T·O ENGINEERS

BEAR LAKE COUNTY AIRPORT MASTER PLAN

FACILITY REQUIREMENTS
DRAFT

4.0 FACILITY REQUIREMENTS

The purpose of this chapter of Bear Lake County Airport Master Plan is to identify the needs for additional facilities, or improvements to existing facilities over the 20-year planning horizon. Using the 20-year forecasts presented in Chapter 3, Aviation Activity Forecasts, and validated by the FAA in January 2015, this chapter assesses the relationship between the current and projected demand and the facility needs. By comparing current demand to projected demand, 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 for each planning horizon year (2019, 2024 and 2034).

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 Bear Lake County Airport in 2010 will also be taken into consideration in developing facility requirements.

The following operational areas are evaluated to determine existing and future facility requirements for Bear Lake County 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 BEAR LAKE COUNTY 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 Bear Lake County

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. Bear Lake County Airport was categorized in the IASP as a "Community Business" airport. According to the IASP, Community Business Airports "serve a limited role in region economies, primarily supporting community economies. They accommodate a variety of general aviation activities such a business, recreational, and personal flying." Bear Lake County Airport met the recommendations for several facilities including primary runway length, runway width and strength, terminal, and services. The IASP facility and services recommendations for the airport, based on the Community Business role, are summarized in **Table 4-1**.

TABLE 4-1: IDAHO AIRPORT SYSTEM PLAN PROJECT RECOMMENDATIONS FOR BEAR LAKE COUNTY AIRPORT

Facility or Service	Existing	System Objective	Recommendation
Instrument Approach	Visual	Non-Precision	Upgrade to Non-Precision
Runway End Identifier Lights (REIL)	None	REILs	Install REILs
Precision Approach Path Indicator (PAPI)	None	PAPI/VASI	Install PAPI/VASI
Weather Reporting	None	AWOS/ASOS	Install AWOS/ASOS
Fuel	AvGas Only	AvGas and Jet A	Provide Jet A (as needed)

Source: Idaho Airport System Plan, 2010

The IASP did recommend that Bear Lake County Airport be equipped with Runway End Identifier Lights (REILs), a Precision Approach Path Indicator (PAPI), an instrument approach and an Automated Weather Observing System (AWOS). In the Idaho Airport System Plan technical report, it was also noted that Community Business Airports should provide Jet A fuel as needed.

4.2 AIRSIDE FACILITY REQUIREMENTS

Like other small communities in Idaho, Bear Lake County and the towns around the airport are rural, isolated communities. Transportation infrastructure, including airports, is essential to rural communities because they provide 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 (mining operations, real estate, legal proceedings, etc.)
- Recreation (hiking, biking, fishing, hunting, etc.)
- Wildlife related services, such as wildlife tracking (Idaho Fish and Game and U.S. Fish and Wildlife Service)

Such activities occur at many rural airports on an everyday basis, including Bear Lake County Airport. The location of the airport at a high elevation, 5,932.6 feet Above Mean Sea Level (MSL), also presents significant challenges not common to airfields at lower elevations. The cost to maintain and improve high elevation and remote airports is greater than at comparable size airports throughout the country due to short construction season and higher construction prices. Pavement maintenance costs are also higher due to weathering, oxidation, faster deterioration and higher construction prices.

When considering the needs of Bear Lake County 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. A formal capacity analysis was conducted at Bear Lake County Airport 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, including 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 Bear Lake County Airport most closely reflects the operational and physical characteristics of configuration Number 15, two active runways, as depicted in AC 150/5060-5. Supporting the two runway configuration at the airport is a partial parallel taxiway. The presence of a full parallel taxiway system at the airport would enhance the capacity of the runways.

The Aircraft Mix Index is the percentage of aircraft operations by large (more than 12,500 lbs) multi-engine aircraft. Primary usage of Bear Lake County Airport is currently by single-engine and small multi-engine aircraft. 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. Bear Lake County 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 two-runway airport with a full-length parallel taxiway is estimated to be 260,000 annual operations. The hourly capacity for this type of airport is estimated to be approximately 132 VFR operations. Because the airport does not have a full parallel taxiway, capacity is assumed to be reduced by 20%.

Future Capacity Requirements

In 2034, projected demand at Bear Lake County Airport is forecast to grow to approximately 6,565 annual operations. These projected operations represent 3.2 percent of the estimated ASV of 208,000 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 Bear Lake County 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 DESIGN STANDARDS AND ACCOMMODATING ARC B-II

The FAA design standards are requirements to provide an acceptable level of safety at the airport. The design standards include the runway protection standards and the runway separation standards.

The existing ARC for Bear Lake County Airport is B-I Small. Common aircraft using the airport today include single-engine aircraft with occasional use by multi-engine, turboprop and jet aircraft. Although, single-engine aircraft 12,500 lbs or less (small aircraft) are the primary aircraft type operating at the airport, multi-engine and jet aircraft do utilize the airport occasionally throughout the year.

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 Bear Lake County Airport. The policy of meeting design standards provides an increased level of safety and a more proactive approach to airport planning.

Protecting for B-II standards at Bear Lake County Airport is recommended as a prudent, proactive planning approach. Because the airport is not constrained and because a precedent has been established with the new partial parallel taxiway, protecting for larger standards before the facilities are constrained is reasonable and recommended.

It should be noted that actions to attract larger aircraft on a regular basis and over the substantial use threshold of 500 annual operations should not be pursued before Bear Lake County Airport is ready to meet the FAA dimensional standards to accommodate these aircraft.

Accommodating RDC B-II and meeting the new runway protection and runway separation requirements will have little impact on the existing facilities, most of the impact will be on apron and hangars areas. The design standards are described in additional details in Section 4.2.5, Design Standards and subsequently illustrated in **Table 4-4** (Section 4.2.7, Summary of Design Standards). Alternatives to address B-II standards will be included in Chapter 5, Alternatives Analysis. New configurations, timelines, and general scale of cost will also be included in the analysis. The following recommendations assume meeting ARC B-II.

It should be noted that projects exceeding the design standards of B-I Small may not be eligible for federal and state funds and the purpose and needs for environmental analysis of projects exceeding the design standards of B-I Small may be difficult to prove. It is crucial that Bear Lake County Airport consults the FAA Helena ADO before implementing any projects exceeding B-I Small standards.

4.2.3 RUNWAYS

Runways are the single most important element of the airfield and have 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 component (visibility). The ARC is used for planning and design only and does not limit the aircraft that may be able to operate on the airport. The ARC and RDC are used during the airport planning process to design and determine the dimensions of most airfield pavements.

Currently Runways 10/28 and 16/34 both have a RDC of B-I (small airplanes exclusively)-VIS, B-I (S)-VIS. As both runways have the same RDC, the ARC of Bear Lake County Airport is B-I (Small). This designation is a reflection of the types of aircraft that predominately use the airport. No major change in the fleet is expected and the critical aircraft is expected to remain the Piper Malibu PA-46 over the planning period. However, it is recommended that the traffic be monitored at Bear Lake County 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 Bear Lake County 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, Bear Lake County Airport is predominately used by small aircraft (MGTOW 12,500 lbs or less). Aircraft Approach Category (AAC) and Airplane 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 Bear Lake County 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 runway length requirement 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 5,932.6 feet MSL and a mean maximum temperature of 85.5 degrees Fahrenheit for the hottest month of the year. The runway length requirement ranges from 7,100 feet to 7,200 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	5,932.6 MSL
Mean Maximum Temperature of the hottest month	85.5° 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	7,100’
100 percent of these small airplanes	7,200’
Small airplanes with 10 or more passengers	7,200’

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

As discussed in Chapter 3, Aviation Activity Forecasts, a variety of high performance corporate aircraft including small jets, and turboprop aircraft such as Cessna Citation, Pilatus PC-12 and Beech B200, occasionally operate at Bear Lake County Airport. The runway length requirements for a sample of these jet, multi-engine and turboprop aircraft 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 the runway length requirements at Bear Lake County Airport for a sample of the jet and larger aircraft using the airport.

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

Airport and Runway Data Assumptions			Inputs
Airport Elevation			5,932.6 MSL (Estimated 6,000')
Mean Maximum Temperature of the hottest month			85.5° F (Estimated 86° F)
Type of Aircraft	**Maximum Take Off Weight (lbs)**	**AAC, ADG and TDG**	**Runway Length Requirements***
Beech Super King Air 200 (Turboprop)	12,500	AAC-ADG: B-II TDG: 2	Flaps Up recommended at this temperature and elevation Accelerate Go Distance: 7,900
Cessna Citation Mustang (Jet)	8,645	AAC-ADG: B-I TDG: 2	Flaps 15**: 5,300' with a takeoff weight of 7,500 lbs
			Flaps Up**: 6,800' with a takeoff weight of 8,000 lbs
Cessna Citation XLS (Jet)	20,200	AAC-ADG: B-II TDG: 2	Flaps 15**: 5,400' with a takeoff weight of 18,500 lbs
			Flaps Up: 8,800'
Citation CJ1 (Jet)	10,700	AAC-ADG: B-II TDG: 2	Flaps 15**: 5,800' with a takeoff weight of 9,900 lbs
			Flaps Up: 10,110'
Citation CJ3 (Jet)	13,870	AAC-ADG: B-II TDG: 2	Flaps 15: 5,900'
Citation CJ4 (Jet)	16,950	AAC-ADG: B-II TDG: 1A	Flaps 15: 6,600'
Pilatus PC-12 (Turboprop)	10,450	AAC-ADG: A-II TDG: 1A	Flaps 15: 5,700'
			Flaps 30: 5,129'
Piper PA-46 (Piston) (Design Aircraft)	4,318	AAC-ADG: A-I TDG: 1A	Flaps 0: 4,300'
			Flaps 20: 3,300'

* Unless otherwise specified, all distances are Takeoff Field Length
**Temperature above Climb Weight Temperature Limit and requires reduction in MTOW
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, Beechcraft B200 Pilot's Operating Handbook, Cessna Flight Planning Guide, PC-12 Digital Airplane Flight Manual, Piper Malibu Mirage Pilot's Operating Handbook.

Runway 10/28 is the longest runway at Bear Lake County Airport and the current published runway length is 5,728 feet (FAA 5010 Master Record). The take-off length available is 5,728 feet in both directions. Runway 16/34 is 4,590 feet long. None of the runway have a displaced threshold, therefore the landing distance available is respectively 5,728 feet and 4,590 feet.

According to runway length curves provided in the Advisory Circular AC 150/5325-4C and based on the temperature and elevation at Bear Lake County 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 small airplanes with 10 or more passengers and 100 percent of small airplanes with less than 10 passenger seats without weight restriction is at least 7,200 feet. However, per the Piper Malibu Mirage Pilot's Operating Handbook, the existing runway length allows accommodating the design aircraft, the Piper Malibu PA-46 without any weight restriction.

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, corporate operators, and the aerial firefighting activities, indicates substantial use by small aircraft. As mentioned above, large aircraft activity also 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 requirements, a runway extension is justified to accommodate 100 percent of the small airplanes with less than 10 passenger seats.

Based on Pilot's Operating Handbook, current and future aircraft demand, and IASP recommendations, the current length at Bear Lake County Airport allows accommodating the design aircraft as well as small general aviation aircraft such as the PA-46 or Cessna 182. Although larger corporate aircraft and propeller airplanes do utilize the airport multiple times 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.

It is recommended that Bear Lake County continue to monitor the traffic as well as the fleet mix using the airport. If the critical aircraft were to exceed B-I and if larger aircraft were to use the airport on a regular basis, a runway extension could be needed and justified.

It should also be noted that the larger aircraft currently using 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 10/28 is 75 feet and the width of Runway 16/34 is 60 feet. The required Runway Width for airports accommodating ARC B-II is 75 feet.

Recommendation: Both runway widths meet design standards for Runway Design Code RDC B-I aircraft. In addition, the primary Runway, Runway 10/28, meets RDC B-II design standards. To meet ARC B-II, Runway 16/34 may need to be widened, depending on the wind coverage; additional information on wind coverage is provided in Section 4.2.4, Wind coverage and future of the crosswind runway. Runway width will be further discussed in Chapter 5, Alternatives Analysis.

Runway Strength

Current Runway 10/28 pavement strength is reported to be 12,500 pounds single wheel loading as published on the FAA 5010 master data record. Current Runway 16/34 pavement strength is reported to be 50,000 pounds for Single Wheel Gear (SWG) equipped aircraft, 64,000 pounds for Double Wheel Gear (DWG) equipped aircraft and 102,000 pounds for Double Tandem Gear (DTG) equipped aircraft as published on the FAA 5010 master data record. This published runway strength was obtained from mid-1980's pavement strength survey data and is not consistent with the strength of the other pavement, including the partial parallel taxiway and the apron. To homogenize pavement strength at the airport, Runway 16/34 published pavement strength should be brought down to the same pavement strength as the taxiway 16,000 pounds single wheel loading.

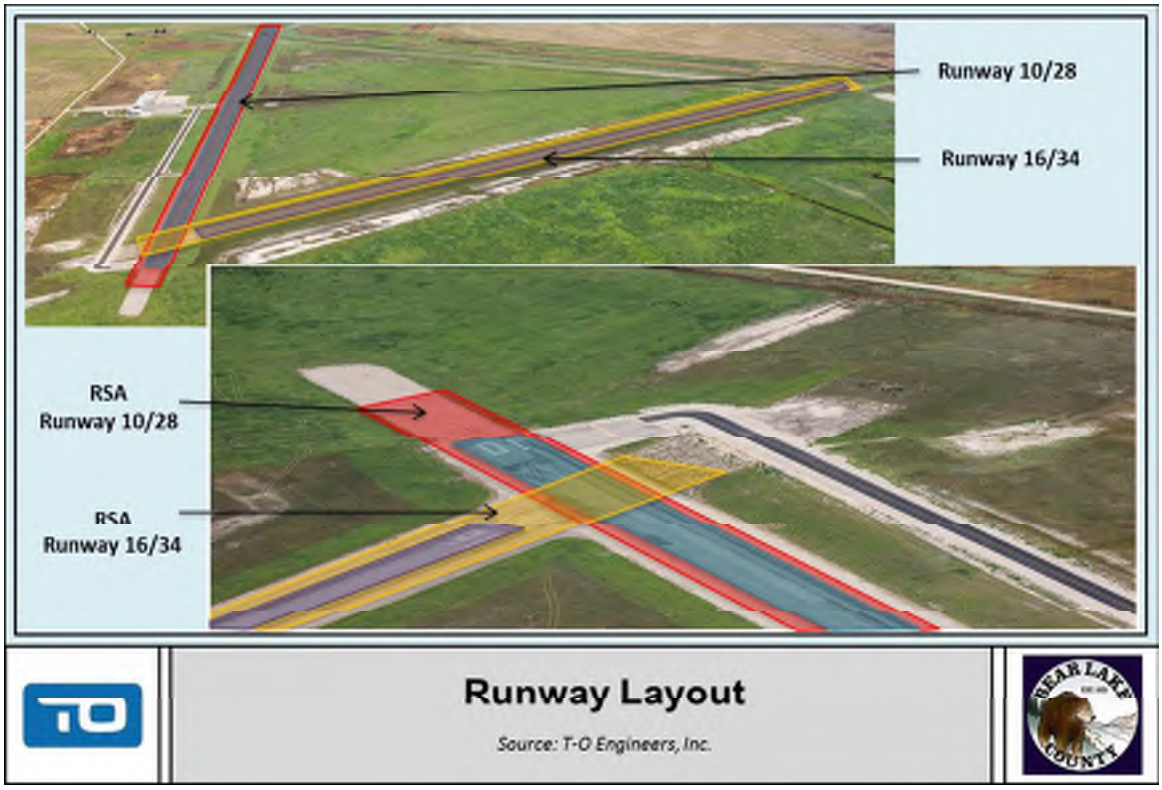
The pavement strength computed using current FAA guidelines and FAA AC 150/5335-5C is reported to be **X**. The designated critical aircraft at Bear Lake County Airport, the Piper Malibu PA-46, has a maximum gross takeoff weight (MGTOW) of 4,318 pounds.

Recommendation: It is recommended that the FAA 5010 master data record be updated to report a pavement strength of **X** for Runway 10/28 and Runway 16/34. Current pavement strength is sufficient to accommodate existing as well as the forecasted 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.

Runway 10 and 16 Intersection

Bear Lake County Airport is equipped with two convergent runways, Runway 10/28 and Runway 16/34. The Runways currently do not intersect, but the RSA of the two runways overlap and the Runway Safety Area (RSA) beyond Runway 16 ends is penetrated by Runway 10/28. **Figure 4-1** depicts the runway layout.

FIGURE 4-1: RUNWAY LAYOUT



The FAA AC 150/5300-13A states that "*if possible, safety areas should not overlap, since work in the overlapping area would affect both runways. In addition, operations on one runway may violate the critical area of a NAVAID on the other runway. This condition should exist only at existing constrained airports where non-overlapping safety areas are impracticable. Configurations where runway thresholds are close together should be avoided, as they can be confusing to pilots, resulting in wrong-runway takeoffs. If the RSA of one runway overlaps onto the full strength pavement of a second runway or taxiway, the chance of runway/taxiway incursion incident is increased*."

Further, the FAA AC 150/5300-13A states that "*the angle between the extended runway centerlines should not be less than 30 degrees*." At Bear Lake County the angle between the two runways extended centerlines is 60 degrees.

Recommendation: To ensure that the runway ends do not terminate at the same point and that runway safety areas do not overlap, the FAA requires decoupling the runways. This is a critical safety issue for the FAA to avoid runway incursions and wrong runway departures, as well as to avoid overlapping RSAs. In addition, Runway 16/34 has an aligned taxiway, whose centerline coincides with a runway centerline. The FAA AC 150/5300-13A states that "existing aligned taxiway should be removed as soon as practicable." An analysis of these recommendations will be provided in Chapter 5, Alternatives Analysis.

Runway Markings

Runway 10/28 and Runway 16/34 are visual only runways, with basic markings in good condition.

Further, according to the National Geophysical Data Center, the magnetic declination is changing by 6.6' W per year at Bear Lake County Airport, so a change of 132' W (2°12' W) at the end of the planning period. The current declination is 11°43'48'' E (2015). In 20 years, the new declination will be 9°31'48'' E.

The true orientation of Runway 10/28 is 115°06'04.20", which will give a magnetic orientation of 105°34'16.20'' (285°34'16.20'') in 2035. The true orientation of Runway 16/34 is 175°06'02.98"', which will give a magnetic orientation of 165°34'14.98'' (345°34'14.98'') in 2035. Given the true orientation of each runway and the evolution of the magnetic declination, the two runways will need to be renumbered 11/29 and 17/35 to address this natural magnetic shift in approximately 15 years.

Recommendation: To be eligible for straight-in instrument approach development, a runway must have non-precision instrument runway markings. It is recommended that Runway 10/28 be equipped with non-precision instrument runway markings. Additional details on instrument approach procedure are provided in Section 4.2.9, Navigational aids and Instrument Approach Procedure.

In addition, it is anticipated that Bear Lake County Airport will need to re-designate Runway 10/28 to 11/29 and Runway 16/34 to Runway 17/35 to address the natural magnetic shift, approximately in 2030.

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. Bear Lake County Airport is not equipped with runway or airfield signs.

Recommendation: To improve safety, it is recommended that Bear Lake County Airport be equipped with Taxiway/Runway holding position signs.

4.2.4 WIND COVERAGE AND FUTURE OF THE CROSSWIND RUNWAY

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 K1U7, located on the airport, was reviewed and used to evaluate the wind coverage at Bear Lake County Airport. In the absence of FAA certified weather station on the airport, this was deemed to be the best data available.

Based on this data and on a maximum allowable crosswind speed of 10.5 knots for RDC A/B-I aircraft, the annual average wind coverage is 94.13 percent wind coverage for Runway 16/34, 93.99 percent wind coverage for Runway 10/28 and 98.97 percent wind coverage for both runways. Based on this estimated coverage, both runways are necessary to meet the FAA minimum wind coverage recommended and none of the runways alignment individually provide the minimum wind coverage. Additional details on wind coverage and crosswind runway is provided in a technical memorandum included in **Appendix X**.

In order to meet the FAA criterion of a minimum of 95.0 percent wind coverage for all airports with wind speeds of 10.5 knots with a single runway, the true orientation of this runway should be 133°52.2'. This orientation is based on wind data from the K1U7 weather station that only has five full years of data available and a wind sensor located in the immediate vicinity of hangars, which could potentially lead to slightly flawed information.

Crosswind Runway

As previously mentioned, based on wind data available, the two runways are necessary to meet the FAA recommended wind coverage at Bear Lake County Airport.

At airports that do not meet the minimum wind coverage, crosswind runways are eligible for federal funds and assistance. However, being eligible does not mean that it is fundable, and it should be noted that federal and state funds available to maintain this runway are limited.

ITD completes a full inspection of airport pavements on a statewide basis every three years and Bear Lake County Airport was last inspected in 2011. In 2011, Runway 16/34 also had a satisfactory pavement condition; one section had a PCI of 75 and the other section had a Pavement Condition Index (PCI) of 72. Further, the predicted condition in 2016 was one section with a PCI of 72, a satisfactory pavement condition, and the other section with a PCI of 64, a fair pavement condition. In 2021, the predicted condition was one section with a PCI of 63, a fair pavement condition, and the other section with a PCI of 55, a fair pavement condition. It was recommended to apply slurry seal on Runway 16/34 and the costs for the whole runway were estimated at $103,187.

Alternatives to minimize the maintenance expenses while maintaining the wind coverage include: converting the crosswind runway to a turf or grass runway or realigning Runway 10/28 to maintain only one runway. Alternatives to address wind coverage will be analyzed in Chapter 5, Alternatives Analysis.

Recommendation: Based on the data available, the two runways are necessary to meet the FAA recommendations. It should be noted that the existing wind sensor is located behind hangars, which has the potential to flaw the data. At airports that do not meet the minimum wind coverage crosswind runways are eligible for federal funds and assistance. However, being eligible does not mean that it is fundable, especially given the annual apportionment allotted to Bear Lake County Airport. A cost benefit analysis to realign the runway and maintain only one runway at Bear Lake County Airport, or to convert Runway 16/34 to turf or grass, will be conducted in Chapter 5, Alternatives Analysis.

4.2.5 DESIGN STANDARDS

As previously mentioned, protecting for B-II standards at Bear Lake County Airport is a prudent and proactive planning approach, because the airport is not constrained and a precedent has been established with the new partial parallel taxiway. Specific standards that result in width adjustments or increased separations are:

- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zones (RPZ)
- Runway centerline to taxiway centerline separation
- Runway centerline to taxiway holding position and;
- Runway centerline to edge of aircraft parking separation
- Taxiway Safety Area (TSA)
- Taxiway and Taxilane OFA

Several of the existing facilities could remain at their existing location, but other facilities including the windcone, aircraft parking aprons, hangars, and the fueling facilities might need to be relocated depending on the preferred alternative.

Alternatives to address B-II standards will be included in Chapter 5, Alternatives Analysis. New configurations, timelines, and general scale of cost will also be included in the analysis. Recommendations for runway protection and separation requirements to accommodate ARC B-II standards are included below. Graphical representation is also depicted on the Airport Layout Plan drawing set.

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 RSA for airports accommodating B-I (Small) aircraft extends 240 feet beyond departure end and 240' prior to the landing threshold at a width of 120 feet. The existing RSA of Runway 10/28 at Bear Lake County Airport does not meet design standards beyond Runway 28 end and needs to be widened to meet design standards. Further, Runway 10/28 is in the existing RSA beyond Runway 34 end.

The required RSA for airports accommodating ARC B-II with visibility minimum not lower than ¾ miles extends 300 feet beyond departure end and 300' prior to the landing threshold at a width of 150 feet.

Recommendations: It is recommended to protect areas for wider and longer RSAs, to meet B-II standards. It is also recommended that the RSA of Runway 10/28 be widened in the short-term to meet design standards. An analysis of this recommendation will be provided in Chapter 5, Alternatives Analysis.

Runway Object Free Area (ROFA)

The current ROFA is 250 feet wide and only meets the FAA requirements for a B-I (Small) airport. The required ROFA for airports accommodating ARC B-II extends 300 feet beyond departure end and 300' prior to the landing threshold at a width of 500 feet wide. The 500-feet wide ROFA is penetrated by the existing wind cone, which is lighted and was installed in the spring 2010. Further, during the FAA compliance inspection, the FAA noted several hay bales in the ROFA.

Recommendations: It is recommended to protect areas for a wider and longer ROFA to meet B-II standards. In addition, it is recommended that agricultural activity be conducted in accordance with both FAA AC 150/5200-33 and AC 150/5300-13A (as amended) and that hay bales be removed from the ROFA, RSA, and Primary Surface. An analysis of this recommendation will be provided in Chapter 5, Alternatives Analysis.

Runway Obstacle Free Zone (OFZ)

The current OFZ extends 200 feet beyond each end of the runway and is 250 feet wide for operations by small aircraft, with an approach speed of 50 knots or more. The required OFZ for airports accommodating an ARC of B-II extends 200 feet beyond each end of the runway and is 400 feet wide for operations by large aircraft.

Recommendations: It is recommended to protect areas to accommodate a 400 foot wide OFZ to meet standards for operations by large aircraft. An analysis of this recommendation will be provided in Chapter 5, Alternatives Analysis.

Runway Protection Zone (RPZ)

The RPZ for airports accommodating B-I (Small) aircraft has a total 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. Bear Lake County Airport RPZs are currently sized to B-I (Small) standards. The RPZs beyond the Runway 10 and 34 ends are penetrated by small gravel roads.

The departure RPZ for airports accommodating B-II aircraft with visibility minimum not lower than ¾ miles has a length of 1,000 feet, an inner width of 500 feet and an outer width of 700 feet. The total area is 13.770 acres. The arrival RPZ for airports accommodating B-II aircraft with visibility minimum not lower than ¾ miles has a length of 1,700 feet, an inner width of 1,000 feet and an outer width of 1,510 feet. The total area is 48.978 acres.

Recommendations: It is recommended that areas for larger RPZs be protected. As much as possible, the portions of the RPZs not currently under the county control should be acquired via fee simple acquisition or protected by an avigation easement. In addition, if work were to be done on the existing gravel roads, or if the roads were to be paved, it is recommended to route the roads outside of the RPZs. Further, even if the RPZ are maintained at their current dimensions, an analysis to address the existing gravel roads in the RPZ should be conducted. Disposition of RPZ penetrations and dimensions of the RPZs to meet B-II standards will be discussed in Chapter 5, Alternatives Analysis. This analysis will take into consideration costs and environmental impacts due to the presence of the Bear Lake Canal, farmlands and wetlands in the vicinity of the airport.

Runway Separation Standards

The runway separation standards ensure operational safety at the airport. They are based on the AAC, the ADG and Visibility minimums. 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 aircraft parking distance.

Runway/Taxiway Separation

The required separation distance between the runway and parallel taxiway centerline is 240 feet for airports accommodating an ARC of B-II. The current runway/taxiway centerline separation has been designed to meet the FAA requirements for a B-II airport and is 240 feet.

Recommendations: The partial parallel taxiway has been design to meet B-II standards and it is recommended that the same separation be maintained for future construction.

Runway/Holding Point Distance

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

positions is 200 feet for airports accommodating a RDC of B-II with visibility minimum not lower than ¾ miles.

Recommendations: To meet B-II standards, it is recommended increase the runway to holding point distance. An analysis of this recommendation will be provided in Chapter 5, Alternatives Analysis.

Runway/Edge of Aircraft Parking Distance

The required separation distance between the runway centerline and the edge of the aircraft parking is 250 feet for airports accommodating a RDC of B-II. The current Runway/Edge of Aircraft Parking is 440 feet.

Recommendations: The existing Runway/Edge of Aircraft Parking Distance meets B-II standards.

4.2.6 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 (FAA 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.

All runway ends currently meet threshold siting requirements without displacement of the thresholds. During construction, a displaced threshold may be required if construction equipment is located in the RSA of Runway 10/28 or in the immediate vicinity of Runway 16/34 thresholds.

4.2.7 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 at intersections must consider aircraft undercarriage dimensions and is based on the Taxiway Design Group (TDG), a coding system based on the Main Gear Width (MGW) and the Cockpit to Main Gear Distance (CMG).

The critical aircraft for the airport is the Piper PA-46, which is TDG-1A. However, several B-II aircraft are TDG-2, including the Cessna Mustang and the Cessna Citation. Although, there is currently no significant use by TDG 2 aircraft, proactive and prudent approach recommends planning and protecting for TDG-2.

The taxiway system at Bear Lake County Airport was analyzed to determine potential deficiencies. It consists of a partial parallel taxiway and a connector taxiway. The partial parallel taxiway is parallel to Runway 10/28 and allows access from the apron to the thresholds of Runway 10 and 16. The connector taxiway enters Runway 10/28 directly from the apron. As Bear Lake County Airport is only equipped with a partial parallel taxiway, aircraft taking off on Runway 28 and 34 or landing on Runway 10 and 16 need to back-taxi on the runway to taxi to and from the apron.

Recommendations: A full-length parallel taxiway, parallel to Runway 10/28, would contribute to an increased level of safety at the airport by reducing the need for back-taxi operations. Accommodating a full length parallel taxiway at Bear Lake County Airport, designed to design standards B-II, would not have significant impacts on the existing facilities. It should be noted that a full length parallel taxiway is considered to be low-priority based on the number of operations at Bear Lake County Airport. In addition, pavement is expensive to maintain at isolated and high-elevation airports and the County should carefully consider the maintenance costs of a full parallel taxiway before construction.

Taxilanes should also be considered to lead to existing apron and hangars or when developing plans for additional hangars, new aprons, or new fueling area. As appropriate, new taxiway/taxilane centerline markings should be considered to provide access to these facilities

and future new development. An analysis of these recommendations will be provided in Chapter 5, Alternatives Analysis.

Taxiway Width

The existing taxiway system at Bear Lake County 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-I. However, design criteria changed after the project was constructed and the existing pavement fillets meet the design criteria at the time of design, but not the current design standards.

As previously mentioned, several B-II aircraft are TDG-2, and proactive and prudent approach recommends planning and protecting for TDG-2. The required taxiway width is 35 feet for airports accommodating TDG 2.

Recommendation: To meet TDG 2 standards, it is recommended to increase the width of the taxiway. Further, it is recommended that future taxiways and future pavement fillets meet TDG-2 design standards.

Taxiway Strength

Current strength of the parallel taxiway and connectors is 16,000 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: It is recommended that future taxiways conform to existing strength and/or match runway strength. 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. Further analysis is also recommended during the latter stages of the planning period to ensure the structural integrity of existing taxiway pavement sections correlates with the strength of the apron and runway.

4.2.8 SUMMARY OF DESIGN STANDARDS

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

TABLE 4-4: SUMMARY OF DESIGN STANDARDS

	FAA Standard	FAA Standard*	Existing Runway 10/28	Existing Runway 16/34
Airport Reference Code	B-I Small	B-II*	B-I Small	B-I Small
Runway Width	60	75	75	60
Runway Protection Standards				
Runway Safety Area (RSA)				
Runway Safety Area Length beyond each runway end (RSA)	240	300	**240****	**240**
Runway Safety Area Width (RSA)	120	150	**120****	**120**
Runway Object Free Area (ROFA)				
Runway Object Free Area (ROFA) length beyond each runway end	240	300	**240*****	**240*****
Runway Object Free Area (ROFA) Width	250	500	**250*****	**250*****
Runway Obstacle Free Zone (OFZ)				
Runway Object Free Area (OFA) length beyond each runway end	200	200	200	200
Runway Obstacle Free Zone Width (OFZ)	250	400	**250**	**250**
Departure Runway Protection Zone				
Length	1,000	1,000	**1,000******	**1,000******
Inner Width	250	500	**250******	**250******
Outer Width	450	700	**450******	**450******
Arrival Runway Protection Zone				
Length	1,000	1,700	**1,000******	**1,000******
Inner Width	250	1,000	**250******	**250******
Outer Width	450	1,510	**450******	**450******
Runway Separation Standards				
Runway Centerline to:				
Runway Centerline to Taxiway Centerline	150	240	240	
Runway Centerline to Edge of Aircraft Parking	125	250	440	
Holdline	125	200	**125**	
Taxiway Standards				
Taxiway Areas				
Taxiway Width (TDG II)	25	35	**25**	
Taxiway Safety Area (TSA)	49	79	**49**	
Taxiway Object Free Area (TOFA)	89	131	**89**	

*B-II standards for visibility minimum not lower than ¾ miles
**Runway 10 extended RSA is non standard (width)
*** The FAA noted hay bales in the ROFA during the compliance inspection
****Gravel roads penetrate the RPZs beyond Runways 10 and 34 ends
Source: Existing ALP and Narrative, T-O Engineers

4.2.9 NAVIGATIONAL AIDS AND INSTRUMENT APPROACH PROCEDURES

Visual Aids and Lighting

Runway 10/28 is equipped with Medium Intensity Runway Lighting (MIRL), while Runway 16/34 is not equipped with any runway edge lighting. The existing runway edge light system is currently non-standard due to light post height (+/- 40 inches high) and because numerous light stakes do not meet the RSA requirements - numerous stake mount light bases exceed the RSA grade by greater than three inches. Standard light height will also be necessary to support future instrument approach procedure development (see below).

In addition, none of the runways are equipped with Precision Approach Path Indicator (PAPI) or Runway End Identification Lights (REILs). The parallel taxiway does not have any lighting, and is equipped with reflectors only.

An initial feasibility analysis for a PAPI on each of the Runways ends was conducted as part of this study. Based on FAA siting criteria for PAPI and a glide path angle of 3 degrees it appears that the required Obstacle Clearance Surface (OCS) can be achieved for all the runway ends. **Figure 4-2** depicts the Runways 10, 28, 16 and 34 PAPI OCS.

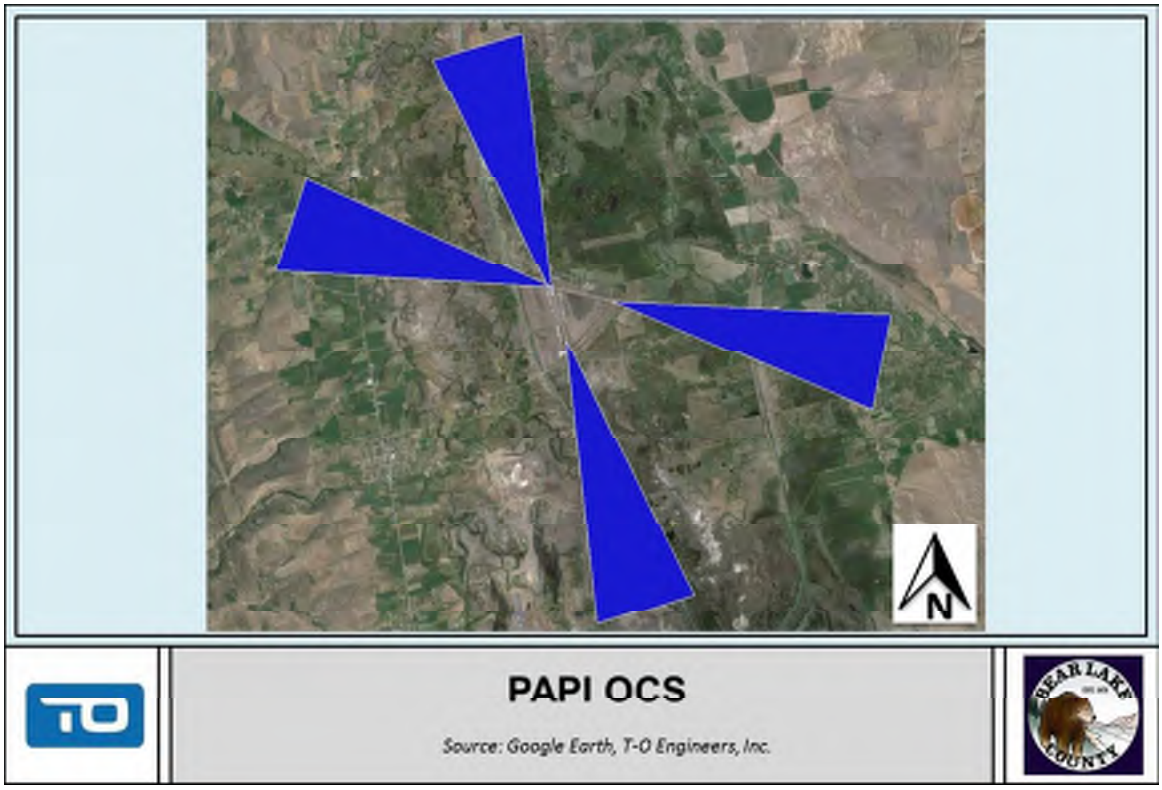
The existing rotating beacon, lighted wind cone and segmented circle are in good condition. The existing equipment in the electrical vault is also in good condition, while the runway lighting system is nearing the end of its useful life and the wiring consists of direct buried wire which is inefficient and difficult to repair. The runway lighting system is not backed up with a generator.

Recommendations: Maintenance and replacement of the rotating beacon, wind cone and segmented circle should be done as necessary, over the planning period. The existing runway edge light system should be upgraded to meet FAA standards. Both Runway 10/28 and Runway 16/34 should be considered for installation of REILs, due to the location of Bear Lake County Airport in a low light environment. Users and operators of the airport indicate that the airport is difficult to locate at night, and it is recommended that at least Runway 28 be equipped with REILs, as it is the runway used most of the time (80 percent of the operations). Supplemental wind cones on each runway ends are also recommended.

Initial feasibility analysis for PAPIs on both runway ends indicates approach path system may be feasible for all the runway ends. Further coordination and verification with the FAA is recommended to pursue the installation of PAPIs. As Runway 28 is the runway used for most of the operations, it is recommended that at least this runway be equipped with a PAPI.

It should be noted that the airport' sponsor, Bear Lake County, is responsible for the operation and maintenance of both PAPI and REILs for the useful life of the equipment. The sponsor is also responsible for ensuring proper aiming of the PAPI throughout its useful life.

FIGURE 4-2: PAPI OCS OBSTRUCTIONS



Instrument Approach Procedures

Bear Lake County Airport currently has visual approach capabilities only. 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.

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 for procedures with limited ground based navigation aids. 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. Life Flight operators have noted that the lack of instrument approach procedures currently preclude them from operating at the airport at night and in winter, in all but the most critical of situations. In addition, an instrument approach is also useful for conducting training and maintaining instrument currency and proficiency requirements. Information gathered during

the Aviation Activity Forecast chapter, pointed to an increase in the use of the airport by Flight Schools. Fourteen users answered the user's survey established for Bear Lake County Airport Master Plan. Out of these fourteen users, eleven identified the lack of instrument approach as an important shortcoming of Bear Lake County Airport. Lastly, the IASP recommends that all Community Business airports, such as Bear Lake County Airport, have non-precision instrument (NPI) approach capabilities.

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)
- Minimum paved runway length of 3,200 feet
- 500 foot wide Primary Surface
- 2,000 foot Approach Surface width at the end
- Runway width of 60 feet (currently 75 feet (Runway 10/28) and 60 feet (Runway 16/34))
- Non-precision instrument runway markings (currently visual)
- On-site altimeter (existing certified on-site altimeter)
- Obstruction survey (completed by FAA in 2012, although this survey was not completed to Airports Geographic Information System (AGIS) standards it was deemed appropriate by the FAA Flight Procedures Office (FAA FPO))
- Environmental Determination

An initial feasibility analysis for NPI capabilities at Bear Lake County Airport was completed by the FAA FPO in 2013. The analysis indicated NPI approaches to Runways 16, 34 and 28 are feasible. Due to terrain and obstacles limitations, an approach to Runway 10 is not feasible. Approaches to Runway 16 and 34 would offer the lowest minimums given the position of the airspace and terrain. However, these approaches would not be operational at night, unless runway lights are installed. Runway 28 would potentially offer visibility minimum as low as ¾ miles if a parallel taxiway is added.

Continued coordination with FAA FPO by the airport board after completion of the feasibility analysis has resulted in approval of by the FAA Regional Airspace Planning Team (RAPT) to include the airport the FAA's Instrument Flight Procedure (IFP) Production Plan. Scheduled publication of new procedures per the plan is July 21, 2016. Procedure development will also include the development of an NPI approach and RNAV departure procedures.

Recommendations: While the airport meets or is able to meet the basic criteria to support instrument approach procedures, the feasibility analysis identified the non-standard runways lights (due to light post height) as an issue that needs to be addressed. As indicated above, a standard MIRL system is recommended and will be included in the airport's Capital Improvement Plan (CIP) for construction prior to publication of the new procedures. Further, the airport board has been proactive in removing trees identified in the 2012 obstruction survey.

Removal of the trees has been verified with the FAA and obstructions are no longer present. The completion of an environmental assessment will also be necessary for procedure development. This environmental action will be initiated by the FAA FPO prior to approach design. Lastly, submittal of FAA Form 7480-1 to change the status of the airport from VFR to IFR will be necessary prior to publication of the procedures. Initiating this process is recommended no later than summer of 2015. Continued coordination with the FAA FPO and ADO is recommended to ensure the airport stays in front of FAA required milestones.

Automated Weather

Bear Lake County 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 Afton Municipal, WY and Logan Cache Airport, UT, located respectively at 37.1 miles and 41.1 miles, however each of these airports is separated from Bear Lake County Airport by significant terrain.

On-site weather provides critical real time weather information to pilots enhancing safety. Providing certified weather in this area would be beneficial not only to the users of Bear Lake County Airport, but also to the users of the entire region and more generally to the aviation system. The installation of an AWOS is also consistent with IASP recommendations for Community Business Airports. Further, without certified on-field weather observation, aircraft operating under FAR Part 135 cannot operate in IFR conditions at Bear Lake County Airport.

Although Bear Lake County Airport is not equipped with a FAA certified AWOS, the airport is equipped with a National Weather Service (NWS) automated weather system reporting the wind, temperature and dew point.

Further, the airport is equipped with a FAA certified altimeter, which was installed by the County in anticipation of future instrument approach procedures. The altimeter setting is provided by the airport manager via pilot request when the airport manager is on-site and available.

Recommendations: It is recommended that some level of AWOS be considered at Bear Lake County Airport as an increased safety measure for operations in the mountainous environment and as an improvement to the aviation system in this area.

The County should keep in mind that AWOS equipment is expensive and the initial costs do not include annual maintenance and certification requirements. Annual maintenance costs for such equipment average $4,000 to $6,000; this amount does not include unforeseeable maintenance such as damage caused by lightning for instance.

It should be noted that a benefit-cost analysis will be required prior to the installation of an AWOS at Bear Lake County airport.

An AWOS with wind reporting equipment will require the proper siting and protection of an AWOS "critical area." The ability of the airport to accommodate this critical area will be discussed in Chapter 5, Alternatives Analysis.

4.2.10 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, Bear Lake County Airport is currently in Class G uncontrolled airspace. No special use airspaces exist in the immediate vicinity of the airport.

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

FAR PART 77 Airspace

Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace (Part 77), apply to existing and manmade objects. The FAA Form 5010, Airport Master Record, includes the controlling obstruction for each runway end and defines it as the obstruction within the boundaries of the approach surface which determines the obstruction clearance slope to the runway end. If the obstruction slope clearance is 50:1 or greater, no obstruction is reported on the FAA Form 5010. According to FAA Form 5010, the Bear Lake County Airport has controlling obstructions located within the approach to both runway ends. As the clearance slope is lower than 50:1 these obstructions were included on the FAA Form 5010. However, the clearance slope is greater than the required slope and no mitigation measure is necessary. These obstructions are presented in **Table 4-5**.

TABLE 4-5: PART 77 OBSTRUCTION DATA FOR RUNWAYS 10/28 AND 16/34

Runway End	Obstructions	Obstruction Height Above RW end	Obstruction Distance from RW end	Clearance Slope	Required Slope	Close In Obstruction?
10	Power line	60'	2,500' from runway	38:1	20:1	No
28	Road	12'	500' from runway	25:1	20:1	No
16	Road	19'	1,000 from runway	42:1	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.

In order to meet B-II design standards the existing FAA defined Part 77 Airspace (Utility runway – primarily serving aircraft 12,500 pounds or less around the airport – with visual approaches) should be modified to meet "Other than Utility" design standards. In addition, the addition of an instrument approach procedure at the airport would also increase the size of the Part 77 surfaces, whether the airport meets "Utility" or "Other than Utility" design standards. The extents of the Part 77 Airspace, the Runway Inner Approach Plan and Profile is included in Airport Layout Plan drawing set.

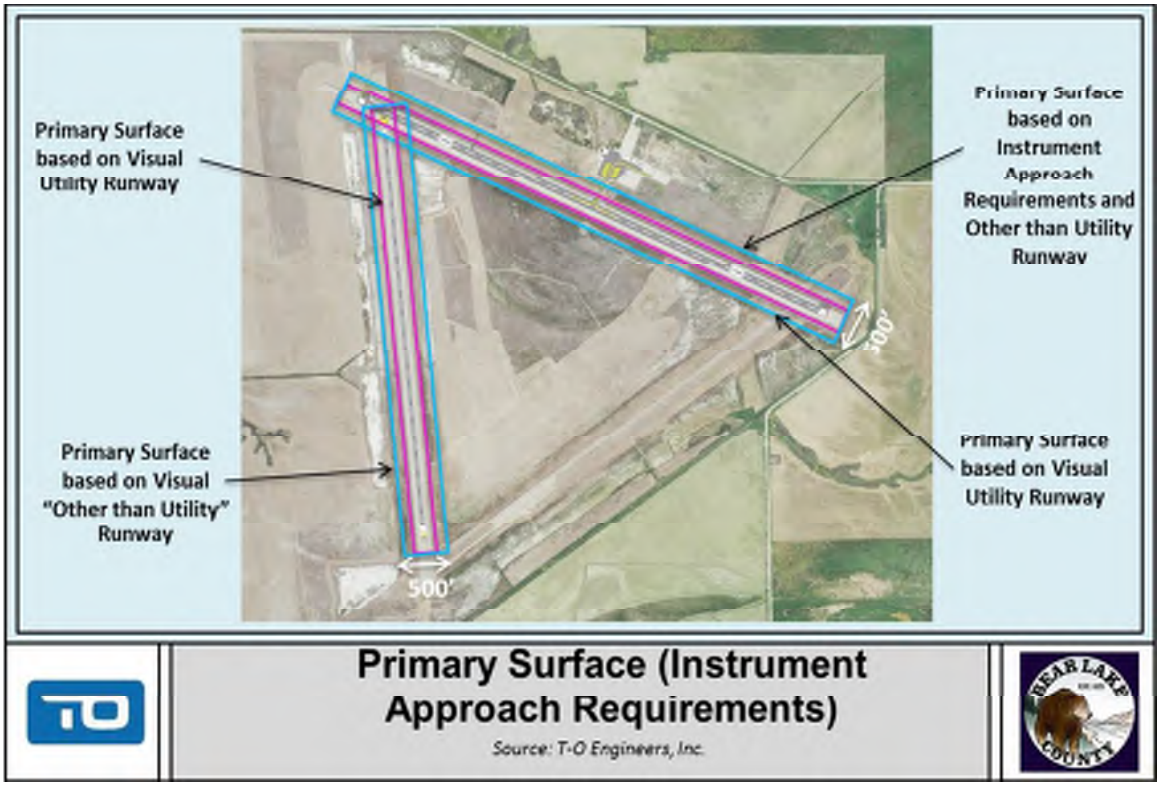
Table 4-6 lists the Part 77 Dimensional standards for various runway configurations and **Figure 4-3** depicts the 500 feet wide Primary Surface for Runway 10/28 and Runway 16/34.

TABLE 4-6: PART 77 DIMENSIONAL STANDARDS

Surface	Visual Utility Runway	Visual Other than Utility Runway	Non-Precision Instrument Runway Utility	Non-Precision Instrument Runway Other than Utility*
Width of Primary Surface	250	500	500	500
Radius of Horizontal Surface	5,000	5,000	5,000	10,000
Approach Surface Width at end	1,250	1,500	2,000	3,500
Approach Surface Length	5,000	5,000	5,000	10,000
Approach Slope	20:1	20:1	20:1	34:1

* Visibility minimums greater than ¾ mile
Source: FAR Part 77

FIGURE 4-3: PRIMARY SURFACE BASED ON INSTRUMENT APPROACH REQUIREMENTS



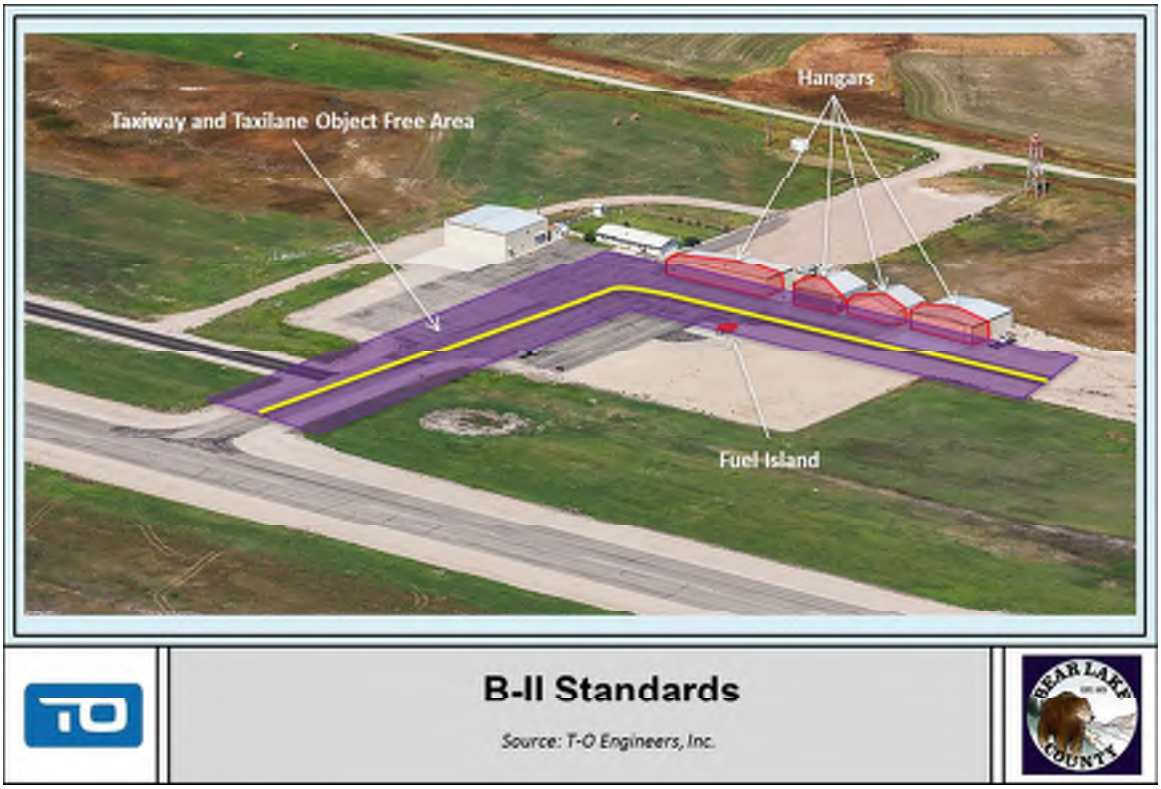
4.3 TERMINAL FACILITY REQUIREMENTS

4.3.1 EFFECTS OF ARC B-II ON TERMINAL FACILITY REQUIREMENTS

As previously mentioned, protecting for B-II standards at Bear Lake County Airport is a prudent and proactive planning approach. However, several terminal facilities, including the aircraft parking aprons, hangars, and the fueling facilities might need to be relocated depending on the preferred alternative. **Figure 4-2** depicts the effects meeting B-II design standards might have on the apron and landside facilities.

Alternatives to address B-II standards will be included in Chapter 5, Alternatives Analysis. Graphical representation is also depicted on the Airport Layout Plan drawing set.

FIGURE 4-2: RELOCATION OF INFRASTRUCTURE



4.3.2 AIRCRAFT PARKING AND STORAGE

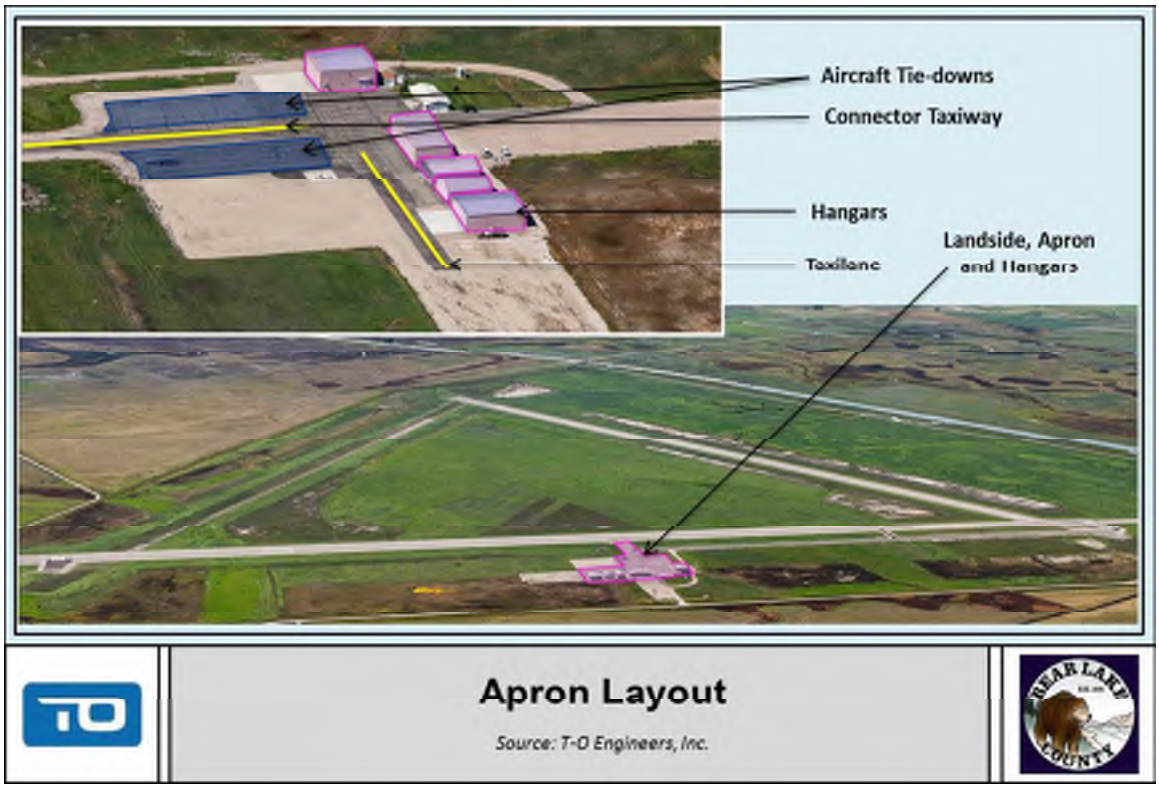
The existing general aviation apron area at Bear Lake County Airport is located on the north east side of the airport, approximately halfway between the two thresholds of Runway 10/28. This area encompasses aprons, hangars, as well as the pilot's lounge and the fuel station. Currently, the apron is configured to accommodate a total of 14 apron tie-down positions. It consists of two areas of approximately 15,530 square feet on each side of the taxiway.

Although the airport currently meets the design standard for an ARC B-I (Small), proactive approach should consider protecting area to easily accommodate larger aircraft if the need arise. To meet the design requirements for an ARC of B-II, Bear Lake County airport would need to increase the separation between the connector taxiway and the apron and tie-down positions as well as between the taxilane and the hangars. To avoid significant impacts on wetlands located along Airport Road, a prudent and proactive approach is to move the taxilane farther from existing hangars and alternatives to address B-II standards will be included in Chapter 5, Alternatives Analysis.

Apron Configuration

The aircraft apron at Bear Lake County Airport currently has 14 tie-down spaces with space available for both based and transient aircraft; 12 tie-down spaces are used for transient aircraft and up to 2 are used for based aircraft. Historically, only a small percentage of locally-based aircraft use ramp tie-down areas. The apron area is depicted in **Figure 4-5**.

FIGURE 4-5: 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: It is recommended that future apron conform to existing strength and/or match runway strength. Pavement rehabilitation is included in the airport's CIP and anticipated in 2016. Further, 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.

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 Bear Lake County Airport and airports of similar size in similar climates and mountainous area, it was assumed that 95 percent of based aircraft would be stored in 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 temporarily requires tie-down space at Bear Lake County 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 Bear Lake County Airport, the Piper

Malibu PA-46, and guidance in the FAA Advisory Circular, the apron area was computed using a wingspan of 43.0 feet, a length of 28.7 feet.

Table 4-7 summarizes the total aircraft apron area requirements. Meeting B-II design standards requires relocating existing tie-downs and reducing the number of tie-downs from fourteen tie-downs to seven tie-downs. Based on projected transient and based aircraft operations, there is no foreseeable shortfall of apron area at the end of the 20-year planning period.

Recommendations: Although, meeting B-II design standards reduces the number of tie-downs from fourteen tie-downs to seven tie-downs, 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.

Foreseeable conditions do not indicate the need for additional apron pavement strength; any new apron areas pavement strength should match the runway, which is 12,500 pounds single wheel.

TABLE 4-7: AIRCRAFT APRON REQUIREMENTS

	2014*	2019	2024	2034
Existing Number of Tie-Down Spaces**	14	14	14	14
Tie-Down Demand	2	2	3	4
Apron Demand (Square Foot)	2,930	2,930	4,450	5,970
Existing Apron Available (Square Foot)	**31,060**	**31,060**	**31,060**	**31,060**
Apron Deficit (Square Foot)	**0**	**0**	**0**	**0**

*Base Year
** Meeting B-II standards reduces the number of tie-downs from fourteen to seven.
Source: TO Engineers Inc.

It should be noted that pavement is expensive to maintain at Bear Lake County Airport. The County should carefully consider the maintenance costs of additional apron before construction.

Hangars

There are currently 6 box hangars at Bear Lake County Airport. These hangars are located east of the Runway 10/28, along a taxilane.

Based aircraft numbers, used to develop the FAA approved aviation activity forecasts in Chapter 3, indicate a total of 6 based aircraft and airport management advises that the current hangar utilization rate is 100 percent.

It should be noted that construction of new hangars 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.

Recommendations: A *minimum* of at least four additional hangars should be considered throughout the planning period based on projected demand. Prudent and proactive planning dictates to protect areas for the construction of potential new hangars in excess of four, **which infrastructure and the hangar themselves will only be considered when and if demand at the airport warrants.**

It is further recommended that future hangars, and associated hangar access taxilanes, be developed for Design Group II aircraft. Meeting ARC B-II standards will require any new aircraft tie-downs be located farther from the taxiway. In addition, to avoid significant impacts to wetlands located along Airport Road, the taxilane should be located farther from existing hangars. An analysis of the ability of the airport to meet/address separation will be provided in Chapter 5, Alternatives Analysis.

TABLE 4-8: AIRCRAFT HANGAR REQUIREMENTS

	2014*	2019	2024	2034
Based Aircraft	6	6	8	11
Minimum Hangar needs (Assumes 95% of Based Aircraft)	6	6	8	10
Current Hangars Available	6	6	6	6
Total Hangar Demand**	**6**	**6**	**8**	**10**
Current Hangar Surplus/Shortfall				**-4**

*Base Year
**Includes current actual demand
Source: T-O Engineers Inc.

4.3.3 HELICOPTER PARKING

Potential exists for helicopter operations related to aerial firefighting, medical evacuation and transportation activities at Bear Lake County Airport, throughout the planning period. A significant amount of debris is generated from the helicopter downwash, which introduces the potential for adverse impacts from this debris on fixed wing aircraft located on the ramp and other adjacent property.

Recommendations: It is recommended that at least one paved helipad location be reserved at the airport in an area separate from fixed wing aircraft, due to the generally incompatible nature of helicopters and fixed wing aircraft.

4.3.4 TERMINAL BUILDING

The existing terminal building/pilot's lounge includes restrooms, a lounge area, telephone, Internet, a computer and a printer for pilots as well as a microwave and fridge. The building is located immediately adjacent to the entrance of the airport, near the midfield area. Access to the terminal building is possible 24 hours a day.

Recommendations: Existing terminal building facilities are in good condition and adequate to meet the needs of the airport, based on current and foreseeable activity. The FAA guidance for determining terminal space requirements indicates that an additional 450 square feet could be considered for the terminal building. Should demand increase and the need arises, an improved terminal building facility could 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. Bear Lake County provides the terminal facilities, pilot's lounge and fueling facilities. The pilot's lounge is open during the day, and 100LL is available through a self-service station. 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, and 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 AND ACCESS

Currently no dedicated automobile parking spaces are available for pilots, passengers, tenants, and employees. However, a gravel surface near the airport office and hangars can

accommodate automobile parking. Additional gravel parking is available for hangar owners in the vicinity of their hangars.

Two courtesy vehicles, which can be used by the public with a nominal fee, are stored at the airport.

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 12 automobile parking spaces (including 2 courtesy vehicles) at the end of the planning period.

TABLE 4-9: AUTOMOBILE PARKING REQUIREMENTS

	2014*	2019	2024	2034
Peak Day Operations	9	11	14	22
Peak Hour Operations	2	2	3	4
Peak Parking Space Demand	5	5	7	10
Courtesy Vehicles	2	2	2	2
Total	7	7	9	12
Existing Parking	-	-	-	-

*Base Year
Source: T-O Engineers Inc.

Recommendations: Although, the current gravel area used as automobile parking lot is large enough to accommodate existing and foreseeable demand, it is recommended that paved vehicle parking be built at the airport and that automobile parking spaces be identified and marked. An analysis of the location of 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

100LL fuel is available at Bear Lake County Airport and is contained in one existing 4,000 gallon underground tank. Tank capacity is adequate and is expected to remain adequate throughout the planning period. The airport currently does not provide Jet A fuel, but single and multi-engine turbo prop and jet aircraft that require Jet A use the airport. It is anticipated that such aircraft will continue to use the airport over the planning period. Past users have requested the availability of Jet A at the airport and the IASP also recommends that airports of this classification consider providing Jet A fuel as needed.

Recommendations: It is recommended that the airport continue to provide 100LL. It is also recommended that Jet A be offered at the airport to meet current demand from the existing fleet mix. Supplying this service is likely to attract additional activity and provide an additional revenue source associated with a fuel flowage fee. A new Jet A 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 supplying Jet A is to address the existing demand. The addition of Jet A may attract additional large aircraft activity, outside of the design standards. An important shift of the fleet mix toward larger aircraft could necessitate changing the critical aircraft and therefore changing the Airport Reference Code (ARC) and should be monitored.

In addition, 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 automotive fuel (MOGAS). MOGAS is less expensive than 100LL which may increase general aviation activity by making it more affordable. Although there is currently no demand for MOGAS at Bear Lake County Airport, the county should monitor this trend in aviation and consider offering MOGAS for future aeronautical activity, if demand arises in the future.

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. Users can access the airport from the east, the west or the north using respectively Airport Road East, Airport Road North and Dingle Road. None of these roads are paved and the airport is served by gravel roadway.

The Bear Lake Valley Blueprint, a comprehensive plan for the Bear Lake Valley, was developed in 2010 with the input of residents of the area to create a vision that reflects the values of the public and to build a legacy for future generations. Public workshops and meetings were conducted to capture public values and preferences. During these meetings participants were asked to create maps illustrating the importance of various areas such as jobs, housing, transportation, conservation and recreation. According to the Bear Lake Valley Blueprint, 33% of the maps indicated the desire to see better access to the airport.

Recommendations: It is recommended that at least one paved access be provided to the airport. The access road will be analyzed with several alternatives in Chapter 5, Alternatives Analysis. Proper coordination with Bear Lake County and Idaho Transportation Department will be necessary. Only the portion of the access road serving the airport exclusively is eligible for

federal funding. Additional details will be provided in Chapter 6, Development Plan and Financial Overview.

4.4.2 INFRASTRUCTURE AND UTILITIES

Bear Lake County Airport has access to most of the typical utilities. Pacificorp (Utah Power & Light) supplies electrical power to the airport and sewer service is provided through the use of septic tanks. The airport is not served by a water distribution system and the water service is provided by an untreated well, suitable for drinking. Phone service is also available at the airport, and Internet is provided by Digis.

Due to limitations of the existing capacity of the utilities on site, facility upgrades may be required as future development occurs on and around the airport. If a future fueling facility is installed, the existing power infrastructure at the airport may need to be upgraded to accommodate larger pumps.

Depending on the location and scope of future development fire flow demands may require additional development to provide adequate flow and pressure as dictated by fire flow design standards. In addition, water system upgrades may be necessary to support future airport development.

Recommendations: Access to existing and additional utilities, including natural gas, should be a consideration when planning all future development on and around the airport.

4.4.3 FENCING AND SECURITY

The airport currently does not have a perimeter fence, although it has a barbed-wire cattle fence. Based on the airport's location near a wildlife refuge, wildlife, including elk, deer, and moose are in the vicinity of the airport.

Recommendations: It is recommended that a wildlife/security fence be installed around the airport. The wildlife hazard site visit report, attached as **Appendix X**, included several recommendations to improve fencing at the airport. The report recommended a fence in compliance with the FAA recommended height of 11-feet, and an appropriate design to deter burrowing activity under the fence. As a less costly alternative, the report recommended a less robust fence using 4" hog wire. This type of fence is commonly used along highways to limit access by deer and other larger mammals, but does not preclude smaller mammals such as coyotes, foxes, or badgers from accessing the airfield. Lastly, the report mentioned that the fence must be maintained to preclude vegetation growing in proximity to or on the fence.

A fenced airport will be beneficial in reducing animal incursions as well as providing increased security. Fencing improvements should include appropriate gate access. A specified area for fencing will be identified as fencing the full perimeter of the airport property of 1,180 acres is expensive. The wildlife hazard site visit report mentioned that fencing a smaller area encompassing only the RSA and ROFA was acceptable for cost containment. This area will be depicted on the ALP. For an additional level of security, flood lighting should continue to be provided around the aircraft parking apron, fueling area, and hangar areas.

4.4.4 SNOW REMOVAL EQUIPMENT (SRE)

Bear Lake County keeps two trucks at the airport: a 1991 Ford L8000 Snow Plow and a 1998 Chevrolet ¾ ton pick-up. Snow removal operations are performed by the airport manager on an as-needed basis. In addition, the County Road and Bridge Department supplements snow removal as requested or required by the conditions. Winter snow removal is provided only on Runway 10/28.

The 1991 Ford is dedicated for snow removal operations. The 1998 Chevy pick-up is equipped with a plow attachment and is used for both snow removal operations and general airport maintenance purposes. Both vehicles are considered to be in fair condition but as both are more than 15 years old, they are nearing the end of their useful life. Both vehicles were acquired with local funds only and no federal funds were used to purchase these pieces of equipment.

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.

Whenever possible, the snow removal equipment should be housed in covered facility to protect the new equipment from the elements and prolong its useful life. If vehicles or SRE equipment is acquired using AIP funds, the FAA would require the equipment to be stored inside. A new building would also provide a space for maintenance. The FAA AC 150/5220-18A Buildings for Storage and Maintenance of Airport Snow and Ice Control Equipment and Materials provide guidance on the size of the SRE building.

Recommendations: It is recommended that a multi-utility piece of equipment, typically a front-end loader or multi directional tractor with attachments, be acquired. To protect the new equipment from the elements and to provide a space for maintenance, a SRE building, of approximately 2,550 square feet, is also recommended for this and other airport vehicles. Further, analysis and justification of the type of equipment and building size will be required prior to obtaining any SRE equipment.

4.5 OTHER REQUIREMENTS

4.5.1 AIRPORT PROPERTY

Existing Property

Total land area of Bear Lake County Airport is approximately 1,180 acres. The airport has full control of the RPZs beyond Runway 16 and Runway 28 end. The airport has nearly full control of the RPZ beyond Runway 34 end as approximately 0.7 acres near the outer edge of the RPZ is not controlled by the airport; Bear Lake County Airport has control of approximately 2.3 acres of the RPZ beyond Runway 10 end. However, the RPZs beyond Runway 10 end and beyond Runway 34 end are encroached by gravel roads.

The IASP recommends that all airports in the state control their RPZs through fee simple purchase or avigation easements. In addition, meeting B-II standards would require increasing the size of the RPZs and acquiring additional land.

Recommendations: It is recommended that Bear Lake County gain as much control of the existing RPZs beyond the Runway 34 and 10 ends as feasible. This acquisition may be accomplished though fee simple purchase or avigation easements. An analysis to address the existing gravel roads in the RPZ will be provided in Chapter 5, Alternatives Analysis. This analysis will take into consideration the costs and environmental impacts due to the presence of the Bear Lake Canal, farmlands and wetlands in the vicinity of the airport.

4.5.2 PAVEMENT MAINTENANCE

It is recommended that all airport pavements be monitored closely for deterioration and maintenance performed accordingly. The higher elevation of the airport combined with seasonal harsh weather conditions lead to faster pavement deterioration. Therefore, the airport needs to be proactive in pavement maintenance practices. A routine of crack seal and seal coats treatments every three to five years will extend pavement life significantly at the airport. For more significant maintenance and repairs, nominal overlays will likely be required on various airport pavements to ensure pavement integrity and quality, during the planning period.

4.6 SUMMARY OF REQUIREMENTS AND RECOMMENDATIONS

In summary, Bear Lake County 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 to 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-II over the planning period, Bear Lake County needs to continue monitoring the traffic as well as the fleet mix using the airport.

Table 4-10 hereafter 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 10/28		
Length (usable)	5,728’	Minimum 5,728’
Width	75’	75'
Strength	12.5 SWG	12.5 SWG
Markings	Visual	Non-Precision Instrument
Runway 16/34		
Length (usable)	4,590’	4,590’
Width	60’	60'
Strength	50 SWG/64 DW/102 DTW	16 SWG
Markings	Visual	Visual
Taxiways		
Type	Partial Parallel Taxiway (Runway 10/28)	Full Parallel (Recommended Runway 10/28 only)
Width	25'	35'
Strength	16 SWG	16 SWG
Navaids, Visual Aids, and Lighting		
Approach	Visual	Instrument Approach
Automated Weather	Non-certified weather and certified altimeter	AWOS
Runway Lights	Non-standards MIRL (Runway 10/28)	MIRL Runway (10/28)
Taxiway Lights	Reflectors	Reflectors
REILs	None	All Runways (Priority Runway 28)
Precision Approach Path Indicator (PAPI)*	None	All Runways (Priority Runway 28)
Airfield Signage	None	Yes (Taxiway/Runway holding position signs)
Segmented Circle	Yes	Yes (supplemental wind cone on each runway end)
Wind Cone	Yes	Yes
Airport Beacon	Yes	Yes
Aircraft Storage		
Tiedowns	14	14
Apron Strength		
Box Hangars	6	10
Terminal/FBO		
Terminal	Approximately 500 sq. ft.	Minimum of 500 sq. ft.
FBO	No	Yes (Demand driven)
Access and Parking		
Automobile	Gravel Area	12 (paved)
Snow Removal/Maintenance		
SRE and Maintenance	Yes (inadequate)	New SRE and Storage Building
Fuel		
100LL	Yes	Yes
Jet-A	No	Yes
MOGAS	No	Yes
Fuel Service	24-hour reader	24-hour reader
Airport Property		
Land	1,130 acres	TBD

*Initial Analysis indicated PAPI installation is likely feasible for both runways.

Source: T-O Engineers

Additional Requirements

- Purchase land/easements for RPZs
- Provide a full perimeter fence to reduce the risk of animal incursion and improve security
- Reorganize the aircraft parking apron to accommodate current and projected tie-down requirements
- New taxilanes to accommodate hangar development and apron development
- Routine pavement maintenance as necessary
- Renumber the runway, as necessary through the planning period
- Helicopter Parking Pad
- Utilities extensions and infrastructure improvements as needed to accommodate new development