CHAPTER 2: EXISTING CONDITIONS

The Existing Conditions chapter of the Airport Master Plan for Minot International Airport provides the baseline framework to evaluate the airport facility. This chapter will be used to compare the existing facilities to the requirements determined in the following chapters of the plan. This process will lead to a plan developed for the future of the airport. Background information and data has been gathered from various sources and compiled into this chapter and appendices. Please refer to the various appendices referenced within this narrative for more detailed technical information.

Background

General

Minot International Airport (FAA ID: MOT) is North Dakota's 3rd busiest airport for enplaned passengers and 4th busiest for aircraft operations. The airport is located in Ward County in north central North Dakota. The airport is a commercial service airport providing scheduled passenger service, overnight cargo, and complete general aviation services. The airport served 30,966 aircraft operations and enplaned 220,552 passengers in Federal fiscal year 2014.

Location

Minot is located in north central North Dakota, the county seat of Ward County. Minot is the 4th largest municipality in North Dakota and is located along the Souris (Mouse) River which starts in Saskatchewan, Canada then loops down into the United States through Minot before returning back into Manitoba, Canada.

Minot is approximately 210 miles west of Grand Forks, North Dakota; 110 miles north of Bismarck, North Dakota; 125 miles east of Williston, North Dakota; and 245 miles southeast of Regina, Saskatchewan. Minot is approximately 50 miles north of Lake Sakakawea and the Missouri River.

The airport is located less than 2 miles north of the Minot central business district. U.S. Highway 83 provides access to the airport. This north-south thoroughfare provides direct access to downtown Minot to the south and Minot Air Force Base (AFB) located 10 miles to the north.

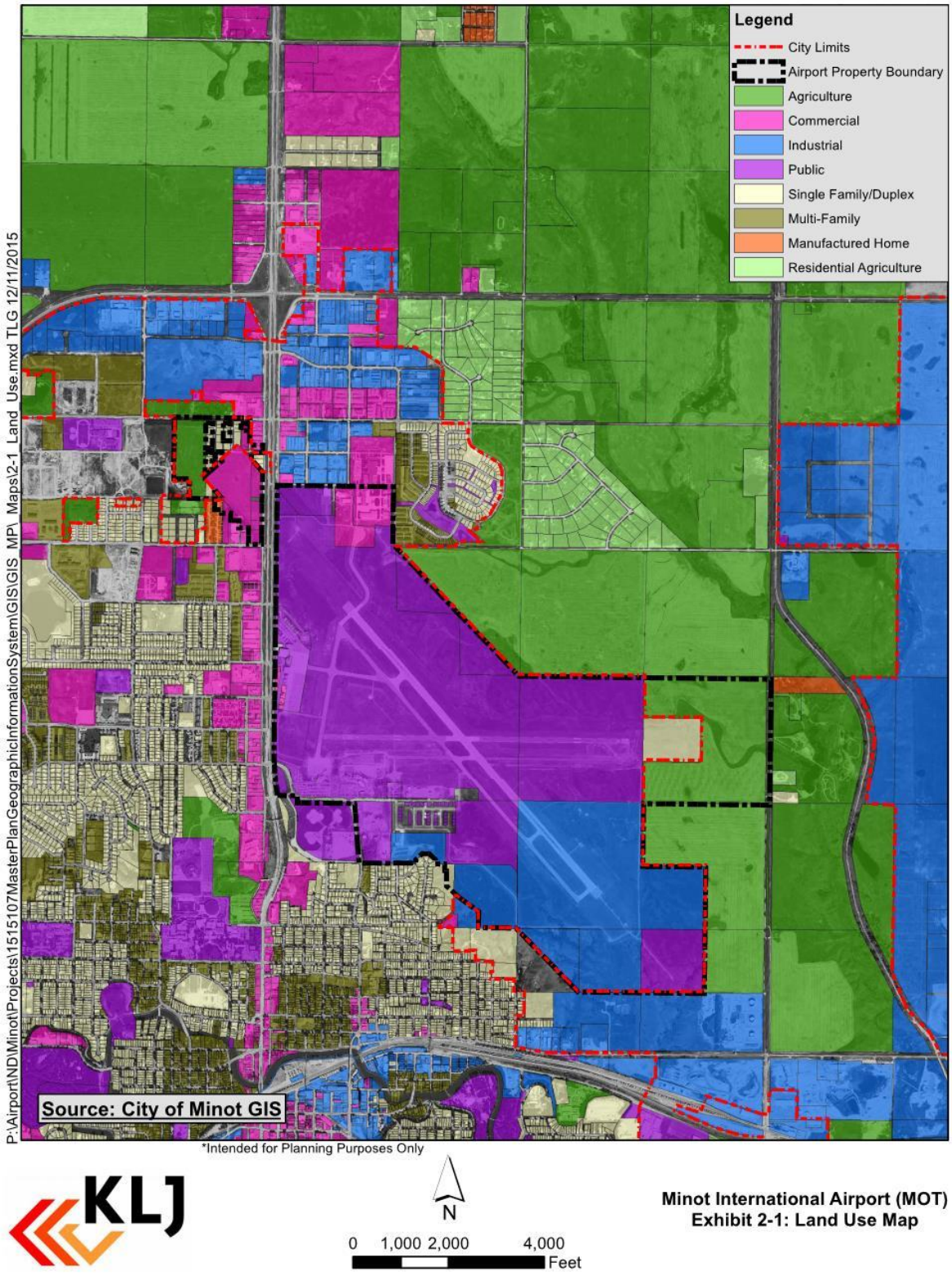
The airport is owned by the City of Minot and operated as a city department with an airport advisory committee providing input to the City Council. The airport is in the Minot city limits and is subject to city zoning and permitting. The airport receives Aircraft Rescue and Firefighting from the City of Minot. These services are paid for by the airport solely from airport funds.

Exhibit 1-1: Airport Location Map in Chapter 1 depicts the airport's location locally and regionally.

Setting

Minot International Airport is situated with commercial and retail development to the west, agricultural uses to the east and residential properties to the southwest and northeast. Terrain is generally flat around the airport. U.S. Highway 83 and established development to the west and southwest have restricted the airport's ability to grow on the west side. On the east side of the airport land is mostly vacant with just industrial to the southeast which allows potential for certain types of airport expansion to the east. The north side of the airport has limited expansion capabilities due to no current access except from the east and limited utilities. **Exhibit 2-1- Existing Surrounding Land Use** depicts the airport's local environment.

Exhibit 2-1 – Existing Surrounding Land Use



Climate

Minot has a humid continental climate with warm summers and no dry season. The prevailing winds in Minot are from the north and northwest, averaging 8 to 12 miles per hour throughout the year. The highest average temperature is in July at 81.5° Fahrenheit. The warm season in Minot lasts from mid-May to mid-September. The cold season for Minot lasts from late November until early March. January has the lowest average temperature at 3.5° Fahrenheit. Average annual precipitation is 17.2 inches.

Table 2-1 – Historic Average Weather Conditions

Month	Mean High Temperature	Mean Low Temperature	Precipitation (Inches)	Snow (Inches)
January	20.9	3.5	0.51	11
February	25.4	8.6	0.39	5
March	37.1	19.4	0.83	7
April	54.9	31.8	1.14	5
May	66.7	43.0	2.52	1
June	75.1	52.7	3.58	-
July	81.5	57.9	2.44	-
August	81.2	55.7	2.05	-
September	69.7	45.9	1.46	-
October	55.0	33.8	1.14	2
November	36.9	19.9	0.75	8
December	23.6	7.2	0.39	8

Source: National Weather Service

FAA design standards establish minimum wind coverage of 95 percent for specified levels of maximum crosswind components. The maximum allowable crosswind components increase with aircraft weight and approach speed and are associated with the designated Runway Design Code (RDC). Listed below are the maximum crosswind components for each possible RDC:

- 10.5 knots for RDC's A-I & B-I
- 13 knots for RDC's A-II & B-II
- 16 knots for RDC's A-III, B-III, C-I through C-III, and D-I through D-III
- 20 knots for RDC's A-IV through D-IV

The current all-weather combined wind coverage of all runways exceeds FAA minimum recommendations of 95 percent.

Table 2-2 – Wind Analysis

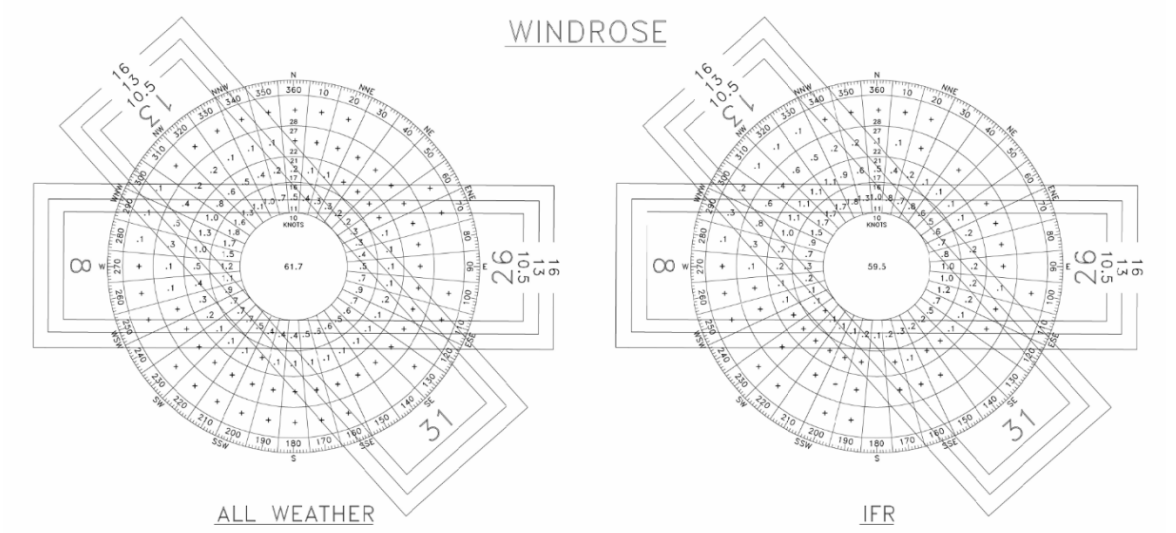
All-Weather Wind Coverage			
Runway	Crosswind Component (Wind Speed)		
	10.5 knots	13.0 knots	16.0 knots
Runway 13-31	87.03%	93.13%	97.85%
Runway 8-26	85.81%	92.09%	97.09%
Combined*	96.21%	98.62%	99.65%
IFR Wind Coverage			
Runway	Crosswind Component (Wind Speed)		
	10.5 knots	13.0 knots	16.0 knots
Runway 13-31	87.84%	93.67%	97.97%
Runway 8-26	79.81%	87.03%	93.63%
Combined*	94.90%	97.86%	99.34%

**Combined assumes up to maximum design aircraft crosswind component for each runway*

Source: National Climatic Data Center data from Minot International Airport (2005-2014)

The windrose below provides a graphic presentation of the wind data. The numbers included in each square around the circle is the percentage of total observations that wind conditions are within that heading and at that wind speed. For example in 'all-weather' conditions 61.7% of the time the winds are 10 knots and below and 1.6% of the time the winds are 11 to 16 knots with a heading of 310 degrees.

By placing a rectangle over the windrose that is aligned with the runway and is the width of the allowa ble crosswind component, the wind coverage for a runway can be computed by summing the percentag es that fall within the rectangle, to determine the percentage of time that a runway will provide wind coverage at a given speed.



Demographics

Minot has an estimated population of 46,398 as of July 1, 2013[1]. There are three Metropolitan Statistical Areas and five Micropolitan Statistical Areas (MiSA) located in North Dakota as defined by the Office of Management and Budget. Minot is the largest of the five Micropolitan Statistical Areas. With the exception of the Bakken petroleum exploration boom starting in 2010, the Minot region has experienced steady growth; population in Minot has increased at an average annual growth rate of 1.43 percent since 2000. This compares to a North Dakota statewide population growth rate of 0.83 percent.

As a result of oil exploration in western North Dakota, Minot and the region have recently experienced a large population surge and economic surge not captured through traditional growth measures.

Table 2-3 – Population Summary

Year	Minot	Minot MiSA*	North Dakota	United States
2000	36,567	67,392	642,200	281,421,906
2010	40,888	69,540	672,591	308,745,538
2013 (est.)	46,398	76,518	723,857	316,497,531
Annual Growth Rate	*1.43%*	*1.92%*	*0.83%*	*0.91%*

**Micropolitan Statistical Area includes Ward, McHenry and Renville counties*
Source: U.S. Census Bureau

[1] U.S. Census Bureau (2015)

Economy

The Minot area has an economy that has been historically driven by agriculture, Minot AFB, regional retail, regional medical, regional tourism and energy. The greatest historic presence in the Minot economy has been the Minot AFB. The base was originally opened in 1957 as an Air Defense Command base. The base is currently a component of the Air Force Global Strike Command headquartered at Barksdale AFB in Shreveport, Louisiana. Minot AFB houses the 5th Bomb Wing flying B-52s and the 91st Missile Wing. There are currently 12,107 employees (civilian and military) at the air force base. In addition, the city continues to serve as a regional trade center for the Minot MiSA and extending into Canada.

In recent years however the economic activity has been driven by Bakken oil exploration beginning in 2010 and rebuilding efforts from the June 2011 Souris River flood. Nearly 4,800 structures including 4,115 homes in Ward County were flooded and 11,000 people were evacuated as a result of the flood. These two recent events have strongly influenced the Minot economy and will continue for many more years to come. The unemployment rate within the Minot MiSA as of August 2015 was 2.8 percent as compared to the North Dakota statewide rate of 2.9 percent and the United States rate of 5.2 percent. The unemployment rate in Minot has historically been lower than statewide and national figures. Federal government, health care, retail, energy and financial trade sectors make up the majority of employers in the Minot area. These industries, and the growth in energy exploration, have contributed to significantly increased airport passenger activity since mid-2010.

Table 2-4 – Minot Major Employers

Employer Name	Industry	No. of Employees
Minot Air Force Base	Govt/Military	12,107
Trinity Health	Health Care	2,790
Minot Public Schools	Education	1,030
Minot State University	Education	453
City of Minot	Government	380
Cognizant	Technology	350
Marketplace Foods	Grocery	327
Minot Vocational Adjustment Workshop/Kalix	Vocational Services	309
Wal-Mart Supercenter	Grocery/Retail	290
MLT Vacations	Travel	243
Ward County	Government	227
SRT Communications	Telecommunications	205
Ryan Family Dealership	Automobile Sales	200
Menards	Hardware/Retail	190
Pumpco	Energy	173
Westlie Motors	Automobile Sales	170
Central Trenching	Construction	164
Cameron Oil	Energy	150
Colter Energy	Energy	140
First Western Bank	Banking	130
Enbridge	Energy	110
Weatherford International	Energy	110
FMC Technologies	Energy Equipment	80

Source: Minot Area Development Corporation (2015)

Table 2-5 – Minot Area Employment

Industries	Employees
Retail trade	5,669
Health Care and Social Assistance	4,760
Accommodation and Food Services	3,989
Educational Services	2,999
Construction	2,328
Wholesale trade	2,050
Mining, Quarrying, and Oil and Gas Extraction	2,024
Transportation and Warehousing	2,105
Public Administration	1,503
Finance and Insurance	1,399

Source: Job Service North Dakota (1st Quarter of 2015)

Table 2-6 – Oil & Gas Employment in Area North Dakota Counties

County	Total Private Employees	Oil & Gas Employees	% of Total Employees
Bottineau	2,053	524	25.5%
Burke	747	366	49.0%
Dunn	2,814	2,055	73.0%
McHenry*	903	45	4.9%
McLean	2,648	168	6.3%
McKenzie	7,958	5,661	71.1%
Mercer	4,402	314	7.1%
Mountrail	6,110	3,945	64.6%
Renville*	684	211	30.8%
Ward*	30,411	4,364	14.3%

**Counties in Minot Micropolitan Statistical Area*
Source: North Dakota Oil & Gas Employment Report, Job Service North Dakota (June 2014)

Per Capita Personal Income (PCPI) in 2014 for the Minot MiSA was estimated at $51,742 which is a little higher than the statewide average of $50,383 and significantly higher than the United States average of $44,927. Per Capita Real Disposable Income in North Dakota is significantly higher than the national average.

Table 2-7 – Demographic Summary

Demographic	Minot MiSA	North Dakota	United States
Unemployment Rate (August 2015)	2.8%	2.9%	5.2%
Per Capita Personal Income (2014)	$51,742	$50,383	$44,927
Per Capita Real Disposable Income (2014)	N/A	$48,999	$40,471

Source: Wood & Poole, Bureau of Labor Statistics, Bureau of Economic Analysis

Chapter 3 - Forecasts contains demographic and socioeconomic data, estimates, and forecasts.

Airport History

MOT was activated in 1940. A brief history of the airport and its tenants is included in **Appendix F - Airport Background**.

Airport Management

The City of Minot owns and operates Minot International Airport. A seven-member Airport Committee, including City Aldermen and at-large members, provides recommendations to the City Council related to airport operations, finances and planning. The board members are appointed by the mayor. The City Council through the City Manager and Airport Director are responsible for the general oversight of the

airport. The City Council approves contracts and the expenditure of funds needed to operate the airport. The airport management team consists of an Airport Director, Operations Manager, Operations Foreman and Facilities Foreman. Further information regarding airport governing and management structures is included in **Appendix F – Airport Background**.

Airport Role & Design

Minot International Airport provides scheduled passenger service, overnight cargo and complete general aviation services. It is a Port of Entry for arriving international aircraft. The airport serves north central North Dakota. The airport commonly draws commercial passengers from a catchment area within 125 miles. Competing commercial service airports include Bismarck Municipal Airport in Bismarck, North Dakota (110 miles south), Sloulin Field in Williston, North Dakota (125 miles west), Devils Lake Municipal Airport in Devils Lake, North Dakota (122 miles east), and Brandon Municipal Airport in Brandon, Manitoba Canada (168 miles north).

The airport is part of the National Plan of Integrated Airport Systems (NPIAS) as classified by the FAA. NPIAS airports are vital to the national air transportation system. According to FAA standards, the airport is classified as a non-hub primary commercial airport enplaning more than 10,000 enplanements but less than 0.05 percent of national total. **Appendix D – Airport Classification** contains more information on this topic with **Appendix E – Airport Funding** providing additional information about the federal funding programs available to airports. The airport is certificated under FAR Part 139 guidelines as a Class I airport to serve scheduled operations of large air carrier aircraft.

The state of North Dakota also has a plan called the North Dakota State Airport System Plan (NDSASP). The plan was recently updated in 2014. In this plan, Minot is identified as a Primary Commercial Service airport. **Appendix D – Airport Classification** contains more information on this topic.

Airports are designed to regularly accommodate aircraft up to certain wingspan, tail height, and approach speed parameters. The last Airport Master Plan prepared for Minot International Airport in 2012 has a FAA Airport Reference Code (ARC) of C-III for an Airbus A319. The taxiway design group (TDG) for these aircraft is TDG-3. Based on current flight activity, the ARC is D-III for an MD-83 which is a TDG-4. See **Appendix H – Airfield Design** for more details on FAA design classifications for existing and future activity.

Airport Activity

OVERALL

According to local airport traffic control tower counts, Minot International Airport had 30,966 annual takeoffs and landings in Federal fiscal year 2014. This breaks down to 35 percent commercial, 58 percent general aviation and 7 percent military. It is estimated 15 percent of the total airport operations occur when the Tower is closed. The airport enplaned 220,552 passengers in Federal fiscal year 2014. FAA calculates 35 percent of total enplanements are in air carrier airlines and 65 percent in commuter (or regional) airlines.

A complete breakdown and summary of existing and projected aviation activity is contained in **Chapter 3 – Forecasts**.

SCHEDULED PASSENGER AIRLINES

Minot International Airport is served by three (3) commercial air carriers and/or their regional subsidiaries; Allegiant, Delta and United. Scheduled direct flights are currently available to four (4) cities including hub airports where connections may be made to hundreds of destinations worldwide. Scheduled airlines currently serve the Minot International Airport with jet aircraft as large as 166 seats (MD-83). The airport served 220,552 passengers in federal fiscal year 2014. A complete flight schedule

and aircraft fleet mix from December 2014 and August 2015 can be found in **Appendix F – Airport Background.** See **Chapter 3 - Forecasts** for more detailed information on existing and projected scheduled air service activity. The schedule below details the peak month activity (July 2015).

Table 2-8 – Scheduled Airline Flights

Airline	Destination	Frequency	Aircraft Type (Frequency, Seats)
Allegiant Airlines	Las Vegas	1 to 2/week	A319, MD-83 (156 and 166 seats)
Allegiant Airlines	Phoenix/Mesa	1 to 2/week	A319, MD-83 (156 and 166 seats)
Delta Airlines	Minneapolis/St. Paul	5 to 6/day	CRJ200/E170/CRJ900/B717 (50, 69, 76 and 110 seats)
United Airlines	Denver	3 to 4/day	CRJ200/ERJ-145 (50 seats)

**Frequency changes on weekends*
Source: Minot International Airport

In addition to the scheduled airlines listed above, there are regularly scheduled charter flights contracted by oil companies 1-2 times a week from Minot to Houston Intercontinental Airport. These flights are flown with Embraer ERJ-145 aircraft. Some of these flights are operated through the airline terminal but the flights are not necessarily available to the public.

SCHEDULED CARGO CARRIERS

Two (2) cargo carriers have a presence at the Minot International Airport; FedEx (Corporate Air & Mountain Air) and UPS (Encore). FedEx feeder aircraft is the ATR-42 and Cessna 208 aircraft. UPS feeder aircraft include Fairchild Metroliner IV, and Cessna 404/402 twin engine aircraft. Other smaller on-demand cargo flights also operate for transporting bank checks, for example. There were a total of 2,700 air cargo flight operations performed in Minot in 2014. Details of the existing conditions and future for these activities are included in **Appendix I – General Aviation & Other Uses**, as well as in **Chapter 3 - Forecasts**.

ARMY NATIONAL GUARD

North Dakota Army National Guard (NDARNG) operates a facility located on the north side of the airport which is accessed from 34th Avenue NE. The mission of the NDARNG at the airport is the headquarters of the 164th Engineering Battalion. There is currently no aeronautical mission. The NDARNG facilities consists of three buildings located on airport property connected to a small apron (8,000 square yards). The NDARNG facility extends further north on to property adjacent to the airport. Details of the existing conditions and future for these activities are included in **Appendix I – General Aviation & Other Uses.**

GENERAL AVIATION

General Aviation (GA) comprises the remainder of the uses of the Minot International Airport. In general the airport is home to one Fixed-Base Operator (FBO), Minot Aero Center, and four Specialized Aviation Service Operators (SASO) - Pietsch Aircraft Restoration and Repair, Pioneer Agviation, Bessette Aviation and Aviation Services Inc. Other general aviation related tenants are Dakota Territory Air Museum, and U.S. Customs and Border Patrol. The FAA Technical Operations Office is also located in the General Aviation Terminal.

By the end of 2015 there were 117 based aircraft at the airport (104 single, 7 multi-engine, 5 jet and 1 helicopter). Nearly 18,000 operations are conducted by general aviation aircraft accounting for over

65% of total airport operations. Additional information on GA activities are included in **Appendix I - General Aviation & Other Uses.**

Existing Facilities

An inventory of Minot International Airport facilities was performed to establish a baseline for determining future facility requirements. As discussed in the following sections, airport facilities are grouped into three categories: airside facilities, airspace and navigation aids (NAVAIDs), and landside facilities.

Land

According to 2014 FAA records, the City of Minot owns approximately 1,482 acres of property in fee simple for the Minot International Airport. The current property map is included as a drawing in the Airport Layout Plan.

Airside Facilities

Airside facilities are those that are necessary for aircraft surface movement, such as runways, taxiways, aprons and associated lighting, marking and signage systems. A map depicting existing airport airside components is included in **Exhibit 2-2: Airside Facilities Map**. Information on design codes and critical aircraft will be addressed in **Chapter 4 - Facility Requirements** and is also contained in **Appendix H - Airfield Design.** Examples of Design Codes which are used to classify the capabilities of runways are portrayed in **Exhibit 2-2 Examples of Aircraft Design Codes**. Information related to pavement is contained in **Appendix G - Airfield Pavements**.

Exhibit 2-2 Examples of Aircraft Design Codes (ARC)

ARC A-I/Small Aircraft		ARC A-II/Small Aircraft	
Cessna 150 **Cessna 182** Piper Archer Piper Seneca		Cessna 208 **Pilatus PC-12** Aero Commander	
ARC B-I/Small Aircraft		**ARC B-II/Small Aircraft**	
Beech Baron 58 **Cessna 421** Beech King Air 100		Beech King Air 90 **Beech King Air 200**	
ARC B-II		**ARC B-III**	
Beech King Air 350 **Cessna Citation CJ2** Swearingen Metro III		**ATR-42**, ATR-72 Bombardier Q-400	
ARC C-I, C-II, D-II		**ARC C-III, D-III**	
CRJ-200/700 Cessna Citation X Embraer 145 Learjet 35		CRJ-900 Airbus A319/A320 Embraer 170/190 **Boeing MD-83**	
ARC C-IV, D-IV		**ARC D-V, D-IV**	
Airbus A300/A310 **Boeing 757**/767 C-130 Douglas DC-10		Boeing 747 Boeing 777 Airbus A340 **Airbus A380**	

Source: KLJ Analysis, Airliners.net

A detailed explanation of Runway Design Codes, Airport Reference Codes and the basis for their determination if found in **Appendix H – Airfield Design**.

RUNWAY 13-31

Runway 13-31, the longest runway at Minot International Airport, is 7,700 feet long and 150 feet wide. The runway is designed to meet FAA Runway Design Code (RDC) C-III design standards. The current critical design aircraft is an ARC D-III airplane representing the MD-83 operated by Allegiant Airlines. The runway pavement surface is concrete and grooved to promote drainage. The pavement is designed to accommodate regular use of up to 120,000 pound aircraft in a single-wheel main landing gear configuration, 150,000 pound aircraft in a dual-wheel main landing gear configuration and 240,000 pound aircraft in a dual tandem main landing gear wheel and strut configuration. The runway's Pavement Classification Number (PCN) is 43 R/D/W/T[2]. A 200 foot long blast pad is located beyond each runway end for jet blast erosion protection. Runway end 31 is designed to accommodate precision instrument approaches. The current navigational aids are listed in Table 2-9.

RUNWAY 8-26[3]

Runway 8-26 is the general aviation runway with dimensions of 6,351 feet long and 100 feet wide. The runway is designed to meet FAA Runway Design Code (RDC) B-II design standards, which is the current critical design aircraft. Because of its proximity to the passenger airline terminal Runway 8-26 larger commercial airplanes occasionally use this runway. The runway pavement surface is grooved asphalt. The pavement can accommodate up to 120,000 pound aircraft in a single-wheel configuration, 150,000 pound aircraft in a dual-wheel main landing gear configuration and 240,000 pound aircraft in a dual tandem main landing gear wheel and strut configuration. The runway's Pavement Classification Number is 34 F/D/W/T[4]. Both runway ends are designed for non-precision instrument approaches. The current navigational aids are listed in Table 2-9.

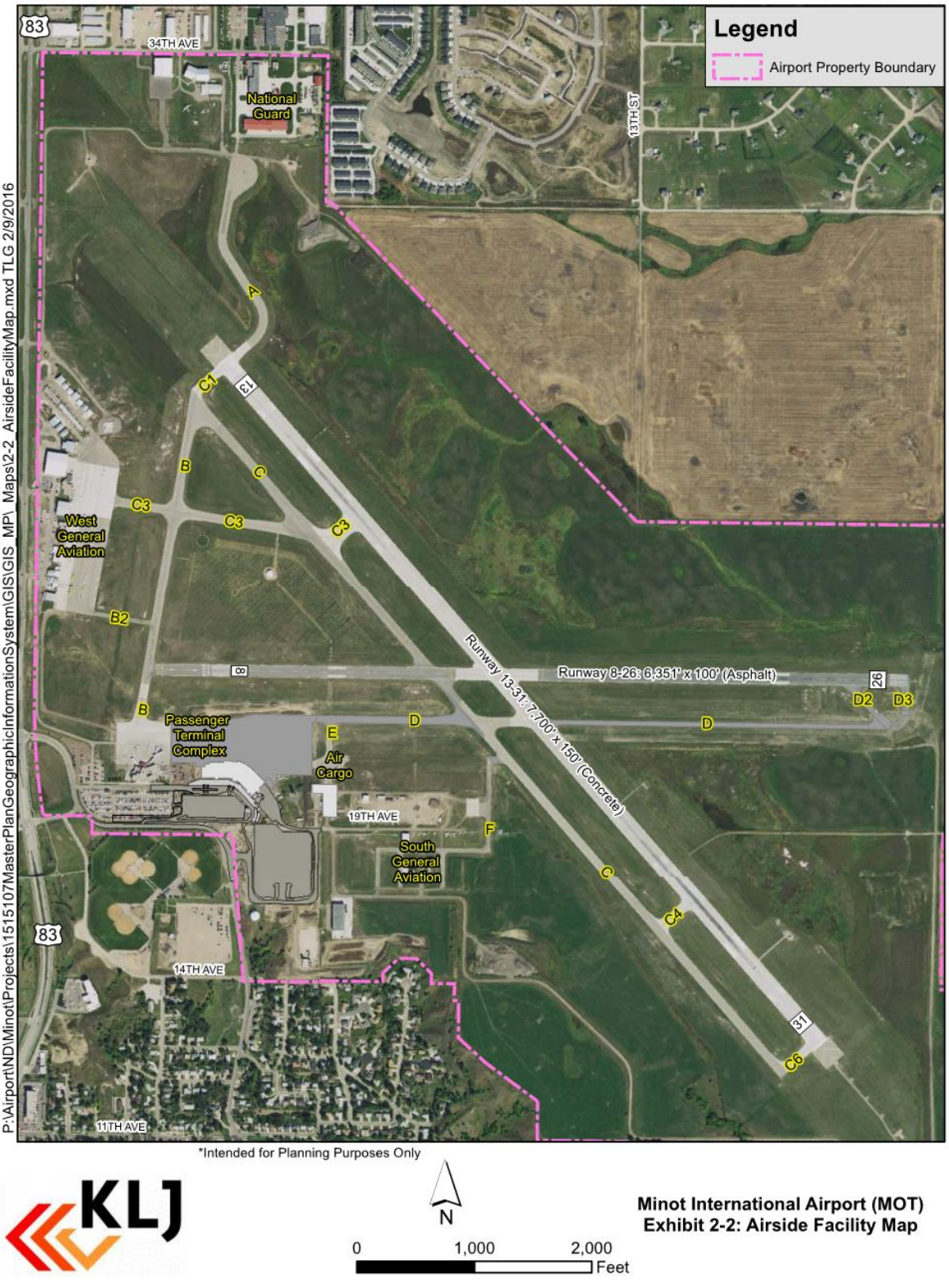
Table 2-9 – Runway Facility and NAVAID Summary

Component	Runway 13-31	Runway 8-26
Runway Length (feet)	7,700	6,351
Runway Width (feet)	150	100
Runway Surface Material	Concrete	Asphalt
Runway Surface Treatment	Grooved	Grooved
Runway Pavement Strength (lbs.)		
Single / Dual / Dual Tandem Wheel	120,000 / 150,000 / 240,000	120,000 / 150,000 / 240,000
Pavement Classification Number (PCN)	43/R/D/W/T[5]	34/F/D/W/T[6]
Pavement Markings	Precision	Non-Precision
Runway Lighting	HIRL	HIRL
Taxiway Lighting	HITL	HITL
Approach Lighting	MALSR (31) PAPI-4L (13)/ REIL (13)	PAPI-4L (8,26) REIL (8, 26)
Instrument Approach Procedures	ILS or LOC (31)/ RNAV (GPS) (13,31) VOR (13,31)/ LOC/DME (13)	RNAV (GPS) (8,26) VOR (8,26)
Meteorological Facilities	Automated Surface Observation System (ASOS); Runway Visual Range (RVR) – 31; Lighted Wind Cone with Segmented Circle	

Source: Airnav.com, FAA Airport Master Record Form 5010 Report, Airport Management records

[2] R=Rigid Pavement, D=Ultralow Subgrade Strength, W=No maximum tire pressure limit, T=Technical Evaluation
[3] The pavement strength and PCN information for Runway 8-26 listed in this chapter is what is currently reported in the Airport Master Record. There appear to be discrepancies between the information reported and the records available to KLJ. The pavement strength and PCN will be recalculated based on current information and then reported in later chapters and in **Appendix G - Airfield Pavements**.
[4] F=Flexible Pavement, D=Ultralow Subgrade Strength, W=No maximum tire pressure limit, T=Technical Evaluation
[5] The calculations are based on a mixture of aircraft (with Annual Departures) including: MD-83 (600), CRJ-200 (7,500), ERJ-170 (1,500), Cessna 208 (3,600), Fairchild Metro III (4,300), Cessna Citation V (1,100), Cessna 310 (1,900), and Hawker 800 (1,100).
[6] The calculations are based on a mixture of aircraft (with Annual Departures) including: CRJ-200 (150), Cessna 208 (350), and Fairchild Metro III (100).

Exhibit 2-2 – Airside Facilities Map



TAXIWAYS

Minot International Airport has a system of taxiways for the movement of aircraft from runways to other airport facilities including hangars, parking aprons and hangars. Taxiway locations are identified in **Exhibit 2-2**. The parallel taxiway for Runway 13-31 is Taxiway C with connectors C1, C3, D, C4 and C6. Taxiway C3 extends all the way to the General Aviation apron. The parallel taxiway for Runway 8-26 is Taxiway D with connectors B, C, D2 and D3. Taxiway D extends all the way to the Airline Terminal apron. Taxiway B is north-south parallel to the General Aviation apron and connects to Runway 8 and Runway 13 via C1. Taxiway A is on the north end of the airport and connects Runway 13 on its east side to the Army National Guard apron to the north. The overall critical design aircraft is a Taxiway Design Group (TDG) 4 airplane representing the MD-83 operated by Allegiant Airlines.

APRONS AND TAXILANES

There is one commercial service apron, one general aviation apron, one small apron adjacent to the North Dakota Army National Guard facilities and one apron used by FedEx for cargo activity at Minot International Airport. Locations are identified in **Exhibit 2-2**. Apron areas serve the loading, unloading and parking needs for commercial airlines, air cargo, general aviation and military operators.

The commercial service apron serves commercial aircraft around the terminal building located west of Runway 13-31 along Taxiway D. There are two entrance taxiways, B and D, providing access to all six gates at the terminal concourse. The apron for the previous terminal is approximately 17,300 square yards and the apron for the new terminal is approximately 50,000 square yards in size. These aprons are joined together as a continuous apron. Both areas are concrete surfaces with the pavement strength the same as the runways. Sufficient area is available for ground support vehicles to serve parked aircraft. There is limited parking designated for aircraft de-icing and irregular operations.

The general aviation apron runs parallel to Taxiway B and is approximately 57,000 square yards in size with concrete and asphalt surfaces. The general aviation apron is accessed by Taxiways C3 and B2. The National Guard apron is on the north side of the airport and is approximately 8,000 square yards in size and is accessible from Taxiway A north of the Runway 13 threshold. On the south side of the airport, adjacent to the commercial service apron, is the FedEx cargo apron. The apron is 4,500 square yards and is accessed by from Taxiway D to Taxiway E. The surface of the FedEx cargo apron is asphalt.

PAVEMENT CONDITION

Airport pavements are basic infrastructure components at airports. Airfield pavements should be maintained in a safe and operable condition for aircraft operations. Current pavement condition and calculated strength is summarized in **Table 2-8 Pavement Condition Index and Strength Summary** and further details about the airport's pavement can be found in **Appendix G - Airfield Pavements.**

Table 2-10 – Pavement Condition Index and Strength Summary

Component	Lowest Area PCI	Highest Area PCI	Pavement Strength (lbs.)	
			Single Wheel	Dual Wheel
Runway 13-31	87	91	120,000	150,000
Runway 8-26	71	96	120,000	150,000
Taxiway B	57	72	N.A.	N.A.
Taxiway C	72	100	N.A.	N.A.
Taxiway D	100*	100*	-	85,000
Old Airline Apron	63	65	-	170,000
New Airline Apron	100*	100*	-	250,000
General Aviation Apron	54	100	12,500 to 20,000	-
Cargo Apron	36	36	N.A.	N.A.

Source: North Dakota Aeronautics Commission Pavement Condition Assessment (2012); KLJ Analysis

*Constructed/Reconstructed Subsequent to 2012 PCI Study Navigation Aids & Airspace

Navigational aids (NAVAIDs) provide visual and electronic guidance to pilots enabling the airport to safely, efficiently and effectively accommodate arriving and departing flights. Detailed information about Minot International Airport NAVAIDS can be found in **Appendix K - Navigational Aids**. Airspace is a resource that is necessary to allow flights to safely operate and maneuver in the airport environment. Detailed information about the Airspace surrounding Minot International Airport can be found in **Appendix L - Airspace and Instrument Approaches**.

AIRSPACE CLASSIFICATION AND OBSTRUCTIONS

Minot International Airport airspace is adjacent to Minot Air Force Base airspace. The airspace is classified as Class D and Class E airspace. Approach/departure control for Minot International is operated as Minot Approach Control on frequency 119.6 MHz through Ellsworth Air Force Base in South Dakota which is currently open 24 hours a day. The Minot International Airport Air Traffic Control Tower is operated as a contract tower by Midwest Air Traffic Control. The tower operates daily from 7:00 am until 10:00 pm. When approach/departure control is open at the air force base and/or the Minot International tower is open, Class D airspace is in effect at Minot International. When both facilities are closed, Class E airspace is in effect at Minot International. When Minot Approach Control is closed, aircraft contact Minneapolis ARTCC through the Minot RCAG on 127.6 MHz. A Remote Communications Outlet (RCO) is available to talk to the Flight Service Station on 122.2 MHz. Appropriateness of which air traffic facility to contact is determined by which controlling facility is open and whether the aircraft is operating on visual flight rules or if the aircraft is on an instrument flight plan.

The airport currently has published airspace obstructions to Runway 8 approach surface. Detailed airspace and airspace obstruction information is included in **Appendix L – Instrument Procedures and Airspace.**

Surrounding Airports

Public use airports within 50 nautical miles of Minot International Airport were reviewed to provide background into the other area airports. Table 2-9 Surrounding Airports lists the regions airports and **Exhibit 2-3 - Surrounding Airports** has been prepared to provide the location of these airports.

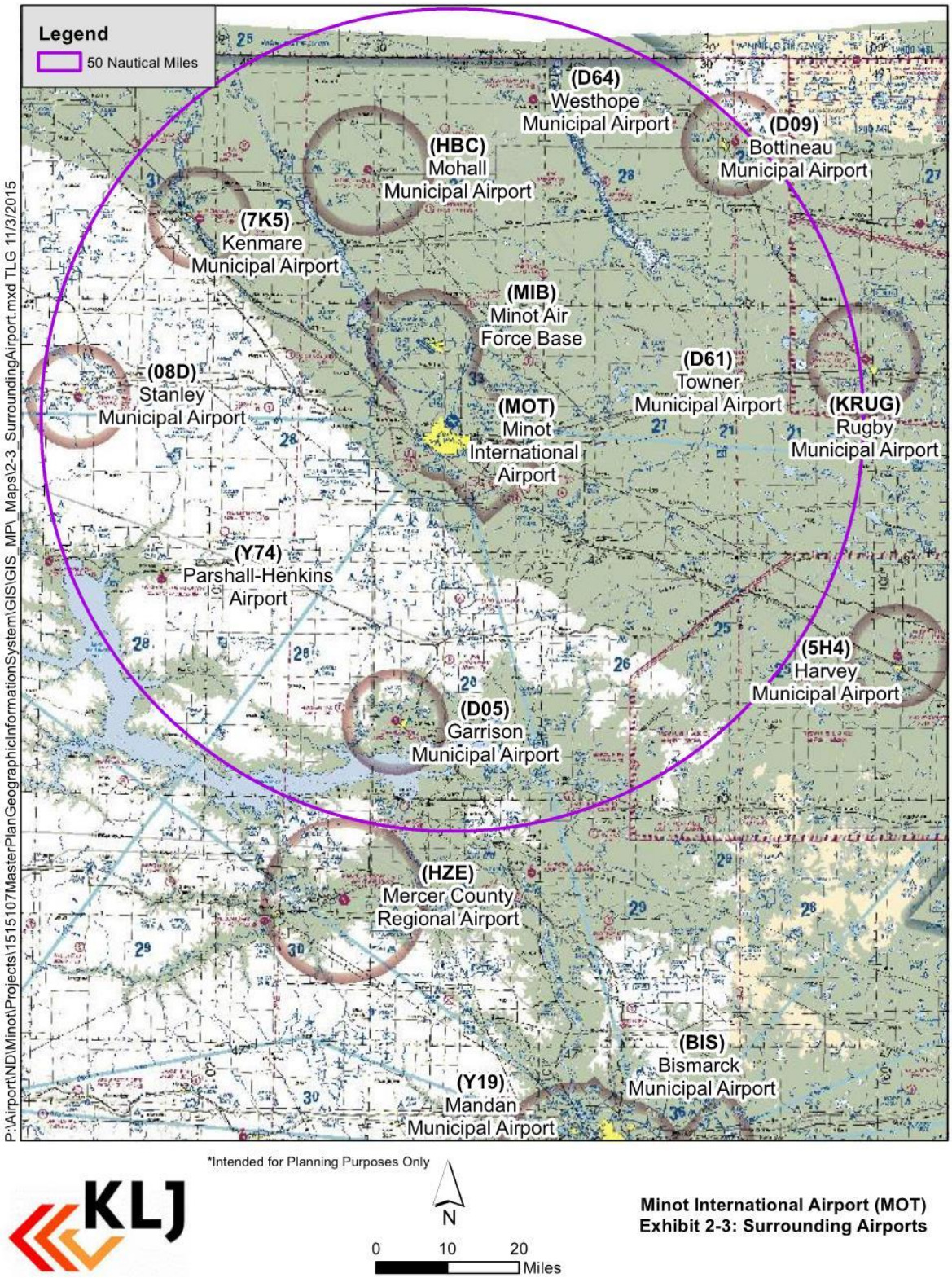
Table 2-11 – Surrounding Airports

Airport Name	FAA ID	Location from MOT	Based Aircraft	Instrument Approach	Longest Runway Dimensions
Minot International	***MOT***	**-**	***121***	**Yes/ILS**	***8,701' x 150'***
Minot AFB*	MIB	10 m NNW	na	Yes/ILS	13,197' x 300'
Mohall Municipal	HBC	33 m NNW	38	Yes/GPS	3,121' x 60'
Towner Municipal	D61	36 m E	4	No	3,080' x 150' turf
Garrison Municipal	D05	37 m S	15	Yes/GPS	3,699' x 60'
Kenmare Municipal	7K5	40 m NW	16	Yes/GPS	3,700' x 60'
Parshall-Hankins	Y74	40 m SW	9	No	3,211' x 60'
Westhope Municipal	D64	40 m N	10	No	3,000' x 60'
Stanley Municipal	08D	45 m W	22	Yes/GPS	3,900' x 60'
Bottineau Municipal	D09	48 m NE	17	Yes/GPS	3,700' x 60'
Rugby Municipal	RUG	51 m E	10	Yes/GPS	3,600' x 60'

*Source: FAA Airport Master Record Form 5010 Report and FAA Based Aircraft Database. Note: m = nautical miles; * not for Public Use*

Additional information regarding the FAA's classification system, the North Dakota State Aviation System Plan and airports in the region can be found in **Appendix D – Airport Classification.**

Exhibit 2-3 Surrounding Airports



Landside Facilities

Landside facilities consist of areas of the Minot International Airport necessary for the movement of passengers and automobiles, and parking and storage of aircraft. Examples of these facilities include the passenger terminal building, public parking lots, access roads, hangars and airport support facilities. A map depicting components of the landside facilities is shown on **Exhibit 2-4 - Landside Facilities Map**. The details of the different landside areas are included in several different appendices. These are:

- **Appendix I - General Aviation & Other Uses** – includes general aviation, military, air cargo and other uses.
- **Appendix J - Support Facilities** – includes Aircraft Rescue and Firefighting, Maintenance, Snow Removal, Fueling Facilities and similar items
- **Appendix T - Terminal Facilities** – includes airline terminal, public parking, car rental and similar facilities

PASSENGER TERMINAL COMPLEX

At the beginning of this master plan project the old terminal was still functioning and the new terminal was expected to open while the master plan was underway. For this master plan document, only the new terminal will be referenced as it relates to facilities for serving airline passengers. The passenger terminal complex is newly constructed and located on the southwest side of the airport and is accessed from U.S. Highway 83 by Airport Road. It is located south of Runway 8-26 along the west end of this crosswind runway.

Terminal Building

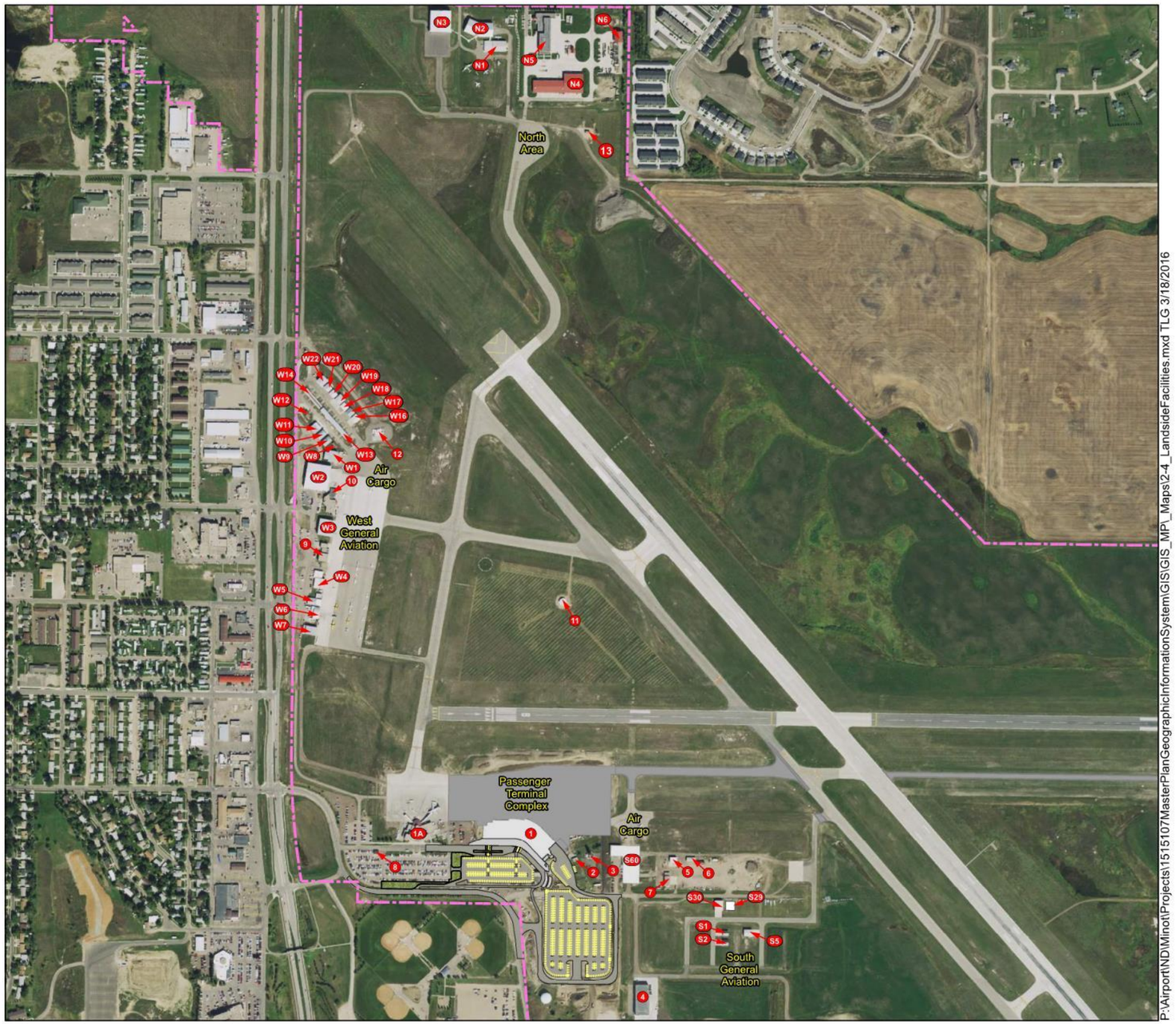
The terminal building serves multiple functions including general circulation, ticketing, passenger security screening, baggage screening, baggage claim, airport administration, concessions and restrooms. The terminal serves airlines and their regional affiliates; Allegiant Air, Delta Air Lines, and United Airlines.

The passenger terminal consists of a newly opened terminal building (opened in February 2016) that is approximately 125,000 square feet in size with two levels. The terminal was constructed with six aircraft gates but please note that gates 2, 3, 4 and 5 are the only ones presently equipped with passenger boarding bridges. The details of the Terminal Building are included in **Appendix T - Terminal Facilities.**

GENERAL AVIATION TERMINAL

In the general aviation area there is a 12,400 square foot terminal whose tenants are an FBO (Minot Aero Center), U.S. Customs and Border Patrol and FAA Technical Operations. The general aviation terminal is on the west side of the airport at the north end of the general aviation apron. The terminal is accessed directly from U.S. 83 and has been recently enhanced with a large adjoining hangar. The details of the services provided for general aviation are provided in **Appendix I - General Aviation & Other Uses**. The airport sees traffic inbound/outbound to and from the north as Minot serves the role of transcontinental fuel stop between Alaska and the lower 48 states.

Exhibit 2-4 – Landside Facilities



Legend

Airport Property Boundary

Existing Buildings/Facilities

1. Airline Terminal
1A. Old Airline Terminal
2. Electrical Vault
3. ATCT
4. SRE Building
5. Storage
6. Storage
7. Storage
8. Parking Booth
9. ARFF
10. GA Terminal/CBP
11. VOR
12. Fuel Farm
13. FAA Radio Antenna Farm
N1. Air Museum
N2. Air Museum
N3. Air Museum
N4. Army National Guard
N5. Army National Guard
N6. Army National Guard
S1. Private Hangar
S2. Private Hangar
S5. Private Hangar
S29. Private Hangar
S30. Private Hangar
S60. FedEx Building
W1. SASO Hangar
W2. FBO Hangar
W3. FBO Hangar
W4. SASO Hangar
W5. SASO Hangar
W6. SASO Hangar
W7. SASO Hangar
W8. T-Hangar
W9. Private Hangar
W10. Private Hangar
W11. Private Hangar
W12. T-Hangar
W13. T-Hangar Unit
W14. T-Hangar Unit
W16. Private Hangar
W17. Private Hangar
W18. Private Hangar
W19. Private Hangar
W20. Private Hangar
W21. Private Hangar
W22. Private Hangar

N

0 500 1,000 2,000 Feet

*Intended for Planning Purposes Only

KLJ

Minot International Airport (MOT)
Exhibit 2-4:
Landside Facilities Map

AIRCRAFT STORAGE

Minot International Airport has 121 reported civil aircraft based at the airport. Aircraft storage facilities consists of large conventional hangars (greater than 8,000 square feet), small conventional hangars (8,000 square feet or less), and T-hangars. There are two (2) large conventional hangars, twenty (20) small conventional hangars and a total of sixteen (16) t-hangar storage spaces. The primary aircraft storage area is north of the terminal area adjacent to U.S. Highway 83. Aircraft storage also exists between the terminal area and Runway 13-31. Aircraft storage facilities are detailed in **Appendix I – General Aviation & Other Uses**.

FUEL FACILITIES

Minot International Airport has a designated area for aviation fuel tanks. The existing fuel tanks include 100 low-lead (100LL) and Jet A fuel tanks owned by the Airport. Approximately 4,000,000 gallons of fuel are sold each year including 100LL and Jet A. Aircraft fueling is accomplished by mobile fuel trucks operated by the FBO; The airport currently does not have aircraft self-fueling facilities. Fuel for airport vehicles is located adjacent to the Airport Maintenance facility. Further details regarding the fueling capabilities at the airport are found in **Appendix J – Support Facilities**.

AIRPORT RESCUE & FIRE FIGHTING (ARFF)

The ARFF facility at Minot International Airport is located on the general aviation apron immediately south of Minot Aero Center on the west side of the airport.

The FAR Part 139 index determination for an airport is calculated based on the largest air carrier aircraft in passenger service that conducts an average of five or more daily operations. The Minot International Airport ARFF facility is required to maintain vehicles, chemicals, and response items in accordance with FAR 139 Index Group B. A complete vehicles inventory list and details about the airport's ARFF capabilities is included in **Appendix J – Support Facilities.**

AIRPORT MAINTENANCE

Minot International Airport's maintenance facilities are located in the south portion of the airport in one newly constructed building. The building is 21,500 square feet which includes equipment storage, maintenance, offices and materials storage. The airport staff conducts all maintenance at the airport including airfield, buildings, snow and ice control and custodial. The public parking lots are maintained by the airport's parking provider. Further details about the airport's maintenance buildings and equipment can be found in **Appendix J – Support Facilities**.

GROUND ACCESS, PARKING & CIRCULATION

Access is addressed in three different areas. These include access to and from the airport, access on publicly available roads on the airport, and access inside the airfield fence for maintenance and operations at the airport. Each of these areas are addressed with information and diagrams in A**ppendix J – Support Facilities.**

Land Use Compatibility

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. Incompatible land use is a large issue facing airports today, often resulting in conflicts between airports and communities. Typical airport land use compatibility elements include:

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

Airports have a responsibility to constantly work together with local governments to identify, control and prevent the creation of potential incompatibilities. As an example the airport conducts a Wildlife Hazard Assessment every few years to determine what hazards exist and whether current mitigation efforts are effective. This section is an introduction to this topic; a more comprehensive evaluation in relation to existing and planned airport development is prepared in **Appendix O - Land Use Compatibility**.

Existing Land Uses

The existing land uses within the airport environs is depicted on a map in **Exhibit 2-1.** Minot International Airport is surrounded by retail, commercial, residential and agricultural uses. There are no incompatible land uses near the airport with the exception of land uses within the Runway Protection Zone (RPZ) of Runway 8. The RPZ is a land use protection trapezoid extending from the end of each runway. The RPZ for Runway 8 extends approximately 650 feet west of Broadway between approximately 20th Avenue NW and 22nd Avenue NW, encompassing residential land uses. The Runway 8 RPZ will be examined further in **Chapter 4 – Facility Requirements** and information is also included in **Appendix H – Airfield Design**.

Airport Zoning

CITY OF MINOT

The City of Minot has the ability within the city limits, and to some extent within its extra-territorial jurisdiction, to control compatible land use around the airport. In the adopted Minot Zoning Ordinances there is a Chapter 18.1 - Airport Noise Buffer Area. This chapter addresses compatible land uses around the airport. Because the city has the ability to control land uses within the extra-territorial jurisdiction, it is not anticipated that the county would be asked to implement land use restrictions. There are no adopted zoning ordinances protecting airport airspace.

Conclusion

The information collected and documented in this Existing Conditions chapter provides a baseline foundation to update the Minot International Airport long range plan. This information will feed into future sections including developing aviation activity forecasts and determining how facilities will meet the projected airport needs.