HDE consists of two runways, Runway 18-36 and Runway 11-29. Oriented in a south-north direction, Runway 18-36 is 4,701 feet long and 75 feet wide, and it serves as the primary runway. The runway surface is a combination of asphalt and concrete and is reported to be in good condition with a weight bearing capacity of 30,000 pounds single wheel loading (SWL), which refers to the design of certain aircraft landing gear having a single wheel main landing gear strut. Runway 11-29 is a turf runway oriented in an east-west direction and is located diagonally midfield of Runway 18-36. The turf Runway 11-29 is 2,350 feet long by 300 feet wide marked with boundary cones on the runway ends, which is reportedly in fair condition.

### Taxiways

A taxiway is a defined path established for the taxiing of aircraft from one part of an airport to another, while a taxilane provides access from a taxiway to aircraft parking positions and other terminal areas. A full-length parallel Taxiway A is located on the west side of Runway 18-36. This taxiway is 35 feet wide, is separated from the runway, centerline to centerline, by 300 feet, and provides access to each runway end. There are four right-angled taxiway connectors providing access at various points along Runway 18-36. Two of those taxiway connectors also provide access to the aircraft apron. The taxiway connectors each measure between 30 - 50 feet in width. There are three taxilanes designated B, C, and D, each measuring 20 feet, 25 feet, and 20 feet wide, respectively, and providing access to hangar and apron areas.

### Pavement Condition

In 2020 the NDOT DOA conducted a survey of HDE operational pavements, including the runways, taxiways, and aprons. The inspection evaluated the pavement on the airfield to provide a Pavement Condition Index (PCI) rating. PCI ratings are determined through a visual assessment in accordance with FAA Advisory Circular 150/5380-7B and ranges from 0 (failed) to 100 (excellent). In general terms, pavements above a PCI of 70 that are not exhibiting significant load-related distress will benefit from preventative maintenance actions, such as crack sealing and surface treatments. Pavements with a PCI of 40 to 70 may require major rehabilitation, such as an overlay. Often when the PCI is less than 40,

Scan the QR code to view a short video of the landside facilities.

Scale: 1" = 300'

## LANDSIDE FACILITIES

1. Executive Hangar and Shop - 2,800 sf
2. Executive Hangar and Shop - 2,800 sf
3. Wells Flying Service - 10,700 sf
4. 6 Unit T-Hangar - 7,600 sf
5. Executive Hangar - 6,000 sf
6. Holdrege Aviation (Maintenance) - 5,000 sf
7. Holdrege Aviation (Terminal) - 2,800 sf
8. Conventional Hangar - 11,200 sf
9. Executive Hangar - 4,100 sf
10. Conventional Hangar - 11,200 sf
11. 6 Unit T-Hangar - 9,400 sf
12. 6 Unit T-Hangar - 9,400 sf
13. 6 Unit T-Hangar - 9,400 sf
14. Office - 500 sf
15. Midwest Ag Insurance - 1,000 sf
16. Nebraskaland Aviation - 1,300 sf

## KEY

sf - Square Feet
AWOS - Automated Weather Observation Station
PAPI - Precision Approach Path Indicator

## LEGEND

- Airport Property Line
- A Taxiway Designation
- B Taxilane Designation

N

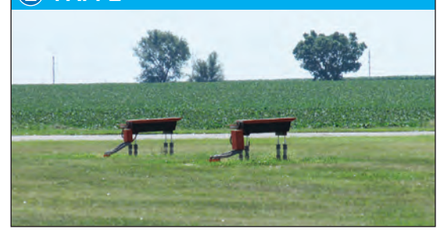
0 600
SCALE IN FEET

Photo date: 8/2022

Self Service Fuel Pump (100LL)
Electrical Vault
Airport Access Road
Airport Beacon
Brewster Road
18th Ave
Turf Runway 11-29 (2,350' x 300')
REILs
PAPI-2
Runway 18-36 (4,701' x 75')
AWOS 3
Segmented Circle/Windcone 4
PAPI-2 2
REILs
Maintenance/Repair
Airport Beacon 1
6

### 1 Airport Beacon

### 2 PAPI-2



### 3 AWOS

### 4 Segmented Circle/Windcone

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reconstruction is the only viable alternative due to the substantial damage to the pavement section. The purpose of the report is to provide the airport sponsor with pavement condition information to guide pavement maintenance schedules and ensure airfield surfaces are preserved in good working order.

The results of the PCI surveys are depicted on **Exhibit 4**.

**Pavement Markings**

Pavement markings aid in the safe and efficient movement of aircraft along airport surfaces and identify closed or hazardous areas on the airport. There are three types of markings for runways: visual, non-precision instrument, and precision instrument. Runway 18-36 is equipped with non-precision markings, which consist of designation, runway centerline, threshold, and aiming point. Turf Runway 11-29 is marked with boundary cones on the runway ends.

*Yellow Taxiway Centerline Markings*

Yellow taxiway and apron markings are provided to assist pilots in maintaining proper clearance from pavement edges and objects near the taxiway and/or taxilane edges. Pavement markings also identify the aircraft tiedown positions and aircraft holding positions. Each entrance to Runway 18-36 is equipped with holding position markings located 200 feet from the runway centerline. These markings indicate to pilots their positions on the airfield, as well as help prevent inadvertent access to the runway. Hold lines also help to ensure proper separation between aircraft prior to entering the runway. Pilots operating at non-towered airports like Brewster Field Airport must visually confirm that no aircraft traffic is operating on the runway or on approach to the runway prior to crossing the hold line.

**Airfield Lighting**

Airfield lighting systems extend an airport's usefulness into periods of darkness and/or poor visibility. A variety of lighting systems are installed at the airport for this purpose. These lighting systems, categorized by function, are summarized as follows:

*Identification Lighting:* The location of the airport at night is universally identified by a rotating beacon. The rotating beacon projects two beams of light, one white and one green, 180 degrees apart. The rotating beacon at HDE is situated southwest of the terminal and adjacent to the electrical vault.

*Airport Rotating Beacon*

*Runway and Taxiway Lighting:* Runway and taxiway edge lighting utilize light fixtures placed near the edge of the pavement to define the lateral limits of the pavement. Both runway and taxiway lighting are imperative for safe and efficient access to and from aircraft parking areas and the runway, especially at night and during times of low visibility. Runway 18-36 is equipped with medium intensity runway lighting system (MIRL). Lights are set atop frangible supports, so if one is struck by an object, such as an aircraft wheel, they can easily break away. This lighting is essential for safe operations during night and/or times of low visibility to maintain safe and efficient access to and from the runways and aircraft parking areas. All runways are equipped with runway edge lighting. Taxiway A is equipped with medium intensity taxiway lighting system (MITL).

*MITL Fixture*

*Visual Approach Lighting:* Visual approaches at many GA airports are aided by lighting systems, such as a precision approach path indicator (PAPI) or visual approach slope indicator (VASI), which provides visual approach slope guidance. PAPIs are more modern than VASIs, consist of a system of lights located at various distances from the runway threshold, and give pilots an indication if being above, below, or on correct decent glide path to the runway. Both ends of Runway 18-36 are equipped with a 2-light PAPI system, offering the standard 3.00-degree glide path.

*PAPI-2*

*Runway End Identification Lights (REILs):* REILs provide a visual identification of the runway end for landing aircraft. The REILs consist of two synchonized flashing lights, located laterally on each side of the runway end, facing the approaching aircraft. These flashing lights can be seen day or night for up to 20 miles depending on visibility conditions. REILs are present on the ends of Runway 18 and Runway 36.

*Pilot Controlled Lighting:* With pilot-controlled lighting (PCL) system, pilots can turn on the MIRL from an aircraft through a series of clicks on their radio transmitter. Some systems allow pilots to adjust the lighting intensity: three clicks for low, five clicks for medium, and seven clicks for high intensity. At HDE the runway edge lighting systems can be activiated utilizing the common traffic advisory frequency (CTAF) of 122.8 MHz.

**Holding Bays**

Holding bays are designated areas on the airfield typically located at the end of a taxiway near the runway end. Pilots may utilize holding bays to conduct final pre-flight checks prior to take-off or bypass another aircraft. There is one designated holding bay on the north end of Taxiway A close to the end of Runway 18, which is approximately 572 square yards in size.

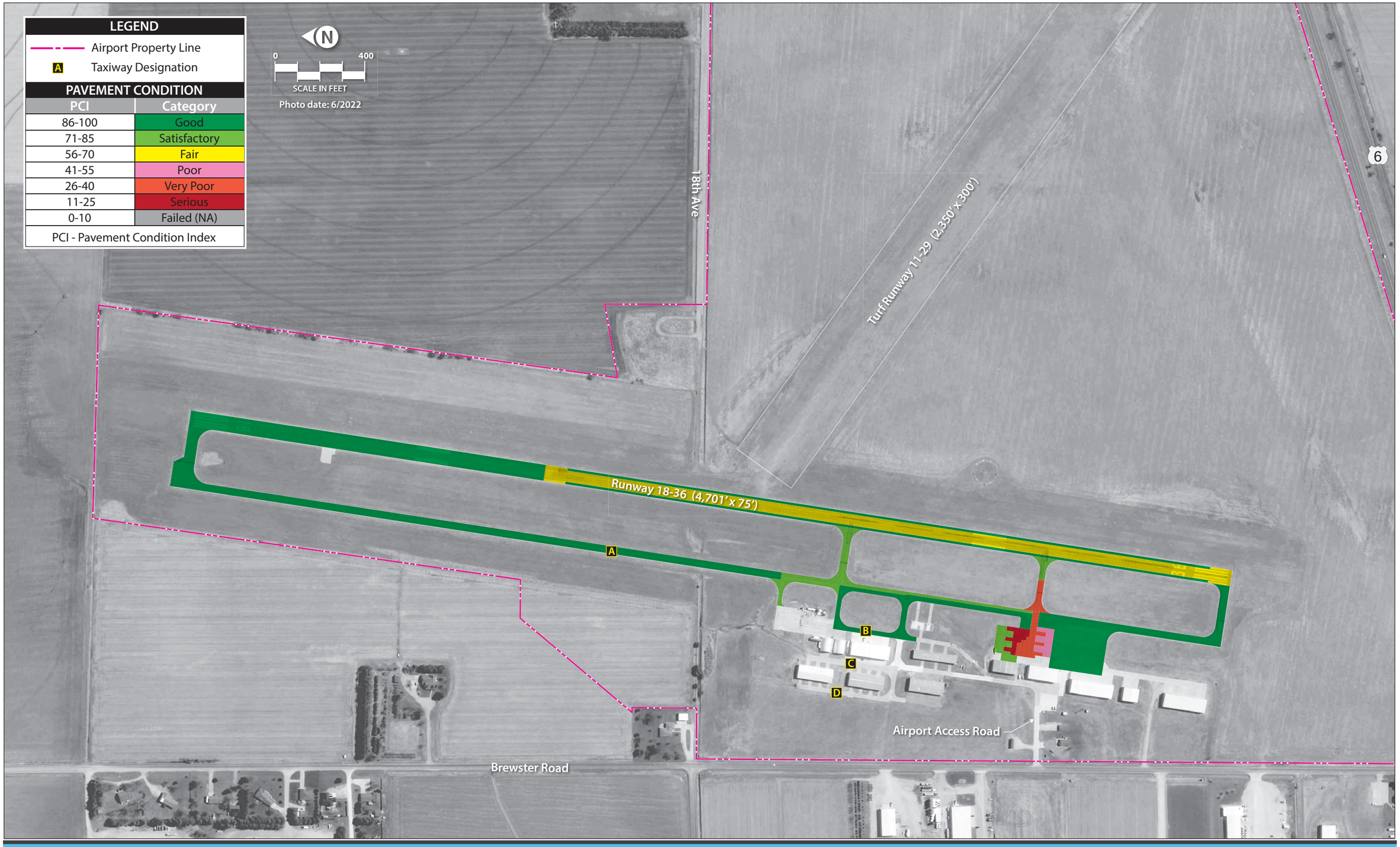


Exhibit 4
2020 PAVEMENT STRENGTH

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**Weather Facilities**

HDE is equipped with a lighted wind cone on the east side of Runway 18-36 and south side of Runway 11-29. Wind cones provide pilots with wind speed and direction information. The lighted wind cone is co-located with a segmented circle, which provides traffic pattern information to pilots.

*Wind Cone*

Many airports are equipped with an AWOS or an automated surface observation system (ASOS), which automatically records weather conditions, such as wind speed, wind gust, wind direction, temperature, dew point, altimeter setting, and density altitude. This information is then transmitted at regular intervals and is accessible to pilots. The airport is equipped with an AWOS-3, and information can be obtained via radio frequency 121.325 MHz or by calling 308-995-6433.

**Navigational Aids**

Navigational aids are electronic devices that transmit radio frequencies, which pilots of properly equipped aircraft can translate into point-to-point guidance and position information. The types of electronic navigational aids available for aircraft operating near HDE include the very high frequency omnidirectional range (VOR) facility and the global positioning system (GPS).

A VOR, in general, provides azimuth readings to pilots of properly equipped aircraft transmitting a radio signal at every degree to provide 360 individual navigational courses. Frequently, distance measuring equipment (DME) is combined with a VOR facility (VOR/DME) to provide distance as well as direction information to the pilot. Military tactical air navigation aids (TACANs) and civil VORs are commonly combined to form a VORTAC. The VORTAC provides distance and direction information to both civil and military pilots. Pilots flying to or from HDE can utilize the Kearney VOR located 22.3 nautical miles (nm) to the northeast, the COZAD VOR located 39.4 nm northwest, and the Hastings VOR/DME located 42 nm east.

GPS is an additional navigational aid for pilots. GPS was initially developed by the United States Department of Defense for military navigation around the world. GPS differs from VOR in that pilots are not required to navigate using a specific ground-based facility. GPS uses satellites placed in orbit around the Earth that transmit electronic radio signals, which pilots of properly equipped aircraft use to determine altitude, speed, and other navigational information. With GPS, pilots can navigate directly to any airport in the country and are not required to navigate using a ground-based navigational facility.

**Instrument Approach Procedures**

Instrument approach procedures are a series of predetermined maneuvers established by the FAA using electronic navigational aids that assist pilots in locating and landing at an airport during low visibility and cloud ceiling conditions. Instrument procedures are defined as either precision approach, approach with vertical guidance (APV), or non-precision. Precision instrument approaches provide an exact course

alignment and vertical descent path for an aircraft on final approach to a runway with a Height Above Threshold (HAT) lower than 250 feet and visibility lower than ¾-mile. APVs also provide course alignment and vertical descent path guidance but have HATs of 250 feet or more and visibility minimums of ¾-mile or greater. Non-precision instrument approach aids provide only horizontal guidance.

Approach minimums are published for different aircraft categories and consist of a minimum "decision" altitude and required visibility. According to FAR 91.175, a pilot must be able to make a safe landing, have the runway in sight, and have visibility requirements met. There are no cloud ceiling requirements; the decision altitude is the point at which the pilot must meet all three criteria for landing, otherwise they must commence a missed approach and cannot land using the published instrument approach.

HDE is currently equipped with two straight in approaches and one VOR-A approach, shown on **Exhibit 5**. Instrument approaches based on GPS have become very common across the country. GPS is inexpensive, as it does not require a significant investment in ground-based systems by an airport or FAA. Both runway ends at HDE are served by GPS localizer performance with vertical guidance (LPV) approaches. GPS LPV approaches provide both horizontal and vertical guidance information to pilots. An RNAV (GPS) LPV approach is available to both Runway 18 and Runway 36, which provides a HAT of 250 feet above ground level (AGL) with visibility minimums down to one mile for aircraft with approach speeds of less than 141 knots. This approach is not available to aircraft with approach speeds of 141 knots or greater.

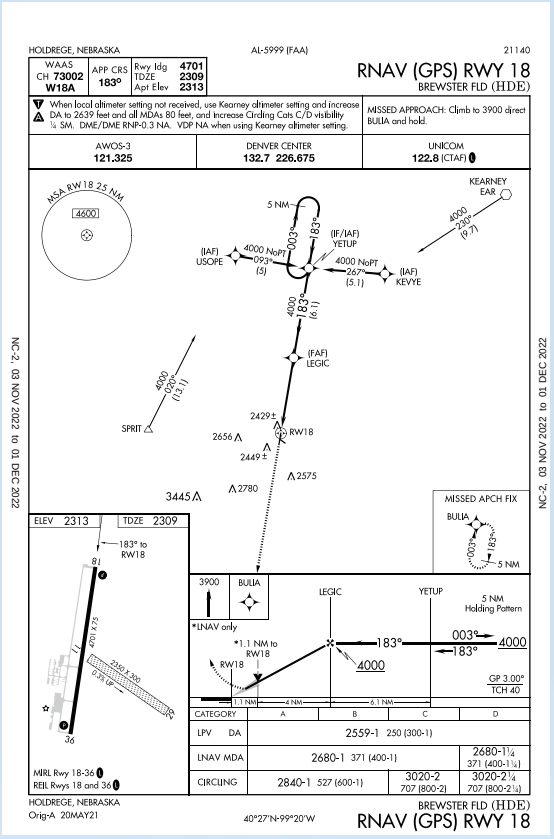
HDE has an approach that utilizes very high frequency omnidirectional range (VOR-A) technology and provides circling minimums. Circling minimums allow pilots the flexibility to land on the runway most closely aligned with the prevailing wind at that time. The VOR-A does not direct the pilot to the runway; however, it does direct to the vicinity of the airport, and once the airport is in-sight on these approaches, a circle-to-land can be performed to a suitable runway. This generally requires circling approaches to have higher visibility minimums, HAT, and a minimum decent altitude (MDA) than the straight-in approaches. This is done to provide pilots with sufficient visibility and ground clearance to navigate visually from the approach to the desired runway end for landing. This circling instrument approach procedure is non-precision in nature.

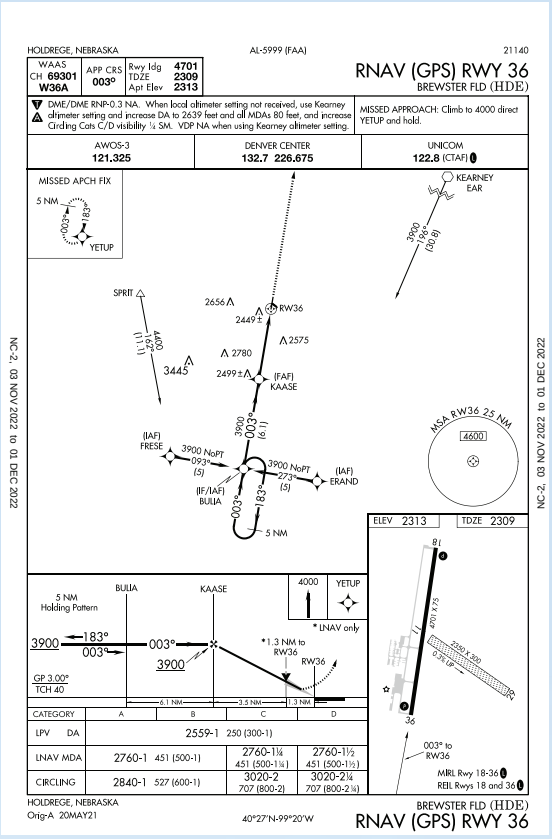
## LANDSIDE FACILITIES

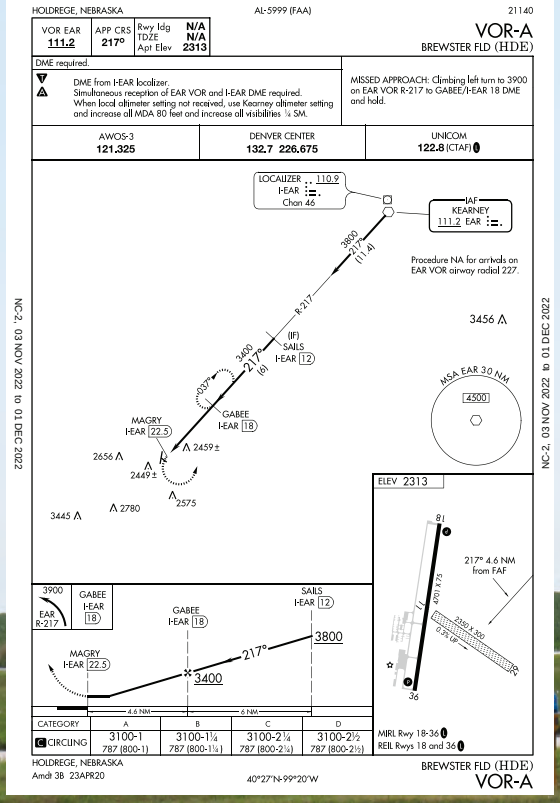
Landside facilities are the ground-based facilities that support the aircraft and pilot/passenger handling functions. These facilities typically include the airport terminal building, aircraft storage hangars, aircraft parking aprons, and support facilities, such as fuel storage and roadway access. Landside facilities are identified on **Exhibit 3**.

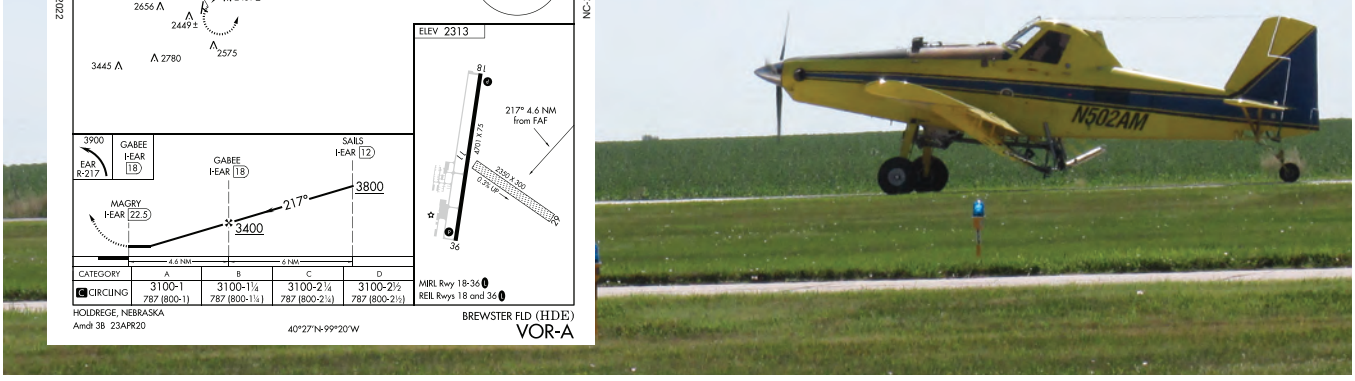
### Airport Terminal

Holdrege Aviation, located on the west side of Runway 18-36 adjacent to the Midwest Ag Insurance building, serves as the airport's main terminal and central point of operation for FBO services at HDE. The building offers approximately 7,800 square feet (sf) of space with a quaint lobby, large conference room, pilots' lounge, restrooms, and the airport manager's office, and it also includes a maintenance hangar attached to the north side of the terminal.


HOLDREGE, NEBRASKA
AL-5999 (FAA)
21140
RNAV (GPS) RWY 18
BREWSTER FLD (HDE)
WAAS CH 73002 W18A
APP CRS 183°
Rwy Idg 4701
TDZE 2309
Apt Elev 2313
When local altimeter setting not received, use Kearney altimeter setting and increase DA to 2639 feet and all MDAs 80 feet, and increase Circling Cats C/D visibility ¼ SM. DME/DME RNP-0.3 NA. VDP NA when using Kearney altimeter setting.
MISSED APPROACH: Climb to 3900 direct BULIA and hold.
AWOS-3 121.325
DENVER CENTER 132.7 226.675
UNICOM 122.8 (CTAF)
MSA RW18 25 NM
4600
KEARNEY EAR
5 NM
003°
183°
(IF/IAF) YETUP
(IAF) USOPE
4000 NoPT
093° (5)
4000 NoPT
267° (5.1)
(IAF) KEVYE
4000 230° (9.7)
4000 183° (6.1)
(FAF) LEGIC
4000 050° (10.1)
SPRIT
2429±
2656
RW18
2449±
2575
2780
3445
MISSED APCH FIX
BULIA
003°
183°
5 NM
ELEV 2313
TDZE 2309
183° to RW18
4701 X 75
2260 X 300
0.3% UP
36
3900
BULIA
*LNAV only
LEGIC
YETUP
5 NM Holding Pattern
*1.1 NM to RW18
RW18
183°
003°
4000
GP 3.00°
TCH 40
1.1 NM
4 NM
6.1 NM
CATEGORY
A
B
C
D
LPV DA
2559-1 250 (300-1)
LNAV MDA
2680-1 371 (400-1)
2680-1¼ 371 (400-1¼)
CIRCLING
2840-1 527 (600-1)
3020-2 707 (800-2)
3020-2¼ 707 (800-2¼)
MIRL Rwy 18-36
REIL Rwys 18 and 36
HOLDREGE, NEBRASKA
Orig-A 20MAY21
40°27'N-99°20'W
BREWSTER FLD (HDE)
RNAV (GPS) RWY 18
NC-2, 03 NOV 2022 to 01 DEC 2022


HOLDREGE, NEBRASKA
AL-5999 (FAA)
21140
RNAV (GPS) RWY 36
BREWSTER FLD (HDE)
WAAS CH 69301 W36A
APP CRS 003°
Rwy Idg 4701
TDZE 2309
Apt Elev 2313
DME/DME RNP-0.3 NA. When local altimeter setting not received, use Kearney altimeter setting and increase DA to 2639 feet and all MDAs 80 feet, and increase Circling Cats C/D visibility ¼ SM. VDP NA when using Kearney altimeter setting.
MISSED APPROACH: Climb to 4000 direct YETUP and hold.
AWOS-3 121.325
DENVER CENTER 132.7 226.675
UNICOM 122.8 (CTAF)
MISSED APCH FIX
5 NM
003°
183°
YETUP
KEARNEY EAR
3900 190° (30.8)
SPRIT
4000 (11.1)
3445
2656
RW36
2449±
2575
2780
2499±
(FAF) KAASE
3900 003° (6.1)
MSA RW36 25 NM
4600
(IAF) FRESE
3900 NoPT
092° (5)
3900 NoPT
273° (5)
(IAF) ERAND
(IF/IAF) BULIA
003°
183°
5 NM
ELEV 2313
TDZE 2309
4701 X 75
2260 X 300
0.3% UP
36
003° to RW36
3900
BULIA
KAASE
4000
YETUP
.5 NM Holding Pattern
*LNAV only
183°
003°
*1.3 NM to RW36
RW36
GP 3.00°
TCH 40
6.1 NM
3.5 NM
1.3 NM
CATEGORY
A
B
C
D
LPV DA
2559-1 250 (300-1)
LNAV MDA
2760-1 451 (500-1)
2760-1¼ 451 (500-1¼)
2760-1½ 451 (500-1½)
CIRCLING
2840-1 527 (600-1)
3020-2 707 (800-2)
3020-2¼ 707 (800-2¼)
MIRL Rwy 18-36
REIL Rwys 18 and 36
HOLDREGE, NEBRASKA
Orig-A 20MAY21
40°27'N-99°20'W
BREWSTER FLD (HDE)
RNAV (GPS) RWY 36
NC-2, 03 NOV 2022 to 01 DEC 2022


HOLDREGE, NEBRASKA
AL-5999 (FAA)
21140
VOR-A
BREWSTER FLD (HDE)
VOR EAR 111.2
APP CRS 217°
Rwy Idg N/A
TDZE N/A
Apt Elev 2313
DME required.
DME from I-EAR localizer.
Simultaneous reception of EAR VOR and I-EAR DME required.
When local altimeter setting not received, use Kearney altimeter setting and increase all MDA 80 feet and increase all visibilities ¼ SM.
MISSED APPROACH: Climbing left turn to 3900 on EAR VOR R-217 to GABEE/I-EAR 18 DME and hold.
AWOS-3 121.325
DENVER CENTER 132.7 226.675
UNICOM 122.8 (CTAF)
LOCALIZER 110.9
I-EAR
Chan 46
IAF KEARNEY 111.2 EAR
3800 217° (11.4)
Procedure NA for arrivals on EAR VOR airway radial 227.
R-217
3456
(IF) SAILS I-EAR 12
2400 217° (6)
003°
MSA EAR 30 NM
4500
MAGRY I-EAR 22.5
GABEE I-EAR 18
2459±
2656
2449±
2575
2780
3445
ELEV 2313
217° 4.6 NM from FAF
4701 X 75
2260 X 300
0.3% UP
36
3900
EAR R-217
GABEE I-EAR 18
SAILS I-EAR 12
MAGRY I-EAR 22.5
217°
3800
3400
4.6 NM
6 NM
CATEGORY
A
B
C
D
CIRCLING
3100-1 787 (800-1)
3100-1¼ 787 (800-1¼)
3100-2¼ 787 (800-2¼)
3100-2½ 787 (800-2½)
MIRL Rwy 18-36
REIL Rwys 18 and 36
HOLDREGE, NEBRASKA
Amdt 3B 23APR20
40°27'N-99°20'W
BREWSTER FLD (HDE)
VOR-A
NC-2, 03 NOV 2022 to 01 DEC 2022


N502AM

The FBO operates Monday – Friday from 7:30 a.m. to 4:30 p.m., with on call services available Saturday and Sunday upon request. Services offered by the FBO include Jet A and 100LL fuel, aircraft services and maintenance, aircraft rentals, and courtesy and rental vehicles.

**Aircraft Parking Apron**

The airport has two aircraft parking aprons. One approximately 10,400 square-yard (sy) apron is located on the west side of Runway 18-36 adjacent to the Holdrege Aviation. It is accessed via Taxiway A providing a total of eight marked aircraft tiedown parking positions centrally throughout the apron. The second apron is approximately 3,200 sy, located on the west side of Runway 18-36 and north of the Wells Flying Service, providing three aircraft parking positions.

*Aircraft Parking Apron*

**Aircraft Storage**

The airport currently offers large conventional hangars, smaller executive hangars, and T-hangars, all located on the west side of Runway 18-36. Wells Flying Service provides aerial agriculture services from a 10,700-sf facility. There are four 6-unit T-hangar facilities located northwest of Holdrege Aviation, offering approximately 35,800 sf of storage space. Additionally, there are four executive hangars and two conventional hangars offering approximately 15,700 and 22,400 sf of storage space, respectively. In total HDE, has approximately 73,900 sf of enclosed aircraft storage capacity. These totals exclude hangars used for maintenance/repair which accounts for an additional 5,000 sf.

*T-Hangars*

**Fuel Storage Facilities**

Holdrege Aviation owns and operates the airport's fuel facilities, which are located just north of the Holdrege Aviation building. The facilities consist of one fuel pump and an underground fuel tank containing 8,000 gallons for 100LL. There is also a 12,000-gallon truck, which provides Jet A fuel. Fuel is distributed via a self-service fuel pump that is operational 24 hours a day.

The current 2022 monthly fuel flowage data for 100LL fuel sales is summarized in **Figure 3**. The airport dispensed 4,815 gallons of 100LL fuel between January and September 2022[2]. As can be seen in the figure, 100LL fuel sales have had an upward trend since May and slightly decreased in August.

*Self-Service Fuel Pump*

*Jet A Fuel Truck*

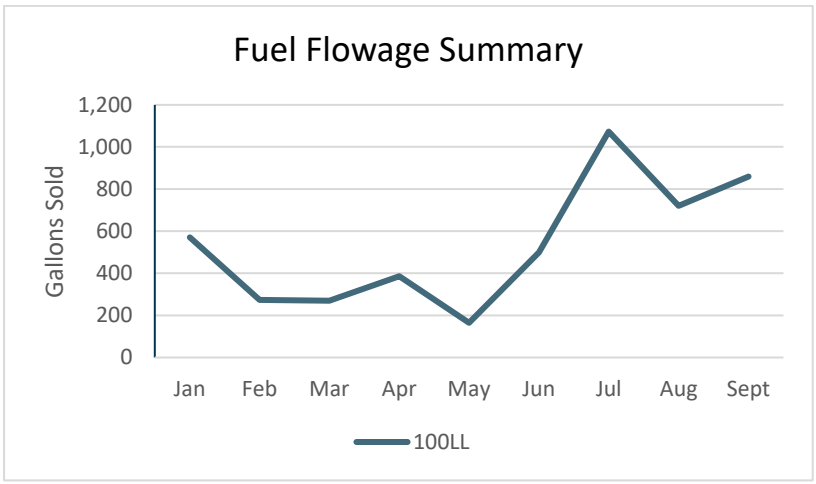


***Figure 3 – Fuel Flowage***

**Automobile Access and Parking**

The airport's landside facilities can be accessed via connection with the U.S. Highway 6/34 on the south side of the airport and Brewster Rd. A paved 9,800 sf vehicle parking area is located in front of Holdrege Aviation providing 20 parking spaces, including one handicapped space. An additional 1,100 sf paved parking area is available between Holdrege Aviation and an executive hangar for rental cars.

[2] Fuel sold from January 1, 2022, through September 29, 2022.

# AVIATION ACTIVITY

## AIRCRAFT OPERATIONS

Aircraft operations (takeoffs and landings) are a primary indicator of aeronautical activity at HDE. Aircraft operations are classified as local or itinerant. Local operations often consist of touch-and-go or pilot training activity. Itinerant operations consist of aircraft that arrive from or depart to destination airports outside the local operating area.

Aircraft operations can be separated into four general categories: air carrier, air taxi, general aviation, and military. The following provides a description of these categories of aircraft operations:

- **Air Carrier** – operations defined as those conducted commercially by aircraft having a seating capacity of 60 or more seats and a cargo payload capacity of more than 18,000 pounds. There are currently no air carrier operations at the airport.
- **Air Taxi** – operations associated with aircraft originally designed to have less than 60 passenger seats or a cargo payload of less than 18,000 pounds that would carry cargo or mail on either a scheduled or charter basis, and/or carry passengers on an on-demand basis or limited scheduled basis.
- **General Aviation** – civil aviation operations other than scheduled air services and nonscheduled air transport operations for hire. HDE caters to general aviation activities, and the majority of its operations fall in this category.
- **Military** – operations conducted by aircraft and helicopters with a military designation.

Due to the absence of an airport traffic control tower (ATCT) at the airport, actual airport operation counts are unavailable for HDE. An estimated account of annual activity is available via the FAA's Form 5010, *Airport Master Record* for HDE. The Form 5010 also provides a breakdown of estimated operation totals for the airport by type. The most current estimated operational data, which is reflective of operations for 12 months ending 07/21/2020, indicates that HDE experiences approximately 16,000 operations annually, as detailed in **Table 3**. It should be noted that despite what is reported in the 5010, the airport does support air taxi operations, denoted by the FAA as "air taxi." These types of operations generally file instrument flight rule (IFR) flight plans and are accounted for by Airport IQ, an aviation data collection service. This data source will be discussed in greater detail in the next section.

**TABLE 3 | HDE Annual Operations**

| AIRCRAFT OPERATIONS | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Enplanements | | | Itinerant Operations | | | | | Local Operations | | | |
| Air Carrier | Commuter | Total | Air Carrier | Air Taxi & Commuter | GA | Military | Total | GA | Military | Total | Total Ops |
| 0 | 0 | 0 | 0 | 0 | 6,000 | 0 | 6,000 | 10,000 | 0 | 10,000 | **16,000** |

*Source:* FAA Form 5010, *Airport Master Record*

## BASED AIRCRAFT

Identifying the current number of based aircraft is an important part of the planning process; however, it can be challenging to be accurate given the transient nature of aircraft storage. HDE maintains an inventory record of based aircraft at the airport which indicates there are 26 based aircraft which has been validated by the FAA database basedaircraft.com.

## *ENVIRONMENTAL FEATURES*

Research has been conducted on 14 environmental impact categories outlined within FAA's Order 1050.1F, *Environmental Impacts: Policies and Procedures* (July 2015). Available information regarding the existing conditions at Brewster Field Airport was derived from internet resources, agency maps, and existing literature. The intent of this task is to catalog potential environmental sensitivities that might affect future improvements at the airport.

- **Air Quality.** According to the U.S. Environmental Protection Agency's (EPA) Green Book National Area and County-Level Multi-Pollutant Information, Phelps County is in attainment for all federal criteria pollutants regulated by the EPA under the *Clean Air Act*.[3]

- **Biological Resources.** Per the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation Report (IPaC) report, three endangered, threatened, or candidate species with the potential to occur in the vicinity of the airport have been identified and are listed in **Table 4** below.

**TABLE 4 | Federally Listed Endangered Species**

| Common Name (*Scientific Name*) | Federal Status | Habitat |
|---|---|---|
| **BIRDS** | | |
| Piping Plover (*Charadrius melodus*) | Threatened | The piping plover's habitat is on wide, flat, open, sandy beaches with limited grass or other vegetation. Their nesting areas include small creeks or wetlands.[1] |
| Whooping Crane (*Grus americana)* | Endangered | The whooping crane breeds, migrates, winters, and forages in a variety of habitats, including coastal marshes and estuaries, inland marshes, lakes, open ponds, shallow bays, salt marsh and sand or tidal flats, upland swales, wet meadows and rivers, pastures, and agricultural fields.[2] |
| **INSECTS** | | |
| Monarch Butterfly (*Danaus plexippus*) | Candidate | The monarch butterfly is found in temperate climates, such as eastern and western North America. In the fall, in both eastern and western North America, monarchs begin migrating to their respective overwintering sites.[3] |

[1] U.S. Fish and Wildlife Service – Piping Plover (https://ecos.fws.gov/ecp/species/6039 )
[2] U.S. Fish and Wildlife Service – Whooping Crane (https://www.fws.gov/species/whooping-crane-grus-americana)
[3] U.S. Fish and Wildlife Service – Monarch Butterfly (https://ecos.fws.gov/ecp/species/9743)

*Source: U.S. Fish and Wildlife Service: Information for Planning and Consulting (https://ecos.fws.gov/ipac/)*

According to the USFWS critical habitat mapper, there is no critical habitat located within the vicinity of the airport. The nearest critical habitat area is for the Whooping Crane located approximately 12.5 miles north of HDE. According to the IPaC resource list, there are no migratory birds of conservation concern expected within the vicinity of the airport.

- **Coastal Resources (Coastal Barriers and Coastal Zones).** The airport is inland and not subject to coastal restrictions.

[3] U.S. Environmental Protection Agency *Green Book* – Nebraska (https://www3.epa.gov/airquality/greenbook/anayo_ne.html)

- ***Department of Transportation (DOT) Act*: Section 4(f).** Section 4(f) of the DOT Act, which was recodified and renumbered as Section 303(c) of Title 49 U.S. Code, states that the Secretary of Transportation shall not approve any program or project that requires the use of any publicly or privately owned land from a historic site, public park, recreation area, or waterfowl or wildlife refuge of national, state, regional, or local importance unless there is no feasible and prudent alternative to the use of such land, and the project includes all possible planning to minimize harm resulting from the use.

  The following list summarizes the nearest properties of each type that may be protected under Section 4(f) of the DOT Act within the vicinity of the airport:

  - **Property on the National Register of Historic Places** – Phelps County Courthouse, located 1.5 miles west; Turkey Creek Bridge, located 10.4 miles south; Bethphage Mission, located 10.7 miles east of the airport
  - **Recreation Area** – Lake Meredith National Recreation Area, located 346.5 miles south of the airport
  - **Wilderness Area** – Fort Niobrara Wilderness, located 177.3 miles north of the airport
  - **Wildlife Refuge** – Kirwin National Wildlife Refuge, located 52.3 miles south of the airport
  - **Parks** – Holdrege Parks and Recreation, located 2.2 miles west; South Park, located 2.5 miles west of the airport

- **Farmland.** A review of the U.S. Department of Agriculture (USDA), Natural Resources Conservation Services (NRCS) Web Soil Survey (WSS), indicates soils classified as "prime farmland if irrigated" and "not prime farmland" are present on airport property. **Table 5** below outlines the ratio of each soil type identified on **Exhibit 6**.

**TABLE 5 | Farmland Classification**

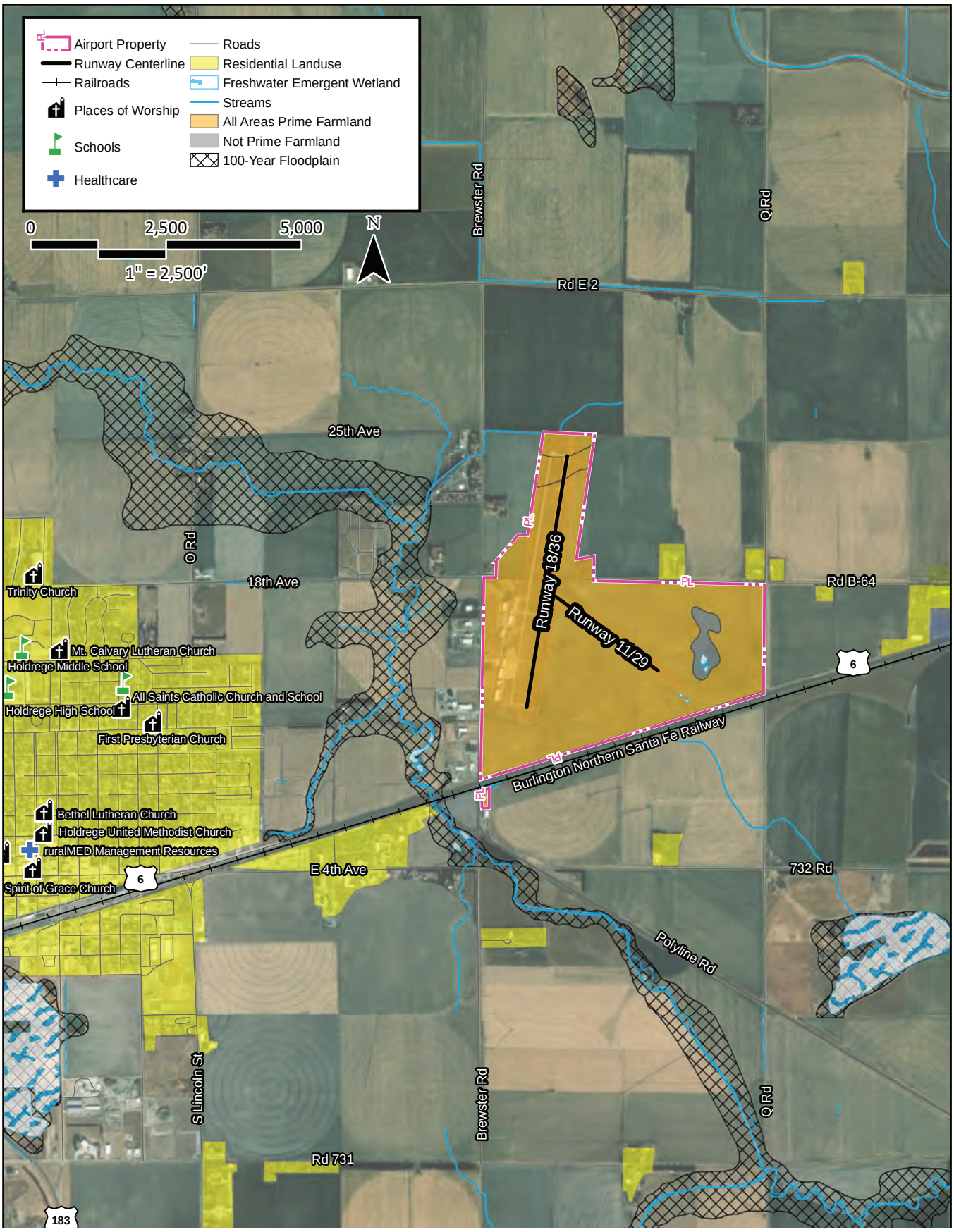
| | Acres of Farmland | Percent of Airport |
|---|---|---|
| Prime Farmland | 402.4 | 97.4 |
| Not Prime Farmland | 10.9 | 2.6 |
| **Total** | **413.3** | **100%** |

*Source: U.S. Department of Agriculture Natural Resources Conservation Service Web Soil Survey (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx)*

- **Hazardous Materials, Solid Waste, and Pollution Prevention.** According to the EPA's Environmental Justice Screening (*EJSCREEN*) and Mapping Tool, there are no Superfund, but there is a Brownfield site (Greg Vandell Farm Ground) located 4.6 miles from the airport.[4] Additionally, there is the Holdrege Prairie Hill Landfill located 2.2 miles southwest of the airport.

- **Historic, Architectural, Archaeological, and Cultural Resources.** As previously noted, the closest NRHP listed site is the Phelps County Courthouse (1.5 miles west). The closest Native American tribal land is the Ponca Trust Land, approximately 104.1 miles east of the airport.

[4] U.S. Environmental Protection Agency *EJSCREEN* (https://ejscreen.epa.gov/mapper/)




Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community, USDA, FEMA, USFWS

- **Land Use and Noise and Compatible Land Use.** Existing land surrounding Brewster Field Airport is a mixture of residential, agriculture, and open space. Major developments and residential uses are located west of the airport, centered in the City of Holdrege. Within one mile of the airport there are a few residential properties with most the property used for agricultural purposes. Noise-sensitive land uses in the vicinity of the airport are generally residential, places of worship, hospitals and healthcare facilities, and educational institutions. Places of worship are defined as permanently established facilities intended solely for use as places of worship and not meant to be converted to other potential uses. For a hospital or healthcare facility to be considered a noise-sensitive medical facility, it must provide for overnight stays or provide for longer recovery periods, where rest and relaxation are key considerations for use of the facility. Schools are facilities that provide full-time use for student instruction and training. The nearest noise-sensitive land uses within the vicinity of the airport include the following:
    - **Places of Worship**
        - First Presbyterian Church – 2.0 miles west
        - All Saints Catholic Church – 2.0 miles west
        - Mt Calvary Lutheran Church– 2.0 miles west
        - Trinity Church – 2.0 miles west
        - Spirit of Grace Church – 2.2 miles southwest
        - First United Methodist Church – 2.3 miles southwest
        - St. Elizabeth's Church – 2.4 miles southwest
        - Bethel Lutheran Church – 2.4 miles southwest
        - First Baptist Church – 2.5 miles west
        - North Park Assembly – 2.6 miles west
        - Cornerstone Community Church of the Nazarene – 2.6 miles west
        - The Church of Jesus Christ of Latter-day Saints – 2.9 miles west
        - Jehovah's Witness Kingdom Hall – 3.0 miles west
        - Seventh-day Adventist Church – 3.1 miles west
    - **Schools**
        - All Saints Catholic Church and School – 2.0 miles west
        - Holdrege Middle School – 2.3 miles west
        - Holdrege High School – 2.3 miles west
        - Bethel's Tutoring Tots – 2.4 miles southwest
        - Prep School HDCP Child Program – 3.2 miles west
        - Central Community College – 2.0 miles southwest
    - **Hospitals**
        - Dr. Stuart Embury – 1.7 miles west
        - Ruralmed Management Resources – 2.3 miles southwest
        - VA Holdrege Clinic – 2.8 miles west
        - Phelps Memorial Health Center – 2.8 miles west
        - Phelps Medical Group – 2.8 miles west
        - Family Medical Specialties – 3.1 miles west

- **Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks.** The EPA's *EJSCREEN* online tool was consulted regarding the presence of minority and low-income populations. The population within two miles of the airport is 3,776 people, with about nine percent considered a minority population and 34 percent considered low-income.
- **Visual Effects.** As previously discussed, the airport is mostly surrounded by a mix of residential, agriculture, and open space. Due to regional low-density land use, visual impacts by the airport are minimal.
- **Water Resources (Wetlands, Floodplains, Surface Waters, Groundwater, Wild and Scenic Rivers)**
    - **Wetlands.** According to USFWS National Wetlands Inventory, one riverine, and three freshwater emergent wetlands were identified as a wetland and are present on airport property. It is important to note that the NWI information is based on aerial photography dated 2007 and may not reflect current conditions. Field surveys may be required to determine the presence of wetlands. Other wetland features, such as ponds, riverines, and wetlands are in the vicinity of the airport.

      Wetlands exhibit three characteristics: the soil is inundated or saturated to the surface at some time during the growing season (hydrology), has a population of plants able to tolerate various degrees of flooding or frequent saturation (hydrophytes), and soils that are saturated enough to develop anaerobic (absent of air or oxygen) conditions during the growing season (hydric). The NRCS WSS identified a small portion of airport property, roughly 2.6 percent, is considered to contain hydric soils.
    - **Floodplains.** Per the Federal Emergency Management Agency (FEMA), community-panel number 330 map number 31137C030330C (effective January 16,2008), the airport is in Zone X, which identifies areas to be outside the 0.2 percent annual chance of flood. Portions of areas within the vicinity of the airport are in Zone A, or a special flood hazard area with a base flood elevation.
    - **Surface Waters.** The closest natural surface water feature is the Sacramento Creek located 0.25 miles north of the airport. Besides the Sacramento Creek, the Platte River is 14.6 miles west of the airport and the Middle Loup River located 84.3 miles north of the airport. The Platte River is a major river in Nebraska, which carries snowmelt from the Rocky Mountains in Colorado and Wyoming to the Missouri River, and ultimately drains into the Mississippi.
    - **Groundwater.** According to the United States Geological Service (USGS), the nearest sole source aquifer is the Elk Mountain Aquifer located 369.62 miles west of the airport. The geologic make-up of the area is comprised of unconsolidated sand and gravel aquifer of the High Plains aquifer. Unconsolidated sand and gravel aquifer are characterized by intergranular porosity, and all contain water primarily under unconfined, or water-table, conditions. The High Plains aquifer is one of the largest freshwater aquifers in the world and supplies more than 82 percent of the drinkable water for its service area.
    - **Wild and Scenic Rivers.** According to U.S. National Wild and Scenic Rivers, no wild or scenic rivers are located within the vicinity of the airport. The closest National Wild and Scenic River is the Niobrara River, located approximately 155.83 miles north of the airport.

## *AIRSPACE CHARACTERISTICS*

The airspace within the National Air Transportation System (NAS) is divided into six different categories or classes. The airspace classifications that make up the NAS are presented on **Exhibit 7**. These categories of airspace are made up of Classes A, B, C, D, E, and G airspace. Each class of airspace contains its own criteria that must be met in terms of required aircraft equipment, operating flight rules (visual or instrument flight rules), and procedures. Classes A, B, C, D, and E are considered controlled airspace, which requires pilot communication with the controlling agency prior to airspace entry and throughout operation within the designated airspace. Pilot communication procedures, required pilot ratings, and required minimum aircraft equipment vary depending upon the class of airspace, as well as the type of flight rules in use.

As shown on **Exhibit 8**, HDE is located within Class E airspace extending from 700 feet above ground level (AGL) up to 18,000 feet mean sea level (MSL). Class G airspace extends from the surface to the base of overlying Class E airspace. In Class E airspace, aircraft conducting visual flights are not required to be in radio communications with air traffic control facilities.

**Exhibit 8** also depicts other airspace features within the vicinity of HDE, including Victor Airways and Military Operations Areas (MOAs).

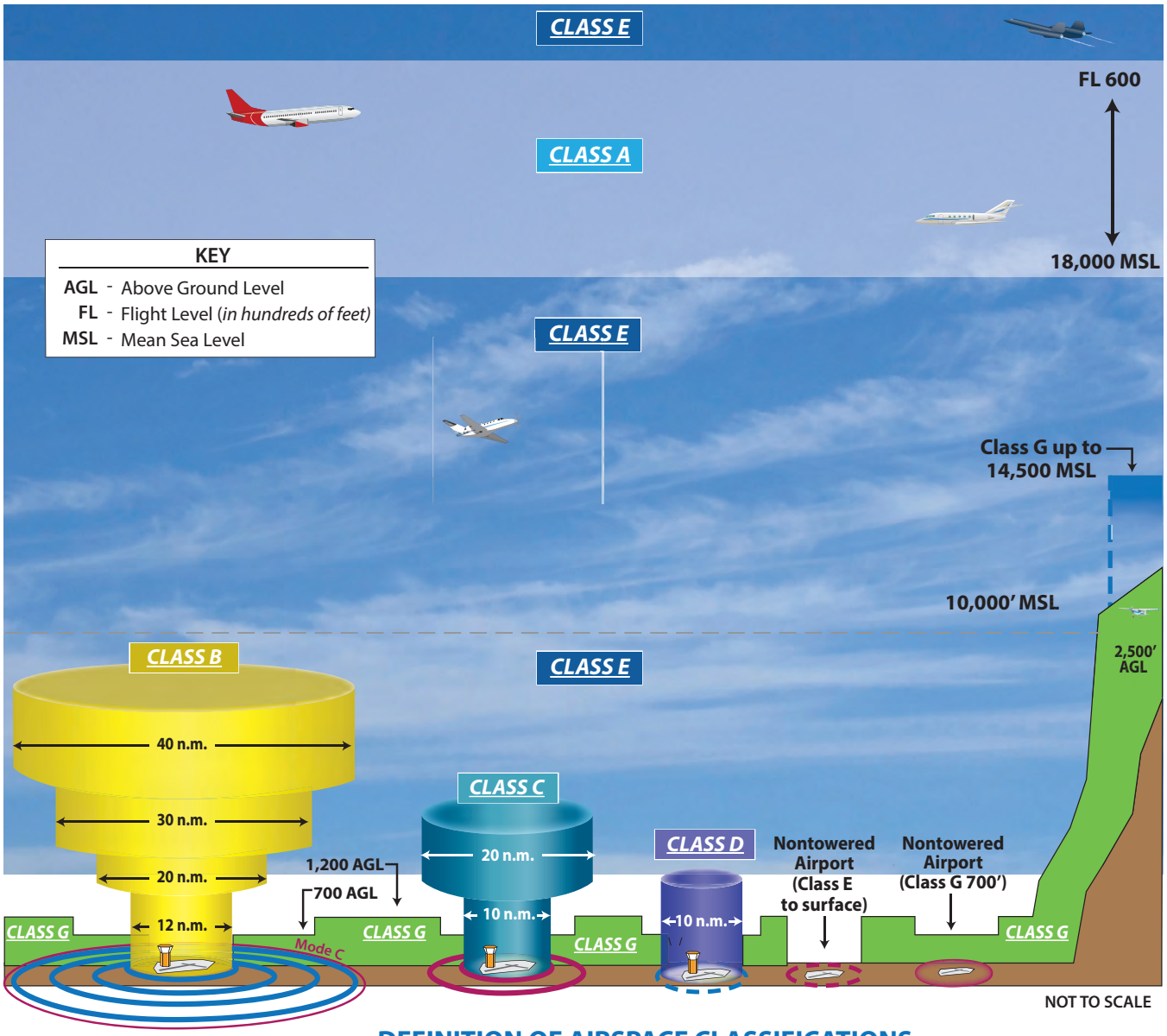
Victor Airways are corridors of airspace extending between VOR facilities that are eight miles wide and extend from 1,200 feet up to, but not including, 18,000 feet. Victor Airways near the airport (V220) emanate from the Mc Cook VOR-DME, Kearney VOR, and Hastings VOR-DME.

MOAs illustrate airspace where a high level of military activity is conducted and are intended to separate civil and military aircraft. Civilian air travel is not restricted in MOAs, but they are advised to exercise extreme caution when flying within an MOA when military activity is being conducted. The Lincoln MOA is located approximately 54 nm east of HDE. It is normally operated from 9:00 am to 4:00 p.m., Tuesday through Sunday and other times by Notice to Air Mission (NOTAM). The designated altitude for the MOA is from 8,000 feet MSL up to, but not including, 18,000 feet MSL.

MTRs are designated airspace that have been generally established for use by high-performance military aircraft to train below 10,000 feet AGL and in excess of 250 knots. There are VR (visual) and IR (instrument) designated MTRs. MTRs with no segment above 1,500 feet AGL will be designated with the VR or IR, followed by a four-digit number. MTRs with one or more segments above 1,500 feet AGL are identified by the route designation followed by a three-digit number. The arrows on the route show the direction of travel. There are no MTRs located within the vicinity of the airport.

Restricted airspace is an area of airspace that is typically used by the military in which the local controlling authorities have determined that air traffic must be restricted or prohibited for safety or security concerns. There is no restricted airspace located within the vicinity of the airport.

Alert Areas are depicted on aeronautical charts to inform nonparticipating pilots of areas that may contain a high volume of pilot training or an unusual type of aerial activity. There are no alert areas located within the vicinity of the airport.




## DEFINITION OF AIRSPACE CLASSIFICATIONS

**CLASS A** Think A - Altitude. Airspace above 18,000 feet MSL up to and including FL 600. Instrument Flight Rule (IFR) flights only, ADS-B 1090 ES transponder required, ATC clearance required.

**CLASS B** Think B - Busy. Multi-layered airspace from the surface up to 10,000 feet MSL surrounding the nation's busiest airports. ADS-B 1090 ES transponder required, ATC clearance required.

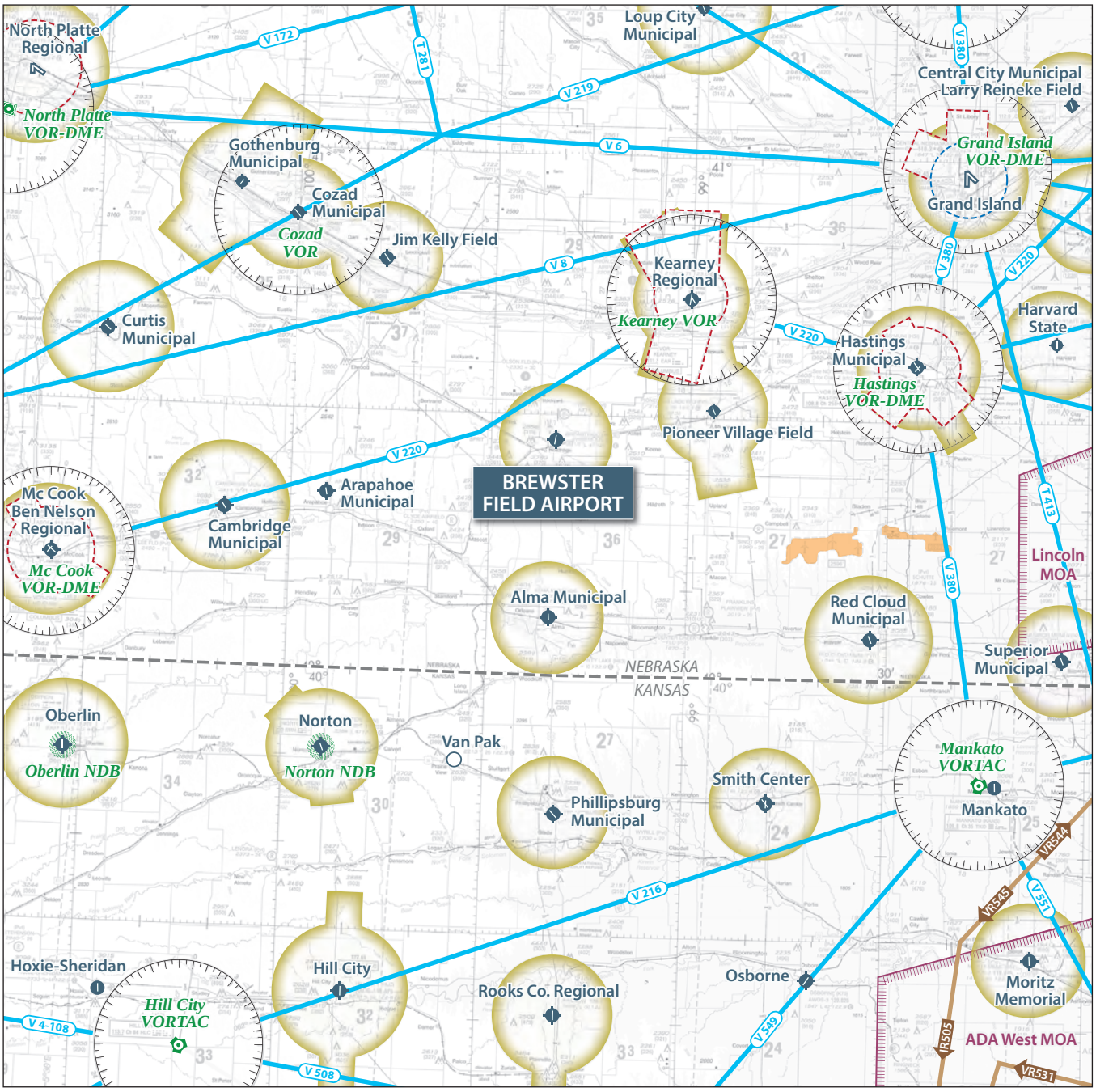
**CLASS C** Think C - Mode C. Mode C transponder required. ATC communication required. Generally airspace from the surface to 4,000 feet AGL surrounding towered airports with service by radar approach control.

**CLASS D** Think D - Dialogue. Pilot must establish dialogue with tower. Generally airspace from the surface to minimum 2,500 feet AGL surrounding towered airports.

**CLASS E** Think E - Everywhere. Controlled airspace that is not designated as any other Class of airspace.

**CLASS G** Think G - Ground. Uncontrolled airspace. From surface to a 1,200 AGL (in mountainous areas 2,500 AGL) Exceptions: near airports it lowers to 700' AGL; some airports have Class E to the surface. Visual Flight Rules (VFR) minimums apply.

***Source:*** www.faa.gov/regulations_policies/handbooks_manuals/aviation/phak/media/17_phak_ch15.pdf




## LEGEND

- Airport with other than hard-surfaced runway
- Airport with hard-surfaced runways 1,500' to 8,069' in length
- Airports with hard-surfaced runways greater than 8,069' or some multiple runways less than 8,069'
- Compass Rose
- Non-directional Radio Beacon (NDB)
- VORTAC
- VOR-DME
- Military Operations Area (MOA)
- Class D Airspace
- Class E Airspace
- Class E Airspace with floor 700 ft. above surface that laterally abuts 1200 ft. or higher Class E airspace
- Victor Airways
- Military Training Routes
- Wind Turbines

*Source:*
Omaha and Wichita Sectional Charts, US Department of Commerce, National Oceanic and Atmospheric Administration, July 14, 2022

Exhibit 8
VICINITY AIRSPACE

## AIRPORT TRAFFIC CONTROL

There is no airport traffic control tower at HDE; therefore, no formal terminal air traffic control services are available for aircraft landing or departing the airport. Aircraft operating in the airport vicinity are not required to file any type of flight plan or to contact any air traffic control facility unless they are entering airspace where contact is mandatory. The common traffic advisory frequency (CTAF) of 122.8 MHz is used by pilots to obtain airport information and to advise other aircraft of their position in the traffic pattern and their intentions.

The airport is located within the jurisdiction of the Denver Air Route Traffic Control Center (ARTCC). The Columbus flight service station (FSS) provides additional weather data and other pertinent information to pilots in the vicinity of the airport.

## LOCAL OPERATING PROCEDURES

HDE is situated at 2,313 feet MSL. The standard traffic pattern altitude is 1,000 feet above the elevation of the airport surface (3,313 feet MSL). The traffic pattern for heavy and turbine aircraft is 1,500 feet above the airfield elevation (3,813 feet MSL), while rotorcraft and ultralight aircraft should maintain an altitude of 2,813 feet MSL. A standard left-hand traffic pattern turn is published for all runway ends at the airport. In this manner, the approach to landing is made using a series of left-hand turns.

## REGIONAL AIRPORTS

A review of other public-use airports within 30 nm of HDE was conducted to identify and distinguish the types of air service provided in the region. It is important to consider the capabilities and limitations of these airports when planning for future changes or improvements at HDE. Public-use airports within the 30 nm of the airport are detailed in **Exhibit 9**, with information pertaining to each airport obtained from FAA Form 5010, *Airport Master Record*.

## SOCIOECONOMIC CHARACTERISTICS

The socioeconomic characteristics of a region play an important role in the planning process by providing an understanding of the growth dynamic within the study area. Socioeconomic data, including historic population, employment, income, and earnings is collected and analyzed and will ultimately be used to determine aviation service level requirements. This data will also be used to develop aviation forecasts for HDE. Aviation forecasts are typically related to the population base, economic strength of the region, and the ability of the region to sustain a strong economic base over an extended period.

Historic and forecast socioeconomic data for Phelps County were obtained from Woods & Poole Economics - Complete Economic and Demographic Data Source, 2022, and Woods & Poole utilizes information from the U.S. Census Bureau. The information is presented on **Exhibit 10**.

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## PIONEER VILLAGE FIELD AIRPORT (0V3)

Distance from HDE ..... 18.2 nm ENE
Airport NPIAS Classification ..... GA
FAA Asset Study Classification ..... Basic
Elevation ..... 2,160
Weather Reporting ..... None
ATCT ..... None
Annual Operations ..... 7,000
Based Aircraft ..... 14
Enplaned Passengers ..... None

| Runways | 16/34 | 5/23* |
|---|---|---|
| Length | 3,900 | 1,275 |
| Width | 60 | 300 |
| Pavement Strength | | |
| SWL | 30,000 | |
| DWL | 52,000 | |
| Lighting | MIRL | |
| Marking | Nonprecision | |
| Approach Aids | PAPI-2 | |
| Instrument Approch Procedures | GPS | |

Services provided: 100LL Fuel, Hangars, Tiedowns

## ALMA MUNICIPAL AIRPORT (4D9)

Distance from HDE ..... 20.4 nm S
Airport NPIAS Classification ..... GA
FAA Asset Study Classification ..... Basic
Elevation ..... 2,073
Weather Reporting ..... None
ATCT ..... None
Annual Operations ..... 2,300
Based Aircraft ..... 12
Enplaned Passengers ..... None

| Runways | 17/35 |
|---|---|
| Length | 3,200 |
| Width | 60 |
| Pavement Strength | |
| SWL | NA |
| DWL | NA |
| Lighting | MIRL |
| Marking | Nonprecision |
| Approach Aids | PAPI-2 |
| Instrument Approch Procedures | GPS |

Services provided: 100LL Fuel, Tiedowns

## KEARNEY REGIONAL AIRPORT (EAR)

Distance from HDE ..... 22.3 nm NE
Airport NPIAS Classification ..... CS
FAA Asset Study Classification ..... Regional
Elevation ..... 2,132
Weather Reporting ..... AWOS
ATCT ..... None
Annual Operations ..... 21,770
Based Aircraft ..... 33
Enplaned Passengers ..... 4,568

| Runways | 18/36 | 13/31 |
|---|---|---|
| Length | 7,094 | 4,498 |
| Width | 100 | 75 |
| Pavement Strength | | |
| SWL | 46,000 | 3,000 |
| DWL | 62,000 | 38,000 |
| Lighting | HIRL | MIRL |
| Marking | Nonprecision/Precision | Nonprecision |
| Approach Aids | PAPI-4, REILs/PAPI-4, MALSR | PAPI-2 |
| Instrument Approch Procedures | GPS,VOR/ILS or LOC, GPS | GPS |

Services provided: Jet A & 100LL Fuel, Hangars and Tiedowns, Maintenance

## ARAPAHOE MUNICIPAL AIRPORT (37V)

Distance from HDE ..... 27.0 nm WSW
Airport NPIAS Classification ..... NA
FAA Asset Study Classification ..... NA
Elevation ..... 2,273
Weather Reporting ..... None
ATCT ..... None
Annual Operations ..... 4,250
Based Aircraft ..... 1
Enplaned Passengers ..... None

| Runways | 15/33 |
|---|---|
| Length | 3,000 |
| Width | 50 |
| Pavement Strength | |
| SWL | NA |
| DWL | NA |
| Lighting | MIRL |
| Marking | Basic |
| Approach Aids | None |
| Instrument Approch Procedures | None |

Services provided: 100LL fuel, Hangars, Tiedowns

## JIM KELLY FIELD AIRPORT (LXN)

Distance from HDE ..... 28.5 nm NW
Airport NPIAS Classification ..... GA
FAA Asset Study Classification ..... Local
Elevation ..... 2,413
Weather Reporting ..... AWOS
ATCT ..... None
Annual Operations ..... 10,640
Based Aircraft ..... 24
Enplaned Passengers ..... 3

| Runways | 14/32 | 1/19* |
|---|---|---|
| Length | 5,489 | 3,200 |
| Width | 100 | 250 |
| Pavement Strength | | |
| SWL | 30,000 | |
| DWL | NA | |
| Lighting | MIRL | |
| Marking | Nonprecision | |
| Approach Aids | PAPI-2, REILs | |
| Instrument Approch Procedures | GPS | |

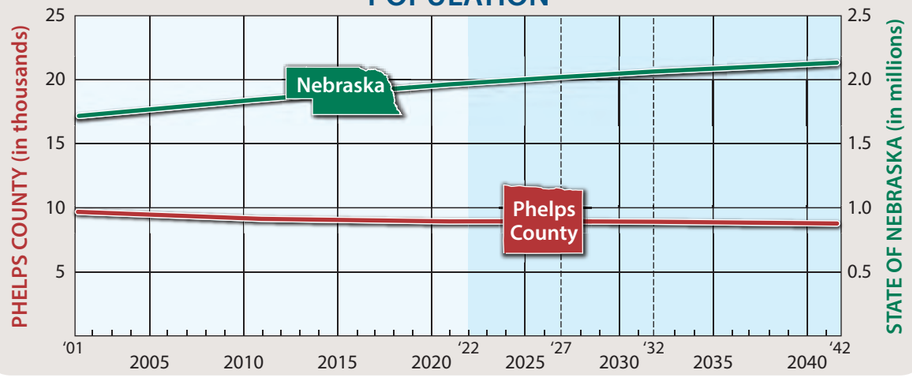
Services provided: Jet A+ & 100LL Fuel, Hangars and Tiedowns, Maintenance

| KEY | |
|---|---|
| ATCT | Air Traffic Control Tower |
| DWL | Dual Wheel Loading |
| GA | General Aviation |
| GPS | Global Positioning System |
| HIRL | High Intensity Runway Lights |
| ILS | Instrument Landing System |
| LOC | Localizer |
| MIRL | Medium Intensity Runway Lights |
| N/A | Not Applicable |
| NM | Nautical Mile |
| NPIAS | National Plan of Integrated Airport Systems |
| PAPI | Precision Approach Path Indicator |
| REIL | Runway End Identifier Lights |
| SWL | Single Wheel Loading |
| VASI | Visual Approach Slope Indicator |
| VOR | Very High Frequency Omni-directional Range |

* Turf Runways

**Source:** FAA Form 5010:Airport Master Records; Airnav.com

## POPULATION

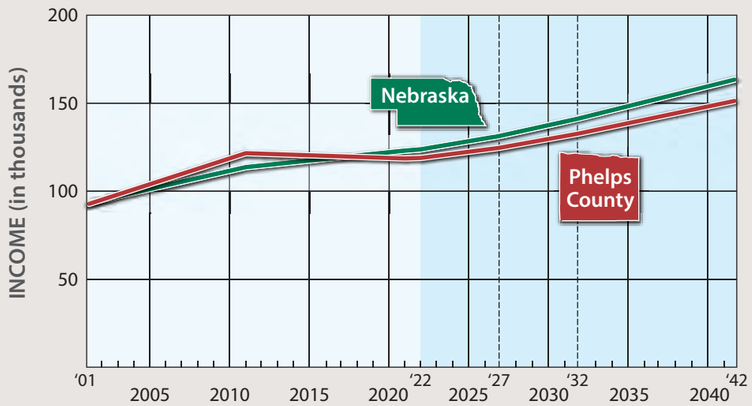



## INDUSTRIES

| | |
|---|---|
| 19.5% | Farm |
| 0.8% | Foresting, Fishing, and Related Activities and other |
| 0.2% | Mining |
| 1.2% | Utilities |
| 5.0% | Construction |
| 15.9% | Manufacturing |
| 8.0% | Wholesale Trade |
| 5.6% | Retail Trade |
| 2.6% | Transportation and Warehousing |
| 0.2% | Information |
| 5.0% | Finance and Insurance |
| 1.5% | Real Estate and Rental and Lease |
| 2.5% | Professional and Technical Services |
| 2.2% | Management of Companies and Enterprises |
| 1.3% | Administrative and Waste Services |
| 1.2% | Educational Services |
| 9.4% | Health Care and Social Assistance |
| 0.6% | Arts, Entertainment, and Recreation |
| 1.5% | Accomodation and Food Services |
| 3.1% | Other Services, Except Public Administration |
| 1.2% | Federal Civilian Government |
| 0.3% | Federal Military |
| 11.2% | State and Local Government |

## INCOME

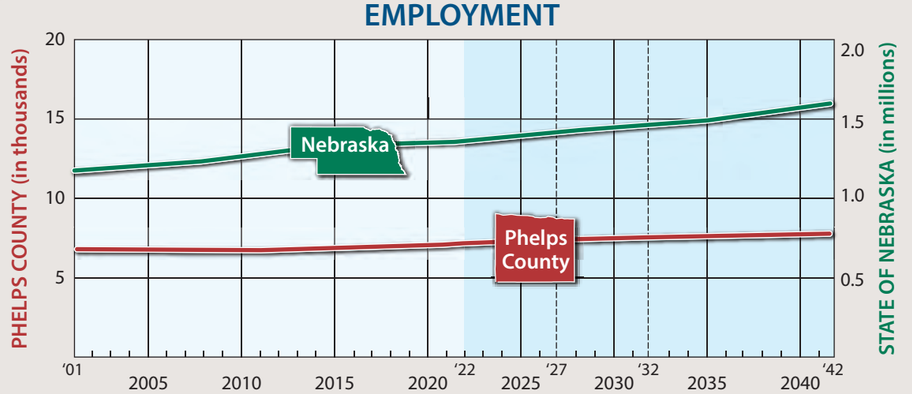
(Mean Household Total Personal Income in 2012 dollars)

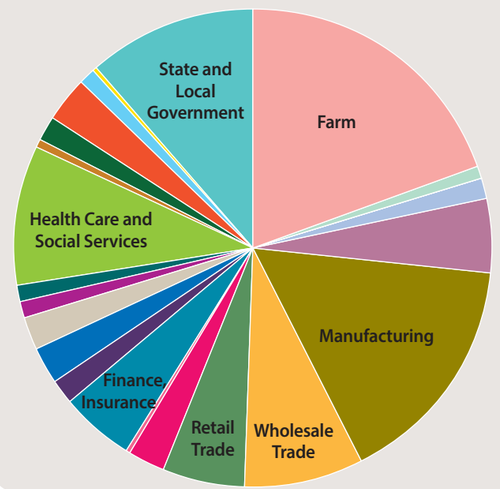



## MAJOR EMPLOYERS

| EMPLOYER | PRODUCT |
|---|---|
| Becton Dickinson | Insulin Syringes |
| Allmand Brothers | Portable light towers, arrow boards, & industrial heaters |
| Hawkins Manufacturing | Farm Equipment |
| Nebraska Star Beef | Beaf Processing |
| Earth Science Laboratories , Inc. | Algacide, Bactericide and Fungicide |
| Planterworx | Agriculture Implements |
| Holen One Farms | Spices, Marinades, and BBQ Sauce |
| LandMark Implement, Inc. | Farm Equipment, Products, and Services |
| Phelps Memorial Health Center | Medical |
| Integrated Electrical Services, Inc. | Electrical Design, Construction, and Maintenance |
| CHS Agri Service Center | Mixed-grain feed and fertilizer |
| Holdrege Public Schools | Education |
| Holdrege Memorial Homes | Long Term Care/Retirement Center |
| Christian Home Care Community | Long Term Care/Retirement Center |
| Central NE Public Power and Irrigation | Electric Utility |
| Mosaic | Services for developmentally disabled |

## EMPLOYMENT




*Source: Woods & Poole Complete Economic and Demographic Data Source (CEDDS) 2022*