
CHAPTER 3: TERMINAL AREA & SUPPORT FACILITIES

Introduction

This Chapter of the Airport Master Plan is focused on the Terminal Area and Support Facilities which includes the aprons, taxilanes, hangars, and access roads. The chapter follows the **Runway and Taxiway** chapter where the primary aircraft movement takes place. This chapter addresses the existing and future facility needs at MBG.

This chapter analyzes the landside requirements necessary to support airport, aircraft, and passenger operations. It will consider forecasted planning activity levels for based aircraft and operations. Alternative choices will be presented based on findings along with the decision on a preferred alternative. The following elements are provided for examining terminal area/support facilities:

- [Planning Activity Levels](#)
- [Existing Terminal Area Uses](#)
- [Aircraft Storage](#)
- [Aircraft Parking & Movement](#)
- [Support Facilities](#)
- [Requirements Summary](#)
- [Alternatives](#)
- Preferred Alternative

Planning Activity Levels (PALs)

These PALs are carried forward from **Chapter 1** and are used later in this chapter to determine the requirements for facilities through the planning period. There are various airport activity measures used to determine airport facility requirements including annual operations, peak hour activity, and based aircraft. Airport activity can be sensitive to industry changes, and national and local economic conditions. This results in difficulty in identifying a specific calendar year for associated demand-driven improvements.

For this study, PALs are used to identify demand thresholds for many recommended facility improvements. If an activity level is approaching a PAL, then the airport should prepare to implement the improvements. Alternatively, activity levels that are not approaching a PAL can allow improvements to be deferred. The demand forecasts developed in this study correspond to an anticipated planning level calendar year to each PAL (2029, 2034, 2039, 2044) from the preferred aviation forecasts as seen in **Table 3-1** and **Table 3-2**.

Table 3-1 – Planning Activity Levels (PALs)

Key Activity Metrics	Base	PAL 1	PAL 2	PAL 3	PAL 4
Forecast Year	2024	2029	2034	2039	2044
Operations	5,270	5,460	5,652	5,846	6,050
Based Aircraft	13	14	16	17	19

Source: KLJ Analysis

Table 3-2 – Peak Airport Operations Forecast

Metric	Base	PAL 1	PAL 2	PAL 3	PAL 4
Peak Month (11%)	558	601	622	643	665
Busy Day (15%)	21	22	23	24	24
Design Hour (20%)	4	4	5	5	5
Itinerant					
Busy Day	17	17	18	19	19
Design Hour	3	3	4	4	4

Source: KLJ Analysis

Existing Terminal Area Users

General Aviation

General Aviation (GA) includes all civil aviation activities except for commercial service. Providing necessary facilities and access for general aviation users at MBG will continue to be important for the vitality of the City of Mobridge and the surrounding counties. General aviation facilities evaluated in this section include aircraft storage hangars for based tenants and transient customers, aircraft parking apron, and terminal building to accommodate future capacity needs.

Business Operators

Business operators could include anything from air charter companies, corporate flight departments, and more. Usually, these operations require accommodation for their crew and passengers which can be provided by Fixed Base Operators (FBOs). FBOs are commercial businesses providing multiple aviation services to the public, primarily for general aviation. Specialized Aviation Service Providers (SASOs) are commercial aviation businesses providing one or a few services.

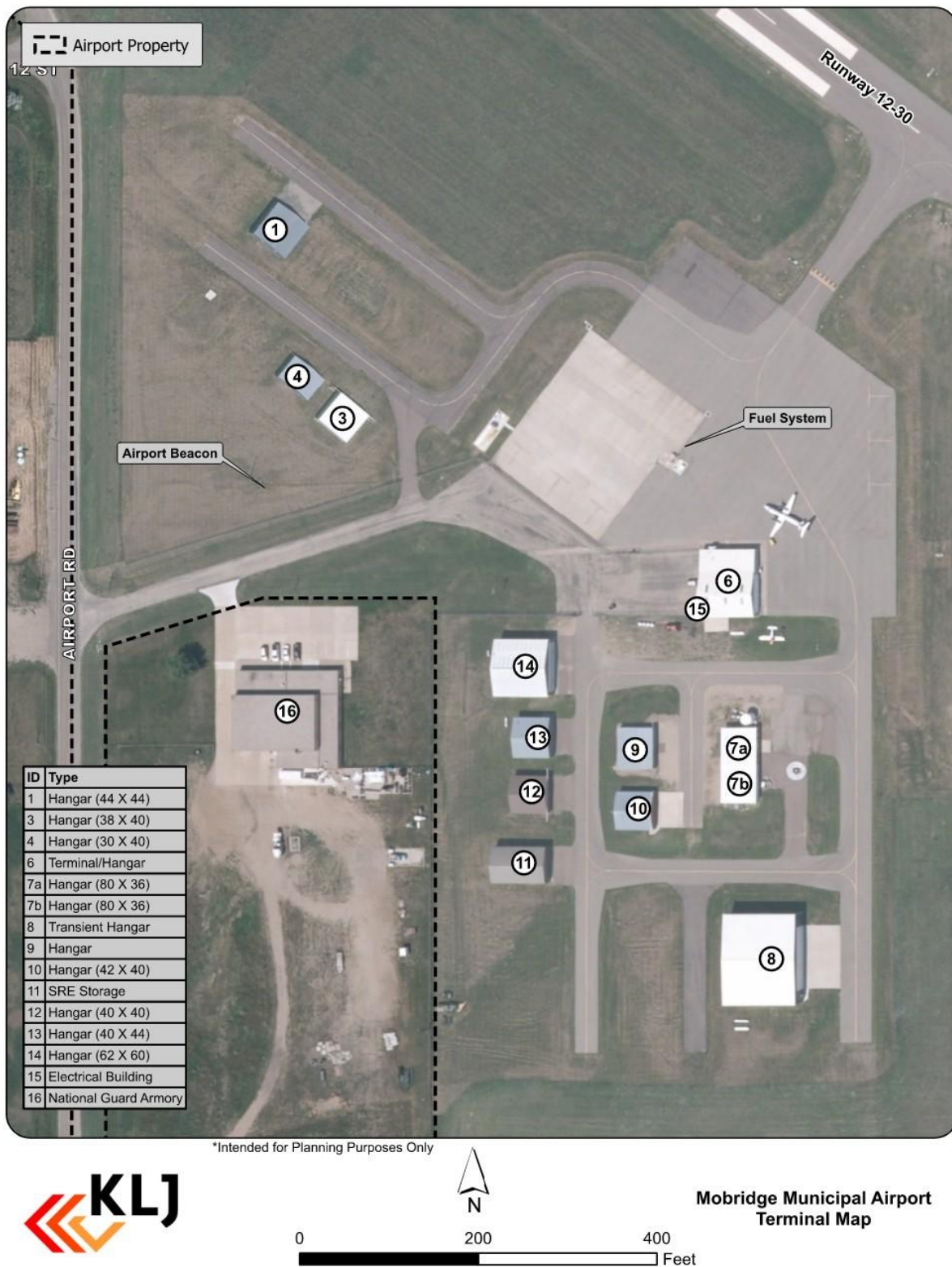
The City of Mobridge currently provides self-fueling and limited aircraft storage similar to an FBO services. Services are available in the terminal building which is on the south edge of the apron. There are currently no FBOs or SASOs at MBG.

Air Cargo

MBG receives regularly scheduled cargo flights from Alpine Air Express. In 2023, there were approximately 500 flights, operated by Beechcraft 1900C freighter aircraft. Cargo is loaded and unloaded on the apron. There is currently no dedicated apron space for cargo operations. Alpine Air Express has a ground power unit (GPU) and a tractor with a tow bar stationed at the airport.

If air cargo operations grow, it is recommended a dedicated portion of the apron area be considered to accommodate the loading and unloading of aircraft to not interfere with other airport operations.

Figure 3-1 – Terminal Area Facilities Map



Aircraft Storage

Aircraft storage requirements are driven by operational requirements, aircraft size, local climate, and owner preferences. For based aircraft, the harsh winters in the upper Midwest drive all owners to seek aircraft storage facilities rather than outdoor parking on an aircraft parking apron. Owners prefer to have covered, secure storage for their aircraft with space for other aeronautical facilities including an office or maintenance/storage areas. All based aircraft at MBG are stored in aircraft storage hangars. Transient aircraft travel to airports for up to a few days at a time. These aircraft typically park on the aircraft apron or seek temporary indoor aircraft storage, especially during adverse weather conditions. Existing aircraft storage facilities are listed in **Table 3-3** and are identified in **Figure 3-1**.

Table 3-3 – Aircraft Storage Facilities

Facility Number	Location	Description	Storage Area (SF)
1	Northwest Taxilane	Hangar	2,020
3	Northeast Taxilane	Hangar	1,520
4	Northeast Taxilane	Hangar	1,200
6	Apron	Terminal/Hangar	3,000
7	Southwest Taxilane	T-Hangar (A/B)	2,800
8	Southwest Taxilane	Transient Hangar	8,000
9	Southeast Taxilane	Hangar	1,600
10	Southeast Taxilane	Hangar	1,680
12	Southeast Taxilane	Hangar	1,600
13	Southeast Taxilane	Hangar	1,760
14	Southeast Taxilane	Hangar	3,720
TOTAL		Conventional Hangars	17,900
		Transient Hangars (6 & 8)	11,000
		Grand Total	28,900

Source: City of Mobridge & KLJ Analysis

Based Aircraft Storage

All 13 based aircraft are currently stored in approximately 17,900 square feet of available aircraft storage space. Hangar # 6 and #8 (see **Figure 3-1**) with 11,000 square feet of hangar space is used for transient aircraft only. The following factors are used for aircraft storage space requirements:

- Single-Engine Piston/Other/Ultralight: 45' x 30' storage area (1,400 SF)
- Multi-Engine/Turboprop: 50' x 50' storage area (2,500 SF)
- Other: 40' x 30' storage area (1,200 SF)
- Additional 20 percent for general aeronautical storage and supplies

Using these factors with based aircraft forecasts, a projected need for based aircraft storage space is determined. It is important to understand that this projection provides a broad estimate of needed space into the future for facility planning. Actual space needs are demand-driven. For example, the presence of an FBO or SASO may require additional space for aircraft maintenance.

Table 3-4 – Based Aircraft Storage Requirements

Category	Existing	Base	PAL 1	PAL 2	PAL 3	PAL 4
Based Aircraft Forecast						
Single Engine Only*	12	12	13	15	16	18
Based Aircraft Storage Space (SF)						
Aircraft Storage Space	17,900	16,800	18,200	21,000	22,400	25,200
Capacity/(Deficiency)	-	1,100	(300)	(3,100)	(4,500)	(7,300)

Source: KLJ Analysis. Note: **RED** indicates a deficiency to existing capacity. *Turboprop Based Aircraft are In Transient Storage

The above analysis suggests sufficient aircraft storage space exists to accommodate based aircraft needs only until PAL 1. In addition, it should be noted that Hangars #1, #3, and #4 (see **Figure 3-1**) totaling 4,740 square feet are in poor condition and are needing to be replaced. The recommended hangar types to accommodate aircraft storage depend on airport and aircraft owner preferences and financial position. Hangars are constructed with public or private funds as demand warrants. This facility requirement analysis shows there is a need for approximately 40 percent more total hangar space at MBG to accommodate forecasted based aircraft through PAL 4. There are two main hangar types:

- T-Hangar: Nested small aircraft storage units within a rectangular building.
- Conventional Hangar: Commonly known as “box” hangars are square/rectangular.

Transient Aircraft Storage

Transient aircraft storage is utilized on an as-needed basis as aircraft require temporary storage. Aircraft types that require this type of storage are typically larger and more expensive airplanes such as turboprop and turbojet aircraft. Storage timeframes vary but can be for a few hours to several days.

The transient aircraft operations forecast was used based on peak design hour operations which is four as the base. Transient aircraft storage should plan to accommodate three single-engine and two multi-engine/turboprop airplane. **Long-term needs would require additional storage for a turbojet aircraft.** Total aircraft storage needs are summarized in **Table 3-6** and show additional storage space, especially for based aircraft, is needed starting at PAL 1 with a gradual increase through PAL 4.

Table 3-5 – Transient Aircraft Storage Requirements

Category	Existing	Base	PAL 1	PAL 2	PAL 3	PAL 4
Transient Aircraft Storage Space (SF)						
Busy Day*	-	21	22	23	24	24
CTransient Hangar	11,000	9,200	9,200	11,700	11,700	11,700
Capacity/(Deficiency)	-	1,800	1,800	(700)	(700)	(700)

Source: KLJ Analysis. Note: **RED** indicates a deficiency to existing capacity. * Mixture of 10-15% for Piston plus 2-3 Turboprops

Table 3-6 – Total Aircraft Storage Requirements

Category	Existing	Base	PAL 1	PAL 2	PAL 3	PAL 4
Total Aircraft Storage Space (SF)						
Based Aircraft	17,900	16,800	18,200	21,000	22,400	25,200
Transient Hangar	11,000	9,200	9,200	11,700	11,700	11,700
Total	28,900	26,000	27,400	32,700	34,100	36,900
Capacity/(Deficiency)	-	2,900	1,500	(3,800)	(5,200)	(8,000)

Source: KLJ Analysis. Note: **RED** indicates a deficiency to existing capacity.

Aircraft Parking & Movement

Aprons

The apron areas serve the loading, unloading, parking and maneuvering needs for general aviation operations and air medical operations. The GA aircraft parking apron is utilized by transient or based aircraft. Since all the based aircraft at MBG are stored in hangars, the aircraft parking requirements will primarily be necessary for transient aircraft.

The apron at MBG is roughly 9,300 square yards (SY) of asphalt and roughly 3,200 SY of concrete, bringing the area to a total of 12,500 SY. There are currently four tiedown spots on the concrete and three on the asphalt along the northeast edge of the apron. The taxilane on the concrete is a Taxiway Design Group (TDG) 1B while the taxilane on the asphalt is a TDG-2A. Please see **Appendix B – General Aviation Airports 101** for more information on TDG standards. The asphalt taxilane leads to the northern part of the airport that houses three storage hangars and the southern part of the airport with the majority of the storage hangars. The self-serving fuel facility is located in the center of the apron between the concrete and asphalt and the GA terminal building including pilots lounge/equipment storage building is located along the south edge of the apron.

AIRCRAFT DEMAND

Transient aircraft require parking for a period ranging from a few minutes to a few days. Itinerant aircraft will require either covered aircraft storage (based or transient) or apron parking space. The apron size is driven by the number and size of maneuvering and parked aircraft.

A general rule of thumb is to plan for the same number of tie-downs as the peak hour operations. Only itinerant operations were used to project apron needs at MBG. The number of total and equivalent aircraft parking positions required at MBG is calculated below and identified in **Table 3-7**.

Table 3-7 – Aircraft Parking Requirements

Category	Existing	Base	PAL 1	PAL 2	PAL 3	PAL 4
Transient Aircraft Parking						
Total Operations	-	5,270	5,460	5,652	5,846	6,050
Itinerant Arrivals (27%*)	-	1,423	1,474	1,526	1,578	1,534
Itinerant Busy Day Operations	-	17	17	18	19	19
Busy Day Arrivals (250%)	-	4.3	4.3	4.5	4.8	4.8
Total ADG-I Aircraft	-	3.6	3.6	3.8	4.0	4.0
Total ADG-II Aircraft	-	0.7	0.7	0.7	0.8	0.8
Equivalent Tie-Downs (Rounded)	4**	5	5	6	6	6
Capacity/(Deficiency)	-	(1)	(1)	(2)	(2)	(2)

Source: KLJ Analysis. Note: **RED** indicates a deficiency to existing capacity.

*Average value based on fleet mix and methodology assumptions, **Tie-downs do not allow ADG-II parking

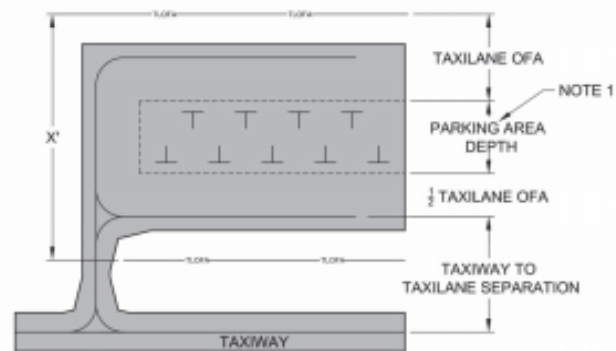
Through PAL 4 a total of 5 equivalent aircraft tie-downs are needed to meet demand. This translates into 3 small aircraft and 1 large aircraft parking positions. Forecast aircraft tie-down needs through PAL 4 is less than the existing total number of tie-downs (4). **It is important to note that the three tie-downs on the asphalt are within the Runway Visibility Zone (RVZ) and need to be removed to meet line of sight requirements. These three tie-downs are not included in the total of four existing tie-downs.**

SIZE & CONFIGURATION

The Single Engine aircraft position requires 230 SY of area while larger multi-engine, turboprop and turbojet aircraft require approximately 500 SY. The apron area also includes at least one taxilane and therefore the total apron area can be calculated by multiplying the aircraft parking by 2.42 for ADG-I Taxilanes and by 3.00 for parking with ADG-II Taxilanes.

Apron size must accommodate both the required aircraft parking positions and maneuvering standards. Aircraft maneuvering at MBG is required to accommodate safety setbacks for FAA Airplane Design Group (ADG) II wingspans. The current apron configuration does not meet maneuvering nor parking standards for the design aircraft.

The preferred apron design for Design Group II aircraft is a dual-taxilane configuration to support taxi-in and taxi-out operations. Parking areas shall be lighted with stand-alone flood lighting to enhance night operations and to improve security. ADG-I aircraft can be accommodated with parking positions served from a single taxilane as is the case with the current aircraft parking configuration.



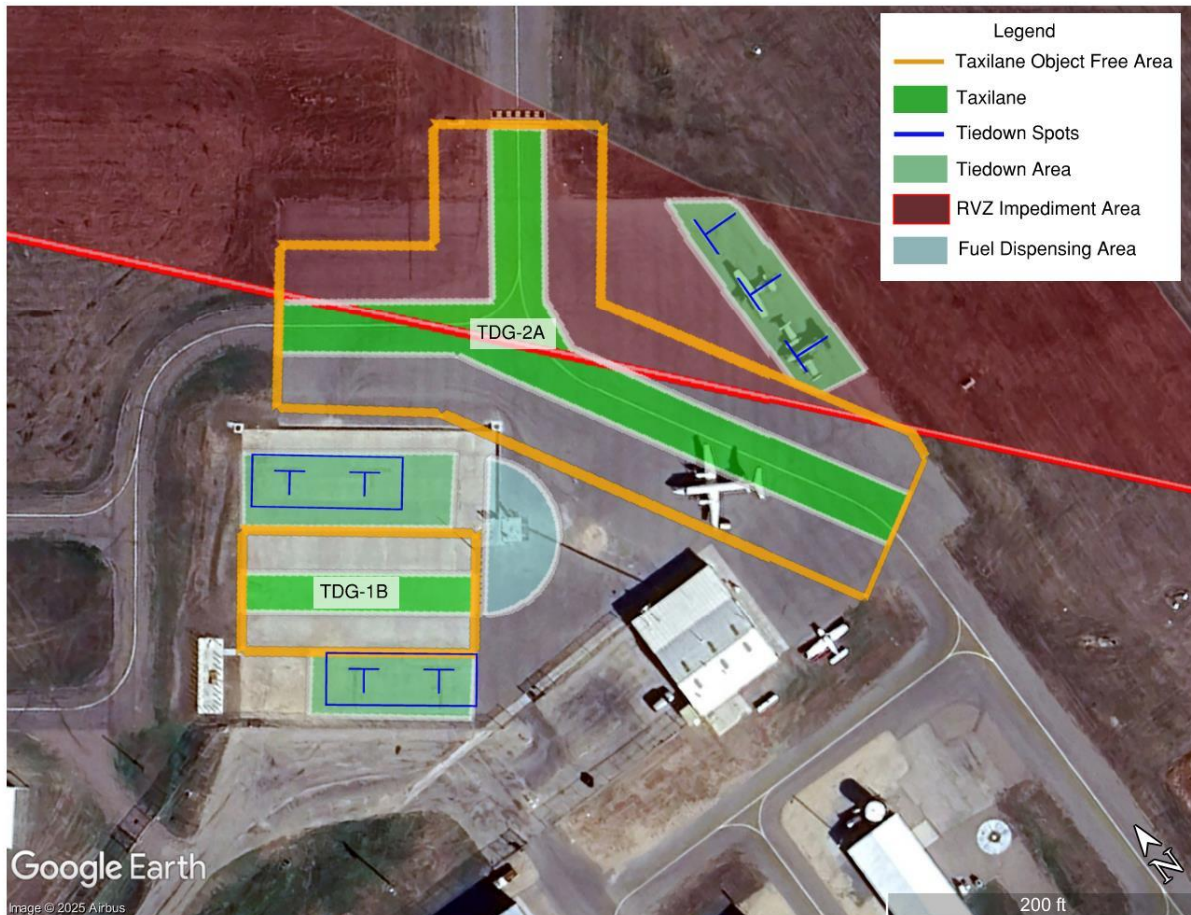
Dual-Taxilane Apron Configuration (ACRP Report 96)

Based on this assessment, the existing apron is sufficient to accommodate the existing and projected need. Though the amount of space needed is met, the layout presents multiple problems:

- The Alpine Air Beechcraft 1900C parks next to the current terminal impeding on the taxilane leading to the south hangar area.
- When the 1900C is parked and an aircraft is on the southernmost tiedown spot on the asphalt, the taxilane is minimized making it hard for aircraft to pass through.
- The fuel dispensing location sits in the center of the current apron impeding on the taxilane to the concrete tiedown spots.
- Most of the tiedowns in the northeastern part of the apron are within the RVZ and no aircraft should be parked within the area.
- Parts of the apron are not eligible for FAA funding for those parts are considered “unusable” apron areas.

The general aviation apron space will require reconfigured tie-downs and current taxilanes, parking spaces to meet ADG-II needs along with possible relocation of the fuel dispensing facility. It is recommended all apron space continue to be lighted at all times with stand-alone flood lights around the terminal building area. **Figure 3-2** shows the current apron layout with usable pavement.

Figure 3-2 - Apron Area Pavement Use



Source: KLJ Analysis

Taxilanes

There is a 25-foot wide taxilane leading from the north end of the apron branching off to two additional 25-foot wide taxilanes. One taxilane currently houses one individual hangar while the other to the west houses two individual hangars.

Leading off the south end of the apron is a 35-foot wide taxilane heading directly south running parallel to the turf runway. This taxilane houses the City's hangar that is used for transient aircraft. The taxilane then has two 25-foot wide taxilanes heading west that then connect to another 25-foot wide taxilane leading south along the western edge of the airport property. The western most taxilane leading north to south has four individual hangars on the northern half of the taxilane. There is also a 25-foot wide taxilane going north to south from the northern west to east taxilane that currently has two individual hangars. Finally, there is a 25-foot wide taxilane which also goes north to south from the southern west to east taxilane and sits west of the City's hangar.

The 25-foot wide taxilanes are TDG-1B and the 35-foot wide taxilanes are TDG-2A. All the taxilanes meet taxilane object free area (TLOFA) design standards and are all asphalt. Please see **Figure 3-1** for taxilane layout.

Pavement condition

According to the 2024 South Dakota Pavement Condition Index (PCI) Study; the asphalt area of the apron has a PCI of 76 and the concrete apron has a PCI of 90. The asphalt qualifies as satisfactory and the concrete is in good condition.

The three taxilanes off the north end of the apron have a PCI of 15 which is failing pavement. The remaining taxilanes south of the apron have a PCI of 96-98 that are in good condition.

It is recommended that the airport maintain the pavement to continue to be in good condition. Those taxilanes that are failing will be evaluated in the alternatives to determine if upkeep of them is necessary. Please see **Figure 2-2** for a graphic of the PCI map in **Chapter 2**.

Support Facilities

Airfield support facilities are those which contribute to the safe and efficient operation and maintenance of an airport. These facilities aim to enhance airport operations and the experience of the travelling public. The following section describes some common support facilities as they apply to MBG.

Terminal Building

The size of the GA terminal building is based on the number of passengers and types of services. Although additional facilities can be provided, at a minimum the terminal building serving general aviation needs should include the following services:

- Passenger Waiting Area
- Restrooms
- Vending
- Pilots Lounge/Flight Planning
- Mechanical Room
- Storage Room
- Circulation

The terminal building should be located adjacent to the transient aircraft parking apron with good visibility to the airfield, and be in close proximity to the automobile parking and waiting area. In most cases the terminal building is located within or near the Fixed Base Operator (FBO) providing aeronautical services. The terminal building and services at MBG is provided by the City of Mobridge and is located on the south edge of the asphalt apron. It is estimated there is 1,600 SF of terminal space usable for passengers while the other 3,140 SF is used for equipment storage.

The estimated planning-level size of the terminal building is based on peak hour total airport operations, 2.5 passengers per peak hour operation and 100 square feet of space per passenger as identified in [ACRP Report 113, Guidebook on General Aviation Facility Planning](#). These figures provide an estimate of the number of passengers to arrive, depart and generally flow through the GA terminal. Calculations are summarized in **Table 3-9**.

Table 3-9 – GA Terminal Building Size Requirements

Category	Existing	Base	PAL 1	PAL 2	PAL 3	PAL 4
GA Terminal Building Size (SF)						
Peak Design Hour Operations	-	4	4	5	5	5
Number of Passengers	-	10	10	12.5	12.5	12.5
Total Building Size	1,600	1,000	1,000	1,250	1,250	1,250
Capacity/Deficiency	-	600	600	350	350	350

Source: KLJ Analysis

The existing GA terminal sufficiently meets the existing and projected future GA itinerant passenger needs.

PASSENGER CONVENIENCE

Passenger convenience elements of the terminal for the general aviation pilots and passengers were reviewed. The proximity of the aircraft apron to the terminal building is ideal to minimize outdoor exposure time. The terminal building itself does adequately meet the space and comfort needs for both MBG pilots and passengers. The automobile parking location is adjacent to the terminal building, which is ideal to minimize outdoor exposure time. Currently the terminal vehicle area is available for short-term parking needs only. An on-site airport courtesy car is available for passengers but requires prior completion of a form to confirm availability. There is no full-time dedicated airport manager on-site at the airport though, management can be reached by phone when needed.

Communication Facilities

Communication facilities allow aircraft to transmit and receive clearances to air traffic control to navigate the national airspace system safely and effectively. MBG does not have an air traffic control tower so communication is up to the pilots to follow standard airspace procedures and practices on the Common Traffic Advisory Frequency (CTAF) and Universal Communications (UNICOM) on 122.8. The Air Route Traffic Control Center (ARTCC) is Minneapolis Center and can be contacted through the Remote Communications Air/Ground (RCAG) at Dupree on 135.25 and Flight Service Station (FSS) is Huron on Remote Communications Outlet (RCO) 122.3. Weather frequency for the ASOS is 121.425.

Airport Administration

MBG is owned and operated by the City of Mobridge. Airport administration is comprised of city staff located in off-airport city offices. This arrangement is expected to continue and be sufficient for the planning period. A small administration space should be considered in any future terminal or equipment storage building, however it may not be eligible for FAA funding.

Airport Maintenance & Snow Removal

The airport stores airport maintenance equipment in Building 11 and portions of Hangar 6. Typical equipment includes mowers to cut grass and maintain safety areas as well as snow removal equipment (SRE) to clear airport facilities during inclement weather conditions. Snow removal on the airport is done by the city so there is no airport dedicated snow remove equipment on site.

Snow and ice control equipment typically required includes a carrier vehicle (i.e. dump truck or tractor), snow plows, spreaders, sweepers, and blowers. For non-winter operations, grass cutting is accomplished

with a carrier vehicle (i.e. tractor) and mower attachment. Smaller equipment is also used to facilitate snow removal or grass cutting. Equipment should be stored in a dedicated heated building for timely access and protection from the weather. North facing building doors should be avoided if possible to minimize prolonged snow and ice accumulation.

Total general maintenance equipment storage (MES) space needs are determined by type of equipment planned to be stored. Per [ACRP Report 113](#), the following space assumptions are made to estimate the size of an MES building:

- 3 equipment bays (dump truck, tractor w/ mower, equipment/material storage)
- 1 support bay for general storage at a medium airport (250 to 500 acres in size)
- 600 SF for each equipment storage bay
- 600 SF for each support equipment bay

Currently, the airport does not have a dedicated MES facility. A facility meeting the airports needs for storage should be considered in the terminal/hangar area layout. It should be noted that not all space areas described in this section are eligible for FAA funding.

Fueling Facilities

The City of Mobridge owns the airport fuel facility storing and dispensing 100 octane low lead (AVGAS), jet fuel (JET-A), and automobile gasoline 91 Octane (MOGAS). There is an underground Avgas tank with a 4,000-gallon capacity and an underground Mogas tank next to the Avgas storage with a 1,000-gallon capacity. The Jet-A tank is above ground and is located on the northwest corner of the apron area with a 10,000-gallon capacity. Self-service fuel dispensing units are available 24-hours a day with a credit card. There are no fuel trucks at MBG for fueling of aircraft. Aircraft access the fuel facility in a designated apron space.

Fuel storage needs are driven by having sufficient supply to meet demand and by the size of the fuel delivery truck. An ideal fuel farm should provide a tank capacity of 10,000 gallons to accommodate a full tanker truck (8,000 gallons) to minimize the cost of deliveries. A split tanker with a half-delivery (4,000 gallons) for a 6,000-gallon tank is also acceptable. Fuel tank capacity should meet peak 6-month fuel consumption demands at lower activity airports. Actual fuel consumption is based on many factors including local fuel price and operator preferences.

The Jet-A tank and fuel dispensing system was installed in 2023 in the same area as the Avgas and Mogas fueling equipment. The Avgas and Mogas fueling systems were installed in 1988 and are becoming dated. The 24-hour self-service fuel pumps for Jet-A, Avgas, and Mogas is sufficient for the planning period along with the size of fuel tanks. The location should be compatible with any configuration changes to the apron and the Avgas and Mogas underground storage tanks should be replaced and placed above ground. No fuel trucks are expected to be needed for an airport of this size.

It is important to point out that the movement to achieve unleaded aviation fuel is a developing and changing trend. The FAA's goal is to convert the aviation fleet to unleaded by 2030 through the [Eliminate Aviation Gasoline Lead Emissions \(EAGLE\)](#) program. The airport should continue to monitor the needed process of changing current fuel tanks and how 100LL and unleaded users needs will be met through the planning period.

Fencing, Security & Wildlife

SECURITY & FENCING

The first line of security protection infrastructure is a perimeter fence. Perimeter fencing is not a requirement for non-certificated airports such as MBG. Its installation helps prevent unauthorized persons from entering the airfield. Typically, a 6-foot high fence with added barbed wire is generally recommended at a minimum for security. Airfield access points should be minimized, however those that are needed should be controlled. Ideally, automated controlled access gates would be installed at the apron, hangar area and airport access entry points. Locked field gates would be installed at other airfield access points.

Currently the airport has a 10-foot-high chain link fence around the apron and hangar area then a 4-foot-high barbed wire fence surrounding the remainder of the property. There are three automatic drive through gates; the first one to the north before the landside parking area leading to the Jet-A fuel tank, one on the north edge of the landside parking area, and one on the south edge. There are also two latch gates to walk through, one on the north edge of the landside parking next to the GA terminal building and one on the south edge of the landside parking next to the electrical vault by the GA terminal building. It is recommended the airport continue to maintain the current fencing they have through the planning period in good condition.

WILDLIFE CONTROL & MITIGATION

Controlling wildlife on or near the airport helps mitigate existing and prevent the creation of potential new hazards to aircraft.

Currently the airport has problems with birds, specifically seagulls on the runway and prairie dogs and gophers surrounding the runway. The seagulls like the runway pavement, especially when it is windy because they cannot rest on the Missouri River that is only about two miles west of the airport. The airport currently has a propane cannon which does disperse the seagulls but only in the area it is pointed at.



Several preventative measures were discussed with the airport sponsor to mitigate the bird problem including an automatic laser bird deterrent, sound deterrents, and keeping dead ones around the airfield to “scare” off the live ones. Another important factor is to have pilots report any bird strikes or incidents, this will help identify a problem and there could be possible funding options to help mitigate the birds. It is also important to keep the grass cut so pilots can identify birds around the runway.

Utilities

There are two companies that provide electricity for MBG, Cam Wall Electric Co-Op supplies electricity to the ASOS, while Montana-Dakota Utilities (MDU) is used for everything else at the airport. City water is provided to the GA terminal building. There is a septic tank for sewer and no natural gas for the airport though there are several propane tanks, one which is for the terminal building and one for the city transient hangar.

Landside Facilities

GROUND ACCESS & CIRCULATION

The overall design objective is to provide ground vehicles with access to and from the terminal building and hangar facilities using a primary access road. To achieve this, access points should be secured to the apron, hangar area and any field access points to reduce undesired automobile access. The number of hangar access points should be limited to reduce the possibility of vehicle/aircraft incidents which improves safety. Fuel delivery trucks should have access to tanks without entering airside operations areas. Access roads should be paved to reduce the likelihood of foreign object debris (FOD) on the airside areas where it may become a hazard to aircraft.

The terminal building can be accessed by 287th Avenue or Airport Road. The pavement strength should be sufficient to accommodate a plow truck, fuel tanker and emergency equipment. The alignment of the access road should continue to provide controlled access to airside facilities.

Apron access is provided at the north edge of the public parking area. **All access points should be secured, with the higher activity access points secured with controlled access gates.** Ideally access points should require a turn from the end of a roadway to discourage inadvertent airfield access.

The fuel tanks are currently accessed through the automatic gate before the public parking area north of the access road. The truck then must drive onto the apron area to refuel the tanks.

The north hangar area can be accessed through the same gate as the fuel tanks. The south hangar area can be accessed through the automatic gate located on the south edge of the public parking area leading to the taxilanes.

There are two airfield access points, one to the southeast corner of the airfield and the other on the northern side of the airfield. The southeast corner access is a dirt road via Thunder Road access. This access point leads to the city transient hangar on the south hangar area, the runway 30 end, the east edge of the turf runway, and over to the ASOS. The north side access is from 127th Street that then turns into a dirt road leading to the ASOS and connecting to the other dirt airfield access road.

AUTOMOBILE PARKING

Automobile parking at general aviation airports should accommodate landside access needed to serve aeronautical facilities. Facilities requiring automobile parking include the GA terminal building, aircraft storage hangars, administration, maintenance equipment storage buildings and FBOs. Vehicles should be discouraged from parking in airside areas. Automobile parking lots should be sized for the demand and have appropriate number of handicapped accessible spaces. Lighting is recommended for night-time use and security.

Currently, there is public parking from Airport Road directly adjacent to the terminal building along with an option to park along the fence on the edge of the concrete part of the apron. There are no marked parking spots for any of the paved landside parking. The courtesy car sits in the parking area for pilots to use. There is also no lighting for the parking area, just lighting above the door to the terminal building. Future vehicle parking areas will be evaluated in further detail in the alternatives section later in the chapter.

Requirements Summary

This chapter identifies safety, capacity and development needs for Mobridge Municipal Airport based on forecasted activity levels. These recommendations provide the basis for formulating development alternatives addressed later in this chapter to adequately address recommended improvements. The following summarizes the facility recommendations:

Apron Areas & Taxilanes

- Remove the three tiedowns on the asphalt out of the RVZ.
- Provide adequate TDG-2A taxilane space and plan for at least five ADG-I tiedown spots by PAL 4.
- Phase out northern taxilanes and proactively add taxilanes and appropriate utilities on the south to allow for hangar development.

Hangars

- Make space available for additional private use hangars.
- Add group hangars (T-hangars, executive box hangars) to relocate current north based aircraft to the south and increase based aircraft tenants.
- Plan for larger hangars on apron spaces for Group II aircraft and possible businesses.

Support Facilities

- Place terminal building strategically to support the airport's long-term needs.
- Once replacement is necessary, move the underground Avgas and Mogas storage tanks above-ground, relocate and update the self-service Avgas and Mogas equipment, and relocate the Jet-A self-service equipment.
- Provide space for the storage and distribution of future alternative aircraft fuels.
- Maintain the existing perimeter fence in good condition.

Alternatives

A wide range of alternatives are evaluated to determine the best solution for the airport to meet facility needs. In many cases the process is iterative to react to new information and input. Please refer to the alternative analysis process in **Chapter 1** for details on the factors considered.

A range of alternatives were prepared for consideration and those initial alternatives were reviewed by the Planning Advisory Committee to create a narrower slate of alternatives for further review. In the end a preferred alternative was selected and portrayed at the end of this chapter.

INITIAL ALTERNATIVES

Five initial alternatives were drafted for the terminal area. Each layout presented offered the following components.

- Runway Visibility Zone corrections
- Apron configuration and aircraft parking locations for ADG-I parking and TDG-2A maneuvering
- Fuel system locations
- Possible location of the terminal building
- ADG-I and ADG-II T-hangar and box hangar development areas with proper taxilanes
- Construct new SRE storage
- Large hangars on an apron for Group II aircraft
- Consideration of airport access and parking layout
- Removal of connecting taxiway for no direct access from the apron area to the runway

Alternative 2

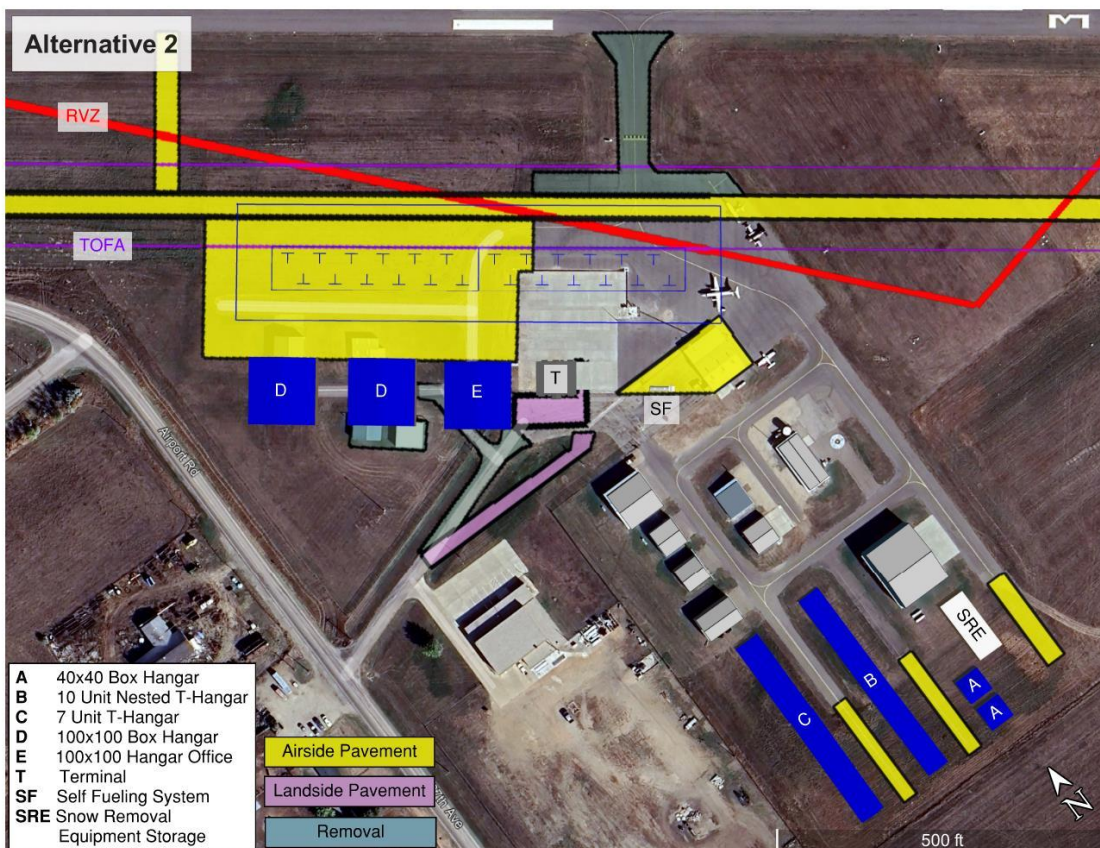
Apron Area:

- Apron extended to the north
- 24 nested tiedown spots parallel to the runway on extended apron
- Three 100' x 100' box hangars, one with an office all on the western edge of the new apron
- New terminal building on the western edge of the current concrete apron
- Self-serve fuel facility and Jet-A storage tank moved to the southwest edge of the terminal apron area
- Reconfigure access road and add parking for the hangar office and new terminal building
- Remove northern taxilanes and three individual storage hangars
- Remove the current terminal building and replace it with asphalt to square up the current apron

Based Tenant Area:

-
- New SRE building will go south of the current large box hangar on the southeastern taxilane
- Extend all southernmost taxilanes
- A seven-unit T-hangar will face east along the southwestern taxilane
- A 10-unit nested T-hangar will be placed between the southwestern and south center taxilane
- Two individual 40' x 40' box hangars will face east along the southeastern taxilane

Figure 3-3 – Alternative 2



Alternative 3

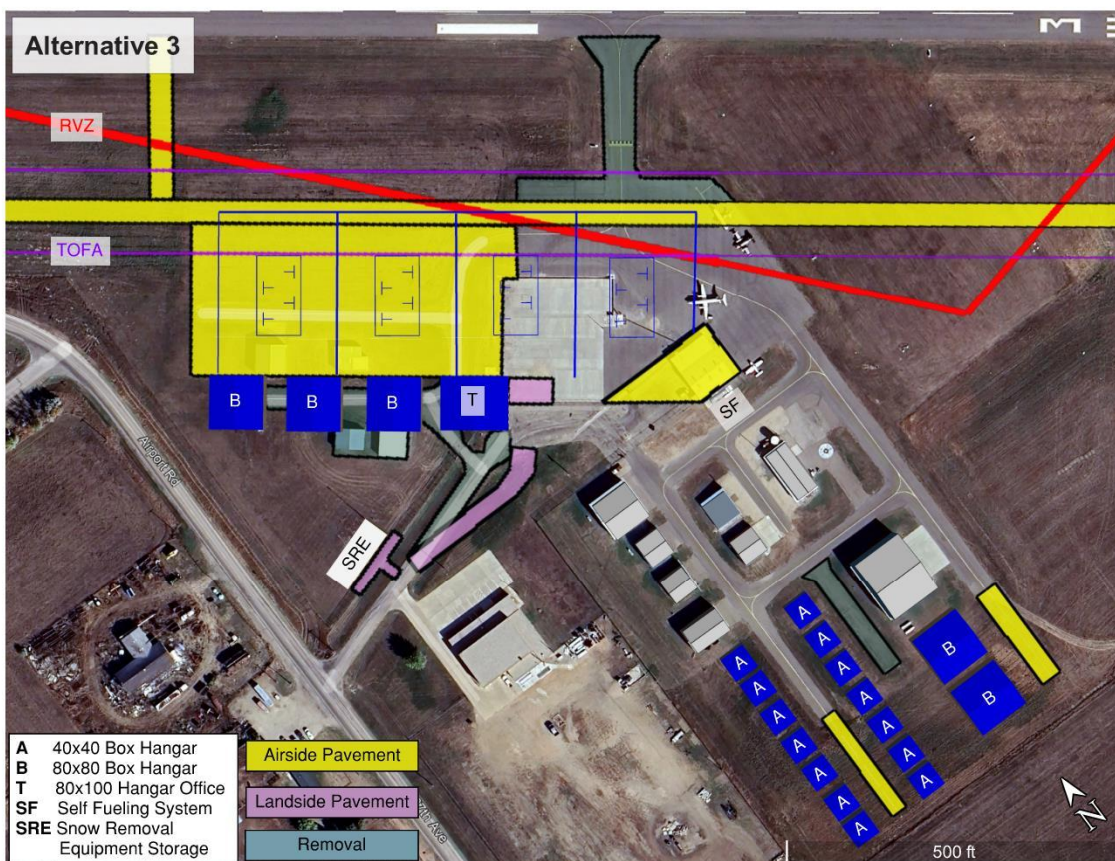
Apron Area:

- Apron extended to the north
- Six nested tiedown spots perpendicular to the runway on the current apron
- 10 nested tiedown spots perpendicular to the runway on the extended apron
- Three 80' x 80' hangar and an 80' x 100' hangar with an office that will be the new terminal building along the western edge of the new apron
- Self-serve fuel facility and Jet-A storage tank moved to the southern edge of the terminal apron
- New SRE building north along the current access road
- Reconfigure part of the current access road and extend parking for the terminal on the current concrete apron
- Remove northern taxilanes and three individual storage hangars
- Remove the current terminal building and replace it with asphalt to square up the current apron

Based Tenant Area:

- Extend the southern west and east taxilanes
- 14 individual 40' x 40' box hangars on the southwestern taxilane
- Two 80' x 80' box hangars facing east on the southeastern taxilane
- Remove southern center taxilane

Figure 3-4 – Alternative 3



Alternative 4

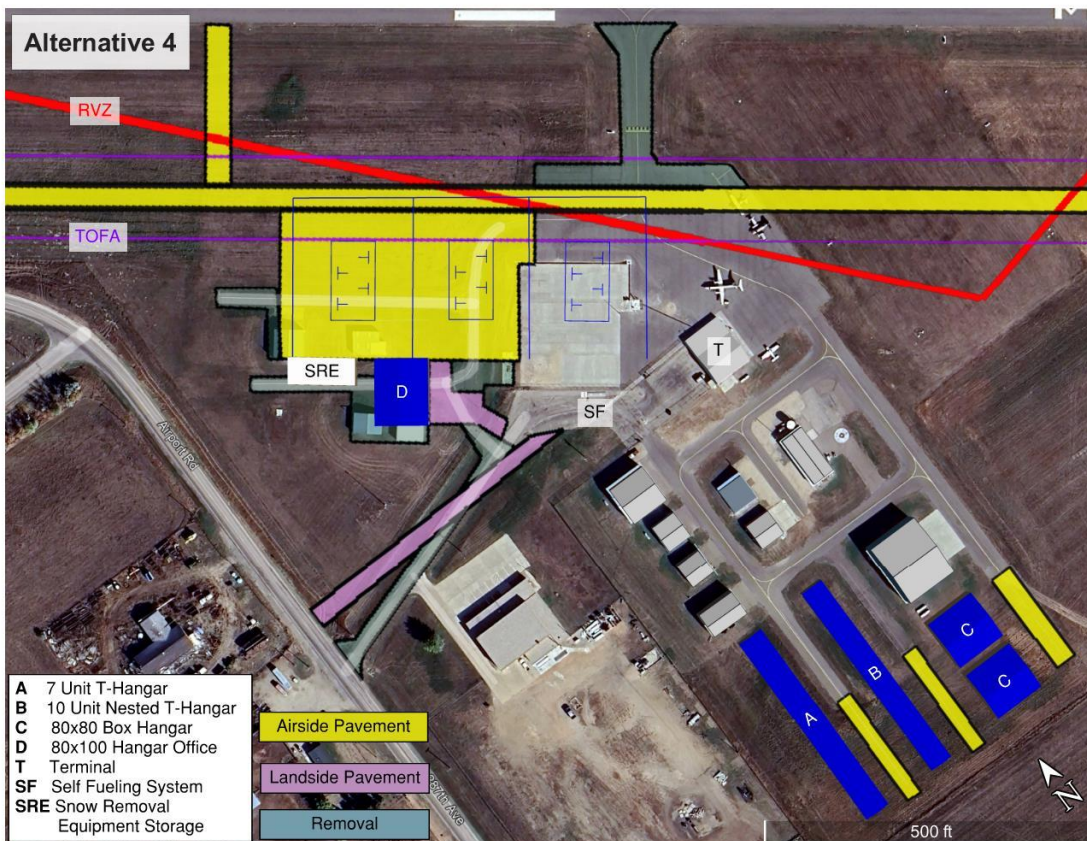
Apron Area:

- Terminal and storage building to remain
- Apron extends to the north
- Four nested tiedown spots perpendicular to the runway on the current apron
- Eight nested tiedown spots perpendicular to the runway on the extended apron
- An 80' x 100' hangar with an office on western edge of extended apron
- New SRE storage building north of new hangar on western edge of extended apron
- Self-serve fuel facility and Jet-A tank relocated to the western edge of the concrete apron
- Reconfigure access road and create parking next to the new office hangar
- Remove northern taxilanes and three individual storage hangars

Based Tenant Area:

- Extend all southernmost taxilanes
- A seven-unit T-hangar will face east along the southwestern taxilane
- A 10-unit nested T-hangar will be placed between the southwestern and south center taxilane
- Two 80' x 80' box hangars facing east on the southeastern taxilane

Figure 3-5 – Alternative 4



REVISED ALTERNATIVES

After presenting these options to the advisory committee alternatives were revised based on the groups feedback. It was decided Alternative 4 and Alternative 5 would be used to make many of the updates to and three revised alternatives were created. It was decided to present the three alternatives to the City of Mobridge rather than the PAC to focus specifically on what the sponsor is looking for.

Revised Alternative 4.1

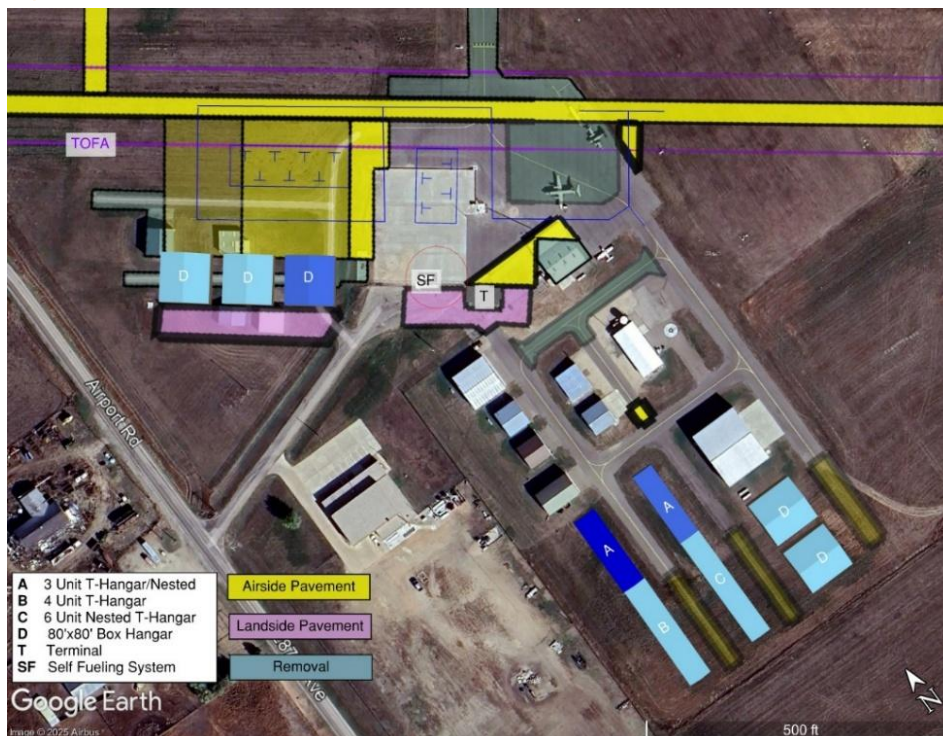
Apron Area:

- New terminal building located along the western edge of the current asphalt apron
- Apron extended north as in Alternative 4
- Four nested tiedown spots perpendicular to the runway on the current apron
- Seven nested tiedown spots parallel with the runway
- Three 80' x 80' box hangars along the western edge of the extended apron
- Relocate self-serve and Jet-A tank on western edge of the current concrete apron
- Add parking directly behind the large box hangars on the extended apron and reconfigure the current parking around the new terminal building
- Remove the current terminal building and replace it with asphalt for taxiing aircraft
- Remove part of current asphalt apron to layout future taxilanes
- Remove northern taxilanes and three individual storage hangars

Based Tenant Area:

- Extend all southernmost taxilanes
- A seven-unit T-hangar will face east along the southwestern taxilane
- A 10-unit nested T-hangar will be placed between the southwestern and south center taxilane
- Two 80' x 80' box hangars facing east on the southeastern taxilane
- Connector taxiway from future parallel taxiway will be added north of current south based tenant taxilane
- Current northern center taxilane will be extended to the south
- Removal of northern taxilane closest to the apron

Figure 3-7 - Revised Alternative 4.1



Revised Alternative 4.2

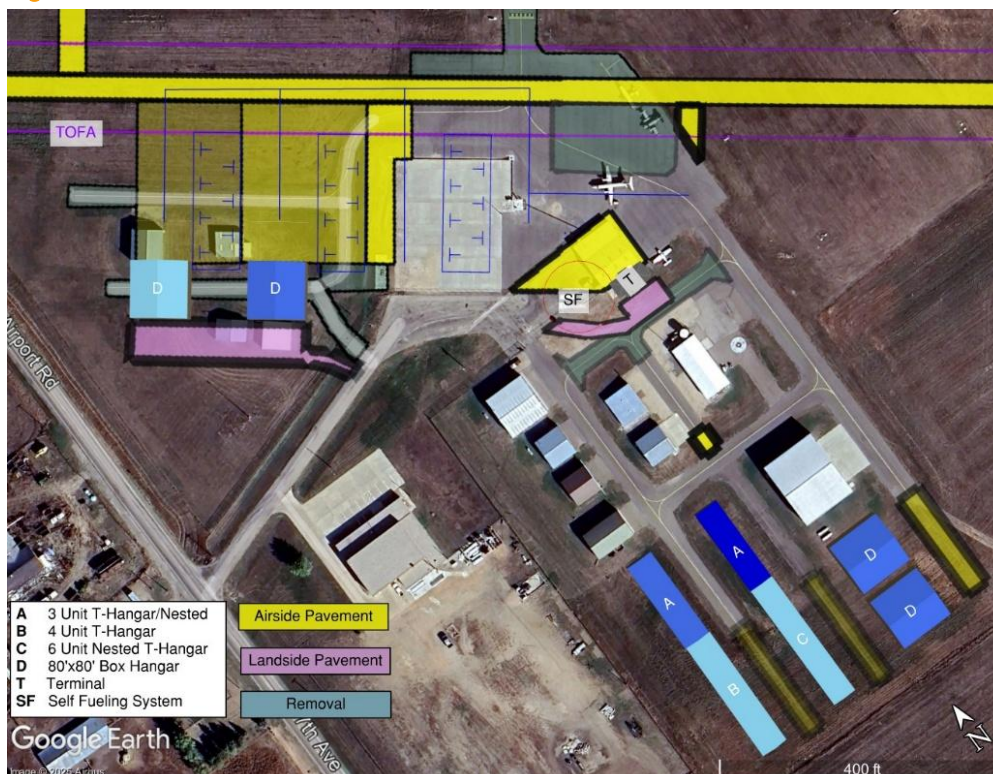
Apron Area:

- New terminal building along the southern edge of the terminal apron area
- Apron extended north as in Alternative 4
- Seven nested tiedown spots perpendicular to the runway on current apron
- 14 nested spots perpendicular to the runway on extended apron
- Two 80' x 80' box hangars along the western edge of the extended apron
- Self-serve fuel facility and Jet-A tank moved to the southwest edge of the terminal apron
- Add parking directly behind the large box hangars on the extended apron and add access and parking area to the new terminal building
- Remove the current terminal building and replace it with asphalt to square up the current apron
- Remove northern taxilanes and three individual storage hangars

Based Tenant Area:

- Extend all southernmost taxilanes
- Current northern center taxilane will be extended to the south
- A seven-unit T-hangar will face east along the southwestern taxilane
- A 10-unit nested T-hangar will be placed between the southwestern and south center taxilane
- Two 80' x 80' box hangars facing east on the southeastern taxilane
- Connector taxiway from future parallel taxiway will be added north of current south based tenant taxilane
- Removal of northern taxilane closest to the apron

Figure 3-8 - Revised Alternative 4.2



Revised Alternative 5.1

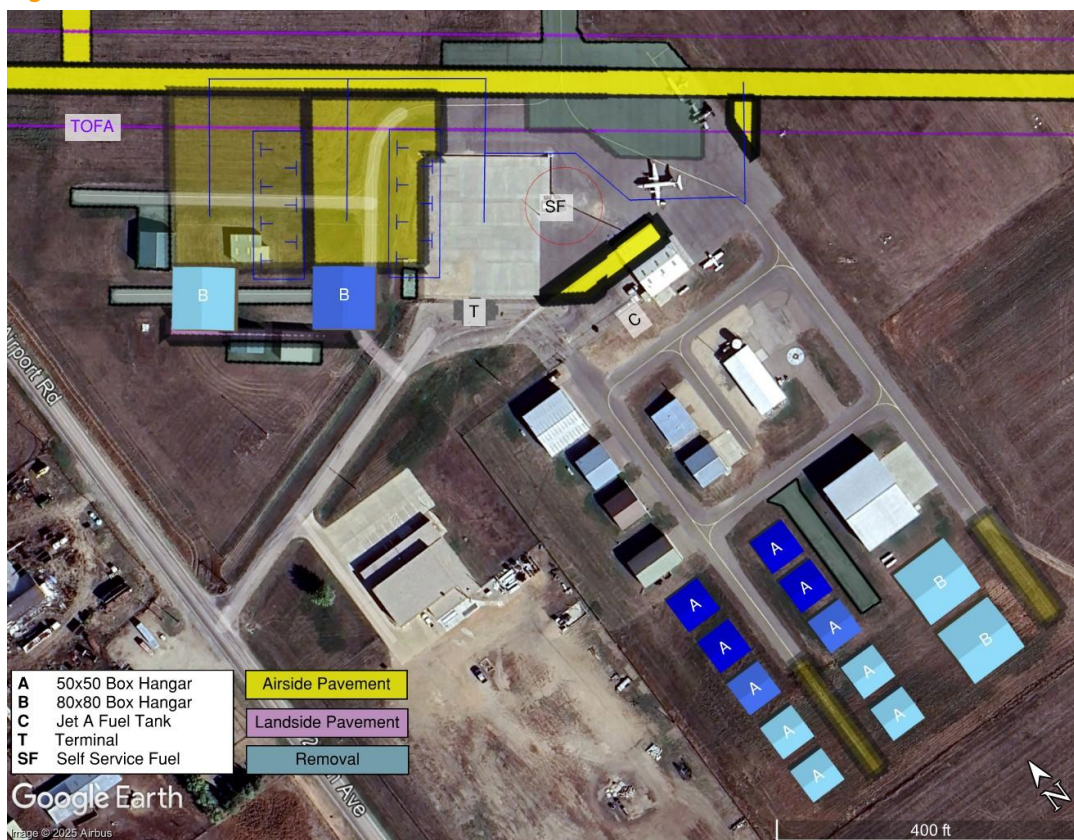
Apron Area:

- The self-service fuel facility will remain in the current location
- A new terminal building will be located along the western edge of the current concrete apron
- Apron extension to the north like Alternative 4.2
- 14 tiedowns spots perpendicular to the runway on extended apron
- Two 80' x 80' box hangars along the western edge of the extended apron
- Relocate the Jet A storage tank west of the current terminal storage building
- Remove the current terminal part of the building and replace it with asphalt to the edge of the current storage part of the building
- Remove northern taxilanes and three individual storage hangars

Based Tenant Area:

- Extend the southern west and east taxilanes
- 10 individual 50' x 50' box hangars on the southwestern taxilane
- Two 80' x 80' box hangars facing east on the southeastern taxilane
- Connector taxiway from future parallel taxiway will be added north of current south based tenant taxilane
- Remove southern center taxilane

Figure 3-9 - Revised Alternative 5.1



FINAL ALTERNATIVES PRESENTED TO THE CITY

After the city reviewed Alternative 4.1, 4.2, and 5.1, two other alternatives were developed based on their feedback and sent to the city for a final decision.

Final Revised Alternative 5.3

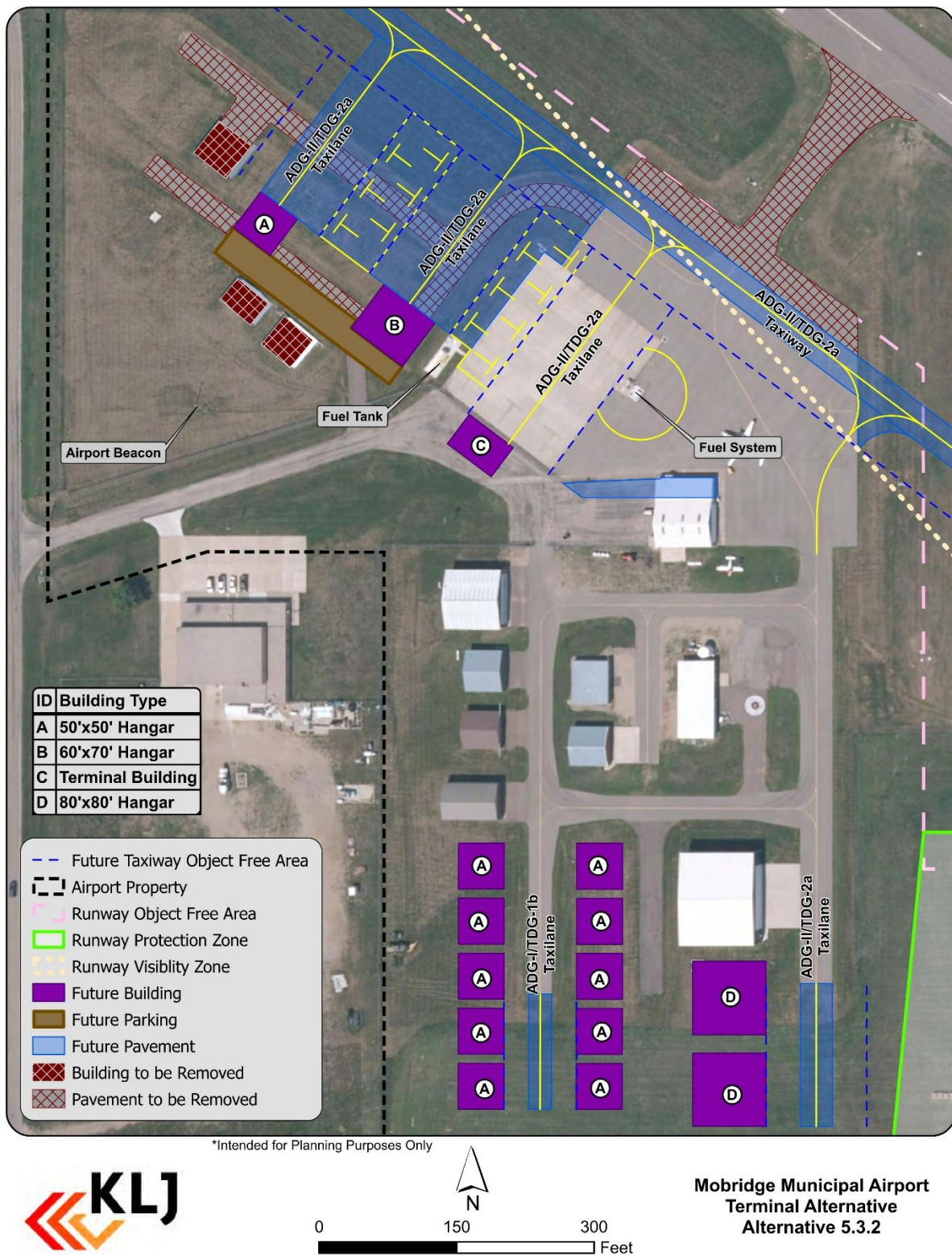
Apron Area:

- The self-serve fueling will remain in the current location along with the Jet A fuel storage tank
- A new terminal building along the western edge of the current concrete apron
- Smaller apron extension north but the same layout as Revised Alternative 5.1.
- Four tiedown spots will be located along the northern edge of the concrete apron with a Group II taxilane
- Tiedown spots perpendicular to runway with three tiedowns in Phase 1 with a Group II taxilane and six tiedown spots in Phase 2 with a Group I taxilane
- A 60' x 70' hangar along the western edge of the Phase 1 extended apron and a 50' x 50' hangar along the western edge of the Phase 2 apron extension
- Access road and parking will extend behind the new hangars off the current access road
- Remove the current terminal part of the building and replace it with asphalt to the edge of the current storage part of the building
- Remove northern taxilanes and three individual storage hangars

Based Tenant Area:

- Extend the southern west and east taxilanes
- 10 individual 50' x 50' box hangars on the southwestern taxilane
- Two 80' x 80' box hangars facing east on the southeastern taxilane
- Connector taxiway from future parallel taxiway will be added north of current south based tenant taxilane
- Remove southern center taxilane

Figure 3-10 - Final Revised Alternative 5.3



Final Revised Alternative 5.4

Apron Area:

- The self-serve fueling will remain in the current location along with the Jet A fuel storage tank.
- A new terminal building located along the western edge of the current concrete apron
- Five nested tiedown locations parallel to the runway on Phase 1 apron expansion with a Group II taxilane and five more additional tiedowns parallel to the runway on Phase 2 apron expansion continuing the Group II taxilane
- A 60' x 60' box hangar next to the Jet A storage tank along the western edge of the Phase 1 apron extension and two additional 60' x 60' box hangars on the western edge of the Phase 2 apron extension
- Access road and parking will extended behind the new hangars off the current access road
- Remove the current terminal part of the building and replace it with asphalt to the edge of the current storage part of the building
- Remove northern taxilanes and three individual storage hangars

Based Tenant Area:

- Extend all southernmost taxilanes
- Current northern center taxilane will be extended to the south
- A seven-unit T-hangar will face east along the southwestern taxilane
- A 10-unit nested T-hangar will be placed between the southwestern and south center taxilane
- Two 80' x 80' box hangars facing east on the southeastern taxilane
- Connector taxiway from future parallel taxiway will be added north of current south based tenant taxilane
- Removal of northern taxilane closest to the apron

PREFERRED ALTERNATIVE

The Sponsor decided the preferred alternative will be Final Revised Alternative 5.4.

Figure 3-11 - Final Revised Alternative 5.4

