4.0 FACILITY REQUIREMENTS

The purpose of this chapter of Priest River Municipal Airport Master Plan is to identify the needs for additional facilities, or improvements to existing facilities over the planning period. By comparing current demand to projected demand, based on the 20-year forecasts presented in Chapter 3, Aviation Activity Forecasts, it is possible to identify the need for new or expanded facilities at the airport, as well as the ability of existing facilities to meet projected demand.

Aviation demand projections for each planning horizon year (2019, 2024 and 2034) will be evaluated against the airport's available infrastructure, to determine if any additional facilities are needed within each planning period. Facility improvements can be justified to meet FAA design standards, most of which relate to airport safety, but also based on criteria set forth by the FAA in Advisory Circulars (AC). Specific recommendations for improvements developed as part of the Idaho Airport System Plan for Priest River Municipal Airport in 2009 will also be taken into consideration in developing facility requirements.

The following operational areas are evaluated to determine existing and future facility requirements at Priest River Municipal Airport; these include:

- Airside Facilities (Capacity, Runways, Taxiway, Aircraft Parking Aprons, Design Standards, Part 77 Surfaces, Navigational Aid and Approaches)
- Terminal Facilities (Aircraft Storage, Terminal Building, FBO, Auto Parking, Fuel)
- Support Facilities (Access Roads, Infrastructure/Utilities, Fencing and Security, Snow Removal Equipment)
- Other Requirements (Airport Property)

Unless dictated by design standards and safety, the identification of recommended facilities does not constitute a requirement, but rather an option to resolve facility, operational or safety inadequacies, or to make improvements to the airside or landside components as aviation demand warrants.

4.1 IDAHO AIRPORT SYSTEM PLAN RECOMMENDATIONS FOR PRIEST RIVER MUNICIPAL AIRPORT

The Idaho Airport System Plan (IASP) was published by the Idaho Department of Transportation Aeronautics Division in 2010. The IASP provides the state with a top down analysis of its airports and recommendations to improve the overall airport system. The plan recommends facility improvements at each public airport in Idaho including Priest River Municipal Airport. Whether or not recommended improvements can be implemented at an airport must still be analyzed and justified during an airport specific planning process.

The IASP placed each airport in one of five functional roles or categories based on current airport performance. Facility and service objectives were then developed for each airport role category. Individual airport recommendations depend on which role the airport plays in the overall system.

Priest River Municipal Airport was categorized in the IASP as a "Local Recreational" airport. According to the IASP, "Local Recreational Airports serve a supplemental role in local economies, primarily accommodating recreational, personal flying, and limited local business activities." Priest River Municipal Airport met the recommendations for several facilities including runway strength, terminal with public restrooms, auto parking, and services. The IASP facility and services recommendations for the airport, based on the Local Recreational role, are summarized in **Table 4-1**.

TABLE 4-1: IDAHO AIRPORT SYSTEM PLAN PROJECT RECOMMENDATIONS FOR PRIEST RIVER MUNICIPAL AIRPORT

Facility or Service	Existing	System Objective	Recommendation
Runway Length	2,983 feet*	3,090 feet or greater	Extend 107 feet
Runway width	48 feet	60 feet	Widen 12 feet
Fuel	None	AvGas only	Provide AvGas

* The IASP identifies an existing runway length of 2,960 feet, while survey data reports a usable pavement length of 2,983 feet.

Source: Idaho Airport System Plan, 2009

The IASP did recommend that Priest River Municipal Airport slightly extend the Runway, meet FAA design standards with a runway width of 60 feet and provide AvGas fuel.

4.2 AIRSIDE FACILITY REQUIREMENTS

Like other small communities in Idaho, Bonner County and the towns around the airport are rural communities. Infrastructure, including airports, is essential to rural communities because it provides vital connectivity to the outside community. Airports sustain economic development and support critical services that directly affect the well-being of the community it serves.

Examples of these services include:

- Emergency medical evacuation (Life Flights)
- Specialized professional services ("flying" doctors)
- Wildland firefighting
- Law enforcement
- Mail/package delivery
- Business and commerce
- Recreation (hiking, biking, access to the ski areas)

Such activities occur at many rural airports on an everyday basis. Priest River Municipal Airport accommodates a variety of activities including recreational flight, flight instruction, medical evacuation and shipment, as well as occasional police or military use. The location of the airport in a constrained environment, due to urbanization and relief, also presents significant challenges not common to airfields with unrestricted airspace. Constrained environments mean lesser approach capabilities and other operational challenges for aircraft operators caused by weather, terrain and obstructions.

Further, the cost to maintain and improve mountain airports is greater than at comparable size airports throughout the country due to difficult terrain and short construction season. Pavement maintenance costs are also higher due to higher construction prices.

When considering the needs of Priest River Municipal Airport over the next twenty years, the above dynamics should not be overlooked.

4.2.1 AIRFIELD CAPACITY ANALYSIS

Airport capacity is a function of the number and physical layout of available runways and taxiways, as well as their orientation and their relative location. Although Priest River Municipal Airport does not experience capacity or delay issues, a formal capacity analysis was conducted to assess the capacity of the airport.

Airport capacity can be expressed by the maximum number of aircraft per hour or per year. When capacity is provided on an annual basis, it is referred to as the airport's Annual Service Volume (ASV), defined as ''a reasonable estimate of an airport's annual capacity.'' Methods to determine airport capacity and delay are discussed in the FAA Advisory Circular (AC) 150/5060-5, Airport Capacity and Delay, and have been used as part of this analysis.

ASV is a reasonable estimate of an airport's annual capacity that takes into consideration a variety of applicable parameters affecting airfield capacity levels and it was estimated at Priest River Municipal Airport based on the following factors:

- Runway/taxiway configuration
- Aircraft mix
- Percentage of touch & go operations
- Weather conditions

FAA Advisory Circular 150/5060-5 categorizes runway configurations typical of those at airports throughout the United States in order to determine the ASV. The configuration of Priest River Municipal Airport, a single runway configuration supported by a partial parallel taxiway, most closely reflects the operational and physical characteristics of configuration Number 1. The

presence of a full parallel taxiway system at the airport would enhance the capacity of the runway.

The Aircraft Mix Index is the percentage of aircraft operations by large multi-engine aircraft. Primary usage of Priest River Municipal Airport is currently by small aircraft and based on the current fleet using the airport, the mix index is assumed to be less than one percent.

Wind speed and direction, cloud ceiling conditions and visibility are additional factors that affect airport capacity, as they typically dictate which runway pilots can use or whether a pilot can operate in Visual Flight Rules (VFR) or Instrument Flight Rules (IFR) conditions. IFR conditions greatly impact airport capacity due to specialized aircraft and airspace procedures. Priest River Municipal Airport is currently a VFR only airport with no instrument approach capabilities and current wind coverage does not significantly impact capacity at the airport.

Existing Airfield Capacity

The ASV for a single-runway airport with a full-length parallel taxiway is estimated to be 230,000 annual operations. The hourly capacity for this type of airports is estimated to be approximately 98 VFR operations. Because the airport does not have a full parallel taxiway, capacity is assumed to be reduced by 20%. The corrected ASV at the airport is approximately 184,000 annual operations.

Future Capacity Requirements

In 2034, projected demand at Priest River Municipal Airport is forecast to be approximately 11,143 annual operations. These projected operations represent 6.1 percent of the estimated ASV of 184,000 annual operations. FAA guidelines suggest that facility improvements should be considered to increase capacity when annual operations reach 60 percent of the Annual Service Volume. Although Priest River Municipal Airport is not currently equipped with a full length parallel taxiway, the airport is not expected to have any capacity issues over the planning period.

Recommendations: Since demand at the airport is not expected to reach 60 percent of the ASV within the 20-year planning period, no airfield development projects are recommended for capacity purposes.

4.2.2 RUNWAY

Runway 1/19 is the single most important element of the airfield and has the most impact on overall airport accessibility and safety. The Runway Design Code (RDC) is a coding system signifying the design standards to which a runway is to be built. As previously discussed in Section 2.10, Design standards, the RDC has three components based not only on the approach speed, the wingspan and tail height of the critical aircraft, but also on the designated

or planned visibility minimum. Further, the Airport Reference Code (ARC) is an airport designation that signifies the airport's highest RDC, minus the third (visibility) component of the RDC.

Currently Runway 1/19 has an RDC of B-I (small airplanes exclusively)-VIS (B-I(S)-VIS), and the airport an ARC of B-I (Small). No major change in the fleet is expected and the critical aircraft is expected to remain the Cessna 182 throughout the planning period. Nonetheless, it is recommended that the traffic be monitored at Priest River Municipal Airport to evaluate the use by larger aircraft. The following sections will discuss design factors that directly impact runway geometry and, therefore, the ARC.

Runway Length

A review of Priest River Municipal Airport's role and how that role relates to FAA runway length criteria is necessary when discussing required runway length. Airport function, elevation, mean maximum temperature of the hottest month, aircraft take-off weight, aircraft performance, runway gradient and runway surface condition are some of the criteria used when calculating required runway length. These factors affect performance of departing aircraft and thus the length necessary to take-off. Aircraft manufacturer's performance curves or calculations based on FAA Advisory Circulars are common methods of determining runway length for airport planning purposes.

As previously discussed, small aircraft (MGTOW 12,500 lbs. or less) predominately use Priest River Municipal Airport. Aircraft Approach Category (AAC) and Airport Design Group (ADG) for these aircraft consist of an approach speed of 91 knots or more, but less than 121 knots (Category B) and with wingspans up to but not including 49 feet (Group I) respectively.

The runway length requirement at Priest River Municipal Airport was computed according to the FAA AC 150/5325-4C, Runway Length Recommendations for Airport Design, using the mean daily maximum temperature of the hottest month of the year. The required runway length was determined for small propeller-driven airplanes with an approach speed of 50 knots or more, using the runway length curves provided in the Advisory Circular AC 150/5325-4C.

Table 4-2 presents the runway length requirements, based on an airport elevation of 2,193 feet Above Mean Sea Level (AMSL) and a mean maximum temperature of 82.3 degrees Fahrenheit for the hottest month of the year. The runway length requirement ranges from 3,800 feet to 4,500 feet for small airplanes (aircraft with maximum takeoff weights of 12,500 pounds or less).

TABLE 4-2: RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN

Airport and Runway Data	Inputs
Airport Elevation	2,193' AMSL
Mean Maximum Temperature of the hottest month	82.3° F
Small propeller-driven airplanes with approach speeds of more than 50 knots	
Small airplanes with less than 10 passenger seats	
95 percent of these small airplanes	3,800'
100 percent of these small airplanes	4,400'
Small airplanes with 10 or more passengers	4,500'

Source: T-O Engineers Inc., FAA AC 150/5325-4C

As discussed in Chapter 3, Aviation Activity Forecasts, the design aircraft is the Cessna 182. In addition, the airport occasionally accommodates small multi-engine and turboprop aircraft. The runway length requirement for a sample of the aircraft using Priest River Municipal Airport was computed based on guidance in the FAA AC 150/5325-4C, Runway Length Recommendations for Airport Design, using manufacturer's Airport Planning Manuals, the mean daily maximum temperature of the hottest month of the year and the airport elevation. **Table 4-3** presents these runway length requirements at Priest River Municipal Airport.

TABLE 4-3: RUNWAY LENGTHS RECOMMENDED FOR JET AND AIRCRAFT USING THE AIRPORT

Airport and Runway Data Assumptions			Inputs
Airport Elevation			2,193' AMSL (Estimated 3,000')
Mean Maximum Temperature of the hottest month			82.3° F (Estimated 83° F)
Type of Aircraft	**Maximum Take Off Weight (lbs.)**	**AAC, ADG, and TDG**	**Runway Length Requirements**
Cessna 180K	2,800	AAC-ADG: A-I TDG: 1A	Short Field Technique 1,800'
Cessna 182Q	2,980	AAC-ADG: A-I TDG: 1A	Short Field Technique 2,000'
Gulfstream American GA-7/Cougar	3,800	AAC-ADG: A-I TDG: 1A	2,700'
Pilatus PC-12	10,450	AAC-ADG: A-II TDG: 1A	Flap 15: 4,500'
			Flap 30: 3,800'
Piper PA-46	4,318	AAC-ADG: A-I TDG: 1A	Flap 0: 3,400'
			Flap 20: 2,600'
Quest Kodiak	7,255	AAC-ADG: A-I TDG: 1A	2,200' (2,500' with external cargo compartment)

Per the FAA AC 150/5325-4C, Lengths of 30 feet and over are rounded to the next 100-foot interval.
Source: T-O Engineers Inc., FAA AC 150/5325-4C, Cessna Flight Planning Guide, PC-12 Digital Airplane Flight Manual, Piper Malibu Mirage Pilot's Operating Handbook.

The current published runway length at Priest River Municipal Airport is 2,950 feet (FAA 5010 Master Record). Based on existing survey data, the usable pavement length is 2,983 feet. The runway does not have a displaced threshold, therefore the landing distance available is 2,983 feet (published 2,950 feet).

Based on runway length curves provided in the Advisory Circular AC 150/5325-4C and based on the temperature and elevation at Priest River Municipal Airport, the existing take-off length may limit aviation activity, especially during the hotter summer days.

Based on the Advisory Circular AC 150/5325-4C, the runway length recommended to accommodate 100 percent of small airplanes with less than 10 passenger seats without weight restriction is 4,400 feet. However, per the Cessna 182Q Pilot's Operating Handbook, the existing runway length allows accommodating the design aircraft, the Cessna 182, without any weight restriction, using a short field take-off technique. In addition, the existing runway length can accommodate aircraft such as the Quest Kodiak or the Piper Malibu PA-46.

The FAA Advisory Circular 150/5325-4C*,* Runway Length Requirements for Airport Design and the Planning Guidance No. 09-01, Runway Extension Justification Considerations, provide current guidance for runway extensions at airports. One basic rule of thumb for a runway extension to be justified is that the airport must support 500 total annual itinerant operations of a designated critical aircraft or ARC.

Although the airport is uncontrolled (no Air Traffic Control Tower), analysis of existing user data, interviews with local airport management and tenants, interviews with itinerant airport users including Life Flight, and corporate operators, indicates substantial use by small aircraft. As mentioned above, large aircraft activity also occasionally takes place at the airport to a lesser extent. The airport is expected to continue to serve more than 500 annual itinerant of AAC/ADC B-I (Small) aircraft throughout the planning period. No data exists that would indicate increased demand of larger aircraft over 500 annual itinerant operations.

Recommendations: Based on the FAA runway length recommendations, current and future aircraft demand, and IASP recommendations, a runway extension is justified at the airport. The IASP recommended a runway length of 3,090 or greater for Local Recreational Airports.

While justified, the constrained environment of the airport is not conducive to a runway extension on the existing site. As a result, it is not recommended that any further analysis of an extension be considered as part of this planning study.

Further, based on various Pilot's Operating Handbooks, the current Runway length at Priest River Municipal Airport accommodates the design aircraft as well as small general aviation aircraft such as the PA-46 or Cessna 180. Although larger multi-engine and turboprop aircraft do utilize the airport occasionally throughout the year, this activity does not occur on a regular

basis and is not forecast to meet the substantial use threshold (more than 500 annual operations) over the planning period.

However, it is recommended that Bonner County continues to monitor the traffic as well as the fleet mix using the airport. In addition, it is also recommended that the FAA Form 5010 be updated to reflect the surveyed length of the usable pavement of 2,983 feet.

Lastly, it should also be noted that the larger aircraft that currently use the airport do so at their own risk. It is the responsibility of each pilot/crew to understand their particular aircraft's performance requirements and how such requirements relate to existing airport facilities, including available runway strength and length.

Runway Width

Per FAA airport design standards, runway width for Airplane Design Group I is 60 feet. The width of Runway 1/19 is 48 feet. In order to meet design standards the runway needs to be widened, and two alternatives are possible: widening the runway on both sides, or widening the runway on one side only. This second alternative would shift the runway centerline by six feet to the east. As all the design and protection standards are based on the runway centerline, this alternative would also translate these various protections areas by six feet to the east. An analysis of the consequences of widening the runway will be conducted in Chapter 5, Alternatives Analysis.

Recommendation: Runway 1/19 width does not meet design standards for Runway Design Code RDC B-I (Small) aircraft. It is recommended that Runway 1/19 be widened to 60 feet to meet FAA design standards. Additional details will be provided in Chapter 5, Alternatives Analysis.

Runway Strength

Current Runway 1/19 pavement strength is reported to be 12,500 pounds single wheel loading as published on the FAA 5010 master data record.

The designated critical aircraft at Priest River Municipal Airport, the Cessna 182, has a maximum gross takeoff weight (MGTOW) of 3,100 pounds. Current pavement strength is sufficient to accommodate existing as well as the forecast aircraft activity expected to operate at the airport on a regular basis throughout the planning period. Foreseeable conditions do not indicate the need for additional runway pavement strength.

Recommendation: The existing pavement strength is appropriate and it is recommended to conduct routine pavement maintenance as necessary

Wind Coverage and Crosswind Analysis

The wind coverage is the percentage of time when the crosswind component does not exceed the limit for the design aircraft using the runway. FAA criterion recommends a minimum of 95 percent wind coverage for all airports.

Wind data from the weather station HOOOI1, located in the Hoodoo Valley approximately 10 miles from the airport, was reviewed and used to evaluate the wind coverage at Priest River Municipal Airport.

In the absence of weather station on the airport, this was deemed to be the best data available. Based on this data and a maximum crosswind speeds of 10.5 knots for A/B-I-Small aircraft, the annual average wind coverage for Runway 1/19 is 99.95 percent wind coverage. This is for informational purposes only, as the weather station used to compute this wind coverage is not located on the airport. Based on the estimated coverage, the existing Runway 1/19 alignment provides the FAA minimum wind coverage recommended.

Recommendation: Based on the data available, the runway alignment meets the FAA recommendations. Further, based on the existing location of the airport, surrounded by urbanized area and mountainous terrain, a major realignment of the runway or addition of a crosswind runway is not realistic or feasible.

Runway Markings

The markings on the runway are in fair condition. According to the National Geophysical Data Center, the magnetic declination is changing by 11’ W per year at Priest River Municipal Airport, so a change of 220’ W (3° 40’ W) at the end of the planning period. The current declination is 14° 52’ 30’’ E (2014). In 20 years, the new declination will be 11° 12' 30’’ E. The true orientation of Runway 1/19 is 035° 29’ 20.54”, which will give a magnetic orientation of 024° 16' 50.54’’ (204° 16' 50.54’’) in 2034. In addition, given the true orientation of each runway and the current magnetic declination, the magnetic orientation of Runway 1/19 is 020° 36' 50.54’’ (200° 36' 50.54’’). This analysis indicates Runway 1/19 should be re-designated Runway 2/20 to address this natural magnetic shift.

Recommendation: It will be required that the Priest River Municipal Airport Runway be re-designated Runway 1/19 to 2/20 in the near future, to address the natural magnetic shift. The new designation, Runway 2-20, will be depicted on the Airport Layout Plan (ALP). As Priest River Municipal Airport is equipped with a visual runway only, markings can be changed at any time and reflected on the 5010 and in the FAA OE/AAA database. To minimize costs it is recommended that the airport updates the runway markings at the same time as runway projects.

Runway Signs

Airfield signage, such as instruction signs, location signs, direction signs, destination signs, or information signs, is essential to give pilots visual guidance for all phases of movement on the airfield. Priest River Municipal Airport is not equipped with runway or airfield signs.

Recommendation: To improve safety, it is recommended that Priest River Municipal Airport be equipped with Taxiway/Runway holding position signs.

4.2.3 DESIGN STANDARDS

The FAA design standards are requirements to provide an acceptable level of safety at the airport. Recommendations for runway protection and separation requirements are included below. Graphical representation is also depicted on the Airport Layout Plan drawing set.

Accommodating ARC B-I (Small) vs. B-I

The existing ARC for Priest River Municipal Airport is B-I Small. Common aircraft using the airport today include single-engine aircraft with occasional use by small multi-engine aircraft. Single-engine aircraft 12,500 lbs or less (small aircraft) are the primary aircraft type operating at the airport. Small multi-engine aircraft do utilize the airport occasionally throughout the year, but no solid data exists that would indicate current or future use of larger aircraft over the 500 annual operations threshold. Further, as previously mentioned in Section 4.2.2 Runway Length, the existing runway length is a limiting factor for regular use by large aircraft.

It is the policy of the FAA to meet design standards for the design aircraft determined for the 20-year planning period, which is B-I Small at Priest River Municipal Airport. The policy of meeting design standards provides an increased level of safety and a more proactive approach to airport planning. Accommodating larger design standards, such as B-I standards, at Priest River Municipal Airport would result in increased separations or width adjustment to the Runway protection standards, such as the Runway Object Free Area (ROFA), the Runway Protection Zones (RPZ), and to the Runway separation standards, such as the Runway centerline to Taxiway centerline separation.

However, Priest River Municipal Airport is a highly constrained airport and is located in an urbanized and already developed environment. Therefore, it is not realistic to consider meeting design standards B-I at Priest River Municipal Airport. Furthermore, it is not foreseeable that demand of large aircraft will increase over the 500 annual operations threshold during the planning period.

It should be noted that actions to attract aircraft larger than A/B-I Small on a regular basis and over the substantial use threshold of 500 annual operations should not be pursued at Priest River Municipal Airport, before the airport is ready to meet the FAA dimensional standards to

accommodate these aircraft. If the airport were to exceed B-I Small few options would be available: one of them would be to relocate the airport.

Runway Protection Standards

The runway protection standards include the Runway Safety Area (RSA), the Runway Object Free Area (ROFA), the Runway Obstacle Free Zone (OFZ), and the Runway Protection Zone (RPZ).

Runway Safety Area (RSA)

The required Runway Safety Area (RSA) for airports accommodating ARC B-I(S) extends 240 feet beyond departure end and prior to threshold and is 120 feet wide.

Recommendations: The existing RSA of Runway 1/19 at Priest River Municipal Airport meets design standards.

Runway Object Free Area (ROFA)

The required Runway Object Free Area (ROFA) for airports accommodating ARC B-I(S) extends 240 feet beyond departure end and prior to threshold and is 250 feet wide. The ROFA for Runway 1/19 at Priest River Municipal Airport does not meet design standards as it is impacted by the existing wind cone as well as an air relief valve. **Figure 4-1** depicts the location of this wind cone and air relief valve.

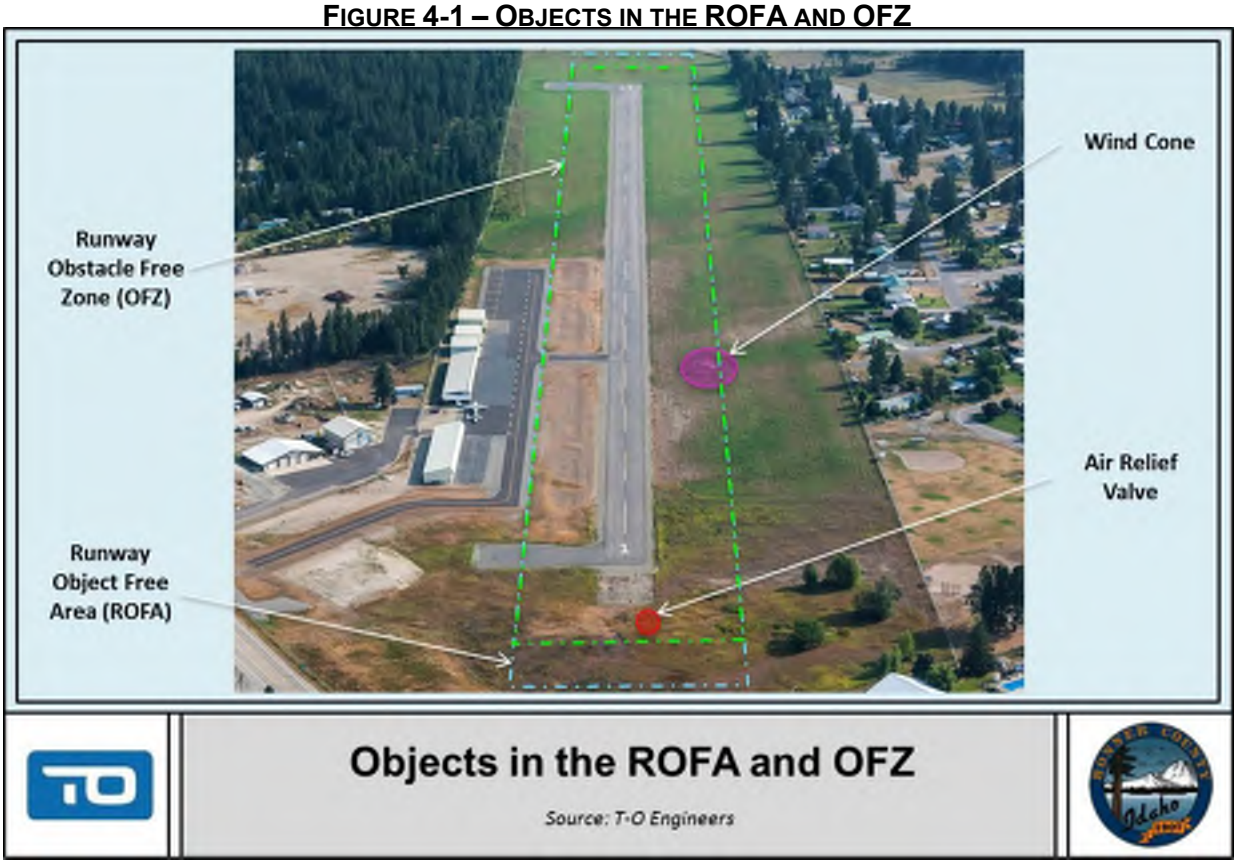
Recommendations: To meet B-I(S) design standards it is recommended to displace the wind cone out of the ROFA and regrade around the air relief valve. An analysis of this recommendation will be provided in Chapter 5, Alternatives Analysis.

Runway Obstacle Free Zone (OFZ)

The required Runway Obstacle Free Zone (OFZ) for airports accommodating small aircraft, with an approach speed of 50 knots or more, extends 200 feet beyond each end of the runway and is 250 feet wide. The OFZ is also impacted by the wind cone and an air relief valve previously mentioned. **Figure 4-1** depicts the location of this wind cone and air relief valve.

Recommendations: It is recommended to displace the wind cone out of the OFZ and regrade around the air relief valve. An analysis of this recommendation will be provided in Chapter 5, Alternatives Analysis.

FIGURE 4-1 – OBJECTS IN THE ROFA AND OFZ



Runway Protection Zone (RPZ)

The Runway Protection Zone for airports accommodating B-I (Small) aircraft has a length of 1,000 feet, an inner width of 250 feet and an outer width of 450 feet. The total area is 8.035 acres.

Priest River Municipal Airport currently does not meet RPZ standards for B-I (Small). The RPZs on both runway ends are penetrated by uses not allowed in the RPZ; namely, Runway 19 by State Highway 57 and Runway 1 by Cemetery Road. Other obstructions in the RPZ's on each end include trees and power lines as well as buildings.

The RPZ beyond Runway 19 end lies over nine parcels, including portion of State Highway 57. The RPZ beyond Runway 1 end lies over nine parcels, including portion of Cemetery Road. **Table 4-4** lists the parcels in the RPZs at Priest River Municipal Airport, as well as their zoning type and whether a residential building is on the parcel. **Figures 4-2 and 4-3** depict the parcels in the RPZs beyond Runway 19 and Runway 1 ends at Priest River Municipal Airport.

Analysis of existing and future RPZs will be conducted in the subsequent chapters of this plan to determine potential mitigation measures and the feasibility of removing obstacles to provide the highest level of safety for airport users as well as people and property on the ground.

Recommendations: Acquisition and control of the entire RPZ does not appear to be realistic, as it is highly unlikely that all the buildings will be displaced. As able the portions of the RPZs not currently under county control should be acquired via fee simple or avigation easement purchase. The disposition of RPZ penetrations will be discussed in Chapter 5, Alternatives Analysis.

TABLE 4-4: PARCELS IN THE RPZS

Parcel	Zoning Type	Type of Building	Residential Building
RPZ beyond Runway 19 end			
1	Commercial	Hangar/Storage	No
2	Commercial	Fuel Station	No
3	Commercial	Shop/Storage	No
4	Commercial	Mobile Home Park	Yes
5	Commercial	Family Health	No
6	Residential	1 Story with Basement	Yes
7	Mobile Home on own land	Mobile Home	Yes
8	Residential	Building	Yes
9	Residential	Mobile Home	Yes
RPZ Beyond Runway 1 end			
1	Residential	1 Story with Basement	Yes
2	Residential (Lot Vacant)	-	No
3	Residential (Lot Vacant)	Shed/Storage	No
4	Residential	1.5 Story with Basement	Yes
5	Non residential	Hangar/Storage	No
6	Mobile Home on own land	Mobile Home	Yes
7	Residential	1 Story with Basement	Yes
8	Rural with Mobile Home	Mobile Home	Yes
9	Residential (Lot Vacant)	-	No

Source: Bonner County GIS, T-O Engineers, Inc.

FIGURE 4-2 – PARCELS IN THE RPZ BEYOND RUNWAY 19 END

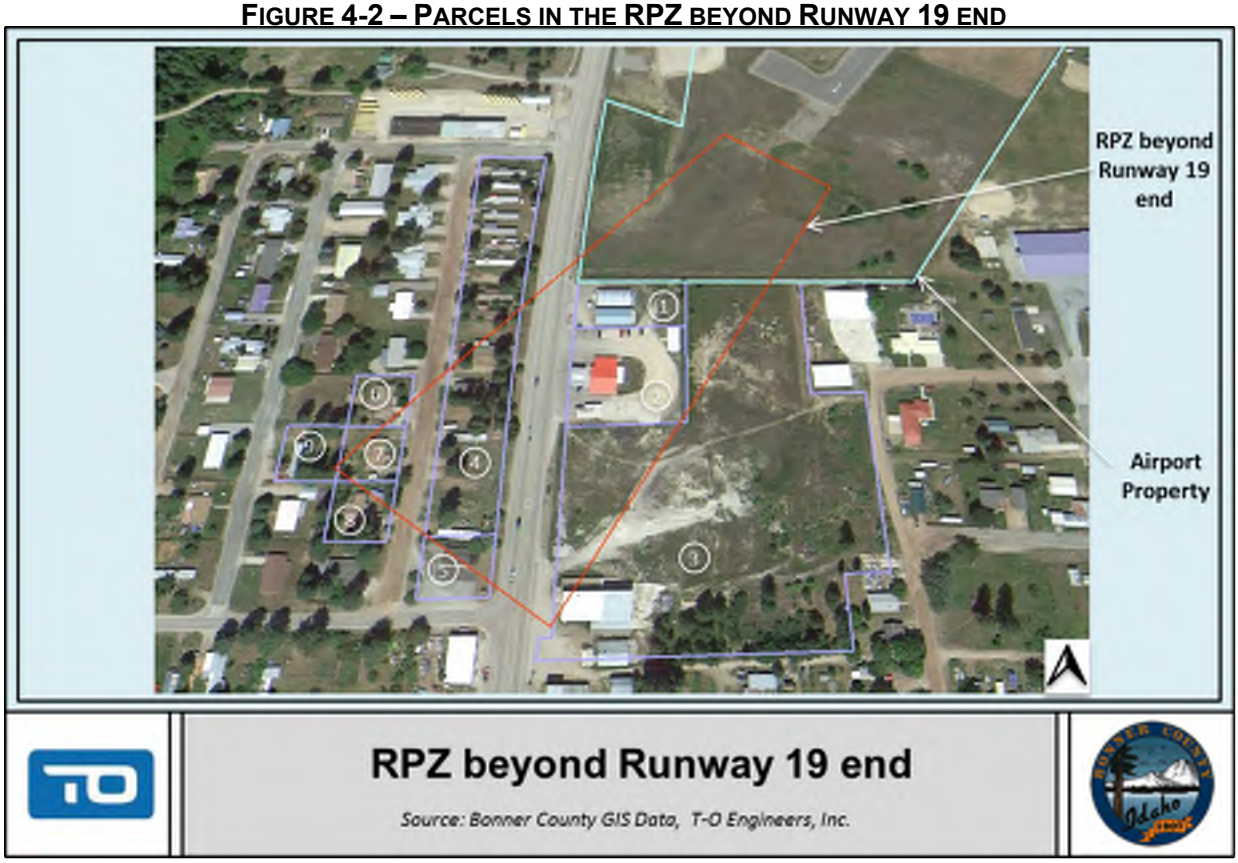
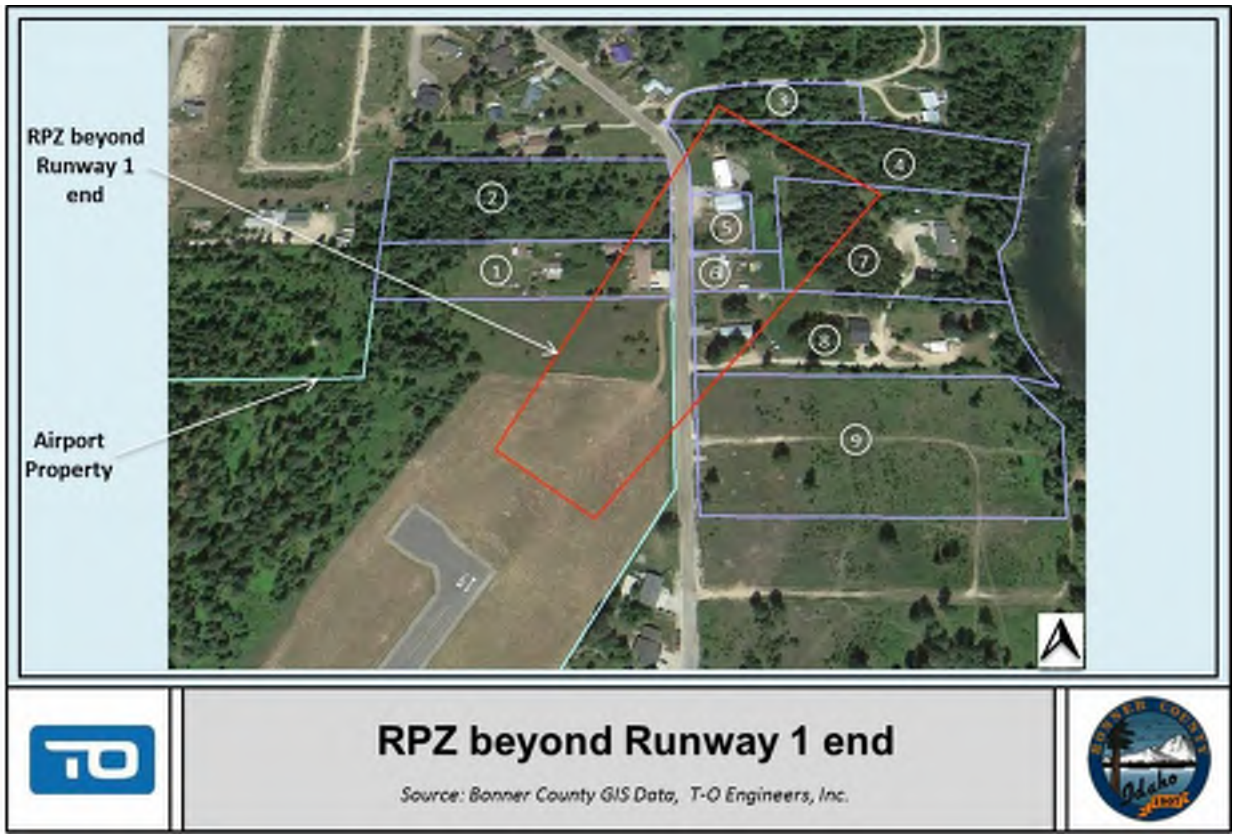


FIGURE 4-3 – PARCELS IN THE RPZ BEYOND RUNWAY 1 END



Runway Separation Standards

The runway separation standards ensure operational safety at the airport. They are based on the AAC, the ADG and Visibility minimum. The runway separation standards include the runway centerline to parallel taxiway centerline separation, the runway centerline to holdline separation and the runway centerline to edge of parking distance.

Runway/Taxiway Separation

The required separation distance between the runway and parallel taxiway centerline is 150 feet for airports accommodating an ARC of B-I (Small). The current runway/taxiway centerline is 150 feet and meets FAA design standards.

Recommendations: The existing Runway/Taxiway Separation meets design standards.

Runway/Holding Point Distance

The required separation distance between the runway and holding point position is 125 feet for airports accommodating a RDC of B-I (Small). The current Runway/Holding Point distance is 125 feet and meets the FAA requirement for a B-I (Small) airport only.

Recommendations: The existing Runway/Holding Point Distance meets B-I (Small) design standards.

Runway/Edge of Aircraft Parking Distance

The required separation distance between the runway centerline and the edge of the aircraft parking is 125 feet for airports accommodating a RDC of B-I (Small). The current Runway/Edge of Aircraft Parking is 224 feet.

Recommendations: The existing Runway/Edge of Aircraft Parking Distance meets FAA Design standards.

4.2.4 THRESHOLD SITING REQUIREMENTS

FAA AC 150/5300-13A states that the threshold should be located at the beginning of the full-strength runway pavement or surface. Displacement of the threshold may be required when an object that obstructs the airspace required for landing airplanes is beyond the airport owner's power to remove, relocate, or lower. Thresholds may also be displaced for environmental considerations, such as noise abatement, or to provide the standard RSA and Runway OFA lengths.

When a hazard to air navigation exists, the amount of displacement of the threshold should be based on the operational requirements of the most demanding aircraft using the facility.

Displacement of a threshold reduces the length of the runway available for landings in a given direction. Depending on the reason for displacement of the threshold, the portion of the runway behind a displaced threshold may be available for takeoffs in either direction or landings from the opposite direction using declared distances.

These standards are not meant to take the place of identifying objects affecting navigable airspace (CFR Part 77) or zoning. The standard shape, dimensions, and slope of the surface used for locating a threshold is dependent upon the type of instrumentation available or planned for that runway. Table 3-2 of AC 150/5300-13A, Airport Design, identifies the runway end/threshold siting requirements.

Currently neither runway end is configured with a displaced threshold. The existing ALP to be revised as part of this master planning process indicates a displaced threshold to Runway 1 end. Analysis of the Threshold Siting Surface will be verified as part of the revised ALP process. Should obstruction data indicate the need for a displaced threshold to clear obstructions, an appropriate displaced threshold will be recommended.

4.2.5 AIRSPACE

Surrounding Airspace Analysis

Airspace can be affected by different factors, such as special use airspaces, obstacle constraints, and other operational constraints. Special use airspaces, also known as special area of operations (SAO), accommodate particular activities that may require limitation for the aircraft not involved in these activities. Special area of operations includes prohibited areas; restricted areas, warning areas, military operation areas (MOAs), alert areas and controlled firing areas (CFAs). As described in section 2.14 Surrounding Airspace, Priest River Municipal Airport is currently in Class G uncontrolled airspace and in close proximity to Class E airspace, as a result of Victor Airways. In addition, the Roosevelt A MOA is located approximately 25 nautical miles (28.7 miles) to the northwest of the airport.

Recommendations: Changes to the surrounding airspace are not anticipated in the future.

CFR PART 77 Airspace

Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace (Part 77), applies to existing and manmade objects. According to FAA Form 5010, the Airport Master Record, Priest River Municipal Airport has obstructions located within the Part 77 approach surfaces to both runway ends. The controlling obstructions listed on the FAA form 5010 are presented in **Table 4-5**. Mitigation measures will be analyses in Chapter 5, Alternatives Analysis.

TABLE 4-5: PART 77 OBSTRUCTION DATA FOR RUNWAY 1/19

Runway End	Type	Obstruction Height Above RW end	Surface Penetration	Obstruction Distance from RW end	Clearance Slope	Recommended Slope	Close In Obstruction
1	Trees	80’	47.6’	1,000’ from runway	10:1	20:1	No
19	Trees	75’	65.5	650' from runway 150’ left of centerline	6:1	20:1	No

Source: FAA Form 5010, T-O Engineers

In addition to these obstacles, on-site survey verification of obstructions was completed as part of this project.

The existing defined Part 77 Airspace (Utility runway – primarily serving aircraft 12,500 pounds or less around the airport – with visual approaches) is not expected to change during the planning period. The extents of the Part 77 Airspace, the Runway Inner Approach Plan and Profile are included in Airport Layout Plan drawing set.

Recommendations: It is recommended that the trees be cut or topped to clear the Part 77 Approach and Transitional Surfaces. Based on the airports location in mountainous terrain, it is not reasonable to clear all airspace surfaces from obstructions, especially in outer portions of the Part 77 surfaces. To the extent reasonable, the County should take a proactive approach to keep the Part 77 airspace surfaces clear via the use of height zoning and require the submittal of FAA Form 7460-1 for proposed development as required by federal airspace protection/notification criteria.

4.2.6 TAXIWAYS

Taxiway and Taxilane Geometry

Airfield taxiways provide the primary connecting route between airside and landside facilities. As an important airfield feature, most taxiway geometric properties are defined by FAA design guidance. Improvements to an airport taxiway system are generally undertaken to increase runway capacity or to improve safety and efficiency. An efficient taxiway system increases the ability of an airport to handle arriving and departing aircraft and expedite aircraft ground movements.

The required distance between a taxiway/taxilane centerline and other objects is based on the required wingtip clearance, which is a function of the wingspan, and thus determined by the ADG, the second component of the ARC. The design of pavement fillet must consider aircraft undercarriage dimensions and is based on the Taxiway Design Group (TDG), a coding system according to the Main Gear Width (MGW) and the Cockpit to Main Gear Distance (CMG). The critical aircraft for the airport is the Cessna 182, which is TDG-1A.

The taxiway system at Priest River Municipal Airport was analyzed to determine potential deficiencies. It consists of a partial parallel ramp edge taxiway with one connector leading to Runway 1/19. The connector taxiway is approximately 100 feet long by 25 feet wide and it provides direct access to the airplane parking areas, and hangars. As Priest River Municipal Airport is only equipped with a partial parallel taxiway, aircraft taking off and landing need to back-taxi on the runway to taxi to and from the apron.

Recommendations: A partial parallel or full-length parallel taxiway(s) is recommended at Priest River Municipal Airport, as it would contribute to an increased level of safety at the airport by reducing back-taxi operations. Taxilanes should also be considered to lead to existing apron and hangars or when developing plans for additional hangars, new aprons, or a new fueling area.

An analysis of these recommendations will be provided in Chapter 5, Alternatives Analysis.

Taxiway Width

The existing taxiway system at Priest River Municipal Airport complies with FAA criteria for the TDG 1A width of 25 feet and provides the necessary airfield capacity. The existing taxiway fillets at the airport are designed based on TDG 1 however design criteria changed after the project was constructed and the existing pavement fillets meet the design criteria at the time of design.

Recommendation: Based on projected operational demand, the existing taxiway width of 25 feet for TDG-1A aircraft is sufficient. It is recommended that future taxiways and future pavement fillets meet design standards TDG-1A.

Taxiway Strength

Current strength of the parallel taxiway and connectors is 12,500 pounds single wheel. These taxiway pavements accommodate the activities of existing general aviation aircraft that use the facility on a regular basis as well as the forecast aircraft activity expected to operate at the airport throughout the planning period. Foreseeable conditions do not indicate the need for additional taxiway pavement strength.

Recommendation: Based on current demand, the existing taxiway strength of 12,500 pounds single wheel loading is sufficient. A nominal overlay of existing pavements will likely be required in the latter stages of the planning period due to deterioration from weathering and oxidation. It is recommended that future taxiways meet strength requirements of 12,500 pounds single wheel loading and/or match runway strength.

4.2.7 SUMMARY OF DESIGN STANDARDS

Table 4-6 presents a comparison of design standard dimensions for existing conditions of ADG B-I (Small) at the airport.

TABLE 4-6: SUMMARY OF DESIGN STANDARDS

	FAA Standard	Existing
Airport Reference Code	B-I (Small)	B-I (Small)
Runway Width	60	**48**
Runway Safety Area Length beyond each runway end (RSA)	240	240
Runway Safety Area Width (RSA)	120	120
Runway Object Free Area (ROFA) length beyond each runway end	240	240
Runway Object Free Area (ROFA) Width*	250	**250***
Runway Object Free Area (OFA) length beyond each runway end	200	200
Runway Obstacle Free Zone Width (OFZ) *	250	**250***
Runway Protection Zone		
Length	1,000	**1,000****
Inner Width	250	**250****
Outer Width	450	**450****
Runway Centerline to:		
Runway Centerline to Taxiway Centerline	150	150
Runway Centerline to Edge of Aircraft Parking	125	224
Holdline	125	125
Taxiway Areas		
Taxiway Width	25	25
Taxiway Safety Area (TSA)	49	49
Taxiway Object Free Area (TOFA)	89	89

*The ROFA and OFZ are impacted by the wind cone and an air relief valve
**Both RPZs penetrated by buildings, power lines, roads and trees
Source: T-O Engineers

4.2.8 NAVIGATIONAL AIDS AND INSTRUMENT APPROACH PROCEDURES

Visual Aids and Lighting

Runway 1/19 is equipped with Non Standard Low Intensity Runway Lighting (LIRL) system with Pilot Controlled Lighting (PCL), but neither runway end is equipped with Runway End Identification Lights (REILs). The runway lighting system is old, does not meet standards and the wiring is not adequate. The runway lights are not backed up with a generator. The partial parallel ramp edge taxiway does not have any lighting, and is equipped with reflectors only.

Recommendation: The existing runway edge lighting system should be modified to meet FAA standard, Medium Intensity Runway Lighting (MIRL). While the FAA specifications allow for a LIRL system, a MIRL is recommended to aid in better visibility for pilots in the mountainous

environment. Further, there is minimal cost between a LIRL and MIRL and the FAA Helena ADO does not support the use installation of LIRL.

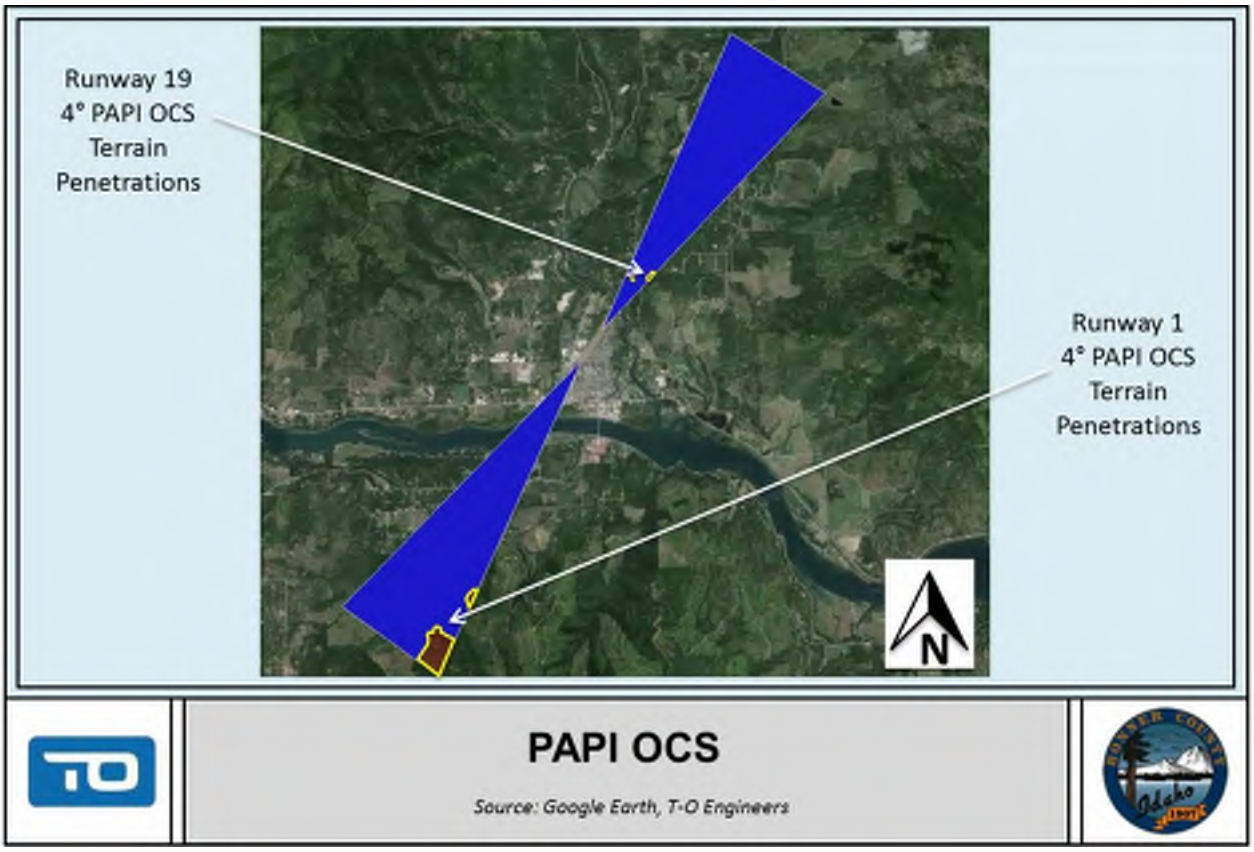
Both Runway 1 and Runway 19 should be considered for installation of REILs, due to the location of Priest River Municipal Airport in an urbanized environment. As the two runways are equally used for the approaches, it is recommended that both the runway ends be equipped with REILs.

Precision Approach Path Indicator (PAPI)

Neither runway end is equipped with Precision Approach Path Indicator (PAPI). An initial feasibility analysis for a PAPI on both runway ends was conducted as part of this study. Based on FAA siting criteria for PAPI and maximum glide path angle of 4 degrees (3 degrees is nominal; however this slope can be increase to 4 degrees for runways serving Category A and B aircraft), there are minor penetrations to the Obstacle Clearance Surface (OCS) due to terrain north and south of the airport.

The installation of a PAPI might still be feasible using techniques like baffling, restricting lateral coverage or using higher Threshold Crossing Heights (TCH). **Figure 4-4** depicts the penetrations to the Runway 1 and 19 PAPI OCS.

FIGURE 4-4: RUNWAY 1 AND 19 PAPI OCS OBSTRUCTIONS



Recommendations: Initial feasibility analysis for PAPIs on both runway ends indicates the installation of the approach path system might be feasible. Mitigation via use of baffling or by restricting lateral coverage may be an option. Further coordination and verification with the FAA is recommended to conduct additional analysis.

Other Visual Aids and Lighting

There is no segmented circle or rotating beacon at Priest River Municipal Airport. In addition, the lighted wind cone is in the OFA. Further, the existing electrical conduit and equipment is in fair condition and inadequate. There is no electrical vault building and the electrical panel is in the pilot's lounge.

Recommendations: It is recommended that the lighted windsock be displaced outside of the OFA and that a segmented circle be installed. Supplemental wind cones on each runway end are also suggested. Further, the installation of a rotating beacon, upgrading the electrical facilities, and constructing an electrical vault building is recommended at Priest River Municipal Airport.

Instrument Approach Procedures

An instrument approach procedure is defined as a series of predetermined maneuvers for guiding an aircraft under instrument flight conditions from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually. Priest River Municipal Airport currently has visual approach capabilities only.

The FAA is continuing to expand development of a global navigational satellite systems using Area Navigation (RNAV) Global Positioning System (GPS) technology for instrument approaches. GPS satellite-based navigational system is able to provide instant and precise aircraft position information for every phase of a flight. Non-precision approaches do not require ground-based facilities on or near the airport for navigation. The GPS receiver uses satellites for navigation allowing remote installation. Therefore, it involves little or no cost to the Airport Sponsor. Further, instrument approaches increase the utility of airports by providing for the capability to operate in inclement weather conditions. This is especially important for Life Flight and business flights.

A summary of basic criteria for the airport to be eligible for straight-in approach development include:

- Official change in status of the airport with the FAA from VFR (visual) to IFR (instrument)
- Recommended paved runway length of at least 3,200 feet (currently 2,983 feet)
- 500 foot wide Primary Surface (currently 250 feet wide)
- 2,000 foot Approach Surface width at the end
- Runway width of 60 feet (currently 48 feet wide)

- Non-precision instrument runway markings (currently visual)
- On-site altimeter
- Obstruction survey (meeting Airports Geographic Information System AGIS requirements)
- Environmental Assessment

The FAA recommends a runway length of at least 3,200 feet. However, runways as short as 2,400 feet can support an instrument approach if certain conditions are met; including the FAA required obstacle clearance within the final approach segment.

Development of non-precision approach capabilities at Priest River Municipal Airport was briefly analyzed by the FAA. It was concluded that potential exists for approach to Runway 1. Due to terrain and obstacles limitations, the approach might be limited to circling only and would have high visibility minimums, limiting its utility.

Current facility constraints, such as the runway width or the requirement to increase the size of the airport's Part 77 Primary Surface from 250 feet to 500 feet wide are limiting factors. In addition, the size of the Approach Surface will need to be increased. As a Utility Visual runway, the current Approach Surface at Priest River Municipal Airport extends for a distance of 5,000 feet at a slope of 20:1 and has an outer width of 1,250 feet. If the airport is equipped with a non-precision instrument approach, the Approach Surface will extend for a distance of 5,000 feet at a slope of 20:1 and have an outer width of 2,000 feet runways.

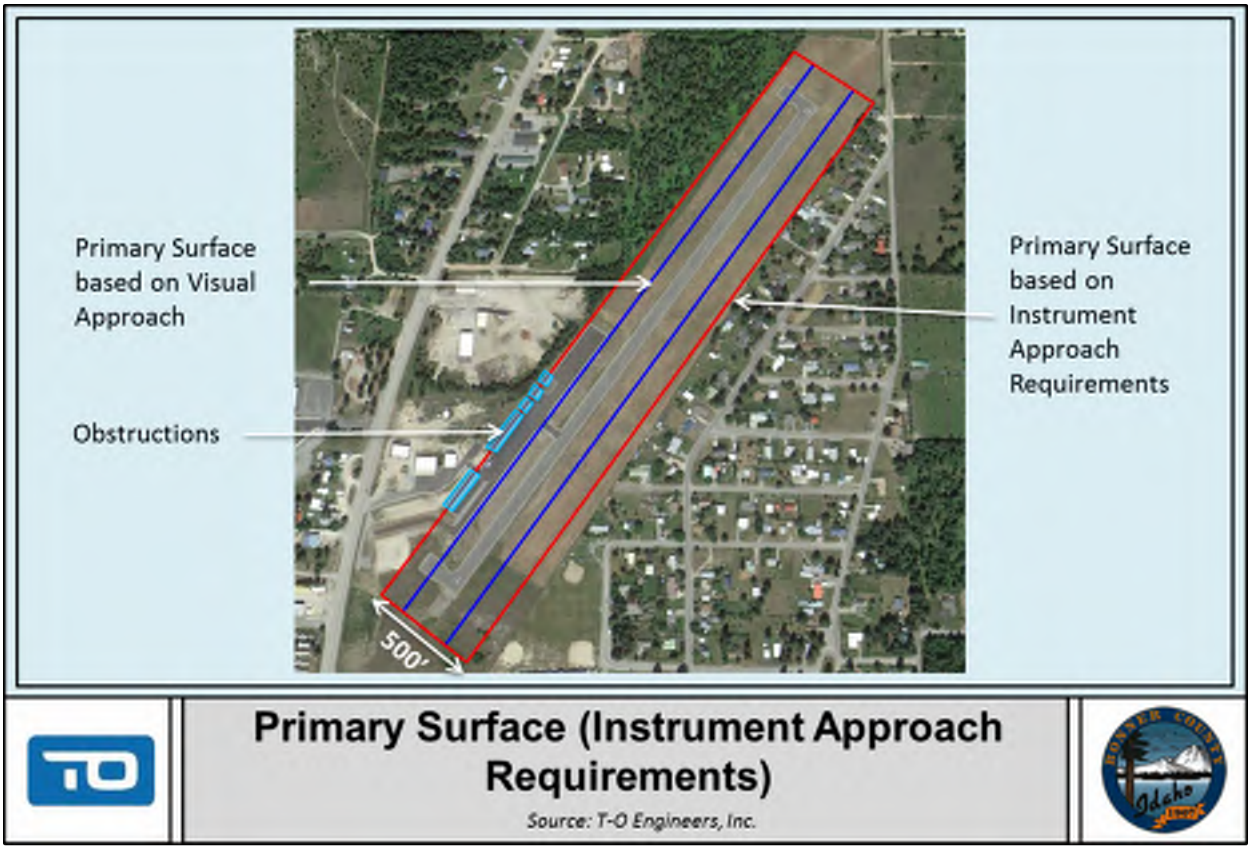
The current constrained environment on and around the airport prove difficult in accommodating these necessary increases; the 500 feet wide Primary Surface is penetrated by existing facilities, such as hangars, on the west side of the airport, as depicted in **Figure 4-5**. Although, in many instances, marking and lighting the structures may suffice. Future Part 77 approach surface to accommodate a potential instrument approach will be analyzed in Chapter 5, Alternative Analysis.

In addition to the airport meeting the above basic criteria, approach procedure development will require additional information to be provided to the FAA, including completion of a formal airport obstruction analysis, environmental impacts and funding availability. A FAA Airport Geographic Information System (AGIS) project, to collect airport and aeronautical data, as well as an instrument approach obstruction analysis will need to be included before any approach can be developed.

It should also be noted that development of new procedures will likely be low priority to the FAA. Development of new procedures for airports like Priest River Municipal Airport is facing high demand. In the light of recent budget cuts, the process to develop new approach procedures is likely to take at least 5 years after the request is submitted to the FAA.

Recommendation: To be eligible for a straight-in approach, the airport needs to meet the basic criteria previously described, including a runway width of 60 feet and larger Primary and Approach Surfaces. In addition, the airport does not have an onsite certified altimeter, necessary to allow instrument approach. Although clearing the Primary and Approach Surface proves difficult, the ability of Priest River Municipal airport to meet/address increased airspace and Part 77 requirements will be discussed in Chapter 5, Alternative Analysis and an alternative will analyze the impacts of a non-precision instrument approach on existing facilities.

FIGURE 4-5: PRIMARY SURFACE BASED ON INSTRUMENT APPROACH REQUIREMENTS



Automated Weather

Priest River Municipal Airport is not equipped with a FAA certified Automated Weather Observation System (AWOS). Certified weather data in the general vicinity is available 24 hours a day from an automated system at Sandpoint Airport and Coeur d'Alene Airport.

On-site weather provides critical real time weather information to pilots enhancing safety. It is particularly important in a mountainous environment where weather and winds can change rapidly. However, AWOS equipment is expensive and the initial costs, approximately $150,000, do not include maintenance requirements. Annual maintenance costs for such equipment average $4,000 to $6,000 and are the responsibility of the airport's sponsor; this amount does not include unforeseeable maintenance such as damage caused by lightning for instance.

Further, an AWOS with wind reporting equipment will require the proper siting and protection of an AWOS "critical area" and the current constrained environment on and around Priest River Municipal Airport may prove difficult in accommodating this area. However, it should be noted that one of the basic criteria for the airport to be eligible for straight-in approach development is the installation of an on-site altimeter.

Recommendations: Although an AWOS is not recommended in the short-term because of the costs for the County to install and maintain this equipment, the ability of the airport to accommodate the AWOS critical area will be discussed in Chapter 5, Alternatives Analysis.

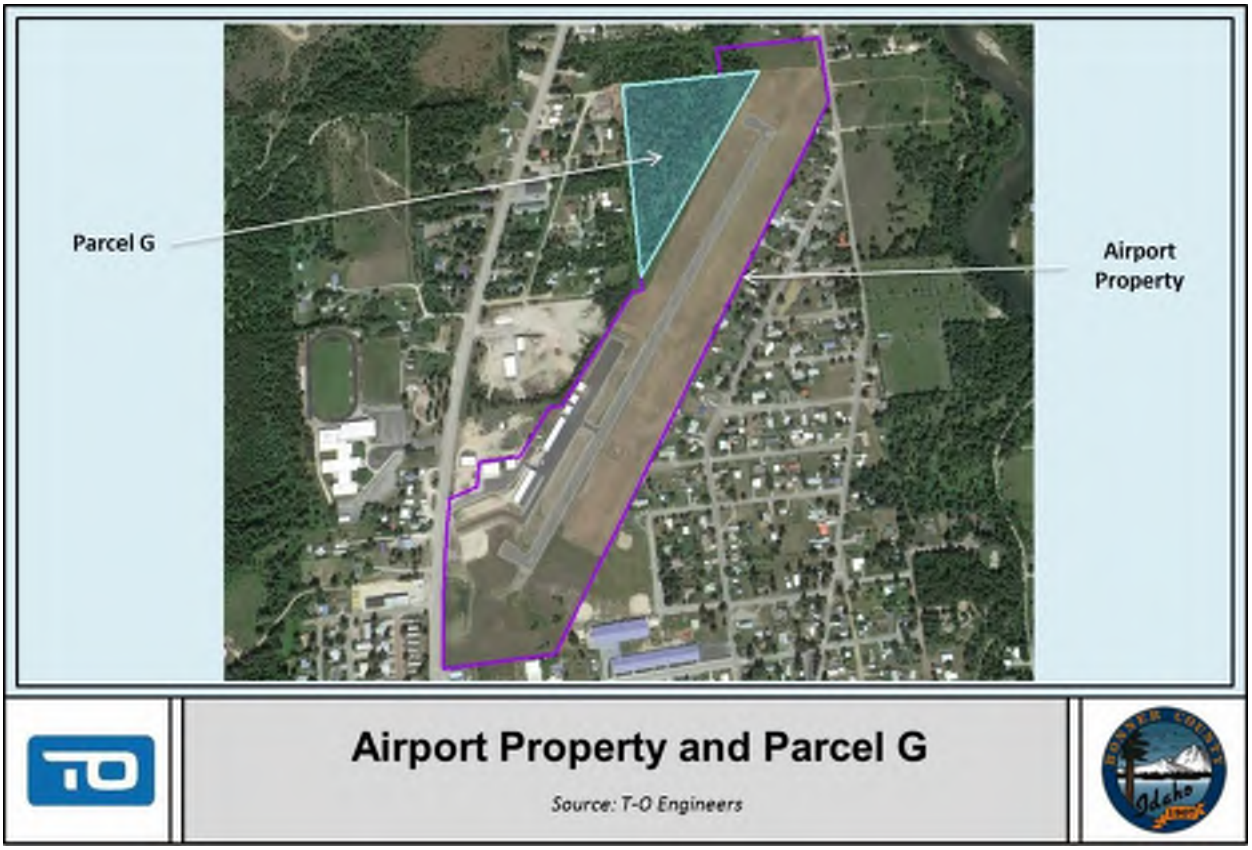
4.3 TERMINAL FACILITY REQUIREMENTS

4.3.1 PARCEL G

Priest River Municipal Airport acquired Parcel G for future development and to limit encroachment of incompatible land uses and development on land adjacent to the airport. This parcel consists of 12.5 acres and is currently unused and completely forested. **Figure 4-6** depicts Priest River Municipal Airport Property and Parcel G. When Parcel G was acquired, and the environmental assessment for land acquisition was developed, Parcel G was expected to be used to develop a taxiway as well as hangar development.

Alternatives for the development of this parcel will be discussed in Chapter 5, Alternatives Analysis and a preferred alternative for this parcel will be depicted on the ALP.

FIGURE 4-6: AIRPORT PROPERTY AND PARCEL G



4.3.2 AIRCRAFT PARKING AND STORAGE

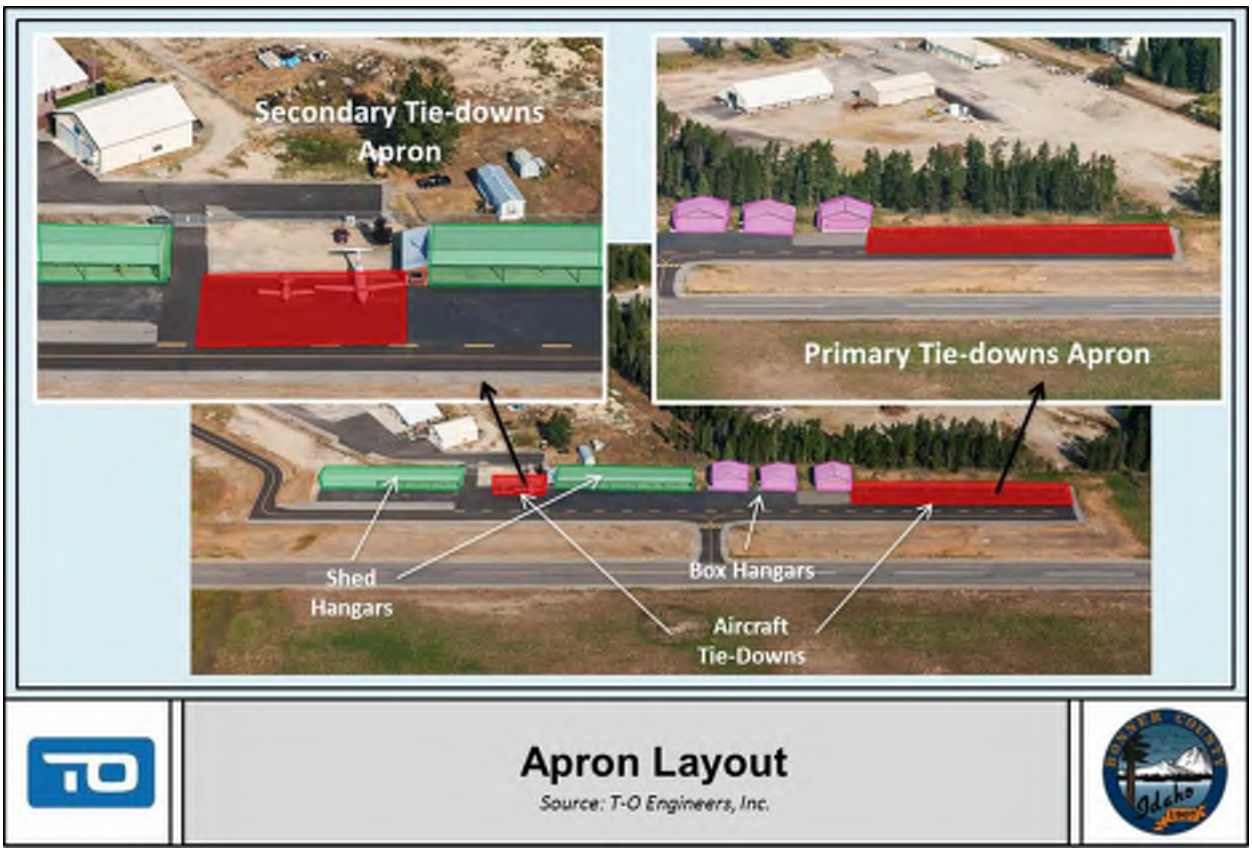
The existing general aviation apron area at Priest River Municipal Airport is located on the west side of the airport, approximately halfway between the two thresholds of Runway 1/19. This area encompasses aprons, box and condo style shed hangars, as well as the pilot's lounge. Currently, the apron is configured to accommodate a total of 9 apron tie-down positions.

The primary apron area is approximately 11,015 square feet and accommodates seven tie-down positions. The secondary apron is 3,650 square feet and accommodates two tie-down positions.

Apron Configuration

The aircraft apron at Priest River Municipal Airport currently has nine tie-down spaces with space available for both based and transient aircraft. Historically, only a small percentage of locally-based aircraft use ramp tie-down areas. The two apron areas are depicted in **Figure 4-7**.

FIGURE 4-7: APRON LAYOUT



Apron Strength

The apron currently has a pavement strength of 12,500 pounds single wheel. The strength of the pavement is sufficient for existing and foreseeable users of the airport. New apron pavement should be constructed to match the runway pavement strength. Locations and configurations of future apron areas will be included in Chapter 5, Alternatives Analysis.

Recommendation: Based on current demand, the existing apron strength of 12,500 pounds single wheel loading is sufficient. A nominal overlay of existing pavements will likely be required in the latter stages of the planning period due to deterioration from weathering and oxidation. It is recommended that future aprons meet strength requirements of 12,500 pounds single wheel loading and/or match runway strength.

Based Aircraft Storage Requirements

It is usually assumed, for planning purposes, that approximately 80 percent of based aircraft are stored in hangars. However, based on historical trends at Priest River Municipal Airport and airports of similar size in similar climates and mountainous area, it was assumed that 100 percent of based aircraft would be stored in hangars (conventional or shed style hangars) through the planning period.

Transient Aircraft Storage Requirements

When determining the amount of apron space required for aircraft tie-downs, a distinction must be made between those aircraft departing from or returning to the airport and those temporarily visiting. A transient operation originates at another airport and requires tie-down space temporarily, at Priest River Municipal Airport. This distinction is defined as transient versus itinerant operations. Transient operations are a subset of itinerant operations and are of interest when planning apron space requirements.

Transient apron areas are commonly located adjacent to FBO facilities where transient operators commonly park their aircraft. It is typically assumed that transient aircraft operations are conducted by larger aircraft including the larger twin and corporate/business aircraft fleet. Further, it is assumed that transient aircraft operators are unfamiliar with the airport, thus it is prudent to provide extra space for the aircraft to operate. This translates into the need to reserve extra tie-down space requirements per aircraft when compared to based aircraft.

The following assumptions were made in deriving the transient aircraft storage requirements:

- Determine number of peak day itinerant operations.
- Transient operations represent approximately 50% of the peak day itinerant operations.
- The number of transient aircraft total 50% of transient operations.
- Space should be provided for 75% of peak day transient aircraft.
- 90% of peak day transient aircraft are single-engine.
- 10% of peak day transient aircraft are multi-engine.

FAA AC 5300/13A Change 1 states that the total amount of apron area required is based on local conditions and will vary from airport to airport. This area will vary based on the design aircraft or the fleet mix. Based on the design aircraft at Priest River Municipal Airport, the Cessna 182, and guidance in the FAA Advisory Circular, the apron area was computed using a wingspan of 36.1 feet, a length of 28.2 feet and a taxilane OFA of 79 feet.

Table 4-7 summarizes the total aircraft apron area requirements. Based on projected transient and based aircraft operations, there is a no foreseeable shortfall of apron area at the end of the 20-year planning period. It should be noted that pavement is expensive to maintain in North Idaho, due to difficult terrain, short construction season, and high construction prices. Bonner County should carefully consider the maintenance costs of additional pavement before construction. It is understood that the need for full build-out of the airport as depicted on the ALP drawing set is not currently justified based on the aviation activity forecasts performed as part of this study. Many of the recommendations are demand driven and should only be considered when and if demand at the airport warrants.

TABLE 4-7: AIRCRAFT APRON REQUIREMENTS

	2014*	2019	2024	2034
Existing Number of Tie-Down Spaces	9	9	9	9
Tie-Down Demand	4	4	5	6
Apron Demand (Square Foot)	5,630	5,630	7,070	8,505
Existing Apron Available (Square Foot)	**14,665**	**14,665**	**14,665**	**14,665**
Apron Deficit (Square Foot)	**0**	**0**	**0**	**0**

*Base Year
Source: TO Engineers Inc.

Recommendations: Based on projected transient and based aircraft operations there is no foreseeable apron shortfall at the end of the 20-year planning period. However, prudent and proactive planning dictates to protect areas for potential improvements. Although no additional apron seems necessary throughout the planning period, a conceptual plan will be developed for Parcel G, recently acquired, to protect areas for potential future development and allow future expansion based on demand. This conceptual plan will be addressed in Chapter 5, Alternatives Analysis and depicted on the ALP.

Hangars

There are currently five hangars at Priest River Municipal Airport, two county owned condo hangars and three box style hangars. These hangars are located along the partial ramp edge parallel taxiway west of Runway 1/19.

Based aircraft numbers, used to develop the FAA approved aviation activity forecasts in Chapter 3, indicate a total of 16 based aircraft and a current hangar utilization rate of 100 percent. As previously mentioned in Section 2.6.3, Hangars, historical waiting list shows that there is demand for new hangars and as of spring 2012, ten interested parties were on a waiting list. A taxilane was built in 2013 to accommodate this demand, but the airport has not received any applications for the construction of new hangars yet. Most of the aircraft owners on the waiting list are interested in leasing hangars already built, rather than building their own hangars.

It should be noted that construction of new hangar is demand driven and should only be considered when and if demand at the airport warrants. Actual demand can and should dictate needs. Current utilization and demand for new hangars indicates negative hangar capacity at the airport.

Table 4-8 presents the projected hangar needs throughout the planning period.

TABLE 4-7: AIRCRAFT APRON REQUIREMENTS

	2014*	2019	2024	2034
Existing Number of Tie-Down Spaces	9	9	9	9
Tie-Down Demand	4	4	5	6
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*Base Year
Source: TO Engineers Inc.

Recommendations: Based on projected transient and based aircraft operations there is no foreseeable apron shortfall at the end of the 20-year planning period. However, prudent and proactive planning dictates to protect areas for potential improvements. Although no additional apron seems necessary throughout the planning period, a conceptual plan will be developed for Parcel G, recently acquired, to protect areas for potential future development and allow future expansion based on demand. This conceptual plan will be addressed in Chapter 5, Alternatives Analysis and depicted on the ALP.

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It should be noted that construction of new hangar is demand driven and should only be considered when and if demand at the airport warrants. Actual demand can and should dictate needs. Current utilization and demand for new hangars indicates negative hangar capacity at the airport.

Table 4-8 presents the projected hangar needs throughout the planning period.

The pilot's lounge attached to the condo hangar was constructed between 1970 and 1975. The pilot's lounge is constructed on wooden posts with skirting. However, the skirting is deteriorating and has holes, which allow animals to enter below the pilot's lounge. The animals have torn up the insulation, causing freeze problems with the water and sewer pipes.

Recommendations: Based on current activity, existing terminal building facilities are sufficient to meet current needs. It is recommended that foundation be installed under the existing building to solve the issues with the posts and skirting. In addition, it is recommended to replace a few windows or doors to improve the insulation and offer more economical heating.

The FAA guidance for determining terminal space requirements indicates that an additional 480 square feet could be considered for the terminal building. Should demand increase and the need arises, an improved terminal building facility should be considered. Recommended improvements could include offices for airport management, restaurant space or other food service facilities as desired. Future space and improvements could be considered at that time should demand warrant.

4.3.5 FIXED BASED OPERATOR (FBO)

There is currently no full-service FBO located on the Airport. Fuel or aircraft repairs are not provided on the airport.

FBO facility requirements are driven primarily by market conditions and the particular needs of the FBO and its customers. Because future FBO facility needs are difficult to quantify, the best planning approach is to identify and reserve an area that could accommodate new or expanded FBO facilities. General areas for expanded operations, maintenance hangar, vehicle parking, and apron should also be reserved. A 3,000 to 5,000 square foot building is generally adequate to meet the airport's basic FBO needs, although the economics involved for the FBO and the airport will largely determine the type of facilities that are developed.

Recommendations: At some point in the future, a private full time FBO is desired at the airport to provide services including fuel management, aircraft hangars and tie-down parking, an possibly aircraft maintenance and rental services. It is anticipated that one FBO on the field will be sufficient throughout the planning period and beyond. Prudent and proactive planning dictates to protect areas for potential improvements and a location for a new FBO hangar will be considered in Chapter 5, Alternatives Analysis and shown on the ALP.

4.3.6 AUTOMOBILE PARKING

A paved automobile parking area next to the pilot's lounge can accommodate approximately 5 vehicles. In addition, another parking area adjacent to the Taxilane B development accommodates 5 additional vehicles. The parking spots are not delineated, painted or marked. **Figure 4-8** identifies the two automobile parking areas.

FIGURE 4-8: AUTOMOBILE PARKING

Further, one courtesy vehicle is stored at the airport and can be used by the public with a nominal fee.

Parking space requirements for general aviation airports vary depending on the specific needs of the individual airport. A forecasting technique developed for general aviation airports calculates automobile parking requirements with the following equation:

GA Automobile Spaces = 2.34 x Peak Hour Operations

Table 4-9 lists the total projected general aviation automobile parking requirements using this equation. Performing this calculation results in a current demand of approximately 17 automobile parking spaces (including 1 courtesy vehicle) at the end of the planning period.

TABLE 4-9: AUTOMOBILE PARKING REQUIREMENTS

	2014*	2019	2024	2034
Peak Day Operations	227	29	31	37
Peak Hour Operations	5	6	6	7
Peak Parking Space Demand	13	14	14	16
Courtesy Vehicles	1	1	1	1
Total	14	15	15	17
Existing Parking	10	10	10	10

*Base Year
Source: T-O Engineers Inc.

Recommendations: Based on current and future activity, it is recommended that additional paved vehicle parking be included. In addition, it is recommended that existing automobile parking spaces be identified and marked. An analysis of the location of additional automobile parking area will be provided in Chapter 5, Alternatives Analysis. It should be noted that this particular project is not eligible for federal funding. Additional details will be provided in Chapter 6, Development Plan and Financial Overview.

4.3.7 FUELING FACILITIES

Currently no fuel is available at the airport. Past users have requested the availability of fuel (100LL) at the airport. In addition, the IASP also recommends that airports of this classification consider providing 100LL.

Recommendations: It is recommended that 100LL be offered at the airport to meet current demand from the existing fleet mix. Supplying this service could attract additional activity and provide an additional revenue source associated with a fuel flowage fee. A 100LL fuel tank could be incorporated into an above ground fuel facility. Service could also be provided sooner via the use of a mobile tank truck.

It should be noted that based on current criteria, fuel tanks are very low on the priority list for FAA funding. It should not be expected that FAA AIP funds will be available for potential future fueling facilities at the airport. Funding for fuel facilities will have to come either from local sources or a fuel vendor.

The County could also consider offering automotive fuel (MOGAS) for future aeronautical activity. There is a national movement by the general aviation community to work with the FAA to allow supplemental certification for current and future GA aircraft to use MOGAS. MOGAS is less expensive than 100LL which may increase general aviation activity by making it more affordable. The County should monitor this trend in aviation and respond appropriately.

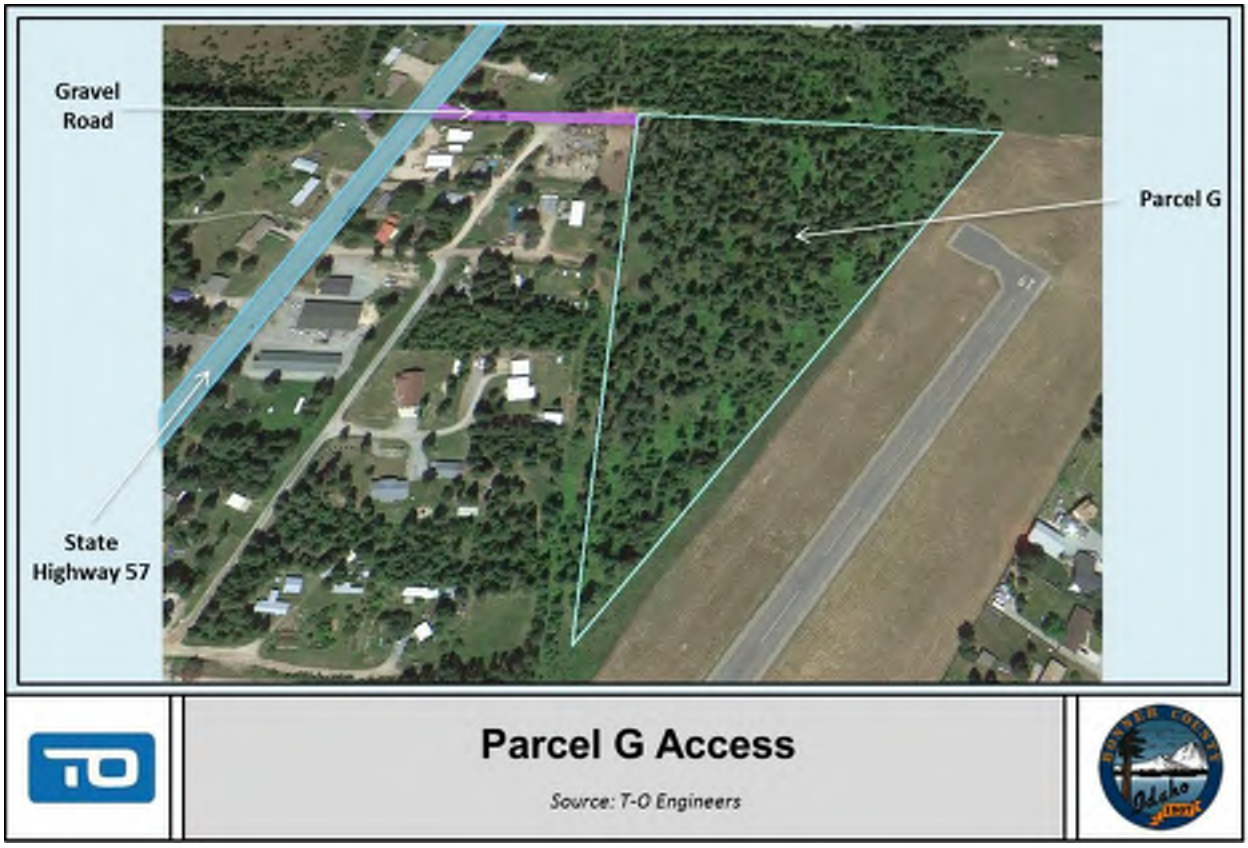
4.4 SUPPORT FACILITY REQUIREMENTS

4.4.1 ACCESS ROAD

Access roadways enable originating and terminating airport users to enter and exit the airport landside facilities. The airport can be accessed from State Highway 57. This access road was paved in 2013 and is commonly known as Airfield Way. Only the northwest portion of Parcel G, recently acquired, is accessible and the remainder of the parcel is completely unused and forested. Access to this parcel is possible from State Highway 57, using a gravel road, as depicted in **Figure 4-9**.

Recommendations: The access road to the main entrance of the airport is adequate and in good condition, as it has been paved in 2013. It is recommended that routine pavement maintenance be conducted as necessary throughout the planning period. In addition, it is recommended that adequate access to Parcel G be provided, as required by future development. Alternatives to develop Parcel G, as necessary, and enhance the access to this parcel will be provided in Chapter 5, Alternatives Analysis and depicted on the ALP. It should be noted that only portions of access roads serving the airport exclusively are AIP eligible. Additional details will be provided in Chapter 6, Development Plan and Financial Overview.

FIGURE 4-9: PARCEL G ACCESS



4.4.2 INFRASTRUCTURE AND UTILITIES

Priest River Municipal Airport has access to most of the typical utilities. Avista supplies electrical power to the airport and properties around its perimeter. Potable water is currently supplied from the City of Priest River water system. Sewer service is being provided to the caretaker building and pilots lounge by Priest River Sewer Service beginning in 2015. There is no Internet access available in the pilot's lounge at the moment; Comcast provides Internet in the adjacent EMS building. Lastly, there is currently no utilities on the parcel recently acquired, Parcel G.

Recommendations: Extending utilities to Parcel G is recommended during development of this parcel. Further, access to existing and additional utilities, including natural gas and Internet, if available, should be considered when planning all future development on and around the airport.

4.4.3 FENCING AND SECURITY

The airport perimeter is completely enclosed with 7 foot chain link fence; access is provided with an automatic gate at the main airport entrance. Parcel G, which has been recently acquired, is not enclosed in the fence.

Recommendations: It is recommended that Parcel G be enclosed in the fence and that any future land purchases also be fenced. A full perimeter wildlife/security fence is beneficial in reducing animal incursions as well as provides increased security. For an additional level of security, flood lighting could also be provided around the aircraft fueling area.

4.4.4 SNOW REMOVAL EQUIPMENT (SRE)

Bonner County and the volunteer airport advisory board provide most maintenance activities for the airport. The County keeps one surplus 1980 Mack Truck with snow plow mounted to the front and sand bin on the rear at the airport.

This equipment is used for both snow removal operations and general airport maintenance activities. The truck is stored outside and is at the end of its useful life; the county reports frequent break downs during winter months while plowing.

A dedicated piece of airport SRE equipment is recommended. This would most likely be a single piece of equipment that could serve both for snow removal and routine airport maintenance.
The snow removal equipment should be housed in covered facility to protect the new equipment from the elements and prolong its useful life. A new building would also provide a space for maintenance. If vehicles or SRE equipment is acquired using AIP funds, the FAA would require the equipment to be stored inside.

4.4.2 INFRASTRUCTURE AND UTILITIES

Priest River Municipal Airport has access to most of the typical utilities. Avista supplies electrical power to the airport and properties around its perimeter. Potable water is currently supplied from the City of Priest River water system. Sewer service is being provided to the caretaker building and pilots lounge by Priest River Sewer Service beginning in 2015. There is no Internet access available in the pilot's lounge at the moment; Comcast provides Internet in the adjacent EMS building. Lastly, there is currently no utilities on the parcel recently acquired, Parcel G.

Recommendations: Extending utilities to Parcel G is recommended during development of this parcel. Further, access to existing and additional utilities, including natural gas and Internet, if available, should be considered when planning all future development on and around the airport.

4.4.3 FENCING AND SECURITY

The airport perimeter is completely enclosed with 7 foot chain link fence; access is provided with an automatic gate at the main airport entrance. Parcel G, which has been recently acquired, is not enclosed in the fence.

Recommendations: It is recommended that Parcel G be enclosed in the fence and that any future land purchases also be fenced. A full perimeter wildlife/security fence is beneficial in reducing animal incursions as well as provides increased security. For an additional level of security, flood lighting could also be provided around the aircraft fueling area.

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4.6 SUMMARY OF REQUIREMENTS AND RECOMMENDATIONS

In summary, Priest River Municipal Airport has been developed appropriately based on demand and well maintained over the past several years. Modest facility improvements over the course of the planning period are warranted to continue this trend.

It is understood that the need for full build-out of the airport as depicted on the ALP drawing set is speculative to a certain degree and not currently justified based on the aviation activity forecasts performed as part of this study. Nevertheless, recommendations have been developed based on a proactive planning approach. Long-term guidance is presented to the County to assist them in facilitating logical and orderly development over the planning period as opposed as developing what is most convenient and expedient at the time. Many of the recommendations are demand driven and should only be considered when and if demand at the airport warrants.

Although it is not anticipated that the airport will need to meet design standards beyond B-I (Small) over the planning period, Bonner County needs to monitor the traffic as well as the fleet mix using the airport.

Table 4-10 summarizes facility requirements and recommendations. Chapter 5, Alternatives Analysis presents various alternatives to accommodate the requirements and recommendations.

TABLE 4-10: SUMMARY OF FACILITY REQUIREMENTS

Facility	Existing	Recommended
Runway		
Length (usable)	2,983’	At least 2,983’
Width	48’	60'
Strength	12.5 SWG	12.5 SWG
Runway Lighting	LIRL (non-standard)	MIRL
Taxiways		
Type	Partial Parallel Ramp Edge Taxiway	Full Parallel
Width	25'	25'
Strength	Same as RW	Same as RW
Navaids, Visual Aids, and Lighting		
Approach	Visual	Visual
Automated Weather	None	Long-term, As needed
Runway Lights	Non-standards LIRL	MIRL
Taxiway Lights	Reflectors	Reflectors
REILs	None	RWY 1 & RWY 19
Precision Approach Path Indicator (PAPI)*	None	PAPI RWY 1 and 19*
Airfield Signage	None	Yes (Taxiway/Runway holding position signs)
Segmented Circle	No	Yes
Wind Cone	Yes	Yes (supplemental wind cone on each runway end)
Beacon	No	Yes
Aircraft Storage		
Tiedowns	9	At least 9
Apron Strength	12,500 lbs	12,500 lbs
Box Hangars	16	22
Terminal/FBO		
Terminal	556 sq. ft.	Minimum of 556 sq. ft.
FBO	No	Yes (Demand Driven)
Access and Parking		
Automobile	10	17
Snow Removal/Maintenance		
SRE and Maintenance	Yes (inadequate)	New SRE and Storage Building
Fuel		
100LL	No	Yes (24-hour reader)
Jet-A	No	No
MOGAS	No	Yes (24-hour reader)
Airport Property		
Land	70.88 acres	TBD
Additional Requirements		
Purchase land/easements for RPZ		
Enclose Parcel G in existing perimeter fence to improve security.		
New taxilanes to accommodate hangar development and apron development as needed.		
Routine pavement maintenance as necessary.		
Renumber the runway.		
Helicopter Parking Pad.		
Utilities extensions and infrastructure improvements as needed to serve Parcel G and accommodate new development.		
*Analysis indicated PAPI installation might be feasible, but minor obstructions in OCS for both runways.		

Source: T-O Engineers, Inc.

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