CHAPTER 1: AIRPORT, COMMUNITY & AVIATION ACTIVITY

Purpose and Scope

The information presented in this report represents the study findings for the 2025 Airport Master Plan study prepared for the Gordon Airport Authority, the airport owner. Airport Master Plans are prepared in accordance with Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-6B, *Airport Master Plans*. This project was funded in part by the FAA under grant number AIG 3-31-0031-016-2025.

This study for the Gordon Municipal Airport will serve as an updated guide identifying future development necessary to accommodate existing and future aviation demands. The airport's current and forecasted safety, capacity and compatibility needs are addressed in this study. Many projects have been completed and new planning considerations have surfaced since the last planning study was completed in 2011.

The airport sponsor and Kadrmas, Lee & Jackson (KLJ) developed the scope for the project in cooperation with FAA Central Region Airports Division staff and Nebraska DOT Aeronautics Division officials to identify the specific needs and objectives of the airport owner. The scope includes work tasks with the purpose of documenting existing conditions, forecasting future aviation activity levels, identifying future facility requirements, formulating, and evaluating development alternatives, preparing implementation plans and engaging the public and other government agencies. Recommendations will be made for improvements that are triggered by safety requirements or demand thresholds.

The project received notice to proceed in July 2025 from the airport sponsor. The baseline project data is from inventory efforts completed in October 2025. Data from year 2024 was used to establish a baseline of existing airport information.

Planning Objectives

Planning considerations for an airport master plan are features, elements or events that should be evaluated because they have the potential to affect the airport facility over the long term.

PREVIOUS PLANNING STUDIES

The last Airport Layout Plan (ALP) was approved in 2011 and an airport master plan has not been completed for this airport. Based on the background and planning considerations, the planning objectives for this study identify the methods used to meet the airport development goals outlined by the airport owner. The key project objectives are identified as follows:

- Conduct Wind Analysis to evaluate runway orientation and crosswind runway wind coverage
- Update ALP to current design standards
- Accommodate increasing size of aircraft and increased operations
- Identify areas for future hangar area development

FAA AERONAUTICAL SURVEY

The FAA has implemented Aeronautical Survey requirements per FAA AC 150/5300-18B: *General Guidance and Specifications for Submission of Aeronautical Data to NGS: Field Data Collection and Geographic Information System (GIS) Standards*. FAA airport survey requirements require obstruction data to be collected using assembled aerial imagery for the airport. This data is used in aeronautical publications and to develop instrument approach procedures. An aeronautical survey is currently in progress with this planning effort as required by FAA. Imagery was acquired in October 2024. When safety-critical data is needed to update runway end data or enhance an instrument approach then a new aeronautical survey is required. All projects at primary FAR Part 139 certificated airports must comply with Airports GIS standards for all development projects.

Master Plan Process

Guidelines for completing a Master Plan are set forth in FAA AC 150/5070-6B. Each master plan study scope and level of effort is customized to fit each individual airport's needs and address critical issues.

The required and recommended contents of Airport Master Plans are detailed per FAA standards. Effective airport master plans are based on the analysis of significant amounts of data, and many airport master plans typically present not only the planning conclusions, but all data and accompanying analysis in considerable detail.

This Master Plan study presents data in a sequential manner following the typical FAA planning process. Appendices are included to provide more detailed information on a subject. In addition, internet hyperlinks are included to reference documents that are current as of the time of this report.

The Airport Master Planning process involves several coordinated steps. The master plan study for GRN consists of the following elements:

- **Pre-Planning** – Airport development concerns are identified and planning objectives prepared to address these issues. An overall vision for the study is formulated that will guide the process.
- **Facility & Environmental Inventory** – Overview of airport setting and environment; infrastructure and assets which includes airside, landside, and support facilities; airspace, navigational aids, and airport access utilizing data from an FAA Aeronautical Survey. Provide an overview of anticipated environmental impacts as part of the development of alternatives.

Alternatives Analysis

The alternatives evaluation process is the most collaborative portion of the master plan study. The alternatives are reviewed and refined through meetings with federal/state agency representatives and the study's advisory group. Evaluation criteria is used to compare the alternatives. The alternative evaluation criteria for this study includes the following:

Operational Performance - How does each alternative allow the airport, and specifically the runway/taxiway system, to operate as a functional system, meet design standards, and meet the needs of the community.

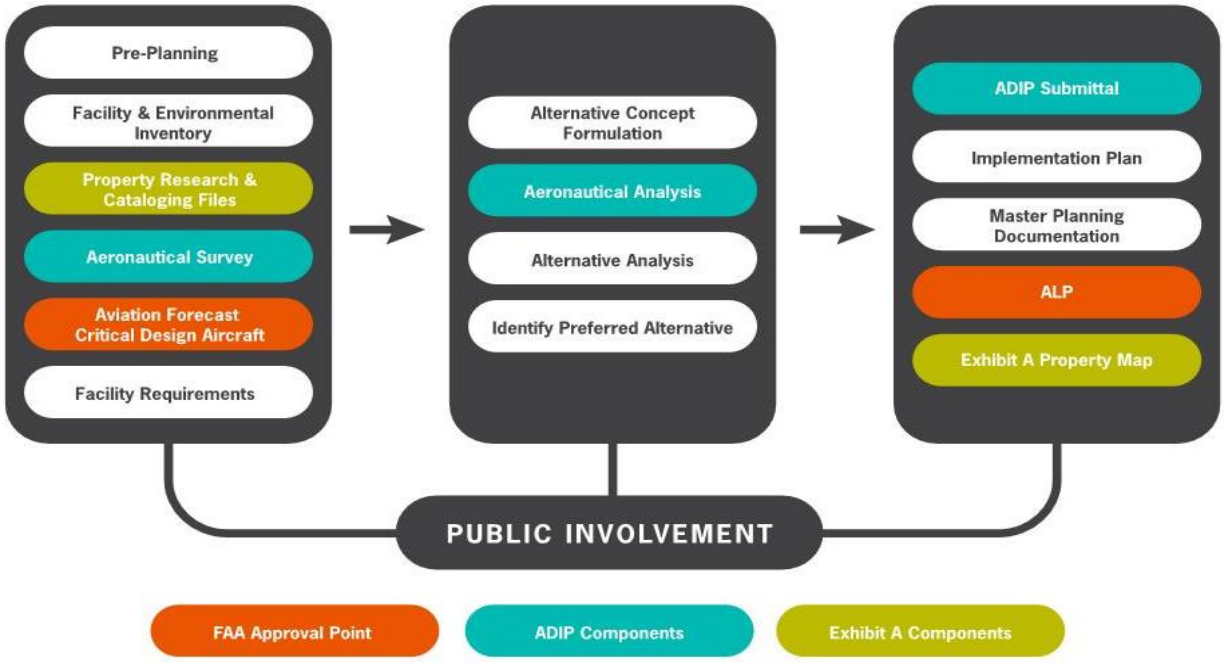
Best Planning Tenets – What are the strengths and weaknesses of the alternatives as it relates to 1) flexibility to meet demand and react to unforeseen changes; 2) highest and best on- and off-airport land use; 3) feasibility to implement politically and within practical phases; and 4) ability to satisfy airport user needs.

Environmental Factors – What are the potential effects of the alternatives upon the natural and built environment.

Fiscal Factors – How much will the options cost as compared to each other, while making the most use of federal, state and local resources.

- **Forecast of Aviation Demand** – Using established forecasting methods, estimate current and project future airport activity for general aviation, air cargo, and passenger enplanements.
- **Demand Analysis and Facility Requirements** – Compare the existing capacity with the future demand and identify the facility requirements to satisfy the aviation safety, capacity, and compatibility needs.
- **Alternatives Development and Evaluation** – Identify and evaluate options considering both on-airport and off-airport impacts consistent with the study goals and objectives. A preferred alternative is selected.
- **Implementation Plan** – Provide a comprehensive plan for implementation of the preferred alternative including project triggers, sequencing, and cost estimates.
- **Airport Layout Plan (ALP)** – Document the existing and planned airport facilities through a set of drawings approved by the airport sponsor, state, and FAA.
- **Stakeholder and Public Involvement** – Prepare and execute a plan to engage important airport stakeholder and the public throughout the study to gather their input and address their concerns.

Figure 1-1 – Airport Master Planning Process



Source: KLJ

Study Documentation & Approvals

The Master Plan Update was divided into chapters to document airport planning data, analysis, findings, and recommendation of the study. The following sections included in the narrative report:

- Chapter 1 – Airport, Community & Aviation Activity
- Chapter 2 – Runways & Taxiways

- Chapter 3 – Terminal Area & Support Facilities
- Chapter 4 – Implementation & Compatibility
- Chapter 5 – Airport Layout Plan

- Appendix A – Glossary of Terms
- Appendix B – General Aviation Airports 101
- Appendix C – Meetings and Public Involvement
- Appendix D – Runway Length Analysis
- Appendix E – Obstruction Analysis and Action Plan
- Appendix F – Recycling and Solid Waste Plan

Each chapter was prepared separately and distributed to the airport owner for review and comment. After the airport owner's review, each draft chapter findings were made available to key airport stakeholders including the State and FAA for input prior to a final review and approval by the airport owner. Each approved final draft chapter was then published on the airport's website for public viewing.

In addition, an Executive Summary report has been prepared at the end of the master plan study to concisely document the recommendations of the study.

The Master Plan Update was adopted by the Gordon Airport Authority on [FUTURE DATE]. The ALP was submitted to the State and FAA for review and approval on [FUTURE DATE].

Public Involvement

Public involvement is a key component to the successful development of an Airport Master Plan study. The purpose is to encourage information sharing and feedback from airport stakeholders including the airport owner, airport users/tenants, local government officials, resource agencies, elected and appointed officials and the public. Public involvement provides valuable input to assist the airport owner in decision making and develop consensus on study conclusions.The Planning Advisory Committee (PAC) is comprised of several airport authority board members and airport users and was established to provide input throughout the life of the study. The purpose of the PAC was to facilitate group discussion and feedback regarding the draft planning materials. There are also stakeholders that were contacted in the planning process. These included the following stakeholder groups.

- City of Gordon
- Airport Authority
- Gordon Memorial Health Services
- Local Pilot/Farming and Ranching Community Representatives

A project website, https://inputcentral.com/grn-airportplan was developed as a forum to share information about the project with the public. This website was used to distribute project documentation as well as collect feedback. Draft study documents were posted progressively and made available for review. An online comment form ran throughout the life of the project to provide feedback directly to the project team. See **Appendix C: Public Involvement** for other information including copies of public involvement meeting agendas, attendees, presentations, and summaries.

Airport & Community Overview

General

The Gordon Municipal Airport (GRN) is a general aviation airport serving the City of Gordon and the surrounding area of Sheridan County in northwest Nebraska. The airport is part of the FAA's National Plan of Integrated Airports System (NPIAS) and is classified as a non-primary Local General Aviation (GA) airport. See **Appendix B: General Aviation Airports 101** for information about airport classifications.

GRN has two runways. The primary runway, Runway 04/22, is lighted, paved with asphalt and measure 75-foot wide by 5,196 foot-long with non-precision instrument markings and RNAV GPS approach to both ends. The primary runway is considered to be in generally good condition. The crosswind runway, Runway 11/29, is also lighted and measures 50-foot wide by 2,284 foot-long and constructed of asphalt. The crosswind runway is in poor condition and in need of a reconstruction. Airport facilities consist of a variety of hangars, three concrete aircraft tiedown spots, self-serve 100LL Avgas fueling and a terminal building. The apron can be accessed by an asphalt road with vehicle parking at the terminal building.

Location and Area Setting

The City of Gordon is within Sheridan County, which is located in northwest Nebraska, and is considered part of the Panhandle region. Gordon is the largest city within the county, and the city center is located approximately 1.3 miles west of the Gordon Municipal Airport and accessible via US Highway 20. Geographically, the city itself is situated only 14 miles south from the South Dakota border, and 106 miles east of the Wyoming border.

The airport elevation is 3,562 feet above mean sea level (AMSL). The terrain around the airport is arid rolling hills. There is no zoning ordinance in place that dictates land use surrounding the airport.

Sheridan County was founded in 1885 and was named for General Philip H. Sheridan, while the City gets its namesake from the 19th century pioneer, John Gordon, who led a wagon train bound for the Black Hills of South Dakota. While the area had several scattered homesteads and wagon trails, it wasn't until the establishment of the railroad to the northern portion of Nebraska in November of 1885 when the City was formally incorporated. The railroad shaped the landscape of Gordon in both a physical and economic sense. Through the mid 1880's, the Chicago and North Western Railway, which in later years was acquired and became what is now known as the Union Pacific Railroad, was in the process of extending its rail system through the upper Midwest United States, including Sheridan County, Nebraska. The extension of the rails into Omaha and Council Bluffs was an important connection, as it merged the Union Pacific to the transcontinental railroad system. The primary purpose of this track was a means to serve rural, agricultural regions with supplies. Conversely, these same areas became major sources of exportation of cattle, grain and other harvested goods to larger metropolitan areas such as Omaha, Chicago and Minneapolis, to name a few.

With the construction of the rails through Sheridan County, the official townsite of Gordon was platted and housing, business and infrastructure soon followed. Gordon became a vital center supporting farming and ranching industry and the economy of the City was shaped by the services provided, including grain elevators, stockyards, and lodging for travelers and workers passing through. Today, these same roots are reflective in the current economy, as Gordon remains a vital service hub for the agricultural region, with farming and ranching activities continuing to be a major contributor to the overall economy of Sheridan County.

Airport Ownership & Management

The airport is owned and operated by the Gordon Airport Authority. The authority consists of five elected members from the surrounding community. The City Manager for the City of Gordon serves as the Airport Manager and City staff takes responsibility to operate the airport.

Airport History

The airport first became operational in February of 1946. Originally, 160 acres of land were purchased for the airport and hangar structures were soon constructed. The airport provided, and still provides, access to critical emergency and medical services, support for farming and ranching activities, including ag spraying, aerial survey and transportation of supplies. Additionally, the airport connects the City of Gordon with larger communities within the region, expanding the reach for personal and business travel. A complete list of major airport development projects that received funding from FAA and the State can be found in **Table 1-1 Past Airport Projects.**

Table 1-1 Past Airport Projects

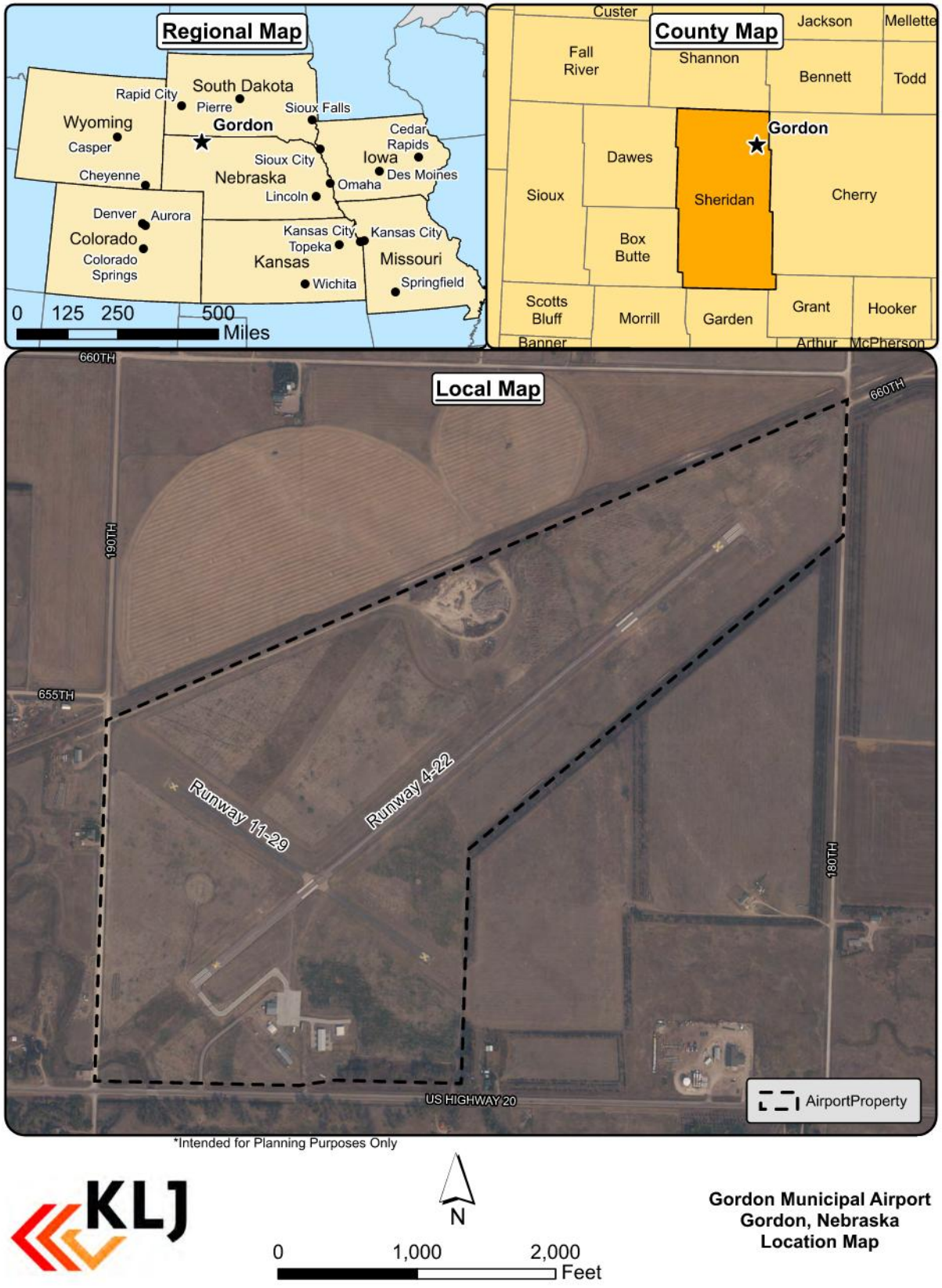
Year	Project	Federal Grant
1988	Remove Obstructions	$10,579
1988	Extend Runway	$128,446
1988	Acquire Land for Approaches	$12,600
1989	Install Apron Lighting	$28,270
1989	Install Runway Lighting	$113,140
1989	Construct Taxiway	$61,120
1989	Extend Runway	$508,680
1989	Conduct Airport Master Plan Study	$13,900
2006	Construct Building	$30,248
2006	Rehabilitate Runway	$300,414
2007	Construct Building	$362,550
2007	Construct Taxiway	$69,073
2008	Conduct Airport Master Plan Study	$57,124
2011	Construct Fuel Farm	$289,777
2013	Rehabilitate Runway	$295,575
2014	Rehabilitate Runway	$1,804,957
2019	Reconstruct Apron	$66,628
2019	Rehabilitate Runway	$161,420
2019	Reconstruct Taxiway	$94,170
2020	Reconstruct Apron	$679,271
2020	Rehabilitate Runway	$1,090,800
2020	Reconstruct Taxiway	$915,180
2024	Install Runway Visual Guidance System	$265,000

Source: FAA, KLJ Analysis

Land Area

According to the 2011 Airport Layout Plan, the airport has 284 acres owned in fee and 28 acres in easement. The airport's Exhibit A Property Map will be updated as a part of this study to the FAA's SOP 3.00 requirements. The Exhibit A provides a record of ownership, control and conveyance of existing land parcels, and need for future acquisitions. Generally the land surrounding the airport is flat, with some grassy rolling hills, ideal for grazing livestock. The terrain is traditional farmland and the Nebraska Sandhills, a distinct area of the state comprised of sand dunes, covered with prairie grass, which provides stability and a food source for livestock as well as wildlife. **Figure 1-2** depicts the physical location of the airport in relation to Sheridan County and the broader area.

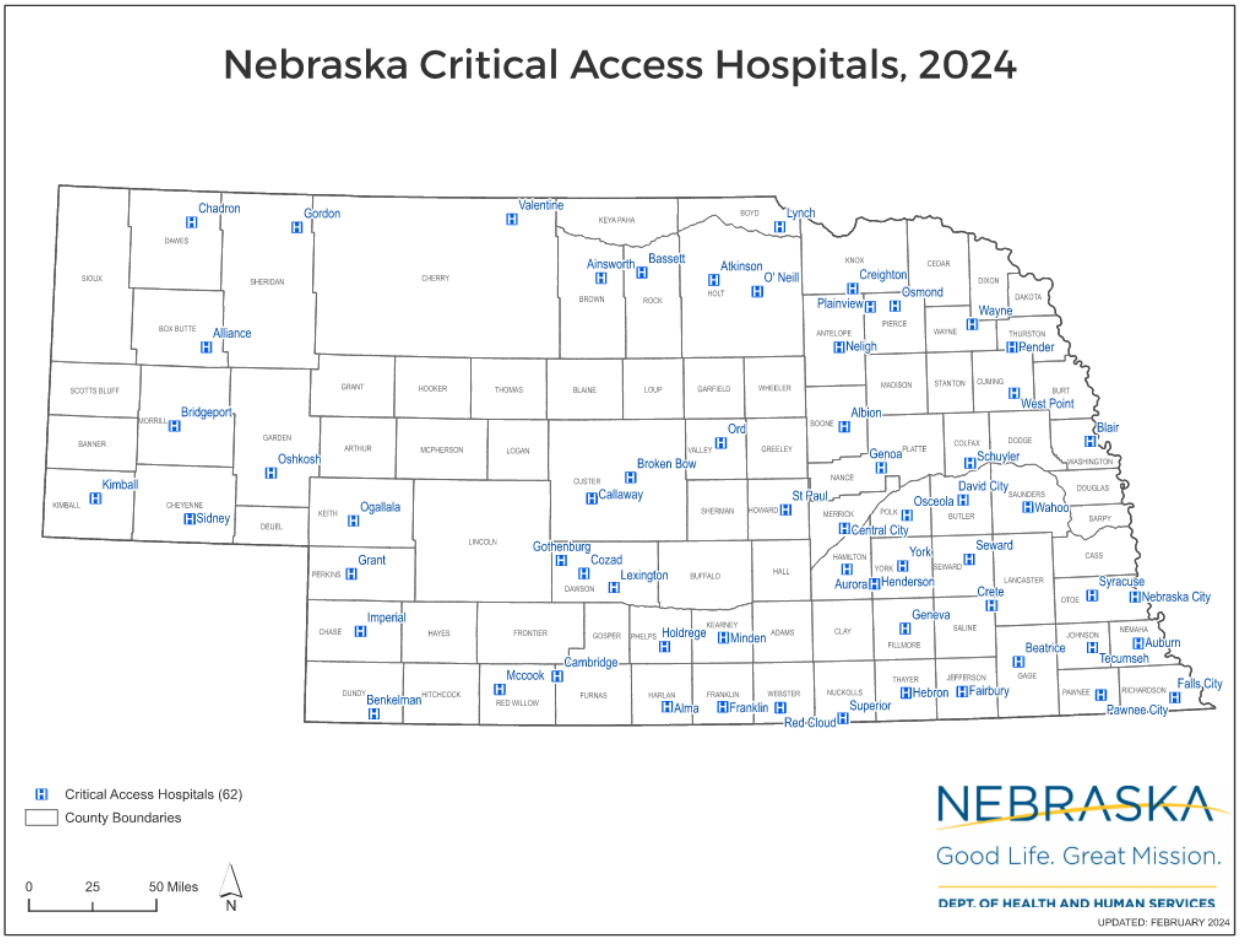
Figure 1-2 – Airport Location Map



Airport Role & Design

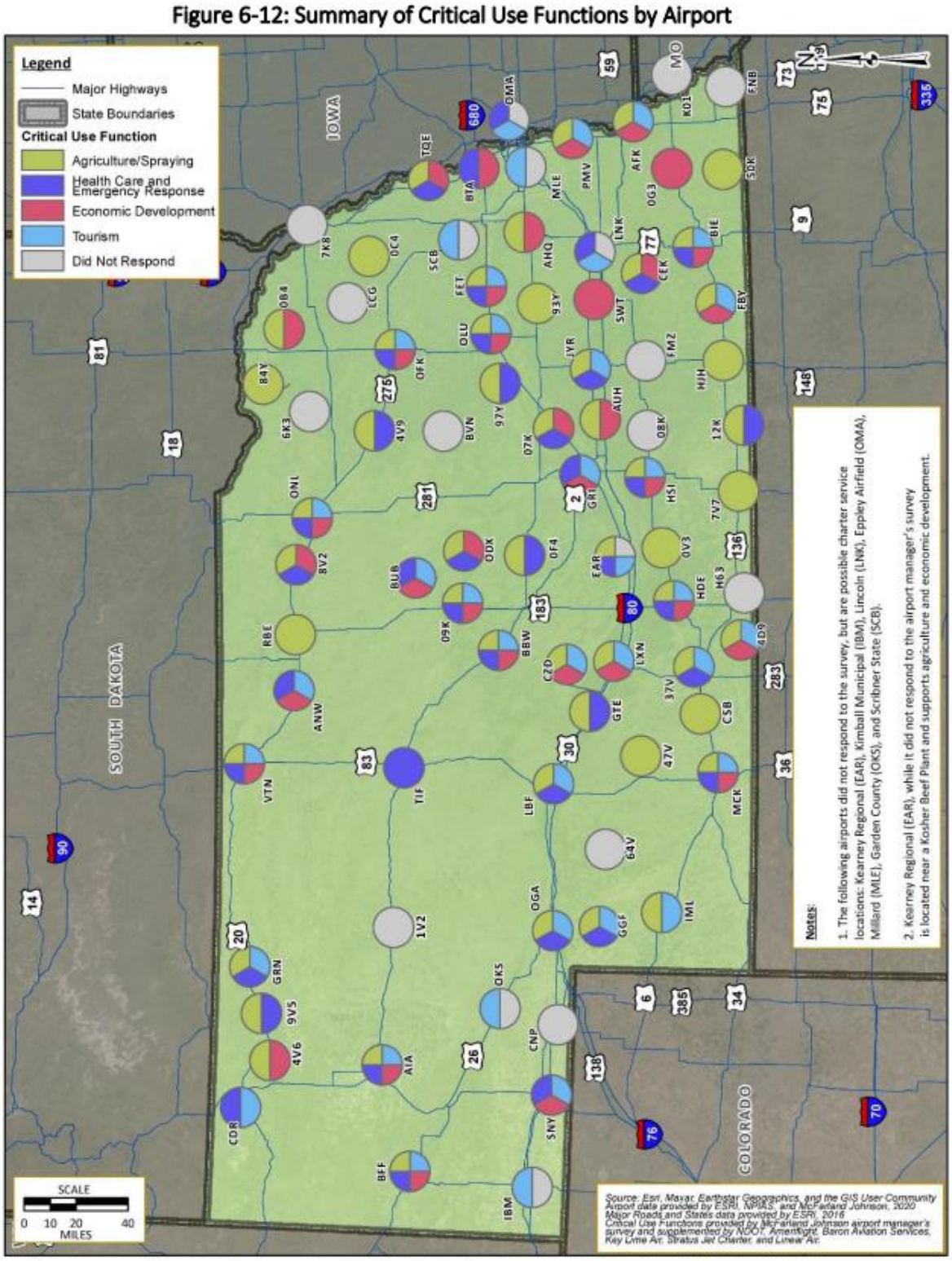
GRN is a general aviation (GA) airport, meaning it accommodates aeronautical activity other than scheduled commercial air service. GA airports provide vital services for the public including emergency response, community access, personal and business aviation. Additionally, general aviation airports serve a key role in the facilitation of pilot training. GRN does not have a Fixed Base Operator (FBO) at the airport. The airport serves the City of Gordon and plays a key role in offering air ambulance and transport services for patients to and from Gordon Memorial Health Services, which is a Critical Access Hospital within the State of Nebraska, servicing not only Sheridan County but the surrounding rural communities. The airport allows the hospital to facilitate critical patient transfers to specialized facilities in surrounding states. Air ambulance services also allow for more reliable and speedier patient transportation, as ambulance services are limited due to a volunteer EMS staff, and road conditions can be unstable during inclement weather. Furthermore, GRN is outlined in the Nebraska State Aviation System Plan as a critical use facility, serving in a capacity related to Agriculture/Spraying, Health Care/Emergency Response as well as Tourism. **Figure 1-3** depicts the network of Nebraska Critical Access Hospitals. **Figure 1-4** shows a map from the SASP which depicts airports in the State of Nebraska and their critical use functions.

Figure 1-3 – Nebraska Critical Access Hospitals



Source: Nebraska Department of Health and Human Services

Figure 1-4 – Nebraska Airports Critical Use Functions



Source: [NDOT Aeronautics- NESASP Technical Report]

Surrounding public use airports in the United States within 50 nautical miles are listed in **Table 1-2** to provide background into the other area airports.

Table 1-2 – Surrounding Public Airports

Airport Name / City	FAA ID	Location from GRN	Based Aircraft	Instrument Approach	Longest Runway	Available Fuel
Gordon Municipal /Gordon	**GRN**	**-**	**11**	**400' 1 ¼ mi**	**5,196'**	**100LL**
Modisset /Rushville	9V5	13 nm W	9	400' 1 ¼ mi	3,909'	100LL
Pine Ridge /Pine Ridge, SD	IEN	19 nm NW	0	300' 1 mi	5,000'	N/A
Martin Municipal /Martin, SD	9V6	30 nm NE	3	300' 1 mi	3,699'	N/A
Chadron Municipal /Chadron	CDR	41 nm W	13	200' 1 mi	5,998'	100LL Jet A
Alliance Municipal /Alliance	AIA	43 nm SW	54	200' ½ mi	9,203'	100 LL Jet A

Source: AirNav, ADIP, KLJ Analysis

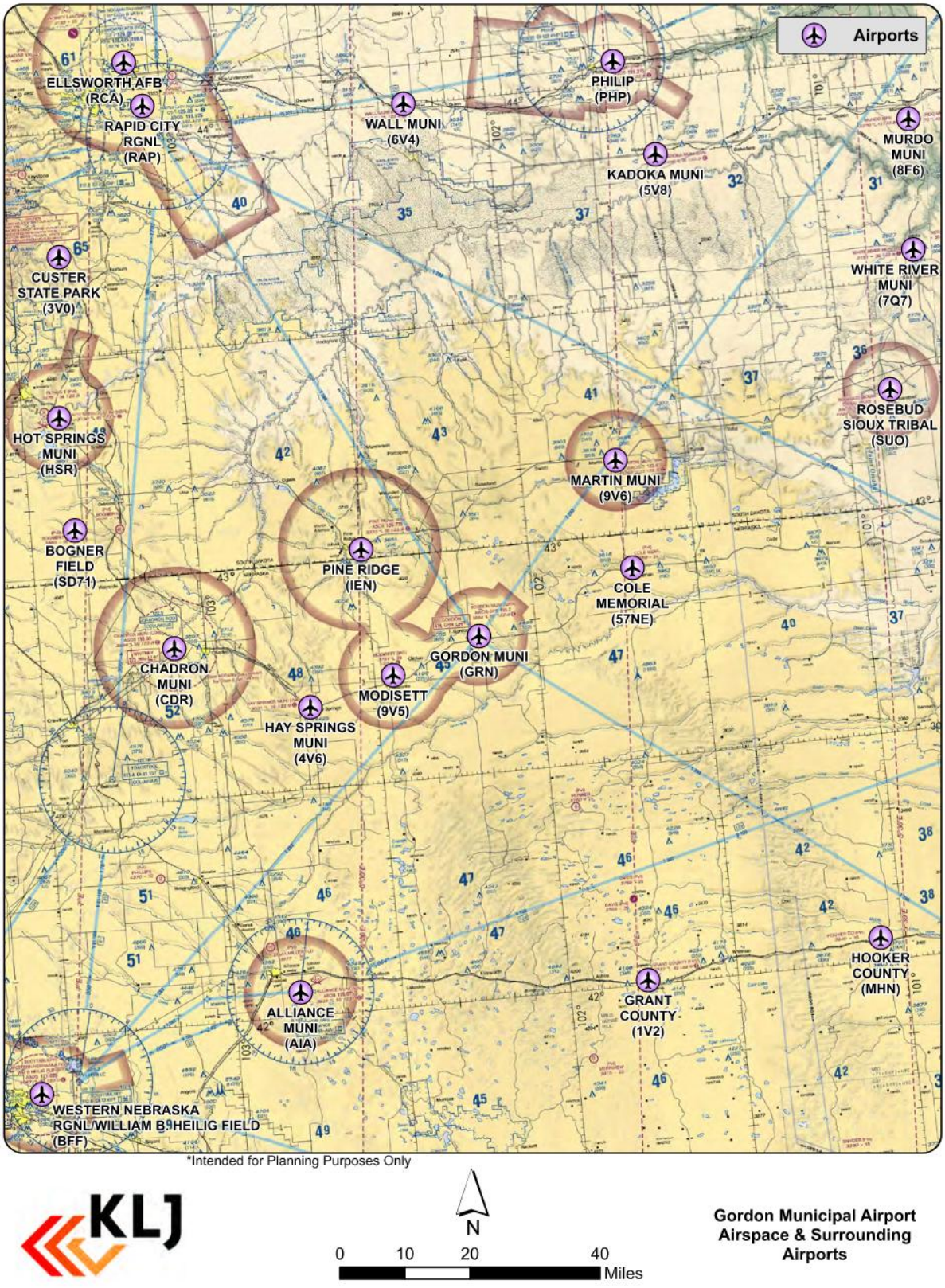
The airport is part of the National Plan of Integrated Airport Systems (NPIAS) as classified by the Federal Aviation Administration (FAA). NPIAS airports are vital to the national air transportation system. According to FAA standards, the airport is classified as a Basic General Aviation Airport. The Nebraska Aeronautics Commission developed a State Aviation System Plan (SASP) in 2025 and airports were placed into four different classifications based on the type of activity present. These categories include: Commercial Service, Complex Activity, Community Activity and Non-NPIAS. GRN is classified as a Community Activity Airport in the 2025 NE SASP. **Table 1-3** summarizes the surrounding airport's role and design. See **Appendix B: General Aviation Airports 101** for more details on FAA design classifications and State classifications.

Table 1-3 – Surrounding Airport Role & Design

Airport ID	State Classification	FAA Classification	Based Aircraft
GRN	Community Activity	GA Basic	11
9V5	Community Activity	GA Basic	9
IEN	Small GA	GA Basic	0
9V6	Small GA	GA Basic	3
CDR	Commercial Service	GA Local	13
AIA	Commercial Service	Commercial Service Non-Primary	54

Source: 2025 NE SASP, 2020 SD SASP

Figure 1-5– Surrounding Airports

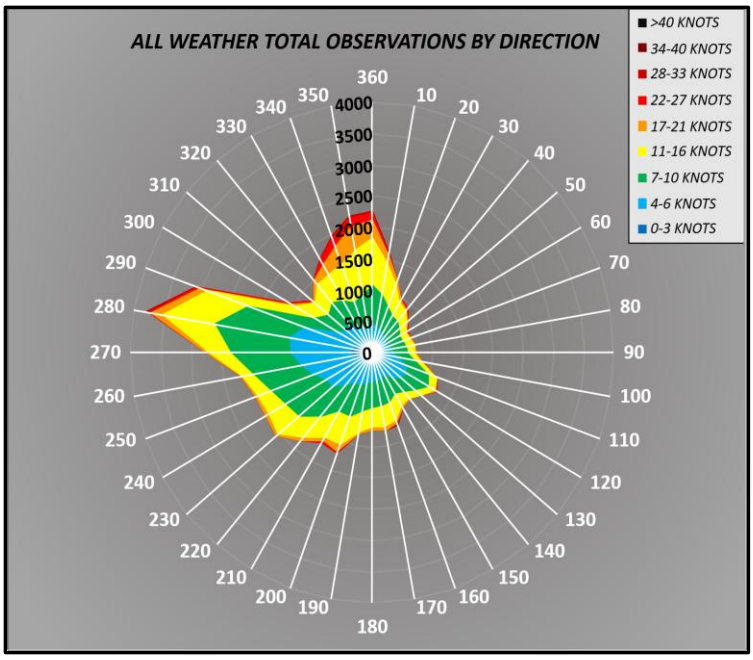


Climate

Gordon Municipal Airport is located in a cold semi-arid climate zone. Winters are chilly with some snowfall, while summers are warm and dry. Gordon reports an average annual temperature 46.3°F from 1991-2020 with an annual precipitation of 20.5 inches**. Table 1-4 – Average Weather** provides the normal conditions that are experienced throughout the year at Gordon.

The airport has an Automated Weather Observation (AWOS) 3PT located on the airfield, which provides detailed, real-time weather information to pilots, controllers and flight operations personnel, which are broadcasted via Very High Frequency (VHF). Data from the station shows prevailing winds are from the west as well as the north, and are generally aligned with the airport's runway orientation. It should be noted that a full ten years of data was unable to be utilized as the on site weather reporting equipment was not transmitting until April of 2017 and data was pulled from that date to the current period In time of this report, March, 2025. Despite having less than the required ten years of data, it is recommended to proceed with utilizing the available data from the on-site equipment rather than a neighboring site, for more accurate depictions of the wind patterns at GRN.

Figure 1-6 – Gordon Municipal Airport Wind Chart



Source: KGRN AWOS (04/2017-03/2025, Hourly) from National Climatic

Table 1-4 – Average Weather for Gordon, NE

Month	Precipitation (in.)	Maximum Temperature (°F)	Minimum Temperature (°F)	Average Temperature (°F)	Average Snowfall (in.)
January	0.52	35.2	**12.9**	23.6	5.9
February	0.62	38.1	15.4	25.7	5.7
March	1.18	47.3	22.5	35.0	**8.7**
April	2.25	57.5	31.3	43.6	5.8
May	3.24	68.5	42.1	53.9	0.6
June	**3.84**	79.0	51.5	65.0	0.0
July	2.54	**87.4**	58.1	**72.0**	0.0
August	1.80	86.1	56.5	70.5	0.0
September	1.68	75.3	45.9	61.1	0.2
October	1.62	60.7	33.9	46.7	2.3
November	0.70	45.5	21.9	34.2	4.7
December	0.50	34.9	**12.9**	24.7	6.0

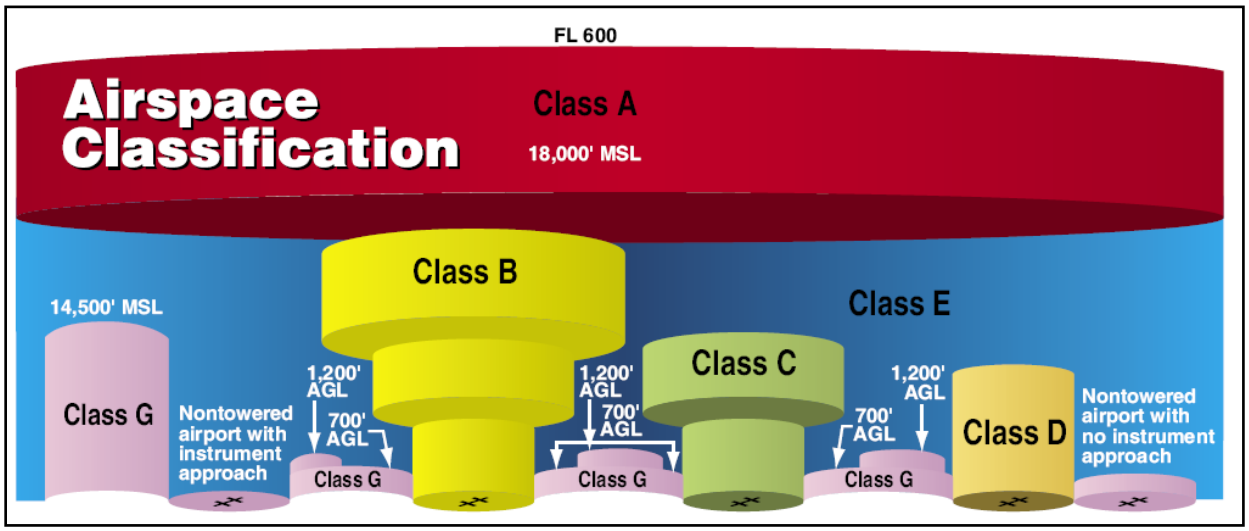
Source: National Weather Service Climate 1991-2020 and 1981-2010 – Gordon, NE

Airspace & Area Navigation Systems

The National Airspace System (NAS) consists of various classifications of airspace regulated by the FAA. Airspace classification ensures the safe separation of VFR and IFR aircraft. Airspace is separated into controlled, uncontrolled, special use, or other airspace. Controlled airspace is classified as A, B, C, D, or E. Uncontrolled airspace is classified as G. These classes specify appropriate minimum cloud clearances, visibility requirements, and other operating requirements for aircraft. The major difference between controlled and uncontrolled airspace is that the FAA does not exercise air traffic control over aircraft operating within uncontrolled airspace. Airspace is segregated into controlled, uncontrolled, special use or other airspace. Each airspace class has different operating rules.

For GRN, the existing Class G airspace with Class E airspace beginning at 1,200 feet AGL is considered sufficient to support any enhancement to instrument approach procedures.

Figure 1-7 – FAA Airspace Classifications



Source: Federal Aviation Administration (FAA) Pilot's Handbook of Aeronautical Knowledge (2007)

Automatic Dependent Surveillance-Broadcast (ADS-B)

ADS-B is a satellite-based surveillance technology in which aircraft transmit GPS position information to other aircraft and to ATC facilities. ADS-B will supplement primary ground-based radar. FAA has required all aircraft operating within airspace requiring a transponder to have ADS-B transmitting equipment installed by the year 2020 as part of the Next Generation Air Transportation System (NextGen) initiative. Various ground stations have been located nationwide to provide ADS-B coverage. For GRN, ADS-B coverage is available at least 500 feet above ground level.

Communications & ATC

The ability for pilots to communicate with other pilots and air traffic control (ATC) is critical for the safety and efficiency of the overall air transportation system. GRN will continue to be an uncontrolled airport. The airport has a Common Traffic Advisory Frequency (CTAF) at 122.8 MHz that can be used for pilots to communicate with one another while operating on or around the airfield. In addition, an FAA Remote Communications Air to Ground (RCAG) frequency is available from Crawford at 127.95 MHz to Denver ARTCC (ZDV).

Airspace Protection

Airspace is an important resource around airports that is essential for safe flight operations. The airspace is protected through several layers of protection which include property ownership, avigation easements and land use/height restriction zoning.

LAND ACQUISITION

Land acquisition allows the airport to protect airspace and land use areas from possible intrusions. FAA encourages the airport sponsor to own the following land for existing and planned airport facility:

- Airport Infrastructure
- Runway and Taxiway Object Free Areas
- Runway Protection Zones
- Building Restriction Line
- Navigational Aid Critical Areas
- Airspace Protection

AVIGATION EASEMENTS

Avigation easements can control height and/or land use. They have often been used to control the area inside the Runway Protection Zone however the FAA has more recently recommended full acquisition of these properties. The easements can still be a very useful tool to protect the airport depending on the circumstances of particular properties and the type of protection that is needed.

LAND USE AND HEIGHT RESTRICTION ZONING

FAA recommends airport sponsors protect airport land use and airspace through local zoning. Owners of public airports are encouraged to enact airport overlay zoning to protect airspace and surrounding land use for public safety. The intent of zoning is to:

- Protect the airport from incompatible land uses that could interfere with the safety operation of the airport,
- Protect public safety by reducing the potential for fatalities, property damage or noise complaints within the vicinity of the airport, and
- Protect the public investment made by taxpayers in the airport and the economic benefits it provides to the region restrict land uses.

Federal - Part 77 Civil Airport Imaginary Surfaces

Title 14 CFR (Code of Federal Regulations) Part 77 *Safe, Efficient Use, and Preservation of the Navigable Airspace* is used to determine whether man-made or natural objects penetrate "imaginary" three-dimensional airspace surfaces and are obstructions. See **Appendix B – General Aviation Airports 101** for a detailed explanation of Part 77 surfaces. **Table 1-5** depicts the existing, future, and ultimate approach airspace surfaces for GRN. Any existing, future, or ultimate Part 77 obstructions located around GRN will be identified on the ALP for further action.

Table 1-5 – Part 77 Approach Airspace Requirements

Runway End	Approach Standards	Part 77 Code	Inner Width*	Outer Width	Length	Slope
Existing, Future and Ultimate						
04/22	Non-Precision Utility As low as 1 mile	A(NP)	500'	2,000	5,000'	20:1
11/29	Visual Utility	A(V)	250'	1,250'	5,000'	20:1

*Source: Title 14 CFR Part 77, KLJ Analysis *Inner width is also the Primary Surface width driven by the most demanding approach to a runway.*

Local Airspace Protections

Neither the City of Gordon nor Sheridan County appear to have airport specific zoning requirements, however Sheridan County zoning ordinance does point out that structures should "comply with any applicable airport hazard restrictions…"

Any recommended airspace protection measures including land acquisition, easements or zoning will be addressed in Chapter 4 – Implementation & Compatibility based on the Preferred Alternatives selected in Chapters 2 and 3.

Environmental Inventory

Introduction

This section provides an overview of environmental conditions and issues at the airport and the immediate vicinity. This environmental review section is not intended to fulfill the requirement of an environmental review required by National Environmental Policy Act (NEPA), or provide a definitive class of action determination for the proposed improvements. The purpose of this environmental review is to provide community, airport sponsor, and regulatory awareness of the importance of minimizing the environmental impacts, and to provide a general indication of the likely need for further investigation. Appropriate environmental documentation in accordance with FAA Order 5050.4B, *NEPA Instructions for Airport Actions* and FAA Order 1050.1G, FAA National Environmental Policy Act Implementing Procedures is required to be completed prior to commencing with project actions.

Relevant Environmental Features

BIOLOGICAL RESOURCES

Biological resources include flora and fauna present in the project area. Gordon Municipal Airport is located within the Nebraska Sandhills / Northwestern Great Plains region, as identified by the U.S. Geological Survey ecoregion classifications. This area is characterized by mixed-grass prairie, rolling topography, and sandy soils. Land use surrounding the Airport is predominantly agricultural, consisting of rangeland, pasture, and limited cropland. Native vegetation in the region has been modified over time by grazing and agricultural activities, although remnant prairie vegetation remains common in less intensively farmed areas.

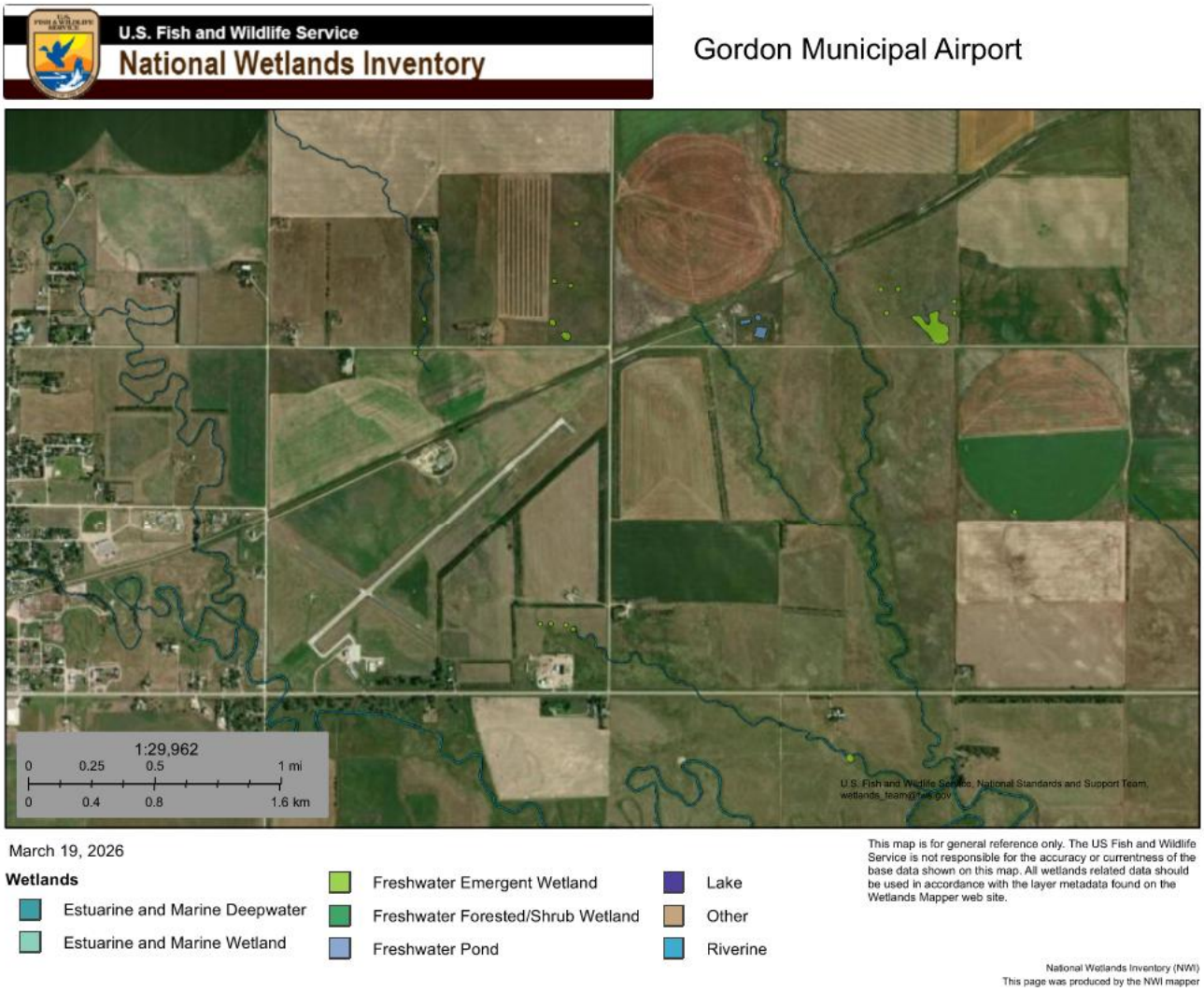
The following is not a comprehensive list of fauna that may be present but represents species most likely to be encountered in the vicinity of the Airport. Historically, bison occupied this region of Nebraska. Wildlife species commonly found in the area include white-tailed deer, mule deer, pronghorn antelope, plains pocket gopher, plains harvest mouse, white-tailed jackrabbit, eastern cottontail rabbit, coyote, red fox, American badger, raccoon, striped skunk, and various small mammal species. Common bird species include raptors and grassland birds typical of open prairie and agricultural landscapes.

According to the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) system, federally listed endangered, threatened, proposed, or candidate species known to occur or potentially occur in Sheridan County, Nebraska, include the Piping Plover, Monarch Butterfly, Western Prairie Fringed Orchid, and Suckley's Cuckoo Bumble Bee. There are no federally designated critical habitats located at or immediately adjacent to the Airport.

In accordance with Section 7 of the Endangered Species Act, coordination with the USFWS may be required to evaluate the potential for federally listed species to occur within the project area, depending on the scope and location of proposed projects. IPaC also indicates that Bald Eagles and Golden Eagles may be present in the vicinity of the Airport for foraging or seasonal movement; however, no known nesting sites have been identified within the Airport property.

Prior to implementation of any future development projects, additional environmental review may be conducted, as appropriate, to evaluate potential impacts to fish, wildlife, and plant resources and to ensure compliance with applicable federal and state environmental regulations.

Figure 1-8 Environmental Overview Wetland Inventory



Source: *U.S. Fish & Wildlife Service National Wetlands Inventory*

HISTORICAL, ARCHITECTUAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

The airport has been subject to prior ground disturbance associated with historical airfield development. Cultural resource review in Nebraska is coordinated with the Nebraska State Historic Preservation Office (NeSHPO) in accordance with Section 106 of the National Historic Preservation Act and the Nebraska Historic Preservation Act. No known historic or archaeological resources have been identified on airport property. Future projects involving previously undisturbed areas would require cultural resource evaluation and consultation, as appropriate.

DEPARTMENT OF TRANSPORTATION SECTION 4(F) AND SECTION 6(F)

Section 4(f) is applicable to projects which require the use of publicly-owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance, or land of an historic site of national, state, or local significance. **Figure 1-8 - Environmental Overview Wetland Inventory** provides a graphical depiction of the areas surrounding the Airport property.

There are no known publicly owned lands from parks, recreation areas, or refuge areas within the immediate vicinity of the Airport. Further review of the potential to impact Section 4(f) resources specifically regarding potential cultural sites or historic properties would be required at the environmental documentation phase of any projects that would require ground disturbance.

Section 6(f) from the Land & Water Conservation Fund Act provides that the Secretary shall not approve any program or project which requires the use of state and local parks, lakes, trails, beaches, and conservation lands, unless: (1) if the request complies with Section 4(f), (2) information is provided that is needed to make findings required under Section 6(f), and (3) coordination is carried out with the NPS and the state agency responsible for the Section 6(f) property. A review of Land Water Conservation Fund grants for Sheridan County indicates that nine grants have been issues for properties within the county. These properties are not located near the Airport. Proposed improvements are not anticipated to impact existing Section 6(f) properties; therefore, no further analysis is required.

HAZARDOUS MATERIALS AND SOLID WASTE

Airport operations involve limited quantities of hazardous materials typical of general aviation facilities, including aviation fuel, oils, and lubricants. Management of these materials is regulated by the Nebraska Department of Environment and Energy under applicable state and federal regulations. No known hazardous material sites or contamination issues have been identified on airport property.

The airport has not produced significant amounts of solid waste including garbage, refuse or sludge as compared to the broader community. FAA requires a Solid Waste Management Plan to be developed as part of this Airport Master Plan study. A Solid Waste study is in **Appendix F: Recycling & Solid Waste Plan**.

FARMLAND

Impacts to farmlands considered to be prime, unique or statewide or locally important need to be considered under NEPA. The Farmland Protection Policy Act (FPPA) of 1981 provides protection to prime and unique farmlands. The Act defines prime farmland as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. Unique farmland is farmland that is used for production of specific high value food, feed, and fiber crops. Statewide farmland is of statewide importance to produce food, feed, fiber, forage, and oil seed crops, and is determined by state agencies. Locally important farmland is where the

production of food, feed, fiber, forage, and oilseed crops, are not identified as having national or statewide importance but identified by local agencies as important.

A search of the USDA Natural Resources Conservation Service (NRCS) web soil survey identified land located around the Airport contains prime farmland if irrigated and areas that are not prime farmland. If land outside the existing airport property were to be acquired and converted to airport property, further consultation with NRCS would be required during a project environmental review stage to calculate the Farmland Conversion Impact Rating. No further review is needed for projects occurring on existing airport property.

LAND USE

Compatible land uses are those that typically are not influenced by normal airport operations. The compatibility of existing land uses in the vicinity of an airport is usually associated with the extent of noise impacts occurring from airport property and safety concerns. Incompatible land uses are typically items such as fuel storage facilities, areas of public assembly, tree rows, high density residential areas, and areas that have the potential to attract hazardous wildlife. Other land use considerations including surrounding physical land uses, airport zoning regulations and FAA airport design land use compatibility standards have been previously identified in this Chapter.

GRN is located one mile east of Gordon, NE. There are residential homes located on the southwest side of the airport off airport property and approximately 1,500 feet of the Runway 4 end. The areas north, south, and east of the Airport contain mostly crop land and open spaces.

Wildlife Hazards

FAA has implemented procedures and guidelines to mitigate wildlife damages to aircraft and aviation operations. Wildlife collisions have increased across the country over the past two decades and reporting has increased awareness of hazards to human health, safety and financial losses.

The airport has two runways. The primary Runway 4/22 (5,196’ x 75’) is an asphalt runway and secondary Runway 11/29 (2,283 x 50’) is also asphalt. The City’s wastewater treatment ponds are located about half a mile south of the Airport and could attract geese. The airport is surrounded by a 4-foot barbed wire fence to prevent livestock from crossing over to the airport, but this fence is not likely to prevent deer and antelope from entering the property. The Airport should monitor all types of wildlife and issue NOTAMs to alert pilots when gulls, geese, other waterfowl, or large mammals are within the area. The Airport should monitor wildlife concerns and if an issue is identified a site visit from a qualified wildlife biologist could help to provide recommendations to reduce wildlife concerns at the airport.

WATER RESOURCES

Wetlands

Wetlands are defined in Executive Order 11990, Protection of Wetlands, as those areas that are inundated by surface or groundwater with a frequency to support, and under normal circumstances does or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Three parameters that define a wetland as outlined in the US Army Corps of Engineers Wetland Delineation Manual are hydric soils, hydrophytic vegetation, and hydrology. Wetlands help to maintain water quality in rivers and recharge groundwater. Wetlands also can provide habitat for many species of plants and wildlife. However, their potential to attract wildlife can be hazardous to aircraft using the Airport.

Antelope Creek is identified in the National Wetland Inventory (NWI) is located in the southwest corner of the airport property. No other wetlands are on the airport, and the property consists primarily of upland or develop areas. Any projects impacting Antelope Creek or other wetlands will require a delineation and coordination with the U.S. Army Corps of Engineers (USACE) during the early project development phase.

Surface and Ground Waters

The Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, provides authority to establish water quality standards, regulate discharges to surface and subsurface waters, develop waste treatment management practices, and issue permits for pollutant discharges under Section 402 and for the discharge of dredged or fill material under Section 404.

Airport activities have the potential to affect water quality primarily through stormwater runoff from paved surfaces. Implementation of best management practices (BMPs), such as grass-lined swales and drainage ditches, helps convey and treat runoff from runways, taxiways, and apron areas, thereby minimizing potential impacts to receiving waters.

At GRN, surface drainage generally flows off the airport from the northeast toward the southwest, where it exits the airport property and enters Antelope Creek in the southwest of the airport. Antelope Creek ultimately drains to the Niobrara River. There are no other surface waters, sole source aquifers, or public water supplies located on or in the immediate vicinity of the airport property.

Environmental Features Not Relevant

AVAIATION EMISSIONS AND AIR QUALITY

The FAA Order 5050.4B outlines procedures for determining when airport-related projects require air quality analysis, and if so, what level of analysis may be necessary. The Airport is located within an area of attainment for all National Ambient Air Quality Standards (NAAQS); due to the small size of the airport and limited number of operations that would occur at the airport detailed analysis is very unlikely to be required.

COASTAL RESOURCES

Coastal Resources include Coastal Barriers and Coastal Zone Management. Coastal Barriers include islands that protect the mainland from storm or hurricane-driven winds or waves by providing a buffer to the shoreline. Coastal Barriers protect fish, wildlife, human life, and property along coasts and shorelines. Facilities are not recommended to be built within the Coastal Barrier Resource System (CBRS). Coastal Zone Management includes development provisions actions to protect major shorelines and associated recreational, historical, cultural, and aesthetic values. The area is not located near a coastal zone as defined in the Coastal Zone Management Act of 1972. No further analysis is required.

NATURAL RESOURCES AND ENERGY

Impacts on energy supplies and natural resources are related to changes of stationary facilities, such as airfield lighting or terminal building heating and expansion, as well as any increase of fuel consumption by aircraft or ground vehicles. Proposed improvements at GRN would require additional energy but they are not anticipated to cause significant impacts on energy supplies or natural resources. No further analysis is required.

NOISE AND NOISE COMPATIBLE LAND USE

Noise emitted from aircraft can significantly affect the well-being of people living or working near an airport. The FAA requires noise studies for certain projects. If a project involves Airplane Design Groups I and II and has forecasted operations of less than 90,000 annual propeller operations or 700 annual adjusted jet operations such as the case at GRN then no further noise analysis is required.

SOCIOECONOMIC IMPACTS AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

Social impacts from a project depend on how that project affects the character, habits, and economic conditions of the people living within the affected area of the project. The project's effects on business, employment, transportation, utilities, etc. are factors that affect the social climate of a community. Any action that would either adversely or beneficially affect the factors stated above would be considered as having some type of social impact on the residents of a particular community. The airport's location and runway orientation minimize health and safety risks to children, as there are no schools, hospitals, or places of worship along the airport's approach and departure paths.

VISUAL EFFECTS

Minor development projects at Gordon Municipal Airport are not expected to significantly impact the visual aesthetics of the area. The landscape and surrounding views, along with viewers' responses to scenic resources or man-made features, are unlikely to be noticeably affected. From the perspective of those viewing the airport from outside, any potential visual contrast or compatibility issues with nearby landforms and land uses are expected to be minimal.

WATER RESOURCES

Floodplains

The airport is not located within designated floodway areas regulated under the Nebraska Floodplain Management Act. Floodplains constitute lands situated along rivers and their tributaries that are subject to periodic flooding on the average interval of 100 years or less. GRN is not located within a 100-year floodplain; therefore, no further analysis is required.

Wild and Scenic Rivers

There are no river segments near GRN that are listed in the National Rivers Inventory (NRI) or designated Wild and Scenic Rivers in the National System. An NRI listed segment of the Niobrara River that is listed. No direct or indirect impacts to wild scenic rivers would occur due to improvements at the airport. No further analysis is required.

Aviation Activity

The Aviation Activity Forecasts section of the Airport Master Plan analyzes current and future airport activity at the Gordon Municipal Airport (GRN). Forecasting provides an airport with a general idea of the magnitude of growth, as well as fluctuations in activity anticipated over the forecast period. They assist the Airport in determining existing and planned future facility needs based on airport activity level estimates and projections. Forecasts attempt to develop a realistic estimate of future changes.

Prior to 2024, the FAA required forecasting of annual airport operations and based aircraft as well as the critical design aircraft. This was a key approval point for the FAA where they would approve the forecast operations, based aircraft, critical design aircraft and airport layout plan.

Recently this has changed for airports like GRN where only the critical design aircraft and airport layout plan require FAA approval. On August 12, 2024, the FAA provided guidance regarding the requirement for forecasts developed for airport master plans. According to the guidance, GA airports with less than 90,000 annual operations and not expected to exceed 90,000 operations in the foreseeable future, a detailed forecast is not warranted. GRN will remain below the 90,000 annual operations level. The forecasting for this Airport Master Plan will therefore be focused on practical elements that are still needed and listed as follows:

- Critical Design Aircraft (requires FAA approval);
- Based Aircraft (to determine the amount and type of hangar space needed);
- Annual Airport Operations (needed when pavement designs are completed in the future); and,
- Peak Aircraft Operations (to determine the amount of apron space and hangar space needed for itinerant aircraft)

The forecasting will use simple socioeconomic/demographic projections, quantifiable airport activity, and industry metrics used to determine activity. The forecasts developed for the airport will be important to adequately plan, size, and sequence development of future facilities to meet future projected growth.

It is important to point out that forecasts in this context are to demonstrate how much activity could likely occur at an airport through the planning period. In most all cases, development at airports is based on actual demand rather than forecasts.

The forecast portrays the level of activity that is likely to occur through the planning period, but airport improvements will occur based on actual activity.

Forecast Rationale

Forecasting the demand for airport use is a critical step in airport development. It allows an airport to examine its ability to satisfy the needs of the aircraft and people it serves, and to determine the approximate timing of necessary improvements by projecting airport user activity levels. FAA provides general guidance in evaluating factors that affect aviation activity. FAA AC 150-5070-6B states:

> *"Planners preparing forecasts of demand or updating existing forecasts should consider socioeconomic data, demographics, disposable income, geographic attributes, and external factors such as fuel costs and local attitudes towards aviation."*

For the purpose of this forecast, the following defining factors have been used to develop the forecast:

1. The last full year of data, 2024 has been used to establish the baseline year of 2025
2. The forecast period is 20 years encompassing years 2025 through 2045; and,
3. The core airport service area is considered the City of Gordon and Sheridan County.

The forecasts prepared for the airport assume an unconstrained scenario where facilities are available for use to meet demand. Time periods will be in 5-year increments, including:

- Short-Term (5-year);
- Mid-Term (10-year); and,
- Long-Term (20-year) resulting in forecasts for years 2030, 2035, 2040, and 2045.

Forecasting Methods

Various methodologies are used to develop aviation forecasts. Forecasts should not be considered predictions of the future but rather an educated projection of future activity. Some of the following forecasting methods were applied for this analysis, including trend extensions, socioeconomic methodologies, and professional judgment.

Trend Extensions - A trend extension forecast identifies historical growth patterns and projects those patterns into the future. Often, a trend line can be drawn through a graph of the historical data to reveal an overall trend, which can then be extended into the immediate future to develop a forecast.

Socioeconomic Methodologies - Socioeconomic information within the airport service area can provide insight into factors that affect aviation activity at an airport. Commonly evaluated metrics include population, employment, income, gross regional product, and retail sales. Historic trends, current data and forecast estimates are also evaluated in this section to identify socioeconomic trends that may affect aviation activity forecasts at the airport. Growth rates are used as a method to compare the airport service area to other regional, statewide, and national trends.

Professional Judgement - Judgmental methods are educated estimations of future events based on the industry knowledge, experience, and intuition of the forecaster. This method permits the inclusion of a broad range of relevant information into the forecasting process and is usually used to refine the results of the other methods.

Socioeconomic Data

Socioeconomic information within the airport service area can provide insight into factors that affect aviation activity at an airport. Commonly evaluated metrics include population, employment, income, gross regional product, and retail sales. Historic trends, current data and forecast estimates are evaluated in this section to identify socioeconomic trends that may affect aviation activity forecasts at GRN. Growth rates are used as a method to compare the airport service area to other regional, statewide, and national trends. For purposes of this study analysis, Sheridan County has been determined to represent the core local airport service area.

Population

Population is a basic indicator of the number of people who may utilize the airport. **Table 1-6** below depicts the population of Sheridan County, the State of Nebraska and the United States in comparison. The City of Gordon makes up approximately 30 percent of the total population of Sheridan County. Based on data from the United States Census Bureau, the population of Gordon was reported as 1,504

in 2020 and has slightly declined in the years since, with the 2024 population estimated at 1,442. This follows the same trend in Sheridan County, with population decreasing over the last several years, and the forecasted annual growth rate resulting in a negative figure of -0.734% by the end of the planning period. Conversely, the population of both Nebraska and the United States have increased over the last twenty years and are anticipated to continue to do so, though at a slower pace than historic rates.

Table 1-6 – Population

Year	Sheridan County	Nebraska	United States
2000	6,165	1,713,820	282,162,375
2005	5,726	1,761,497	295,516,551
2010	5,413	1,830,096	309,379,450
2020	5,104	1,963,387	331,577,720
Historical Annual Growth Rate	*-0.94%*	*0.682%*	*0.810%*
2025 (Baseline)	*4,898*	*2,015,338*	*342,265,910*
2030	*4,749*	*2,062,287*	*352,789,184*
2035	*4,584*	*2,14,131*	*362,710,397*
2045	*4,227*	*2,171,845*	*380,613,305*
Forecast Annual Growth Rate	*-0.734%*	*0.375%*	*0.532%*

Source: Woods & Poole Economics 2025, U.S. Census Bureau

Income

Per Capital Personal Income (PCPI) was also considered as a factor affecting aviation activity. Those who have more disposable income may have a higher propensity to utilize the time savings of aviation, or simply more disposable income for leisure. Sheridan County historically has shown growth in PCPI at a rate of 2.874% and continues to grow through the end of the planning period, though at a slower rate of 1.177%. Historical growth of Sheridan County has exceeded that of the state of Nebraska and the United States PCPI. However the forecasted growth rate over the next twenty years is slower than that of the United States, and only slightly behind the PCPI for the State of Nebraska.

Table 1-7 – Per Capita Personal Income

Year	Sheridan County	Nebraska	United States
2000	$30,360	$39,181	$41,384
2005	$36,558	$41,888	$43,432
2010	$38,897	$45,394	$44,807
2020	$53,505	$54,229	$56,492
Historical Annual Growth Rate	*2.874%*	*1.638%*	*1.568%*
2025 (Baseline)	*$59,714*	*$60,007*	*$59,371*
2030	*$63,246*	*$63,725*	*$64,220*
2035	*$67,015*	*$67,443*	*$69,097*
2045	*$75,459*	*$75,431*	*$79,475*
Forecast Annual Growth Rate	*1.177%*	*1.150%*	*1.469%*

Source: Woods & Poole Economics, 2025; Based on 2017 Constant Dollars

Employment

Total employment is the measure of the active workforce. Sheridan County has a strong government, farming and retail-based economy. State and Local Government makes up 20% of the workforce, followed closely by the Farming sector at 19%. The Retail industry is the next largest employer, at 9%. Combined, these three sectors make up almost 50% of the total workforce for the County. **Table 1-9** depicts the trends in employment history for Sheridan County, the State of Nebraska and the United

States. Similar to the patterns observed in the population data, historically, employment within the County has declined over the last decade, whereas employment for Nebraska and the United States as a whole have both experienced positive growth. However, projected employment through the planning period is anticipated to trend positively for Sheridan County, at a forecasted rate of 0.192%

Table 1-8 – Airport Service Area Employment (2025)

Industry	Employment	Earnings
State and Local Government	575	$30,503,000
Farming	595	$40,924,000
Retail	308	$7,125,000
Other Services (Except Public Administration)	179	$5,867,000
Finance & Insurance	177	$6,031,000
Wholesale Trade	169	$9,103,000
Accommodation and Food Services	159	$2,659,000
Health Care and Social Assistance	158	$5,383,000
Construction	152	$2,116,000
Manufacturing	142	$46,550,000
Transportation and Warehouse	98	$5,894,000
Real Estate & Rental Licensing	77	$253,000
Forestry, Fishing, Related Activities	64	$1,487,000
Professional and Technical Services	61	$2,234,000
Administrative and Waste Services	47	$553,000
Arts, Entertainment and Recreation	30	$723,000
Federal Civilian Government	27	$1,680,000
Information	25	$1,065,000
Educational Services	21	$348,000
Federal Military	15	$526,000
Mining	11	$286,000
Utilities	3	$16,000
Management of Companies and Enterprise	-	$2,000
All Industries	**3,093**	**$171,328,000**

Source: Woods & Poole Economics, 2025; Earnings based on 2017 Constant Dollars

Table 1-9 – Total Employment (in jobs)

Year	Sheridan County	Nebraska	United States
2000	3,430	1,173,772	165,370,909
2005	3,216	1,192,190	172,338,420
2010	3,137	1,219,856	172,901,726
2020	2,939	1,305,649	195,286,641
Historical Annual Growth Rate	*-0.769%*	*0.534%*	*0.835%*
2025 (Baseline)	*3,098*	*1,408,743*	*222,120,529*
2030	*3,116*	*1,464,427*	*234,867,522*
2035	*3,141*	*1,518,674*	*247,621,100*
2045	*3,219*	*1,626,956*	*273,289,516*
Annual Growth Rate	*0.192%*	*0.723%*	*1.042%*

Source: Woods & Poole Economics, U.S. Census Bureau

National Aviation Activity

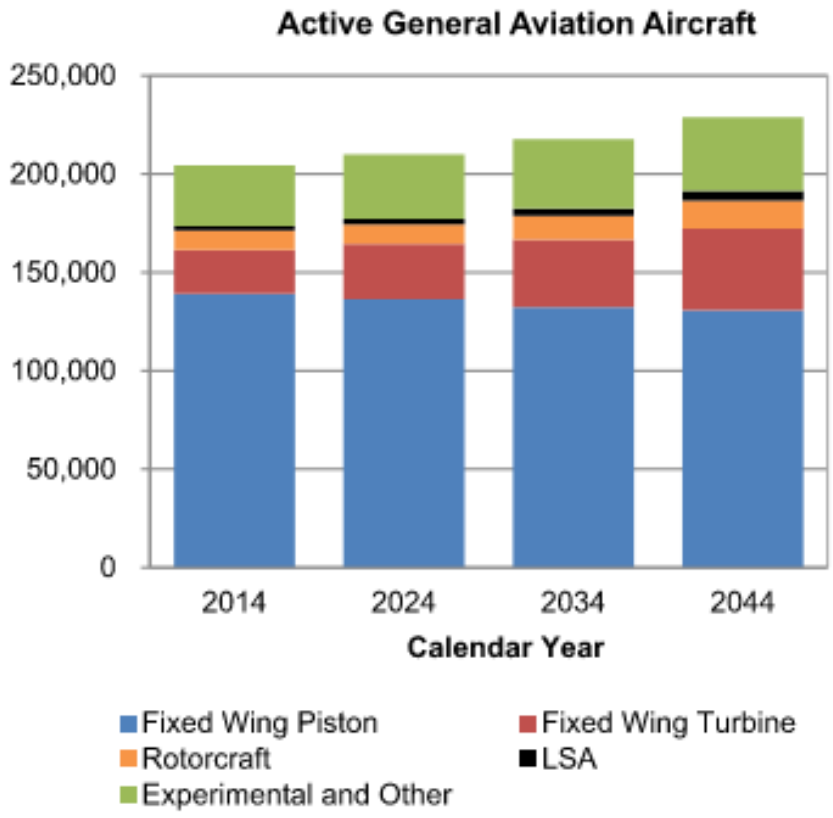
At a national level, the FAA annually reviews a range of historic aviation activity and generates a 20-year forecast. The latest forecast has been issued for the period of 2024-2044 based on federal fiscal year. Relevant elements of this forecast for the airport have been summarized in the following tables and graphs.

Table 1-10 – Active General Aviation Aircraft

Year	Single Piston	Exprmt	Light Sport	Multi Piston	Turbo Prop	Turbo Jet	Rotor
2013	124,398	24,918	2,056	13,257	9,619	11,637	9,765
2018	130,179	27,531	2,554	12,861	9,925	14,596	9,989
2023	125,490	28,160	2,730	11,580	10,785	16,570	9,925
CAGR	*0.09%*	*1.23%*	*2.88%*	*-1.34%*	*1.15%*	*3.60%*	*0.16%*
		1.4%					
2024	*124,965*	*28,265*	*2,835*	*11,520*	*10,860*	*17,045*	*10,090*
2029	*122,920*	*29,325*	*3,335*	*11,265*	*11,190*	*19,680*	*11,020*
2034	*121,350*	*30,440*	*3,900*	*11,065*	*11,680*	*22,525*	*12,030*
2044	*119,930*	*32,705*	*5,105*	*10,860*	*13,255*	*28,325*	*14,025*
CAGR	*-0.21%*	*0.73%*	*2.98%*	*-0.29%*	*1.00%*	*2.57%*	*1.66%*
		1.16%					

Total Aircraft Growth Rates			
Period	Total Pistons	Total Turbines	Total GA
2013-2023	*-0.04%*	*2.55%*	*0.48%*
2024-2034	*-0.30%*	*2.06%*	*0.35%*
2024-2044	*-0.21%*	*2.01%*	*0.43%*

Source: FAA Forecast 2024-2044 Table 28



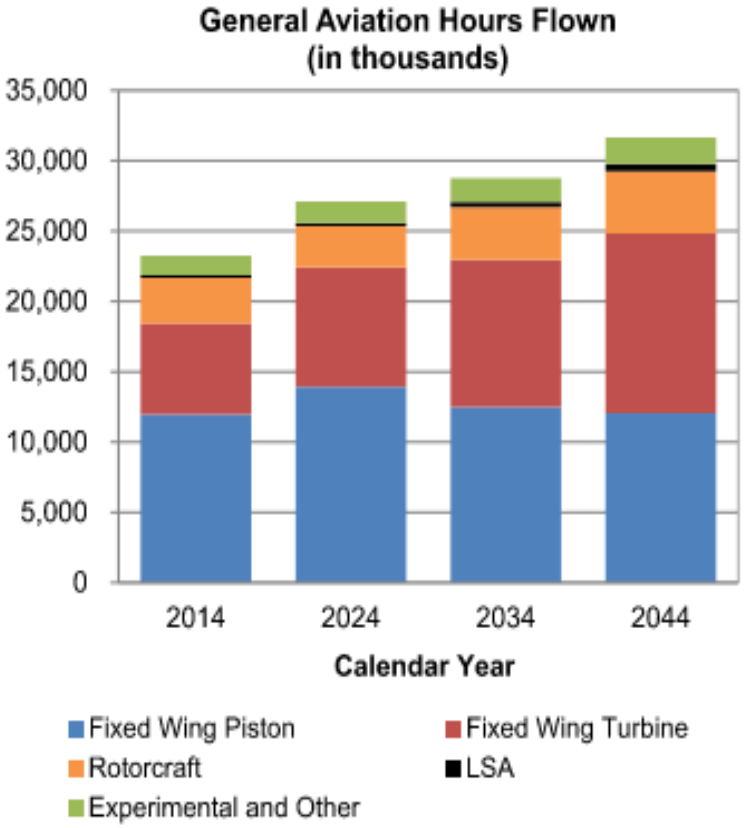


Table 1-11 – General Aviation Hours Flown (Thousands)

Year	Single Piston	Exprmt	Light Sport	Multi Piston	Turbo Prop	Turbo Jet	Rotor
2013	10,706	1,191	173	1,646	2,587	3,488	2,949
2018	12,092	1,153	187	1,694	2,736	4,592	2,922
2023	12,702	1,311	240	1,458	2,932	5,355	2,857
CAGR	*1.72%*	*0.97%*	*3.32%*	*-1.20%*	*1.26%*	*4.38%*	*-0.32%*
	2.0%						
2024	*12,449*	*1,339*	*251*	*1,478*	*2,994*	*5,479*	*2,940*
2029	*11,413*	*1,458*	*306*	*1,491*	*3,141*	*6,280*	*3,336*
2034	*11,013*	*1,545*	*368*	*1,491*	*3,279*	*7,188*	*3,715*
2044	*10,517*	*1,698*	*500*	*1,528*	*3,718*	*9,061*	*4,445*
CAGR	*-0.84%*	*1.20%*	*3.50%*	*0.17%*	*1.09%*	*2.55%*	*2.09%*
	1.3%						

Total Hours Flown Growth Rates			
Period	Total Piston	Total Turbine	Total GA
2013-2023	*1.38%*	*3.15%*	*1.68%*
2024-2034	*-1.07%*	*2.13%*	*0.60%*
2024-2044	*-0.72%*	*2.08%*	*0.78%*

Source: FAA Forecast 2024-2044 Table 29

Table 1-12 – Gallons of Fuel for General Aviation (Thousands)

Year	Single Piston	Exprmt	Light Sport	Multi Piston	Turbo Prop	Turbo Jet	Rotor*
2013	117,197	16,484	883	53,853	188,607	945,010	134,667
2018	152,396	20,340	1,028	49,611	233,663	1,454,658	140,231
2023	154,429	21,446	1,321	45,735	248,285	1,702,270	133,127
CAGR	*2.80%*	*2.67%*	*4.11%*	*-1.62%*	*2.79%*	*6.07%*	*-0.11%*
	3.1%						
2024	*151,057*	*21,914*	*1,382*	*46,142*	*252,520*	*1,725,076*	*136,939*
2029	*137,105*	*23,686*	*1,635*	*45,484*	*259,786*	*1,879,920*	*152,860*
2034	*130,986*	*24,907*	*1,903*	*44,485*	*265,865*	*2,085,869*	*166,184*
2044	*121,628*	*27,047*	*2,509*	*43,537*	*288,882*	*2,471,085*	*183,684*
CAGR	*-1.08%*	*1.06%*	*3.03%*	*-0.29%*	*0.67%*	*1.81%*	*1.48%*
	1.34%						

*Source: FAA Forecast 2024-2044 Table 31; * Jet and Aviation Gasoline combined*

Table 1-13 – Compound Annual Growth Trends Summary

Category	Area	Historic (10 year)	Forecast (20 year)
Population	Nebraska	0.68%	0.38%
	Sheridan Co.	-0.94%	-0.73%
Per Capita Personal Income	Nebraska	1.64%	1.46%
	Sheridan Co.	2.87%	1.18%
Employment	Nebraska	0.53%	0.72%
	Sheridan Co.	-0.77%	0.19%
Active Aircraft Fleet	Single	0.09%	-0.21%
	Multi Piston	-1.34%	-0.29%
	Turbo Prop	1.15%	1.00%
	Turbo Jet	3.60%	2.57%
	Rotor	0.16%	1.66%
	Experimental	1.23%	0.73%
	Sport	2.88%	2.98%
Hours Flown	Single	1.72%	-0.84%
	Multi Piston	-1.20%	0.17%
	Turbo Prop	1.26%	1.09%
	Turbo Jet	4.38%	2.55%
	Rotor	-0.32%	2.09%
	Experimental	0.97%	1.20%
	Sport	3.32%	3.50%
Gallons of Fuel	Single	2.80%	-1.08%
	Multi Piston	-1.62%	-0.29%
	Turbo Prop	2.79%	0.67%
	Turbo Jet	6.07%	1.81%
	Rotor	-0.11%	1.48%
	Experimental	2.67%	1.06%
	Sport	4.11%	3.03%
Shading Notes	*1.50% or greater*		
	-0.01% or less		

Source: Woods & Poole Economics, U.S. Census Bureau, FAA Forecast 2024-2044

Aircraft Operations

The key element to examine existing and forecast activity at the airport is to look at all operations at the airport that can be verified. Verified operations consist of those measured through the FAA Traffic Flow Management System (TFMS) which is a measurement of the operations conducted with instrument flight plans. Outside of instrument operations, the visual flight plan operations are measured by some operators such as aerial applicators or flight training, or in other cases on site cameras or tracking equipment. There are no such records of visual flight plans available at Gordon, as such the total verified aircraft operations per TFMS are shown, by category over the last five years, in **Table 1-14**.

Table 1-14 – Verified Aircraft Operations by Year (TFMS)

Category	2020	2021	2022	2023	2024
A/B-I	40	80	51	39	50
A/B-II	100	132	153	131	358
C/D-I	1	0	0	0	0
C/D-II	0	0	0	0	0
ADG-III	0	0	0	0	0
Total	**141**	**212**	**204**	**170**	**408**

Source: KLJ Analysis

The historic TFMS operations and other measured operations are portrayed in greater detail by aircraft type, category and frequency in **Table 1-15- Total Verified Annual Operations**. As is evident from the table, the primary operating aircraft is the Thrush 710P for agricultural spray operations and the Pilatus PC-12, which is operated by Gordon Memorial Health Services for receiving and transferring emergency department and in-patient cases to and from GRN.

Table 1-15 Total Verified Annual Operations (TFMS)

ID	Make	Model	Type	AAC	ADG	TDG	MTOW (lbs.)	10-Year Ops	2024 Ops
710P	Thrush	710P	Turboprop	A	II	2-A	14,150	-	250
PC-12	Pilatus	PC-12	Turboprop	A	II	2-A	10,450	609	90
RV-10	VANS	RV-10	Piston	A	I	1-A	2,700	49	10
BE9L	King Air C90	King Air C90	Turboprop	B	II	1-A	10,100	294	12
TBM9	Socata	TBM-900	Turboprop	A	I	1-A	7,395	7	8
SR22	Cirrus	SR-22T	Piston	A	I	1-A	3,400	18	4
PA24	Piper	PA-24 Comanche	Piston	A	I	1-A	3,200	76	4
BE35	Beechcraft	Super King Air 350	Turboprop	A	I	1-A	3,400	86	4
	Various			A/B	I			450	24
	Various			A/B	II			341	2
							Total Verified Annual Operations		**408**

Source: KLJ Analysis

Fuel sales were also examined in order to determine if correlations between fuel sales and TFMS operation exist. Gordon Municipal Airport offers 100LL AvGas via an above ground self-serve fuel tank. The offering of only AvGas limits the purchase of fuel at GRN, as not all aircraft can utilize this fuel and some may require Jet A. The last ten years of fuel sales were collected and are displayed in **Table 1-16 Annual Fuel Sales 2014-2024**. At GRN, fuel sales are tracked in terms of gallons sold and number of transactions are not recorded. As such, the data is displayed via total percentage of sales for each month, during the corresponding annual period. It should be noted that the fuel sales do not correlate to operations due to the unavailability of Jet A fuel at GRN, meaning that not all operating aircraft can be captured looking at fuel sales alone. One example includes the Ag Sprayers that operate out of Gordon Municipal Airport, which do not purchase fuel at the airport, as a result of the aircraft type they operate. Such operators have expressed the desire for the addition of a self-serve Jet A tank.

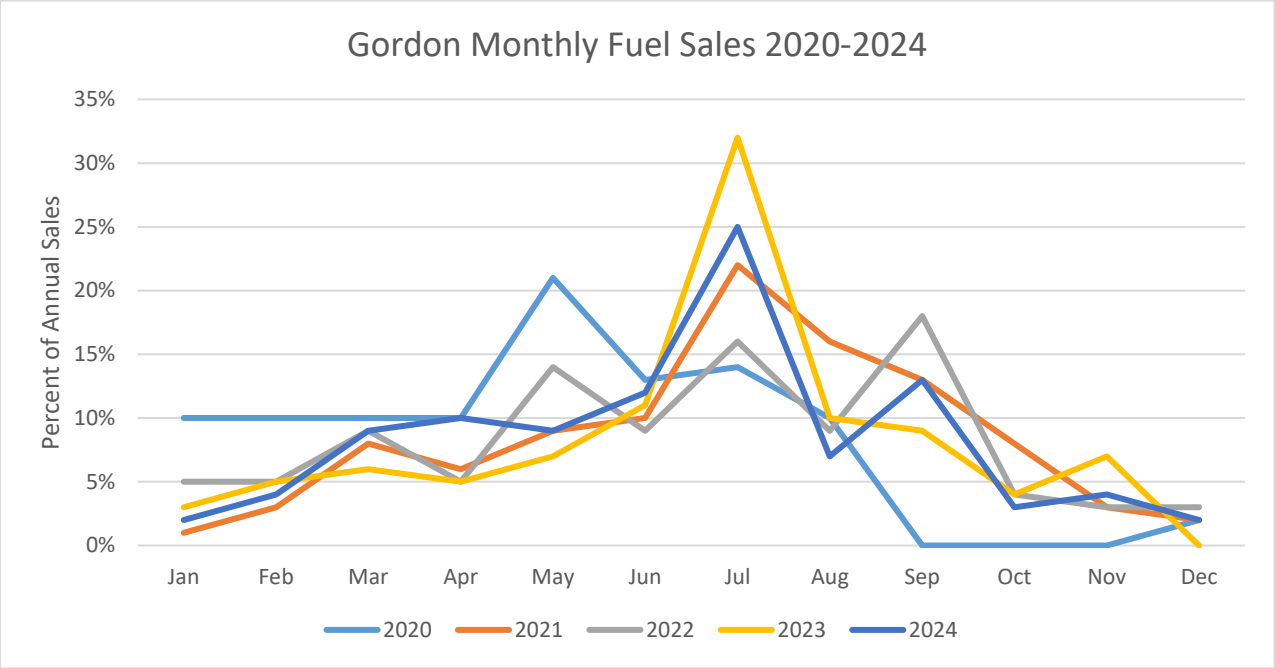
Table 1-16 – Annual Fuel Sales 2014-2024 (100LL Avgas only)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Gallons
2014	4%	7%	10%	11%	7%	7%	12%	10%	**13%**	11%	6%	2%	5,056
2015	7%	12%	10%	9%	6%	12%	0%	5%	**15%**	8%	10%	7%	2,967
2016	4%	8%	7%	6%	8%	13%	8%	12%	7%	**13%**	7%	6%	5,838
2017	6%	5%	6%	10%	4%	12%	**15%**	11%	11%	10%	6%	5%	6,057
2018	6%	6%	**18%**	6%	9%	9%	9%	7%	8%	7%	8%	7%	4,950
2019	2%	2%	5%	8%	11%	12%	**18%**	16%	9%	5%	6%	6%	7,229
2020	10%	10%	10%	10%	**21%**	13%	14%	10%	0%	0%	0%	%2	3,681
2021	1%	3%	8%	6%	9%	10%	**22%**	16%	13%	8%	3%	2%	6,705
2022	5%	5%	9%	5%	14%	9%	16%	9%	**18%**	4%	3%	3%	6,334
2023	3%	5%	6%	5%	7%	11%	**32%**	10%	9%	4%	7%	0%	5,599
2024	2%	4%	9%	10%	9%	12%	**25%**	7%	13%	3%	4%	2%	5,199

Source: City of Gordon, KLJ Analysis

See **Figure 1-7 Gordon Annual Fuel Sales 2020-2024** for a detailed look at peak fueling activities in the most recent five years. The majority of sales occur in the month of July, with other significant peaks occurring in May and September. While the table and corresponding graph in this section display sales in terms of gallons sold, the raw data provided by the airport, depicted in total gallons sold, shows that sales have consistently decreased over the last five years. It should be noted that sales were significantly decreased in 2020 due to an overall decrease in flights as a result of the COVID-19 Pandemic, in addition to ongoing projects at GRN accompanied with a brief period of the fuel pump down in the fall, but in the years following returned to more accurate baseline levels. As such, sales from the year prior, 2019, were compared to those from the last full calendar year, 2024, which yielded a 28% decrease in sales from this period.

Figure 1-7–GRN Annual Fuel Sales 2020-2024



Source: Gordon Municipal Airport, KLJ Analysis

Considering the range of existing and forecast data examined in the previous pages, the next step in the forecasting process is to determine what this means for the airport for:

- *Critical Design Aircraft*
- *Based Aircraft Forecast*
- *Annual Airport Operations*
- *Peak Airport Activity*

Critical Design Aircraft

The critical design aircraft is identified as the most demanding aircraft or family of aircraft to regularly use the airport. According to FAA AC 150/5000-17, *Critical Aircraft and Regular Use Determination* a critical design aircraft type or family must operate at least 500 annual operations at the airport to be considered 'regular use' by FAA for improvements to be justified for FAA funding.

Existing

In **Table 1-17** there is a summary of the existing annual operations by the various aircraft design characteristics. The shaded/outlined areas show where there are 500 annual operations to meet the 'regular use' threshold. The table includes all verified operations from **Table 1-14** covered earlier in the chapter. The existing critical design aircraft at GRN is the **A/B-II (Small)** with a **TDG 2-A**. Based on the information below, it is deemed that the existing RDC and TDG classifications are accurate and should remain through the planning period.

Table 1-17 Existing Annual Operations by Critical Design Aircraft Characteristics

AAC		ADG		TDG		MTOW	
A/B	408	I	54	1-A/1-B	308	< 12,500 lbs	158
C/D	0	II	354	2-A/2-B	100	≥ 12,500 lbs	250

Figure 1-9 – Existing and Future Critical Design Aircraft Family

ARC A-I Small		ARC A-II Small	
Piper PA-46		Air Tractor 502	
ARC B-II Small		**ARC B-II Small**	
King Air 200		Citation CJ2	
ARC B-II		**ARC B-II**	
Air Tractor 802		Falcon 900	

Photography Source: Airliners.net

Future

National trends indicate that operators will begin to phase out piston engine aircraft for larger turboprop and turbojet aircraft which means aircraft will stay in this larger range of A/B-II as currently exists. The future critical design aircraft family at GRN will remain the **A/B-II Small** with a **TDG 2-A.**

Based Aircraft Forecast

A based aircraft is an operational and airworthy aircraft claiming an airport as its home for most of the year. Knowing the number and types of based aircraft helps the airport assess the existing aircraft storage needs and the forecast of based aircraft helps determine future storage needs.

Historical Data

According to the National Based Aircraft Inventory1 report updated on September 24, 2025, there are 4 aircraft based at the airport, all of which are validated. While airport management records indicate this number is more likely six, two aircraft are unable to be verified due to shared ownership at another facility. For this planning study, the validated number of 4 based aircraft will serve as the baseline for forecasting at GRN.

Table 1-18 – Based Aircraft Fleet Mix

Aircraft Type	Based Aircraft	Percent of Total
Piston (Single)	4	100%
Piston (Multi)	0	0%
Turboprop	0	0%
Jet	0	0%
Helicopter	0	0%
Ultralight/Other	0	0%
Total Based Aircraft	4	100%

Source: National Based Aircraft Inventory Program, KLJ Analysis

[1] In the National Based Aircraft Database only one airport can claim an aircraft as 'based'. If there is a dispute on the location, the aircraft is not counted at either airport then the respective airport managers must work together to resolve which airport will be able to claim the aircraft as based.

Forecast

Local socioeconomic and national industry trends were evaluated when preparing the based aircraft forecast for GRN. It is largely anticipated that based aircraft growth will remain conservative over the planning period. The following describes some of the growth factors used when developing this forecast.

- According to the FAA TAF, based aircraft at GRN have fluctuated over the last ten years, rising and declining one year to the next. This range reached a high of 15 in 2013 and a low of 9 in 2023, and airport management indicates that there was often a waitlist for up to five aircraft until recent years. According to the current TAF, the based aircraft is forecast to remain stagnant throughout the twenty-year planning timeframe.
- The population within Sheridan County has steadily decreased from the 1970's, until present day, resulting in a ten-year historical growth rate of -0.94%, and a forecasted twenty-year, negative growth rate of -0.73%. The population comprises a versatile range of children, working age and seniors. Data from 2020-2024 indicates that 12% of the population was under the age of 19 years, 49% was between the ages of 20-64 years and the remining 28% of the population were aged 65 years or older.
- The ageing population has directly impacted the general aviation community at Gordon, with declining based aircraft counts resulting from older pilots and aircraft owners retiring or selling their planes due to medical conditions, declining physical or mental abilities and constraints related to the cost of maintenance and upkeep. Additionally, some owners have simply moved out of the area.
- Despite fluctuating growth in population, employment is anticipated to steadily grow, with an anticipated 0.192% CAGR for Sheridan County. Per Capita Personal Income also experiences growth though at a much steeper rate of 1.18% for the county.
- Per **Table 1-10**, National Aviation activity shows conservative growth for single engine piston aircraft, the primary aircraft type at GRN, with a historical rate of 0.09% and a negative forecasted rate of -0.21%. Data from the FAA National Aerospace Forecast report was utilized to determine the CAGR for the total General Aviation fleet from 2024-2044, resulting in a rate of 0.43%.
- According to the most recent Nebraska State Aviation System Plan, published in 2025, based aircraft at Gordon were forecast to grow within a reasonable range to 14, with a starting baseline of 12 based aircraft in the study year of 2019, equating to an approximate increase of 16.7%. If this rate is applied evenly across the twenty-year forecast period, it results in a CAGR of approximately 0.77%.

Different growth rates were determined based on the range of stagnant and steady growth with different metrics and the aircraft types. **Table 1-19** below depicts the ultimate based aircraft counts at Gordon for each respective variable. Ultimately the CAGR from the NE SASP was selected as the preferred alternative, given it's based on recent data specific to the State of Nebraska and shows a positive growth trend.

Table 1-19 – Based Aircraft Forecast

Forecast Method	2024	2029	2034	2039	2044	CAGR
Historical TAF Growth Rate	4	3	3	2	2	*-4.32%*
NE SASP	**4**	**4**	**4**	**5**	**5**	***0.77%***
Sheridan county Emply.	4	4	4	4	4	*0.19%*
Per Capita Income	4	4	5	5	5	*1.18%*
FAA GA Fleet	4	4	4	4	4	*0.43%*
Composite CAGR	4	4	4	4	4	*0.13%*

Source: KLJ Analysis. CAGR = Compounded Annual Growth Rate

Annual Operations Forecast

An operation is an aircraft landing or a takeoff. Aircraft operations are split into two categories: Local and Itinerant. Local operations are performed by aircraft that remain in the local traffic pattern and stay within a 20−mile radius. These operations typically include practice landings, touch-and-go operations, practice approaches and maneuvering within the local area. Itinerant operations are performed by a landing aircraft arriving from outside the airport area or a departing aircraft that leaves the airport area.

Baseline Data

In the past, the activity reported by the airport staff in Airport Master Record established the historical record of operations. This is no longer the case and therefore a new means of determining a baseline of operations was needed. With the Verified Annual Operations in **Table 1-15** 408 operations were recorded and calculated to establish the baseline annual operations.

The Verified Operations data does not capture all operations at GRN as many aircraft operate under VFR flight plans and as such, do not have a filed IFR flight plan on record, and therefore go unaccounted for in this data. Observations and records from fuel sales, as well as the flight records from Gordon Memorial Health Services, provide additional insights as to the types of aircraft that are utilizing the airport and reason for the flight. **Table 1-20** provides a conversion from Verified to Total Operations.

Table 1-20 – Verified Aircraft Operations to Baseline Operations

Category	Verified 2024	% not Verified	Baseline Total Operations
A/B-I	50	95%	1,000
A/B-II	358	15%	420
Total	**408**		**1,420**

Source: KLJ Analysis

Forecast

Several forecast methods were applied to the base year operations from 2024 at GRN to determine growth using various CAGR. These include growth rates determined from the socioeconomic data, the FAA TAF, the FAA Aerospace Forecast and the Nebraska Airport System Plan. The following briefly summarizes the forecasting methods applied:

- The last ten years of data from the Terminal Area Forecast (TAF) was pulled to determine if any growth patterns could be gleaned. Unfortunately, since these were only estimates of activity reported in 5010 inspections, the data was not determined to be sufficiently accurate. The operations activity from TFMS was gathered from 2014 through 2025 instead. This is only

instrument activity but it is a consistent data source. There were 241 TFMS recorded operations in 2014 and 180 TFMS operations recorded in 2025. The eleven years of historical data resulted in a negative CAGR of -2.62%.

- The State Aviation System Plan (SASP) of Nebraska, which was published in 2021, conducted a generalized 20-year forecast for airports such as Gordon, which included a "Range of Reasonableness" +/- 20% for growth. Baseline data of 1,500 operations from 2019 was used, resulting in a forecast of 1,200 operations at the low end of the range, and an ultimate 1,800 operations at the high end. The CAGR of each range was determined, resulting in -1.11% and 0.92% respectively. The CAGR of 0.92% was deemed reasonable and applied to the verified operations at GRN, resulting in a total of 490 ops by the end of the forecast period in 2044.
- Socio-Economic data available from Woods and Poole and detailed in **Table 1-7** was utilized to determine a rate of growth from the forecasted Per Capita Personal Income. The forecasted CAGR is 1.18% and results in 516 total operations in 2044. This is determined to be an acceptable determination for aviation activity growth as it takes into consideration population size, economic well-being, is a good signal for productivity and job quality. These factors can ultimately influence disposable income and recreational activities in a community, including the General Aviation flying community, which might otherwise be constrained by monetary factors.
- The FAA Aerospace Forecast was also examined. The total GA fleet is anticipated to grow at a CAGR of 0.43% through the forecast period. This includes a mix of single and multi-engine aircraft, including piston, turbojet, turboprop and rotorcraft. The growth of the turbine fleet alone was examined, and it was determined that this aircraft type is expected to see a more aggressive CAGR of 2.01% through the forecast period. Given the use of GRN as a hub for medical flights and transfers to and from Gordon Memorial Health Services, the largest medical center in the region, it is widely accepted that the turbine fleet, like those aircraft utilized by Gordon Memorial Health Services, will primarily contribute to the ops at the airport.

A composite CAGR was calculated by combining the growth trends described above, with the exception of the historical TAF rate, to reflect a single rate of growth that takes into consideration all relevant factors related to aviation activity rather than one singular reference point. Ultimately this composite rate is a more stable, realistic approach to actual growth and is the preferred forecasting method carried forward throughout this report. **Table 1-20** depicts the resulting aircraft operations activity at GRN under each respective forecasting method.

Table 1-20 – Aircraft Operations Forecast

Forecast Method	2024	2029	2034	2039	2044	CAGR
Historical TAF Growth Rate	1,420	1,244	1,088	954	834	*-2.62%*
NE SASP		1,486	1,556	1,630	1,706	*0.92%*
Per Capita Income		1,505	1,596	1,694	1,796	*1.18%*
FAA GA Fleet		1,450	1,482	1,514	1,548	*0.43%*
FAA Turbine Fleet		1,568	1,732	1,914	2,114	*2.01%*
Composite CAGR	**1,420**	**1,502**	**1,588**	**1,680**	**1,778**	***1.13%***

Peak Activity Forecast

Peak demand periods help quantify aviation activity during busy periods. Knowing not only how many operations the airport is anticipated to handle on an annual basis, but when operations are expected to occur assists in appropriately designing and sizing facilities. Time periods evaluated include the peak month, design day and design hour characteristics for airport operations. Peak activity is important when planning the size of facilities with fixed capacities including the terminal, apron area and itinerant hangar space. It is important to note that the peak activity depicted in this section is based only on the aircraft operations that could be verified via TFMS data, and does not fully capture total operations at Gordon Municipal Airport, specifically local operations, for which a flight plan was not filed.

- **Peak Month:** The calendar month when peak operations occur
- **Design Day**: The average day in a peak month (peak month / 31)
- **Busy Day**: The busy day of a typical week in a peak month (Design Day + 15 percent)
- **Design Hour**: The peak hour within the design day (20 percent of Busy Day)
-

PEAK MONTH

The peak month of general aviation operations was determined by reviewing the prior ten years of monthly fuel sales records from the airport sponsor, see **Table 1-16**. The peak month for sales appears to be July, with an average of 17 percent of the annual sales over the last ten years.

Table 1-21 – Peak Month Operations Forecast

Metric	2024	2029	2034	2039	2044	CAGR
Annual Operations	1,420	1,502	1,588	1,680	1,778	1.13%
Peak Month (17%)	242	256	270	286	302	1.16%

Source: KLJ Analysis, CAGR = Compounded Annual Growth Rate

BUSY DAY AND DESIGN HOUR

The busy day represents the average day in the peak month. The busy day accounts for a peaking activity during a time of concentrated activity such as weekends for airports with recreational traffic. The busy day is calculated as an average day plus 15 percent. The design hour is reflective of the peak hour within the design or busy day. It is based on the average hourly operations during a design day with an additional factor for concentrated activity. To determine the design hour figure, the design day consider a 14-hour period and therefore are based on 25 percent of busy day for parking purposes.

Table 1-22 – Design Day Operations Forecast

Metric	2024	2029	2034	2039	2044
Peak Month	242	256	270	286	302
Design Day	8.1	8.5	9	9.5	10.1
Busy Day (Design Day + 15%)	9.3	9.7	10.3	10.9	11.6
Design Hour Total	2.3	2.4	2.6	2.7	2.9

Source: KLJ Analysis, CAGR = Compounded Annual Growth Rate

FAA Approval

The FAA approved the Critical Design Aircraft on December 19, 2025. See **Figure 1-10**.

Figure 1-10 Critical Design Aircraft Approval

U.S. Department
of Transportation
Federal Aviation Administration

Central Region
Iowa, Kansas
Missouri, Nebraska

901 Locust
Kansas City, Missouri 64106
(816) 329-2600

December 19, 2025

Mr. Scott Fleming
City Manager
City of Gordon
311 North Oak Street
Gordon, NE, 69343

Dear Mr. Fleming:

Critical Design Aircraft Approval
Gordon Municipal Airport (GRN), Gordon, NE
AIP No. 3-31-0031-015 & 016-2025

The documentation submitted to be used as the Critical Design Aircraft is Approved.

The proposed existing Critical Design Aircraft, **A/B-II (small)**, is **Approved**. The proposed ultimate Critical Design Aircraft, **A/B-II (small)**, is **Approved**.

You may proceed with developing the remainder of the report and the Airport Layout Plan drawings. If you have any questions regarding this project, please call me at (816) 329-2629 or via email at sadie.a.robb@faa.gov.

Sincerely,

Sadie Robb, AICP
Nebraska State Planner

CC: Kent Penney, KLJ
Anna Lannin, NDOT, Aeronautics Division