CHAPTER 3
FACILITY REQUIREMENTS

To properly plan for the future requirements of Pocatello Regional Airport, it is necessary to translate the forecasts of aviation demand into the specific types and quantities of facilities that are needed. The demand for new or expanded facilities is often driven by capacity shortfalls that leave an airport unable to accommodate forecast growth with existing facilities. However, the requirements for new or improved facilities can also be driven by other circumstances. For example, facilities may be needed to comply with updated standards developed and adopted by the FAA or other regulatory agencies, accommodate the strategic vision for the Airport, or replace outdated or inefficient facilities that are prohibitively costly to maintain or modernize. These circumstances can have a significant impact on future needs and have been considered in this analysis for the Airport.

The findings of the capacity analyses and facility requirement determinations form the foundation for the identification of development alternatives. Evaluation of those alternatives defines a development plan to meet future demand. Critical future investment decisions will be based on these analyses.

The facility requirements analysis begins with a review of emerging industry trends that may influence the need for future facilities. The remaining portion of this chapter is devoted to assessments in each of the following major functional areas of the Pocatello Regional Airport:

- Airport Design Classifications
- Meteorological Conditions
- Airfield
- Navigational and Visual Aids
- Airspace
- Passenger Terminal Area
- Access, Circulation, and Parking Requirements
- Aviation Support Facilities
- Utilities
- Non-Aviation Facility Requirements
- Land Use Planning and FAA Planning for Compliance

This chapter concludes with a section that summarizes the key findings of the facility requirement assessments that will be carried forward to the identification and evaluation of alternatives.

3.1 EMERGING TRENDS

The aviation industry is changing rapidly and this evolution may have a significant impact on the size, quantity, and type of facilities needed to accommodate future demand. The rapid pace of change in the aviation industry is expected to continue. All master planning efforts should examine industry trends and identify those that will influence their capacity needs. Some of the emerging trends in the aviation industry that should be considered in the master plan for Pocatello Regional Airport include:

¶ Airports have to become less dependent on traditional aviation-related revenue streams such as landing fees, terminal rentals, hangar leases, and fuel taxes. There is a growing need to optimize concession programs/facilities in the terminal and find alternative revenue-producing uses for on-airport property that is not needed for aviation-related functions.

¶ The design and layout of terminal buildings is quickly changing as new technology is altering the relationships between the airport, airlines, and passengers. Ticket lobbies may look very different in the not too distant future. Future terminals will not have vast areas for ticket counter space and line queues because emerging technology will largely eliminate the need for them. Rather, the terminal will have self-serve kiosks that enable passengers to print boarding passes, baggage tags, and accept checked baggage. Many airport terminal buildings do not have the flexibility to adapt their floor plans to accommodate future technological changes.

¶ The transformation from ground-based systems of air traffic control to a satellite-based system is called The Next Generation Air Transportation System (NextGen). NextGen is using technological innovations in areas such as data management, weather forecasting, and digital communications, which will increase safety, airspace efficiency, and reduce environmental impacts. By implementing NextGen, more of the decision making process can be made by the pilots flying the aircraft rather than ground-based controllers.

¶ Sustainability initiatives are pushing airports toward energy-efficient and environmentally responsive buildings. Increasing awareness of construction and operational impacts has resulted in the adoption of green building practices, most notably the pursuit of LEED (Leadership in Energy and Environmental Design) certification. Trends include the use of green energy, such as photovoltaic panels; material selection that shows preference for recycled, reclaimed or locally produced products; and better water-use management, such as use of native landscaping, low-flow plumbing fixtures, and on-site treatment.

In general, many of the emerging trends in the aviation industry focus on providing energy efficient buildings that can accommodate technology advances in passenger processing activities in the terminal building. The other major influence will be an increasing need to expand airport revenue streams beyond the traditional aviation related activities.

3.2 AIRPORT DESIGN CLASSIFICATION

Airport design classification identifies the FAAôs Airport Referenc for the Airport expected during this planning period (2010-2030). This section identifies the airportôs national role and service level, the ARC, critical aircraft, and related airport design standards.

3.2.1 Airport Role and Service Level

The Pocatello Regional Airport is identified in the FAAôs *National Plan of Integrated Airports System (NPIAS)* as a "Non-Hub" commercial service airport. A Non-Hub, as defined by the FAA, is an airport that accommodates more than 10,000 annual passenger enplanements, but less than 0.05 percent of total annual U.S. passenger enplanements. Currently, within the NPIAS there are 244 Non-Hub airports in the U.S., based upon 2010 information. The Airport enplaned 23,319 passengers in 2010 according to Airport Records, and is projected to remain a Non-Hub facility throughout the 20-year airport master planning horizon. In 2010 the smallest small-hub airport enplaned 373,640 passengers. This classification is used for FAA planning and funding purposes.

3.2.2 Airport Design Classification and Airport Reference Code (ARC)

As discussed in Section 2.6, the Airport Reference Code (ARC) is a system developed by the FAA to relate facility design criteria to the operational and physical characteristics of the airplane types that will operate at a particular airport.

Airports expected to accommodate only small piston-engine airplanes normally fall into ARC A-I or B-I. Airports serving larger general aviation and commuter-type planes are usually ARC B-II or B-III. Small to medium-sized airports serving air carriers are usually ARC C-III, while larger air carrier airports are usually ARC D-IV or D-V. The elements that comprise the ARC are described below.

Aircraft Approach Category (ACC) - A grouping of aircraft based on 1.3 times the aircraft stall speed in landing configuration at the maximum certificated landing weight. The categories are as follows:

Category A: Speed less than 91 knots
Category B: Speed 91 knots or more but less than 121 knots
Category C: Speed 121 knots or more but less than 141 knots
Category D: Speed 141 knots or more but less than 166 knots
Category E: Speed 166 knots or more

Airplane Design Group (ADG) - A grouping of airplanes based on wingspan or tail height. When wingspan and tail height place an aircraft in two different groups, the most demanding group is used. The groups are as follows:

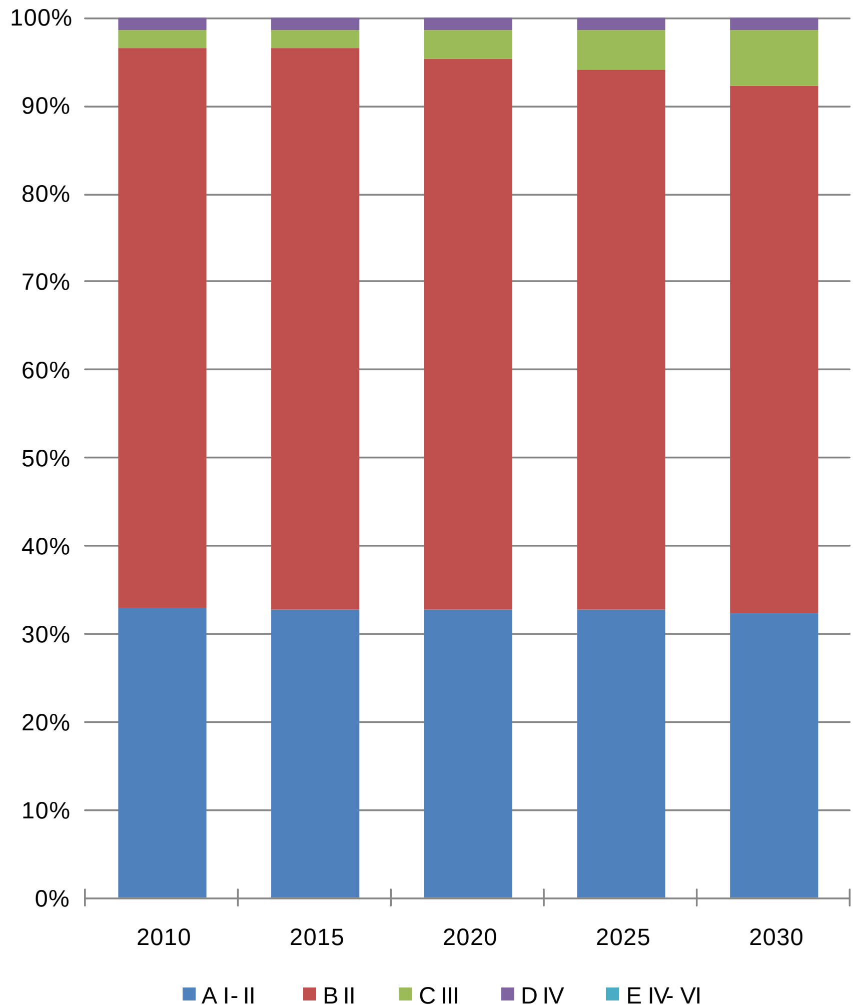
Group I: Up to but not including 49 feet (15 m) wingspan or tail height up to but not including 20 feet
Group II: 49 feet (15 m) up to but not including 79 feet (24 m) wingspan or tail height from 20 up to but not including 30 feet

Group III: 79 feet (24 m) up to but not including 118 feet (36 m) wingspan or tail height from 30 up to but not including 45 feet
Group IV: 118 feet (36 m) up to but not including 171 feet (52 m) wingspan or tail height from 45 up to but not including 60 feet
Group V: 171 feet (52 m) up to but not including 214 feet (65 m) wingspan or tail height from 60 up to but not including 66 feet
Group VI: 214 feet (65 m) up to but not including 262 feet (80 m) wingspan or tail height from 66 up to but not including 80 feet

The forecast of operations by Airport Reference Code for the years 2010 through 2030 is provided in Figure 3-1. Two key conclusions can be reached from this projection. First, is that the growth in the A-I/B-I segments will be nominal and account for a decreasing share of the total operations. This mirrors the nationwide trend in the decreased utilization of small piston-powered aircraft.

The second conclusion is that, throughout the planning period, the projection suggests that annual operations by aircraft in the C/D category will continue to grow at a steady rate, increasing their share of total projected aircraft operations. Furthermore, during the planning period, aircraft within the C-IV and D-IV categories are projected to increase while maintaining their existing share of total operations.

Figure 3-1
OPERATIONS BY AIRPORT REFERENCE CODE



Year	Category Groups	A I - II	B I - II	C III - IV	D IV	E V	Total
2010		11,787	22,791	736	490	-	35,805
2015		11,925	23,239	744	496	-	36,404
2020		12,356	23,585	1,280	504	-	37,724
2025		12,807	23,990	1,801	512	-	39,110
2030		13,126	24,344	2,581	521	-	40,572

Source: Reynolds, Smith and Hills, Inc., 2011

To determine the design standards for a particular airport or airport facility, the ARC for the largest airplane conducting (or expected to conduct) at least 500 operations (combination of takeoffs and landings) at the airport is identified as the critical aircraft. This critical aircraft is evaluated by approach speed, wingspan, and tail height, serving as the basis for det design, structure, and equipment needs for airfield, runway, and terminal area facilities. Examples of aircraft classified by the Airport Design Group are listed in Table 3-2, followed by additional supporting discussion for each runway.

Based on the expected operations by Airport Reference Code, Table 3-1 identifies the existing and future (ARC) designated for Runways 3/21 and 17/35 at Pocatello Regional Airport during the planning period. The existing ARC for Runway 3/21 is D-IV and Runway 17/35 is C-III. The expected aircraft operational forecast and the strategic vision call for the airport to: 1) attract large aircraft operators, 2) better utilize the open space, 3) improve airfield geometry, and 4) capitalize on multiple made opportunities. The ARC is expected to remain as D-IV on Runway 3/21 and C-III for Runway 17/35.

Table 3-1
AIRPORT REFERENCE CODE ï EXISTING AND FUTURE

Runway	Aircraft Approach Category	Approach Speed (knots)	
	Category A	< 91 knots	
	Category B	91 to < 121 knots	
Runway 17/35	**Category C**	**121 to < 141 knots**	
Runway 3/21	**Category D**	**141 to < 166 knots**	
	Category E	> 166 knots	
Runway	**Airplane Design Group**	**Wingspan (ft)**	**Tail Height (ft)**
	Group I	< 49'	< 20
	Group II	49' to < 79'	20' to < 30'
Runway 17/35	**Group III**	**70' to < 118'**	**30' to < 45'**
Runway 3/21	**Group IV**	**118' to < 171'**	**45' to < 60'**
	Group V	171' to < 214'	60' to < 66'
	Group VI	214' to < 262'	66' to < 80'

Note; Combined, the 'approach category' and 'design group' yields the Airport Reference Code (ARC) w hich determines the type of airplane (family) that the airport is designed to accommodate.

Source: FAA Advisory Circular 150/5300-13 and Reynolds, Smith, and Hills Inc., 2011

Table 3-2
AIRPORT REFERENCE CODE TYPE AND REPRESENTATIVE AIRCRAFT

FAA Design Group	Aircraft Type	Representative Aircraft
I	Single/Twin-Engine Piston | Turboprops | Small Cabin Business Jets	Cessna 150/210, Cessna 300/400 Twins, Baron 55/58, Piper Navajo, Swearingen Metro, Beechjet, Learjets, F-16
II	Turboprop | Business Jets | Smaller Airline Regional Jets	Beech King Air, Cessna Citations, Dassault Falcon 20/50, Saab 340, Regional Jet CRJ-200, Embraer 135/145
III	**Large Regional Jets | Short-Haul Narrowbody Transports | Large Corporate Jets**	**DHC Dash 7/8, Gulfstream 500, Embraer 170/195, Boeing 727, B-737, B-717, DC-9 Series, Airbus 318/320, MD-80 Series**
IV	**Large Long-Haul Narrowbody | Widebody Transports**	**Airbus 300/310, DC-10, MD-11, B-757, B-767, DC-8 Series, KC-135 Tanker, Lockheed Hercules, Antonov AN-10/AN-12.**
V	Large Wide-Body Transports	B-747-400, Boeing 777, Airbus 340, Boeing B-52, Antonov AN-22
VI	Large Heavy Lifting Transports	B-747-8F, Airbus 380, Lockheed C-5 Galaxy, Antonov AN-124

Source: FAA Advisory Circular 150/5300-13

3.2.3 Primary Runway 3/21 ARC Designation (Critical Aircraft)

By design, the critical aircraft defines the primary runway length, runway width, pavement strength, geometric separation distances, and airspace/instrument approach minimums.

Currently, it is expected that the fleet mix at the Pocatello Regional Airport is anticipated to remain similar to today over the forecast period. The most demanding aircraft selected to remain as the critical aircraft for ADG is the Boeing KC-135 (C-IV) and the McDonnell Douglas F-15E Strike Eagle (D-I) aircraft for AAC. The combination for these will comprise an ARC of D-IV.

¶ Military operations at the Airport were largely Boeing KC-135 (C-IV) air-refueling training flights from Utah Air National Guard, and are currently the Fairchild A-10 Thunderbolt (C-II) from Idaho Air National Guard and McDonnell Douglas F-15E Strike Eagle (D-I) from Mountain Home U.S. Air Force Base. During recent years, these aircraft have been deployed to military theaters, resulting in a reduced need for training operations; however, when overseas military conflicts expire, it is reasonable to expect that an increase in training operations will occur within the 20-year planning period. The Airport is used as one of the primary training locations for these aircraft, and is supported by the various military bases located within the region.

¶ The Airport currently has limited air cargo service. If air cargo service were initiated over the next 20 years, the most likely aircraft to serve the Airport would be the Boeing 757(C-IV). U.S. air-cargo revenue-ton-miles are expected to increase 2.7 times in the 20 years from 2010 to 2031. The latest FAA forecast projects that all-cargo-carrier revenue-ton-miles will climb from 27.1 billion in 2010 to 73.3 billion in 2031. A volume increase of this magnitude will likely call for more airports to offer dedicated cargo service. As important, growth of population and business in the Pocatello Metropolitan Statistical Area, as well as increased traffic congestion around Salt Lake City, although not projected, may require FedEx and/or UPS to expand service to the Airport in order to provide critical next-day service to the Northwest. FedEx has orders for conversion of 90 of these aircraft for their fleet and has 48 currently in service. UPS has 75 Boeing 757 aircraft in operation. For both carriers, the 757 is their single most popular model and the one used most frequently for domestic service.

¶ Part of the Airport strategic vision is to add large aircraft maintenance (C/D-IV), repair, painting, and/or conversion businesses to the field. Due to the existing airfield and non-airfield infrastructure at Pocatello Regional Airport, the Airport is attractive to these businesses. It is reasonable to expect one or more of these businesses to establish operations at the Airport over the next 20 years.

3.2.4 Runway 17/35 ARC Designation (Critical Aircraft)

Runway 17/35 currently meets the standards of an ARC C-III, which meets the requirements of its role as a crosswind runway and serves an additional vital role as an alternate runway to all airport traffic when Runway 3/21 is not operational.

It is important to note that the current Airport Master Plan Record states, Runway 17/35 is unable to accommodate air carrier operations with more than 30 passenger seats. However, this is an outdated remark from when the Aircraft Rescue and Firefighting (ARFF) facility was located to the east of the terminal building and could not achieve Part 139 response requirement to Runway 17/35. Recently, the ARFF facility was relocated to its current location west of the terminal building and based on airport records has achieved the Part 139 response requirements for Runway 17/35.

So, Runway 17/35 provides a landing and/or takeoff alternative when the primary runway is experiencing high crosswinds. Other values of the secondary runway include: 1) executing an instrument approach procedure into the prevailing winds, 2) use for taxiing to-and-from terminal/parking areas, and 3) use during periods when the primary runway is not operational due to weather, incidents, or maintenance/repairs.

Therefore, it is recommended that all future development of Runway 17/35 remain at an ARC C-III design level in order to continue accommodating the Airportôs f
aircraft during periods of high crosswinds or when the primary runway is not in operation.

3.3 METEOROLOGICAL CONDITIONS

Climate conditions have an influence on aircraft performance, as well as airfield dimensional and separation standards. Temperature, precipitation, winds, visibility, and cloud ceiling heights are important climate factors used to assess weather conditions and the aircraft operational impacts associated with use of Runways 3/21 and 17/35.

3.3.1 Climate Summary

The average annual temperature for Pocatello is 47° Fahrenheit (F), ranging from 88°F in July to 14°F in January. There are 33 days on which temperature exceeds 90°F, and more than 150 days exceeding 59°F (standard temperature). The average annual rainfall is 11.5 inches. On average, visual flight rules (VFR) conditions (ceiling of at least 1,000 feet and visibility of at least 3 miles) are experienced over 60 percent of the time (219 days). While instrument flight rules (IFR) conditions (ceiling of less than 1,000 feet or visibility of less than 3 miles) occurred within the remaining 40 percent (146 days) of the year.

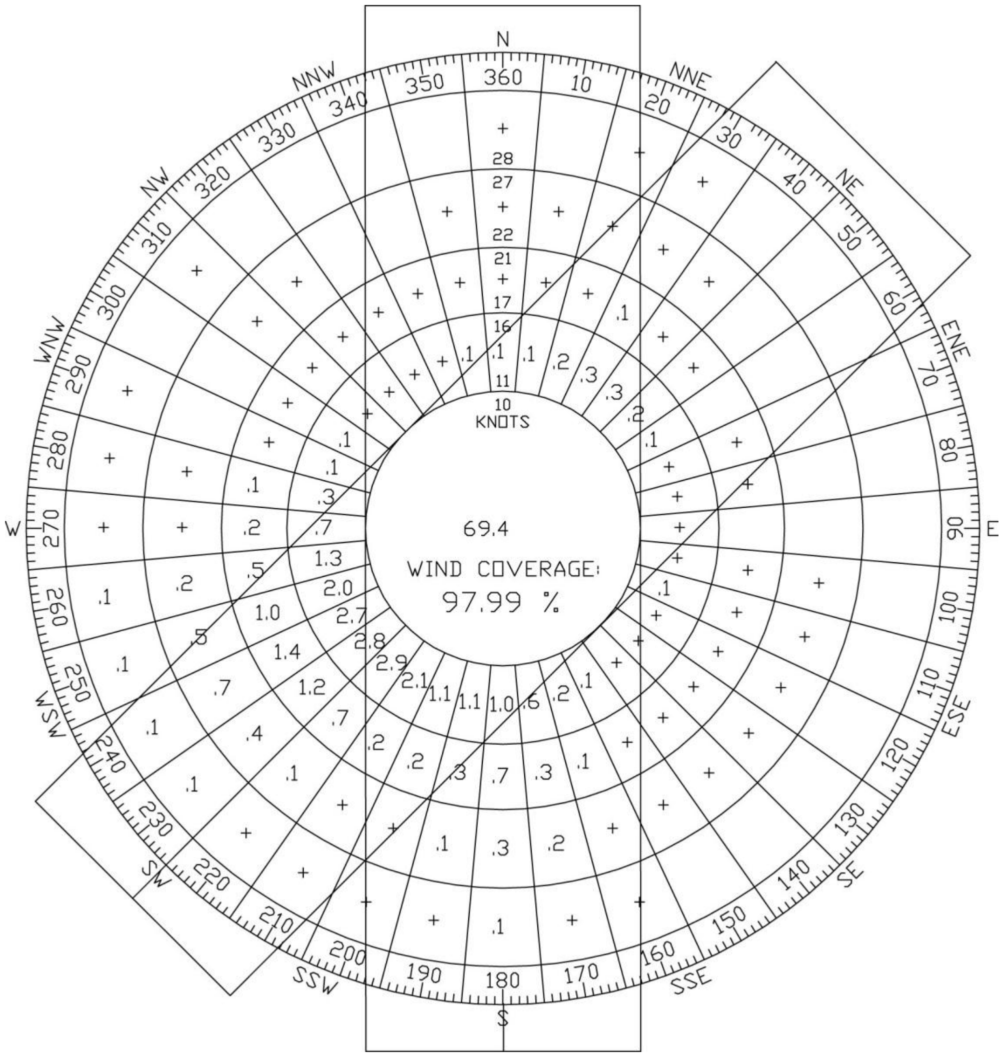
3.3.2 Runway Orientation and Wind Analysis

Runway wind coverage analysis was conducted using the FAAôs Airport Des Program Version 4.2D, with data supplied by National Climatic Data Center from the weather reporting station at Pocatello Regional Airport during the period from 2000 through 2009. FAA planning standards recommend that the runway system provide a minimum of 95 percent wind coverage. If a single runway cannot provide this level of coverage, then a crosswind runway is warranted. As shown in Figure 3-2, Runway 3/21 provides 92.76 percent or better wind coverage for all-weather and IFR conditions for a 10.5 knot crosswind component, while Runway 17/35 provides 81.10 percent. When combined, Runway 3/21 and Runway 17/35 provide 94.36 percent wind coverage during all-weather and IFR conditions for a 10.5 knot crosswind component. The current runway configuration is adequate in respect to providing sufficient wind coverage; however, neither Runway 3/21 or 17/35 can independently provide the FAA recommended 95 percent all-weather or IFR wind coverage for the 10.5 knot crosswind component. Consequently, a crosswind runway serving, at minimum, ARC A-I and B-I aircraft is justified for wind coverage purposes.

Further investigation revealed potential aircraft usage for each runway and runway end, based solely on Pocatello Regional Airport-recorded wind observations. Long-term wind patterns favor Runway 3/21 about 60 percent of the time and Runway 17/35 about 34 percent. Approximately 6 percent of the time, the wind patterns favor neither runway.

Overall, wind data indicates Runway 3/21 has more favorable winds, and Runway 21 would be the predominant arrival end during strong wind conditions. In addition, 65 percent of the winds are considered ólightô winds, or less than 10.5 knots. Nearly 35 percent of the winds at the Airport are considered óstrongô winds, or over 11 knots.

Figure 3-2
RUNWAY CROSSWIND DATA (ALL-WEATHER WIND COVERAGE)



PERCENT ALL-WEATHER WIND COVERAGE				
Runway	**10.5 Knots (% Component)**	**13 Knots (% Component)**	**16 Knots (% Component)**	**20 Knots (% Component)**
Runway 3/21	94.75%	97.32%	98.95%	99.70%
Runway 17/35	84.09%	89.72%	94.81%	98.03%
Combined Runway	97.99%	99.25%	99.77%	99.95%

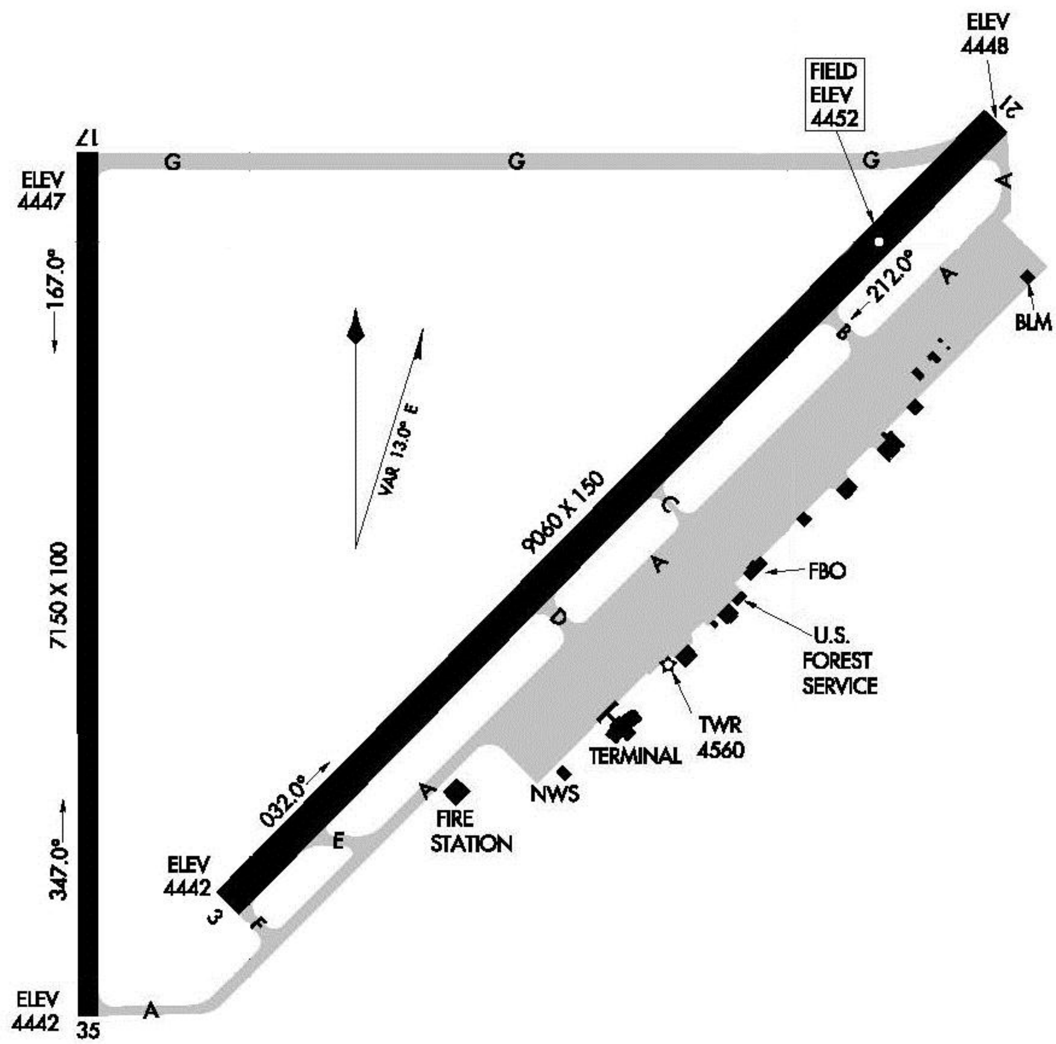
PERCENT IFR WIND COVERAGE				
Runway	**10.5 Knots (% Component)**	**13 Knots (% Component)**	**16 Knots (% Component)**	**20 Knots (% Component)**
Runway 3/21	96.45%	97.75%	98.67%	99.32%
Runway 17/35	82.00%	89.41%	95.23%	98.35%
Combined Runway	99.17%	99.63%	99.78%	99.93%

Source: National Oceanic and Atmospheric Administration, 2000-2009

3.4 AIRFIELD

This section describes the airfield facility needs, as well as the methods and planned timing upon which the facility requirements have been determined. Areas examined include the airfield capacity, runway designation, runway length/width, taxiway systems, lighting aids, airfield safety areas/separation standards, and pavement strength. Figure 3-3 provides an illustration of the airfield geometric design and site layout. The airfield geometric design and site layout are determined by application of airport design standards contained in FAA Advisory Circular 150/5300-13, *Airport Design*.

Figure 3-3
AIRFIELD DESIGN



Source: FAA Airport Diagram, 2010

3.4.1 Airfield Capacity

Airfield capacity is an estimate of the number of aircraft that can be processed through the airfield system during a specific period without unacceptable delays. The airfield capacity analysis identifies the annual capacity of the airfield, referred to as the annual service volume, and the hourly capacity, based on the current operational characteristics.

Major factors that affect airfield capacity include the runway configuration, air traffic control operations process, weather conditions, and aircraft fleet mix. For instance, required separations between aircraft are greatly increased during inclement weather. As a result, the number of aircraft that can operate at an airport under instrument meteorological conditions will be much less than during visual meteorological conditions.

The goal of the analysis is to determine the airfield capacity and the ability of the runways to handle peak hour and annual demand. This was done using FAA Advisory Circular 150/5060-5 *Airport Capacity and Delay*, which uses the factors of aircraft mix index, the runway use configuration, the Airport meteorology, and the percentage of touch-and-go operations to determine these values. The values developed were compared to the long-range forecast for the Airport to determine where any shortfalls exist or may develop.

Airfield Capacity is most often expressed as Annual Service Volume and hourly capacity for a particular runway configuration. The results of the long-range capacity analysis are presented in Table 3-3 and the Annual Service Volume was calculated to be 225,000. The ratio of annual demand to annual capacity ranges from 15.9 percent in 2010 to 18.0 percent in 2030. A generally accepted benchmark is to plan for additional runway capacity when demand reaches 60 percent of the Annual Service Volume. By this measure, the need for additional airfield capacity will occur well after this planning period.

Table 3-3
CAPACITY ANALYSIS

	2010	2015	2020	2025	2030
Hourly Demand / Capacity					
VFR Hourly Capacity	77	77	77	77	77
IFR Hourly Capacity	59	59	59	59	59
VFR Hourly Demand	5.8	5.9	6.1	6.4	6.6
IFR Hourly Demand	1.0	1.0	1.0	1.5	2.0
VFR Demand / Capacity	7.5%	7.7%	7.9%	8.3%	8.6%
IFR Demand / Capacity	1.7%	1.7%	1.7%	2.5%	3.4%
Annual Demand / Capacity					
Forecast Annual Operational Demand	35,805	36,404	37,724	39,110	40,572
Annual Service Volume	225,000	225,000	225,000	225,000	225,000
Annual Demand/Capacity	15.9%	16%	17%	17%	18.0%

Source: FAA Advisory Circular 150/5060-5, Airport Capacity and Delay

With the given configuration of runways, VFR capacity was calculated to be 77 operations per hour and IFR was calculated to be 59 operations an hour. The ratio of hourly demand to hourly capacity ranges from 5.8 percent in 2010 to 6.6 percent in 2030 for VFR operations, and 1.7 percent in 2010 to 2.0 percent in 2030 for IFR operations. By this measure also, the need for additional runway capacity will not occur within the 20-year planning period.

The conclusion of the analysis is that current runway capacity is sufficient to accommodate projected growth in aircraft operations at the Airport.

3.4.2 Runway Design

The runway analysis addresses the ability of the existing runways at the Airport to accommodate the current and forecast demand. At a minimum, runways must have the proper length, width, and strength to meet FAA recommended design standards to safely accommodate the design aircraft. This section analyzes specific runway criteria and makes recommendations based on the forecast. Elements to be examined in this section include runway designation, runway length, runway width, and runway protection zone.

3.4.2.1 Runway Designation

Runway designations provided on each runway indicate the runway orientation according to the magnetic azimuth. Runway designations do change over time. This is due to the slow drift of the magnetic poles on the Earth's surface; however, the runways stay fixed and the magnetic bearing will change. Depending on an airportôs location and how much drift takes place, it may be necessary over time to change the runway designation. As runways are designated with headings rounded to the nearest 10 degrees, this will affect some runways more than others.

Since the magnetic azimuth changes over time, this section examines the amount of magnetic drift that has occurred to assure that the current designations are appropriate. The runway designation consists of a number, and on parallel runways, is supplemented with a letter. The designation number represents the whole number nearest the magnetic azimuth, divided by 10, when viewed from the direction of approach. For example, where the magnetic azimuth is 31°, the runway designation is 3, and for magnetic azimuth of 211°, the runway designation is 21. The magnetic azimuth is determined by correcting the runwayôs To accomplish this modification, westerly magnetic d bearing, while easterly magnetic declination values are subtracted.

The current magnetic declination at Pocatello Regional Airport is 12°45ô00ò East and is by 0°08ô00ò West per year. Since the magnetic declination is Easterly, the magnetic azimuths associated with the runways at the Airport are determined by subtracting the declination value from the true bearing values. The analysis conducted to determine the designation of the runways at Pocatello Regional Airport is predicated on information obtained from the National Geophysical Data Center.

The true bearing information, shown in Table 3-4 for all runways, is obtained from actual survey data. The runway magnetic azimuths for Runways 03/21, and 17/35 have recently drifted a few minutes over the existing designation; however, the runways are not in need of a redesignation.

Table 3-4
TRUE RUNWAY BEARING

Runways	True Bearing	Magnetic Variation	Runway Magnetic Azimuth
Runway 03	44° 44' 26.52"	12° 45' 00" East	31° 59' 26.52"
Runway 21	224° 44' 26.52"	12° 45' 00" East	211° 59' 26.52"
Runway 17	180° 15' 55.32"	12° 45' 00" East	167° 30' 4.68"
Runway 35	0° 15' 4.68"	12° 45' 00" East	347° 30' 4.68"

Source: National Climatic Data Center and Survey Data, FAA Aeronautical Data Support, FAA National Aeronautical Navigational Services, 2011

3.4.2.2 Runway Length

Runway length is determined by the greater of the takeoff or landing performance characteristics of the existing and future critical aircraft operating at Pocatello Regional Airport, or composite family of airplanes as represented by the critical aircraftôs Airport Reference Code (ARC). The takeoff length, including takeoff run, takeoff distance, and accelerate-stop distance, is typically the more demanding of the runway length requirements.

As described below, there are two primary means for determining the Airportôs recommended runway lengths:

Guidance A — **FAA Recommended Runway Length:** General runway length guidance based on FAA computer modeling software and Advisory Circular performance graphs for composite aircraft groups, as adjusted for Pocatello Regional Airport mean maximum temperature (88°F), field elevation (4,452 feet above mean sea level), difference in runway end elevations (±5-6 feet), and aircraft flight range of greater than 500 nautical miles.

Guidance B — **Critical Aircraft Planning Manual (Performance Curves):** Determines runway length for specific aircraft models and engines based on data from the aircraft manufacturer, as adjusted for Pocatello Regional Airport to the extent possible based on aircraft operating (payload) weights, flight range, non-standard temperatures, and field elevation (4,452 feet above mean sea level).

Based on the existing runway length of 9,060 feet, the forecast aircraft operations, and expected stage length, Guidance A provides sufficient information to recommend no additional runway length may be needed throughout the planning period and therefore guidance B is unnecessary at this time. Table 3-5 provides the FAA recommended runway length requirements.

Table 3-5
FAA AIRCRAFT RUNWAY LENGTH REQUIREMENTS

Aircraft Category	FAA Recommended Runway Length
Existing Runway 3/21 Length	**9,060'**
Small Airplanes (< 12,500 lbs)	4,300'
100% of Fleet (< 10 seats)	5,840'
100% of Fleet (> 10 seats)	5,840'
Large Airplanes (12,501 lbs - 60,000 lbs)	
75% of Fleet @ 60% Useful Load	6,390'
75% of Fleet @ 90% Useful Load	8,860'
100% of Fleet @ 60% Useful Load	8,990'
100% of Fleet @ 90% Useful Load	10,720'
Large Airplanes (> 60,000 lbs)	
500 Mile Stage Length	6,570'
1,000 Mile Stage Length	7,800'
1,500 Mile Stage Length	8,940'

Source: FAA Airport Design Microcomputer Program 4.2D

3.4.2.3 Runway Widths

The existing runways have widths of 150 feet and 100 feet for Runways 3/21 and 17/35, respectively. Neither runway needs to be widened, since each runway was designed to meet the FAA runways standards for Group D-IV and C-III aircraft, respectively. These widths are sufficient for the existing and future critical aircraft for both runways.

3.4.2.4 Runway Protection Zone

For the protection of people and property on the ground, the FAA has identified an area of land beyond each runway end as the Runway Protection Zone (RPZ). The size of the zones varies according to the design aircraft characteristics and the lowest instrument approach visibility minimum defined for each runway. It is desirable to have all areas within the RPZ cleared, or at a minimum, maximize ground safety through land use control measures, such as property deeds or avigation easements.

As a general rule, an airport should acquire all property within the RPZs as it becomes available. For paved runways, the trapezoidal-shaped RPZ is centered on the extended runway centerline starting 200 feet from the runway end. Existing RPZ dimensions are provided in Table 3-6. Runway 3 and Runway 21 RPZ dimensions differ based on approach visibility minimums of ¾ mile and ½ mile, respectively. Required RPZ dimensions are based on these visibility minimums and associated FAA guidance provided in AC 150/5300-13, CHG 4.

Table 3-6
RUNWAY PROTECTION ZONE DIMENSIONS

	Existing/Future			
Runway	**3**	**21**	**17**	**35**
Length	1,700'	2,500'	1,700'	1,700'
Inner Width	1,000'	1,000'	500'	500'
Outer Width	1,510'	1,750'	1,010'	1,010'

Source: FAA Advisory Circular 150/5300-13

3.4.2.5 Runway Design Standards Summary

This section compiles the facility standards necessary for meeting the strategic goals of the Airport, as well as the performance and dimensional characteristics of the critical aircraft category designated for each runway. Compliance with FAA airport geometric and separation standards, without modification to standards, is intended to meet a minimum level of airport operational safety and efficiency.

Table 3-7 compares the FAA airport design standards for both runways, based on the existing and future airport reference code. A checkmark denotes whether the standards are met, and N/A denotes that the standard is not applicable. Primary Runway 3/21, and crosswind Runway 17/35, meet FAA standards for D-IV and C-III operations, respectively.

Table 3-7
RUNWAY DESIGN STANDARDS

Airfield Component	Runway 3/21 (Primary)			Runway 17/35 (Crosswind)		
	Existing ARC D-IV	Existing Met (V)	Future Met (V)	Existing ARC C-III	Existing Met (V)	Future Met (V)
Rwy Width	150'	V	V	100'	V	V
Rwy Shoulder Width	25'	V	V	20'	V	V
Rwy Blast Pad Width	200'	N/A	N/A	140'	V	V
Rwy Blast Pad Length	200'	N/A	N/A	200'	V	V
Rwy Safety Area (RSA) Width	500'	V	V	500'	V	V
Rwy Safety Area (RSA) Length Prior to Threshold	600'	V	V	600'	V	V
Rwy Safety Area (RSA) Length Beyond Rwy End	1,000'	V	V	1,000'	V	V
Rwy Object Free Area (OFA) Width	800'	V	V	800'	V	V
Rwy Object Free Area (OFA) Length Beyond Rwy End	1,000'	V	V	1,000'	V	V
Rwy Obstacle Free Zone (OFZ) Width	400'	V	V	250'	V	V
Rwy Obstacle Free Zone (OFZ) Length Beyond Rwy End	200'	V	V	200'	V	V
Precison Obstacle Free Zone (OFZ) Width	800'	V	V	800'	V	V
Precison Obstacle Free Zone (OFZ) Length Beyond Rwy End	200'	V	V	200'	V	V
Rwy to Taxiway Centerline Separation	400'	V	V	400'	V	V
Rwy Centerline to Holdline Separation	250'		V	250'	V	V
Rwy Centerline to Aircraft Parking Area	500'	V	V	500'	V	V
Twy Centerline to Parallel Taxiway/Taxilane Separation	215'	V	V	152'	V	V
Twy Centerline to Fixed or Movable Object	129.5'	V	V	93'	V	V

Source: FAA Advisory Circular 150/5300-13

All design standards are met except as noted below:

The location of the hold short bar along Taxiway A for the entrance to Runway 35, does not meet the required minimum distance from the runway centerline for C-III operations. Therefore, the hold short bar should be relocated. This improvement is scheduled to be completed by October 2012 as part of Project 1-1, Rehabilitate Runway 17/35.

3.4.3 Taxiway Design

This taxiway analysis addresses specific requirements relative to FAA design criteria and the ability of the existing taxiways to accommodate the current and projected demand. At a minimum, taxiways must provide efficient circulation, must have the proper strength, and meet recommended FAA design standards to safely accommodate the design aircraft. Taxiway geometry, separation distance between taxiways, and taxiway widths all contribute to the ability of aircraft to taxi around the airfield. Airport runways should be supported by a system of taxiways that provides an access interface between the runways and the aircraft parking and hangar areas. Taxiways are classified as:

¶ Parallel - these taxiways facilitate the movement of aircraft to and from the runway.

¶ Connector - these taxiways connect the parallel taxiways with the runways, aprons, and aircraft storage facilities.

¶ Apron Taxiway - these taxiways provide primary aircraft access in an aircraft parking apron.

¶ Apron Taxilane - these taxilanes provide access to individual aircraft parking positions and/or hangar areas.

The Airportôs design aircraft determines taxiway des
the future design aircraft at Pocatello Regional Airport is an ARC D-IV aircraft, it is recommended that critical airfield taxiways be designed and built to the standard FAA ARC D-IV taxiway parameters.

Depending upon the demand, portions of an airfield may be designed for one aircraft type and other portions for a different aircraft type. At Pocatello Regional Airport, all of the taxiways serving the primary runway, Runway 3/21, should meet the recommended design standards for ARC D-IV. The design requirements for taxiways primarily intended to serve the crosswind runway, Runway 17/35, need only meet design standards for ARC C-III. The FAA recommended design standards for taxiways and taxilanes for the appropriate ARC are provided in Table 3-8 along with the existing taxiway standards at the Airport. A checkmark denotes whether the standards are met and a N/A denotes criteria that are not applicable.

Table 3-8
TAXIWAY DESIGN STANDARDS

Item	Design Group		Taxiway				Existing Met (V)
	III	IV	A	B	C	D	
Centerline Separation							
Runway to Taxiway	400'	400'	+530'	N/A	N/A	N/A	V
Taxiway to Taxiway	152'	215'	N/A	1340'	1340'	1720'	V
Taxiway Width	60'	75'	70'-85'	85'	90'	80'	
Taxiway Shoulder Width	20'	25'	20'-25'	25'	25'	25'	
Taxiway Safety Area Width	118'	171'	171'	171'	171'	171'	V
Taxiway Object Free Area Width	186'	259'	259'	259'	259'	259'	V
Taxilane Object Free Area Width	162'	225'	225'	N/A	N/A	N/A	V
Item	**Design Group**		**Taxiway**				**Existing Met (V)**
	III	**IV**	**E**	**F**	**G**		
Centerline Separation							
Runway to Taxiway	400'	400'	N/A	N/A	N/A		N/A
Taxiway to Taxiway	152'	215'	850'	850'	N/A		V
Taxiway Width	60'	75'	75'	80'	60'		V
Taxiway Shoulder Width	20'	25'	25'	25'	+20'		V
Taxiway Safety Area Width	118'	171'	171'	171'	118'		V
Taxiway Object Free Area Width	186'	259'	259'	259'	186'		V
Taxilane Object Free Area Width	162'	225'	N/A	N/A	N/A		N/A

Source: FAA Advisory Circular 150/5300-13

3.4.3.1 Parallel Taxiways

The primary taxiway, Taxiway A, serves most ramp traffic, as well as aircraft clearing Runway 3/21, and Runway 17/35. Taxiway A also provides some cross-field taxi capability.

Taxiway A is primarily a parallel taxiway to Runway 3/21, although the end connector taxiway to the Runway 21 end of the primary runway shares the same designation and provides access to the crosswind runway via Taxiway G across Runway 3/21. The majority of this taxiway is considered a taxilane along the northwest edge of the terminal ramp and GA apron. For most of the length of the taxiway, the runway centerline/taxiway centerline separation is about 530 feet, which exceeds the minimum standards for all aircraft that are anticipated to use the Airport.

3.4.3.2 Connectors

The connector taxiway layout is reasonably efficient, given the constraints caused by the routing required to access the crosswind runway. However, a spot exists where the relocation and reorientation of a connector taxiway may be warranted.

Taxiway E is located near the south end of Runway 3/21, 830 feet from connector Taxiway F. An aircraft landing on Runway 21 that is unable to make a turn off the runway within the first 5,300 feet of the 9,050-foot runway must taxi, at a minimum, an additional 2,700 feet to Taxiway E. An aircraft landing on Runway 3 unable to make a turn off the runway within the first 1,050 feet will not be able to make use of Taxiway E. The current location of Taxiway E reduces its use as a connector to parallel Taxiway A. Additionally, due to a 90/270 degree orientation of Taxiway E, taxiing aircraft must make an acute angle turn onto and off of Runway 3/21. This layout reduces and/or inhibits the use of Taxiway E as either an efficient high-speed exit taxiway or standard connector taxiway. Both the orientation and location of Taxiway E warrant its relocation south an additional 1,170 feet further along Runway 3/21 to provide more efficient access to the primary runway.

Lastly, Taxiway G does meet ARC C-III dimensional requirements, but its physical location and geometric layout on the airfield may lead to prohibitive upkeep costs for its intended use. Currently Taxiway G runs from the threshold of Runway 21 and extends approximately 7,210 feet (1.4 miles) to the threshold of Runway 17. This is the only taxiway option for an aircraft to taxi for a Runway 17 departed. The need for a cross-field taxiway to connect Runway 17 to the aircraft ramp is apparent; however, the current configuration of Taxiway G does not provide efficient access for aircraft to use. Consideration should be given to a midfield taxiway connecting Runway 17/35 to the aircraft ramp.

3.4.3.3 Apron Taxiways/Taxilanes

Aircraft taxiing capability around the perimeter of the terminal apron is provided by Taxiway/Taxilane A along the northwest edge of the terminal ramp and GA apron. This taxi capability is considered movement area, meaning that the air traffic control tower does have direct aircraft operations in this area. These standards will vary based on the function of the taxilane location in relation to the passenger terminal.

The apron taxiways and taxilanes around the passenger terminal are designed to accommodate ARC D-IV aircraft and exhibit adequate space for the critical aircraft anticipated to use the Airport within the planning period. Apron taxiways and taxilanes in the general aviation areas north of the passenger terminal are designed to accommodate at least ARC B-II aircraft. There is one taxilane that connects the T-Hangars to the apron that should be improved during this planning period. This taxilane was a vehicle road converted into an aircraft taxilanes. Portions of this taxilane still have vehicle curbs and should be removed.

3.4.4 Pavement Strength & Condition

Pavement strength is an important criterion in determining the usability of the airfield.

Table *3-9* lists the weights of the more demanding aircraft currently using or expected to use Pocatello Regional Airport. General aviation business jets typically range from 12,000 to 50,000 pounds. Those that have a maximum takeoff weight of more than 20,000 pounds have a dual-wheel gear (DWG) configuration. Air carrier turboprop and regional jet aircraft range from 22,000 to 55,000 pounds, while their narrow body domestic passenger jets weigh up to 280,000 pounds, and are equipped with dual-tandem wheel gear (DTW).

Table 3-9
AIRCRAFT WEIGHTS

Aircraft	Aircraft Size (Passengers)	ARC	Gear Type	Maximum Take-Off Weight
General Aviation Aircraft				
Light/Small Business Jet	4 to 6 Passengers	B-I to B-II	Single-Wheel	8,000 to 20,000 lbs.
Medium Business Jet	6 to 10 Passengers	B-II to C-II	Dual-Wheel	20,000 to 45,000 lbs.
Large Business Jet	10 to 16 Passengers	C-II to D-III	Dual-Wheel	45,000 to 95,000 lbs.
Air Carrier Aircraft				
Turboprop	19 to 40 Passengers	B-II to B-III	Dual-Wheel	22,000 to 45,000 lbs.
Regional Jet	35 to 50 Passengers	C-II	Dual-Wheel	40,000 to 55,000 lbs.
Narrow Body	100 to 150 Passengers	C-III to D-IV	Dual Tandem-Wheel	125,000 to 280,000 lbs.

Source: Reynolds, Smith and Hills, Inc., 2011

Table 3-10 identifies recommended runway and taxiway pavement strengths at the Airport for each major pavement component. The airport has a Pavement Management Program, which the Airport uses to make decision on timing and the type of maintenance necessary on the airport pavement. According to the Pavement Management Program, Taxiway G and a small portion of the general aviation apron are in Fair to Poor condition and improvements are anticipated to be required within the short term. For the apron, Taxiway G as discussed in Section 3.5.3.2 Connectors does not provide efficient access for aircraft and alternatives to improve Taxiway G should be considered.

Runway 17/35 does exceed the recommended 60,000 lbs (single wheel gear) pavement strength for weight bearing capacity as it is understood that this Runway has an effective weight bearing capacity of 75,000 lbs (dual tandem wheel), which would meet the recommended weight bearing capacity. However, it is recommended that during the next major runway improvement project the Airport confirm pavement strength for single- and dual-wheel weight bearing capacity.

Table 3-10
RECOMMENDED PAVEMENT STRENGTHS

Pavement Area	Existing Pavement Strength (Gear Type)	Recommended Pavement Strength (Gear Type)
Runway 3/21 & Parallel Taxiway System	100, 000 lbs. (SWG) 160,000 lbs. (DWG) 265,000 lbs. (DTW)	100, 000 lbs. (SWG) 160,000 lbs. (DWG) 265,000 lbs. (DTW)
Runway 17/35 & Parallel Taxiway System	60,000 lbs (SWG)	60,000 lbs (SWG)
Apron (Air Carrier)	55,000 lbs. (DWG)	55,000 lbs. (DWG)
Apron (FBO Transient)	95,000 lbs. (DWG)	95,000 lbs. (DWG)
Apron (Based Tie-Downs)	20,000 lbs. (SWG)	20,000 lbs. (SWG)
Hangar Taxilane (Piston & Turboprop Aircraft)	12,500 lbs. (SWG)	12,500 lbs. (SWG)

Source: FAA Advisory Circular 150/5320-6e and PIH Airport Records, 2011

3.4.5 Modifications to Standards

No deviations or modifications to airport design standards are currently in-place for this Airport. The FAA ALP approval date was January 2006.

3.5 NAVIGATIONAL AND VISUAL AIDS

Navigational and visual aids consist of equipment that helps pilots locate the Airport and provides either horizontal, vertical, or a combination of horizontal and vertical guidance information. While such aids are useful to pilots under all conditions, they are particularly critical during periods of low visibility (such as rain or fog) and at night. These aids provide information to pilots about the aircraftôs horizo[illegible] above the ground, the location of Airport facilities, and the aircraftôs position on the airfield.

3.5.1 Navigational Aids

Navigational Aids (NAVAIDS) consist of equipment that helps pilots locate the Airport, provide horizontal guidance information for a non-precision approach, and provide horizontal and vertical guidance information for a precision instrument approach. All of the existing runways at the Airport have appropriate NAVAIDS that are sited correctly and in working condition.

3.5.2 Visual Aids

Visual aids consist of a variety of lighting and marking aids used to guide the pilot both in the air and on the ground. These aids can provide pilots information based on their horizontal and vertical position by providing data reg[illegible], and distance from the Airport. The visual aids at the Airport include runway lighting systems, taxiway lighting systems, and airfield signage. The visual aids at the Airport are in working condition and are only in need of routine maintenance.

The Airport currently has a rotating beacon, which aids the pilot in locating the airport, especially in low visibility situations. The beacon is in good condition and only in need of routine maintenance.

3.5.2.1 Runway Lighting Systems

Runway 21 is a precision runway and currently has High Intensity Runway Lights (HIRL), Medium Intensity Approach Lighting System (MALSR), Precision Approach Path Indicators (PAPI), and precision pavement markings. Runway 3 has HIRL, Omni Directional Approach Lighting System (ODALS), Visual Approach Indicator Lights (VASI), and precision pavement markings.

It is recommended that Runway 3 have the VASI replaced with PAPI, which are already installed on Runway 21. Runway End Identifier Lights (REIL) are also recommended for Runway 3 and Runway 21.

Runway 17/35 has Medium Intensity Runway Lights (MIRL), PAPI and visual pavement markings. Runway 17 has REIL. It is recommended that REIL be installed on Runway 35 end.

3.5.2.2 Taxiway Lighting Systems

All existing taxiways except for taxiway G at Pocatello Regional Airport have appropriate visual aids including taxiway lighting systems and pavement markings. It is recommended that taxiway edge lights be installed on taxiway G to allow for both daytime and nighttime operations; however, its physical location and geometric layout on the airfield may lead to prohibitive upkeep costs for its intended use and consideration should be given to remove taxiway G all together.

3.5.2.3 Airfield Signage

The FAA recommends that all airports install a system of runway and taxiway guidance signs in accordance with the standards found in FAA Advisory Circular 150/5340-18C, *Standards for Airport Signage Systems*. Guidance signs include mandatory holding position signs for runway-runway and runway-taxiway intersections, instrument landing system (ILS) critical areas, and runway approach areas. Additional taxiway guidance signs include runway and taxiway location, runway exit, taxiway direction, inbound/outbound destination, and informational signage. Signage at the Pocatello Regional Airport is in good condition and meets the FAA recommended standard. It is recommended that the signage plan be updated with the construction of any new taxiway, taxilanes, or runways.

3.5.3 FAA NextGen

NextGen is a transformation of the National Airspace System (NAS) from a ground-based system to a satellite-based system. It will allow the pilots to obtain important decision making responsibilities, which are currently only made by ground personnel. By allowing pilots to receive detailed information on position, weather and other aircraft routes, they will be able to fly a more direct, safe, cost efficient and environmentally-friendly flight environment. It is recommended that the Airport work with the FAA to begin implementing a Geographic Information System (GIS) to manage spatial data required to support NextGen capabilities at Pocatello Regional Airport.

3.6 AIRSPACE REQUIREMENTS

The national airspace system consists of various classifications of airspace that are regulated by the FAA. Airspace classification is necessary to ensure the safety of all aircraft utilizing the facilities, particularly during periods of inclement weather. A detailed description of the National Airspace System is provided in **Appendix D, National Airspace System.**

The current Class D airspace is adequate for the existing and future operational requirements expected at the Airport.

Air traffic in the vicinity of the Airport is controlled by the Pocatello Regional Airport Air Traffic Control Tower (ATCT). The ATCT operates from 6:00 am to 10:00 pm daily. The ATCT controllers maintain all air-to-ground communications and visual signaling within five nautical miles and up to 2,500 feet mean sea level (MSL) above the Airport. Additionally, these controllers are responsible for directing ground movement of all aircraft and vehicles on the runway and taxiway system.

Instrument arrivals and departures are normally controlled by the Salt Lake Center. When the air traffic control tower is not in operation from 10:01 pm to 5:59 am, Class E airspace applies and is adequate for the existing and future operational requirements.

Power County currently has an airspace ordinance in place, Title 10, Chapter 10 Power County Airport Safety Overlay District (Ord. 98-01, 7-13-1998) for the airspace around the Airport.

3.7 PASSENGER TERMINAL AREA

The Passenger Terminal at Pocatello Regional Airport includes the terminal building and commercial services apron. These areas are specifically designed to serve passengers utilizing the commercial airlines services at the Airport. This section evaluates existing capacity of the commercial passenger terminal and the future facility requirements, based on the aviation activity forecast.

3.7.1 Passenger Terminal Building

Pocatello Regional Airport commercial service passenger terminal has been renovated and expanded several times over the Airportôs history. completed in 2010 and officially opened in January 2011. Floor plans of the terminal are shown in Figure 3-4. The functional square foot areas associated with these floor plans are shown in Figure 3-4. The necessary capacity on the passenger terminal building is related to current and future enplanements. This information is contained in **Chapter 2, Aviation Demand Forecast**. In 2010, there were 23,319 passengers enplaned and it is expected to reach 26,330 in 2015, 29,750 in 2020, 33,850 in 2025, and 37,950 in 2030. The expected average annual growth over this planning period is approximately 2.5 percent.

With the completion of the recent expansion to the terminal building, the approximately 38,000 square foot Airport terminal building contains sufficient capacity in each area to serve the forecast passenger enplanement demand throughout the planning period.

Figure 3-4
PASSENGER TERMINAL FLOOR PLANS

FIRST LEVEL

SECOND LEVEL

Source: Reynolds, Smith and Hills, Inc. 2011

3.8 <u>ACCESS, CIRCULATION, AND PARKING REQUIREMENTS</u>

Airport access systems consist of connecting roadways that enable arriving and departing users to enter and exit the landside facilities and parking facilities. A map of the vehicle and rail access options near the Airport is provided in Figure 3-5

Figure 3-5
AIRPORT ACCESS

RS&H Analysis, 2010

3.8.1 Off-Airport Access

Facility requirements for off-airport access involves a determination of capacity levels associated with the primary means to and from the Airport. The primary means of ground travel to the Pocatello Regional Airport is by private vehicle. There is no public mass transit available at the Airport; and rail line is strictly freight access.

3.8.1.1 Publicly Owned Roadways

The major regional roadway that serves the Airport is Interstate 86 (I-86). Access from I-86 to the Airport is on Airport Way. Airport Way is the main access point to the terminal loop road and to all aviation and non-aviation properties.

All off-airport roadways are maintained by the City of Pocatello, Power County, State of Idaho, or U.S. Federal government. Capacity along all the off-airport access roads are adequate through the planning period.

3.8.1.2 Union Pacific Railroad

The Union Pacific Railroad Company owns and operates the rail line that runs adjacent to I-86. This rail line runs from the City of Chicago through the City of Pocatello to the West Coast of the United States. The primary access from the Union Pacific Railroad line is adjacent to the Airport Way exit. The rail line has a spur that branches off and travels under I-86 onto the Airport where it spurs off again into three Branches A, B, and C. These three branches are approximately 1,700 feet long. Union Pacific Railroad Company maintains all off-airport rail lines. The rail lines on the Airport are owned by the Airport. Branch A and B are currently within an Airport tenantôs lease and are maintained as part of this lease agreement. Branch C is currently not being leased by any Airport tenant. In September 2010, a track inspection occurred, which outlined improvements necessary to bring each Airport owned rail branch up to the USDOT Federal Railroad Administrationôs Track Standards.

It is a strategic vision of the Airport to improve the non-aviation use of the Airport property. As part of this vision, the Airport intends to acquire a transload station with two seven-ton cranes. The acquisition of these transload stations will allow users to transfer goods from railcar to truck, assembly line, or vice versa and thereby improve the functionality of this rail line facility at the Airport. Therefore, it is recommended that the Airport make the necessary improvements to each branch line noted in the September 2010 DOT inspection and acquire the transload stations. It is also worth considering additional branch lines after the transload stations are in use. The demand for this service adjacent to an airport, interstate, and property ready for development will be high, and therefore it can be expected that additional landside development will occur during this planning period.

It is also worth noting that these rail line improvements would be eligible for the Rail Line Relocation and Improvements Capital Grant Program from the Federal Railroad Administration. Congress appropriated $25 million in Federal funds for this grant program for FY 2009. Of this amount, $17 million was directed to twenty-three non-competitive projects such as this.

3.8.2 On-Airport Access

On-airport access roadways are subdivided into two categories: public and restricted access roadways. Public roads are, as the name indicates, roadways that are available for public use and provide access to general aviation, landside facilities, and commercial services facilities. Restricted access roadways are located on Airport property and generally provide access to on-airport facilities, such as navigational aids, perimeter fencing, aprons, and all airside facilities that cannot be accessed by the general public.

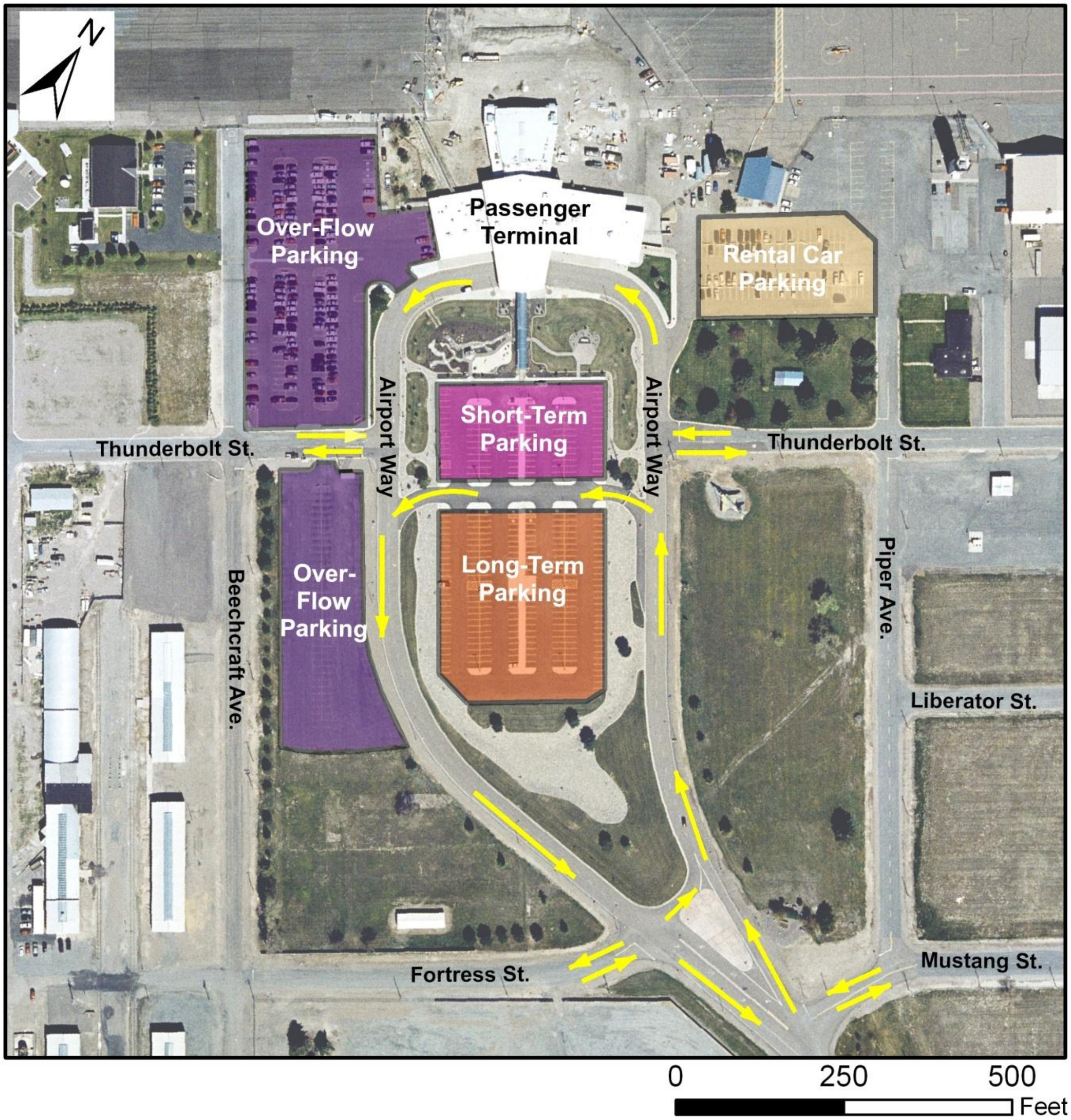
3.8.2.1 General Public Access

The general public access roadways are organized in a grid pattern. The roadways are streets at right angles to each other creating a very organized area. Roads in a north-south orientation are named after aircraft manufacturers, such as Mooney, Beechcraft, Piper, Cessna, Bell, and Boeing Avenues. Roads in an east-west orientation are named after aircraft types such as Thunderbolt, Fortress, and Mustang Streets. These on-airport general public access roads are currently adequate to serve demand. As new development occurs in the non-aviation area, it may be necessary to modify these access roads to accommodate new tenants and their specific needs.

3.8.2.2 Terminal Area Circulation

The existing terminal area is accessed by vehicles on Airport Way, which loops around parking areas in front of the passenger terminal. It is an asphalt two-lane road that provides principal access to the terminal area. The one-way, two-lane segment circulates around the short and long-term parking lots providing access to the general aviation areas, the rental car ready/return lot, as well as the commercial service passenger terminal. It continues past the entrance adjacent to over flow parking lots, and then exits onto I-86. This on-airport terminal area loop road is maintained by the Airport and is sufficient to serve the demand through the planning period. This circulation pattern is shown in Figure 3-6.

Figure 3-6
TERMINAL LOOP ROADWAY SYSTEM



Source: RS&H, 2011

3.8.2.3 Restricted Access

There are approximately 20 gated vehicle access points providing secured and monitored vehicle entrance/exit onto the airfield, primarily for emergency access. These access points are used by Airport tenants and Airport maintenance crews to gain access with machinery and service equipment. The Airport does not have a complete perimeter roadway system outside the Runway Object Free Areas for service vehicle and machinery access to other parts of the airfield. These restricted access roadways have the necessary capacity to accommodate the demand through the planning period; however, a complete perimeter roadway should be constructed to provide Airport maintenance crews a safe and secure means of servicing the airport as necessary.

3.8.3 Parking Facilities

The parking at the Airport has been divided into three principle user groups: Public Parking, Rental Car Parking, and Employee Parking. This section analyzes the parking requirements of each.

3.8.3.1 Public Parking

Pocatello Regional Airport currently provides surface parking positions for passengers with vehicle access from Airport Way. The passenger parking lots provide approximately 630 total positions. The short-term parking lot contains 100 parking positions; long-term parking contains 203 parking positions, while the overflow lots consist of 327 additional parking positions.

Similar to the terminal building, parking demand at an airport is directly related to origination enplanements, so it is important to recall the expected growth over this planning period at approximately 2.5 percent annually, which is a growth from 23,329 passengers in 2010 to 37,950 in 2030.

Parking demand at an airport for each type of parking (Short-Term, Long-Term, Employee, and Rental Cars) is calculated slightly different for each type of use and the demand for each use. Short-Term parking users typically park their vehicles for 3 hours or less and account for approximately 80 percent of users, while these vehicle spaces account for only 20 percent of total parking available at the Airport.

This ratio is applied to the forecast enplanements throughout the planning period, as shown in Table 3-11 . This calculation results in a surplus of short-term parking until the end of the planning period. However, a deficit of 18 long-term spaces occurs in 2015 and grows to 116 by 2030.

Table 3-11
PUBLIC PARKING DEMAND PROJECTIONS

	Actual	Forecast			
Description	**2010**	**2015**	**2020**	**2025**	**2030**
Short-Term					
Parking spaces	100	66	75	81	96
Surplus/(Deficit) Parking Spaces	-	34	25	19	4
Long-Term					
Parking spaces	203	221	250	269	319
Surplus/(Deficit) Parking Spaces	-	(18)	(47)	(66)	(116)

Source: Reynolds, Smith and Hills, Inc., 2011

In addition to the short-term and long-term lots, there are two overflow lots, which contain 327 additional spaces. The first is located southwest of the short-term lot along Thunderbolt Avenue. The second is located next to the west side of the terminal building along Airport Way.

The second overflow lot located west of the terminal building, is currently too close to the terminal building and commercial passenger aircraft to allow vehicles to park and is a security concern that should be addressed. Also, this area adjacent to the terminal building with ramp access would be better served as revenue producing property and used to accommodate any future terminal expansions, as well as Airline or passenger concession services that may become necessary in the future.

3.8.3.2 Rental Car Parking

There are approximately 100 spaces for rental cars. As passenger traffic increases, it is projected that rental car transactions will increase at the same rate. Fleet sizes will grow and more spaces will be needed to accommodate the operation.

In a relatively small rental car operation like Pocatello Regional Airport, there are certain economic advantages to utilizing the same spaces for ready cars and returns. The rental car operation has sufficient capacity at the present day and should remain adequate throughout the planning period to provide customers with an acceptable rental car service.

3.8.3.3 Employee Parking

Airport employees utilize the overflow parking lots. Employees parking at the Airport include, but are not limited to: Airport employees, TSA employees, car rental employees, and airline employees. Current employee parking demand is estimated to be at approximately 15-20 employee parking spaces. Projections of employee parking demand through the planning period are expected to remain nominal throughout the planning period. As such, future employee parking is not a driving factor in future parking development.

3.8.4 Ground Transportation Services and Facilities

All current ground transportation services operate from the terminal curbside. The Airport is served by private ground transportation companies offering a taxi and shuttle options. Ground transportation services are sufficient at present and are expected to be adequate throughout the planning horizon.

3.9 AVIATION SUPPORT FACILITIES

Support facilities at an airport encompass a broad set of functions that exist to ensure the airport is able to fill its primary role and mission in a smooth, safe, and efficient manner. Support facilities at Pocatello Regional Airport include:

¶ General Aviation
¶ Air Cargo
¶ Aircraft Rescue and Fire Fighting facility
¶ Airport Maintenance and Snow Removal Equipment storage
¶ Airport Fuel Storage
¶ Deicing
¶ Air Traffic Control Tower
¶ Military/Government Facilities

3.9.1 General Aviation

General aviation aircraft facility requirements at an airport consist of fixed base operator services, hangar storage, and apron space. Assessing future facility needs requires an analysis of the existing and future general aviation operation levels, based aircraft estimates, and the capacity and condition of existing facilities.

3.9.1.1 Fixed Base Operator

The Airport has one Fixed Base Operator (FBO), which supplies fuel, maintenance, de-icing operations, storage, and other support services for the operators of general aviation aircraft. No developments are forecast that would alter the need for FBOs, and growth is forecast to be within the existing businessô ability to provide services the number of FBOs or the location.

3.9.1.2 *Hangars*

The quantity of general aviation hangar space required at an airport depends on local weather conditions, aircraft fleet mix, airport security, and user preference, in addition to the total number of based aircraft. Airports in moderate climates typically see only about 20 percent of users opting for more expensive hangars over apron tie-downs. In more extreme climates ï those with severe winters, high precipitation, and/or intense wind ï users are more likely to hangar their based aircraft. Operators of single-engine aircraft and light twins are likely to opt for T-hangars or small box hangars, while corporate operations are typically based at conventional hangars.

Due to the location of the Airport, most owners are likely to prefer hangars to outdoor tie-down space. There are 15 hangar buildings at the Airport, nine of which are owned by the City of Pocatello. These hangars consist of eight conventional hangars, two Port-A-Port hangars, and five multi-unit hangars. These hangars are all located to the east of the terminal building along the general aviation ramp. The Airport reports a 12-aircraft waiting list for hangars, of which seven aircraft would be immediately hangared if facilities were available. The Airport will pursue building a T-hangar building once their first Multi-Unit hangar is completely paid off and actual aircraft demand warrents the construction

The primary general aviation hangar area is east of the air carrier apron and its primary axis runs parallel to Runway 3/21. There are approximately seven medium to large conventional hangars in this location. There is a cluster of general aviation hangars tucked behind the primary general aviation apron and there is one large rectangular hangar, which holds approximately nine aircraft, and two small conventional hangars.

Because the number of based aircraft is forecast to remain steady, additional hangar demand during the planning period is likely to come from two sources: pent-up demand among owners who would like to have hangar space now, and demand generated by owners moving up to larger aircraft.

Current hangar utilization rates on the GA ramp indicate that approximately 37 general aviation aircraft are hangared on that ramp in both conventional hangars and T-hangars. The number of aircraft needing hangars is forecast to remain constant through 2030, but pent up demand and changes in fleet mix are likely to increase the amount of small conventional hangar space required.

The existing hangars are currently fully occupied and a preliminary inspection shows them to be in good condition or better. Demand for large conventional hangars would typically be driven by an aviation-oriented business or a corporate flight department. No additional demand for large conventional hangars is forecast at this time.

Small conventional hangars are typically used for large piston twins, helicopters, and turboprop aircraft. Analysis indicates the market could support two small conventional hangars now and one additional hangar by 2030. Demand for small conventional hangars is largely price-driven and based on the aircraft owne[illegible] aircraft storage. for the hangar

T-hangars are a popular choice for small aircraft owners at many airports. For the purposes of this discussion, the Port-a-Ports are combined with the T-hangar units, since both are similar in size and shape. Both house single aircraft in a staggered, back-to-back configuration that maximizes the number of aircraft that can be hangared in a given area, while still giving each aircraft direct access to the ramp. Table 3-12 shows forecast hangar demand.

Table 3-12
HANGAR BUILDING REQUIREMENTS

	2010	2015	2020	2025	2030
Port-A-Ports and T-Hangar Units					
Existing	2	9	9	9	9
Required	9	0	0	0	0
Additional Need	7	0	0	0	0
Small Conventional Hangars (Multi-Units)					
Existing	7	7	10	10	10
Required	7	10	0	0	0
Additional Need	0	3	0	0	0
Large Conventional Hangars					
Existing	6	6	6	6	6
Required	0	0	0	0	0
Additional Need	0	0	0	0	0

Source: Reynolds, Smith and Hills, Inc., 2011

3.9.1.3 General Aviation Aprons

General aviation aprons serve several purposes. They provide long-term tie-down space for based customers who do not have hangar space and they provide parking, fueling, and short-term tie-down space for transient general aviation aircraft. Facilities must supply adequate space of each type, as well as provide circulation space to allow aircraft to taxi or be towed to and from the various facilities and taxiways.

The long-term growth that is forecast in itinerant operations will require a small increase in general aviation apron space to park and service aircraft. Itinerant tie downs consists of about 66,000 square yards of apron space adjacent to the existing FBO ï which represents 39 percent of the 171,000-square-yard general aviation apron. Existing itinerant operations require about 15,000 square yards of apron space, or 22.5 percent of the existing itinerant space. Itinerant traffic is forecast to grow 12.5 percent by 2030, and at that point would take up 26.8 percent of the itinerant general aviation apron (see Table 3-13).

The static number of forecast based aircraft (70 in 2010 through 2030), means the existing general aviation apron tie-down space will be more than adequate. Required apron space for based aircraft will increase slightly due to the forecast shift from single-engine aircraft to larger turboprop and jet powered aircraft, but the required space space. Table 3-14 outlines the apron space requirements for each type of aircraft. Note that this analysis does not include the 35,500 square yards of apron space adjacent to the Bureau of Land Management facility or the 24,400 square yards adjacent to the Idaho State University facility. Because those facilities have specialized requirements, due to operations outside the normal course of market-driven general aviation activities, their space was not included in this analysis.

Table 3-13
ITINERANT AIRCRAFT PARKING APRON REQUIREMENTS

	2015				2020			
	SEP	**MEP**	**Turbine**	**Total**	**SEP**	**MEP**	**Turbine**	**Total**
Itinerant Aircraft on Ramp	22	9	1	32	22	9	2	33
Itinerant Aircraft Tie-Down								
Square Yards Needed	8,800	5,400	800	15,000	8,800	5,400	1,600	15,800
Square Yards Available				66,500				66,500
Additional Needed				0				0

	2025				2030			
	SEP	**MEP**	**Turbine**	**Total**	**SEP**	**MEP**	**Turbine**	**Total**
Itinerant Aircraft on Ramp	22	9	3	34	23	9	4	36
Itinerant Aircraft Tie-Down								
Square Yards Needed	8,800	5,400	2,400	16,600	9,200	5,400	3,200	17,800
Square Yards Available				66,500				66,500
Additional Needed				0				0

Note: Single Engine Plane (SEP), Multi Engine Plane (MEP)
Source: Reynolds Smith and Hills, Inc.,2011

Table 3-14
BASED AIRCRAFT APRON REQUIREMENTS

	2015					2020				
	SEP	**MEP**	**Turbine**	**Rotor**	**Total**	**SEP**	**MEP**	**Turbine**	**Rotor**	**Total**
Based Aircraft	47	18	2	3	70	45	17	4	4	70
# Tied Down	31	2	2	3	38	30	2	4	4	40
Square Yards Needed	12,400	1,200	1,600	2,400	17,600	12,000	1,200	3,200	3,200	19,600
Square Yards Available					104,444					104,444
Additional Needed					0					0

	2025					2030				
	SEP	**MEP**	**Turbine**	**Rotor**	**Total**	**SEP**	**MEP**	**Turbine**	**Rotor**	**Total**
Based Aircraft	44	17	5	4	70	43	16	6	5	70
# Tied Down	30	2	5	4	41	25	2	6	5	38
Square Yards Needed	12,000	1,200	4,000	3,200	20,400	10,000	1,200	4,800	4,000	20,000
Square Yards Available					104,444					104,444
Additional Needed					0					0

Note: Single Engine Plane (SEP), Multi Engine Plane (MEP)
Source: Reynolds, Smith and Hills, Inc., 2011

3.9.2 Air Cargo Facilities

Air cargo facilities are facilities dedicated to providing air mail and air freight/air express. Presently, the Airport has minimal air cargo operations with no buildings or apron areas dedicated exclusively to air cargo operations. No significant change from present day conditions are expected within the study period. Although a defined need does not currently exist, Pocatello Regional Airport could be considered for air cargo activity that relieves Salt Lake City. Space for air cargo development should be reserved for this possibility.

3.9.3 Aircraft Rescue and Fire Fighting (ARFF) Facility

Airports that serve air carrier flights are required to provide aircraft rescue and fire fighting (ARFF) facilities and equipment. ARFF equipment requirements for FAR Part 139 airports are determined by an index ranking based on aircraft size, number of emergency vehicles, and number of scheduled daily aircraft departures. As published by the FAA, the Pocatello Regional Airport is FAR Part 139 Class I, with an ARFF Index B.

The existing 6,000 square foot ARFF building contains two vehicle bays and is in good condition. The ARFF currently houses two fire rescue vehicle
operations area, and other amenities. The Airport operates two ARFF vehicles stationed in the ARFF building located west of the terminal building adjacent to the National Weather Service building and are in good condition. The primary ARFF vehicle is a 1998 Oshkosh TI-1500. This vehicle meets FAA Index B requirements. Index B requires the Airport to have the capability of holding 1,500 gallons of water and 200 gallons of foam. In addition, the Airport is purchasing a secondary Oshkosh TI-1500 ARFF vehicle. With this additional vehicle, the Airport can achieve Index C standards.

3.9.4 Airport Maintenance and SRE Storage

The demand for Airport maintenance facilities is directly related to the amount of pavement, lighting equipment, terminal building size, and overall grounds maintenance the Airport staff is required to maintain. It can be assumed that as the airfield and/or facilities are enlarged, the maintenance facilities may also need to be expanded and perhaps relocated. Because no large-scale infrastructure additions are anticipated, the maintenance facilities at Pocatello Regional Airport are adequate.

3.9.5 Airport Fuel Storage

Fuel storage requirements at the Airport depend on the level of aircraft traffic, fleet mix, and fuel delivery schedules. Airport records show an average of 104 gallons of Jet A fuel is pumped per turbine aircraft flight and 6.5 gallons of 100LL is pumped per piston aircraft flight. (Each flight is defined as one takeoff and one landing, or two operations.) Table 3-15 outlines fuel storage requirements.

Current storage capacity for both Jet A fuel and 100LL aviation gasoline is 24,000 gallons each, held in four 12,000-gallon tanks. The five-day peak month supply requirement for Jet A is approximately 6,348 gallons, and forecast to rise to 7,726 gallons by 2030. The five-day peak month supply requirement for 100LL is approximately 1,315 gallons, and forecast to rise to 1,460 gallons by 2030. Changes in aircraft fleet mix, for example turboprops being replaced by jets, or piston twins being replaced by turboprops, will likely increase demand for Jet-A. Similarly, increases (or decreases) in airline service will also affect future Jet-A storage needs. Appropriate storage for both Jet A fuel and 100LL aviation gasoline appears adequate throughout the forecast period.

Table 3-15
FUEL FACILITY REQUIREMENTS

	2010	2015	2020	2025	2030
Peak Month Average Day Operations	109	111	115	119	124
100 LL					
Peak Month Average Day Operations	84	84	87	90	93
5 Day Fuel Need (Gallons)	1,315	1,324	1,367	1,413	1,460
Available Storage (Gallons)	24,000	24,000	24,000	24,000	24,000
Additional Storage Needed	0	0	0	0	0
Jet A					
Peak Month Average Day Operations	25	27	28	29	30
5 Day Fuel Need (Gallons)	6,348	6,667	7,001	7,364	7,726
Available Storage (Gallons)	24,000	24,000	24,000	24,000	24,000
Additional Storage Needed	0	0	0	0	0

Source: Reynolds, Smith and Hills, Inc., 2011

3.9.6 <u>Deicing Facility</u>

Aircraft deicing facilities are recommended at airports where icing conditions are expected. Deicing activities at the Airport are conducted by the individual airlines and the FBO. All of the deicing operations utilize Type I propylene glycol.

SkyWest Airlines performs deicing activities at its respective gate using its own equipment and deicing fluids. In addition, Pocatello AvCenter provides deicing services for both based and transient general aviation aircraft. Deicing of general aviation aircraft is preformed at the tie down position or in front of the FBO. With the Airportôs relatively wet w It is estimated that 75 to 80 aircraft per season request deicing. All deicing fluid is stored within the deicing vehicles or small 55 gallon glycol storage tanks.

Runoff from the deicing process has the potential to cause environmental degradation in nearby waterways. Consideration should be given to creating a mitigation plan to ensure deicing fluid does not represent an environmental hazard. Because deicing procedures are conducted on both the commercial apron and at the FBO, a designated deicing area should be constructed at each location to confine the fluid for recycling or proper disposal.

3.9.7 <u>Air Traffic Control Tower</u>

Interviews with air traffic control tower personnel indicated that current facilities are adequate to meet present operations, as well as forecast growth in operations. No changes are expected to occur with the surrounding airspace and, unless a significant change to airfield geometry occurs, the air traffic control tower meets current FAA standards.

3.9.8 Safety Management System

A Safety Management System (SMS) is a formal, top-down business-like approach to managing risk. It includes systematic procedures, practices, and policies for the management of safety, allowing airports to identify and mitigate potential hazards, and to incorporate and document safety mechanisms. A properly developed SMS program will not only result in the reduction of aircraft accidents/incidents on the airfield, but improve the safety of workers and airport visitors, and potentially save money through increased efficiency and reduced insurance costs.

Airport SMS programs are being instituted by the FAA to maintain U.S. compliance with the requirements of the International Civil Aviation Organization (ICAO), which has required SMS for several years at airports outside the U.S. The FAA supports harmonization of international standards, and has worked to make U.S. aviation safety regulations consistent with ICAO standards and recommended practices. The FAA intends to implement the use of SMS at U.S. airports to meet the intent of the ICAO standard in a way that complements existing airport safety regulations in 14 CFR Part 139.

It is anticipated that SMS will become a requirement for all Part 139 airports beginning in 2012. In addition, all construction projects funded by federal dollars will need to undergo elements of SMS analysis as part of the grant. Currently the Airport has not implemented an SMS plan and, therefore, it recommended that the Airport implement a Safety Management System plan in the short-term planning period.

3.9.9 Airport Geographic Information System

The FAAô snew Airports GIS (AGIS) program is designed to change the way airports manage their infrastructure, turning airport maps into databases that can be used for planning, funding, development, and design. AGIS will turn the conventional Airport Layout Plan into a digital electronic document, allowing for easier updates.

The AGIS program, part of the Next Generation National Airspace System (NEXTGEN), aims to standardize the data collection process at airports using a combination of aerial imagery and field surveys to accuracy standards specified by the FAA. The FAA will then compile the data into a central database and organize the data into a consistent format that is available online.

Pocatello Regional Airport should expect to collect all Airport data to AGIS standards and to begin work developing an AGIS plan during the next major planning project.

3.10 UTILITIES

The availability of water, sanitary sewer, natural gas, electric, and telephone/communication services to Pocatello Regional Airport must be considered while evaluating the facility requirements. The public water distribution and sanitary sewage system are provided by the City of Pocatello while natural gas, electricity, telephone, and telephone/communication services are provided by private sector suppliers. The following sections identify the providers of the various utility services and whether infrastructure improvements may be necessary based upon existing and possible future development. If significant development would occur, all applicable agencies should be involved in the initial stages of the development process to ensure that utility needs could be adequately met.

3.10.1 Potable Water and Sanitary Sewer

The Airportôs water supply is provided by the Cit
current water system has two wells that serve the Airport terminal, and several businesses through approximately 60 service connections. Only minor maintenance of existing water supply infrastructure would occur to meet the current and possible future demands of the Airport. A Water Study is currently being conducted to evaluate p
supply and existing infrastructure, which could have some future impact on the Airport.

In addition to the Cityôs Water Department, the
responsible for the operation and maintenance of t
existing sewer infrastructure at the Airport to keep up with existing and future waste treatment. Rehabilitation of the existing lift station, which pumps sewage from the Airport, is expected to occur in the near future especially as the Airport begins new development to its existing facilities.

3.10.2 Natural Gas and Electricity

Intermountain Gas Company furnishes natural gas services to the Airport, while Idaho Power supplies electricity. There is currently an ample supply of natural gas and electricity to support the existing and future demands of the Airport. Idaho Power will evaluate future power capacity as new or existing tenants expand that would warrant a significant increase in power supply.

3.10.3 Storm Water Drainage

The Pocatello Regional Airport is not required to have a U.S. EPA Multi-Sector General Permit for storm runoff because it does not have a point source discharge. Since no discharge occurs into the municipal wastewater collection system, there is no need to implement Best Management Practices (BMPs) to minimize stormwater runoff as a result of future improvements at the Airport.
Thus, there is no immediate or imminent effect on wastewater management capacity within the local region. However, wastewater management capacity will be monitored to ensure that the Airport may accommodate long-range expansion and future improvements that may increase demand on the total system within the Airport vicinity.

3.10.4 Telephone/Communications

Both telephone and internet services available for the Airport and its tenants. Wireless communications are dependent on the cellular carriers and third party cellular capacity providers to respond as needed, and can provide as service demands dictate.

With future non-aviation development growth expected, existing communication infrastructure will need to be improved. Existing communication infrastructure is limited with the exception of the National Oceanic and Atmospheric Administration (NOAA). NOAA is the only tenant on the Airport with T-1 lines. T-1 lines are high-performance fiber optic telephone lines. While T-lines are expensive, they are the next feasible alternative for improved communication services at the Airport. According to local communication providers, there is the capability to expand T-1 service to the Airport and other tenants as needed.