CHAPTER 1: AIRPORT, COMMUNITY & AVIATION ACTIVITY

Purpose and Scope

The information presented in this report represents the findings for the 2022 Targeted Airport Planning Study and ALP Update prepared for the Warroad International Memorial Airport, owned by the City of Warroad. The planning study was 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 AIP 3-27-0108-021-2022.

This study for the Warroad International Memorial Airport, henceforth "the Airport" or "RRT", will serve as an updated guide identifying future development necessary to accommodate existing and future aviation demands while meeting the airport's current and forecasted safety, capacity and compatibility needs. RRT last updated their Airport Layout Plan and Master Plan in 2012. Since that time there have been changes to the FAA standards as well as new considerations to the taxiway geometry and apron depth that warrant a targeted planning study and update to the Airport Layout Plan (ALP).

The airport sponsor and Kadrmas, Lee & Jackson (KLJ) developed the scope for the project in cooperation with FAA Airports District Office and MnDOT Office of Aeronautics officials to identify the specific needs and objectives of the airport owner. Recommendations will be made for improvements that are triggered by safety and design requirements or demand thresholds.

The project received notice to proceed on July 2022, from the airport sponsor, the City of Warroad. The baseline project data is from inventory efforts completed in November of 2022. Data from year 2022 was used to establish a baseline of existing airport information.

Planning Objectives

The most recent Airport Master Plan study and ALP was completed in 2012. Key findings and recommended development of the previous study were; an increase in hangar development and apron space, development of a precision approach to Runway 13, and the installation of a perimeter fence. Since then, many of these development projects have been completed.

An update to the ALP is needed now to evaluate the aircraft parking apron and terminal and hangar area which is compact and constrained due to its location near the Runway 31 threshold and tie-ins to the parallel and connecting taxiways. The main aircraft parking apron lacks sufficient depth to meet the aircraft maneuvering standards and accommodate aircraft parking demand. Additionally, the separation distance of the parallel taxiway to the runway currently exceeds standards and should be evaluated before it needs reconstruction to determine if additional space can be made in the terminal area.

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:

- Evaluate the parallel taxiway separation and location of connector taxiways to Runway 13-31 (including wetlands field delineation for evaluation purposes)
- Evaluate apron layout to meet maneuvering standards and aircraft parking needs
- Evaluate future hangar area development layout
- Survey and analyze Part 77 Approach Surfaces to all runway ends and identify obstructions
- Evaluate and determine future location for Automated Weather Observation System (AWOS)
- Survey and analyze the Runway Safety Area for verification
- Refresh ALP to current design standards.

Airport Planning Process

Guidelines for completing Airport Master Plans 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 planning process involves several coordinated steps. The targeted planning study for RRT 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 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 a survey.
- **Critical Design Aircraft Determination** – Utilizing historical data and established forecasting methods, the existing and future critical design aircraft is determined to identify facility needs.
- **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.

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.

- **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.

Study Documentation

The Targeted Planning Study was divided into chapters of information 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

Each chapter was prepared separately and distributed to the airport owner and 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 project website (https://warroad.airportplan.net/) for public viewing.

The Targeted Planning Study was accepted by the City of Warroad and the ALP was submitted to the FAA and State for review and approval on August 26, 2024.

Public Involvement

Public involvement is a key component to the successful development of a planning 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.

A Planning Advisory Committee (PAC) was established to provide input throughout the life of the study. The purpose of the PAC was to facilitate group discussion and feedback from different stakeholder groups, providing recommendations to the airport owner. PAC members represented the following stakeholder groups:

- City of Warroad
- Airport Users/Tenants
- Community/Area Businesses
- US Customs and Border Protection
- Minnesota Department of Natural Resources
- Minnesota Department of Transportation: Office of Aeronautics
- Federal Aviation Administration: Dakota-Minnesota Airports District Office

A project website, https://warroad.airportplan.net, 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.

A Public Open House was held on October 10, 2023, to solicit input on the project's findings. See **Appendix C: Meetings and Public Involvement** for other information including copies of public involvement meeting agendas, attendees, presentations, comments, and summaries.

Airport & Community Overview

General

The Warroad International Memorial Airport is a general aviation airport serving the City of Warroad and surrounding areas of Roseau County in northern Minnesota. The Airport has two runways. Runway 13-31 is paved and lighted at 5,400 feet long and 100 feet wide, with an Instrument Landing System on the 31 end that is capable of accommodating instrument approaches during poor weather. Runway 4-22 has a turf surface at 2,987 feet long and 150 feet wide.

The Airport accommodates multiple aeronautical functions including aerial firefighting, emergency response, business travel, community access, and US Customs and Boarder Protection (available by appointment). Marvin Windows was founded and is headquartered in Warroad, Minnesota. Marvin has a significant flight operation at the airport which shuttles personnel to and from its other locations.

According to the Airport Master Record (as of April 2023), the Airport is home to 14 based aircraft and has 9,000 annual flight operations.

Location and Area Setting

The City of Warroad is located in northwest Minnesota in Roseau County, approximately 70 miles northeast of Thief River Falls, approximately 390 miles northwest of the Twin Cities metropolitan area and about five and a half miles south of the Canadian border. The community is situated on the southwest shores of Lake of the Woods near the Canadian border. The terrain in the area is relatively flat with surrounding land being a mixture of agricultural, sparse residential and forested land.

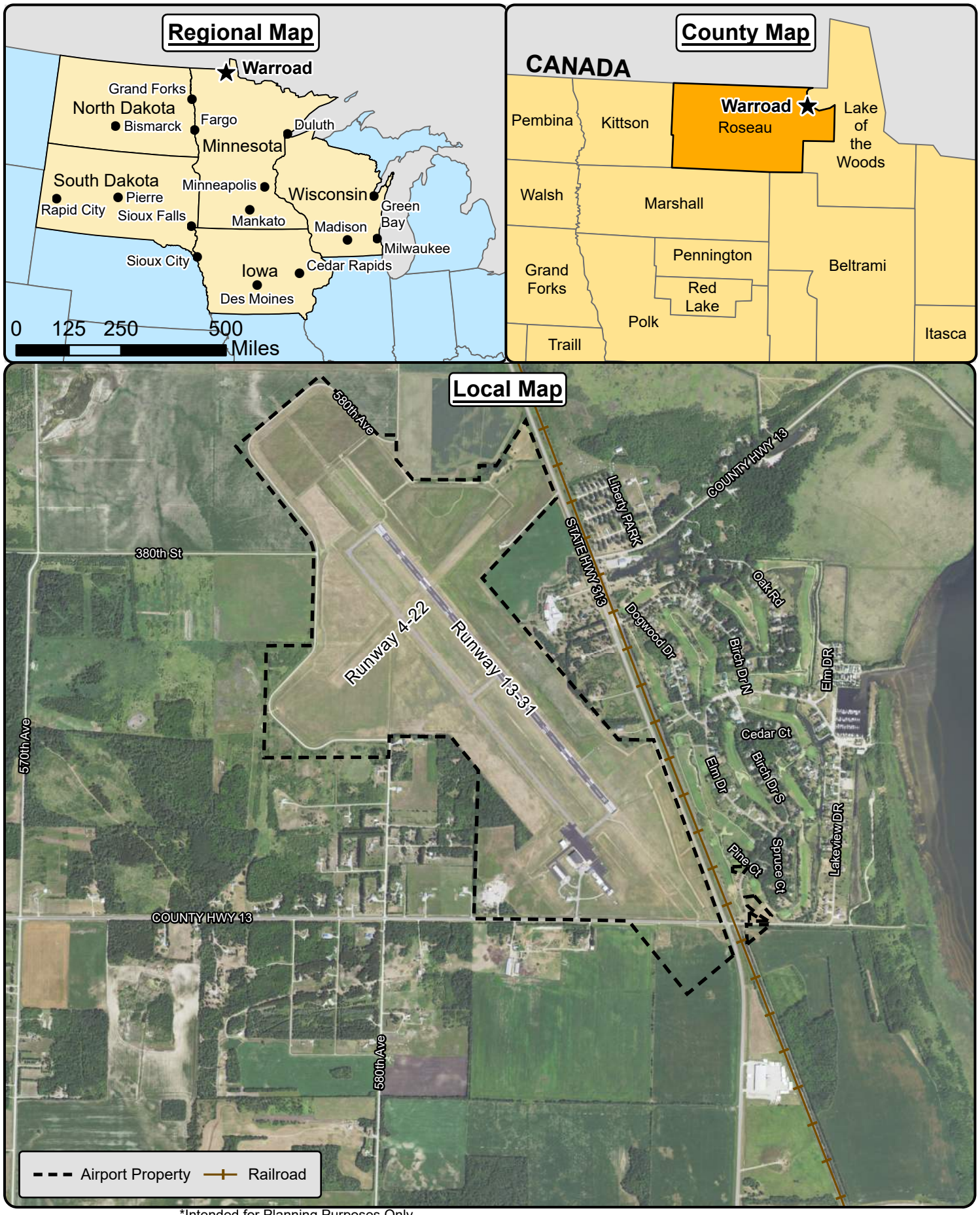
The Airport is located 2 miles northwest of the central business district of Warroad and is bordered by Minnesota State Highway 313 and County Highway 13. Access to the airport is achieved through the paved access road connecting to County Highway 13.

Airport Ownership & Management

The Airport is owned and operated by the City of Warroad. An Airport Advisory Commission is in place and provides recommendations to the Warroad City Council who is the decision-making body. The city employs an Airport Manager to operate and maintain the airport.

Land Area

The original Airport land was acquired in 1934, and then expanded over the years in conjunction with airport development projects. The Airport has a total of 602 acres owned in fee simple and 167 acres in easement.



*Intended for Planning Purposes Only

N

0 2,000 4,000 Feet

Figure 1-1
Warroad International Memorial Airport
Warroad, Minnesota
Location Map

Airport Role & Design

Warroad is a general aviation (GA) airport, meaning it accommodates aviation activities other than scheduled commercial air service. General aviation airports provide vital aeronautical functions serving the public interest including emergency response, critical community access, personal and business aviation, and commercial, industrial, and economic activities.

Public use airports in the United States with instrument procedures within 50 nautical miles are listed in **Table 1-1** to provide background into the other area airports.

Table 1-1 – Surrounding Public Airports

Airport Name / City	FAA ID	Location from Airport	Based Aircraft	Instrument Approach	Longest Runway
Warroad International Memorial	**RRT**	**-**	**19**	**200' – ½ mile**	**5,400'**
Roseau Municipal / Roseau	ROX	14 NM – SW	13	200' – ¾ Mile	4,400'
Piney Pinecreek Border / Pinecreek	48Y	25 NM – W	0	400' – 1 Mile	3,300'
Baudette International / Baudette	BDE	32 NM - SE	15	300' – ¾ Mile	5,500'

Source: skyvector.com, FAA Airport Data and Information Portal, and Airport Master Record Form 5010 (Based Aircraft)

The National Plan of Integrated Airport Systems (NPIAS) identifies nearly 3,330 airports nationally that are included in the national airport system. The NPIAS, which is administered by the FAA, contains all commercial service airports, all reliever airports, and selected public-owned general aviation airports that link the community to the national air transportation system. RRT is part of the National Plan of Integrated Airport Systems (NPIAS) as classified by the Federal Aviation Administration (FAA). According to 2023 NPIAS report, the Airport is classified as a General Aviation - Basic airport.

The State of Minnesota categorizes airports into six classifications: Key Commercial Service, Key General Aviation, Intermediate Large, Intermediate Small, Landing Strip Turf, Landing Strip Seaplane Base. The 2022 Minnesota State Aviation System Plan (SASP) classified Warroad as a Key General Aviation airport. The SASP identifies a minimum criterion for each classification with Key General Aviation having a paved runway greater than or equal to 4,900 feet. Key General Aviation airports are defined as primary landing facilities for general aviation jets that serve business and air freight activities.

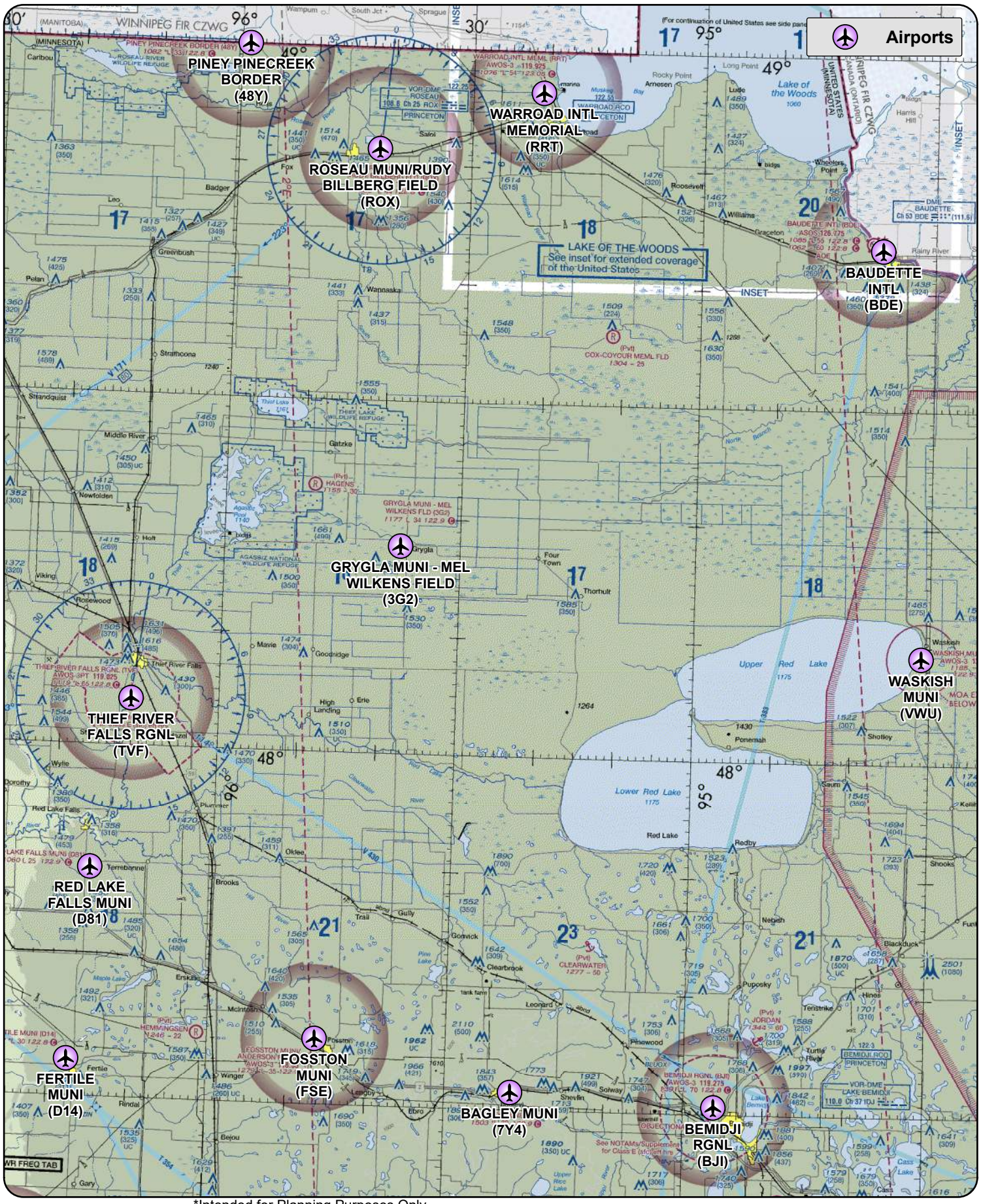
The FAA's Airport Reference Code (ARC) identifies a design category based on aircraft wingspan, tail height and approach speed for aircraft types that regularly use the airport. The details of the ARC are found in **Appendix B: General Aviation Airports 101.** The current ALP, conditionally approved by the FAA in December 2012, indicates the ARC at RRT is D-II. At the time, the Gulfstream IV was identified as the critical design aircraft for RRT. The primary runway at RRT and it's associated design surfaces are designed to D-II standards. The critical design aircraft for RRT will be reviewed and updated later in this chapter.

Table 1-2 summarizes the airport's role and design. See **Appendix B: General Aviation Airports 101** for more details on FAA design classifications and State classifications.

Table 1-2 – Current Airport Role & Design

Airport ID	State Classification	FAA Classification	FAA GA Group	ARC[1]
RRT	Key General Aviation	General Aviation	Basic	D-II

Note 1: Based on RRT ALP from 2012
Source: 2022 MN SASP, KLJ Analysis, ARC = Airport Reference Code, TDG = Taxiway Design Group



*Intended for Planning Purposes Only

N

0 10 20 40 Miles

Figure 1-2
Warroad International Memorial Airport
Airspace & Surrounding Airports

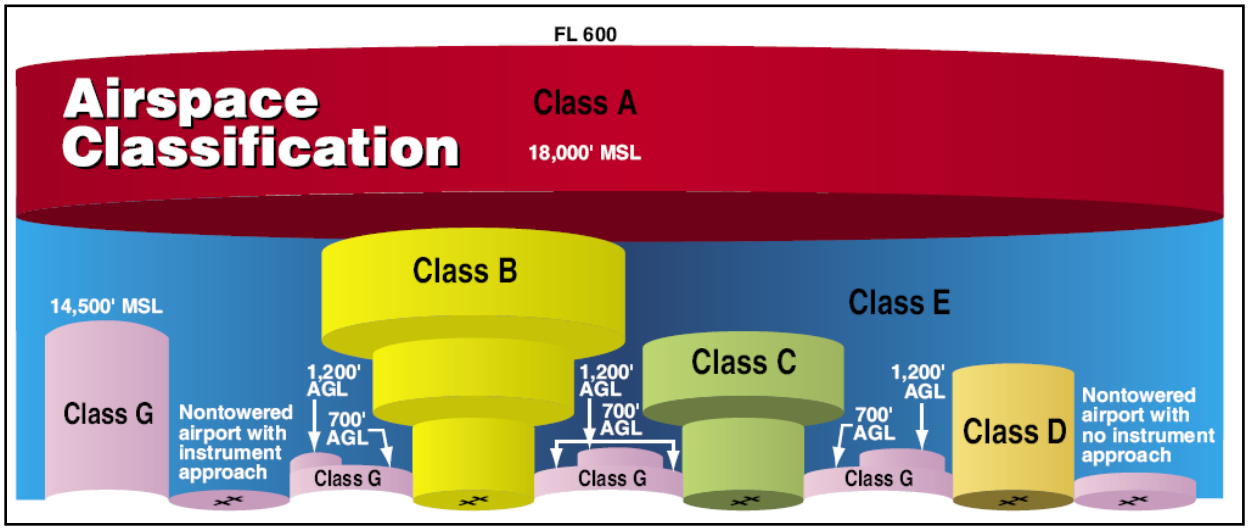
Airspace & Protection

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. The major difference between controlled and uncontrolled airspace is that the FAA does not exercise air traffic control over aircraft operating within uncontrolled airspace. Each airspace class has different operating rules.

Warroad Airport is located within uncontrolled Class G Airspace with controlled Class E Airspace beginning at 700 feet above the surface. This airspace is used to transition between the terminal and en-route environment.

No ATC clearance or radio communication is required for VFR flights in Class E or G airspace. For IFR flight, ATCT clearance is required before entering controlled Class E airspace but not uncontrolled Class G. IFR flights departing the Airport must receive an IFR clearance before reaching an altitude of 1,776 feet above mean sea level and be equipped with an ADS-B system. ADS-B coverage maps provided by the FAA indicate that ATC can see ADS-B transmissions at 5,000 feet AGL and higher over RRT.

Figure 1-3 – FAA Airspace Classifications



Source: Federal Aviation Administration (FAA) Pilots Handbook of Aeronautical Knowledge (2007)

Airspace Protection

Airspace is an important resource around airports that is very important for safe flight operations. There are established standards to identify airspace obstructions around airports. Title 14 CFR (Code of Federal Regulations): Part 77 Safe, Efficient Use, and Preservation of the Navigable Airspace establishes various airspace surfaces near airports. Part 77 is used to determine if an object is an obstruction that penetrates an "imaginary" three-dimensional surface. Surfaces include the primary, approach, transitional, horizontal, and conical surfaces each with different standards.

A recent 5010 inspection conducted by MnDOT noted that a group of trees were close to the Part 77 Approach Surface for Runway 31. While the Targeted Planning Study is not focused on maintenance items like this, it was decided to survey and analyze the inner portion of the Part 77 Approach Surfaces

for all four runway ends to a distance where the Approach Surface is 100' AGL. See **Appendix B – General Aviation Airports 101** for a detailed explanation of Part 77 surfaces. **Table 1-3** depicts the approach airspace surfaces for RRT.

A detailed obstruction analysis will be completed using a combination of data from ground and aerial LiDAR survey, which is part of the planning study. This detailed obstruction identification and mitigation disposition is identified in the Airport Layout Plan developed at the end of this planning study.

Table 1-3 – Part 77 Approach Airspace Requirements

Runway End	Approach Standards	Part 77 Code	Inner Width*	Outer Width	Length	Slope
13	Non-Precision Other-Than-Utility As low as ¾ mile	D	1,000'	4,000'	10,000'	34:1
31	Precision Other-Than-Utility As low as ½ Mile	PIR	1,000'	16,000	50,000'	50:1/40:1
4	Visual Utility	A(V)	250'	1,250'	5,000'	20:1
22	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.* ***Bold*** *indicates change from existing standard.*

Environmental

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 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 in this airport improvement area 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 1050.1F, *Environmental Impacts: Policies and Procedures* is required to be completed prior to commencing with project actions.

The planning study included a wetlands field delineation because of the possibility of reconstructing the parallel taxiway in a different location.

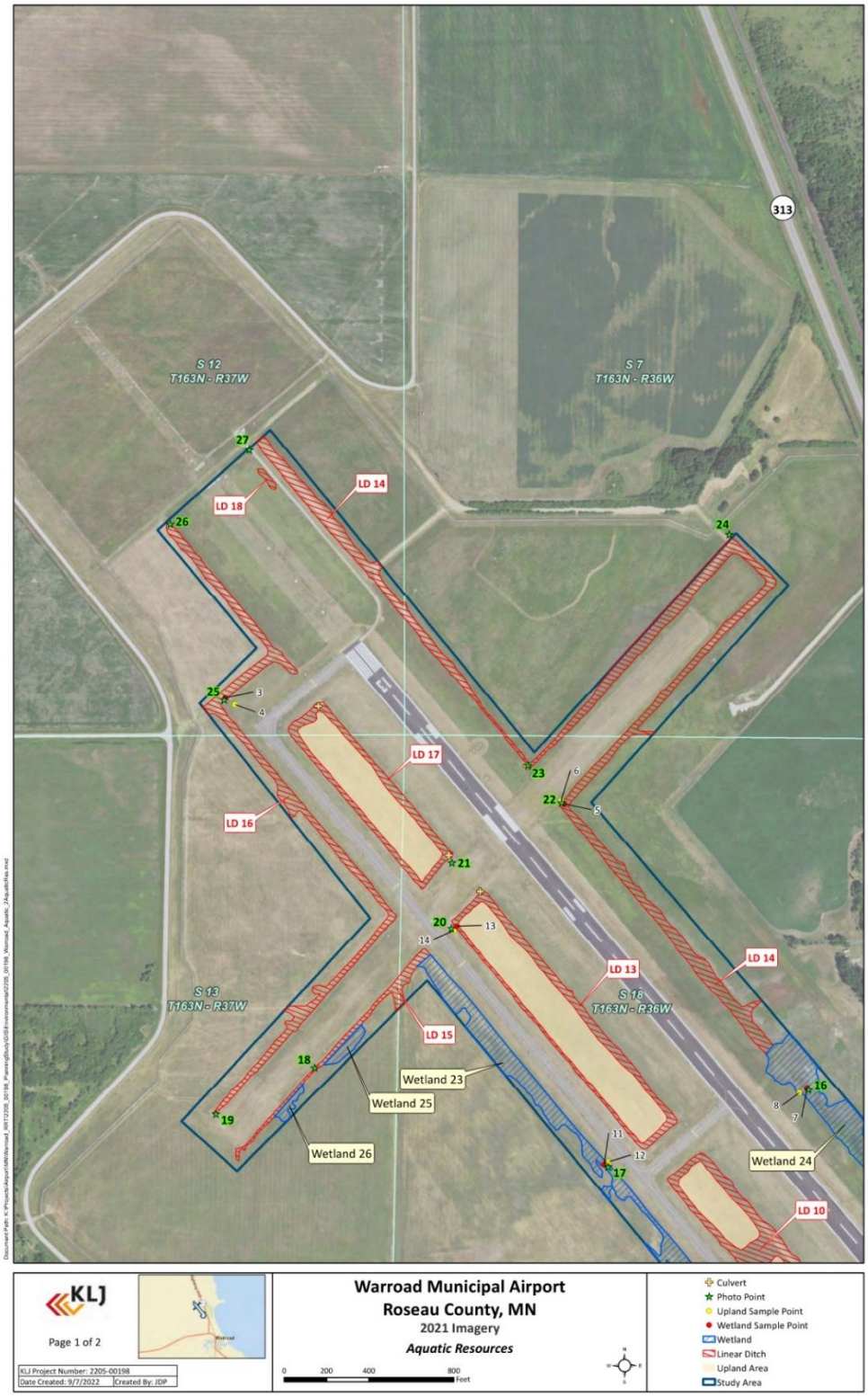
Wetlands are defined in Executive Order 11990, Protection of Wetlands, as those areas that are inundated by surface or groundwater with a frequency to support, and under normal circumstances does or would support, a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated 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.

For RRT it is important to differentiate aquatic resources identified as wetlands and linear ditches. A wetland delineation determines a boundary between uplands and aquatic resources such as a wetland. Naturally occurring areas meeting wetland criteria were identified as wetlands while incidental[1] areas meeting wetland criteria were identified as linear ditches. Linear ditches at RRT are designed to convey and drain stormwater runoff away from the runway and terminal area**. Figure 1-4 - Environmental Overview Wetland Inventory** provides a graphical depiction of the wetlands and other known existing environmental conditions.

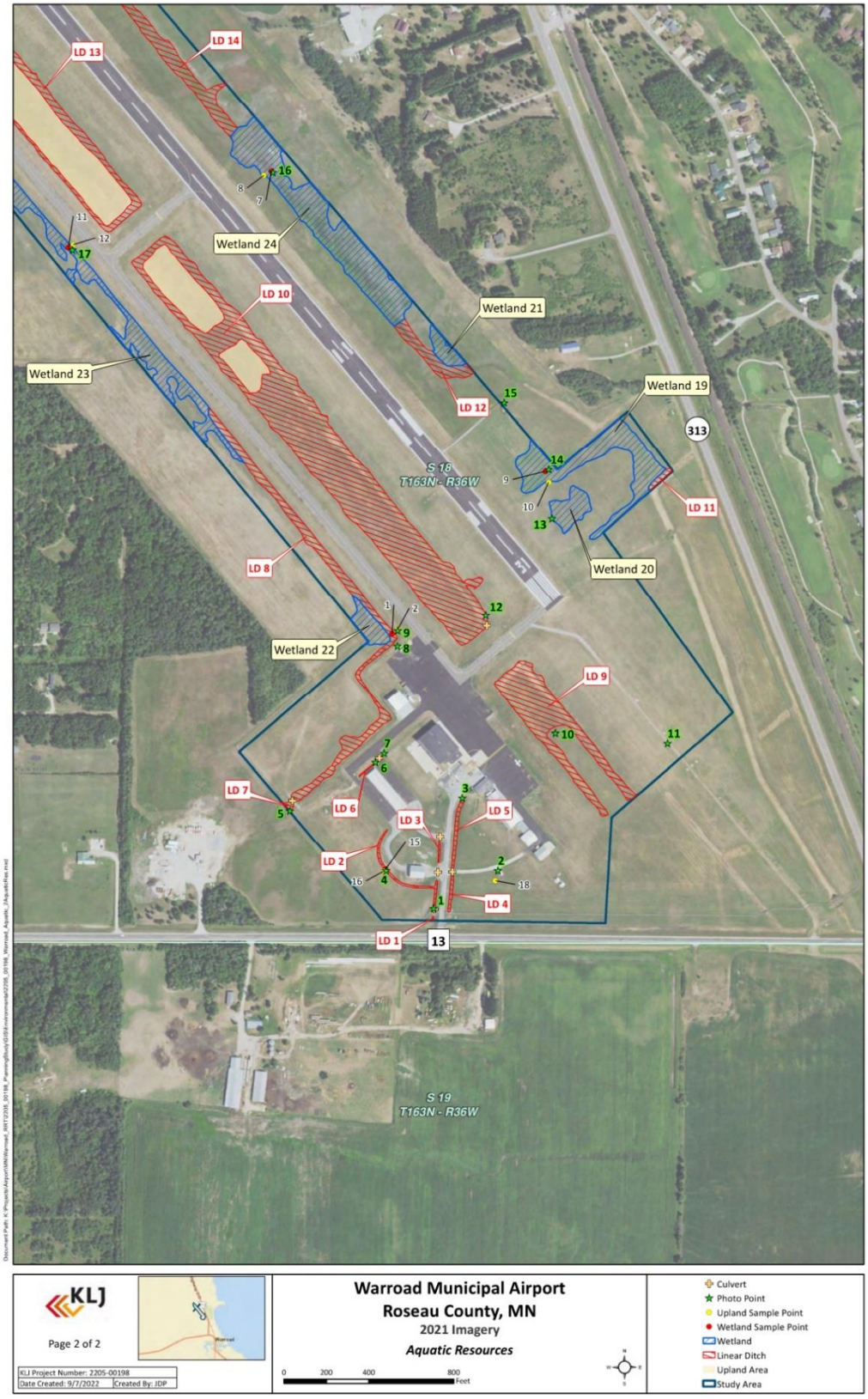
During the planning study, the US Army Corps of Engineers reviewed the aquatic resources between Runway 13-31 and Parallel Taxiway A identified as linear ditches in **Figure 1-4** and determined they are likely jurisdiction under Section 404 of the Clean Water Act. The rational for this determination is the aquatic resources appear to be connected to Lake of the Woods, a Section 10 jurisdictional water, by discrete features such as ditches, swales, pipes, or culverts. This means that future development and improvements will need to be evaluated to first avoid, then minimize disturbances and impacts to these aquatic resources. Finally, mitigation would be required to offset any permanent unavoidable impacts.

[1] Incidental wetlands are wetland areas that the owner can demonstrate, to the satisfaction of the local government unit, were created in non-wetland areas solely by actions, the purpose of which was not to create the wetland.

Figure 1-4 - Environmental Overview Wetland Inventory



Source: RRT Aquatic Resources Delineation Report, September 2022



Source: RRT Aquatic Resources Delineation Report, September 2022

Aviation Activity

The Aviation Activity Forecasts analyzes current and future airport activity at Warroad. 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.

Forecasting efforts are based on a "snapshot" of existing aviation trends and socioeconomic climate. As such, forecasting tends to be a dynamic element of airport master planning. When conditions change dramatically, forecasts should be reviewed and updated accordingly to reflect the changed environment.

The forecasts developed for RRT will be important to adequately plan, size, and sequence development of future facilities to meet future projected growth. Development at airports, however, is demand-based from actual numbers rather than forecasts.

To thoroughly analyze and develop a probable aviation forecast, a technical review has been completed to help quantify the potential aviation activity over the next 20 years.

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.

Forecasts developed for airport master plans and/or federal grants must be approved by the Federal Aviation Administration (FAA). It is the FAA's policy, listed in FAA AC 150/5070-6B, Airport Master Plans, that FAA approval of forecasts should be consistent with the Terminal Area Forecasts (TAF). Master plan forecasts for operations and based aircraft are consistent with the TAF if they meet the following criteria:

1. Forecasts differ by less than 10 percent in the five-year forecast and 15 percent in the 10-year period, or
2. Forecasts do not affect the timing or scale of an airport project, or
3. Forecasts do not affect the role of the airport as defined in the current version of FAA Order 5090.5, Field Formulation of the National Plan of Integrated Airport Systems

Forecasts that are inconsistent with the TAF require additional FAA review to confirm the planning assumptions and appropriate methodologies are used. The TAF model used for this report is from the 2022 FAA TAF published in February 2023. This is latest data available when the forecasting effort began for this study. In later sections of this chapter the preferred forecast is compared to the 2023 TAF, which was published in January 2024, to determine consistency.

Factors Affecting Forecasts

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

1. Based on availability of data when the project began, Federal fiscal year 2022 has been used as the baseline year.
2. FAA data from 2022 (where available) has been used to validate forecast assumptions and update the forecast baseline.
3. The forecast period is 20 years encompassing years 2022 through 2042.
4. The most recent 2022 estimates and future projections of socioeconomic and demographic trends have been utilized for the airport service area.
5. The core airport service area is considered the City of Warroad and Roseau County

The forecasts prepared for the airport assume an unconstrained scenario where facilities are available for use to meet demand. Any constrained forecasts prepared will be noted throughout the document. Time periods include short-term (5-year), mid-term (10-year) and long-term (20-year) resulting in forecasts for year 2027, 2032, 2037 and 2042. Forecasts may be developed using a composite of methodologies over the planning period.

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, and income. Historic trends, current data and forecast estimates are evaluated in this section to identify socioeconomic trends that may affect aviation activity forecasts at RRT. Growth rates are used as a method to compare the airport service area to other regional, statewide, and national trends. There are no published forecasts of socioeconomic data available for the City of Warroad, so projected data for Roseau County will be utilized to represent local conditions near RRT in this section. When available, current and historical data for the City of Warroad will be provided.

Population

Population is a basic indicator of the number of people who may utilize the airport. The City of Warroad had a population of 1,830 according to the 2020 Census. The population for the city has remained historically steady as the previous census in 2010 reported a total population of 1,781. The City of Warroad makes up approximately 12% of the total population in Roseau County.

Table 1-4 – Population

Year	Roseau County	Minnesota	United States
1990	15,098	4,389,857	249,622,801
2000	16,309	4,933,692	282,162,375
2010	15,561	5,310,934	309,327,089
2020	15,294	5,707,165	331,501,080
Historical Annual Growth Rate	*0.043%*	*0.879%*	*0.950%*
2022 (Baseline)	*15,259*	*5,741,986*	*334,193,837*
2027	*15,229*	*5,908,406*	*345,453,926*
2032	*15,148*	*6,065,515*	*356,413,897*
2037	*15,013*	*6,210,144*	*366,893,550*
2042	*14,830*	*6,342,636*	*376,916,244*
Forecast Annual Growth Rate	*-0.142%*	*0.499%*	*0.603%*

Source: Woods & Poole Economics, 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.

Table 1-5 – Per Capita Personal Income

Year	Roseau County	Minnesota	United States
1990	$26,829	$31,528	$31,031
2000	$34,763	$41,552	$39,278
2010	$37,846	$44,632	$42,497
2020	$49,764	$55,261	$53,178
Historical Annual Growth Rate	*2.081%*	*1.888%*	*1.812%*
2022 (Baseline)	*$49,764*	*$55,261*	*$53,178*
2027	*$49,596*	*$59,882*	*$58,274*
2032	*$51,993*	*$64,332*	*$63,086*
2037	*$54,451*	*$68,880*	*$68,097*
2042	*$56,935*	*$73,506*	*$73,305*
Forecast Annual Growth Rate	*0.924%*	*1.407%*	*1.572%*

Source: Woods & Poole Economics (2012 Dollars), U.S. Census Bureau

Employment

Total employment is the measure of the active workforce. For Roseau County, the largest five industries are Manufacturing, Health Care, Farming, Retail, and State/Local Government. These five groups make up 72% of the total employment.

Table 1-6 – Airport Service Area Employment (2020)

Industry	Employment	Earnings (in millions)
Manufacturing	3918	$280.11
Health Care and Social Assistance	962	$48.59
Farming	910	$37.72
Retail	884	$18.92
State and Local Government	877	$49.80
Other Services (Except Public Administration)	508	$13.26
Accommodation and Food Services	346	$5.41
Finance & Insurance	327	$11.85
Construction	316	$7.56
Professional and Technical Services	228	$6.15
Transportation and Warehouse	210	$10.50
Real Estate & Rental Leasing	202	$0.59
Administrative and Waste Services	172	$2.92
Forestry, Fishing, Related Activities	129	$3.15
Wholesale Trade	124	$10.21
Arts, Entertainment, and Recreation	113	$0.52
Federal Civilian Government	96	$10.02
Federal Military	51	$1.67
Utilities	35	$4.11
Information	23	$0.53
Educational Services	20	$-
Mining	14	$0.06
Management of Companies	7	$0.01
All Industries	**100% (10,472)**	**100% ($523.65)**

Source: Woods & Poole Economics (2012 dollars)

Table 1-7 – Total Employment (in thousands)

Year	Roseau County	Minnesota	United States
1990	9,923	2,691,880	138,330,765
2000	12,062	3,330,963	165,370,755
2010	11,550	3,408,764	172,901,669
2020	10,472	3,558,040	190,776,766
Historical Annual Growth Rate	*0.180%*	*0.934%*	*1.077%*
2022 (Baseline)	*10,767*	*3,849,750*	*207,048,429*
2027	*10,819*	*4,116,646*	*223,733,232*
2032	*10,715*	*4,313,592*	*237,417,579*
2037	*10,568*	*4,496,453*	*250,859,680*
2042	*10,388*	*4,665,800*	*264,133,081*
Forecast Annual Growth Rate	*-0.179%*	*0.966%*	*1.225%*

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

Based Aircraft

A based aircraft is an operational and airworthy aircraft claiming an airport as its home for most of the year. The inventory of based aircraft is maintained using the National Based Aircraft Inventory Program (NBAIP) which is controlled by the FAA. Each airport is able to enter their aircraft into the NBAIP by N-Number. If for any reason that an aircraft is recorded at more than one airport, the aircraft is not counted in any airport's inventory. It is then up to the respective airport managers to communicate with each other and resolve where the aircraft is located.

Historical Data

The Master Record (Form 5010) reported a total of 19 based aircraft, while the TAF indicated 16 aircraft were based at Warroad. However, the NBAIP reported a total of 22 based aircraft at the Airport. This number was also confirmed by airport records. A total based aircraft of 22 will be used as the baseline for the forecast. As of May 2023, airport staff has documented 24 aircraft based at the airport but 2 of these aircraft are being contested from other airports. Therefore, the validated number of 22 will continue to be used for the forecast.

Table 1-8 – Based Aircraft Fleet Mix

Aircraft Type	Based Aircraft	Percent of Total
Single-Engine	17	77.3%
Multi-Engine	4	18.2%
Jet	1	4.5%
Helicopter	0	0.0%
Ultralight/Other	0	0.0%
Total Based Aircraft	**22**	**100.0%**

Source: NBAIP date confirmed 12/27/2023

Forecast

Local industry trends were evaluated when preparing this forecast of based aircraft at RRT. It is estimated that based aircraft will grow at RRT for several reasons:

- There is a strong business climate in Warroad and there is regular business use of the airport. Marvin Windows base their aircraft at RRT and operate multiple flights a day out of the airport. With growth in the business and industry, aviation activity would also likely increase.
- From a socio-economic perspective, the population and employment in Roseau County are expected to have a slight decline however the per capita income is forecasted to grow .92% annually. A population with higher disposable income will have more of a propensity to use aviation services.
- The airport's hangars are filled to capacity and there is current demand for additional storage. The airport maintains a waitlist of aircraft owners who would like to store their aircraft at RRT when the space is available. There are currently 5 people on the waitlist for T-Hangar or heated hangar storage.

- While the TAF for RRT shows no growth in based aircraft, which is common for general aviation airport, the TAF for the State of Minnesota reports based aircraft are expected to grow at 0.40% CAGR.
- Operations activity at RRT is expected to grow in the planning period. With increased activity, there is a propensity for more aircraft to be stored on the airfield. The TAF reports an annual growth rate of 0.67% for aircraft operations while the 2022 SASP has projected that operations at the Airport will increase 1.27% annually over the planning period.

The preferred RRT based aircraft forecast incorporates an additional 4 based aircraft over the planning period. This equates to a 0.92% average annual growth rate which matches the growth of the community's per capita income. **Table 1-9** summarizes the RRT based aircraft forecast and fleet mix.

Table 1-9 – Based Aircraft Forecast

Metric	2022	2027	2032	2037	2042	*CAGR*
Single-Engine	17	18	19	19	20	0.92%
Multi-Engine	4	4	4	5	5	0.92%
Jet	1	1	1	1	1	0.92%
Helicopter	0	0	0	0	0	-
Ultralight/Other	0	0	0	0	0	-
Total Based Aircraft	**22**	**23**	24	**25**	**26**	**0.92%**

Source: KLJ Analysis. CAGR = Compounded Annual Growth Rate

Operations

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.

Historical Data

Operations at RRT are comprised of a mix of based aircraft, business use by companies such as Marvin Windows and their suppliers, and tourism activity with the community located at the west end of Lake of the Woods. There are tourists that regularly take charter float planes from RRT to remote locations along the lake. In addition, there are periodic medical transport operations and the airfield is used by the Department of Natural Resources (DNR) for firefighting activity. The TAF reported 9,000 annual operations and has remained at this level for the last 10 years. The new 2022 SASP reported a total of 11,751 annual aircraft operations.

Non-towered airports like RRT do not have a means of keeping exact counts of aircraft operations, but rather make estimations based on a combination of IFR operations data and local airport information. In 2022, there was a total of 1,229 annual IFR operations reported from the FAA's Traffic Flow Management System (TFMS). Historical IFR operations at RRT are listed below in **Table 1-10.**

Marvin Windows operates under IFR flight plans and made up 75% of IFR flights out of RRT in 2022. Prior to the COVID-19 Pandemic, Marvin historically transported approximately 15,000 persons annually through Warroad. While 2020 through 2021 saw a significant reduction in operations and passengers due to the pandemic, Marvin's operations have seen substantial recovery and are expected to meet and/or exceed pre-pandemic levels in the next few years.

Table 1-10 – RRT Historical IFR Operations

Metric	2014	2015	2016	2017	2018	2019	2020	2021	2022
IFR Operations	1,652	1,856	1,776	1,757	1,655	1,757	753	1,077	1,229

Source: FAA TFMSC

Airport staff also provided additional information to assist in estimating annual operations. Aircraft activity peaks during the summer months due to significant VFR activity coming from tourism, charter operations associated with Lake of the Woods, and firefighting season. During this time period they reported observing about 15 flights per day on average (or 30 takeoff and landings).

Fuel sales were also examined and validated the reports that the airport was more active during the summer months. The winter season saw fuel drop to 63% of sales from the summer. Activity during the summer is estimated at approximately 5,500 operations (30 operations per day during May through October – approximately 920 per month for 6 months), while activity during the winter months drops to approximately 3,500 operations (approximately 580 per month for 6 months) which is 63% of summer activity based on fuel sales. This methodology estimates a total of 9,000 annual operations.

Table 1-11 –RRT Monthly Fuel Sales – in Gallons

Month	AVGAS	JET A	Fuel Total
January	213	7,097	7,310
February	15	4,567	4,582
March	368	8,867	9,234
April	262	6,721	6,983
May	491	8,907	9,398
June	377	9,611	9,988
July	641	12,627	13,268
August	507	10,490	10,997
September	811	10,475	11,287
October	417	10,685	11,102
November	109	7,218	7,327
December	146	6,069	6,215
Totals	**4,357**	**103,334**	**107,691**
Average Summer Fuel Sales			11,007
Average Winter Fuel Sales			6,942

Source: RRT Monthly Jet A and 110LL Fuel Sales (2022), KLJ Analysis

Given the information noted above, it was determined that the 9,000 annual aircraft operations calculated above are consistent with the activity experienced at the airport and was used as the baseline operations for the forecast.

Forecast

Projecting the future aircraft activity at RRT requires an evaluation of both local and regional trends. There are two published forecasts that provide aircraft operations numbers for RRT specifically. The

local TAF projects Warroad aircraft operations will grow at an annual growth rate of 0.66%. The 2022 Minnesota SASP projects Warroad aircraft operations will grow at 1.24% CAGR through the planning period.

While growth in the local community is expected to be modest, the airport's activity is mostly driven by itinerant users for local summer tourism and Marvin Windows business. These types of aeronautical use will be more dependent on socioeconomic conditions outside the local community, particularly within the state and regional area. Per Capita Personal Income (PCPI) is a key socioeconomic metric to consider for this kind of activity, as the more income individuals have, the more likely spending will occur in travel/tourism and business within Marvin's industry which would promote increased travel to Warroad. The PCPI for Roseau County is projected to grow annually at 0.924% while the State of Minnesota PCPI is estimated at growth rate of 1.407% annually during the 20-year planning period. The projected growth rate of 1.27% reported in the State Airport System Plan was selected as the preferred growth rate to use for the aircraft operations forecast as it captures the regional economic influence while recognizing the local community's more modest growth.

It is important to point out that the FAA TAF has reported two-thirds of aircraft operations are local and one-third of operations are itinerant. Discussions with airport users during the planning study has determined that the opposite is true. The majority of flight operations originate from or depart to areas outside the local area. The forecast operations mix will show approximately one-third of operations as local and two-thirds of operations as itinerant.

Table 1-12 –Operations Forecast

Metric	2022	2027	2032	2037	2042	*CAGR*
Itinerant Operations	6,000	6,391	6,807	7,250	7,723	1.27%
Local Operations	3,000	3,195	3,404	3,625	3,861	1.27%
Total Operations	**9,000**	**9,586**	**10,211**	**10,876**	**11,584**	**1.27%**

Source: KLJ Analysis. CAGR = Compounded Annual Growth Rate

Fleet Mix

The overall airport operations fleet mix combines all aircraft operations using estimated percentages. To assist in the development of a fleet mix, data from the FAA's Traffic Flow Management System (TFMS) database was pulled for RRT. This data tracks the types of aircraft that are operating under IFR. However, the drawback of this data is it does not cover those aircraft operating under VFR or outside of a radar environment. Because corporate general aviation aircraft frequently operate under IFR, the turboprop and jet aircraft of Marvin Windows made up the vast majority of operations depicted on the TFMS data.

Estimated fleet mix percentages were then identified for all airport operations conducted under both IFR and VFR. Modifications have been made based on available local data, local user projections, broader industry trends and professional judgement to account for anticipated future user fleet mix changes. The overall estimated fleet mix share breakdown is identified in the table below.

Table 1-13 – Fleet Mix Share Breakdown

Metric	2022	2027	2032	2037	2042	*CAGR*
Single-Engine Piston	70.00%	69.25%	68.50%	67.75%	67.00%	-0.22%
Multi-Engine Piston	13.50%	13.50%	13.50%	13.50%	13.50%	0.00%
Turboprop	13.00%	13.50%	14.00%	14.50%	15.00%	0.72%
Turbojet	2.50%	2.75%	3.00%	3.25%	3.50%	1.70%
Helicopter	0.50%	0.50%	0.50%	0.50%	0.50%	0.00%
Ultralight/Other	0.50%	0.50%	0.50%	0.50%	0.50%	0.00%

Source: KLJ Analysis, CAGR = Compounded Annual Growth Rate

The total annual operations are prorated by the estimated fleet mix share percentage to yield a fleet mix operational forecast.

Table 1-14 – Total Operations Fleet Mix Forecast

Metric	2022	2027	2032	2037	2042	*CAGR*
Single-Engine Piston	6,300	6,638	6,994	7,368	7,761	1.05%
Multi-Engine Piston	1,215	1,294	1,378	1,468	1,564	1.27%
Turboprop	1,170	1,294	1,429	1,577	1,738	2.00%
Turbojet	225	264	306	353	405	2.99%
Helicopter	45	48	51	54	58	1.27%
Ultralight/Other	45	48	51	54	58	1.27%
Total Operations	**9,000**	**9,586**	**10,211**	**10,876**	**11,584**	**1.27%**

Source: KLJ Analysis

Critical Design Aircraft

The critical design aircraft is identified as the most demanding aircraft or family of aircraft to regularly use the airport. 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. The methodology identified in FAA AC 150/5000-17, Critical Aircraft and Regular Use Determination was used for this analysis.

Existing

A review of the FAA TFMS data was completed to aid in determining the critical design aircraft. Typically, the larger, faster and more demanding aircraft are more likely to file an IFR flight plan. As noted previously, the majority of Marvin Windows operations were operated under an IFR flight plan which consists of the Beechcraft 1900 and Citation Sovereign, both being a B-II aircraft over 12,500 lbs. though the Beechcraft 1900 has TDG-2A characteristics and the Citation Sovereign is TDG-1B. Additionally, the MN DNR has approximately 75 firefighting missions (150 operations including takeoff and landing) during the summer months out of RRT utilizing the Air Tractor 802 Fire Boss which is a B-II and TDG-1A aircraft. These flights are conducted under VFR so they do not appear in the TFMS data.

The TFMS data shows the operations of B-II and TDG-2A aircraft consistently exceed the regular use threshold of 500 operations. The graphs in **Figure 1-5** summarizes the IFR operations by each design criteria. The existing Critical Design Aircraft for RRT is a B-II (>12,500 lbs.) and TDG-2A Aircraft.

Future

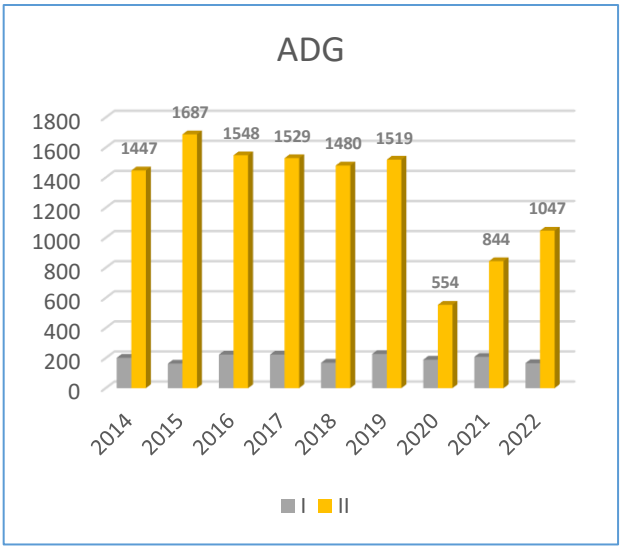
While there are no near-term plans to change the fleet, Marvin Windows is expected to replace the Beechcraft 1900 with a similar turboprop aircraft in the planning period. Examples would be a Beechcraft King Air 350 or Pilatus PC12. Also, the DNR has mentioned that through the planning period they expect occasional use of a De Havilland Dash 8 (B-III, TDG-3) in the future. The future critical design aircraft will be an ARC B-II and TDG-2A. Future growth of the critical design aircraft family is expected to follow total aircraft operations growth at RRT.

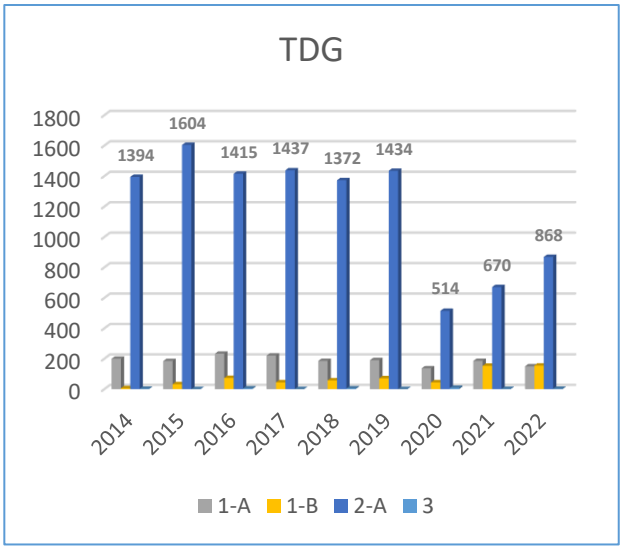
Table 1-15 RRT Design Aircraft Forecast

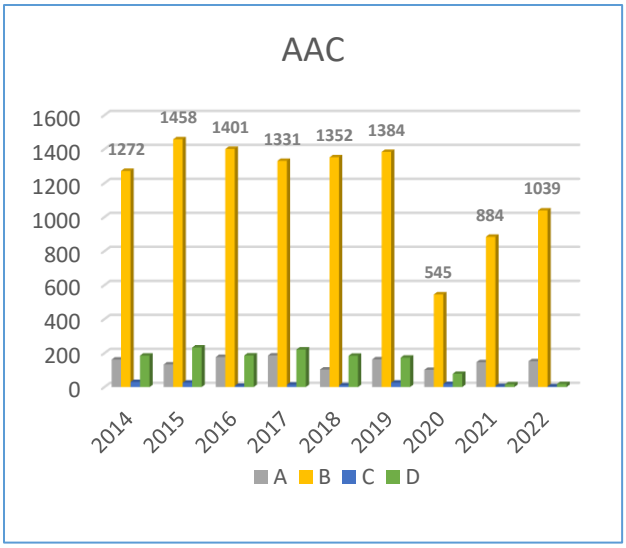
Metric	2022	2027	2032	2037	2042	*CAGR*
AAC-B	1,039	1,107	1,179	1,256	1,337	1.27%
ADG-II	1,047	1,115	1,188	1,265	1,348	1.27%
TDG-2A	868	925	985	1,049	1,117	1.27%

Source: KLJ Analysis, AAC = Aircraft Approach Category, ADG = Airplane Design Group, TDG = Taxiway Design Group

Figure 1-5 – IFR Operations by Design Criteria







Source: FAA TFMS 2014-2022, KLJ Analysis

Figure 1-6 – Existing Critical Design Aircraft Family

ARC A-I/Small Aircraft		ARC A-II/Small Aircraft	
Cessna 402		Pilatus PC-12	
ARC B-I/Small Aircraft		**ARC B-II/Small Aircraft**	
Citation CJ1		Beech King Air 200	
ARC B-II		**ARC B-II**	
Beech King Air 350		Beech 1900D	

Photography Source: Airliners.net

Peak Activity

Peak demand periods help quantify aviation activity during busy periods. Time periods evaluated include the peak month, design day and design hour characteristics for airport operations. Peak periods are defined in FAA AC 150/5060-5, *Airport Capacity and Delay*. Peak activity is important when planning the size of facilities with fixed capacities.

- **Peak Month:** The calendar month when peak operations occur
- **Design Day**: The average day in a peak month (peak month / 30)
- **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 (1/16 of Design Day + 20 percent)

Peak periods evaluated include the peak month, design day and design hour characteristics for airport operations. The results of the peak activity forecasts will be used to determine the airport facility requirements. The methodology developed emphasizes the use of design periods to forecast use patterns rather than individual absolute peak periods.

At northern-tier airports such as RRT, much of the aviation activity is based on seasonal weather conditions. Based on RRT monthly Jet A fuel sales from 2022, the peak month (July) had approximately 13 percent of the annual total fuel sales. This was determined to be the peak month factor. The RRT peak activity measures are summarized in **Table 1-16.**

Airport Operations

Peaking tendencies for total airport operations were reviewed for preferred airport activity forecasts.

PEAK MONTH

Table 1-16 – Peak Month Operations Forecast

Metric	2022	2027	2032	2037	2042	*CAGR*
Annual Operations	9,000	9,586	10,211	10,876	11,584	1.27%
Peak Month (13%)	1,170	1,246	1,327	1,414	1,506	1.27%

Source: KLJ Analysis, CAGR = Compounded Annual Growth Rate

DESIGN/BUSY DAY/DESIGN HOUR

Table 1-17 – Design Day Operations Forecast

Metric	2022	2027	2032	2037	2042	*CAGR*
Peak Month	1,170	1,246	1,327	1,414	1,506	1.27%
Design Day	39	42	44	47	50	1.27%
Busy Day (Design Day + 15%)	45	48	51	54	58	1.27%
Design Hour	3	3	3	4	4	1.27%

Source: KLJ Analysis, CAGR = Compounded Annual Growth Rate

Forecast Summary

Table 1-18 – Aviation Activity Forecast Summary

	Activity Levels					Average Annual Compound Growth			
A. Forecast Levels	**2022**	**2027**	**2032**	**2037**	**2042**	**0-5 Years**	**0-10 Years**	**0-15 Years**	**0-20 Years**
Operations									
Itinerant									
Air Carrier	-	-	-	-	-	-	-	-	-
Commuter/Air Taxi	-	-	-	-	-	-	-	-	-
Total Commercial Operations	-	-	-	-	-	-	-	-	-
General Aviation	6,000	6,391	6,807	7,250	7,723	1.27%	1.27%	1.27%	1.27%
Military	-	-	-	-	-	-	-	-	-
Total Itinerant Operations	6,000	6,391	6,807	7,250	7,723	1.27%	1.27%	1.27%	1.27%
Local									
Civil	3,000	3,195	3,404	3,625	3,861	1.27%	1.27%	1.27%	1.27%
Military	-	-	-	-	-	-	-	-	-
Total Local Operations	3,000	3,195	3,404	3,625	3,861	1.27%	1.27%	1.27%	1.27%
TOTAL OPERATIONS	9,000	9,586	10,211	10,876	11,584	**1.27%**	**1.27%**	**1.27%**	**1.27%**
Annual Instrument Approaches	-	-	-	-	-	-	-	-	-
Peak Hour Operations	3	3	3	4	4	**1.27%**	**1.27%**	**1.27%**	**1.27%**
Based Aircraft									
Single Engine	17	18	19	19	20	0.92%	0.92%	0.92%	0.92%
Multi Engine	4	4	4	5	5	0.92%	0.92%	0.92%	0.92%
Turbojet	1	1	1	1	1	0.92%	0.92%	0.92%	0.92%
Helicopter	-	-	-	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-
TOTAL BASED AIRCRAFT	22	23	24	25	26	**0.92%**	**0.92%**	**0.92%**	**0.92%**

Source: KLJ & Consultant Analysis. Note: Some figures are rounded

Forecast Comparison with FAA TAF

Proposed aviation activity forecasts must be reviewed and approved by FAA. A forecast is consistent with the FAA TAF if the proposed activity is within a certain tolerance of the official TAF forecast. If the proposed forecast is inconsistent with the TAF, then differences must be resolved for the forecast to be adopted by the FAA. Key activity measures that are reviewed include based aircraft and total operations. Forecast analysis above utilized the 2022 TAF however the comparisons below will be utilizing the 2023 TAF which was published in January 2024. There was a slight decrease in based aircraft and annual operations.

BASED AIRCRAFT

The airport's proposed forecast of based aircraft is **not consistent** with the FAA TAF for the 5-year or 10-year forecast horizons which is primarily due to the FAA TAF having a much lower current based aircraft number. The 2023 TAF saw based aircraft drop from 16 to 14 from the previous year. This is likely due to the TAF utilizing an older NBAIP list. If the TAF and the proposed forecast were both starting with the current 22 based aircraft, this would result in a forecast that is within the allowable difference (4.5% for the 5-year and 9.0% for the 10-year).

Table 1-19 – Based Aircraft vs. FAA TAF

Metric	2022	2027	2032	2037	2042	CAGR
RRT Forecast	22	23	24	25	26	*0.92%*
2023 FAA TAF	14	14	14	14	14	*0.00%*
Difference	57.14%	64.54%	72.28%	80.39%	88.88%	-
Allowable Difference	-	10.0%	15.0%	-	-	-
Consistent with FAA TAF?	-	**NO**	**NO**	-	-	-

Source: KLJ Analysis, FAA Terminal Area Forecast (January 2024), CAGR = Compounded Annual Growth Rate

OPERATIONS

The airport's proposed forecast of total operations is **consistent** with the FAA TAF for the 5-year or 10-year forecast.

Table 1-20 – Total Operations vs. FAA TAF

Metric	2022	2027	2032	2037	2042	CAGR
RRT Forecast	9,000	9,586	10,211	10,876	11,584	*1.27%*
2023 FAA TAF	9,053	9,270	9,571	9,903	10,269	*0.63%*
Difference	-0.59%	3.41%	6.68%	9.82%	12.81%	-
Allowable Difference	-	10.0%	15.0%	-	-	-
Consistent with FAA TAF?	-	**YES**	**YES**	-	-	-

Source: KLJ Analysis, FAA Terminal Area Forecast (January 2024), CAGR = Compounded Annual Growth Rate

Forecast Approval

The FAA approved the aviation forecasts prepared in this chapter on July 1, 2024, for use in this planning effort. See **Figure 1-7.**

Figure 1-7 FAA Forecast Approval Letter

U.S. Department of Transportation
Federal Aviation Administration

Dakota-Minnesota Airports District Office
Bismarck Office
2301 University Drive, Building 23B
Bismarck, ND 58504

Dakota-Minnesota Airports District Office
Minneapolis Office
6020 28th Avenue South, Suite 102
Minneapolis, MN 55450

July 1, 2024

Ms. Kathy Lovelace, City Administrator
City of Warroad
121 Main Ave. NE
Warroad, MN 56763

Airport Master Plan Forecast Approval / Critical Aircraft Determination
Warroad International Memorial Airport (RRT) – Warroad, MN
AIP 3-27-0108-021-2022

Dear Ms. Lovelace:

The Dakota-Minnesota Airports District Office has reviewed the draft forecasts of aviation activity and the existing and future critical aircraft designation from the draft RRT targeted planning study (master plan) forecast narrative dated June 2024. The forecasts and critical aircraft are hereby approved by the FAA as presented in the following table.

	Existing (2022)	Future (2042)	Data Source
Overall Airport			
Based Aircraft	22	26	Table 1-9
Airport Operations	9,000	11,584	Table 1-12
Critical Aircraft	**B-II-2A | Large**	**B-II-2A | Large**	Table 1-15
Runway 13/31			
Runway Type	Primary		-
Critical Aircraft*	B-II-2A | Large	B-II-2A | Large	Table 2-6
Runway 4/22			
Runway Type	Crosswind[1]		Table 2-3
Critical Aircraft*	A-I | Small	A-I | Small	Table 2-6

Source: Targeted Airport Planning Study Chapter 1 | KLJ | Draft Report June 2024
Targeted Airport Planning Study Chapter 2 | KLJ | Draft Report April 2024

*Critical Aircraft = Aircraft Approach Category (AAC) – Airplane Design Group (ADG) - Taxiway Design Group (TDG)

This forecast is approved for use in the master plan study. In the future, the FAA may request additional information to validate that individual projects are justified based on existing or projected near-term (5-year) activity in the critical aircraft. Changes to your critical aircraft may trigger your airport planning to be re-evaluated.

[1] Runway 4/22 is eligible as a crosswind runway if justified.

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Runway 13/31 is designed for D-II aircraft in the approved Airport Layout Plan (ALP). In the planning study and ALP Update, identify whether the sponsor will continue to plan and protect Runway 13/31 to D-II or B-II standards.

Please work with MnDOT Office of Aeronautics to have the operations numbers on your FAA Form 5010 Airport Master Record match the existing year information from the forecast. Regularly update and confirm your based aircraft in the National Based Aircraft Inventory Program (NBAIP) through www.basedaircraft.com.

If you have any questions or would like to discuss this information further, please contact me at (612) 253-4635 or marcus.s.watson@faa.gov.

Sincerely,

MARCUS SLOAN WATSON

Digitally signed by MARCUS SLOAN WATSON
Date: 2024.07.01 09:57:22 -05'00'

Marcus S. Watson, Community Planner
Dakota-Minnesota Airports District Office

cc: Matt Rachuy, Airport Manager (email)
Andrew Zielike, KLJ (email)
Jeremy McLeod, FAA (email)
Kevin Carlson, MnDOT Aeronautics (email)