

# CHAPTER 3: TERMINAL AREA & SUPPORT FACILITIES

## Introduction

This Chapter of the Airport 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. These two chapters address the existing and future facility needs at U05.

This chapter analyzes the landside requirements necessary to support airport, aircraft and passenger operations. It will consider the critical design aircraft and forecasted planning activity levels for based aircraft and operations. Alternative choices will be presented based on findings along with preferred alternatives. This chapter provides a review of the facility needs for the following categories:

- [Planning Activity Levels](#)
- [Aircraft Storage](#)
- [Apron](#)
- [Taxilanes](#)
- [Support Facilities](#)
- [Alternatives Evaluation](#)

## Planning Activity Levels (PALs)

For planning studies, PALs are used to identify demand thresholds for 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 do correspond an anticipated planning level calendar year to each PAL (2026, 2031, 2036, 2041) from the preferred aviation forecasts.

General Aviation (GA) includes all civil aviation activities except for commercial service. Providing necessary facilities and access for general aviation users at U05 will continue to be important for the vitality of the community. Based aircraft is projected to grow from 11 to 17 through PAL 4 with a growth rate of 2.29 percent annually. Aircraft operations are projected to grow 1.50 percent annually through PAL 4. **Table 3-1** below summarizes projected growth for U05 and peak activity.

*Table 3-1 – Planning Activity Levels*

Metric	Existing	PAL 1	PAL 2	PAL 3	PAL 4
<b>Based Aircraft</b>	11	12	14	15	17
Single-Engine	11	12	13	14	15
Multi-Engine	-	-	1	1	2
<b>Operations</b>					
Annual	2,050	2,208	2,379	2,563	2,761
Busy Day	15.7	16.9	18.2	19.6	21.2
Design Hour	1.0	1.1	1.1	1.2	1.3

Source: KLJ Analysis

## Aircraft Storage

Aircraft storage requirements are driven by operational requirements, aircraft size, local climate, and owner preferences. For based aircraft, the harsh winters drive 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 U05 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.

### BASED AIRCRAFT

Riddick Field currently has 8 conventional hangars situated on the airfield. There is one larger conventional hangar to the south of the apron connected by 770 square feet of concrete. Four hangars are situated along the east edge of the apron and the taxilane heading south. An additional connecting taxilane from the east edge of the apron leads to another three hangars. **Table 3-2 – Aircraft Storage Facilities** and **Figure 3-4 – Terminal Layout** show the existing facilities.

*Table 3-2 – Aircraft Storage Facilities*

Facility Number	Location	Description	Storage Area (SF)
1	Apron	Private	1,170
2	Apron	Private	1,010
3	Taxilane A	Private	1,480
4	Taxilane A	Private	1,200
6	Taxilane B	Private	1,040
8	Taxilane B	Private	1,240
9	Taxilane B	Private	1,570
11	Apron	Private	3,070
<b>TOTAL</b>			<b>11,780</b>

Source: KLJ Analysis

All 11 based single engine aircraft are currently stored in approximately 11,780 square feet of available aircraft storage space. The following assumptions were made about aircraft storage space requirements:

- Single-Engine Piston/Other/Ultralight: approximate space per aircraft = 1,100 SF
- Multi-Engine/Turboprop: 55' x 40' storage area (2,200 SF)
- Additional 10 percent for general aeronautical storage and supplies

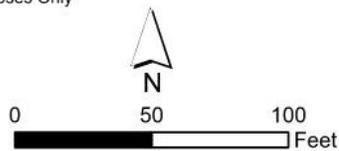
Using these assumptions with based aircraft forecasts, a projected need for based aircraft storage space is determined. It is important to understand that this projection provides a broad estimate of needed space into the future for facility planning. Actual hangar construction is demand-driven. **Based on the projections, it is recommended the airport plan to accommodate up to 100 percent more hangar space for based aircraft at U05 through PAL 4.**

*Table 3-3 – Based Aircraft Storage Requirements*

Category	Existing	Base	PAL 1	PAL 2	PAL 3	PAL 4
<b>Based Aircraft Storage Space (SF)</b>						
Aircraft Storage Space	11,780	13,310	14,520	18,150	19,360	22,990
<b>Capacity/Deficiency</b>	-	<b>1,530</b>	<b>2,740</b>	<b>6,370</b>	<b>7,580</b>	<b>11,210</b>

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

Figure 3-4 – Terminal Layout



Riddick Field Airport Terminal Area Map

## TRANSIENT AIRCRAFT

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.

There is currently no storage for transient aircraft at Riddick Field. Based on the forecasted numbers for aircraft operations per **Table 3-5 – Transient Aircraft Storage Requirements**, there is a need for as much as 6,600 square feet of storage space for transient aircraft through the planning period.

*Table 3-5 – Transient Aircraft Storage Requirements*

Category	Existing	Base	PAL 1	PAL 2	PAL 3	PAL 4
<b>Transient Aircraft Storage Space (SF)</b>						
Corporate Hangar	0	4,400	4,400	4,400	4,400	6,600
<b>Capacity/Deficiency</b>	-	<b>4,400</b>	<b>4,400</b>	<b>4,400</b>	<b>4,400</b>	<b>6,600</b>

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

## FACILITY REQUIREMENTS - HANGARS

There is a need for additional hangars based on feedback from the airport as well as the projected demand for space. The hangars are needed for both based aircraft and transient needs. Through the planning period the airport should identify space for 11,210 SF of storage hangars and 6,600 SF of transient hangar space. This would be about 10 new hangar units (T-Hangar units or conventional hangars) and one large hangar located on the main apron. **Figure 3-6 – Typical Aircraft Hangar Attributes** shows the T-Hangar and Small Storage that would be applicable for based aircraft and the FBO/SASO hangar which would be applicable for transient aircraft.

*Figure 3-6 – Typical Aircraft Hangar Attributes*

Typical Aircraft Hangar Attributes				
	T-Hangars	Small Storage Less than 6,000 sf	Large Storage More than 6,000 sf	FBO/SASO
Photo Examples				
Dedicated Apron	None	None	Equal to depth of hangar	Equal to depth of hangar (plus apron for services)
Airport Apron Access	No	No	No	Yes
Setbacks from Taxilanes	Yes - for Design Group (I or II)	Yes - for Design Group (I or II)	Yes plus Apron - for Design Group (II+)	Yes plus Apron - for Design Group (II+)
Airside Taxi Route	Yes - for Design Group (I or II)	Yes - for Design Group (I or II)	Yes - for Design Group (II+)	Yes - for Design Group (II+)
Public Road Access/Parking	No	Yes or No *	Yes*	Yes*

\* Any business/corporate hangar located on an airport should have public road access and parking for customers/passengers. Particularly those customers/passengers who are not trained in driving on an airport.

## Aircraft Parking Apron

GA aircraft parking is utilized by transient and based aircraft. With all the based aircraft at U05 stored in hangars, the aircraft parking is mostly necessary for transient aircraft needing to park for less than an hour and up to a few days. These transient (Itinerant) aircraft will require either covered aircraft storage (based or transient) or apron parking space.

Excluding the areas needed to enter/exit taxilanes and hangars, there is approximately 1,700 square yards of apron available for aircraft parking. Please note, the total apron size must accommodate both the required aircraft parking positions and maneuvering standards. The apron size requirements noted in **Table 3-7 – Transient Apron Size Requirements** only includes the apron for parking. As noted in the table, **the apron is recommended to be expanded by over 100 percent through the planning period.** The apron space will need to be configured with tie-downs to accommodate ADG-I and II aircraft needs.

**Table 3-7 – Transient Apron Size Requirements**

Category	Existing	Base	PAL 1	PAL 2	PAL 3	PAL 4
<b>Busy Day Operations</b>		15.7	16.9	18.2	19.6	21.2
<b>Apron Area (SY)</b>						
Equivalent Tie-Downs <sup>1</sup>	0	4	4	5	5	5
Size Per Aircraft <sup>2</sup>	500	500	500	500	700	700
Transient Apron Area	1,700	2,000	2,000	2,500	3,500	3,500
<b>Capacity/Deficiency</b>	-	<b>300</b>	<b>300</b>	<b>800</b>	<b>1,800</b>	<b>1,800</b>

Source: KLJ Analysis. Note: **RED** indicates a deficiency to existing capacity. \*Tie-downs do not allow ADG-II parking

## Taxilanes

The airport is served by various taxilanes that provide access from the aprons to individual hangars. Locations are generally depicted in **Figure 3-4 – Terminal Layout**.

**Taxilane A** is connected to the main apron on the southeast corner and continuing south. This TDG-1A taxilane is 140 feet long by 25 feet wide and constructed of bituminous asphalt. There are no lighting, reflectors, nor centerline markings along the taxilane. Currently, the centerline of the taxilane is approximately 25 feet from the front of these hangars. According to design standards the centerline to a fixed or movable object should be at 39.5 feet for an ADG-I separation. **This taxilane does not meet current ADG-I separation design standards.**

**Taxilane B** is connected to the east side of the apron and curves to the south behind the hangar row on Taxilane A. This TDG-1A taxilane is roughly 310 feet long and 25 feet wide and constructed of bituminous asphalt. There are no lighting, reflectors, nor centerline markings along the taxilane. **Like Taxiway A, the centerline to a fixed or movable object do not meet FAA standards.**

<sup>1</sup> Equivalent Tie-Downs are based on accommodating 25% of busy day aircraft operations.

<sup>2</sup> Typical area needed to park an aircraft. The size increases through the planning period from 500 SY to 700 SY as more ADG-II aircraft are operating at the airport in the future.

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## PAVEMENT CONDITION & STRENGTH

Airport pavements are basic infrastructure components at airports. Airfield pavements need to be maintained in a safe and operable condition for aircraft operations. Pavement condition is comprehensively evaluated by the State every three years and measured on a 0 to 100 scale known as the Pavement Condition Index rating. Pavement evaluation includes runway, taxiway, and apron pavements.

There are no recent recorded PCI ratings but the pavements are reported as poor and with spalling, major crack propagation throughout and edge fractures. The pavement strength is reported as up to 7,000 pounds for single wheel aircraft.

## FACILITY REQUIREMENTS – APRON & TAXILANES

As the airport's runway is able to accommodate more activity, there will be a need to expand apron space by as much as 1,800 SY. Additionally, more taxilanes will be needed to access the hangars that are expected to be constructed. Since the current taxilanes do not meet the design standards for separation from existing hangars, it is further recommended that the layout of any future taxilanes should seek to meet design standards as much as practicable.

## Support Facilities

Support facilities are necessary to support a safe and efficiently run airport supporting airport operations and the travelling public.

### ***Terminal Building***

A terminal building for GA traffic serves multiple functions for inbound and outbound general aviation passengers and pilots. It provides a place for passengers and flight crews to wait and have rest facilities. The terminal is protection from the weather and a place for flight planning and connecting with ground transportation. Tenants at the airport also find it very helpful as many hangars do not have restroom or flight planning areas. **A place for a terminal building should be identified at the airport.**

### ***Airport Maintenance & Snow Removal***

Riddick Field does not own, operate or store any maintenance equipment or snow removal equipment on the airport. Granite County tends to the removal of snow and any maintenance on the airport but it is a lower priority than other county roads. **If the airport adds specific equipment, then a storage building should be added for this equipment.**

### ***Fueling Facilities***

There are no fueling facilities at U05. The nearest airport with fuel is Bowman Field in Anaconda Montana. It is 21 nautical miles south-east of U05 and offers Jet A and 100LL (low lead) fuel. **It is recommended that the airport install self-serve 100LL and Jet A fuels with a credit card reader.**

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## *Fencing, Security & Wildlife*

### SECURITY & FENCING

The first line of security protection infrastructure is a perimeter fence. Its installation helps prevent unauthorized persons from entering the airfield. A minimum 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 east access entry points. Locked field gates would be installed at other airfield access points.

U05 does have a 6-foot chain link perimeter fence around the apron and hangar area. Around the runway is a 3-foot wire fence. The perimeter fence has a flip latch gate for cars to drive through that does not have a lock. That gate is the only access point onto the airfield. **It is recommended that the perimeter fence be maintained.**

### WILDLIFE CONTROL & MITIGATION

Controlling wildlife on or near the airport helps mitigate existing and prevent the creation of potential new hazards to aircraft. The airport can take steps to help increase safety of the airfield as identified in the Wildlife Hazard Management Plan (WHMP). **It is recommended that U05 apply for the airport improvement program grant to conduct an assessment and implement needed mitigation.**

## Landside Facilities

### *Ground Access, Circulation & Parking*

There is no assigned parking lot or spaces at U05. Based tenants park next to, behind, or in their hangars when parking at the airport. There is one access road to and from the airport. It is a dirt access road that connects to Airport Road directly leading onto the northwest corner of the apron. It is the only access to the airport. **It is recommended to pave the access road inside the airport fence to eliminate foreign object debris (FOD) on the apron.**

### *Utilities*

The airport is not currently connected to public water, sanitary sewer, or natural gas utilities. Extension of public utilities from the City to the airport would be a challenge because of the lack of demand and cost. The following utility infrastructure is available at the airport to serve facility demands:

- **Power:** Northwestern Energy provides power to the airport and hangars. There are currently above ground power lines in the hangar area that should be moved underground if possible.
- **Water:** A frost free hydrant is located behind hangar 11
- **Sanitary:** Port-o-Potty serviced by Sweet Pea

Currently, utilities meet the needs of the airport. Future expansion would require working with the City of Philipsburg. **It is recommended that the power lines above ground around the hangar area be moved underground.**

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## Land Area

Land acquisition allows the airport to have sufficient space for expansion and to protect airspace and land use areas from possible intrusions. FAA encourages the airport sponsor to own the following land for existing and planned airport facility:

- Airport Infrastructure
- Runway and Taxiway Object Free Areas
- Runway Protection Zones
- Building Restriction Line
- Navigational Aid Critical Areas
- Airspace Protection

It has been identified that there is a need to extend the runway and have enough space for any terminal/hangar area expansion. There is also a need to acquire a small amount of land from the USFS which crosses the center of the airport. As the alternatives are reviewed, additional land areas will be shown for acquisition in simple fee or in easement as applicable.

## Facility Requirements

### *Hangars*

- Accommodate up to 5 hangar units by PAL 2 and 5 more hangar units by PAL 4.
- Construct a 4,400 SF hangar for transient aircraft by PAL 1 with an anticipation of the need for 6,600 SF by PAL 4.

### *Apron/Taxilanes*

- Add 1,800 SY of apron including space to locate a transient hangar and terminal. The tiedowns and maneuvering on the apron should accommodate ADG-I and II aircraft.
- Add taxilanes for up to 10 new hangar units by PAL 4.
- Review the practicable options to meet taxilane design standards for existing taxilanes.

### *Support Facilities*

- Construct a 1,000 SF terminal for flight crews and passengers. The facility could be collocated with the transient hangar and equipment storage facility.
- Identify space for an equipment storage building which could be collocated with the terminal and transient hangar.
- Add a 2,000-gallon 100LL and a 4,000 gallon Jet-A self-serve fueling facility.
- Plan for an ultimate airport perimeter security and wildlife fence.

### *Landside Facilities*

- Pave the access road and parking to reduce the potential for FOD.
- Relocate power lines for hangars below ground.

### *Land Area*

- Acquire existing leased property from the USFS.
- Acquire additional land as needed for a runway extension and for terminal/hangar area expansion.

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## Alternative Evaluation Process

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.

**ALTERNATIVES SECTION TO FOLLOW**