CHAPTER ONE:

INVENTORY

1.1 Introduction

This Master Plan for the Missoula Montana Airport (MSO) was undertaken by the Missoula County Airport Authority to outline a long range, orderly direction for airport development which will yield a safe, efficient, economical, and environmentally acceptable air transportation facility. The study was funded jointly by the Federal Aviation Administration and the Missoula County Airport Authority (MCAA).

This study, an update of the last full Master Plan, completed in 2009, includes a review and revalidation of the information in the 2009 study.

This document is organized into eight chapters. This section provides an updated inventory of existing facilities, air traffic activity and background information on the airport and the Missoula Trade Area. The following seven chapters, as shown below, project future demand at the Airport, identify facility requirements, define development concepts, provide strategy for implementing the recommended improvements, analyze funding for the development program and identify environmental issues associated with the recommended development program. An update of the Airport Layout Plan is also included.

- Chapter 1: Inventory
- Chapter 2: Forecasts of Aviation Demand
- Chapter 3: Facility Requirements
- Chapter 4: Airport Improvement Alternatives
- Chapter 5: Recommended Master Plan Concept
- Chapter 6: Land Use
- Chapter 7: Financial Analysis
- Chapter 8: Environmental Overview

1.1.1 Goals and Objectives

The Master Plan provides a vision for the airport covering the next 20 years and beyond. With this vision, the sponsor will have advance notice of potential future airport funding needs so that appropriate steps can be taken to ensure that adequate funds are budgeted and planned. Efforts will also identify trigger points to drive development and prioritize improvement considerations.

Master Plan Goal

The goal of the Master Plan is to provide the community, public officials, and the Sponsor with proper guidance for future development to satisfy regional aviation demands and be wholly compatible with the environment.

Specific objectives of this Master Plan are:

- Develop a plan that preserves public and private investments
- Develop a plan that is reflective of community goals and objectives
- Develop a plan that maintains safety
- Develop a plan that preserves the environment
- Develop a plan that strengthens the economy

1.2 Airport Management

MSO is owned and operated by the Missoula County Airport Authority. The Authority was established in 1977 and is governed by a seven-member Board of Commissioners. Board members are appointed by the Missoula County Commission. The Missoula County Airport Authority Board and staff work with members of the community, air travelers, airport tenants, government agencies, and consultants to plan for the orderly development and operation of the airport and to keep it self-sustaining. The Airport Director is hired by the Board and is responsible for the day-to-day operation and management of the airport.

1.3 Airport History

Aviation in Missoula has a rich and colorful history. The story began on June 28, 1911 when Iowa pilot Eugene Ely flew his Curtiss biplane for 3,000 spectators from the baseball field at Fort Missoula. According to an article in the Missoulian the following day, "The aviator rose high above the field, now dipping above the heads of the crowd, now wheeling and turning easily against the stiff breeze," the reporter wrote. "The flight itself did not seem wonderful enough. The aviator handled the machine so easily that it seemed natural and simple."

The current location of Missoula Montana Airport is airport's third location. Missoula's first landing strip was established on land just south of the University of Montana in 1923, just twenty years after the Wright Brothers first flight.

According to the Missoula Montana Airport website, "In 1927 a group of men met at the Palace Hotel to discuss Missoula's future in aviation. Missoula, it was felt, needed an airport to succeed. City businessman Harry Bell was elected president of the Missoula chapter of the National Aeronautic Association. Their first act was to secure an airmail route to Butte & Salt Lake City. Walter Beck secured a 60-day option on 80 acres of land just east of the Missoula County Fairgrounds. The County officially purchased the 80 acres, along with an adjacent strip to construct an east/west runway. Total cost was $5,000. A northwest/southeast runway was later built."

In 1927, at the request of the Missoula chapter of the National Aeronautic Association, Missoula's first "true airport" was built on land purchased by the county near the Western Montana Fair Grounds on what is now Sentinel High School. According to the Missoula Montana Airport website, "In 1929, through additional financing secured by Harry Bell & state Senator John Campbell, Missoula's Garden City Airport now covered 225 acres." The earliest depiction which has been located of the original Missoula Airport was on the August 1935 Butte Sectional Chart. According to the airport's website, "In 1935 the Garden City Airport was officially named Hale Field, after county surveyor & civil engineer Dick Hale, who spent many hours at the airport as an aviation enthusiast." Hale Field was managed by the Missoula County Airport Board with funding provided by the County. Members were appointed by the County Commissioners.

"In 1949, Hale Field continued to grow. Located at the airport were a new & modern maintenance facility, 3 large hangars, 2 T-hangars, offices, a cafe, carpenter shop, a parachute loft, a classroom, and 32 aircraft." Aviation pioneers Bob and Dick Johnson and their iconic aircraft, including Ford Trimotors, were based at the field as were the first smokejumpers. After a major fire in 1954 destroyed a hangar and shops, Johnson Flying Service opted to relocate to the new Missoula County Airport, which had opened in 1941, instead of rebuilding at Hale Field. In that same year President Eisenhower attended the dedication of the USFS Smokejumper Center at the County Airport. Hale Field was subsequently closed. Some of the land was sold to Missoula Public Schools and is the site of today's Sentinel High School.

The Missoula County Airport opened on 1,300 acres west of Missoula, its current location, in 1941. Constructed with WPA funds authorized by President Franklin Roosevelt in 1938, and the cooperation of the US Forest service, who needed access to an airport, the airport opened with the longest runway in the region and a reserve of land for future growth. A new passenger Terminal was constructed in 1941

The first landing at the new Missoula airport was an unscheduled one on Saturday, October 25th, 1941, by a U.S. Army B-17 bomber. The aircraft was enroute to McChord Field, near Tacoma, Washington, but diverted to Missoula because of fog at its destination. After an overnight in Missoula the plane and its crew of 12 departed on Sunday. According to the Sunday, October 26th Missoulian, Missoulians were invited to come to the airport and drive their cars on four miles of new runways before the airport's opening. Northwest Airlines made the first official flight to Missoula on Tuesday, October 28th, 1941.

The 1941 Missoula County Airport had four runways, identified by number: Runway #1, Runway #2, etc. Runway #1 was the "main," running southeast to northwest. Runway #1 had a 200-foot paved strip down the center. The others had 150-foot central paved strips. As aircraft got faster and heavier over the years, the runways were lengthened and strengthened. Two of the four runways were ultimately abandoned, leaving Runway #1 (now Runway 12/30) and #3 (now Runway 8/26).

A new administration building at the Missoula County Airport went into service in June of 1950. In 1952, an equipment building, shop, parts room, and gas pumps were added. Other developments in the 1950s included a restaurant and lounge added in the administration building, an "automatic weather broadcast station," and runway improvements shown to be necessary when a DC-6 aircraft broke through the runway of insufficient strength. A 1956 air show was attended by 5,000 people. Johnson Flying Service was authorized by the Civil Aeronautics Authority (CAA) to conduct up to 10 round trip passenger/freight operations between cities each month. The CAA was superseded in 1958 by the Federal Aviation Administration (FAA), which then assumed all rulemaking authority.

The 1960s brought the commissioning of a new control tower at the Missoula Airport. The Forest Service agreed to provide a crash truck for an emergency response. An air traffic control tower began operating in 1961. The airport became the third busiest in Montana with 85 based private aircraft. A VOR aircraft navigation system was added. Following the Airport Board's approval of a revised master plan there were improvements to runways and taxiways. Frontier Airlines and Northwest Airlines provided service to Missoula. The Missoula Rural Fire District was authorized to build a station on airport land and in exchange for use of the site became a source of fire/rescue service. The airport's "main" Runway 11/29 was strengthened and lengthened to 9,500 feet. The airport was renamed Johnson-Bell field on Memorial Day in 1968 to honor Robert Johnson, a founder of Johnson Flying Service, and longtime Missoula aviation advocate H.O. Bell.

The following decade of the 70s saw continuing improvements at the airport. An Instrument Landing System (ILS) was installed to ensure safe aircraft landings at night and during bad weather. A Lockheed T-33 Shooting Star aircraft was put in place at the airport entrance. The trainer had evolved from the P-80 Shooting Star, the first jet fighter used operationally by the United States Army Air Forces (USAAF) during World War II. Three security officers became the first on duty at the airport. Three crash/fire trucks were also put into service.

The era of the pioneering, legendary Johnson Flying Service came to an end in 1975 when the Civil Aeronautics Board, with the approval of President Gerald Ford, authorized its sale to Evergreen Helicopters. Evergreen took over the JFS transportation routes and continued operating its facilities in Missoula. Evergreen was succeeded by Missoula's first fixed base operator, Minuteman Aviation. The Conrad, Montana company was founded by Jerry Mamuzich after years of contracting services for government agencies as well as providing local crop dusting. The name, Minuteman, was derived from the supply and transportation services the business provided for the government contractors building the first Minuteman intercontinental ballistic missile sites (ICBM) in the area around Great Falls. Jerry recognized an opportunity to grow the business and in 1978 he and his two sons, Mike and Mark, purchased Evergreen's facilities and established Minuteman Aviation at the Missoula airport.

The decade of the 80s began with the Missoula County Commissioners replacing the Missoula Airport Board with the Missoula Airport Authority. The change was requested by the Airport Board and approved by the Commissioners on a vote of 2-1. Airport Board members continued to serve

as Board members of the Authority. The change gave the Authority the ability to manage airport operations through fees and grants. Airport revenues were no longer provided by Missoula County taxes and airport operations decisions were free of political influence.

The following years brought more airline services to Missoula, accompanied by improvements in airport operations facilities, roadways, parking, and expansions of the passenger terminal. The airport's second FBO came to Missoula in 1991. Owner Mark Timmons, a pilot and former University of Montana track coach, had been operating the first charter jet service in Montana, Northstar. Timmons recognized a need for growth and his proposal to establish a second FBO at the airport was approved by the Airport Board. Facilities were constructed at their present location. The facilities Timmons had been using for his Northstar charter service were sold to Minuteman and became its maintenance facility.

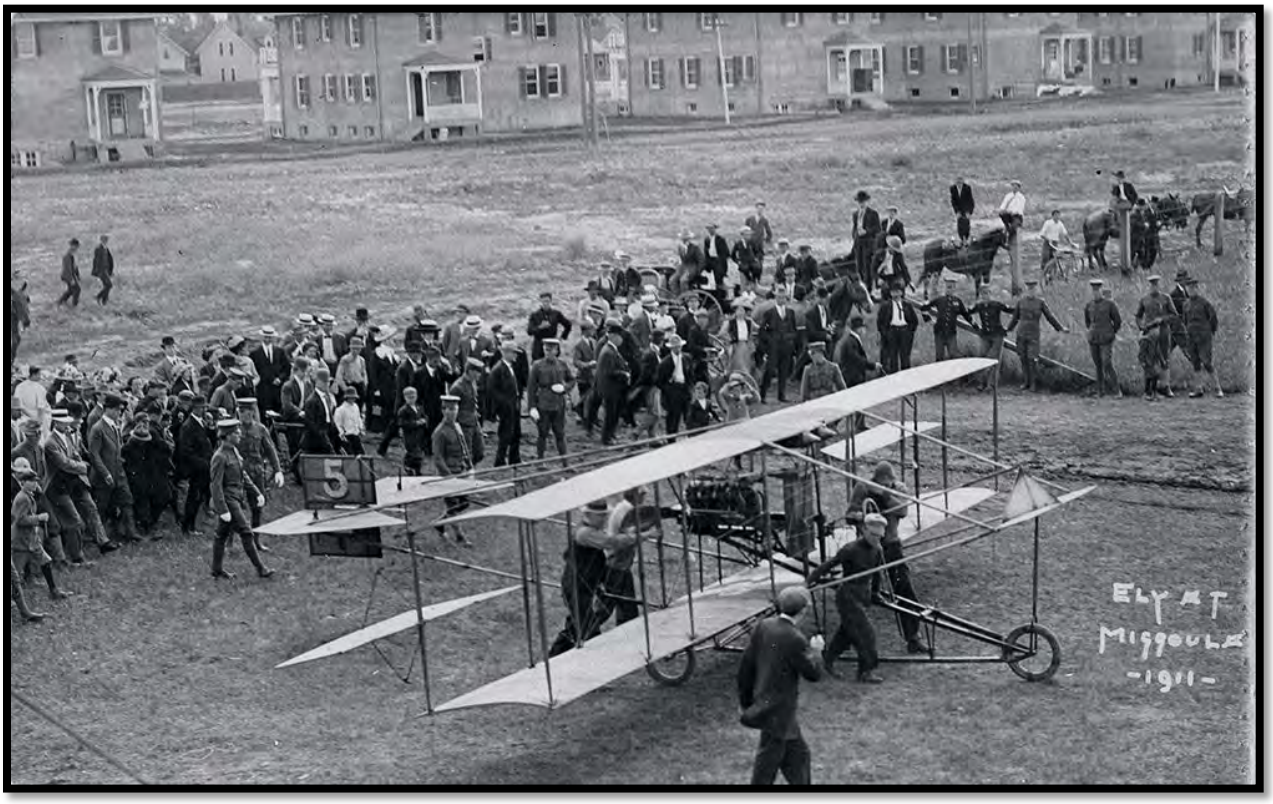
Neptune Aviation was Northstar's dynamic neighbor. Once named "Black Hills Aviation" the South Dakota based operation had been relocated to Almagordo, New Mexico, and flew B-17 and B-26 retardant aircraft. Mark Timmons purchased it in 1993 and soon moved it to Missoula, obtained P2V Neptune aircraft, and renamed the organization "Neptune." Today Neptune employs over 250 persons and flying BAe 146 jet aircraft. One of its retired P2V aircraft welcomes today's travelers to the entrance of the Missoula Montana Airport.

Stan Cohen, Delta pilot Dick Komberec, and journalist Steve Smith established the non-profit Museum of Mountain Flying and in 1994 first displayed aircraft in a hangar provided rent-free by Minuteman's Jerry Mamuzich. The Museum quickly outgrew available space and in 2002 was relocated to its own building constructed by Missoula aviation enthusiast Rick Nash. It is a major attraction at the airport, open seasonally to visitors. The Museum's iconic showpiece, the DC-3 aircraft now known as "Miss Montana," was the focus of an unequaled effort by literally hundreds of Museum volunteers. Their year-long work transformed the DC-3 from a static display into an airworthy aircraft. Culminating this remarkable success the Museum's pilots took the DC-3 on a transatlantic journey to participate in the 75th anniversary of D-Day, June 5, 2019

New airport growth opportunities were recognized in the Airport Master Plan conducted in 2009. Adoption of the plan was followed by construction of the first privately owned general aviation hangars at the airport. The 17 individual hangars in two buildings are individually owned and operate collectively as the Runway 25 Hangars Condominium Owners Association. Owners lease from the airport the ground on which the hangars are located. Numerous other developments have occurred on sites identified in the 2009 Master Plan. Northstar built a new hangar east of its existing hangar. The East LZ hangars were constructed to the southeast of Northstar, along with a large, new FedEx hangar. New GA hangars have been built south of the Minuteman FBO along Delta and Golf taxiways.

Construction of a new air traffic control tower began in 2010. The tallest in Montana, the tower became operational in March, 2013.

Missoula International Airport was officially renamed Missoula Montana Airport in September 2021. After several expansions, the first phase of a new terminal building came on-line in June of 2022. The new terminal is built to LEED standards incorporating electrochromic glass and a geothermal heating and cooling system. When completed, the second phase of the new terminal building will provide additional aircraft gates, a new, expanded baggage claim and a rental car center located in the terminal and an expanded passenger parking lot.



Eugene Ely and his Curtiss Headless Pusher at Fort Missoula - June 28, 1911
Source: University of Montana Mansfield Library Archives and Special Collections

Hale Field, 1945
Source: Abandoned & Little-Known Airfields:
Western Montana
http://www.airfields-freeman.com/MT/Airfields_MT_W.htm

Hale Field and Airplanes, 4-29-1947
Source: University of Montana Mansfield Library Archives and Special Collections

Hale Field, Missoula, Montana, 1950
Source: University of Montana Mansfield Library Archives and Special Collections

Ground breaking ceremony at the Missoula County Airport, 1940
Source: University of Montana Mansfield Library Archives and Special Collections

Missoula Airport Terminal, Circa 1960
Source: MSO GA News, Fall 2022

Missoula Airport, circa 1940

Four runways, numbered #1 - #4. This view is from the north, looking to the south. According to articles in the Missoulian all were paved. The longest, #1 is today's Rwy 12/30. The two that meet in a V at the north (at the current location of today's Operations and Maintenance Building) are gone. #3 is today's Rwy 8/26.

Airplanes on the tarmac at the Missoula airport, 1966
Source: University of Montana Mansfield Library Archives and Special Collections

Airport Board Commissioner Barbara Berens (Left), Airport Director Cris Jensen (middle), and Missoula County Commissioner Bill Carey toss out the first shovelfuls to begin the construction of the new control tower in July, 2010.

MSO Air Traffic Control Tower, 2013

MSO Terminal – 1941-2022

MSO Terminal – Opened June, 2022

1.4 Airport Setting

Figure 1-1: Location. Depicts the location of the airport in its regional setting. As shown, MSO is located in Missoula County in the western part of the state.

Missoula County, covers approximately 2,600 square miles. Five large valleys and three major rivers wind through this mountainous region. Missoula County has a population of approximately 117,922 people (2020 U.S. Census), making it Montana's third-most populous county. The county seat is the City of Missoula.

Missoula is a city of about 73,489 people (2020 U.S. Census). Known as "The Garden City", Missoula is the home of The University of Montana "Grizzlies". Professional and financial services, retail trade, health care and other professions have supplemented the older resource-based economy. The scenic beauty of its surroundings, with opportunities to ski, fish, golf, hike or simply enjoy the outdoors offers a high quality of life for residents and an attractive tourism destination.

MSO is the only commercial service airport in the county, and one of only 13 in the state. This makes the Airport an important factor in the county's economy. The airfield lies in the Missoula Valley, a geographic hub of five mountain valleys formed by the Bitterroot Mountains, Sapphire Range, Garnet Range, Rattlesnake Mountains, and Reservation Divide, approximately five miles

northwest of downtown Missoula as shown in **Figure 1-2**: Vicinity The airport is situated on 2,700 acres of sponsor owned property and lies at an elevation of 3205 feet above mean sea level (MSL).

Major highways providing access to the airport are Interstate 90, U.S. Highway 10/93, and Montana State Highway 200.

Figure 1-1: Location

Figure 1-2: Vicinity

1.5 Climate

Local weather conditions affect the daily operations of an airport and must be considered in planning future facilities. Most importantly, temperature and wind patterns must be considered in determining runway length and orientation requirements.

Missoula's climate is characterized by mildly warm summers, and winter months that are typically cold with occasional extremes of below zero temperatures. The fall and spring months are transition periods between the two extremes with variable weather conditions. Climate data taken from the Missoula Montana Airport Field climate station, spanning a period from 1948 to 2022 and accessible from the Western Regional Climate Center web site is shown in **Table 1-2**.

Table 1-1: Missoula Climate Data

Annual Average	
Annual Average Precipitation	13.66 in
Average Annual Snowfall	45.9 in
Summer Averages	
Average High Temperature in July	85.2 ºF
Average Low Temperature in July	50.6 ºF
Record High in July	107.0 ºF
Record Low in July	31.0 ºF
Average Precipitation in July	0.88 in
Winter Averages	
Average High Temperature in January	30.6 ºF
Average Low Temperature in January	15.6 ºF
Record High in January	59.0 ºF
Record Low in January	-33.0 ºF
Average Precipitation in January	1.11 in
Average Snowfall in January	11.7 in

Source: http://www.wrcc.dri.edu/

1.6 Airport System Planning Role

Airport system planning is an integrated process that occurs at a number of levels, local, regional, state and national. Local level airport planning is accomplished through the airport master plan process. Local planning data and recommendations are incorporated into regional and state planning. MSO is included in the Montana State Aviation System Plan (SASP), updated in 2015. MSO is classified in the SASP as a 'Primary Commercial Service Airport.

The National Plan of Integrated Airport Systems (NPIAS) is a federal planning document which defines the service level and role of all airports in the federal airport system. The FAA updates its NPIAS every other year. State system plans are used to develop NPIAS recommendations. The FAA draws money for eligible airport development projects from the Airport Improvement Program (AIP). AIP funding is derived from the Aviation Trust Fund; the source for this trust fund is a dedicated stream that is derived from taxes on the aviation fuel and commercial airline tickets. Airports must be included in the NPIAS for their projects to be eligible for AIP funding. While there are a variety of criteria that are considered for an airport to be included in the NPIAS, generally speaking, to be in the NPIAS, an airport must:

- Serve a community more than 30 miles from the closest NPIAS airport
- Have at least 10 based aircraft
- Have a willing public sponsor

MSO is categorized for current and future use in the 2023-2027 NPIAS as a Small Hub Primary Commercial Service Airport and meets all three criteria noted.

1.7 Airport Facilities

An essential element of the master planning process is identifying existing aviation facilities, noting the location of these facilities and analyzing the ability of these facilities to meet the airport's needs. The inventory of existing facilities at MSO was accomplished through physical inspection of the airport, discussion with airport staff, and review of existing airport layout drawings and related studies. An overview of the Airport layout is provided on **Figure 1-3.**

1.7.1 Airside Facilities

Airside facilities consist of runways, taxiways and apron areas along with associated markings, lighting systems and instrumentation. The airport reference point, which defines the midpoint of the airfield is located at latitude 46˚54'58.66" N and longitude 114˚05'26.01" W. The airport elevation, the highest point on the airfield pavement is 3205.20' above Mean Sea Level (MSL).

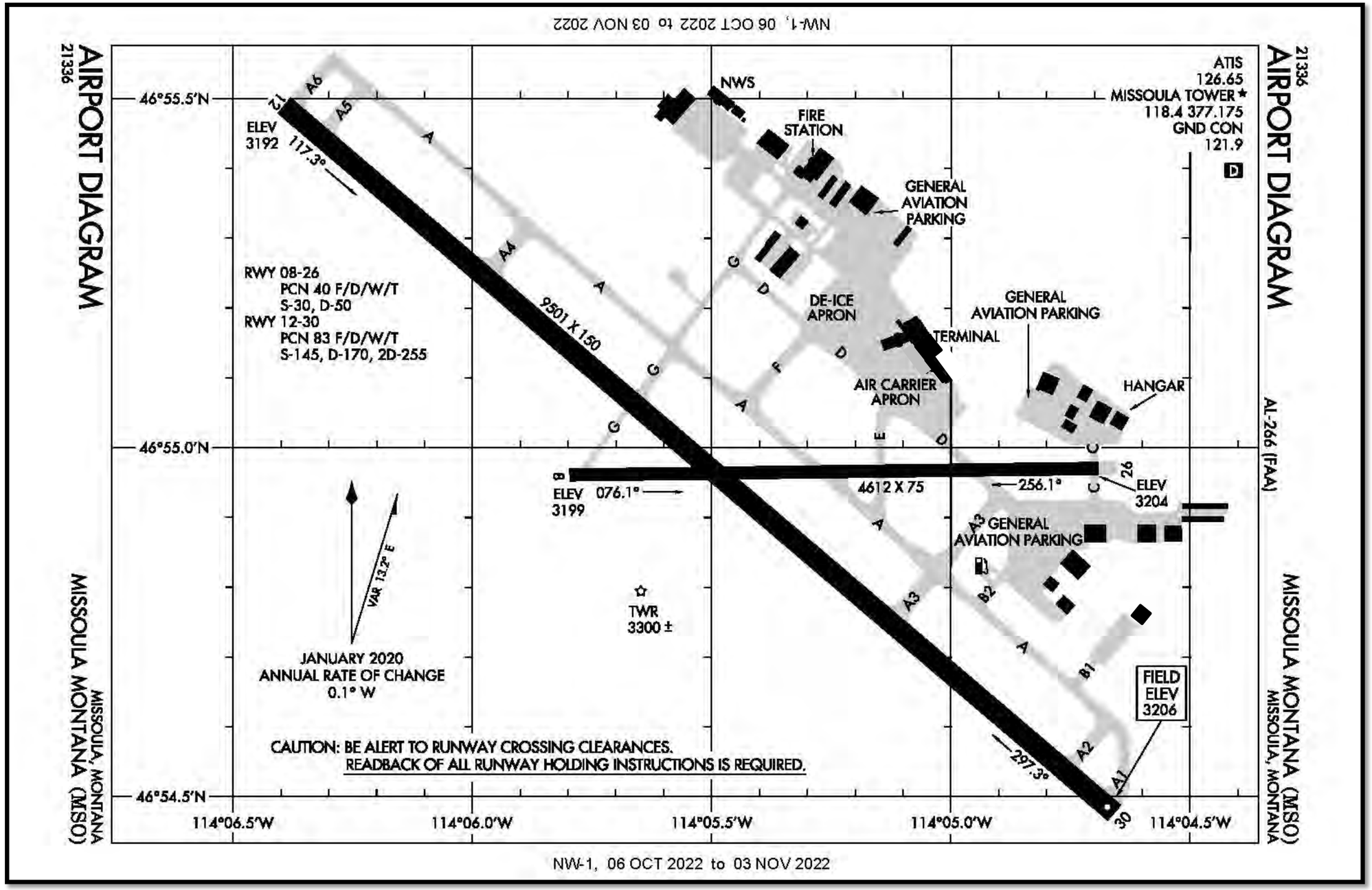


Figure 1-3: Airport Diagram

Source: FAA Airport Facility Directory

Runways

Newly rehabilitated Runway 12-30 in 2018

The existing runway configuration consists of two active runways, Runway 12-30 and 8-26.

Runway 12-30 is 9,501 by 150 feet with a grooved asphalt surface. It is designed to accommodate aircraft within the Runway Design Code (RDC) of C-III. This category includes aircraft with a wingspan of up to 118 feet and an approach speed of up to 141 knots. (RDC categories are discussed in detail in Chapter 3 Facility Requirements.) The runway elevation slopes up from 3192.0 feet above MSL at the Runway 12 end to a high point of 3205.2 feet above MSL at the Runway 30 end (a 0.05% effective gradient). The load bearing capacity of the runway is 145,000 pounds single wheel loading, 170,000 + pounds dual wheel loading, 255,000 pounds dual wheel tandem loading.

The Pavement Classification Rating (PCR) is an International Civil Aviation Organization standard used indicate the strength of a runway, taxiway or airport apron. The PCR is expressed as a five-part code, separated by forward slashes, describing the piece of pavement concerned. The first part is the PCR numerical value, indicating the load-carrying capacity of the pavement. The second part is a letter: either an R or an F, depending on whether the pavement itself is of a rigid (most typically concrete) or a flexible (most typically asphalt) design. The third part is another letter

from A to D expressing the strength of what is underneath the pavement section, known as the subgrade. The PCR for Runway 12-30 is 83 F/D/W/T.

Runway 12-30 is equipped with High Intensity Runway lights (HIRL). Runway 12 is marked as a precision instrument (PI) runway and Runway 30 is marked as a non-precision instrument (NPI) runway. Most recently, in 2018, the runway underwent a change in magnetic declination which resulted in the Runway headings changing from 11-29 to 12-30. At this time, the runway received new markings, a crack seal and fog seal surface treatment as part of its ongoing maintenance program.

Published approaches to Runway 12 and Runway 30 are discussed in Section 1.13 *Airspace*.

Runway 8-26 is 4,612 by 75 feet with a grooved asphalt surface. It is designed to accommodate aircraft within the Runway Design Code (RDC) of B-I. This category includes aircraft with a wingspan of up to 49 feet and an approach speed of up to 121 knots. Runway 8-26 crosses Runway 12-30 diagonally and serves as a crosswind runway for general aviation aircraft. The runway elevation slopes down from 3198.9 feet above MSL at the Runway 8 end to a low point at 31.97.6 feet, then up to 3203.8 feet above MSL at the Runway 26 end (a 0.11% effective gradient). The load bearing capacity of the runway is 30,000 pounds single wheel loading and 50,000 pounds dual wheel loading. The PCN for Runway 8-26 is 40/F/D/W/T. Runway 8-26 is equipped with Medium Intensity Runway lights (MIRL) and is marked as a basic runway. There are currently no published approaches to Runway 8 or Runway 26.

Overall view of Runways and Taxiways

Table 1-3 provides an overview of runway characteristics at MSO.

Table 1-2 : Runway Characteristics

Runway Data	12-30		8-26	
Length (feet)	9,501		4,612	
Width (feet)	150		75	
Pavement Type	Asphalt (Grooved)		Asphalt (Grooved)	
Pavement Strength (lbs.)				
Single Wheel	145,000		30,000	
Dual Wheel	170,000+		50,000	
Dual Wheel Tandem	255,500			
Pavement Classification Number (PCN)	83 F/D/W/T		40/F/D/W/T	
Marking	PI		Basic	
	RW 12	RW 30	RW 8	RW 23
Lighting				
Runway	HIRL	HIRL	MIRL	MIRL
Runway end/approach	MALSR	REIL	None	None
Centerline	None	None	None	None
Touchdown Zone	None	None	None	None
Approach Aids				
Visual	PAPI-4	PAPI-4		
Electronic	MALSR VOR/DME ILS	VOR/DME		
Approach Visibility Minimums (Lowest)	2400 Ft	1 Mi	Visual	Visual
FAR Part 77 Category	PIR	NPI	Visual Utility	Visual Utility
FAR Part 77 Approach Slope	50:1	34:1	20:1	20:1

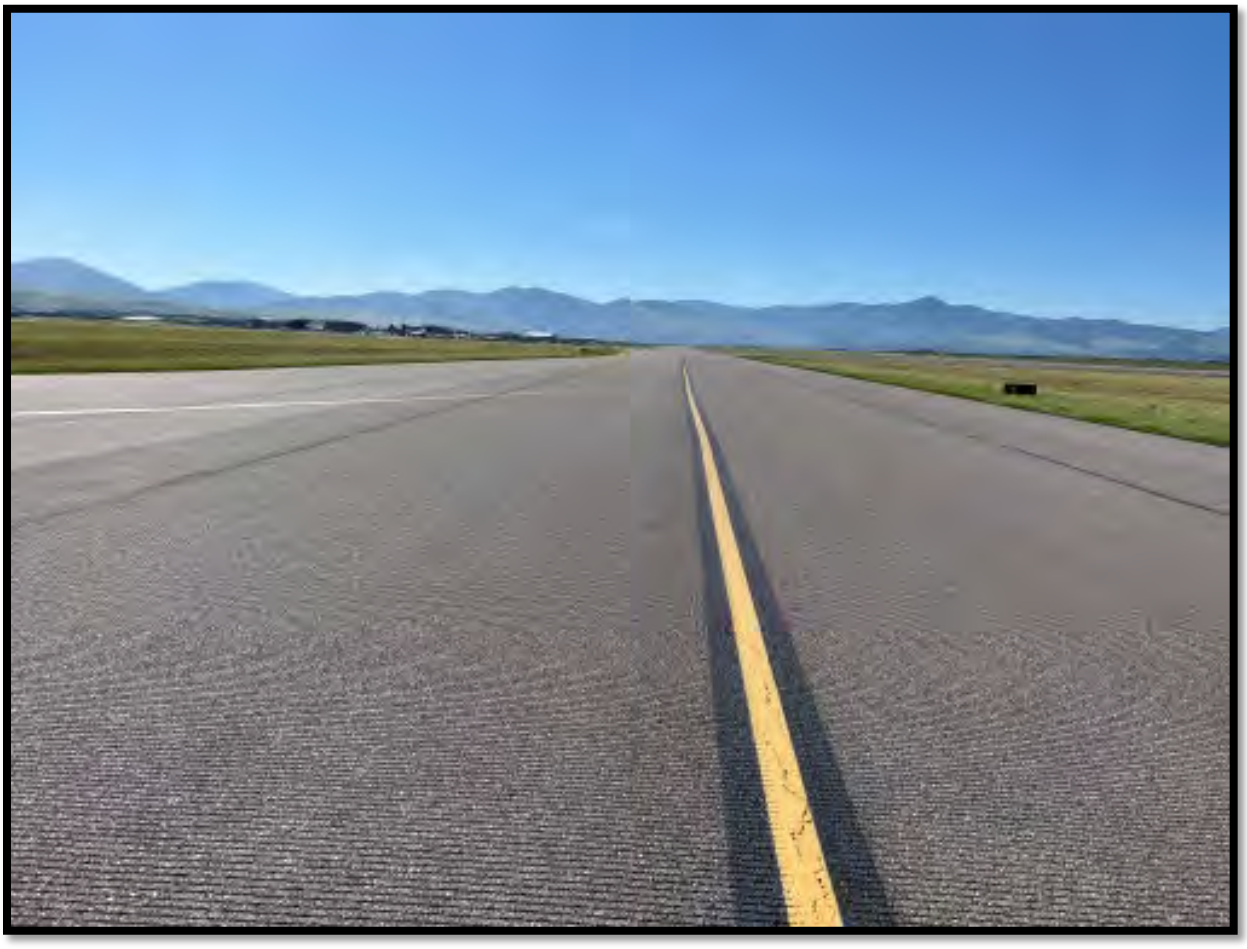
PI = Precision Instrument
REIL = Runway End Identifier Lights
PAPI = Precision Approach Path Indicator
MIRL = Medium Intensity Runway Lights
NPI = Non-precision Instrument
HIRL= High Intensity Runway Lights

Taxiways

As shown on **Figure 1-3** the taxiway system at the airport is comprised of parallel taxiway system aligned with primary Runway 12-30 together with connecting taxiways.

Taxiway A is a full-length parallel taxiway to Runway 12-30 with a centerline-to-centerline spacing of 600 feet from the runway. Taxiway A is 75 feet wide with connecting taxiways A1, A2, A3, A4, A5, A6, and Taxiway G of varying widths. Taxiways B1, B2, A3, D, E, F and G connect the terminal area and general aviation development areas to Taxiway A. Crosswind Runway 8-26 does not have a parallel taxiway, but connects to the terminal area and general aviation areas via taxiways C, D, E and G. Taxiways are constructed of asphalt pavement, have centerline, lead-in lines and aircraft holdlines, and are marked with blue LED Medium Intensity Taxiway Lights (MITL).

The characteristics of the taxiway system is described in **Table 1-4.**



Parallel Taxiway A

Apron Areas

As shown on **Figure 1-4**, MSO has four separate aprons for commercial activity and general aviation.

The commercial apron from the southwest terminal facade and provides seven commercial aircraft parking positions for seven terminal passenger boarding gates (one gate serves two positions) and one ground loading positions. The terminal apron is approximately 96,500 square yards and is constructed of Portland Cement Concrete. A dedicated concrete deicing apron with positions for four aircraft is located at the northwest edge of the commercial apron.

MSO Commercial Apron

Three general aviation aprons serve the airport's two Fixed Base Operators.

Minuteman has two apron areas, one directly west and one directly east of the passenger terminal. Minuteman's west apron has tie-down locations for 18 small, fixed-wing aircraft. The apron is approximately 19,500 square yards including movement areas.

Minuteman – West Apron

Minuteman's east apron has tie-down locations for 20 small fixed-wing aircraft. The apron is approximately 39,500 square yards including movement areas.

The Northstar apron is located southeast of the threshold to Runway 26. It has tie-down locations for 17 small and 7 large fixed-wing aircraft and three concrete helipads. The tie down apron has 664,650 square feet of space available for parking aircraft. At the west end of this tie-down apron is a self-fueling station. The self-fueling station provides AvGas and is operated by Northstar.

Individual aircraft parking aprons at MSO are shown on **Figures 1-5**, **1-6**, **1-7** and **1-8**, and described in **Table 1-5.**

Table 1-3: Taxiway & Taxilane Characteristics

Taxiway	Width (in feet)	Design Group (ADG/TDG)	Surface	Single Wheel (lbs)	Dual Wheel (Lbs)	Dual Tandem (lbs)
A	75	IV / 5	Asphalt	95,000	200,000	225,000
A1, A2	100	IV / 5	Asphalt	95,000	200,000	225,000
A3	75-130	IV / 5	Asphalt	95,000	250,000	400,000
A4	130	IV / 5	Asphalt	95,000	95,000	125,000
A5, A6	100	IV / 5	Asphalt	95,000	200,000	225,000
B1	53-66	III / 4	Asphalt	95,000	200,000	260,000
B2	60	III / 4	Asphalt	95,000	115,000	165,000
C	50	IV / 4	Asphalt	95,000	125,000	180,000
D	75	IV / 5	Asphalt	55,000	65,000	100,000
E	75	IV / 5	Asphalt	95,000	250,000	500,000
F	75	IV / 5	Asphalt	95,000	200,000	260,000
G	40-75	IV / 4	Asphalt	80,000	95,000	130,000

*Note: Taxiways are comprised of multiple sections. The weight values shown are of the smallest value. Refer to the 2017 PCI survey for further information.

Table 1-4: Apron Areas

Description	Width	Length	Surface	Single Wheel (lbs)	Dual Wheel (lbs)	Dual Tandem (lbs)
Commercial	600	1725	Concrete	95,000	200,000	300,000
Commercial Apron Area = 868,500 Square Feet / 96,500 Square Yards						
Northstar/Neptune	650	1,040	Asphalt	95,000	140,000	180,000
Northstar/Neptune Apron Area = 664,650 Square Feet / 73,850 Square Yards						
Minuteman – West	670	620	Asphalt	30,000	32,500	-
Minuteman - East	360	515	Asphalt	40,000	45,000	-
Minuteman Apron Area = 531,000 Square Feet / 59,000 Square Yards						

*Note: Aprons are comprised of multiple sections. The weight values shown are of the smallest value. Refer to the 2017 PCI survey for further information.

Figure 1-4: Overall Apron Areas

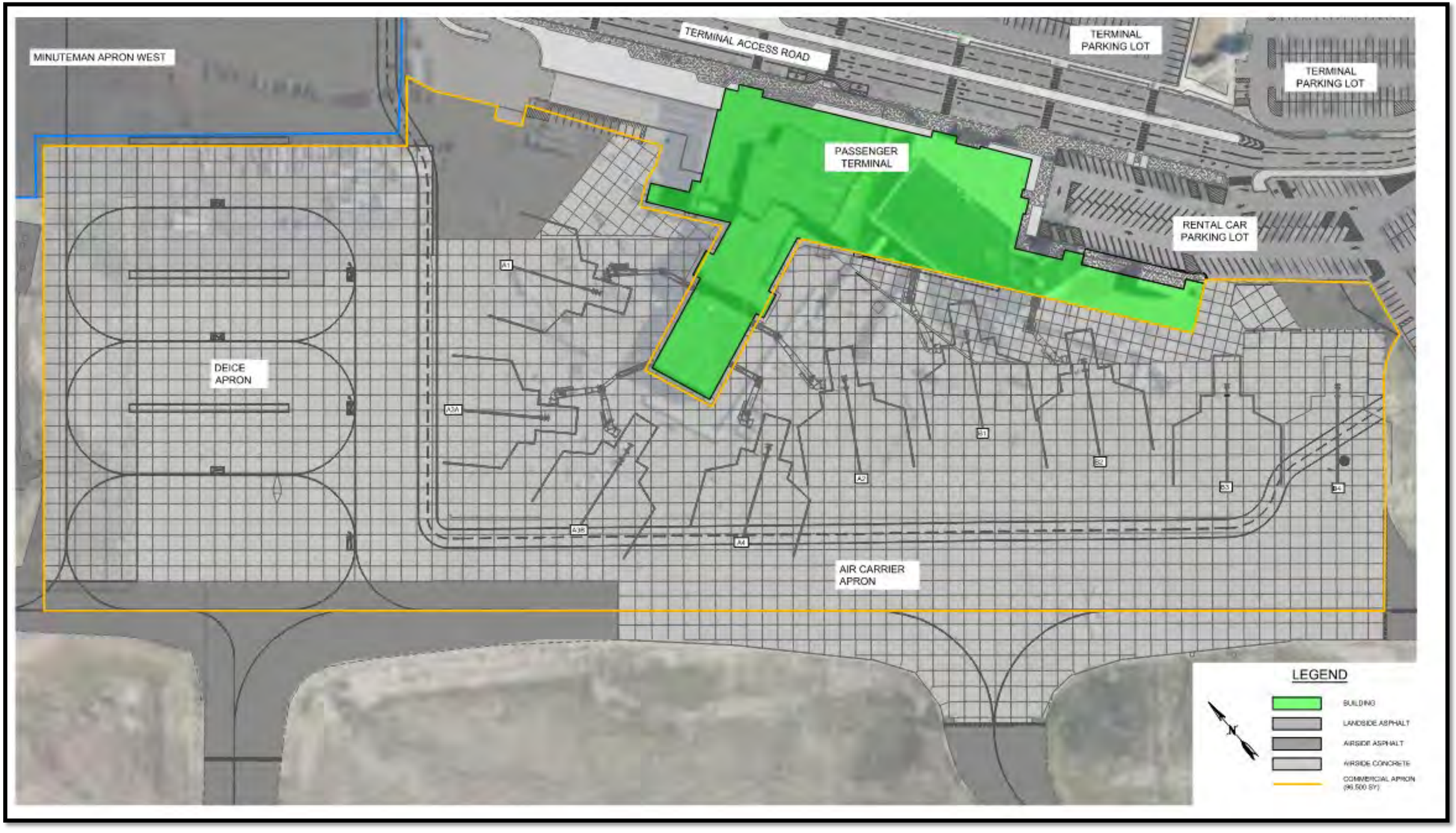


Figure 1-5: Commercial Apron

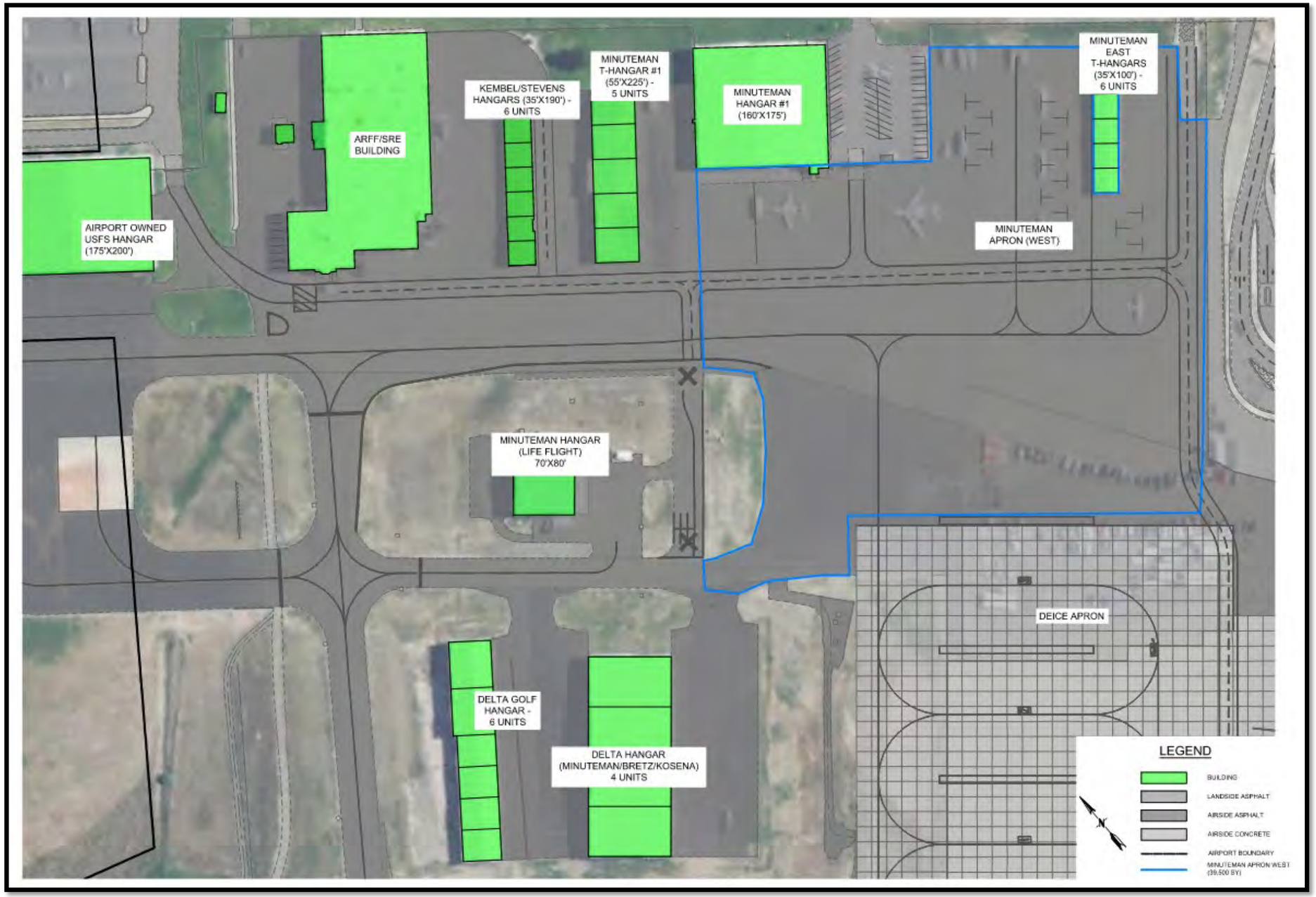


Figure 1-6: Minuteman Apron (West)

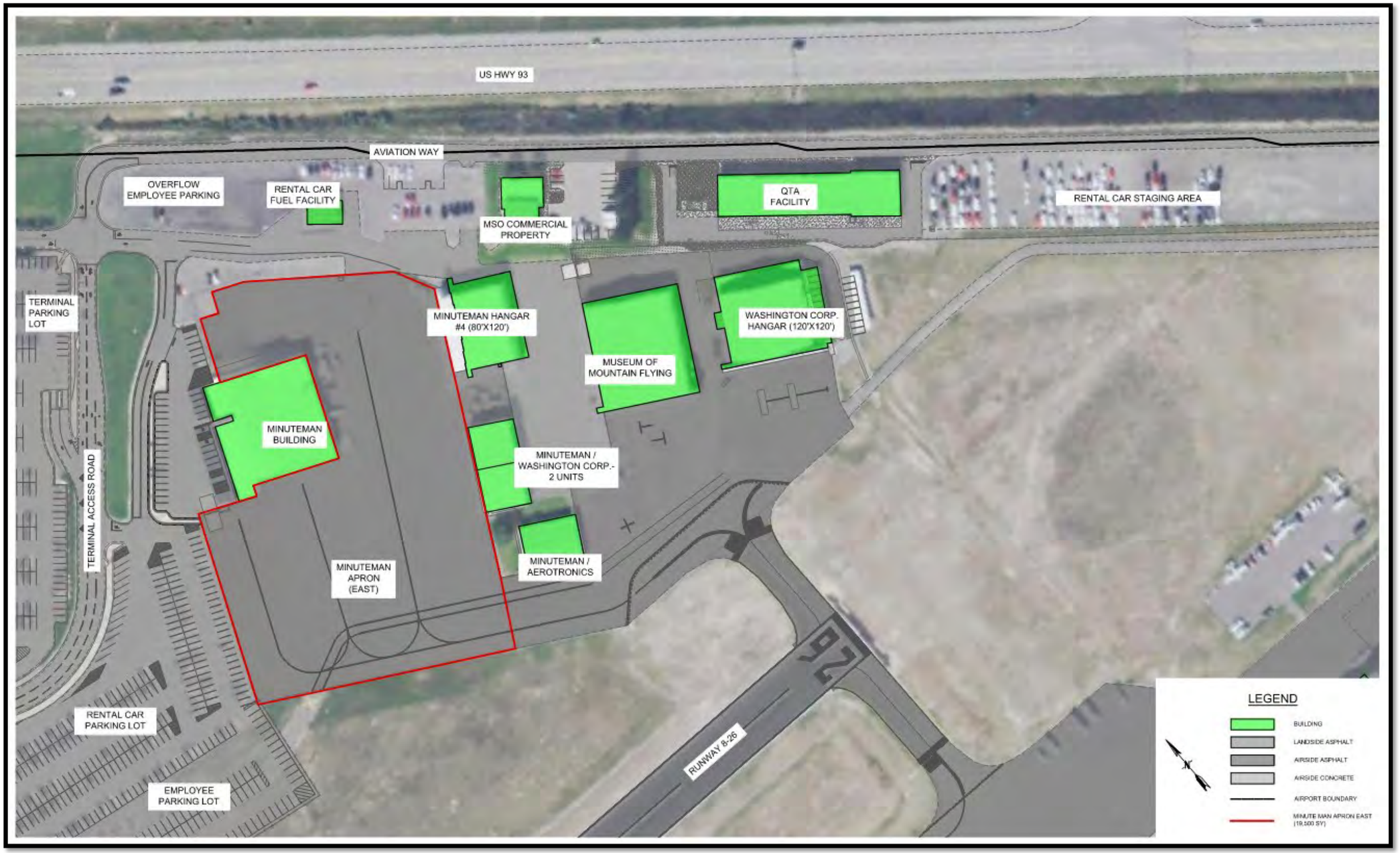


Figure 1-7: Minuteman Apron (East)

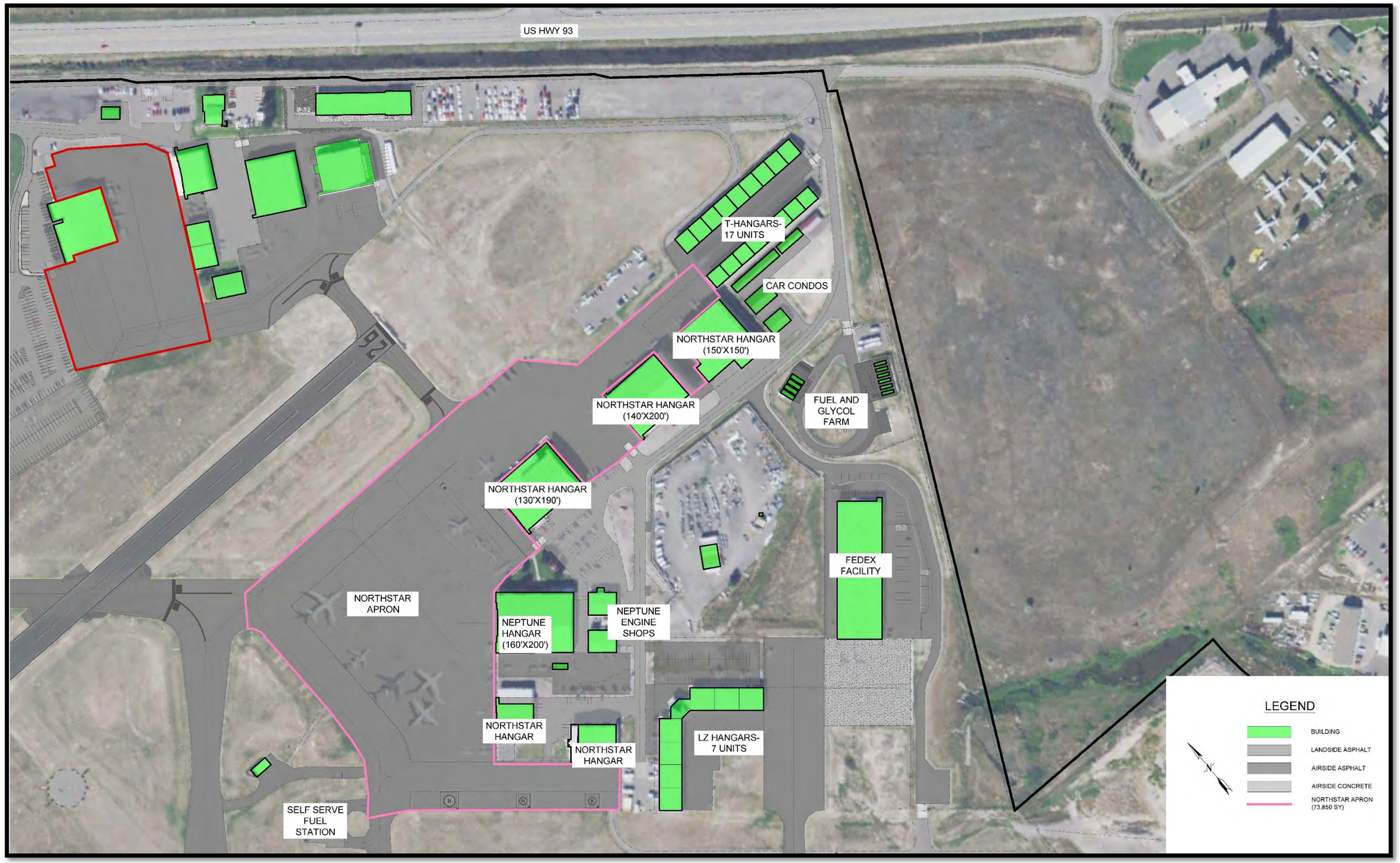


Figure 1-8: Northstar Apron

1.8 Landside Facilities

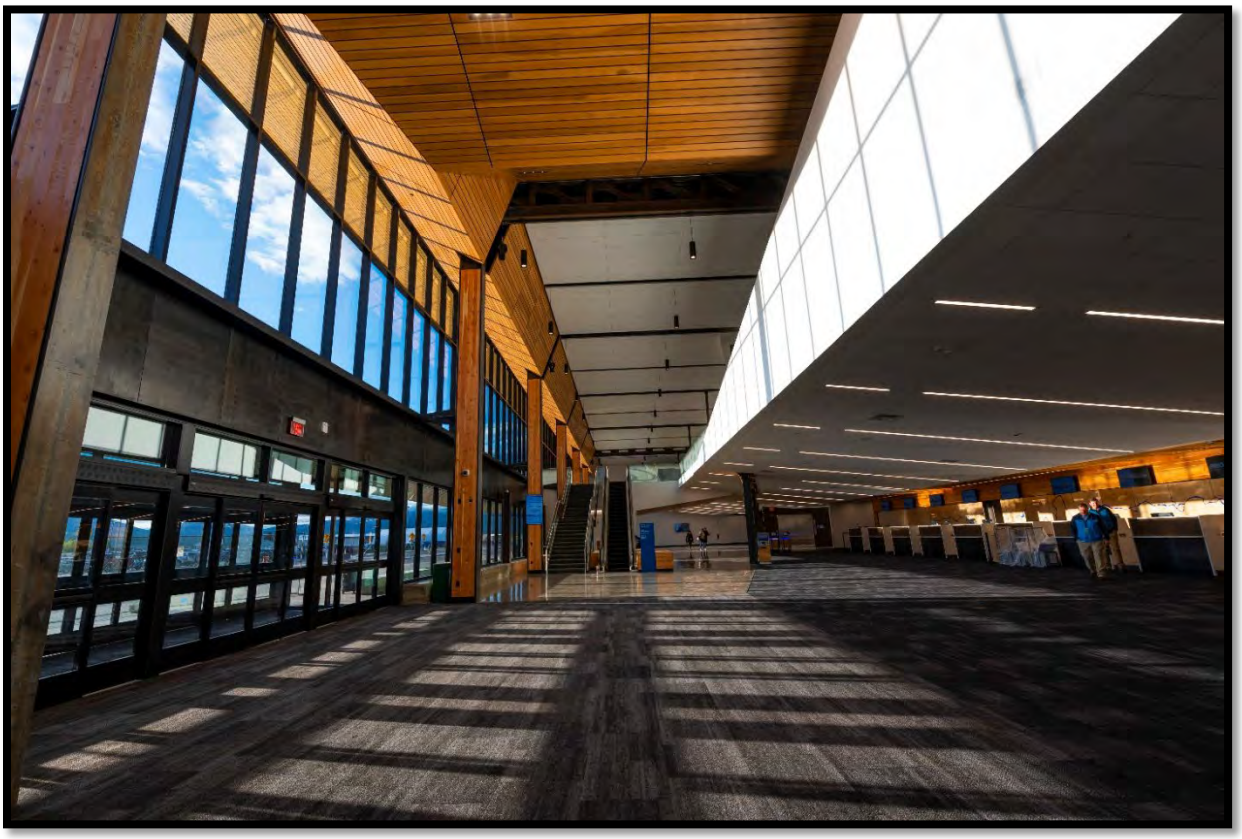
MSO currently covers approximately 2,700 acres. Landside facilities at the airport include all areas not considered part of the previously discussed airfield system. Existing landside facilities include the terminal building, automobile parking and vehicular access, general aviation, airport support, and non-aviation related commercial and industrial tenants.

1.8.1 Passenger Terminal Area

The passenger terminal and associated parking facilities are shown on **Figure 1-9** Services associated with the terminal complex include passenger processing, baggage claim, concessions and support functions.

A newly constructed terminal building opened for passenger service in June, 2022, to replace the terminal, which was originally constructed in 1941. There were 12 terminal remodel projects over the next 60 years with the largest expansions completed in 1954, 1977 and 1993. The Terminal contains operating space for airlines, rental car companies, TSA and airport administration.

Airline ticketing, baggage handling and rental car facilities are located on the first (ground) floor of the Terminal building. The second floor contains passenger waiting areas and concessions. Security personnel operate checked baggage screening on the first floor at the airline ticket counters. Passenger and carry-on luggage screening is conducted on the second floor.



Airline Ticketing Area

Airline boarding gates are located on the second floor in two holdroom areas, the south concourse holdroom and the east concourse holdroom. There are a total of seven passenger gates, four located in the south concourse and three in the east concourse. Between the two holdrooms is a food and beverage concessions area and an outdoor deck. Airport administrative offices are located on the third floor.

Airline Boarding Gate Area – South Concourse

Layouts of the three floors of the terminal building are shown in **Figure 1-10, 1-11** and **1-12.**

Figure 1-9: Terminal Area

Figure 1-10: Terminal Floor Plan - First Level

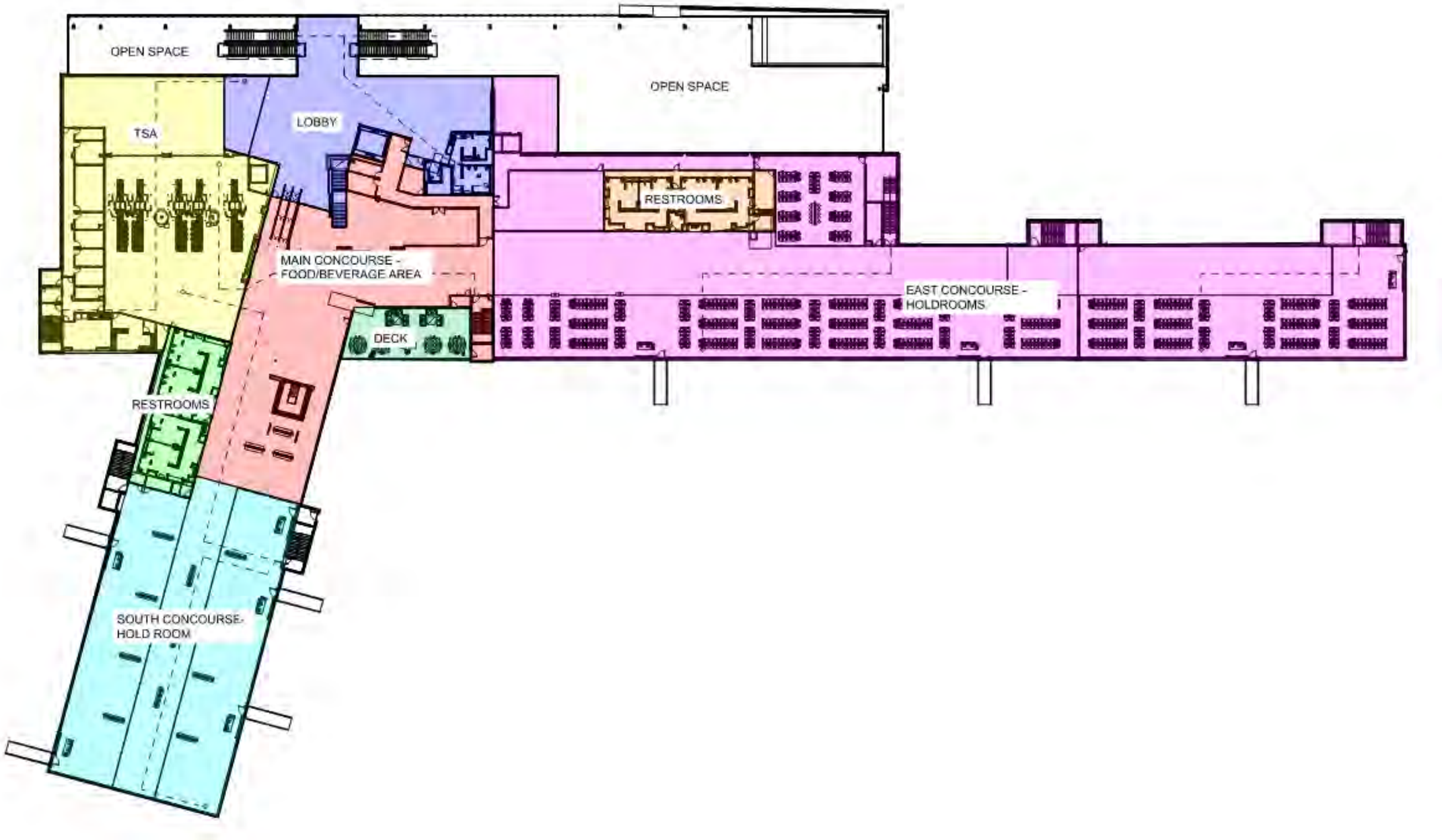


Figure 1-11: Terminal Floor Plan - Second Level

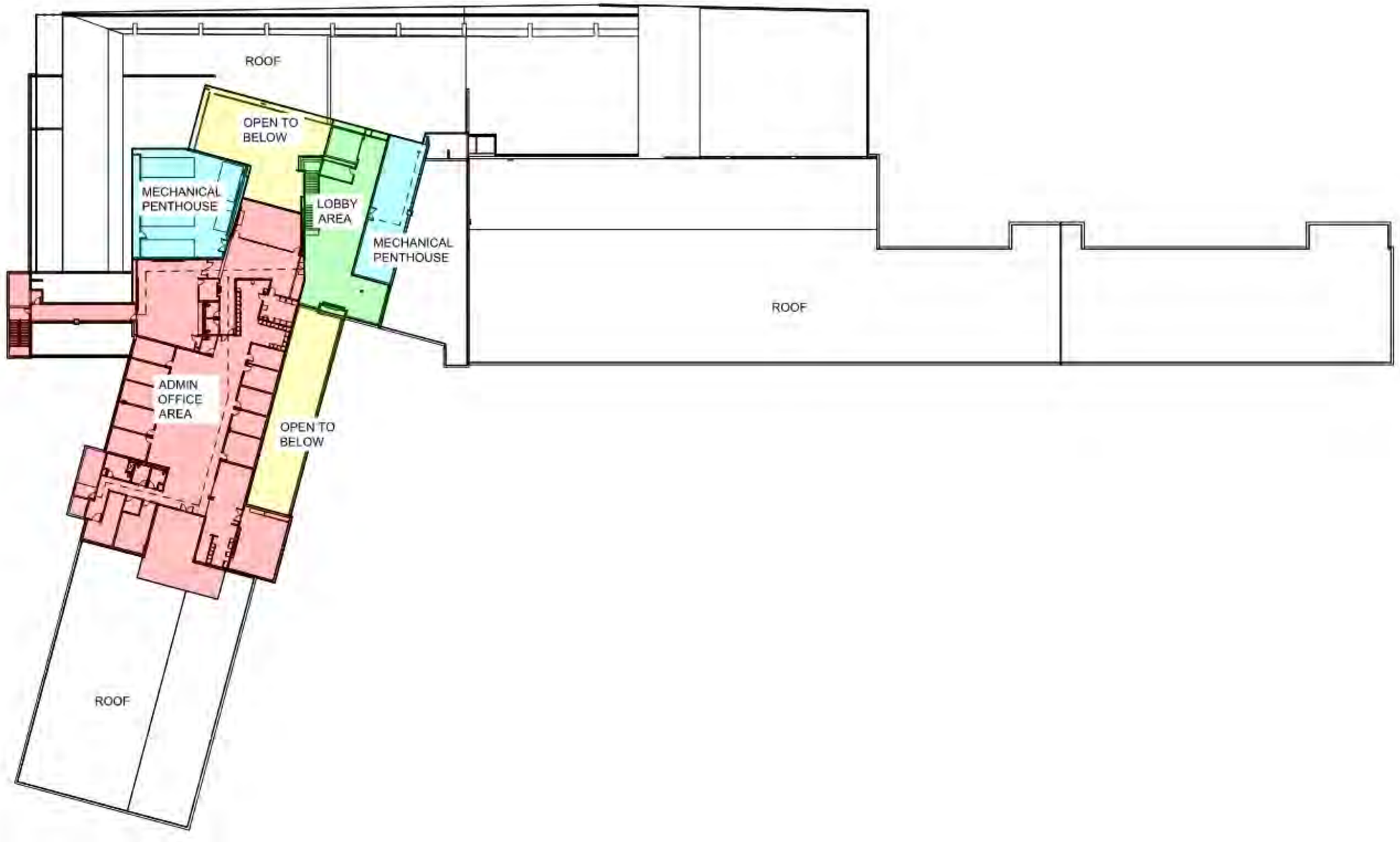


Figure 1-12: Terminal Floor Plan - Third Level

1.9 Terminal Access, Circulation and Parking

Access to the airport is provided via a main public airport entrance from U.S. Highway 10 which runs alongside the northeast side of the airport. Airway Blvd. connects Highway 10 to I-90 approximately ½ mile northeast of the main terminal entrance. Aviation Way runs parallel to the highway on airport property connecting the main entrance to general aviation users and providing multiple gated airside access points. This service road extends from the USFS property on the west side to the fuel farm road on the east side of the airport, and connects to Highway 10 at three points, including the main terminal access road.

Terminal Access Road – Long-Term and Short-Term Entrances

Adjacent and northeast of the terminal, are long and short term pay parking lots for the public. A rental car lot is located at the south end of these lots. The terminal access road runs past the long-term parking and short-term parking entrances to the terminal curbside. A third entrance for long term parking and the rental car lot is beyond the terminal curbside. **Figure 1-7** shows the loop road and terminal area parking lots.

Curbside, the terminal access road consists of several lanes, two arrivals lanes, one drop lane, and two lanes for commercial taxis, ride share and shuttles.

Immediately east of the Terminal is the employee parking lot.

Table 1-6 shows ground vehicle parking allocation at MSO. (Note: Parking Totals do not include millings parking lot areas used as overflow for employee parking and rental car parking.)

Table 1-5: Parking Space Allocation

Parking Area	Spaces
Short Term Parking	152
Long Term Parking	1,186
Rental Car Lot	380
Employee Parking	150
Total Spaces	**1,868**

Terminal Parking Lot

1.10 Rental Car Facilities

Seven rental car companies currently operate at the airport (Alamo, Avis, Budget, Enterprise, Hertz, National and Thrifty). In addition to the seven branded counters and offices in the terminal, the car rental companies utilize a shared car wash facility southeast of the terminal area along Aviation Way and adjacent to Minuteman East. The Quick Turn Around (QTA) carwash facility consists of eight detail bays and two automated drive through wash bays.

Rental Car Wash Facilities

1.11 General Aviation Facilities

General Aviation Ramp -Minuteman West of Terminal

General Aviation (GA) facilities are located on the north and east sides of the airfield. Existing general aviation apron facilities are depicted on **Figure 1-5** and **Figure 1-6.**

MSO is served by two full-service fixed base operators (FBOs), Minuteman Aviation and Northstar Jet/Neptune. Minuteman's main facilities are located on the west side of the terminal, with additional hangars on the east side of the terminal. Northstar/Neptune is located on the east side of the airfield. Both FBOs sell jet fuel and AvGas, delivered by fuel trucks from the fuel farm. In addition, Northstar operates a self-serve AvGas fueling station located west of it's apron and hangar areas off Taxiway A-3.

Services offered by Minuteman Aviation include:

- Pilot's lounge / briefing facilities
- Aviation fuel (AvGas and Jet A)
- Hangar storage
- Aircraft towing and pushback
- GPU
- Baggage Handling
- Lavatory service
- Aircraft Deicing
- Oxygen
- Aircraft parking and tiedowns
- Aircraft detailing
- Aircraft maintenance
- Aircraft Painting
- Helicopter Charters
- Large Charter Ground Handling

General Aviation Ramp -Minuteman West of Terminal

Services offered by Northstar/Neptune include:

- Pilot's lounge / briefing facilities
- Aviation fuel sales (AvGas and Jet A)
- Hangar storage

- Aircraft Deicing
- Aircraft maintenance
- Catering
- GPU
- Lavatory service
- Oxygen
- Large Charter Ground Handling
- Aircraft parking and tiedowns
- Courtesy Vehicles

General Aviation Ramp – Northstar/Neptune Ramp (photo from Northstar website)

Hangars

There are currently 24 hangar units in three separate development areas on the airport. This is comprised of a total of 15 conventional hangars and 9 multi-unit structures.

An airport owned hangar leased to and occupied by the US Forest Service is in the northwestern end of the airfield.

Minuteman's main facilities west of the terminal includes two conventional hangars and three multi-unit hangars ranging in size from 5,600 to 28,000 square feet. Their facilities also includes the Life Flight hanager.

Delta Hangar – West of Deicing Apron

In the same area of the airfield are three additional multi-unit hangars owned by private entities.

Minuteman also has three conventional hangars on the east side of the terminal.

There is a private business (Aerotronics) that does maintenance and installation of communication and navigational aides for aircraft. This business is located adjacent to the east side Minuteman hangars.

The Museum of Mountain Flying occupies a hangar in the far northeast end of the airfield and an additional private hangar (Denny Washington) is located adjacent of the Museum.

Washington Hangar and Museum of Flying

The Northstar / Neptune area north of Runway 30 has six large conventional hangars used for aircraft storage and maintenance.

Northeast of the Northstar area are two multi-unit hangars owned by private entities.

Northstar Hangars

Southeast of the Norsthar area, off Taxiway B, is one more multi-unit hangar development owned by private entities.

LZ Hangars

At the north end of Taxiway B is an apron and FedEx facility.

All hangar development areas are largely built-out and fully occupied.

Existing hangar development areas coincide with apron areas and are depicted on **Figure 1-6, Figure 1-7** and **Figure 1-8.**

General Aviation Hangars – Northeast of the Northstar/Neptune Area

1.12 Support Facilities

Support facilities on the airport include Aircraft Rescue and Fire Fighting (ARFF), airport maintenance, and fuel storage.

Airport Rescue & Fire Fighting

Airport Rescue and Fire Fighting (ARFF) operations are carried out under Part 139 certification. MSO is ARFF Index B, which is the designation for Part 139 airports serving aircraft between 90 and 126 feet in length. MSO is served by an ARFF facilitiy located on the northern side of the airport. The facility is collocated with airport snow removal and maintenance operations. Its location at the north end of Taxiway G provides direct access to the airfield and Runway 12-30. Rescue teams also have direct access to the terminal via an eastern route across the Minuteman and Deice aprons. The ARFF facility is equipped with the required rescue equipment and has the

ability to respond to an emergency within three minutes with a rescue firefighting vehicle and team.

ARFF equipment is listed in **Table 1-7.**

Airport Maintenance Facilities / Snow Removal Facilities

Airfield Maintenance/Snow Removal Equipment (SRE) facilities provide a sheltered environment for repair and storage of airport service vehicles and equipment. These facilities protect valuable airport property from moisture, debris, and other environmental contaminants. The airfield maintenance/SRE facility is co-located with the ARFF facilities at the north end of Taxiway G.

Airfield maintenance and snow removal equipment is listed in **Table 1-7.**

SRE/ARFF Equipment Storage Building

SRE Equipment

ARFF Equipment

Table 1-6: Airport Support Equipment

Vehicle Description	Vehicle Year
Kia Sorento SUV Gray	2020
Tymoco Vac Truck	2007
GMC Yukon SUV White	2009
M-B 22' Front Mounted Broom	2021
Oshkosh Plow Truck/ MB Broom	2005
Oshkosh Plow Truck/ MB Broom	2005
GMC Topkick w/Deice Tank	1990
International 4x4 w/21' Plow	2016
Kodiak Snowplower	2007
Oshkosh Snowblower	1989
Oshkosh Front Mount Broom	1999
M-B 22' Broom/Snowblower	2016
John Deere Diesel Gator	2004
Polaris Ranger	2007
John Deere Tractor	2001
John Deer 6215R Tractor	2018
844 John Deere Loader	2011
GMC Topkick w/Liquid De-ice	1989
GMC 1/2 TON Ext. Cab Pickup White	2002
Chevy 1/2 TON Silverado Pickup White	2011
Caterpillar 272D2 Skid Steer	2017
GMC 3/4 TON Reg. Cab Pickup White	1999
John Deere 1565 Mower	2012
GMC 1/2 TON Ext. Cab Pickup White	2000
GMC 1/2 TON Pickup Gray	2002
John Deere 1585 Mower	2015
Ford 3/4 TON w/Meyer Snowplow	2013
Bobcat UTV	2016
GMC 1 TON Shop Truck	1983
Hyster Forklift H80XM	2005
Case W20C Loader	1986
Case 1594 Tractor	1989
John Deere Gator	1995
John Deere Gator XUV835R	2019
Dodge 1 TON D350 Flatbed Pickup	1990
CAT 908M Loader	2020
GMC 2-Wheel Drive Reg Cab	2002
GMC 1/2 TON Crew-Cab Pickup	2012
Oshkosh Global Striker	2022
Oshkosh Striker	2007
E-One Titan	1997
Mack 5000 Gallon Tanker	1982
GMC Yukon-Old 98 Out Front	2005
Ford Explorer Interceptor	2019
Chevorlet 1/2 TON Crew-Cab Pickup	2016

Aircraft Deicing Facilities

Deicing is conducted on the deicing ramp located west of the terminal. The deicing pad is sized to accommodate three Group III aircraft.

Existing Deicing Apron - MSO

Fueling Facilities

Minuteman and Northstar/Neptune both operate a fuel farm at MSO, supplying fuel to air carrier, commuter, USFS contractors, and GA aircraft. The fuel farm is located in the northeast corner of the airport, near the Northstar/Neptune development area. All aircraft are fueled by tanker trucks. Both FBOs sell jet fuel and AvGas, delivered by fuel trucks from the fuel farm. In addition, Northstar operates a self-serve AvGas fueling station located west of it's apron along Taxiway A-3. MCAA operates a ground vehicle fuel tank for its own use, located in the northwest corner of the airfield, near the ARFF/SRE facility and leases an above ground fuel tank located at the northeast end of overflow parking and Minuteman East to rental car companies.

Northstar Self-Serve Fuel Station

Fuel Farm – Northeast corner of Airport Property

Table 1-8 lists the fuel storage on the Airport.

Table 1-7: Fuel Farm Storage (Gallons)

Northstar	
Type	**Gallons**
Jet A Fuel	25,400
Jet A Fuel	12,000
Jet A Fuel	12,000
Jet A Fuel	10,500
AV Gas 100 Octane	20,000
AV Gas 100 Octane	12,000
Unleaded Fuel	1,000
Diesel Fuel	500
Jet A Fuel	55
AV Gas 100 Octane	55
Oil	55
Total AvGas	**32,055**
Total Jet A	**59,955**
Total Misc.	**1,555**
Total	**93,565**

Minuteman	
Type	**Gallons**
Jet A Fuel	12,000
AV Gas 100 Octane	12,000
AV Gas 100 Octane	12,000
Jet A Fuel	12,000
Jet A Fuel	12,000
Jet A Fuel	12,000
Glycol	12,000
Total AvGas	**24,000**
Total Jet A	**48,000**
Total Misc.	**12,000**
Total	**84,000**

Miscellaneous		
Location	**Type**	**Gallons**
Washington Hangar	Jet A Fuel	12,000
NE Metro Hangar	Jet A Fuel	10,000
Generator for Tower	Diesel Fuel	275
Generator for Public Safety in Shop	Diesel Fuel	120
Generator for Terminal	Diesel Fuel	3,000
Generator for FAA Radar	Diesel Fuel	1,000
Generator for Airfield Lighting	Diesel Fuel	1,000
Rental Car Fueling Island	Unleaded	4,000
Operation and Maintenance Facility	Diesel Fuel	4,000
Operation and Maintenance Facility	Unleaded	2,000
Operation and Maintenance Facility	Oil	55
Total AvGas		**0**
Total Jet A		**22,000**
Total Misc.		**15,450**
Total		**37,450**

1.13 Airspace and Air Traffic Control

Aircraft operating to or from an airport do so under either Visual Flight Rules (VFR) or Instrument Flight Rules (IFR). VFR governs the procedures for flying under visual conditions, when a pilot is able to safely control and navigate an aircraft by visual reference to the environment outside of the cockpit. Meteorological conditions that meet the minimum requirements for VFR flight are called visual meteorological conditions (VMC)[1] Conditions that do not meet the minimum requirements for VFR flight are called instrument meteorological conditions (IMC), under which a flight may only operate under IFR. IFR are a set of regulations and procedures for flying aircraft whereby navigation and obstacle clearance is maintained with reference to aircraft instruments only, while separation from other aircraft is provided by the air traffic control.

1.14 Airspace Structure

Airspace in the United States is classified as controlled, uncontrolled, or special use. Controlled airspace encompasses those areas where there are specific certification, communication and navigation equipment requirements that pilots and aircraft must meet to operate in that airspace. Airspace is classified as Class A, B, C, D, E, G or special use airspace. These are depicted on **Figure 1-12** and described below.

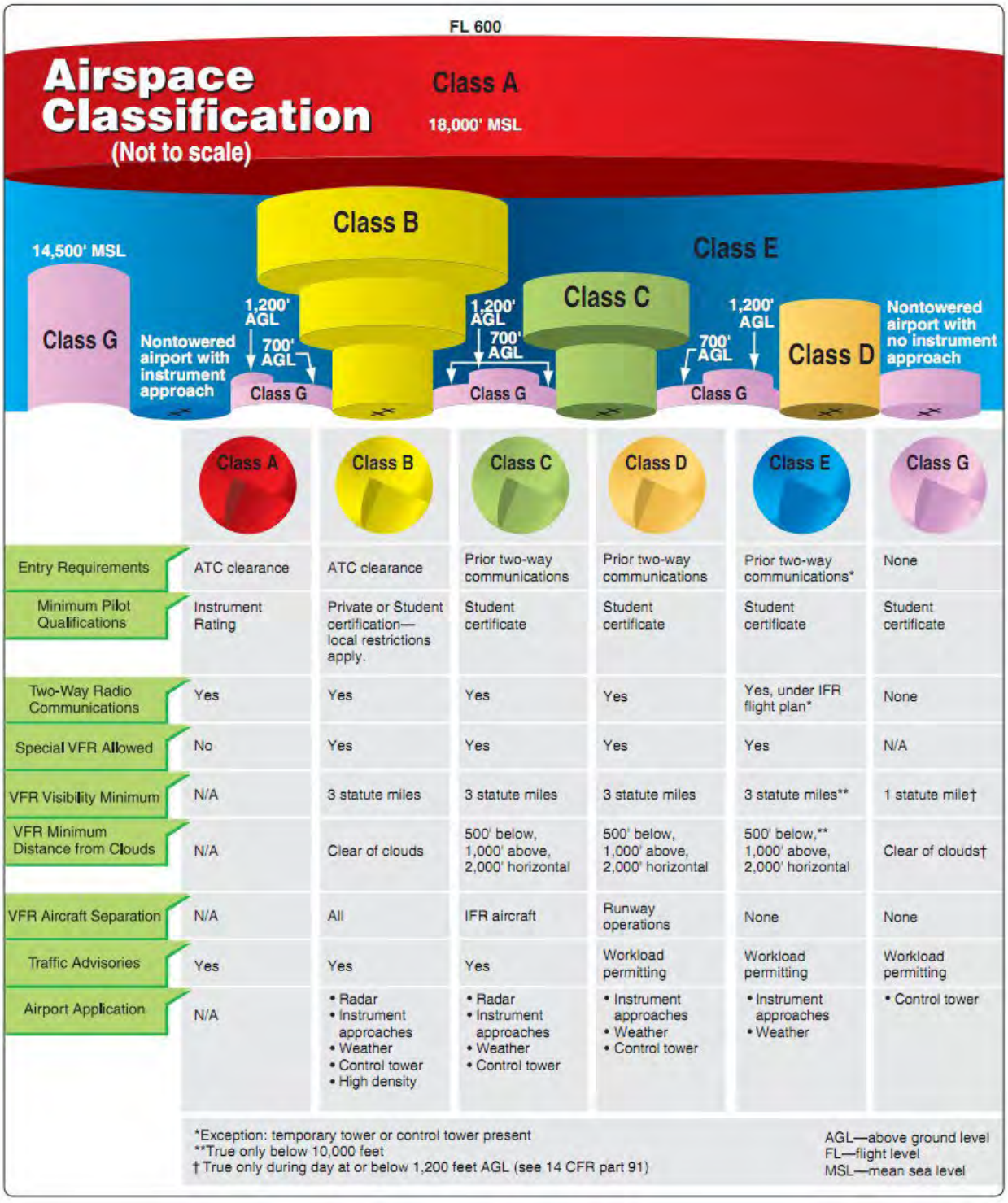
[1] AC 150/5060, Airport Capacity and Delay, defines VMC as a cloud ceiling height of at least 1,000 feet above ground level (AGL) and visibility greater than three nautical miles (nm). IMC is defined as a ceiling height less than 1,000 feet AGL and visibility less than three nm.

Class A airspace includes all airspace at and above Level 18 (approximately 18,000 feet MSL) to Flight Level 600 (approximately 60,000 feet MSL). Class B airspace is controlled airspace established around the nation's highest activity commercial service airports. Class C airspace is controlled airspace around commercial airports with a moderate traffic level and some military airports. Class D airspace is controlled airspace surrounding other airports with an air traffic control tower. All aircraft operating within Class A, B, C, and D airspace must be in contact with the air traffic control facility responsible for the airspace. Class E airspace is controlled airspace that encompasses all instrument approach procedures and low altitude federal airways. At some non-towered airports, Class E airspace goes all the way to the ground. Only aircraft conducting instrument flights are required to be in contact with air traffic control when operating in Class E airspace. Class G airspace is uncontrolled airspace. The airspace in the vicinity of MSO is depicted on **Figure 1-13.**

MSO is considered in Class D airspace when the air traffic control tower (ACTC) is open (6am – 10pm). At other times it is considered Class E airspace. The Class D airspace extends outward from the airport to a radius of five nautical miles, and from the ground surface up to 2,500 feet AGL.

For aircraft enroute or departing the area, there are several low altitude Victor airways available. Victor Airways are corridors of airspace eight miles wide that extend upward from 1,200 feet above the ground and extend upward to 18,000 feet MSL. The airways run between Very-High-Frequency Omnirange Equipment (VOR) navigational aids. The MSO VOR is the converging point for federal airways in the Missoula area.

MSO VOR-DME



	Class A	Class B	Class C	Class D	Class E	Class G
Entry Requirements	ATC clearance	ATC clearance	Prior two-way communications	Prior two-way communications	Prior two-way communications*	None
Minimum Pilot Qualifications	Instrument Rating	Private or Student certification—local restrictions apply.	Student certificate	Student certificate	Student certificate	Student certificate
Two-Way Radio Communications	Yes	Yes	Yes	Yes	Yes, under IFR flight plan*	None
Special VFR Allowed	No	Yes	Yes	Yes	Yes	N/A
VFR Visibility Minimum	N/A	3 statute miles	3 statute miles	3 statute miles	3 statute miles**	1 statute mile†
VFR Minimum Distance from Clouds	N/A	Clear of clouds	500' below, 1,000' above, 2,000' horizontal	500' below, 1,000' above, 2,000' horizontal	500' below,** 1,000' above, 2,000' horizontal	Clear of clouds†
VFR Aircraft Separation	N/A	All	IFR aircraft	Runway operations	None	None
Traffic Advisories	Yes	Yes	Yes	Workload permitting	Workload permitting	Workload permitting
Airport Application	N/A	• Radar • Instrument approaches • Weather • Control tower • High density	• Radar • Instrument approaches • Weather • Control tower	• Instrument approaches • Weather • Control tower	• Instrument approaches • Weather	• Control tower

*Exception: temporary tower or control tower present
**True only below 10,000 feet
† True only during day at or below 1,200 feet AGL (see 14 CFR part 91)

AGL—above ground level
FL—flight level
MSL—mean sea level

Figure 1-13: Airspace Classification

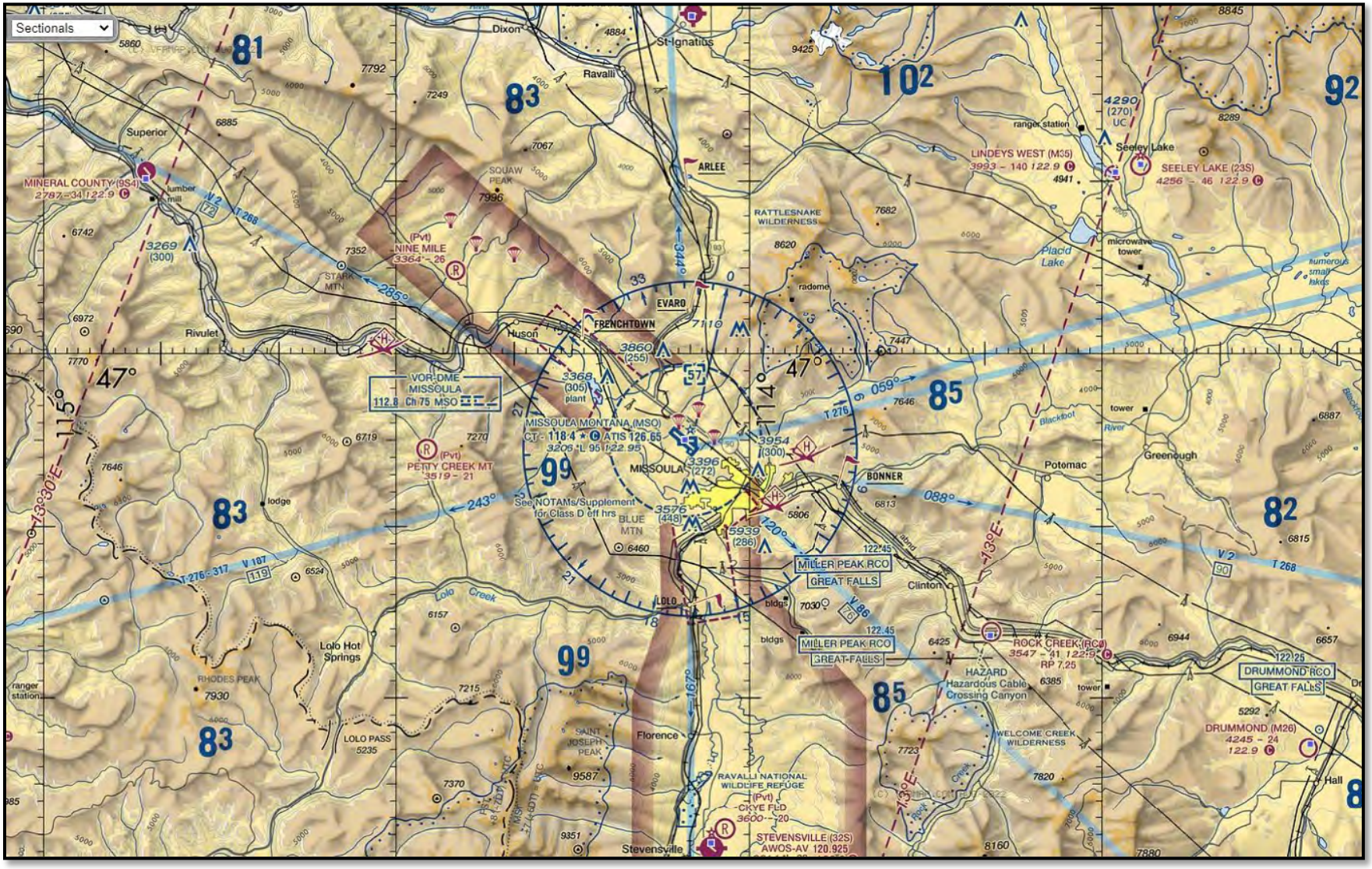


Figure 1-14: Sectional Chart

1.15 Enroute Navigational Aids

Several types of navigational aids are available for aircraft enroute to the Airport: Very High Frequency Omnidirectional Range beacons (VOR), area navigation, (RNAV), and the global positioning system (GPS).

As noted above, the airport and terminal area navigational aids include Very-High-Frequency Omnirange Equipment (VOR). The MSO VOR includes VHF Omnidirectional/Range Distance Measuring Equipment (DME), operates on the frequency 112.8. This ground based, electronic navigation system, provides both azimuth (directional) and distance information usable by both civilian and military aircraft.

The MSO VOR-DME also serves as an enroute navigational aid which is used by pilots when flying from one airport to another. Other types of enroute electronic navigational aids include RNAV and Global Positioning Systems (GPS).

RNAV is a method of navigation which permits aircraft operation on any desired flight path within a network of navigation beacons. Special equipment installed in the aircraft permits direct flights and eliminates the need to fly directly to or from the VOR beacon.

GPS is an additional navigational aid for pilots enroute to the airport. GPS was initially developed by the United States Department of Defense for military navigation around the world. Increasingly, over the last several years, GPS has been utilized more in civilian aircraft. GPS uses satellites placed in orbit around the globe to transmit electronic signals which properly equipped aircraft use to determine altitude, speed, and navigational information. With GPS, pilots can directly navigate to any airport in the country and are not required to navigate using a specific navigational facility. The FAA is proceeding with a program to gradually replace all traditional enroute navigational aids with GPS. A wide area augmentation system (WAAS) has been developed to meet navigation performance requirements for domestic enroute, terminal, non-precision approach and precision approach flight phases. WAAS is designed to enhance the accuracy, integrity, and availability of GPS signals, contributing to increased aviation system capacity and efficiency. The augmentation improves signal accuracy from 100 meters to less than 10 meters and provides the availability and integrity needed to use GPS signals as the primary means of navigation.

1.16 Instrument Approaches

Runway 12 is classified as a precision approach category I (CAT I) runway. Runway 12 is served by an Instrument Landing System (ILS) consisting of a glide-slope, localizer and a Medium-intensity Approach Lighting System with Runway alignment indicator (MALSR). A CAT I runway is defined as being a runway with an instrument approach procedure which provides for approaches to a decision height of not less than 200 feet and visibility of not less than ½ mile. The decision height for ILS Runway 12 is 211 feet with a visibility minimum of 2400 feet (less than ½ statute mile).

Runway 12 currently has four published straight-in approaches and Runway 30 has one. In addition, three "circling" approaches serve the airport. A circling approach does not align the aircraft with the runway. This means that after the aircraft makes visual contact with the runway, a circling maneuver is required to line up with the runway and execute the landing.

Runway 8-26 does not have a published straight-in approach at this time, however circling approaches can be used for any runway at the airport.

The FAA has developed Instrument Flight Rules (IFR) Takeoff Minimums and (Obstacle) Departure Procedures for MSO. Departure Procedures (DP) are designed for obstacle avoidance during the aircraft climb to minimum enroute altitude. The two graphic DPs at MSO were designed to assist Air Traffic Control (ATC) in providing air traffic separation as well as obstacle clearance.

Table 1-9 summarizes the published approach and departure procedures at MSO. Copies of the Terminal Procedures publications depicting published approach and departure procedures at MSO are shown in **Figure 1-17** through **Figure** 1-26.

Table 1-8: Instrument Approach and Departure Procedures

Runway	Approach Procedure	Procedure Type	Best Descent Minimums (Feet AGL)	Best Visibility Minimums
12	ILS Y	Precision	1,822	7 mi
	ILS Z	Precision	211	2400′
	RNAV (GPS)-Y-	Non-Precision	200	2400′
	RNAV (RNP)-Z-	Non-Precision	318	4000′
30	RNAV (RNP)	Non-Precision	318	1 mi
Circling	RNAV (GPS)-D	Non-Precision	1,074	1¼ mi
	VOR-A	Non-Precision	1,914	1 ¼ mi
	VOR-B	Non-Precision	1,714	1 ¼ mi
Runway	**Departure Procedure**			
12	MZULA FIVE	Minimum climb of 340 feet per nautical mile (NM) to 7,800		
30	DIDLY FIVE	Minimum climb of 275 feet per nautical mile (NM) to 7,800		

ILS: Instrument Landing System
RNAV (GPS): Area Navigation (Global Positioning System)
RNAV (RNP): Area Navigation (Required Navigation Performance)
VOR: VHF Omni-Directional Range
AGL: Above Ground Level

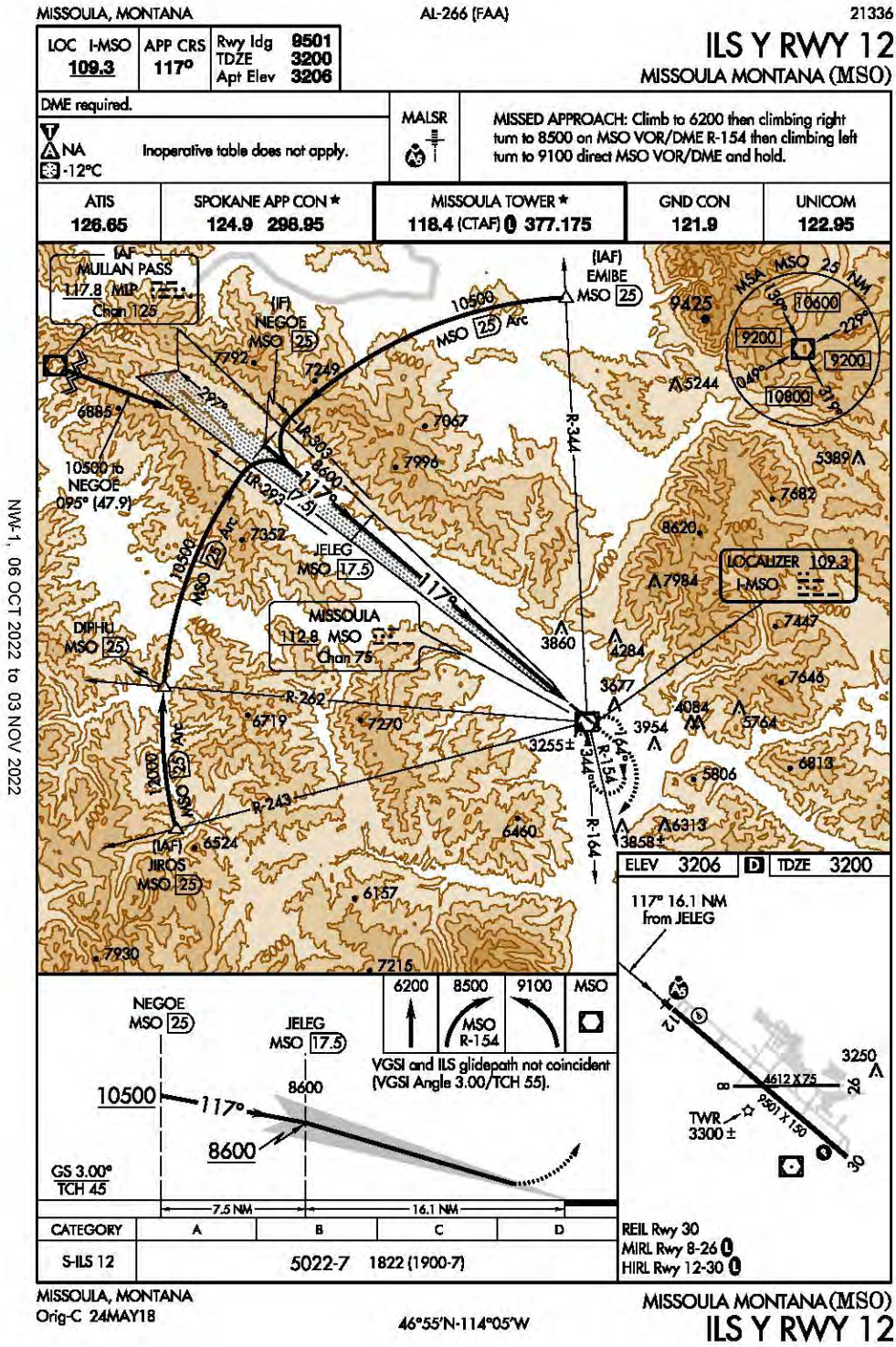


Figure 1-15: ILS Y Runway 12

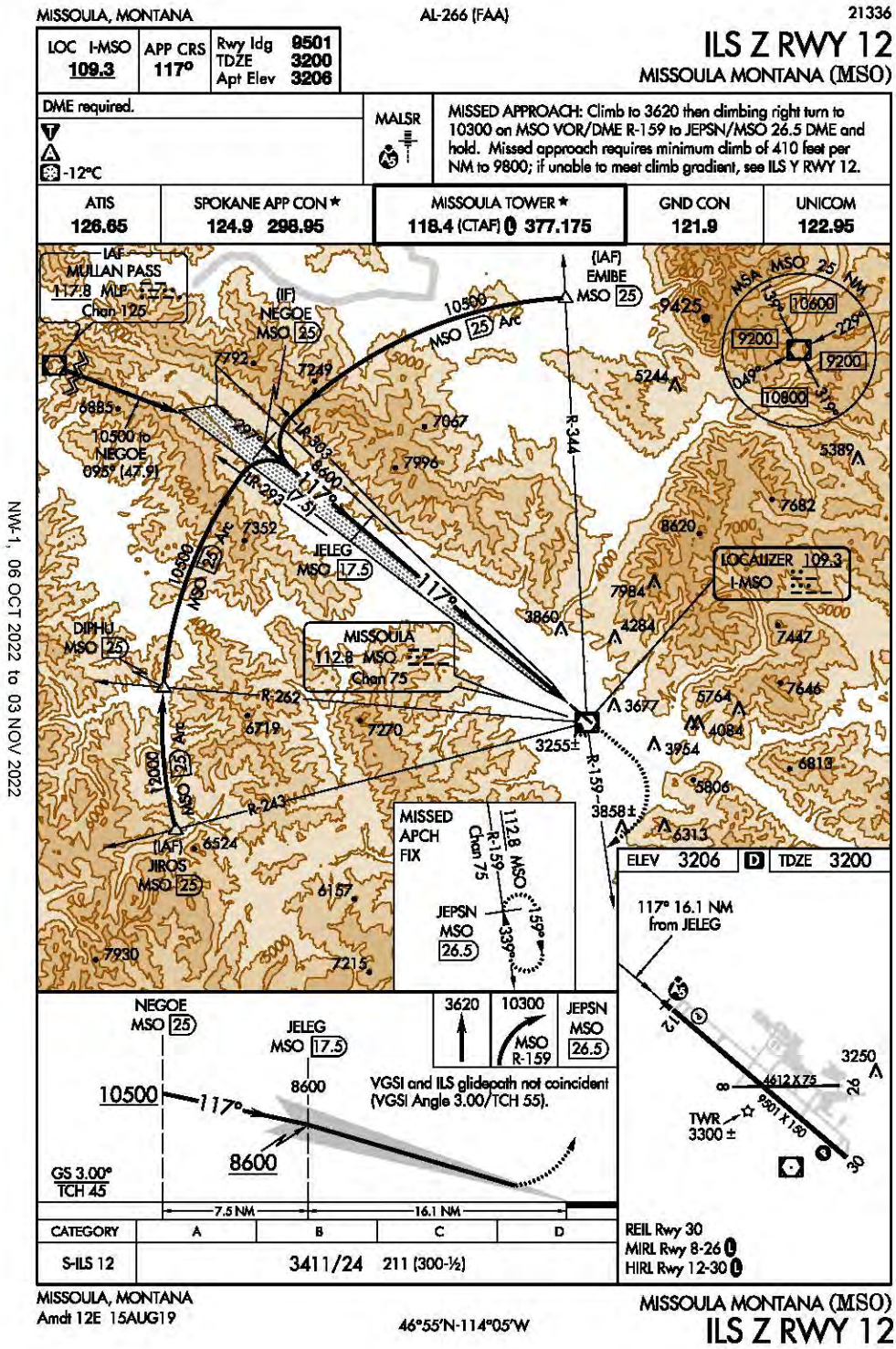


Figure 1-16: ILS Z Runway 12

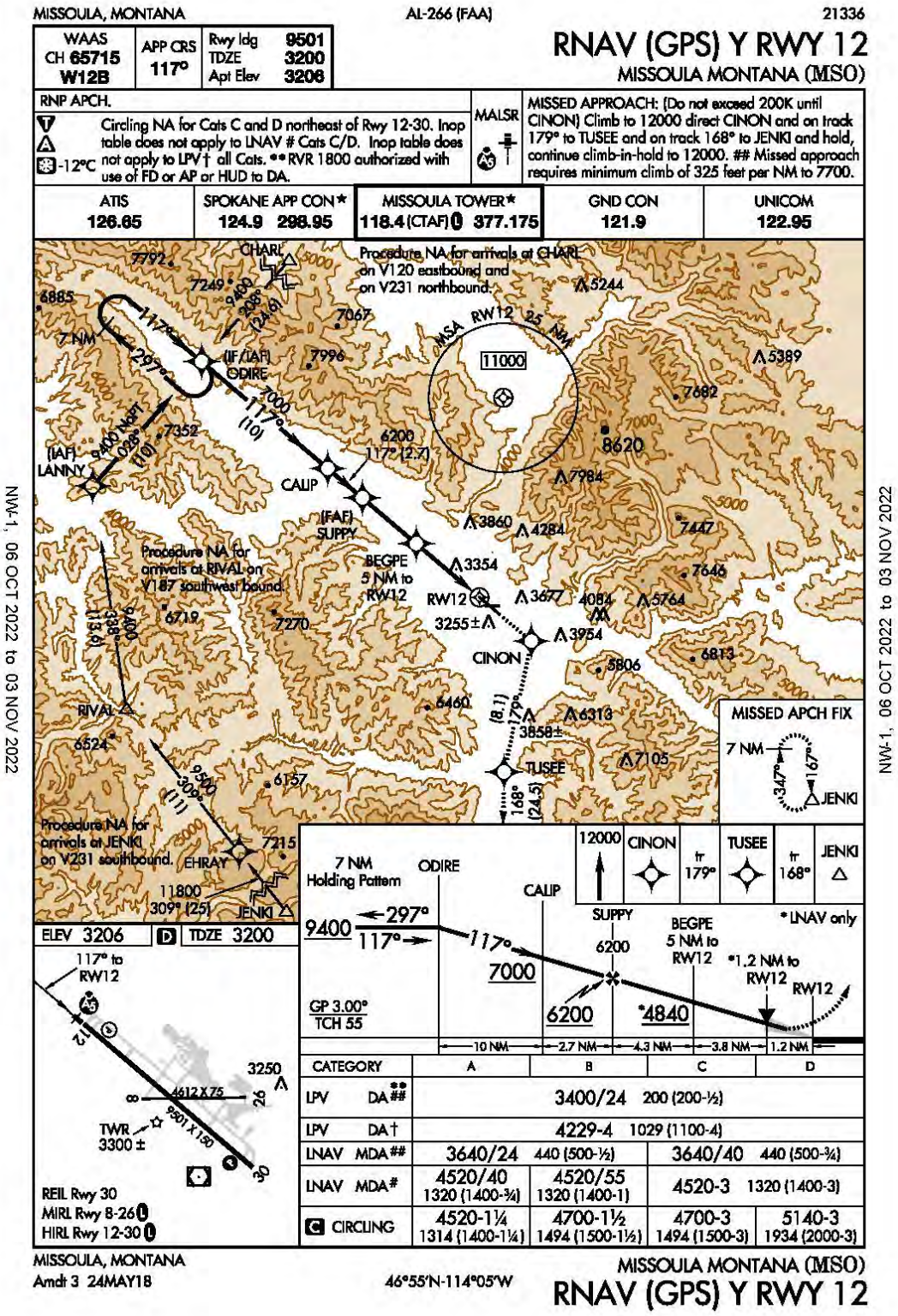


Figure 1-17: RNAV (GPS) Y Runway 12

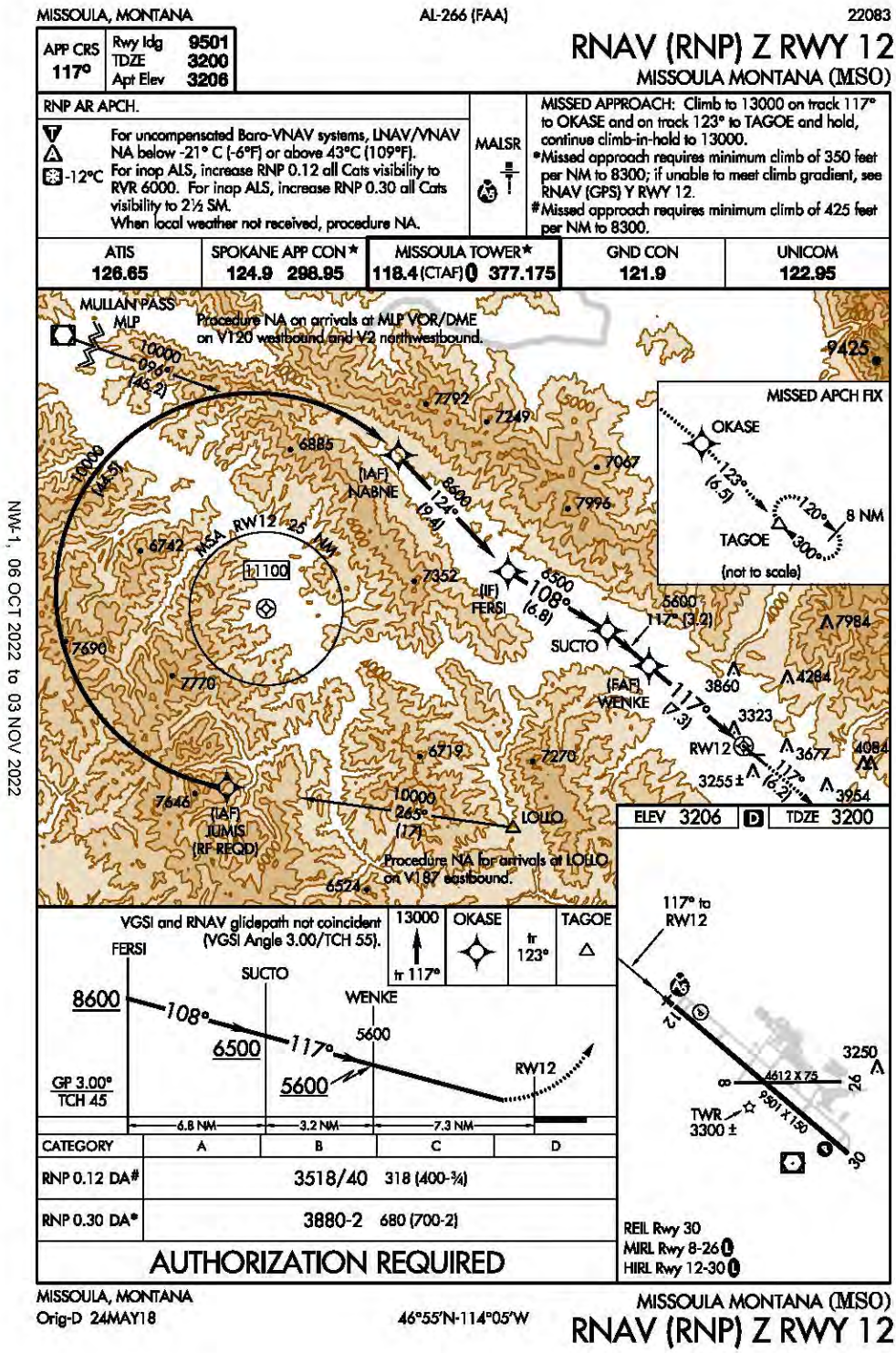


Figure 1-18: RNAV (RNP) Z Runway 12

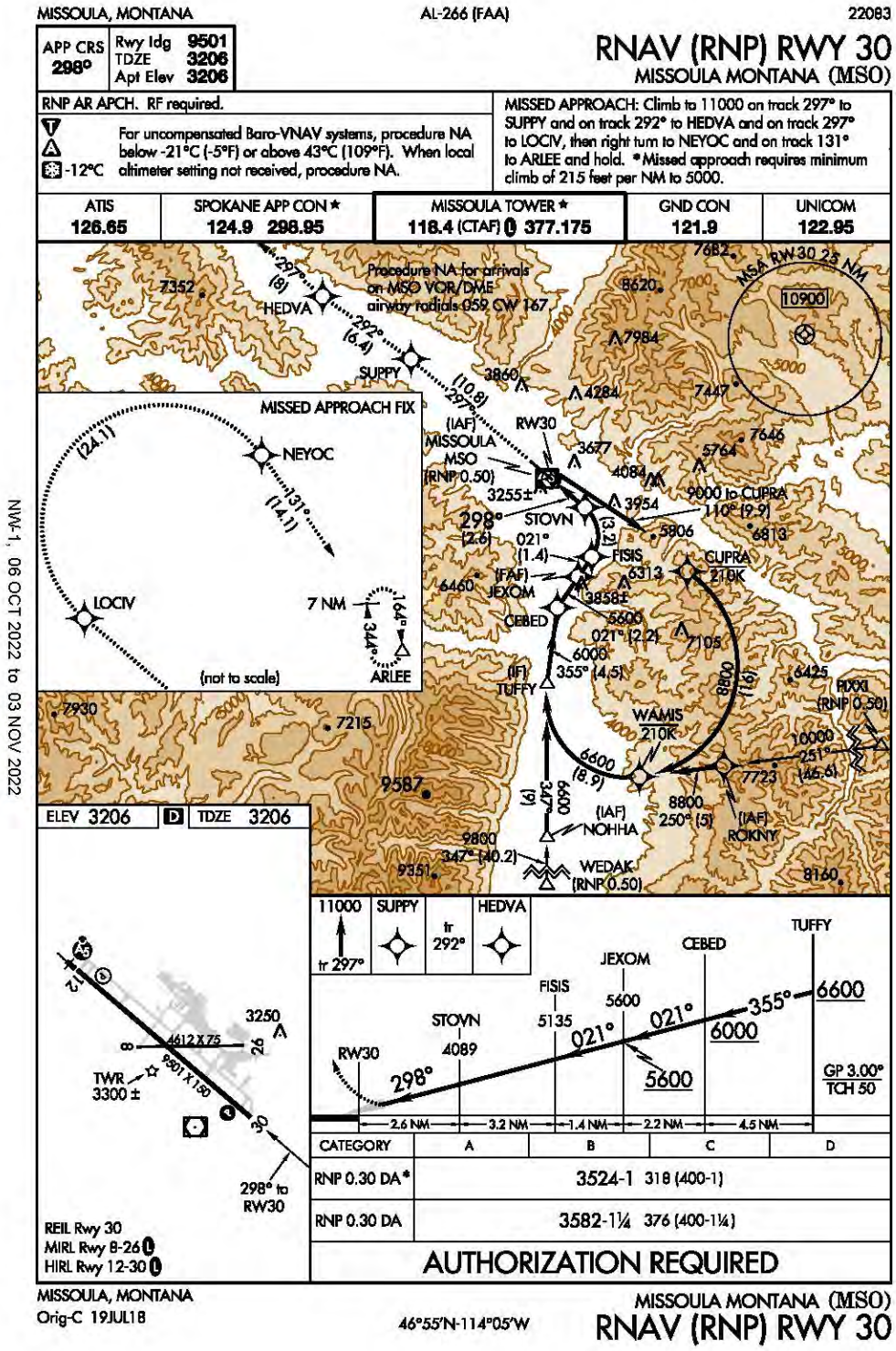


Figure 1-19: RNAV (RNP) Runway 30

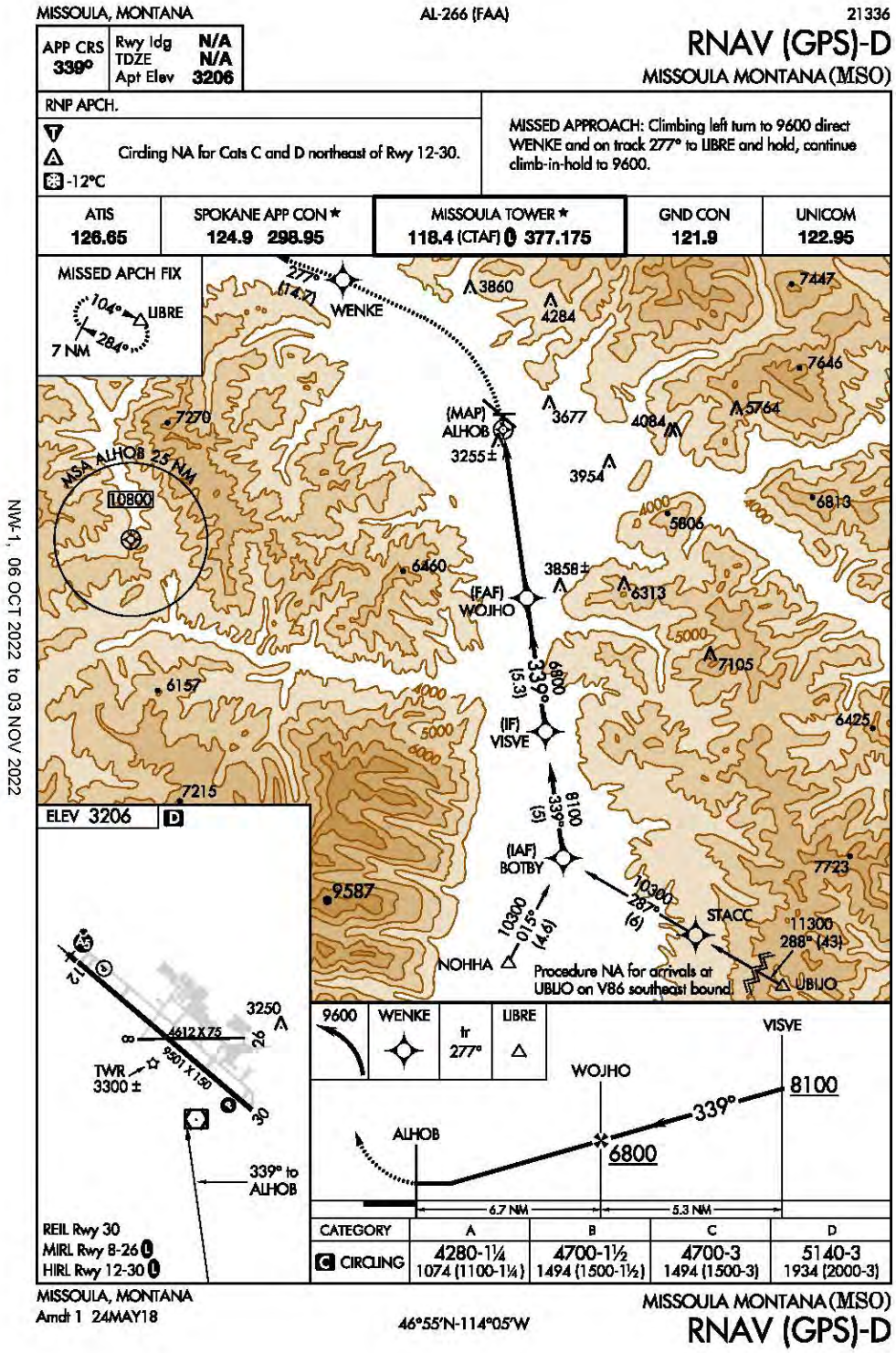


Figure 1-20: RNAV (GPS) - D

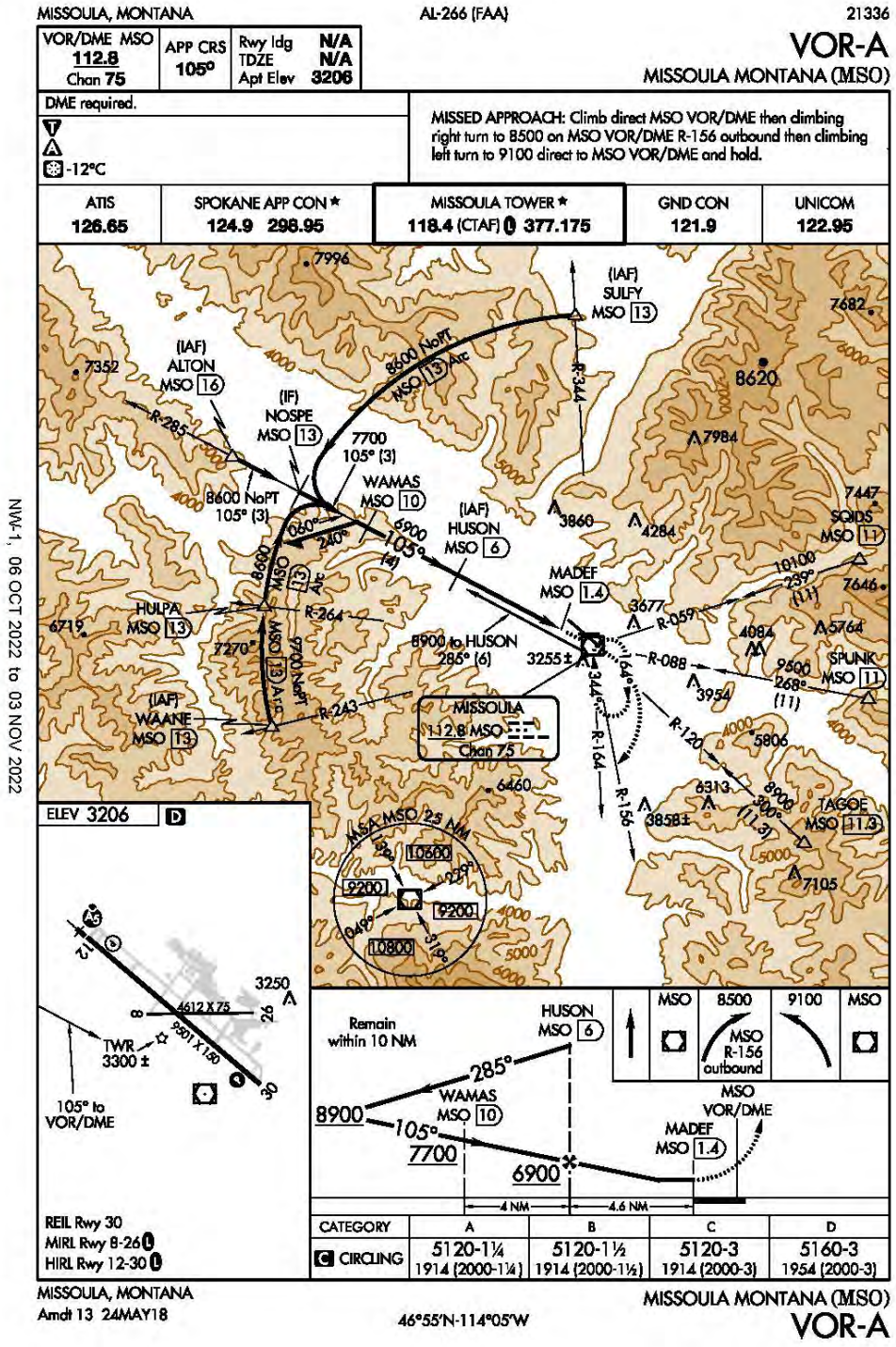


Figure 1-21: VOR - A

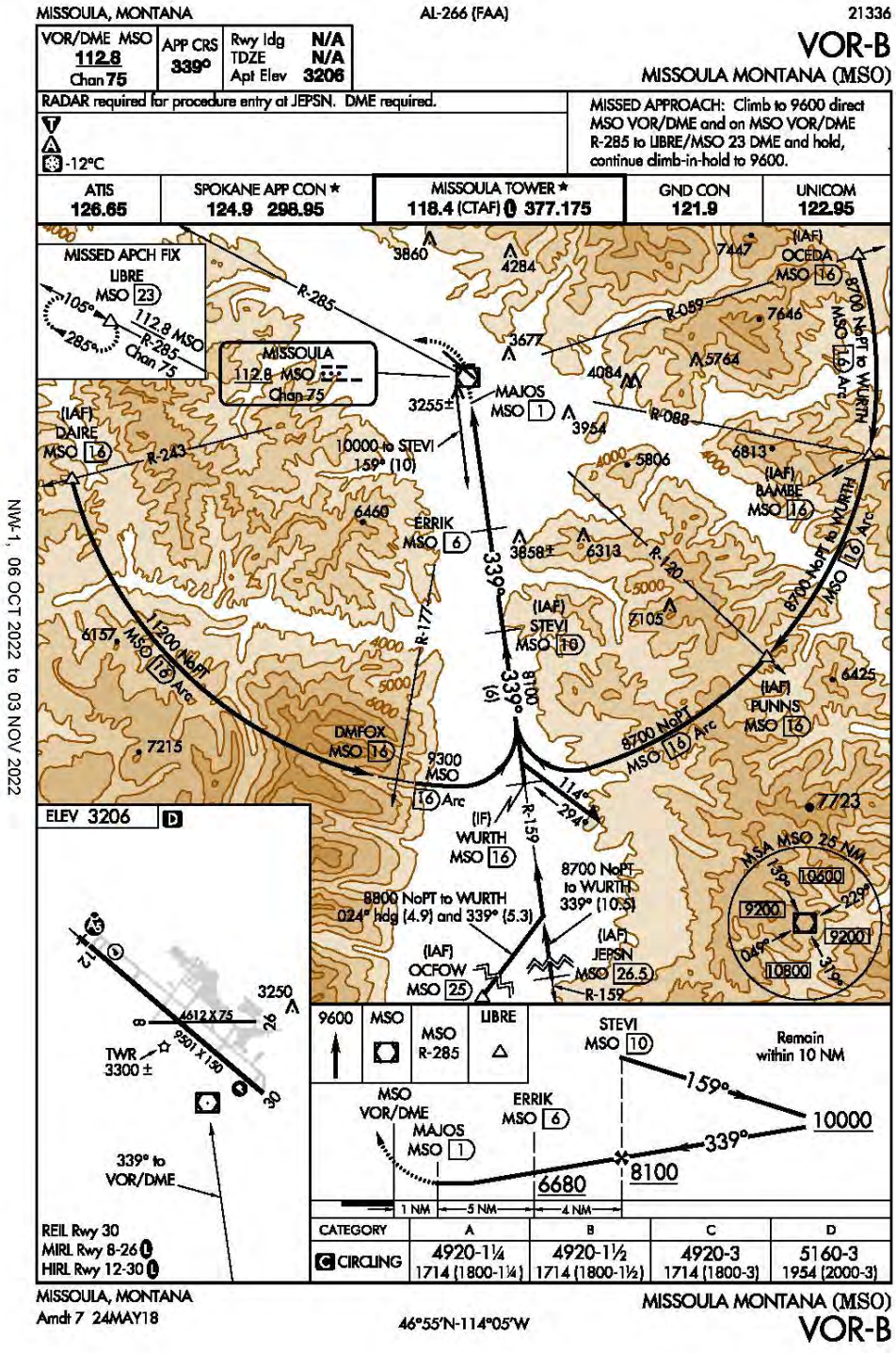


Figure 1-22: VOR – B

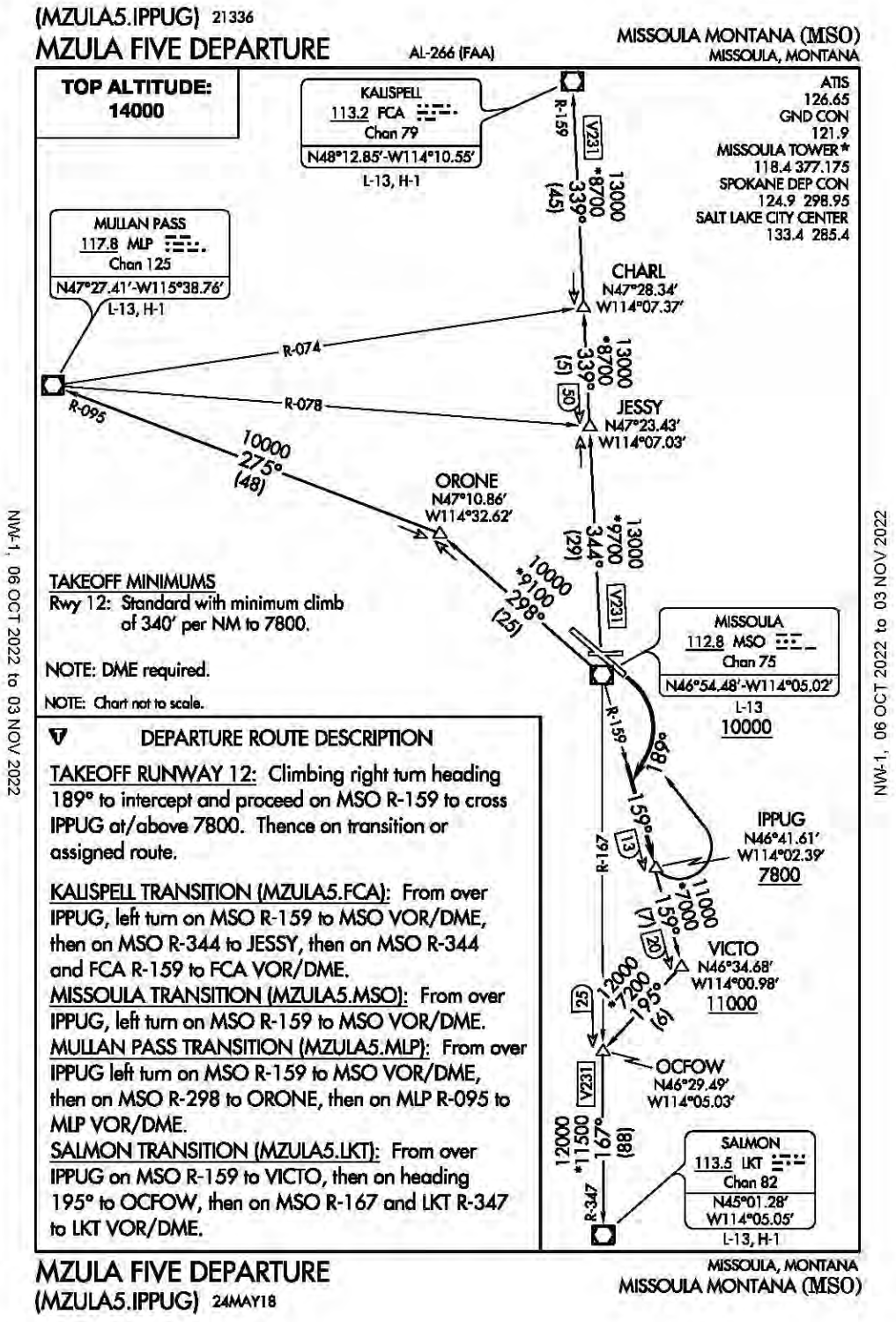


Figure 1-23: Missoula FIVE Departure

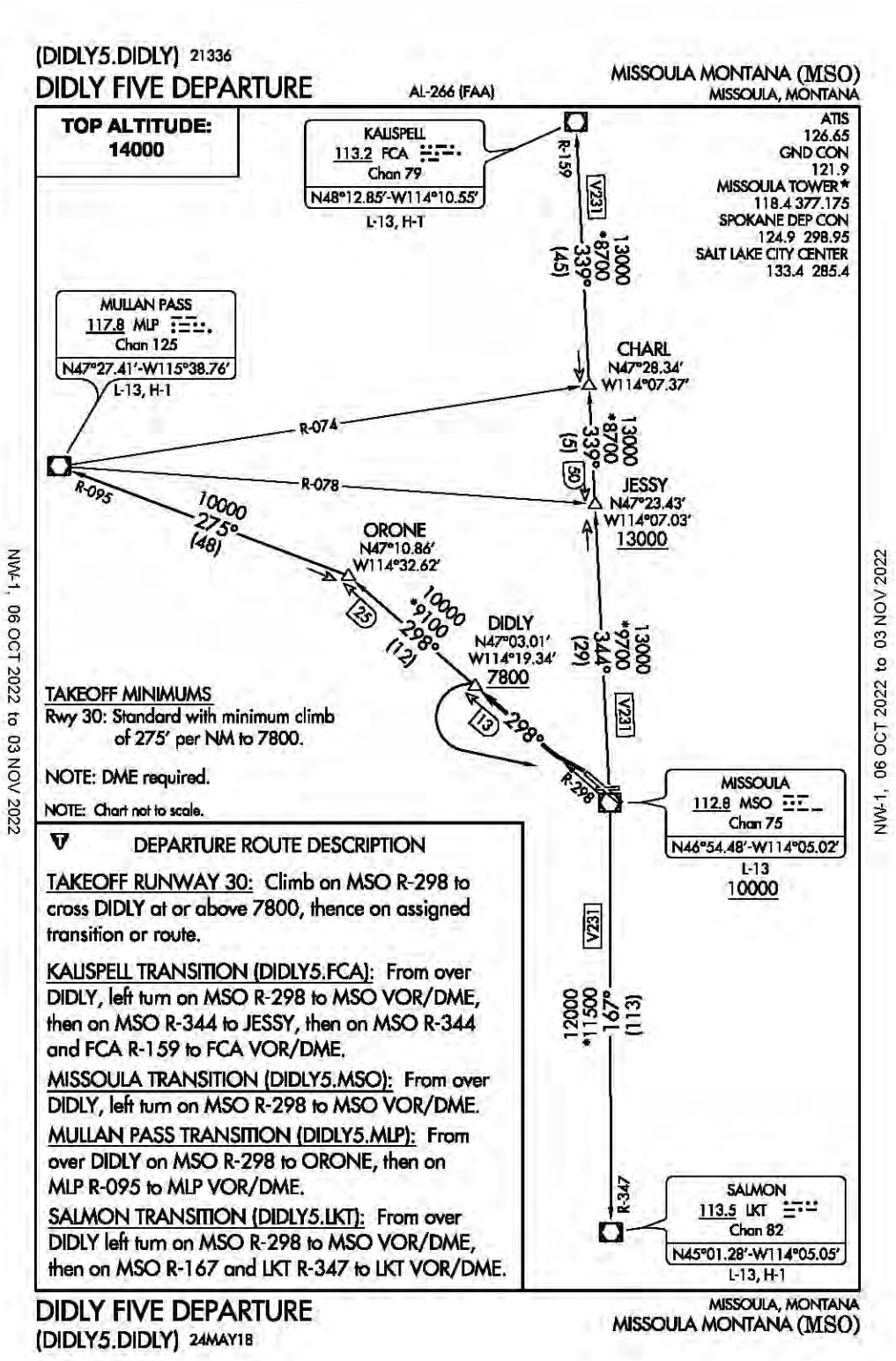
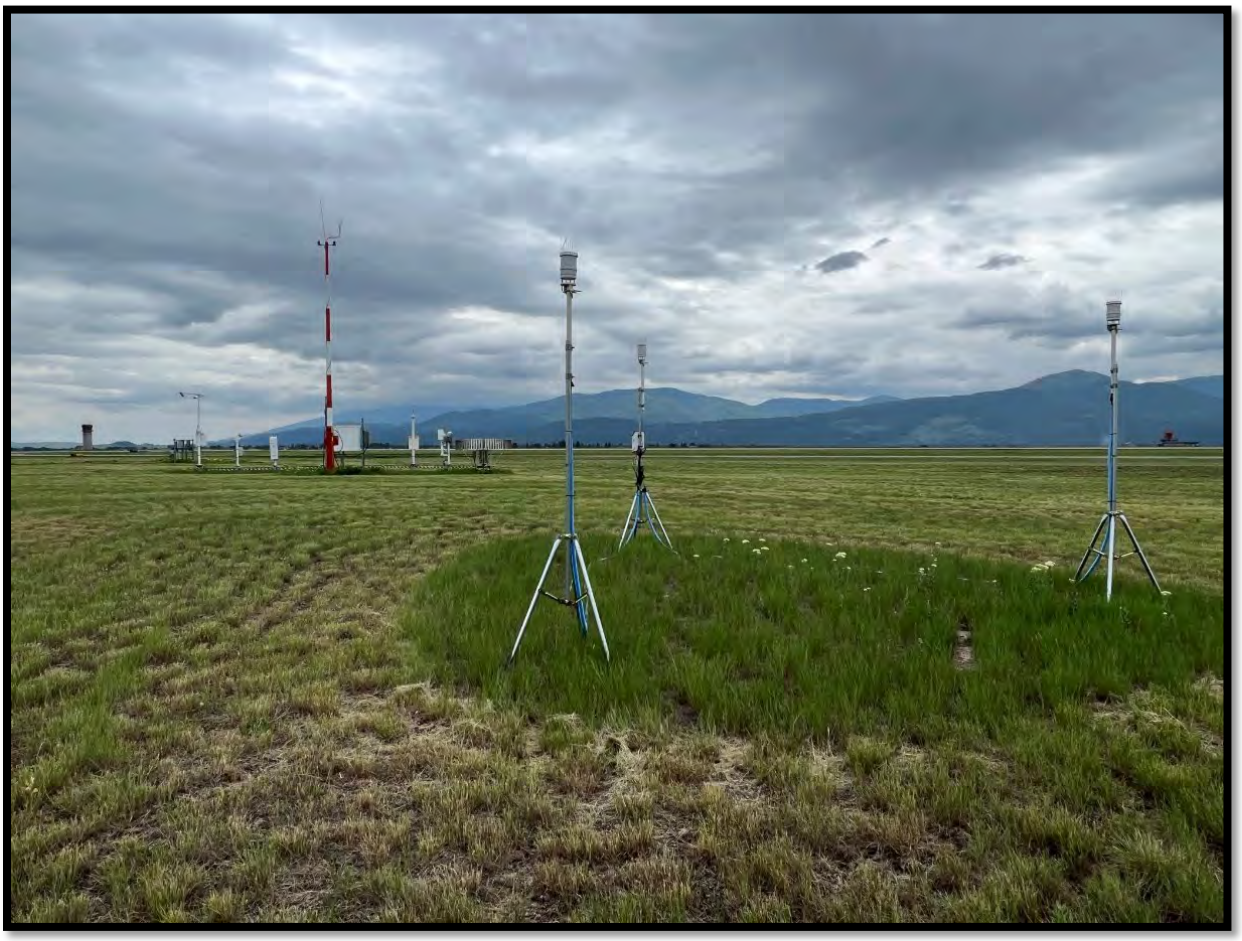


Figure 1-24: DIDLY FIVE Departure

Weather Observation

Weather information is provided to pilots through an Automated Surface Observing System (ASOS) on site at phone 406-728-3743.

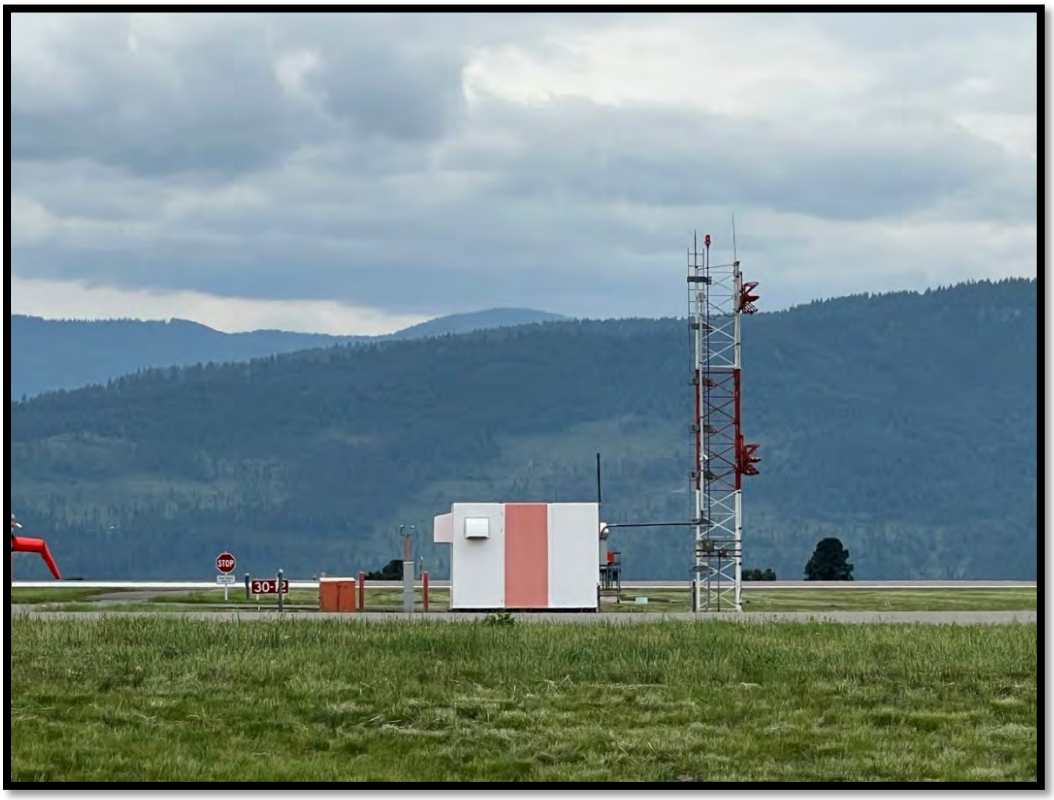


ASOS

Instrument and Visual Approach Aids

Visual navigational aids are also provided at the airport. Runway 12-30 is equipped with High Intensity Runway Lights (HIRL) which outline the edges of the runway during periods of darkness or restricted visibility conditions. In addition to HIRL, Runway 12-30 has 4-box Precision Approach Path Indicators (PAPI) at both the Runway 12 and 30 approaches and a Medium Intensity Approach Lighting System With Runway Alignment Indicator Lights (MALSR) on the approach to Runway 12. Runway 8-26 is equipped with Medium Intensity Runway Lights (MIRL).

MALSR



Glide Slope Antenna

PAPI's

Airfield Marking and Lighting

Runway 12 is marked as a precision instrument runway. Runway 30 is marked as a non-precision instrument runway. Runway 8-26 has basic markings.

The airport also provides a white and green rotating beacon and a lighted windcone.

SEGMENTED CIRCLE AND WINDCONE

1.17 Air Traffic Control Facilities

MSO has an air traffic control (ATC) tower located at the center of the airfield, south of Runway 12-30. The ATC is a contract tower and is operational from 6:00 am to 10:00 pm. When the ATC is not operational at MSO, pilot communication is transferred to Spokane International and Salt Lake City.

Communications with the tower happen on two radio frequencies: ground frequency for the airfield is 121.9 and tower frequency is 118.4..

MSO Air Traffic Control Tower

The MSO ATC is supported by an Air Surveillance Radar (ASR)-9 tower, located at midfield south of Runway 12-30. ASR is designed to provide relatively short-range radar coverage in the general vicinity of an airport.

ASR-9

1.18 Regional Planning and Development

MSO is located within the city limits of the City of Missoula. in Missoula County, Montana. The City of Missoula is the second most populated municipality in Montana (after Billings) and Missoula County is the third most populated county in Montana (after Yellowstone and Gallatin County).

This section identifies land use control mechanisms currently in place in the vicinity of MSO. The effectiveness of these mechanisms to guide current and future Land Use compatibility in the vicinity of MSO will be evaluated in *Chapter 6 Land Use Compatibility* later in this document.

MSO and surrounding areas fall under multiple land use and zoning jurisdictions. Responsible entities include the City of Missoula and Missoula County.

Planning & Zoning

The City of Missoula's Community Planning Development and Innovation Department manages planning, zoning and development policy within the City of Missoula. Missoula County's Community and Planning Services Department is responsible for these services outside the city limits.

The airport was annexed into the City of Missoula in 2018, but its boundaries abut Missoula County jurisdiction to the north, west and south.

The airport is zoned Aviation (A), which provides a specific zoning classification for aviation, industrial, service, and commercial uses related to or compatible with Airport operations. Airports and customary accessory uses required for their operation are permitted uses under the A designation. The underlying zoning does not present obstacles to the operation and orderly growth of the airport. **Figure 1-27** shows the City of Missoula zoning map which includes the airport area.

Missoula County zoning adjacent to MSO is shown on **Figure 1-28**. In the approach path to the northwest are Civic Employment Center (CEC), Neighborhood Residential (NR), Industrial Center Light (ICL), Rural Residential Small Agriculture (RRS) and Agricultural Rural Residential (AGRRR) zones. To the southeast are four form-based code (FBC) districts established in the Missoula County and City of Missoula Sxwtpqyen (renamed from "Mullen Area") Traditional Neighborhood Development Form Based Code, adopted in December 2020. **Figure 1-29** depicts the regulatory Map for the Form Based Code. The code was developed in conjunction with the Sxwtpqyen Master Plan, also adopted in December 2020.

The City of Missoula's Growth Policy, adopted in 2015, guides future development within the planned 2035 city limits. This includes MSO and its environs.

Figure 1-30 displays the City of Missoula Future Land Use map as established by the Growth Policy. The map was adopted November of 2015 and amended in December of 2020.

The airport is planned as "Public and Quasi Public". Planned adjacent land uses include light industrial and commercial to the north, light industrial and rural residential (<1 unit per 2 acres) to the west, rural residential to the south, and planned neighborhood development to the east.

Land Ownership

The Missoula County Airport Authority currently owns approximately 2,700 acres of land in fee title. The Authority also controls approximately 3 acres of land through runway protection zone easements. The lands owned and controlled by the Sponsor are displayed on **Figure 1-31.**

Airport Influence Area (AIA)

On July 5, 1978, the Missoula County Board of Commissioners adopted the Airport Influence Area (AIA) as resolution #1978-96. The resolution was amended on December 6, 1978.

The AIA limits the height of structures and objects of natural growth based on Federal Aviation Regulations (FAR) Part 77, provides restrictions on the use of equipment which would create an unreasonable interference with radio communications or electronic navigational aids in use at the airport and requires soundproofing features in residential structures.

The AIA is displayed on **Figure 1-32.**

Subdivision Regulations / Avigation Easements

Missoula County and the City of Missoula work in cooperation with the Missoula County Airport Authority (MCAA) in the review of development within the Airport Influence Area. While not a formal requirement of the Subdivision Regulations in either jurisdiction MCAA has historically requested the City of Missoula and Missoula County require an aviation easement to be granted to the Airport Authority on new subdivisions of land within this area.

These easements inform landowners that they live in an area adjacent to the Airport and the easement grants the Sponsor "the right of flight for the passage of aircraft for the use and benefit of the public in the airspace above the Grantor's property, together with the continuing right to cause in said airspace such noise, vibration, dust, fumes, smoke, vapor, and other effects as may be inherent for navigation of or flight in air, using said airspace, or landing at, taking off from, or operating at (MSO)"

The easement further restricts property around MSO from interference with radio communications, navigational aids or devices such as instrument landing system, by generators, motors, and artificial lighting devices that can cause interference. The easement prevents the installation of any structure, business or tree which is dangerous or hazardous to the safety of aircraft using (MSO) or to the property or persons using (MSO) or flying in the vicinity thereof.

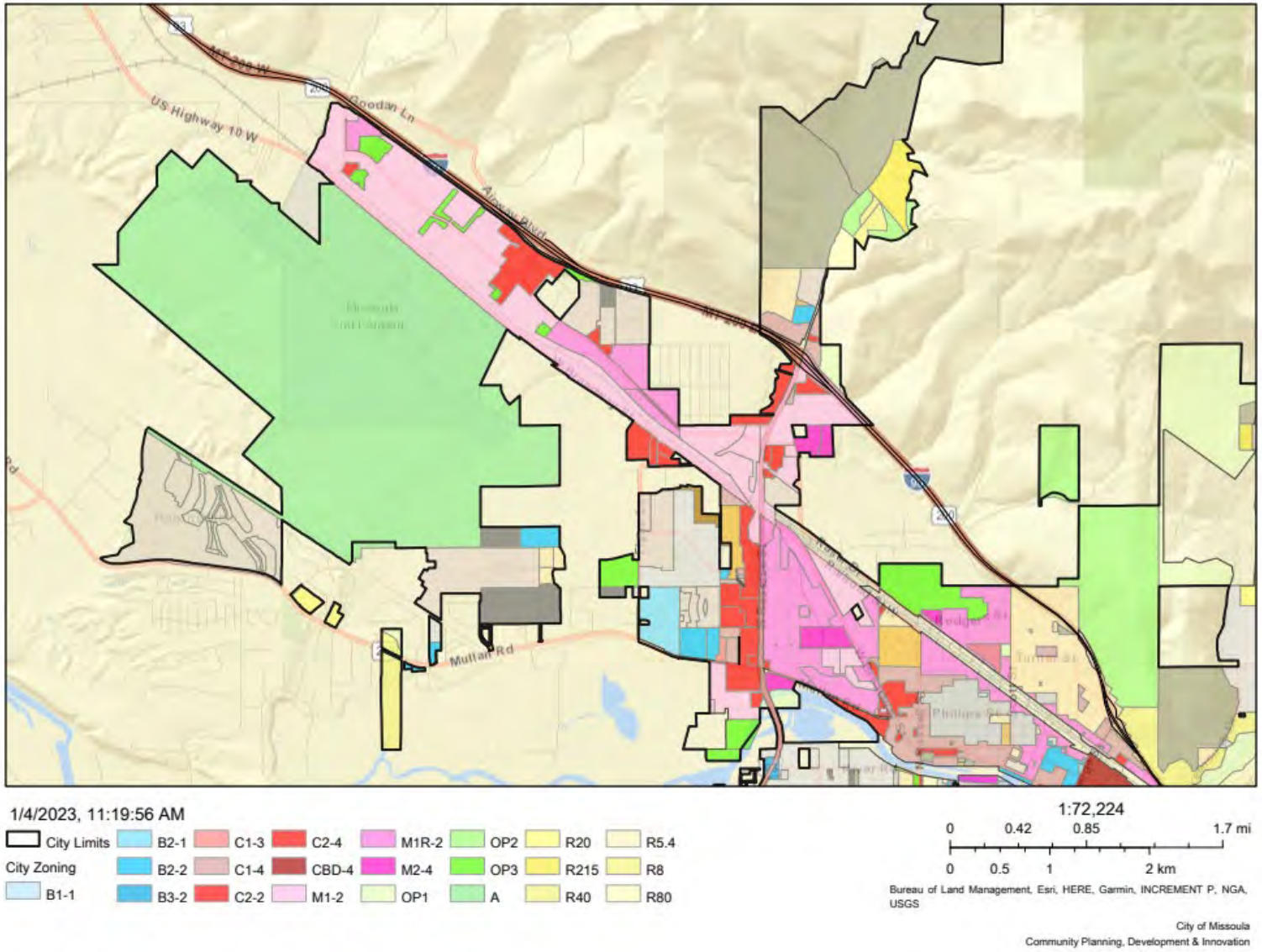


Figure 1-25: City of Missoula Zoning

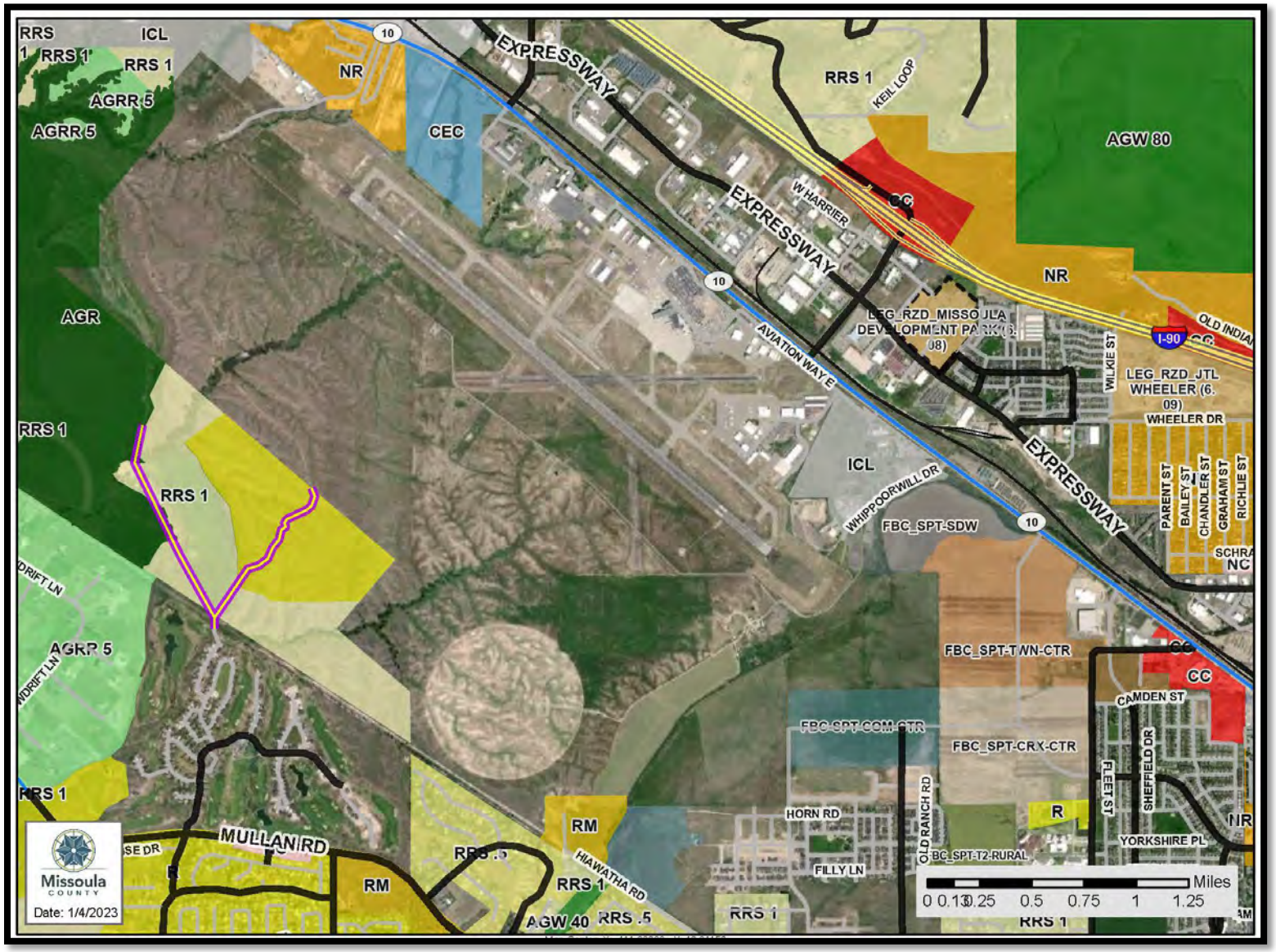


Figure 1-26: Missoula County Zoning

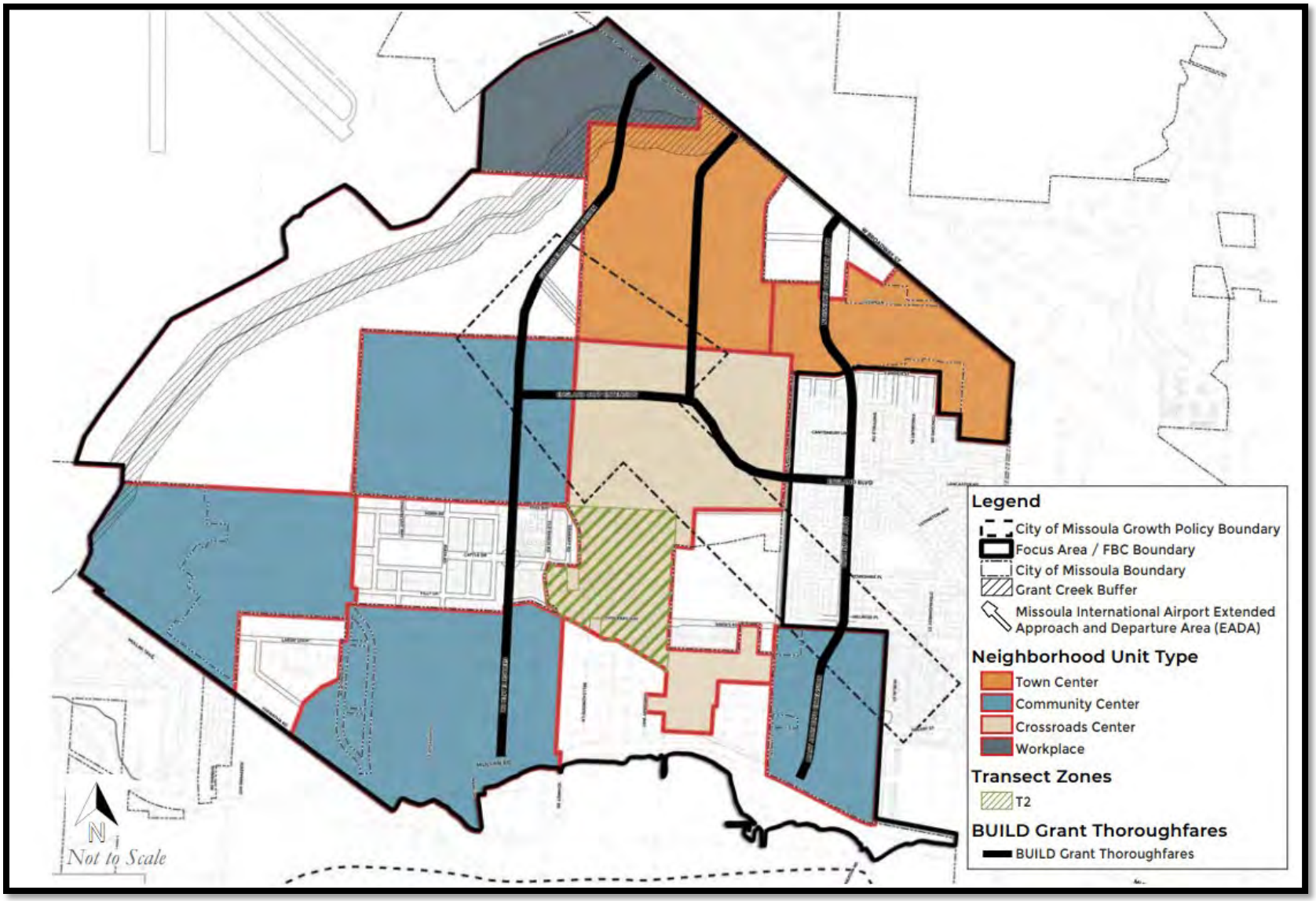


Figure 1-27: Sxwtpogyen Neighborhood Unit Plan - Gorm Based Code Regulatory Map

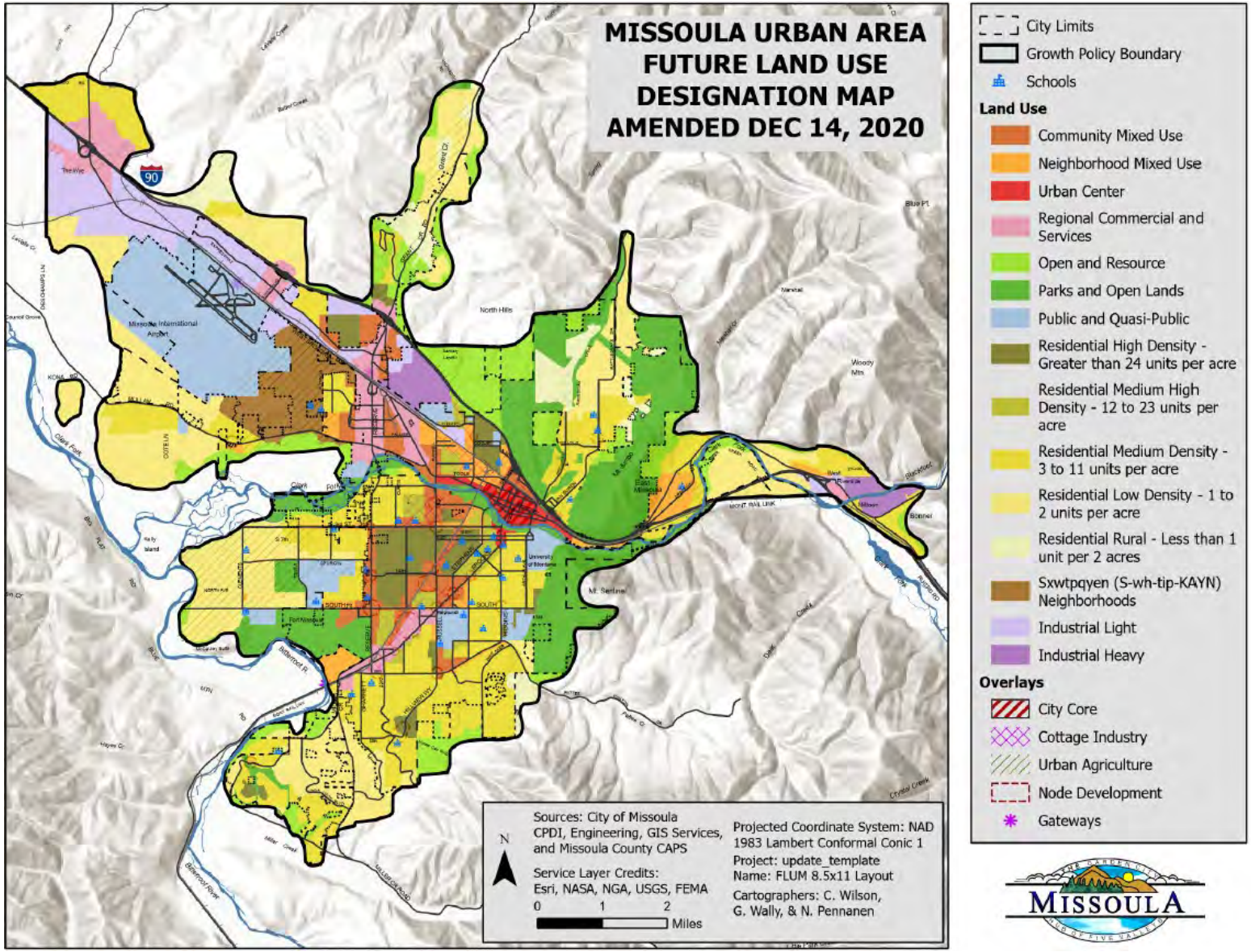


Figure 1-28: City of Missoula Future Land Use

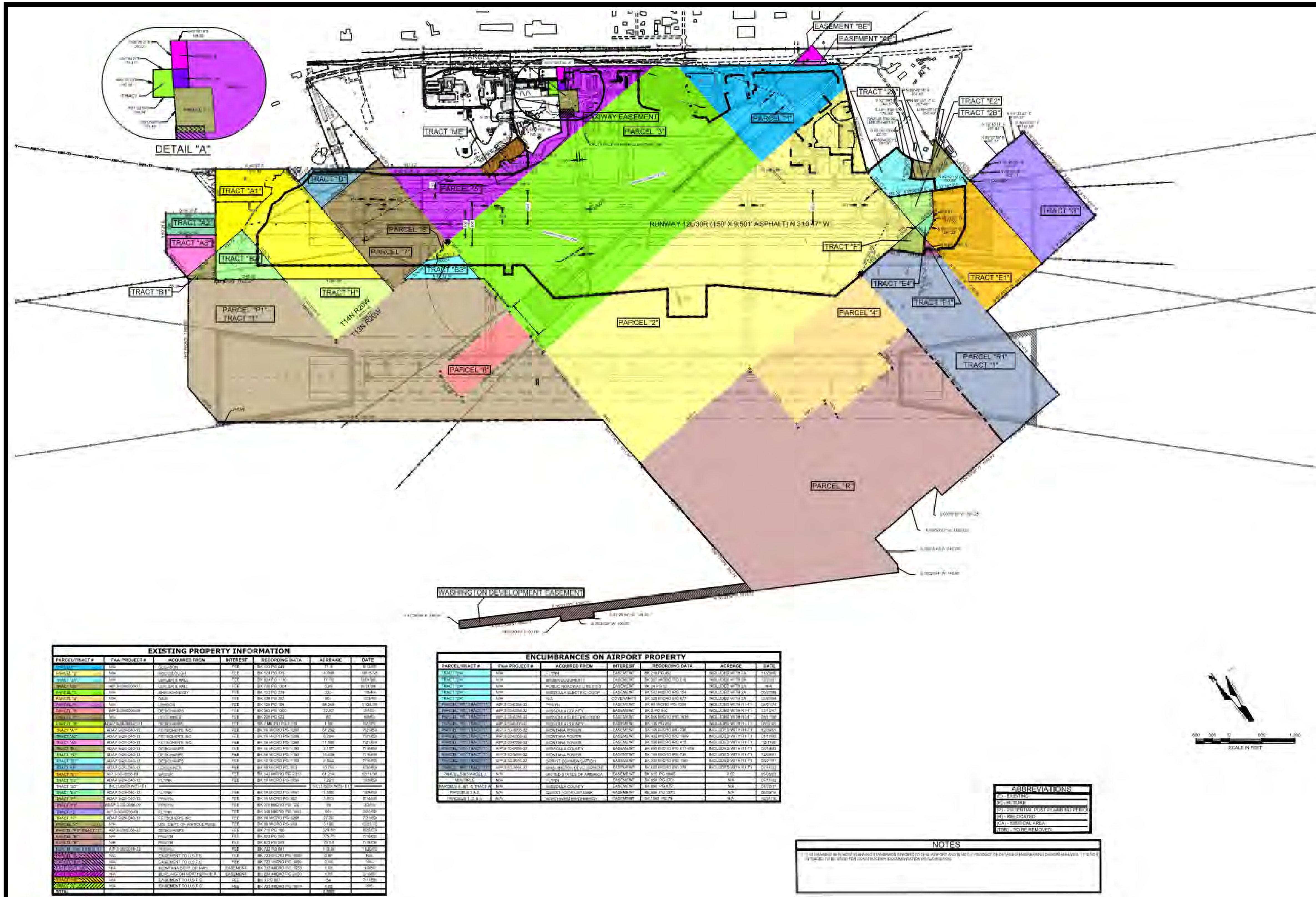


Figure 1-29: Property Map Exhibit A

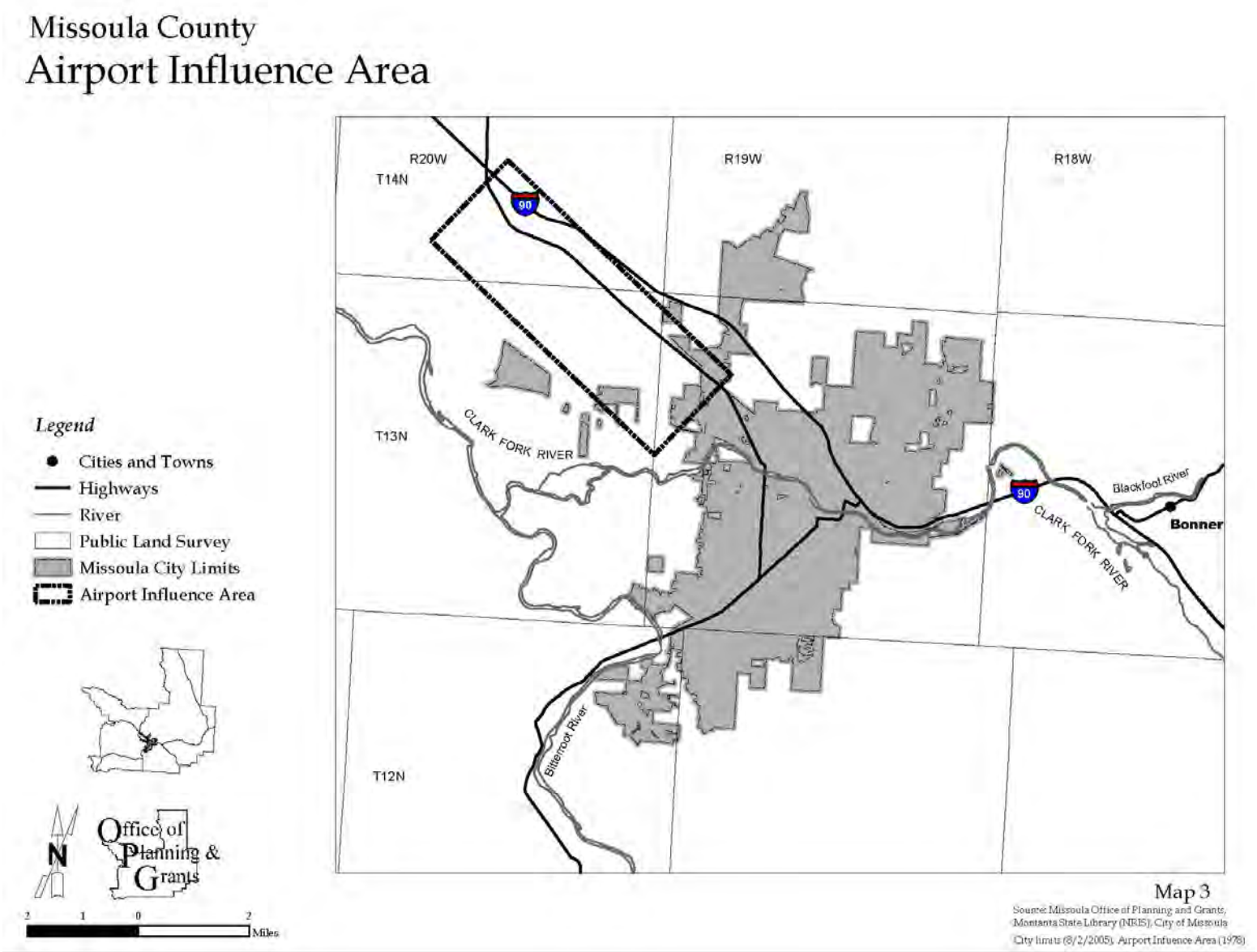


Figure 1-30: Airport Influence Area