CHAPTER 2: FACILITY & ENVIRONMENTAL INVENTORY

Introduction

The Inventory chapter represents a summation of the existing Fairmont Municipal Airport (FRM) physical facilities and environmental conditions. An on-site assessment was conducted in April 2024. The inventory effort included a facility assessment supplemented with a comprehensive data collection effort. This effort identifies and supports the Airport Master Plan Study for the Fairmont Municipal Airport and provide a baseline framework to evaluate the airport facility.

The information compiled during the Inventory effort will be used to assess the existing facilities ability to meet the projected airport needs identified in subsequent sections of the master plan. Please refer to the various appendices referenced within the study narrative for more detailed information. This chapter provides an inventory of the following elements:

- Background
- Facility Inventory
    - Land
    - Airfield Facilities
    - NAVAIDS & Airspace
    - General Aviation
    - Support Facilities
    - Ground Access, Circulation & Parking
    - Other
- Surrounding Land Use
- Environmental Inventory

Background

General

The Fairmont Municipal Airport (FAA ID: FRM) is a publicly owned, public use, general aviation airport serving the City of Fairmont and surrounding areas of Martin County in south central Minnesota. The airport is owned and operated by the City of Fairmont. The airport is a critical community asset providing vital connectivity to the region.

The airport has two paved runways, Runway 13-31 is 5,503 feet long by 100 feet wide, lighted and equipped with an Instrument Landing System (ILS) for Runway 31. Runway 2-20 is 3,300 feet long by 75 feet wide, lighted and accommodates aircraft during “crosswind” weather conditions. There is a full-length parallel taxiway serving Runway 13-31 with four taxiway connectors.

FRM provides multiple aeronautical functions including emergency response, business travel, agriculture support, community access, and flight training services. The airport is in the National Plan of Integrated Airport Systems (NPIAS) and has an FAA ASSET classification as a Local General Aviation airport. According to the FAA records as of May 2024, the airport is home to 31 based aircraft and serves 9,400 annual flight operations.

Community/Airport History

The City of Fairmont was officially platted in October of 1857 and was named for the rolling hills that surround the adjacent lakes and housed the first post office in Martin County. From 1862 to 1877 it was a difficult time for the area with the Sioux Indian Uprising, the end of the Civil War, and the "Grasshopper Plague". In 1878 the Southern Minnesota Railroad was completed and marked the beginning of new development. The years following brought the first switchboard and telephones, electricity became available, the city purchased an electric generating plant and Fairmont Railway Motors was established. Manufacturing improvements such as the Fairmont Canning Company and Stokely-Van Camp also contributed to the area's economic development. Currently, Fairmont is the leading regional health care center where the Fairmont Medical Center continues to expand. More than 880 different business are active in the area.

The airport opened in 1948. Beginning in 1959, the airport had scheduled airline service until the late 1990s. A complete list of major airport development projects that received funding from FAA and the State can be found in **Table 2-1 - Project History.**

Table 2-1 – Project History

Year	Description	Total Cost
1983	Construct Terminal Building, Expand Apron, Improve Access Road, ARFF	$602,769
1988	Expand Apron, Rehabilitate and Groove Runway 13/31, Rehabilitate Taxiway	$530,862
1991	Install Airfield Guidance Signs	$55,160
1993	Install Airfield Guidance Signs	$84,441
2002	Rehabilitate Runway	$383,098
2005	Construct Building	$563,058
2006	Acquire SRE, Airport Master Plan Study	$154,612
2007	Rehabilitate Runway 13/31	$44,396
2008	Install Perimeter Fencing, Rehabilitate Apron, Obstruction Removal	$94,010
2009	Improve Access Road, Improve Airport Drainage, Rehabilitate Parking Lot, Obstruction Removal	$185,843
2010	Rehabilitate Runway 2/20, Update Miscellaneous Study	$1,732,753
2011	Rehabilitate Apron	$68,862
2012	Rehabilitate Apron, Rehabilitate Runway 13/31, Rehabilitate Taxiway	$4,188,120
2015	Rehabilitate Hangar Taxilanes- Design	$51,919
2016	Rehabilitate Hangar Taxilanes	$339,009
2018	Construct T- Hangar and Hangar Taxilane- Design	$114,659
2019	Construct T- Hangar and Hangar Taxilane	$889,623
2020	CARES Act (projects/operations reimbursements)	$29,999
2020	Construct Taxiway	$307,693
2021	CRRSA Act Funds (projects/operations reimbursements)	$13,000
2022	General ARPA (projects/operations reimbursements)	$32,000
2024	Update Airport Master Plan	$398,000
2024	Reconstruct Taxiway Lighting- Design	$76,000

Source: FAA, MnDOT, City of Fairmont, & KLJ Analysis

Location & Area Setting

The City of Fairmont is in Martin County which is on the south edge of the State of Minnesota. The city is approximately 15 minutes north of the Minnesota/Iowa border and an hour and a half east of the Minnesota/South Dakota border. There are five area lakes within the city limits which is why Fairmont referred to as the "City of Lakes".

The communities closest to Fairmont are Northrop, about seven and a half miles north; Granada, nine miles northeast; and Welcome, nine miles west by motor vehicle. **Figure 2-1 – Airport Location Map** provides an overview of the airport's local environment.

The airport is located approximately two miles east of the City of Fairmont, south of 115th Street which is the main access road. The land surrounding the airport is primarily agricultural land and grassland. The airport occupies 582 acres and sits at 1,161.8 feet above mean sea level which is roughly the same as the city and is surrounded by fairly level, flat land.

Climate

The average summer high temperature of the area of Fairmont is 81.1 degrees Fahrenheit and the average winter low is 10.0 degrees Fahrenheit. Summers are usually warm with the hottest month being July, rainy with the most rain in June, and mostly clear skies. Annual precipitation is 31.3 inches. The wind is usually calmer during the summer with calmest month being August with an average wind speed of 9.0 miles per hour.

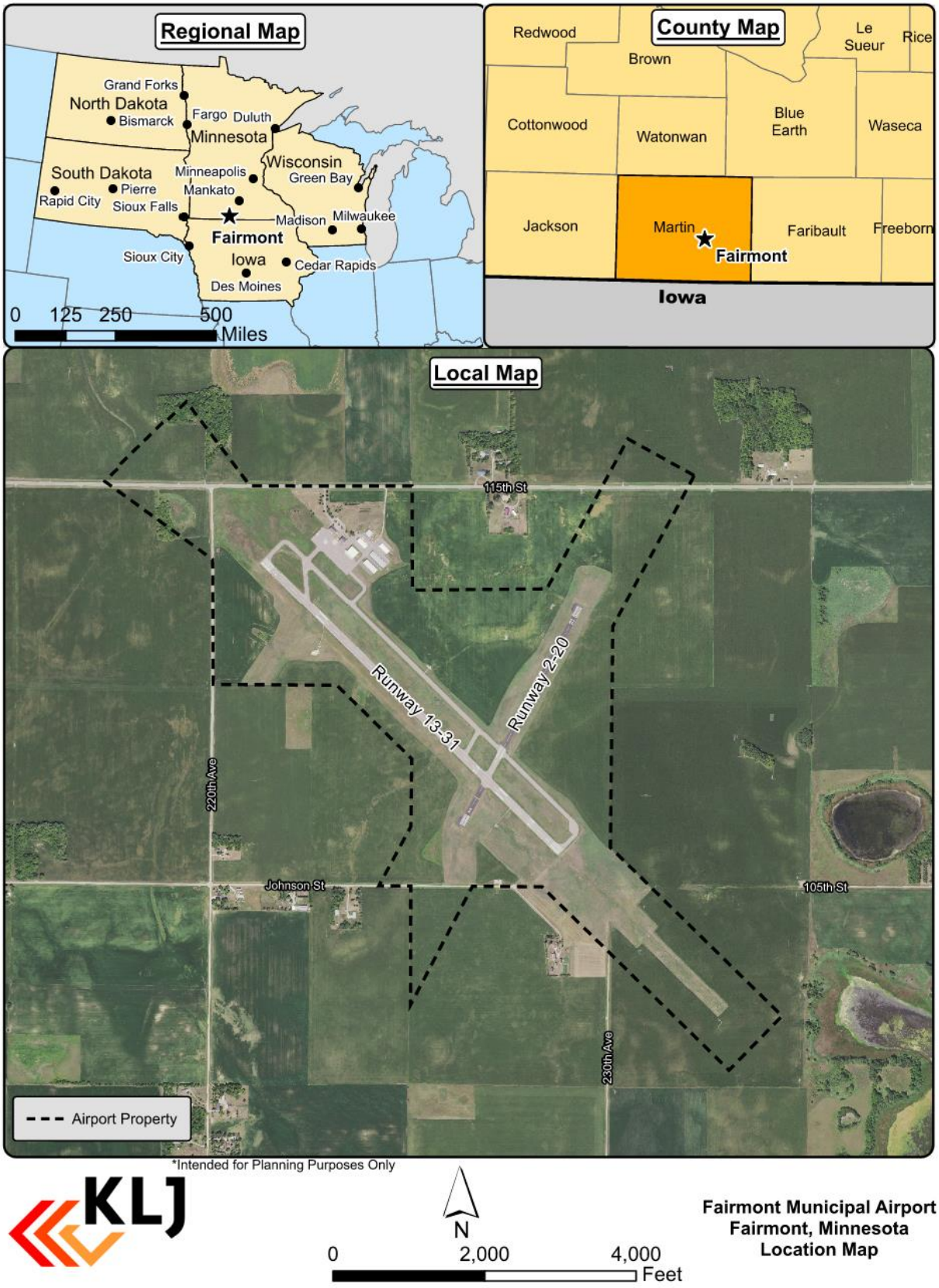
The wintertime is usually snowy with an average of 16.4 inches and the snowiest month is December. During the winter season, the cloudiest month is February with overcast skies approximately 56% of the time. The winter months are cold with an average temperature of 37°F with the coldest month being January. The winds are highest from September through May with average wind speeds of more than 11.0 miles per hour. **Table 2-2** shows the average weather events for each month.

Table 2-2 – Average Monthly Weather Events

Month	Average Low Temperature (°F)	Average Temperature (°F)	Average High Temperature (°F)	Precipitation (Inches)
January	6.6	15.2	23.9	0.85
February	10.2	19.2	28.3	1.16
March	22.4	31.6	40.9	1.93
April	34.9	45.6	56.3	3.53
May	49.0	58.9	68.9	4.58
June	60.1	69.9	79.7	5.02
July	63.9	73.4	82.9	3.88
August	61.3	71.0	80.7	3.79
September	52.4	63.4	74.5	3.44
October	39.4	49.6	59.9	2.32
November	25.4	34.3	43.2	1.58
December	13.3	21.2	29.1	1.38

Source: National Centers for Environmental Information, U.S. Climate Normals (1991-2020) – Fairmont, MN

Figure 2-1 – Airport Location Map



Airport Ownership & Management

FRM is a public use airport owned by the City of Fairmont. The city employs an Airport Manager and a part-time maintenance worker to run the day-to-day operations. Additional maintenance support is provided by the City's public works staff. An Airport Advisory Board exists to make recommendations to the city council. The city council is the governing-body, and one city council member is appointed to be the liaison to the advisory board.

Airport Role & Design

FRM 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.

The State of Minnesota categorizes airports into six classifications: Key Commercial Service, Key General Aviation, Intermediate Large, Intermediate Small, Landing Strip Turf, and Landing Strip - Seaplane Base. The 2022 Minnesota State Aviation System Plan (SASP) classifies Fairmont as a Key General Aviation airport). The Minnesota 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 closest other Key General Aviation airport is the Albert Lea Municipal airport, located approximately 46 miles to the east in Albert Lea.

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 publicly-owned general aviation airports that link the community to the national air transportation system. Fairmont is currently included in the NPIAS and is classified as a Non-Primary Local General Aviation airport. More information about national and state airport classifications can be found in **Appendix B: General Aviation Airports 101**. **Table 2-3** provides a list of the surrounding airports and **Figure 2-2** shows the location of these surrounding airports.

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. For FRM, the current ARC is B-II-2400. The aircraft ARC is based on a Cessna Citation VII which is from the 2017 Airport Layout Plan (ALP) and is the current design aircraft for the airport.

Taxiway Design Group (TDG) is a classification of Critical Design Aircraft's undercarriage dimensions including the main gear width (MGW) and cockpit to main gear distance (CMG). Fairmont Municipal Airport requires TDG-1A/1B while the parallel taxiway meets the requirements for TDG-3 and is 50 feet wide. The full-length parallel taxiway has a 410-foot centerline separation from the runway which accommodates a C-II-2400 ARC. **Table 2-4** summarizes the role and design for FRM and surrounding airports. See **Appendix B: General Aviation Airports 101** for more details on FAA design classifications.

More information on the Critical Design Aircraft can be found in **Chapter 3: Aviation Activity Forecasts**.

Table 2-3 Surrounding Airports

Airport Name / City	FAA ID	To FRM (NM)	Based Aircraft	Instrument Approach	Longest Runway
Fairmont Municipal / Fairmont, MN	**FRM**	**-**	**33**	**PI 400'**	**5,503' x 100'**
Blue Earth Municipal / Blue Earth, MN	SBU	14 E	28	NPI 300'	3,400' x 75'
St. James Municipal / St. James, MN	JYG	21 N	10	NPI 300'	3,999' x 75'
Jackson Municipal / Jackson, MN	MJQ	25 W	12	NPI 300'	4,145' x 75'
Windom Municipal / Windom, MN	MWM	34 NW	16	NPI 300'	3,598' x 75'
Algona Municipal / Algona, IA	AXA	35 S	30	NPI 400'	3,960' x 75'
Emmetsburg Municipal / Emmetsburg, IA	EGQ	35 S	12	NPI 400'	3,401' x 60'
Fuller / Milford, IA	4D8	37 SW	15	NPI 700'	2,873' x 50'
New Ulm Municipal / New Ulm, MN	ULM	41 N	13	NPI 300'	5,401' x 100'
Mankato Regional / Mankato, MN	MKT	41 NE	105	PI 200'	6,600' x 100'
Forest City Municipal / Forest City, IA	FXY	42 SE	18	NPI 300'	5,796' x 100'
Springfield Municipal / Springfield, MN	D42	43 NW	5	NPI 500'	3,402' x 75'
Spencer Municipal / Spencer, IA	SPW	45 SW	25	PI 200'	6,001' x 100'
Waseca Municipal / Waseca, MN	ACQ	45 NE	20	NPI 300'	3,399' x 75'
Redwood Falls Municipal/Redwood Falls MN	RWF	61 NNW	20	NPI 300'	4,001' x 100'

Source: Airnav.com, FAA 5010 Record, KLJ Analysis; Notes: PI = Precision Instrument; NPI = Non-Precision Instrument

Table 2-4 – Airport Role & Design

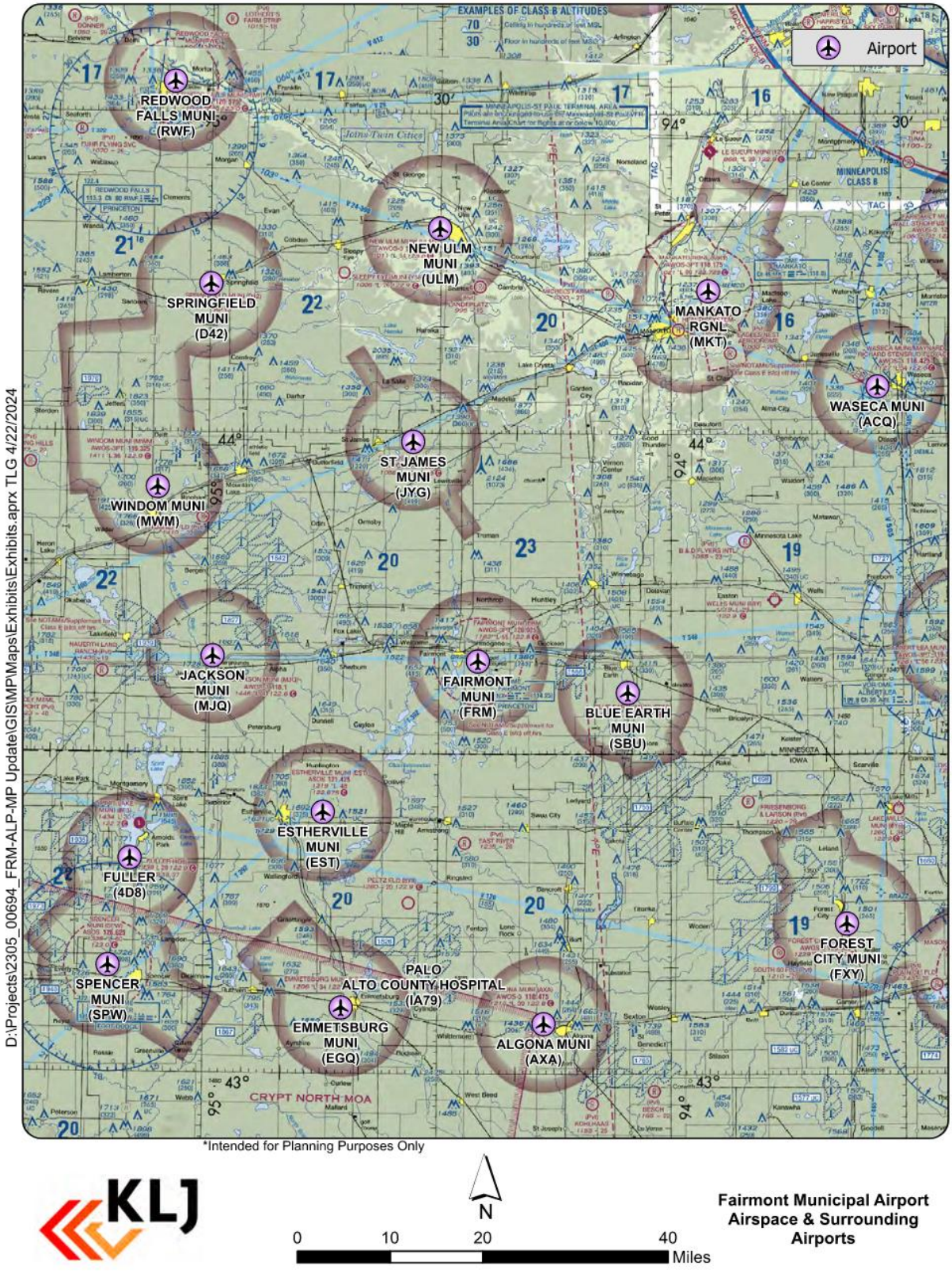
Airport ID	Airport	State Classification	FAA ASSET Group	ARC
FRM	**Fairmont Municipal**	**Key General Aviation**	**Local**	**B-II**
SBU	Blue Earth Municipal	Intermediate Small	Local	B-II
JYG	St. James Municipal	Intermediate Large	Basic	B-II
MJQ	Jackson Municipal	Intermediate Small	Basic	B-II
MWM	Windom Municipal	Intermediate Small	Basic	B-II
AXA	Algona Municipal	General Service	Local	B-II
EGQ	Emmetsburg Municipal	Basic Service	Basic	A/B-I
4D8	Fuller	Local Service	-	-
ULM	New Ulm Municipal	Key General Aviation	Basic	A/B-III
MKT	Mankato Regional	Key General Aviation	Regional	B-II
FXY	Forest City Municipal	General Service	Local	A/B-III
D42	Springfield Municipal	Intermediate Small	Unclassified	B-II
SPW	Spencer Municipal	Enhanced Service	Regional	B-II
ACQ	Waseca Municipal	Intermediate Small	Local	B-II
RWF	Redwood Falls Municipal	Intermediate Large	Local	A/B-III

Source: KLJ Analysis, FAA NPIAS, 2022 MnSASP, IA SASP ARC = Airport Reference Code

Airport Service Area

The airport is located on the south edge of the state of Minnesota on the east side of the City of Fairmont east-central area of Martin County. The area has many lakes which brings in many aquatic sports users. Roughly half of the 31 based aircraft at FRM are registered to owners who reside in Fairmont. The airport also serves surrounding communities due to the airport's runway length and precision approach capabilities, with a MnDOT owned Instrument Landing System.

Figure 2-2 Surrounding Airports



*Intended for Planning Purposes Only

N

0 10 20 40 Miles

Fairmont Municipal Airport Airspace & Surrounding Airports

Airport Activity

GENERAL AVIATION

General aviation makes up the vast majority of the airport activity at Fairmont. Flights are conducted for various purposes including air ambulance and medical transport, agricultural spraying, business travel, personal travel, flight training and recreational. The following provides an overview of activity. More detail will be provided in **Chapter 3: Aviation Activity Forecast**.

Based Aircraft

According to the National Based Aircraft Inventory, there are 31 aircraft based on the airfield. The 2012[1] MnSASP (State Aviation System Plan) indicated there were 32 based aircraft, made up of 28 single-engine, 2 multi-engine and 2 jet aircraft.

Annual Operations

The latest operational count for the airport showed a total of 9,400 operations, 3,600 local and 5,800 itinerant aircraft operations. The FAA has ceased to provide annual operations information in the airport master record or the Terminal Area Forecast (TAF).

Facility Inventory

An inventory of airport facilities was performed to establish a baseline for determining required future improvements. As discussed in the following sections, airport facilities are grouped into several categories: land, airfield, navigational aids (NAVAIDS)/airspace, general aviation, support, access/parking, and other facilities.

Land

The City of Fairmont owns 582.4 acres in fee and 26.0 acres of easement. As a part of the Airport Master Plan process, an Exhibit A Property Map will be updated to meet FAA standards. This Exhibit A will include all ownership and encumbrance information with supporting documents.

Airfield Facilities

Airside facilities are those that are necessary for aircraft surface movement, such as: runways, taxiways, aircraft parking aprons, and associated lighting, airfield surface markings, and lighted signage systems. A map depicting existing airport airside components is included in **Figure 2-3 – Airfield Facilities Map**. Information on design codes is contained in **Appendix B: General Aviation Airports 101**.

RUNWAY 13/31

Runway 13-31 is the primary runway at FRM for takeoffs and landings and is a 5,503 x 100-foot grooved asphalt runway. This runway is designed to meet FAA Runway Design Code (RDC) B-II aircraft design standards with ½ mile approach minimums. The runway has a parallel taxiway with a 410-foot separation. This separation distance dictates the Approach Reference Code (APRC) and Departure

[1] MnDOT is updating the SASP but inventory and forecast information was not available as of the Fall 2024.

Reference Code (DPRC). The APRC is D/V/2400 and the DPRC is D/V. The runway strength is sufficient for 40,000 lbs. (Dual Wheel). The pavement was last reconstructed in 2013 and according to the 2023 PCI was listed as being in good condition. This runway is equipped with a 5-Step High Intensity Runway Lighting (HIRL), Runway Edge Lighting System, a four box Precision Approach Path Indicator (PAPI). Runway 31 has an Instrument Landing System (ILS) with 400-foot cloud ceiling and ½ mile visibility minimum. Runway 13 has an RNAV (GPS) approach with a 300-foot cloud ceiling, and 1-mile visibility minimums.

RUNWAY 2/20

Runway 2-20 is the crosswind runway at FRM and primarily serves smaller aircraft. It is a 3,300 x 75-foot asphalt runway that intersects Runway 13-31 and is designed to meet FAA RDC B-II (Small) aircraft design standards. There is no parallel taxiway therefore APRC and DPRC are not available for this runway. This runway has no surface friction treatment and is marked with non-precision pavement markings. The runway serves aircraft weighing 12,000 (Single Wheel) pounds or less, with the pavement listed in fair condition**.** The last rehabilitation project was completed in 2011 and the 2023 PCI report recommends a full reconstruction in 2028.

Because Fairmont has intersecting runways, Runway Visibility Zone requirements apply. These will be evaluated as part of this planning study to ensure future terminal area development is not affected. Runway facilities are summarized in **Table 2-5**.

Table 2-5 – Runway Facility Summary

Component	Runway 13/31	Runway 2/20
Runway Length (feet)	5,503	3,300
Runway Width (feet)	100	75
Runway Surface Material	Asphalt	Asphalt
Runway Surface Treatment	Grooved	-
Pavement Strength	35,000 lbs. (SW) 40,000 lbs. (DW)	12,000 lbs. (SW)
Runway Design Code	B-II	B-II (Small)
Approach Reference Code	D/V/2400	N/A
Departure Reference Code	D/V	N/A
Runway Safety Area	6,703’ x 300’	3,900’ x 150’
Runway Object Free Area	6,703’ x 800’	3,900’ x 500’
Runway Obstacle Free Zone	5,903’ x 400’	3,700’ x 250’
Runway Protection Zone	2,500’ x 1,750’ x 1,000 (Approach) 1,000’ x 700’ x 500’ (Departure)	1,000’ x 450’ x 250’

Source: KLJ Analysis

Figure 2-3 – Airfield Facilities Map



TAXIWAYS

A system of taxiways facilitates the movement of aircraft from the runway environment to other airport facilities including hangars and parking aprons. Locations and identifiers are depicted in **Figure 2-3**.

- **Parallel Taxiway A** is a full parallel taxiway to Runway 13-31. The taxiway is 50 feet wide sufficient for TDG- 3 aircraft. The pavement is asphalt with a PCI rating of 71 to 72 which is very good. This taxiway does cross Runway 2-20.
- **Taxiway A Connectors:** There is a connecting taxiway on the 13 Runway End and a connector on the Runway 31 End that are each 50 feet wide of asphalt. Taxiway A-2 is connected to Taxiway A with a bypass area/runup area where pilots can perform their engine runup prior to takeoff, while another aircraft can enter and exit the runway without blocking the taxiways.
- **Connecting Taxiway C** leads to the south edge of the apron onto the Parallel Taxiway A. It is 40 feet wide for TDG 2A/2B, made up of asphalt with a PCI rating of 68 which is good.
- **Taxiway B** is between the 13 End threshold markings and aiming point markings, is 50 feet wide and serves as a highspeed exit taxiway for aircraft landing on the Runway 31 End. This taxiway is also constructed of asphalt and has a PCI rating of 71 describing the pavement condition being in very good condition.
- **Taxiway E** parallels with Runway 2-20 and is positioned approximately 400 feet to the west of Runway 2-20. It is also 50 feet wide of asphalt with a PCI rating of 59 which is good.

TURN-AROUNDS

There are turn-around areas on both ends of Runway 2-20 that allow aircraft to exit the runway and turn the aircraft around to back taxi on the runway. These areas do not meet standards and do not allow an aircraft to be safely outside the Runway Safety Area (RSA) for the runway to be used. Both areas are roughly 140 feet wide by 50 feet deep asphalt and have the same PCI ratings as the runway.

TAXILANES

The airport has several taxilanes that provide access from the aprons to individual general aviation hangar areas. The taxilanes are all 25 feet wide of asphalt for TDG 1A/1B standards. Locations are generally depicted in **Figure 2-6 – Terminal Area Map**.

APRONS

Apron areas serve the loading, unloading, parking and maneuvering needs for general aviation operations. The terminal building, fueling facility, ARFF/SRE building and large 100 foot by 120 foot hangar with an office are housed along the northeast edge of the apron. The main apron is the original apron for the airport and is roughly 15,800 SY; 15,400 SY is constructed of an asphalt surface while there is roughly 400 SY that is constructed of a Portland Cement Concrete (PCC) pavement for the fuel area pad aircraft parking area. The asphalt has PCI ratings of 71 to 76 which is very good. The fuel pad PCI rating is in excellent condition at 95.

There are currently 19 ADG-I tie-down locations; five along the northwest edge of the apron, four nested locations southwest of the SRE building, two nested locations southwest of the large hangar on the apron and the remaining eight locations are along the far southwestern edge of the apron. To the east of the eight tie-down locations is a 25’ wide taxilane leading to and from Connecting Taxiway C and

the Connecting Taxiway B Exit. The Taxilane Object Free Area (OFA) width on the apron is sufficient for ADG-I aircraft but not for ADG-II aircraft when other aircraft are parked on the tie-down spots.

PAVEMENT CONDITION

Airport pavements are basic infrastructure components at airports. Airfield pavements need to be maintained in a safe and operable condition for aircraft operations. Pavement condition is comprehensively evaluated by the State every three years and measured on a 0 to 100 scale known as the Pavement Condition Index (PCI). Pavement evaluation includes all airfield pavements. A summary of the latest PCI rating for the runway and other airfield pavements is tabulated in **Table 2-6**.

Table 2-6 – Pavement Condition Summary (2023)

Component	Surface Type(s)	LCD	PCI Range
Runway 13-31	AC	2013	76
Runway 2-20	AC	2011 & 2013	64-79
Parallel Taxiway A	AC	2013	71-72
Taxiway B	AC	2013	71
Taxiway C	AC	2013	68
Taxiway E	AC	2013	59
Apron	AC	2013	71-76
Fuel Facility Pad	PCC	2013	95
Taxilanes	AC	2020	96

Source: 2023 MnDOT Pavement Condition Report, Fairmont Municipal Airport (FRM), www.ara.com
PCI = Pavement Condition Index rating (0-100), LCD = Last Major Construction Date, AC = Asphaltic Concrete, APC = Asphalt Overlay over PCC, PCC = Portland Cement Concrete

All surfaces have a good to excellent rating as of 2023. During that time most of the surfaces showed longitudinal and transverse cracking except on the concrete fuel facility pad, though that area did show signs of joint seal damage and joint spalling. Currently, there is a note in the Airport Master Record for Runway 2-20 reporting weeds growing through large cracks.

Figure 2-4 – Pavement Condition Map

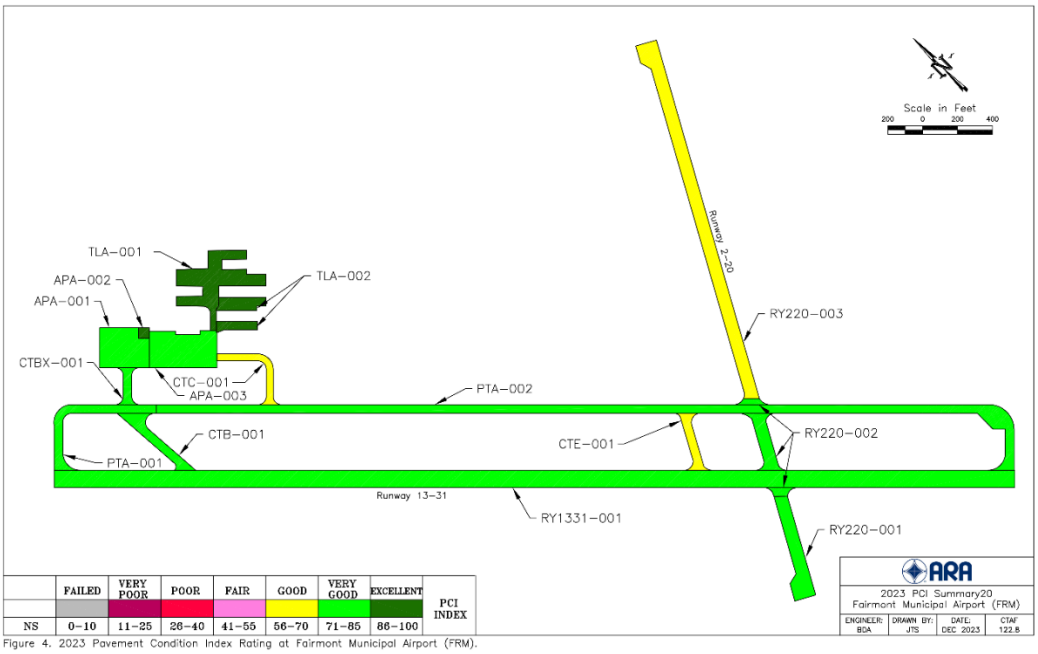


Figure 4. 2023 Pavement Condition Index Rating at Fairmont Municipal Airport (FRM).

Source: 2023 MnDOT Pavement Condition Report, Fairmont Municipal Airport (FRM), www.ara.com

Navigational Aids & Airspace

Navigational Aids (NAVAIDs) provide both visual and electronic guidance to pilots enabling the airport to accommodate safely, efficiently, and effectively arriving and departing flights. Airspace is a resource that is necessary to allow flights to safely operate and maneuver in the airport environment. **Figure 2-3** shows the location of visual and electronic navigational aids, and weather facilities.

VISUAL NAVIGATION AIDS

Visual navigational aids are installed to provide airport access during periods of darkness and/or low visibility. Pavement markings and lighting systems available at the airport are summarized in the following sections.

Identification Lighting

FRM has a clear and green rotating beacon, which is a two-sided light that aids pilots in the visual identification of a civilian airport. The clear and green beacon indicates a lighted land airport. The airport beacon is located to the north of the apron, operates sunset to sunrise and is owned and maintained by the Airport.

Pavement Edge Lighting

Pavement edge lighting fixtures are installed along the edges of runway and taxiway pavements to help pilots identify the edges and ends of pavement and facilitate safe operations in darkness and/or low visibility environments. Runway edge lights are white (bi-directional), except for the final 2,000 feet of the runway where the edge lights change color from White to Amber to warn pilots approaching the end of the useable runway. The runway end threshold lights (bi-directional) are dual-globe light fixtures, with green in color which denotes the physical beginning of the useable runway surface when an aircraft

flies on an approach to the runway, and the other half of the globe red in color denoting the physical end of the useable surface of the runway. Taxiway edge lights are blue and omni-directional and by design, are lower intensity than runway lights. The taxiway edge lighting system is Medium Intensity Taxiway Lights (MITL).

FRM has a 5-Step High Intensity Runway Lighting (HIRL) for Runway 13-31 and a 3-Step Medium Intensity Runway Lighting (MIRL) for Runway 2-20. Taxiway edge lighting delineates the taxiway and apron edges. There are also MITL for the Parallel Taxiway A and Taxiway end connectors, Taxiway B, Connecting Taxiway B Exit, and Taxiway E. Connecting Taxiway C has blue taxiway edge reflectors.

Visual Approach Lighting

Visual approach lighting (or visual approach aids) provides vertical descent guidance to pilots for a specific runway end. These approach aids enable the pilot to acquire and maintain the correct glide path for landing. Precision Approach Path Indicator Lights (PAPI) are the current FAA standard equipment installed for this purpose.

The PAPI has red and white lights that are used by the pilot to indicate to the pilot while on their final approach leg, whether the aircraft is positioned too high, too low, or on the correct glidepath. FRM has four light PAPI lighting systems for all runway ends and are located to the left of the runway and in the Touchdown Zone area of FRM's two runways. The PAPIs are owned and maintained by the Airport.

Approach Lighting System (ALS)

An ALS extends the runway centerline beyond the threshold to provide a visual cue for pilots landing in instrument conditions. There are various configurations, lighting types and complexities to these systems dependent on the type of precision approach and visibility minimums for the specific runway approach. The information for the ALS at FRM is covered later with the Instrument Landing System.

Runway End Identification Lighting (REIL)

Runway End Identifier Lights (REILs) consists of one-set of two synchronized flashing white strobe lights installed on each side of the runway approach end to provide rapid and positive identification of the physical approach end of a runway without complex visual approach lighting aids. The system can be unidirectional toward the runway approach or omnidirectional. REILs can be found on the end of Runways 13, 2, and 20 and are unidirectional. The REILs are owned and maintained by the Airport.

Pilot-Controlled Lighting (PCL)

Airfield lighting systems allow for pilots to control the lights and their intensity. The runway edge lights for both runways, the MALSR Light System for Runway 31, all REIL lights, and all PAPI lights can be activated with an aviation radio while on the ground or in the air, via FRM's Common Traffic Advisory Frequency (CTAF) which is 122.8 MHz.

Pavement Markings

Surface pavement markings provide visual guidance to aircraft operators to critical areas on the runway and taxiway surfaces. Through FAA Advisory Circular 150/5340-1, Standards for Airport Markings, the FAA has defined numerous pavement markings to promote safety and situational awareness. Runway markings vary in complexity depending on the type of approach and are as follows:

- Visual (landing designator, centerline)

- Non-Precision (landing designator, centerline, threshold)
- Precision (landing designator, centerline, threshold, aiming points, touchdown zone, and pavement edge markings)

Runway End 31 has precision runway markings identifying the runway designation, threshold, centerline, aiming point, and touchdown zone. Runway End 13 and Runway 2-20 have non-precision runway markings identifying the runway designation, threshold, centerline, and aiming point. Runway 13-31 also has a runway edge marking.

Taxiway and taxilane markings are important for aircraft directional guidance. Common taxiway and taxilane markings include:

- Holding Position Markings - yellow bars and dashes on a black background.
- Taxiway/Taxilane Centerline - solid yellow stripe along the designated centerline.
- Taxiway/Taxilane Edge markings - solid or dashed yellow stripes delineate edge of usable taxiway.
- Enhanced Taxiway Centerline - yellow dashes parallel of either side of the normal taxiway centerline when approaching the hold position markings.

FRM has painted centerline markings on all taxiway and taxilane surfaces. There is currently no taxiway or taxilane edge markings. Aircraft hold position markings are located on Taxiway A approaching Runway 2-20, both Parallel Taxiway End Connectors, Taxiway B, and Taxiway E leading to Runway 13-31. Starting at 150 feet are enhanced taxiway centerlines approaching a runway holding position marking to make pilots aware they should prepare to stop at the hold position markings. There are also aircraft hold position markings on Runway 2-20 leading to Runway 13-31 from each direction. On light colored pavements, the markings should have black borders to help delineate their existence on airport pavements.



The aircraft parking apron has yellow aircraft tiedown markings measuring 24 feet for the wings and 18 feet long. The apron also has a compass rose that is used to calibrate an aircraft's magnetic compass. This compass rose was painted in 2014 by the Ninety-Nines Inc., which is a non-profit, charitable international organization of licensed women pilots.

Airfield Guidance Signs

Guidance signs provide location, direction, and guidance information to pilots on the ground to enhance awareness. Signs are located adjacent to the pavement to identify runway and taxiway intersections, runway hold positions and other guidance. Mandatory signs are red and identify an intersection with a runway or critical safety zone. Other types of signs include location, direction, destination, and distance remaining signs.

Every aircraft holding position marking currently has mandatory runway hold position signs. Taxiing from the apron to Taxiway A, and at all the taxiway intersections have directional signs. All airfield signage is internally lighted and currently meet the requirements of the FAA. All runway and taxiway signs are owned and maintained by the Airport.

ELECTRONIC NAVIGATION AIDS

Electronic navigational aids are installed to provide critical guidance information when operating in the airport environment. These navigational aids often provide horizontal and/or vertical guidance in conjunction with published navigation procedures. Electronic navigation aids available at the airport are summarized below:

Very High Frequency Omni-Directional Range (VOR)

A VOR is a ground-based NAVAID used for enroute and approach course navigation. The radio beacon has the longest range of ground-based NAVAIDs. Aircraft can navigate to and from this beacon using compatible airborne receivers to receive the radio signals. It provides pilots a direct indication of bearing relative to the facility. With VORs that are collocated with Distance Measuring Equipment (DME), certain aircraft navigation radios can triangulate the signal between several different VOR/DME stations to choose a direct course of flight on a desired heading.

There is currently a VOR/DME station located southwest of the Runway 13 End aiming point markers, but it was decommissioned by the FAA in June 2019. The FAA is salvaging equipment from FRM's VOR/DME before it is completely removed. The widespread use of satellite-based GPS technology has caused the FAA to review existing VORs and subsequently decommission a large number. The FAA is maintaining a Minimum Operational Network (MON) across the U.S.

Instrument Landing System (ILS)

An Instrument Landing System is installed for a runway end to allow pilots to tune-in a pilot's cockpit instruments to acquire a horizontal and vertical radio beam to the runway threshold to assist in executing a landing. FRM has a straight in ILS approach to Runway 31. MnDOT owns and maintains the ILS at FRM and has noted a need to replace the components in the near future.

Components of an ILS include the Glideslope Antenna, Localizer Antenna; and the ILS critical Areas surrounding the Antennas and the Equipment Shelters, Marker Beacons, and the Approach Lighting System, (ALS). The ILS equipment discussed below was originally installed in 1979.

Glideslope Antenna: The glideslope antenna is directly west of the PAPIs, approximately 350 feet from the runway centerline for the Runway 31 End. It provides vertical guidance for approaching aircraft. There are two signals transmitted, one at 90 Hertz (Hz) and the other at 150 Hz and is intercepted by the ILS receiver. It will take the aircraft down towards the runway at a 3-degree descent angle.


Glideslope Antenna & Shelter

Localizer Antenna: The localizer antenna is located approximately 600 feet from the Runway 13 threshold and provides horizontal guidance. Like the glideslope, there are two signals transmitted laterally, one at 90 Hz and one at 150 Hz. Where the two frequencies intersect is aligned with the extended electronic runway centerline and with the use of cockpit instrument displays to reflect that the pilot is "on-course" and correct horizontal alignment.


Localizer Antenna & Shelter

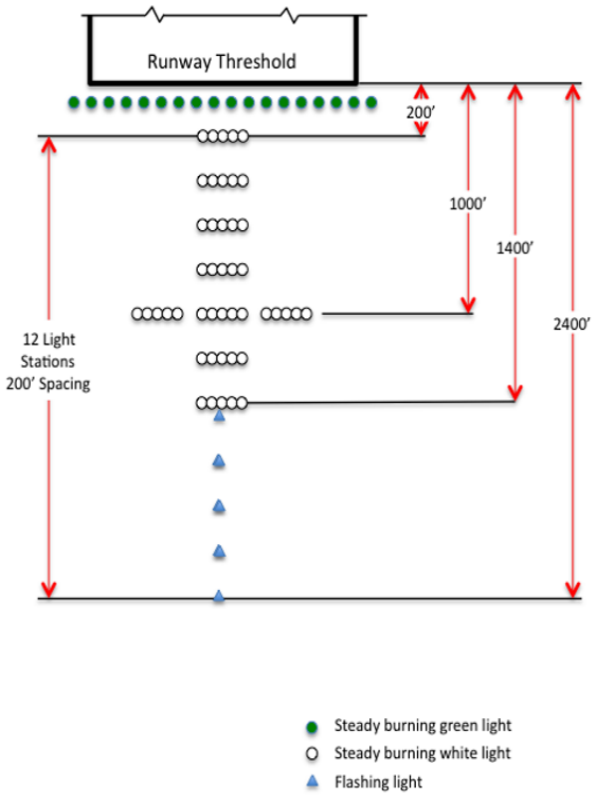
Both the glideslope antenna and the localizer antenna have critical areas that should be protected from aircraft, vehicle parking, and surface movements to ensure the signal is continuously received by aircraft. Both areas have several factors that go into the corresponding protection requirements and these factors are laid out in *FAA Order 6750.16E, "Siting Criteria for Instrument Landing Systems."* The current critical areas at FRM are based on Category I approaches, and the glideslope antenna is for a null reference configuration facility type for medium aircraft[2]. Category I (CAT I) runway approaches are based on a decision height (DH) no lower than 200 feet, and a Runway Visual Range (RVR) of no less than 2,400 feet. A null reference is the simplest of glide slope type and requires a smooth ground plane and is most affected by terrain.

The glideslope and localizer both have shelters to protect the electrical equipment. The shelters are allowed in the runway vicinity with the standard building restrictions on airports. The glideslope shelter is located directly behind the antenna and the localizer shelter is located approximately 250 feet west of the localizer antenna. These shelters were installed at the same time as their corresponding antennas.

Marker Beacons: There are two out of three marker beacons at FRM. The marker beacons provide a light and sound indication for the pilots at a published distance from the runway threshold. The outer marker is located between four to seven nautical miles (NM) from the runway threshold, lines up with the runway centerline, and indicates to the pilots they are on the approach to the runway. The middle marker is approximately 0.5 to 0.8 NM before the runway threshold.

[2] Medium Aircraft according to Order 6750.16E are aircraft less than 160' in length and 38' in tail height.

Approach Lighting System: The Medium Intensity Approach Lighting System (MALSR) with runway alignment indicator lights provides visual guidance to the runway end. Starting 2,400 feet from the runway threshold there are five sequential flashing lights meaning a pilot is ½ mile from touchdown. Then starts the rows of steady burning white light bars and a "roll bar" indicating a pilot is about 1,400 feet from touchdown. After the rows of steady burning white light bars there is steady burning set of green runway threshold edge lights.



Medium Intensity Approach Lighting System (MALSR) (Source: FAA)

Global Positioning System (GPS)

GPS is a ground and satellite-based navigation system comprised of a network of satellites that transmit radio signals to provide triangulation to ground or air-based receivers. Through this triangulation, longitude, latitude, altitude, and speed can all be determined. A GPS approach procedure uses area navigation (RNAV) to help aircraft navigate a horizontal course through pre-defined system of GPS waypoints. A series of ground-based transmitters, known as Wide Area Augmentation System (WAAS), enhances the precision of this system allowing receivers to accurately determine the position of a vehicle within a few horizontal and vertical feet of actual location. This enables precision-like approaches with vertical and horizontal guidance to a runway end.

GPS, RNAV and WAAS are used by aircraft, equipped with the necessary instruments, for en-route and approach navigation and are widely available for navigation throughout the contiguous United States. This new technology is allowing required navigation performance (RNP) procedures to be developed with three-dimensional waypoints.

Runway 31 has a GPS instrument approach procedure established with lateral and vertical guidance and a visibility minimum of ½ mile. Runway 13 has a published GPS instrument approach procedure with lateral guidance with a 1-mile visibility minimum.

COMMUNICATION FACILITIES

Communication facilities allow aircraft to transmit and receive clearances to air traffic control to navigate the national airspace system safely and effectively.

Local Area

FRM is an uncontrolled airport and is not served by an Air Traffic Control Tower (ATCT) providing landing and takeoff procedures. Individual aircraft are responsible for announcing their position and stating their intentions over an air-ground Common Traffic Advisory Frequency (CTAF), otherwise known as

UNICOM. The CTAF frequency at FRM is 122.8 MHz. This system is typical for lower activity general aviation airports such as Fairmont.

Terminal Area

The terminal area generally describes the airspace within 40 nautical miles of an airport. At Fairmont, aircraft on the ground are able to communicate with Minneapolis Air Route Traffic Control Center (ARTCC) (Minneapolis Center) on 127.75 MHz. The Fairmont Remote Communications Air to Ground (RCAG) is located on the south side of the airport.

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 supplements primary ground-based radar. The FAA 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. The closest ADS-B ground stations to FRM are located in Sioux Falls, Rochester and Minneapolis. ADS-B coverage is estimated to begin at 3,000 feet AGL at FRM. **Table 2-7** provides a summary of navigational aids available at the airport.

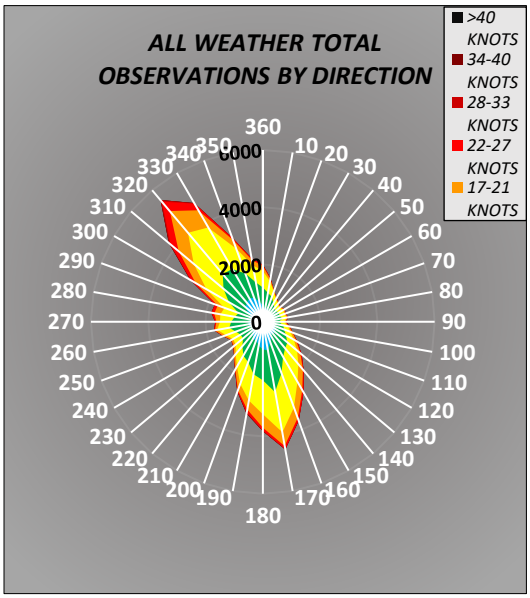
Table 2-7 – Navigational Aid Summary

Component	Runway 13-31	Runway 2-20
Runway Dimensions	5,503’ x 100’	3,300’ x 75’
Pavement Markings	13: Non- Precision 31: Precision	Visual
Runway Lighting	HIRL	MIRL
Taxiway Lighting	MITL	MITL
Approach Lighting	31: MALSR	-
Instrument Approach Procedures	13: Non-Precision 31: Precision	-
Navigational Aids	PAPI, REIL, MALSR	PAPI, REIL
Meteorological Facilities	AWOS-3PT	

Source: KLJ Analysis

METEOROLOGICAL DATA

Local weather conditions are a significant factor in the design and development of airport facilities since they affect aircraft performance. Temperature affects runway length, wind direction and speed affect runway orientation, and visibility and cloud ceiling conditions determine the need for runway navigational aids and lighting. Over the last 30 years (1991-2020) the average maximum temperature at FRM in the hottest month has been 72.0 degrees Fahrenheit (July).



Prevailing winds are from the northwest and are generally aligned with the airport's runway configuration. Crosswind or tailwind conditions can be hazardous to aircraft operations if they exceed the operational capabilities of the airplane or flight crew. The smallest aircraft are typically the most affected operationally by crosswinds conditions during either an approach for aircraft arrivals, departure and even during aircraft taxi operations once on the ground.

A runway's wind coverage is determined by an aircraft's ability to operate with a "direct" crosswind, which is defined as 90 degrees to the direction of travel. For planning purposes, the FAA has defined the maximum direct crosswind for small aircraft at 10.5 knots. For larger aircraft, a 13 knot direct crosswind component is used up through 20 knots for the largest aircraft. Aircraft can operate safely in progressively higher wind speeds as the crosswind angle decreases and the wind direction aligns more closely with the opposing the direction of flight. In addition, some aircraft are designed to safely operate with higher crosswind components. Ideally, an aircraft will take off and land directly into the wind or with a slight or minimal crosswind. The FAA recommends that primary runways accommodate at least 95 percent of local wind conditions. When this 95 percent level of coverage is not provided, the FAA recommends development of a crosswind runway.

The current runway orientations provide the FAA recommended minimum of a 95 percent wind coverage for 10.5 knots when combined, while Runway 13-31 meets the 95 percent wind coverage for 13 knots on its own. **Table 2-8** provides the calculated all-weather wind coverage for the airport.

RDC	Allowable Crosswind Component
A-I and B-I *	10.5 knots
A-II and B-II	13 knots
A-III, B-III, C-I through D-III D-I through D-III	16 knots
A-IV and B-IV, C-IV through C-VI, D-IV through D-VI	20 knots
E-I through E-VI	20 knots

Note: * Includes A-I and B-I small aircraft.

Pilots can fly with visual reference to the ground and other aircraft during most weather conditions. This is known as Visual Meteorological Conditions (VMC). Pilots are required to reference flight instruments

and be on a FAA Filed Instrument Flight Rules (IFR) flight plan when the cloud ceiling is less than 1,000 feet above the ground, or the flight visibility is less than 3 statute miles. These conditions are known as Instrument Meteorological Conditions (IMC) and require a pilot to be instrument rated. Wind coverage during VMC is evaluated to determine the ideal alignment for runways used during visual operations, such as VFR flight training. As shown in **Table 2-9**, when combined, the runways meet the minimum for 10.5 knots, and Runway 13-31 meets the requirements for 13 knots. Wind coverage during IMC is evaluated to determine the ideal alignment for instrument approach to an airport's runway. As shown in **Table 2-10**, Runway 13-31 does not meet the 95 percent for wind coverage for both 10 and 13.5 knots.

Table 2-8 – All Weather Wind Coverage

Runway	Crosswind Component (Wind Speed)		
	10.5 knots	13.0 knots	16.0 knots
Runway 13-31	89.31%	95.41%	98.23%
Runway 2-20	78.28%	87.00%	93.03%
Combined*	**97.49%**	**99.28%**	**99.84%**

Source: KFRM AWOS (2014-2023, hourly) from National Climatic Data Center 81,625 total observations
**Combined assumes up to maximum design aircraft crosswind component for each runway*

Table 2-9 – VMC Wind Coverage

Runway	Crosswind Component (Wind Speed)		
	10.5 knots	13.0 knots	16.0 knots
Runway 13-31	89.72%	95.62%	98.31%
Runway 2-20	78.93%	87.53%	93.47%
Combined*	**97.59%**	**99.31%**	**99.84%**

Source: KFRM AWOS (2014-2023, hourly) from National Climatic Data Center 73,281 total observations
**Combined assumes up to maximum design aircraft crosswind component for each runway*

Table 2-10 – IMC Wind Coverage

Runway	Crosswind Component (Wind Speed)		
	10.5 knots	13.0 knots	16.0 knots
Runway 13-31	85.74%	93.61%	97.57%

Source: KFRM AWOS (2014-2023, hourly) from National Climatic Data Center, 8,344 total observations

Based on true hourly weather data as summarized in **Table 2-11**, the airport experiences IMC weather conditions 10.22 percent of the time. When considering the current instrument approach weather minimums of a 400-foot cloud ceiling and ½ mile flight visibility, the airport has weather conditions below this criterion 7.6 days per year where the airport is not usable.

Table 2-11 – Meteorological Analysis

Weather Condition	Percentage	Days per Year	Hours per Year
VMC	89.78%	327.7	7,865
Usable IMC	8.15%	29.7	714
Usability	**97.93%**	**357.4**	**8,577**
Below Current Weather Minimums*	2.07%	7.6	182
*Achievable Weather Minimums***	*0.93%*	*3.4*	*81*
Still Below Weather Minimums	*1.14%*	*4.2*	*101*
Total	***100.0%***	*365.0*	***8,760***

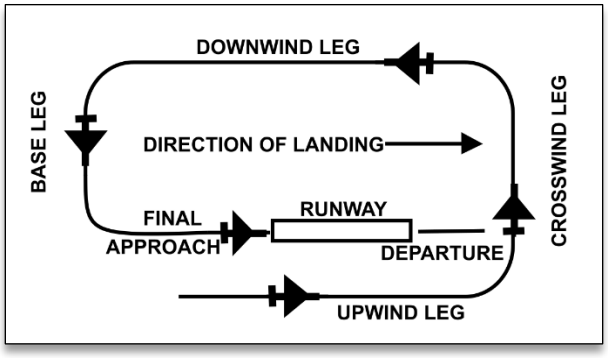
Source: KFRM AWOS (2014-2023, hourly) from National Climatic Data Center, 8,1625 total observations

Current IFR minimums are 400-foot cloud ceiling and ½ mile flight visibility for Runway 31 approach
*** Reduce IFR minimums to 200-foot cloud ceiling and ½ mile flight visibility for Runway 31 approach*

The published FAA magnetic declination at FRM is 0.04 degrees East, and the National Oceanic and Atmospheric Administration (NOAA) magnetic declination is 0.07 degrees.

APPROACH/DEPARTURE PROCEDURES

Aircraft operate under either Visual Flight Rules (VFR) or Instrument Flight Rules (IFR) depending on weather conditions and/or operational standards.



Standard VFR Airport Traffic Pattern (Source: FAA)

Visual Approach/Departure Procedures

Under VFR, pilots are advised to utilize a standard rectangular traffic pattern around the runway to approach or depart an airport. Standard traffic pattern legs include upwind, crosswind, downwind, base, and final. Departures are typically straight-out from a departing runway, a 90-degree crosswind, or 180degree downwind. Arrivals typically enter a traffic pattern 45 degrees to a downwind leg for landing. Air traffic at FRM follow the standard left-handed traffic pattern for all runways.

Instrument Approach Procedures

Pilots operating under IFR conditions and intending to land at an airport must navigate aircraft on a published Instrument Approach Procedures (IAP). Three IAPs (see **Table 2-12**) are available for Runways 13 and 31 with either ground-based or satellite-based NAVAIDS. Instrument approach weather minimums are a result of the approach type, airport infrastructure, and any prevailing airspace obstructions. An ILS approach typically has a cloud ceiling minimum of 200 feet but because of problems with the existing Glide Slope antenna, the signal is only usable to 1480' AMSL and therefore the ceiling is 400 feet. Special procedures are published at airports to provide aircraft with adequate obstacle clearance. Examples include increased aircraft climb rates or recommended turns. At this time, there are no special procedures at FRM.

Table 2-12 – Instrument Approach Procedures

Approach Procedure	Approach Type	Lowest Cloud Ceiling Minimum (HAT)	Lowest Visibility Minimum (n.m.)
ILS or LOC RWY 31	Precision Approach (Category I ILS)	S-ILS: 318 feet (400) S-LOC: 478 feet (500) Circling: 498 feet (500)	S-ILS: ½ mile S-LOC: ½ mile Circling: 1 mile
RNAV (GPS) RWY 31	Non-Precision Approach with Vertical Guidance	LPV: 305 feet (400) LNAV/VNAV: 419 feet (500) LNAV: 398 feet (400) Circling: 498 feet (500)	LPV: ½ mile LNAV/VNAV: ¾ mile LNAV: ½ mile Circling: 1 mile
RNAV (GPS) RWY 13	Non-Precision Approach with Vertical Guidance	LPV: 298 feet (300) LNAV/VNAV: 533 feet (600) LNAV: 398 feet (400) Circling: 498 feet (500)	LPV: 1 mile LNAV/VNAV: 2 miles LNAV: 1 mile Circling: 1 mile

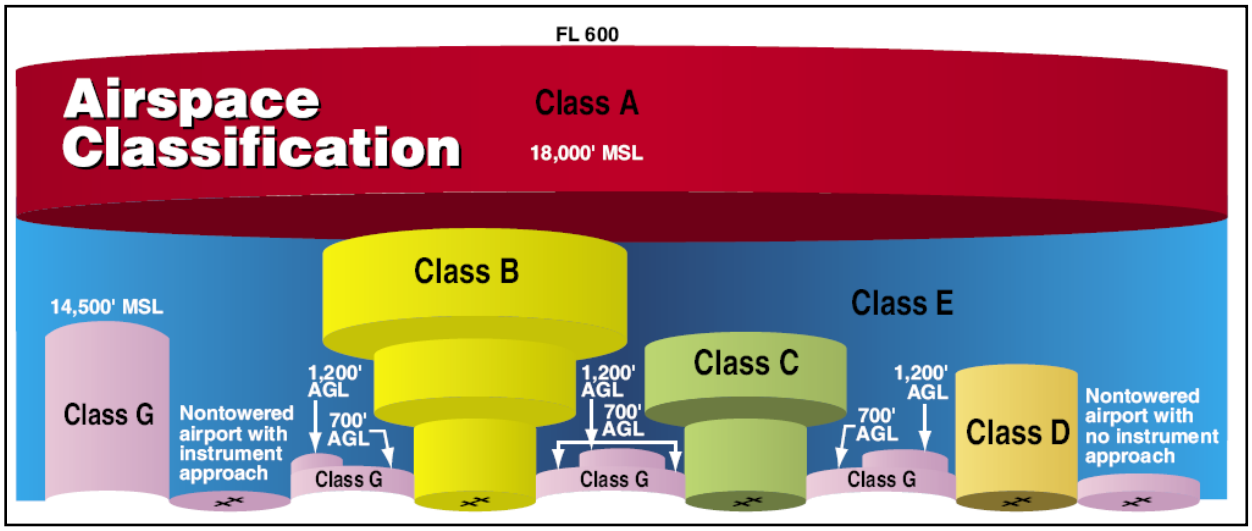
Source: SOURCEIFR/Obstacle Departure Procedures

AIRSPACE & SURVEILLANCE

Airspace Classification

Airspace is segregated into controlled, uncontrolled, special use or other airspace (Ex: Military Operating Areas – MOA's). Each airspace class has different operating rules. Controlled airspace is classified as A, B, C, D, or E. Uncontrolled airspace is classified as G. These classes of airspace specify appropriate minimum cloud clearances, visibility requirements, and other aircraft operating requirements. The major difference between controlled and uncontrolled airspace is that the FAA does not exercise air traffic control over aircraft operating within uncontrolled airspace. FRM is located in uncontrolled Class E Airspace. Flights departing the Airport under Instrument Flight Rules (IFR) must receive an IFR clearance from Minneapolis Center.

Figure 2-5 – FAA Airspace Classifications



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

AIRSPACE OBSTRUCTIONS

Airspace is a key 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. The imaginary surfaces include the primary, approach, transitional, horizontal, and conical surfaces each with different standards.

When evaluating objects, the FAA determines whether an obstruction is a hazard to air navigation. The FAA subsequently evaluates the obstruction using more in-depth minimum airspace standards. These include FAA Approach/Departure Surfaces from FAA AC 150/5300-13B, *Airport Design* or instrument procedure surfaces identified in FAA Order 8260.3B, *U.S. Standard for Terminal Instrument Procedures (TERPS)*. Corrective action is then recommended. Examples of corrective action include removing, lowering, or installing lighting on an obstruction. Additional information and a diagram of Part 77 is provided in **Appendix B – General Aviation Airports 101**.

Clear airspace is necessary for the safe and efficient use of aircraft arriving and departing an airport. The most demanding approach to a runway defines the Part 77 airspace standards for that runway. There are three main approach types:

- **Precision**: A runway having an existing instrument approach procedure utilizing an existing or planned Instrument Landing System (ILS) with horizontal and vertical guidance. Visibility minimums are less than ¾ mile.
- **Non-Precision**: A runway having an existing instrument approach procedure utilizing air navigation facilities with horizontal guidance, or area type navigation equipment, for which a straight-in non-precision instrument approach procedure has been approved or planned. Approaches with vertical guidance are considered non-precision. Visibility minimums are typically 1 mile but as low as ¾ mile.
- **Visual**: A runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure published or planned.

There are two runway classifications:

- **Utility**: A runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.
- **Other-Than-Utility**: A runway that is constructed for and intended to be used by aircraft greater than 12,500 pounds maximum gross weight.

The combination of the approach type and the runway classification defines the dimensional criteria for each approach. The Part 77 airspace dimensional criteria for the airport is identified in **Table 2-13**.

Existing obstacles to Part 77 are listed in **Table 2-14**. A more detailed obstruction analysis will be completed using data from an Aeronautical Survey, which is part of the master plan process. This detailed obstruction identification and mitigation disposition is identified in the Airport Layout Plan developed at the end of this planning study.

Table 2-13 – Existing Part 77 Approach Airspace Standards

Runway End	Approach Standards	Part 77 Code	Inner Width*	Outer Width	Length	Slope
13	Non-Precision Other-Than-Utility	C	500’	3,500’	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
2-20	Visual Utility	A(V)	250’	1,250’	5,000’	20:1

Source: 14 CFR Part 77, FAA Airport Master Record
**Inner width is also the Primary Surface width driven by the most demanding approach to a runway.*

Table 2-14 – Critical Part 77 Airspace Obstacles

Runway End	Surface	Object Type, Height Above End	Distance From End	Location from Centerline	Slope to Clear (Required)
13	Approach	Road, 9’	405’	520’ right	**22:1**

Source: 5010 Report and KLJ Analysis

General Aviation

General Aviation (GA) elements include facilities that serve aeronautical needs of the flying public beyond those needed for commercial airlines. Facilities include those necessary for the movement of passengers as well as parking, service, and storage of aircraft. Examples of these facilities include the aircraft storage hangars, aircraft parking apron, GA terminal, and commercial aviation operators. A map depicting these facilities is shown in **Figure 2-6 – Terminal Area Facilities Map**.

AIRCRAFT PARKING APRON

The main parking apron at FRM is 15,800 SY of asphalt with 19 tiedown spots for ADG I aircraft.

BUSINESS OPERATORS

Fixed Base Operators (FBOs) are commercial businesses providing multiple aviation services to the public, primarily for general aviation. Specialized Aviation Service Providers (SASOs) are commercial aviation businesses providing one or a limited number of services to the pilot community. Services at FRM were provided by an FBO until 2013. The City of Fairmont then created an airport manager position to provide services after receiving no outside interest. There is no aircraft maintenance at the airport.

Fairmont Aerial Ag is a SASO which operates an agricultural spraying business at FRM. The company leases the Piper Hangar (Number 4 in **Figure 2-6**) and a couple of additional T-Hangars. They have expressed a desire for a larger hangar and a bigger loading pad.

TERMINAL BUILDING

A terminal building for general aviation traffic serves multiple functions for both inbound and outbound general aviation passengers and pilots. The terminal building at FRM was constructed in 1985 to serve both commercial and general aviation passengers and is approximately 5,000 SF. The facility includes space for ticketing, baggage sorting and passenger waiting, as well as facilities and equipment for general aviation passengers. Since scheduled airline services ended in January 2000, the space has been converted for use by general aviation pilots and passengers. The terminal building includes a 24-hour public restroom and pilot briefing area, pilot's lounge, kitchenette, and waiting area. The airport manager's office is also in the terminal building. The west portion of the building is generally unused and includes storage closets, offices and an old baggage garage. The current terminal building is approximately 40-years old and does meet the airport's needs.

AIRCRAFT STORAGE HANGARS

Aircraft storage facilities are listed in **Table 2-15** and are depicted in **Figure 2-6**.

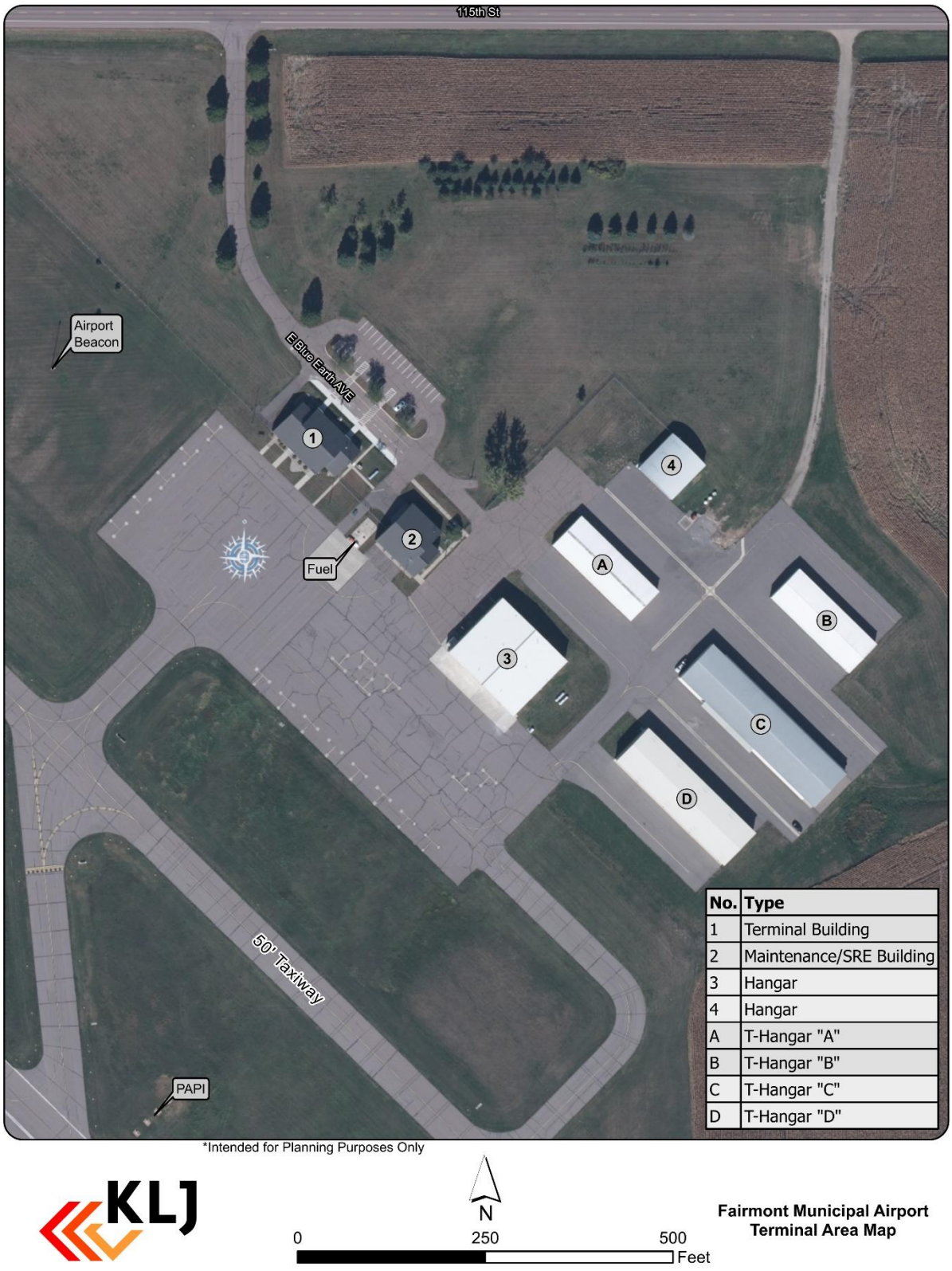
Table 2-15 – Aircraft Storage Facilities

Facility	Year Constructed	Owner	Description	Storage Area (SF)
3	1975	Public	Main Hangar	12,000
4	1960	Public	"Piper" Hangar	3,600
A	1970	Public	T-Hangar A	7,700
B	1960	Public	T-Hangar "B"	8,250
C	2006	Public	T-Hangar "C"	15,000
D	2020	Public	T-Hangar "D"	12,000

		Grand Total	**58,550**

Source: KLJ Analysis

Figure 2-6 – Terminal Area Facilities Map



Support Facilities

Support facilities are necessary to facilitate the day-to-day maintenance and operation of the airport. A map depicting these facilities is shown in **Figure 2-3 – Terminal Area Facilities Map**.

AIRPORT MANAGEMENT AND MAINTENANCE

The airport has a 4,000 square foot building adjacent to the General Aviation terminal building that served as the former Aircraft Rescue and Fire Fighting building and is now used to store maintenance equipment such as Snow Removal Equipment (SRE). The airport manager office is located in the terminal building. The airport also has one part time employee in addition to the Airport Manager and the City of Fairmont assists with mowing and snow removal operations. The City provides electrical and facility maintenance as required. FRM equipment inventory is in **Table 2-16**.

Table 2-16 – Airport Maintenance Equipment

Year	Make	Model	Condition	Other/Misc.
1988	Oshkosh	Snowgo		Snowblower
2006	Mack	Granite		X' Snowplow
2018	Dodge	Ram		X' Snowplow
1990	Ford	Tractor		22' Flail Mower
-	-	Zero-Turn Mower		

FUELING FACILITIES

The fueling facility at FRM is located on the northeast side of the main apron. The facility includes two 10,000-gallon underground tanks of single walled fiberglass, one for Jet A and one for 100LL. The fuel facility was constructed in 1997 and the Fuel Master was changed in the late 2000s. Fuel is dispensed through a contained hose and reel system. The airport provides full-service fueling and self-service fueling which is available 24/7 via a credit card reader system.



A 60-foot by 60-foot concrete fueling pad was constructed in 2012. Fuel is also delivered with 8,000-gallon tankers that park parallel to the fuel system. During the summer months the airport receives deliveries as often as every 10 days.

FENCING & SECURITY

There is not a perimeter fence at FRM, however there is approximately 1,200 feet of six-foot chain link fence within the terminal area. Access to the main apron is provided via a manual gate located between the terminal building and the SRE facility. There is electronically controlled access to the hangar area.

Ground Access, Circulation & Parking

These facilities provide vital connectivity within the airport facility and from the airport to the surrounding community. Facilities are depicted in **Figure 2-6.** Access to the airport is provided via a paved airport access road connecting to 115th Street, an east-west paved highway. 115th Street connects to Minnesota State Highway 15 to Fairmont's central business district and further to Interstate 90 just north of the city. The airport access road allows access to the terminal building as well as the

hangar area. The main automobile parking lot is located adjacent to the terminal building. This parking lot has 31 marked parking spaces.

PUBLIC TRANSPORTATION

While there are no regularly scheduled transit routes to the airport, Prairie Lakes Transit provides bus transportation throughout the City of Fairmont.

Other

UTILITIES

The following utility infrastructure is available at the airport to serve facility demands:

- **Stormwater:** The airport is connected to a county drainage system. There is currently drain tile located northeast of the apron, and a retention pond was recently built to collect runoff from the apron. The current hangar area has very limited drainage and this issue is being examined as a part of this planning study to accommodate additional hangar development. Any improvements will be noted in **Chapter 6: Implementation**.
- **Power:** Electric service is provided to the airport via underground cable from the City of Fairmont.
- **Water:** Water is provided to the airport from the City of Fairmont.
- **Sanitary:** The airport currently has two sanitary tanks adjacent to the Airport Maintenance building. There are future plans to install a lift station in the sanitary tanks and connect them to the city's sewer lines.
- **Heating & Cooling:** Heating and cooling of the terminal building is provided via a propane hot water boiler and a single DX cooling system.

Surrounding Land Use

Background

The effect of airport planning decisions extends well beyond the airport property boundary. The land uses that surround the airport must be evaluated to help determine the impact of airport planning decisions.

Compatible land uses are defined as those uses that can coexist with a nearby airport without either constraining the safe and efficient operation of the airport or exposing people working or living nearby to unacceptable levels of noise or safety hazards. Typical airport land use compatibility elements for airports include:

- FAA airspace standards for airport safety and operational capability.
- FAA land use compatibility near runway ends associated with the Runway Protection Zone (RPZ) for the safety of people and property on the ground.
- MnDOT Airport Safety Zones
- MnDOT Clear Zones

- State or local airport land use standards, if applicable.
- FAA wildlife hazard mitigation plans for aircraft operational safety.
- FAA land use compatibility within designated day-night average sound level (DNL) noise exposure contours to avoid significant impacts to activities on the ground.

This section provides an overview of existing land uses and land use plans.

Controls, Plans & Zoning

MNDOT SAFETY ZONES

The Minnesota Department of Transportation enacts land use safety zoning in areas of airport influenced communities. The minimum standard zones are Zones A, B, and C. Zone A includes all land within the approach zone and extends outwards from the end of the primary surface a distance equal to two-thirds of the planned length of the runway. Zone B is all land within the approach zones of the runway and extends outward from Zone A a distance equal to one-third of the planned runway length. Zone C is enclosed within the perimeter of the horizonal zone which is not included in Zones A or B.

Each zone has restrictions of what can and cannot be located in said zone. Zone A is the most restrictive with no structures, assembly of people, anything that causes interference with aircraft communications, and lighting that impairs pilot views of the airport. Zone B may not have building sites less than three acres, assembly of more than 15 people per acre with certain restrictions along with communication and lighting interference. Zone C is limited to anything that would interfere with communication of aircraft and lighting that impairs pilot views of the airport. Please reference **Figure 2-7 – Fairmont Municipal Airport Safety Zones** to see the MnDOT safety zones for the airport.

MNDOT CLEAR ZONES

The state office of aeronautics restricts land uses that may be hazardous to the operational safety of an airport while protecting life and property in the runway approach areas. The configurations are primarily based on primary and approach surfaces and the dimensions are based on runway category, visibility minimums if applicable, and most critical approach type. Please reference the Airspace Obstructions section reviewed earlier for more details on the airport's approach standards.

These areas must be acquired in fee to receive state funding in airport projects. Though it is not feasible in some cases, and the 2022 SASP states, "*actual property interest to be acquired will be determined upon consideration of land lines, availability of property, severance, terrain limitations, usual cost affecting the safety and convenience of the public, and other factors affecting airport compatibility of land uses surrounding the airport as defined by the Commissioner of Transportation (Commissioner)".*

MnDOT Aeronautics provides a clear zone guidance compliance process for the airport sponsor and if the sponsor does not fully comply with the guidance such as not receiving full fee simple ownership of the clear zone, then a Clear Zone Acquisition Plan (CZAP) will need to be submitted. Afterwards, the airport sponsor must develop a detailed analysis that achieves:

1) Documentation of proposed property interest to be acquired in fee;
2) Justification as to why some or all clear zones cannot be acquired in fee; and,
3) Alternative land use control mechanisms enacted or pursued to enhance safety and reduce nuisances associated with aircraft operations.

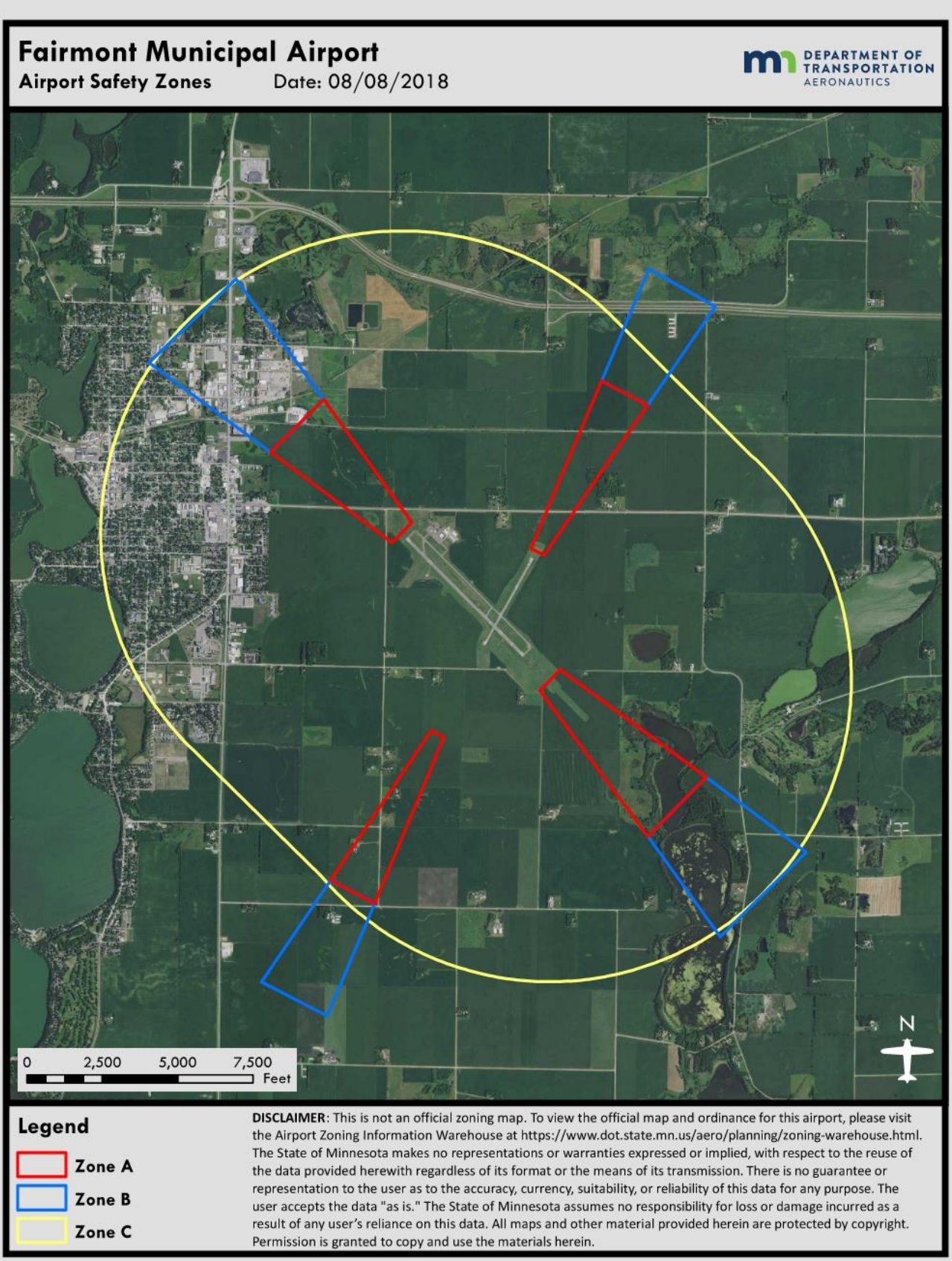
Any changes to the current clear zones will be addressed in **Chapter 6: Implementation.**

Existing Land Uses

The majority of the land surrounding FRM is zoned for agricultural use. The city zoning ordinance includes building restrictions within the MnDOT Safety Zones. Land within the Runway 13 Runway Protection Zone (RPZ) is zoned for light industrial use. There are roads inside the Runway 13 RPZ including 115th Street and 220th Avenue. 115th Street is an east-west highway which according to MnDOT traffic data, the road has an annual average daily traffic volume of 3,128 vehicles. 220th Avenue is a gravel county road with limited daily use.

There are no incompatible uses inside the MnDOT Safety Zones. The safety zones in **Figure 2-7** are based on the existing Airport Layout Plan's ultimate configuration and should be adjusted upon completion of this planning study to protect the existing and ultimate airport configuration based on the updated Airport Layout Plan.

Figure 2-7 – Fairmont Municipal Airport Safety Zones



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 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.

Key environmental resources are described for the existing airport area. **Figure 2-8 - Environmental Overview Map** provides a graphical depiction of the existing environmental conditions described in this section.

Figure 2-8 – Environmental Overview Map



Fairmont Municipal Airport
Environmental Overview Map

KLJ

N

0 500 1,000 2,000 3,000 4,000
Feet

Relevant Environmental Features

BIOLOGICAL RESOURCES

Biological resources include flora and fauna that are present in an area. FRM is in the Western Corn Belt Plains (47) Level III ecoregion according to US Geological Survey. The region was originally covered in tallgrass prairie vegetation but has been converted to intensive row crop agriculture of corn, soybeans, and feed grains. The area also contains a lakes, wetlands, and prairies.



FRM Airport Setting

The area historically was home to several grassland and prairie plant species such as big bluestem, switchgrass, and India grass, and some can still be found in the remaining prairie remnants. Around the many lakes and wetlands in Fairmont, you'll find cattails, bulrushes, sedges, and reed canary grass. These plants are important for filtering water and providing habitat for wildlife. Scattered woodlands and shelterbelts feature a variety of trees and shrubs, including oaks, maples, willows, cottonwoods, and elms.

The variety of habitats supports a wide range of wildlife. The area is located along migration routes, so there are many bird species including waterfowl (ducks, geese, and swans), shorebirds (herons, egrets, and sandpipers), raptors (bald eagles, red-tailed hawks, and osprey), and songbirds (warblers, robins, and sparrows). Mammals common in the area include white-tailed deer, raccoons, opossums, squirrels, coyotes, foxes, beavers, and muskrats. Many of the lakes near Fairmont support a variety of fish including; walleye, northern pike, largemouth bass, bluegill, crappie, and sunfish. Wetlands nearby are home to the American bullfrog, leopard frogs, and painted turtles.

According to the U.S. Fish and Wildlife Services website, federally listed endangered, threatened, proposed or candidate species in Martin County include the Northern long-eared bat and monarch butterfly. In accordance with Section 7 of the Endangered Species Act, consultation with US Fish and Wildlife Service (USFWS) to determine the potential for occurrences of federally-listed threatened and endangered species in the project area would be necessary. Prior to project implementation, further analysis is required to identify the potential for fish, wildlife, and plant impacts because of any proposed projects.

DEPARTMENT OF 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.

There are no known publicly owned lands from parks, recreation areas, or refuge areas within the immediate vicinity of the Airport. There is a semi-private golf club (privately owned but open for public use) located to the northeast 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 National Park Service (NPS) and the state agency responsible for the Section 6(f) property. A review of Land Water Conservation Fund grants for Martin County indicates that seven 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, SOLID WASTE, AND POLLUTION PREVENTION

Hazardous Materials

There have been no reported spills or hazardous material leaks in or around FRM. This is based on a review of the Minnesota Pollution Control Agency (MPCA) and Environmental Protection Agency databases regarding underground storage tanks, listings for superfund sites, and sites covered under the Resource Conservation and Recovery Act. Prior to acquisition of new land to be owned in fee title by an airport sponsor, FAA recommends that an Environmental Due Diligence Audit (EDDA) be performed. An EDDA includes a more detailed review of an area, relative to NEPA-level review, for the possible presence of environmental contamination.

Solid Waste

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. General information for the airport is located in **Appendix D: Recycling & Solid Waste**.

Pollution Prevention

The Airport is part of the City of Fairmont storm water pollution prevention plan (SWPPP) and is covered under an Airport Industrial Stormwater permit from MPCA.

HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act of 1966, as amended, requires that federally funded projects be evaluated for the effects on historic and cultural properties included in, or eligible for listing in, the National Register of Historic Places (NRHP). The Archaeological and Historic Preservation Act of 1974 provides for the survey, recovery, and preservation of significant scientific, prehistoric, archaeological, or paleontological data when such data may be destroyed or irreparably lost due to a federal, federally licensed, or federally funded project.

Before a project that involves land disturbance is implemented, an analysis to identify the potential for cultural resources would need to be conducted for the project area. Coordination with the State Historic Preservation Office (SHPO) is necessary for projects involving land disturbance. Additionally, any project affecting buildings that have the potential to be listed in the NRHP would require coordination with SHPO.

As part of this master plan effort literature review of the databases and files of the Office of the State Archaeologist (OSA) and the State Historic Preservation Office (SHPO) was conducted on March 28, 2024. This review includes all previously recorded cultural resources and surveys within one mile of the project area. The review revealed one previously recorded archaeological site, no previous archaeological surveys, and six architectural sites within the one-mile study area. The archaeological resource was a prehistoric artifact scatter site that is unevaluated for the NRHP. The architectural resources consist of Omaha Railroad Depot (MR-FAC-00014), a freight depot (MR-FAC-00015), the Gilbert Hotel (MR-FAC-00044), Grace Lutheran Church (MR-FAC-00086), Byers Building/ Tower Shopping Center (MR-FAC-00162), and Fairmont Water Tower (MR-FAC-00191). Five of the sites are unevaluated and one is not eligible and none of them are located on the airport.

A Phase III Inventory was also conducted of the master plan study area during June of 2024. The inventory reveals one prehistoric single artifact find location, two historic sites, and eight architectural sites, including the airport itself.

FARMLAND

Under the National Environmental Policy Act (NEPA), it is essential to consider the impacts on farmlands classified as prime, unique, or of statewide or local importance. The Farmland Protection Policy Act (FPPA) of 1981 aims to safeguard prime and unique farmlands. Prime farmland is characterized by the optimal combination of physical and chemical properties for producing food, fiber, forage, feed, and oilseed crops and is available for such purposes. Unique farmland, on the other hand, refers to farmland used to produce specific high-value crops for food, feed, and fiber. Statewide farmland is of critical importance to the production of food, feed, fiber, forage, and oilseed crops, and its designation is determined by state agencies. Local agencies identify locally important farmland where food, feed, fiber, forage, and oilseed crop production is essential at the local level, but not nationally or statewide.

A search of the USDA Natural Resources Conservation Service (NRCS) web soil survey identified land located on and around the Airport is classified as prime farmland, prime farmland if drained, and farmland of statewide importance. Further consultation with NRCS would be required during a project's environmental review stage to calculate the Farmland Conversion Impact Rating if land outside the existing airport property would be acquired and converted to airport property.

LAND USE

Compatible land uses refer to land uses that are not significantly impacted by the normal operations of an airport. These land uses are typically located in the vicinity of the airport and are generally associated with noise impacts and safety concerns. Noise impacts are a major consideration when determining the compatibility of land uses near an airport. Airport operations can generate significant levels of noise, particularly during takeoffs and landings. As a result, areas near the airport that are designated for residential, commercial, or other noise-sensitive uses may not be compatible with the noise levels generated by the airport. Safety concerns are also a key factor in determining the compatibility of land

uses near an airport. Runways and flight paths require clear zones that must be kept free of obstacles, which can limit the types of land uses that can be in these areas. Additionally, there may be specific restrictions on the height of buildings or other structures in the vicinity of an airport to ensure that they do not interfere with flight operations. Ultimately, the compatibility of land uses near an airport is an important consideration for both airport operators and neighboring communities. Careful planning and zoning can help to ensure that noise and safety concerns are addressed, while still allowing for compatible land uses that can benefit the community and support the airport's operations.

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. In general, FRM is surrounded by cropland and open spaces.

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 (USACE) Wetland Delineation Manual are hydric soils, hydrophytic vegetation, and hydrology.

The airport is mostly well drained but there are several isolated wetlands shown in the National Wetland Inventory (NWI) located on the Airport property and were identified during an informal desktop delineation completed for this planning effort. Prior to project implementation, wetlands would require a field delineation to clearly identify their boundaries. Coordination with USACE would need to be completed at the environmental documentation phase. In addition to maintaining water quality in rivers and recharging groundwater, wetlands among other positive benefits, may have the potential to attract wildlife that can be hazardous to aircraft using the Airport.

Surface and Ground Waters

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

Airport activities can affect water quality. This is mainly due to stormwater runoff from paved areas. Providing treatment for stormwater runoff from runway, taxiway, and apron areas using best management practices and vegetated swale areas would minimize potential impacts to water quality.

There are many small lakes and ponds located near the Airport, include Rose Lake that is located about a mile and a half of the Runway 31 end, or southeast of the Airport. Other lakes to the south and east of the study include Lake Imogene, Little Hall Lake, and Sager Lake. Also located about one and a half miles to the west of the Airport are Budd Lake, Hall Lake, Amber Lake, George Lake, and Lake Sisseton. These lakes, along with smaller ponds and creeks in the region, make the area around Fairmont a picturesque and vibrant environment, with plenty of opportunities for outdoor recreation and wildlife viewing

Environmental Features Not Relevant

AIR QUALITY CLASSIFICATION

The FAA Orders 1050.1F and 5050.4B outline procedures for determining when airport-related projects require an 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.

CLIMATE

Although there are no federal standards for aviation-related Green House Gas (GHG) emissions, it is well-established that GHG emissions can affect climate. The Council on Environmental Quality (CEQ) has indicated that climate should be considered in NEPA analyses. As noted by CEQ, however, "it is not currently useful for the NEPA analysis to attempt to link specific climatological changes, or the environmental impacts thereof, to the particular project or emissions; as such direct linkage is difficult to isolate and to understand".

With respect to GHG emissions, aviation activity at Fairmont Municipal Airport represents a small percentage of U.S. and global emissions; therefore, no further review is 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 FRM would require additional energy but is not anticipated to cause significant impacts to 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 FRM then no further noise analysis is required.

SOCIOECONOMIC IMPACTS, ENVIRONMENTAL JUSTICE, 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. Although the remote location of the airport makes it unlikely to have adverse impacts on minority and low-income populations, it's worth noting that the around surrounding the airport is comprised of a significantly higher percentage of low-income individuals compared to the statewide average. To avoid any disproportionate and negative effects on minority and/or low-income populations, it is recommended to conduct further analysis during the project development stages.

There are no schools, one hospital, and one place of worship within a one-mile radius of the Airport.

VISUAL IMPACTS

Minor development projects at Fairmont 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

Floodplains constitute lands situated along rivers and their tributaries that are subject to periodic flooding on the average interval of 100 years or less. FRM is not located within a 100-year floodplain; therefore, no further analysis is required.

Wild and Scenic Rivers

No designated Wild and Scenic Rivers are located near FRM. No direct or indirect impacts to wild scenic rivers would occur due improvement. No further analysis is required.

Conclusion

The information collected and documented in this Inventory chapter provides a baseline foundation to update the FRM long-range plan. This information will feed into future sections to determine how facilities will meet the projected airport needs based on aviation activity forecasts.