2.0 INVENTORY OF EXISTING CONDITIONS

2.1 INTRODUCTION AND PLANNING CONTEXT

2.1.1 GENERAL

The purpose of the inventory section of this Runway Planning Study (RPS) is to summarize existing conditions of all facilities at Idaho Falls Regional Airport (IDA); as well as summarize other pertinent information relating to the community, the airport background, airport role, surrounding environment and various operational and other significant characteristics.

The information in this chapter describes the current status of Idaho Falls Regional Airport and provides the baseline for determining future facility needs. Information was obtained from various sources including consultant research, review of existing documents, interviews and conversations with airport stakeholders including the airport sponsor (City of Idaho Falls), the airport manager, airport tenants, Idaho Transportation Department division of Aeronautics and other knowledgeable sources.

2.1.2 FAA NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS (NPIAS) AND ASSET STUDY

The FAA is required to maintain the National Plan of Integrated Airport Systems (NPIAS). This plan identifies public-use airports considered by the FAA, state aviation agencies, and local planning organizations to be in the national interest and essential for the U.S air transportation system. Per the 2015-2019 NPIAS Report to Congress, guiding principles of the NPIAS include:

- The NPIAS will provide a safe, efficient and integrated system of airports;
- The NPIAS will ensure an airport system that is in a state of good repair, remains safe and is extensive, providing as many people as possible with convenient access to air transportation;
- The NPIAS will support a variety of critical national objectives such as defense, emergency readiness, law enforcement, and postal delivery.

In addition, this system plan helps promote airport permanence to ensure these airports will remain open for aeronautical use over the long term. The plan also ensures development remains compatible with the surrounding communities and maintains a balance between the needs of aviation, the environment and the requirements of the residents.

Only airports in the NPIAS are eligible for financial assistance and Federal Grants under the Airport Improvement Program (AIP). The NPIAS report is published every other year and is submitted to Congress. The NPIAS reports identifies and reaffirms airports in the system and the amounts and types of airport development eligible for AIP funds over the next 5 year period.

Currently, there are 3,331 public-use airports included in the NPIAS. The airports included in the NPIAS are classified into different categories:

- *Primary Commercial Service Airports*: At least 10,000 annual enplanements, they are divided into four categories including Large Hub, Medium Hub, Small Hub, and Non-Hub.
- *Non-Primary Commercial Service Airports*: Less than 10,000 but more than 2,500 enplanements per calendar year.
- *General Aviation (GA) Airports*: Less than 2,500 enplanements or without commercial services.
- *Relievers*: GA airports designated as relievers for major congested airports.

Furthermore, GA airports are usually classified as:

- *Basic Utility*: Design to handle single-engine and small twin-engine propeller aircraft.
- *General Utility*: Design to accommodate larger aircraft than basic utility.

Note: Small aircraft are aircraft of 12,500 lbs. or less maximum certificated take-off weight, while large aircraft are those of more than 12,500 lbs. maximum certificated take-off weight.

All commercial service airports and selected GA airports are included in the NPIAS. The FAA also released a study providing a deeper classification of the GA airports included in the NPIAS. In this study, known as *General Aviation Airports: A National Asset* (Asset Study), the FAA further classifies the General Aviation airports into the following categories: National Airports, Regional Airports, Local Airports and Basic Airports.

Idaho Falls Regional Airport is part of the NPIAS and is recognized as a public Primary Non-Hub airport. As part of the AIP, the FAA will fund up to 93.75% of eligible projects for the airport development.

2.1.3 IDAHO AIRPORT SYSTEM PLAN

In 2010, ITD Aeronautics published the Idaho Airport System Plan (IASP) to ensure that the state's airport system is designed to meet all of the state's air transportation, economic, and safety needs. During this comprehensive study each airport in the system was evaluated to gauge its role, activity and needs for infrastructures, in order to:

- Improve individual airports as part of the larger state system and meet the needs of economic development, transportation services and tourism.
- Understand the economic impact of each airport to local communities and the total economic value of the state aviation system.

The 2010 IASP assessed 75 of the 119 public-use airports in Idaho. These airports are divided according to their role in the state system. Five different functional roles are identified: Commercial Service, Regional Business, Community Business, Local Recreational, and Basic Service.

The 2010 IASP identifies the role for IDA as Commercial Service. The economic impact of the airport was also evaluated. The conclusions are as presented in **Table 2-1**.

Commercial Service airports accommodate scheduled commercial air service, air cargo, business aviation, and general aviation. **Table 2-2** compares the state plan objectives for IDA with the existing conditions at the airport. As of 2010, the IASP did not recommend major improvement at IDA in order to meet the state objectives for service.

TABLE 2-1 – IDA ECONOMIC IMPACT

Airport Area	IDA Economic Impact	Idaho Aviation Economic Impact
Total Employment	1,269 Jobs	23,000 Jobs
Total Payroll	$31.5 Million	$718.5 Million
Total Economic Activity	$103.1 Million	$2.1 Billion

Source: 2010 IASP

TABLE 2-2 – IASP 2010 –IDA OBJECTIVES AND EXISTING CONDITIONS

Facilities	System Objective	Existing	Recommendation
AIRSIDE			
Primary Runway Length	8,600' or greater	9,002'	None
Runway Width	100'	150'	None
Runway Strength	60,000 Lbs SW	140,000 Lbs SW	None
Taxiways	Full Parallel	Full Parallel	None
Approach Type	Precision/LPV	Precision	None
Visual Approach Aids	REILs, PAPI/VASI, ALS	REILs, PAPI/VASI, MALSR	None
Runway Lighting	MIRL/HIRL	HIRL	None
GENERAL			
Rotating Beacon	Yes	Yes	None
Lighted Wind Indicator	Yes	Yes	None
Weather Reporting	ATCT/AWOS/ASOS	ATCT/ASOS	None
Hangar Aircraft Storage	83	111	None
Apron Spaces	140	Data Not Provided*	Add Spaces
Terminal Building	Yes	Yes	None
Auto Parking	Yes	Yes	None
SERVICES			
Fuel	AvGas & Jet A	AvGas and Jet A	None
FBO	Yes	Yes	None
Ground Transportation	Rental Car Access	Rental Car Access	None
Restrooms	Yes	Yes	None
Telephone	Yes	Yes	None

* Data Not Provided in the 2010 IASP
Source: 2010 IASP

2.1.4 AIRPORT DESIGN STANDARDS

FAA *Advisory Circular (AC) 150-5300-13A - Airport Design* describes airport design standards that must be met by every airport included in the NPIAS that receives federal funds.

This document encompasses dimensional standards for runways, taxiways, aprons, as well as the associated safety areas. Dimensions are based on airport characteristics such as the type of aircraft accommodated and the type of approach procedures available.

The **Design Aircraft** (or Critical Aircraft) is an aircraft (or composite of several) that uses the airport on a regular basis (at least 500 annual operations), with characteristics that determine the application of airport design standards.

Aircraft are typically classified using the following groups and categories.

- **Aircraft Approach Category (AAC)**: A grouping of aircraft based on 1.3 times their stall speed in their landing configuration at their maximum certificated landing weight (VRef). The categories are defined as shown in **Table 2-3**. The AAC for IDA is shown in bold.

TABLE 2-3: AIRCRAFT APPROACH CATEGORY (AAC)

Group	VRef
A	< 91kts
B	**91kts - < 121kts (Runway 17-35)**
C	**121kts - < 141kts (Runway 2-20)**
D	141kts - < 166kts
E	>= 166kts

Source: FAA AC 150/5300-13A Change 1

- **Airplane Design Group (ADG)**: A classification of airplanes based on their wingspan or tail height. The groups are depicted in **Table 2-4** below. The ADG for IDA is shown in bold.

TABLE 2-4: AIRPLANE DESIGN GROUP (ADG)

Group	Tail Height	Wingspan
I	< 20’	< 49’
II (Runway 17-35)	**20’ - < 30’**	**49’ - < 79’**
III (Runway 2-20)	**30’ - < 45’**	**79’ - < 118’**
IV	45’ - < 60’	118’ - < 171’
V	60’ - < 66’	171’ - < 214’
VI	66’ - < 80’	214’ - < 262’

Source: FAA AC 150/5300-13A Change 1

The **Runway Design Code (RDC)** is a runway codification determining the dimensions of a specific runway and associated safety areas. It is composed of the AAC and ADG of the critical aircraft using the runway. A third visibility component is added based on the type of approach procedure serving the runway and is defined as follows:

- **Visibility Minimums**: A grouping of Runway Visual Range (RVR) values based on flight visibility category (statute mile). The RVR for IDA is shown in bold. The RVR's are as follows:

  - 5000: Not Lower than 1 mile.
  - 4000: Lower than 1 mile but not lower than ¾ mile (Approach Procedure with Vertical Guidance (APV) ≥ ¾ but < 1 mile).
  - **2400: Lower than ¾ mile but not lower than ½ mile (CAT-I PA). (Runway 12-20)**.
  - 1600: Lower than ½ mile but not lower than ¼ mile (CAT-II PA).
  - 1200: Lower than ¼ mile (CAT-III PA).
  - **VIS: Visual approach only (Runway 17-35)**

The **Approach Reference Code (APRC)** is composed of the same elements as the RDC and determines which aircraft can operate on taxiways adjacent to a runway under particular meteorological conditions with no operational procedures necessary.

The **Departure Reference Code (DPRC)** is composed of two components, AAC and ADG, and characterizes the aircraft that can take off from a runway while any aircraft are using an adjacent taxiway.

The **Airport Reference Code (ARC)** is a codification used to plan for the appropriate dimensions of the airport infrastructures and safety areas. It is equal to the highest Runway Design Code (RDC) of all runways at the airport minus the visibility component.

The **Taxiway Design Group (TDG)** is a design standard for taxiways based on the gear configuration and dimensions of the critical aircraft using the taxiways.

The most recent Airport Layout Plan (2010) for IDA lists an ARC of C-III with an RDC of C-III-4000 for the principal runway and an RDC of B-II-VIS for the secondary runway. More details about RDC, APRC, DPRC, and TDG at IDA are presented in the Section 2.4.

2.1.5 FAA PART 139

The *14 Code of Federal Regulations (CFR) Part 139* defines the regulation and certification standard for commercial service airports. It requires the FAA to issue operating certificates to airports that:

- Serve schedule and unscheduled air carrier aircraft with more than 30 seats.

- Serve schedule air carrier operations in aircraft with more than 9 seats but less than 30 seats.

Part 139 defines a total of four airport classes for airport certification:

- Class I: Serves scheduled and unscheduled large air carrier aircraft, and scheduled small air carrier aircraft.
- Class II: Serves unscheduled large air carrier aircraft and scheduled small air carrier aircraft
- Class III: Serves scheduled small air carrier aircraft
- Class IV: Serves unscheduled large air carrier aircraft

As by Part 139, a large aircraft is an aircraft with 31+ seats and a small aircraft is an aircraft with 10 to 30 seats. Idaho Falls Regional Airport is a Class I Part 139 airport and is required to have an updated Airport Certification Manual approved by the FAA.

CFR Part 139 also defines requirement for Aircraft Rescue and Fire Fighting (ARFF) by defining Indexes that dictate the level of emergency capability for an airport. IDA is a CFR Part 139 Index B airport. More details are given in Section 2.6.4.

2.2 AIRPORT AND COMMUNITY BACKGROUND

2.2.1 GENERAL AND REGIONAL SETTING

Idaho Falls Regional Airport (IDA) is a public use and city owned airport located in Bonneville County, Idaho, approximately two nautical miles northwest of the central business district of Idaho Falls, Idaho. The Airport covers an area of approximately 866 acres. It serves Bonneville County and adjacent regions. In this local, the Average Highest Monthly Temperature is 86°F.

The nearby attractions include Yellowstone and Grand Teton National Parks, Craters of the Moon National Monument and the Caribou-Targhee National Forest. Outdoor activities are predominant all year long with renowned spots for hiking, camping, fishing, hunting, skiing and snowmobiling.

2.2.2 AIRPORT LOCATION

The airport is located in southeastern Idaho at 43° 30’ 49.4” North Latitude and 112° 04’ 14.7” West Longitude. This point is called the Airport Reference Point (ARP), which is the geometric center of the airport’s two runways, 2-20 and 17-35. The airport elevation is 4,744 feet AMSL (Above Medium Sea Level) and the magnetic declination at this location is 12°6’ East changing by 7’ West per year.

IDA is located along U.S. Interstate 15 at the crossing with U.S Route 20. U.S. Interstate 15 is a north-south highway passing through eastern Idaho and extending from the northern border with Canada in Montana to the southern border with Mexico in San Diego, California. U.S. Route 20 is an east-west highway crossing southern Idaho between Idaho Falls and Mountain Home, Idaho.

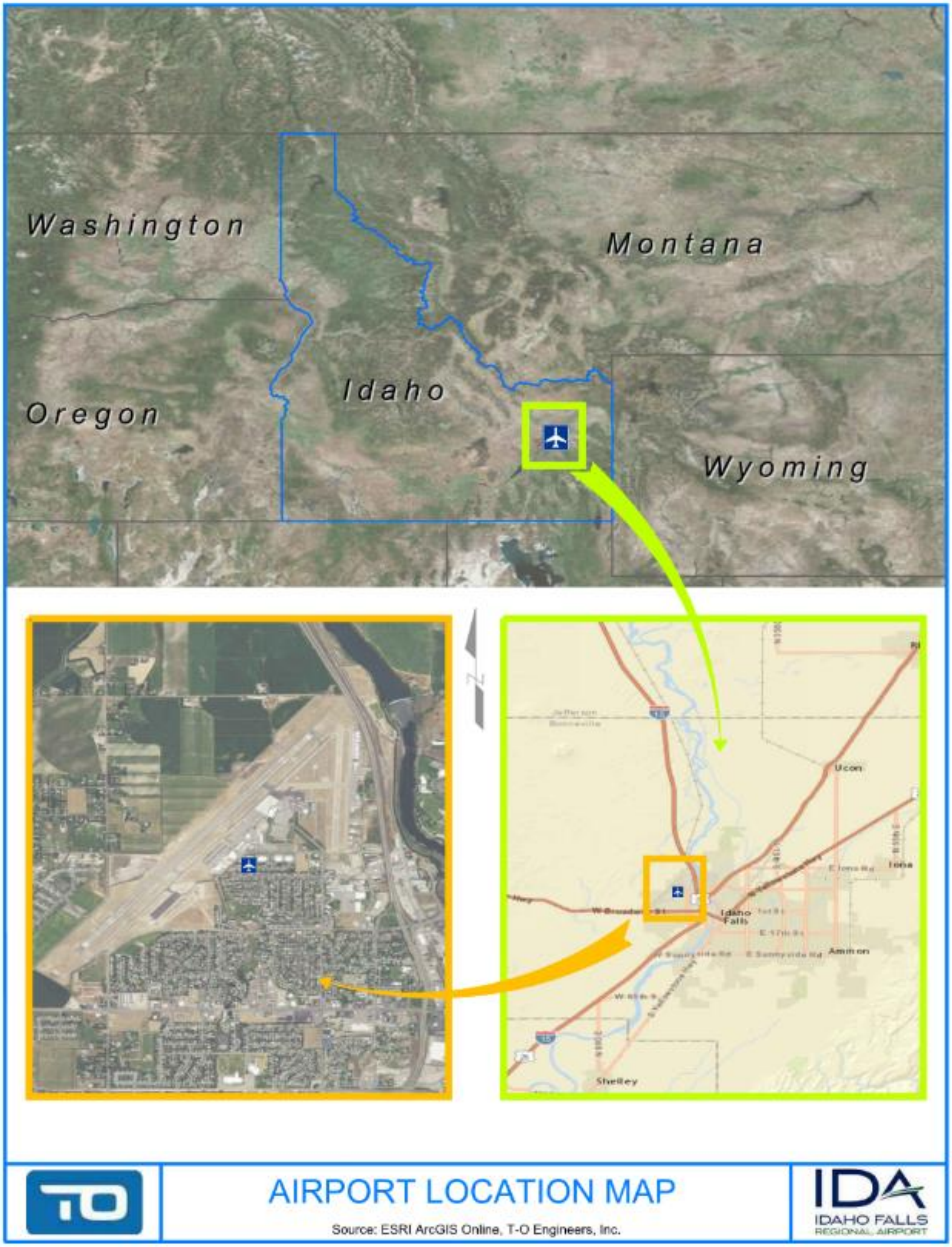
The Airport is located alongside the Snake River in a valley surrounded by the Teton and Caribou Ranges to the east and the Lost River and Lehmi Ranges to the west. The surrounding terrain in the immediate vicinity of the airport is relatively flat. **Figure 2-1** depicts the location and vicinity map for reference.

The proximity of the City of Idaho Falls and major roads makes the airport easy to access from the local area but also from adjacent states such as Wyoming, Montana and Utah.

2.2.3 AIRPORT OWNERSHIP AND MANAGEMENT

The Airport is currently owned, operated, and managed by the City of Idaho Falls. A full-time airport director reporting to the City Council is located on site and oversees day-to-day operations at the airport with the airport operation staff.

FIGURE 2-1 – LOCATION MAP



2.2.4 AIRPORT HISTORY, PROJECTS AND MILESTONES

Idaho Falls Regional Airport was built in 1929-1930 after the City of Idaho Falls bought approximately 200 acres of land. It was originally called "Fanning Field" and had 3 runways. The first hangars and buildings at the airport were wood constructions located on the east side of the airfield. The "Red Baron" hangar is a remaining historical building from this era.

IDA Airport has a long history of various improvement projects with a total of 40 projects federally funded between 1984 and 2015. In 2004, Runway 17-35 was narrowed from its original width of 150 feet to its current width of 75 feet.

Table 2-5 summarizes the recent projects granted as part of the AIP between 2005 and 2015 at Idaho Falls Regional Airport.

TABLE 2-5: AIP PROJECTS HISTORY - IDA

Year	Grant Sequence Number	Amount	Description
2005	25	$3,239,040	Expand Apron , Rehabilitate Apron, Rehabilitate Taxiway, Remove Obstructions
2005	26	$848,486	Expand Apron
2006	27	$5,391,619	Expand Apron , Install Runway Vertical/Visual Guidance System - 17/35
2007	28	$600,000	Acquire Snow Removal Equipment, Construct Snow Removal Equipment Building , Rehabilitate Runway - 02/20
2008	29	$8,066,071	Rehabilitate Runway - 02/20, Runway Incursion Markings
2008	30	$633,961	Rehabilitate Runway - 02/20
2009	31	$534,266	Construct Snow Removal Equipment Building
2009	32	$318,250	Update Airport Master Plan (AMP) Study
2009	33	$793,300	Construct Snow Removal Equipment (SRE) Building
2010	34	$625,000	Construct Snow Removal Equipment Building
2010	35	$663,689	Acquire Aircraft Rescue & Fire Fighting Vehicle
2011	36	$1,766,524	Improve Runway Safety Area - 02/20, Install Perimeter Fencing, Rehabilitate Apron
2012	37	$753,507	Acquire Snow Removal Equipment, Construct Apron, Expand Terminal Building
2013	38	$2,316,501	Expand Terminal Building
2014	39	$1,888,760	Construct Access Road, Construct Apron, Construct Taxiway
2015	40	$2,070,282	Expand Apron

Source: Federal Aviation Administration – Grant History

Table 2-6 shows the recent history of improvement projects partially financed by the Idaho Statewide Capital Improvement Program (ISCIP) between 2005 and 2015. The State of Idaho has contributed to the airport improvement since 1946.

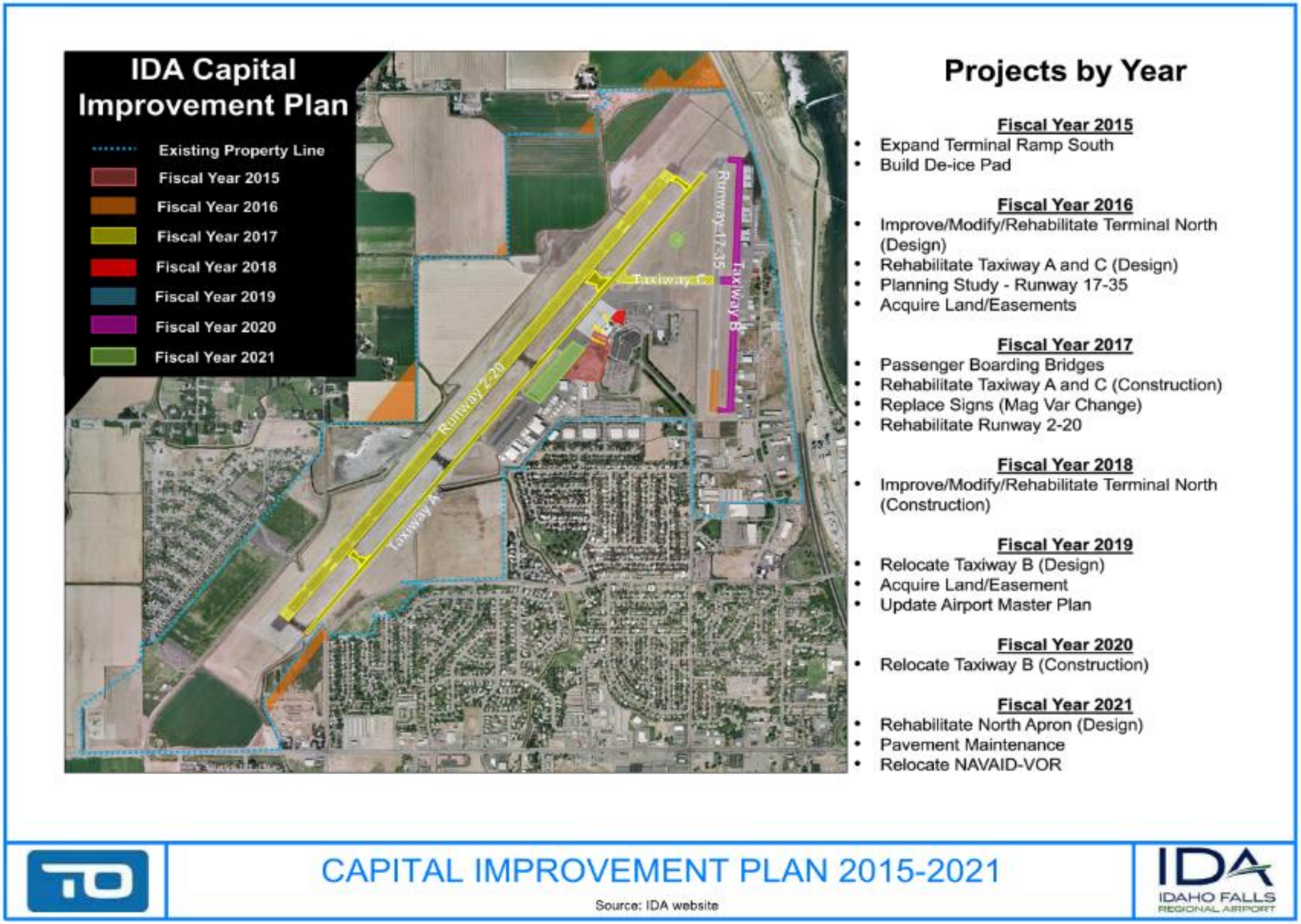
TABLE 2-6: SCIP PROJECTS HISTORY - IDA

Year	State Grant Number	Amount	Description
2005	IDA-05	$22,500	Rehab Apron, Rehab Taxiway, Remove Obstructions, Expand Apron
2006	IDA-06	$22,500	Expand Apron
2009	IDA-09	$25,000	Rehab Runway
2009	IDA-10	$25,000	Construct SRE building and update AMP
2010	IDA-11	$20,000	SRE building and ARFF Vehicle
2011	IDA-12	$20,000	Improve Runway Safety Area - 02/20, Install Perimeter Fencing, Rehabilitate Apron
2012	IDA-13	$20,000	Expand Terminal and Apron, Acquire SRE
2013	IDA-14	$25,000	Expand Terminal Building

Source: Idaho Transportation Department - Division of Aeronautics

Figure 2-2 depicts the Capital Improvement Plan (CIP) at IDA from 2015 to 2021.

FIGURE 2-2 – CAPITAL IMPROVEMENT PLAN 2015-2021 - IDA



2.2.5 Airport Characteristics

Table 2-7 summarizes the existing characteristics for Idaho Falls Regional Airport.

Table 2-7: Existing Airport Characteristics

Item	Existing Data
Airport Role - NPIAS	Primary Non-Hub
Airport Role – Idaho Airport System Plan	Commercial
ICAO Identification	KIDA
Airport Property (Acres)	866
ARC	C-III
Part 139 class	I
ARFF Index	B
ARP Coordinates (NAD83)	43° 30' 49.4""N – 112° 04' 14.7" W
Elevation	4,744' AMSL
Magnetic Declination (10/02/2015)	14°32'E – Changing 7'W/year
Runway Configuration	Two Converging Runways: 2-20 and 17-35
Instrument Approach	Precision Instrument RWY 20 Non-Precision Instrument RWY 2 RNAV (GPS) RWY 2 and RWY 20
Mean Daily Maximum Temperature of Hottest Month (10 years)	86°F

Source: National Flight Data Center, T-O Engineers, Inc.

2.2.6 Socioeconomic Conditions

Local and regional socioeconomic conditions in Idaho Falls and its metropolitan area (Bonneville County and Jefferson County) will influence the dynamic of the airport and its activity. Several indicators exist to evaluate the economic and social conditions around IDA. They include Population, Income, and Employment. Further study of these indicators will be presented in **Chapter 3 – Forecasts of Aviation Activity** This section summarizes key characteristics of these socioeconomic elements.

Population

Table 2-8 summarizes the population for Idaho Falls and its Metropolitan Area. It also presents a comparison with the State of Idaho population.

The population in the metropolitan area of Idaho Falls is estimated to have increased between the last 2010 census and 2014. Its share of the state population slightly decreased but this area seems to follow the same pattern as the state in terms of population evolution.

TABLE 2-8: POPULATION

Area	Population		Percentage of State	
	2010 Census*	2014**	2010 Census*	2014**
Idaho Falls	56,813	59,184	3.6%	3.6%
Metropolitan Area	136,108	138,266	8.7%	8.4%
State of Idaho	1,570,639	1,655,167	100%	100%

**2010 Census*
*** Estimation for 2014 - BEA*
Source: United States Census Bureau, Bureau of Economic Analysis (BEA)

Per Capita Personal Income

Table 2-9 summarizes the Per Capita Personal Income (PCPI) for Idaho Falls and its Metropolitan Area, as well as the State of Idaho.

The average income per capita in Idaho Falls City appears to be significantly lower than in the Metropolitan Area (MA) and in the State. On the other hand, the MA and the State tend to be similar in terms of income.

TABLE 2-9: PER CAPITA PERSONAL INCOME

Area	PCPI
Idaho Falls	$23,669
Metropolitan Area	$36,798
State of Idaho	$37,509

Source: United States Census Bureau, Bureau of Economic Analysis (BEA) - 2014

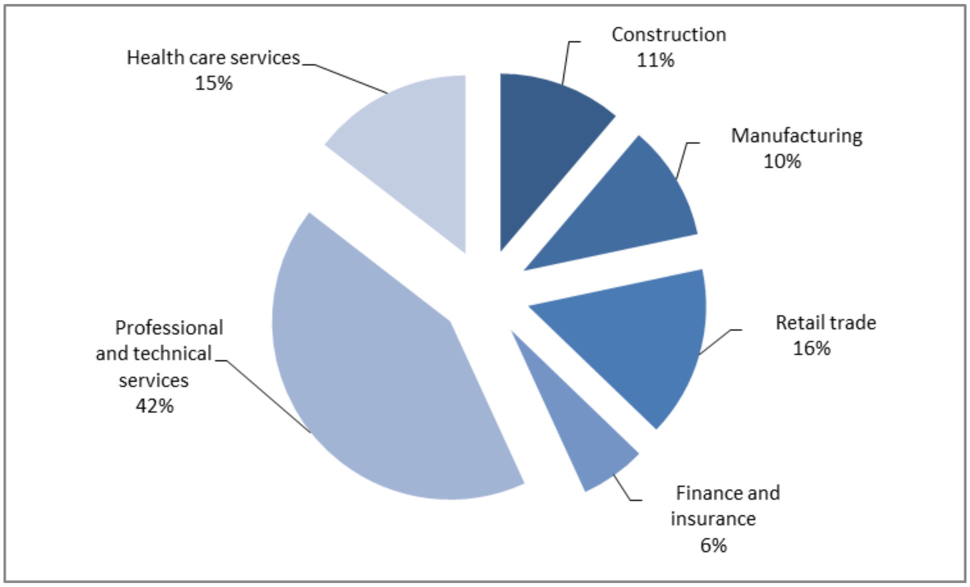
Employment

The Idaho Falls MSA has a total area of approximately 3,007 square miles including Bonneville County and Jefferson County. In 2014, the non-farming industry generated the most earnings with 96.7% of the total earnings – 3.3% being the farming industry. The private sector was the most developed with 88.8% of the total private nonfarm earnings versus 11.2% for governmental jobs. As shown on **Figure 2-3**, Construction, Manufacturing, Retail Trade, Finance and Insurance, Professional and Technical Services and Health Care Services represented the most active industries in the MSA in 2014.

The proximity of the Idaho National Laboratory (INL) also generates high-level employment in the MSA. The laboratory footprint spreads on several counties including Bonneville and Jefferson Counties. INL is a research complex for nuclear energy, national security, and science and environment that employs approximately 8,000 people.

According to the Bureau of Labor Statistics, the unemployment rate in 2015 was 3.5% for the Idaho Falls MSA and 3.8% for the State of Idaho. During the same period, the U.S. experienced an unemployment rate of 5.3%. These results indicate that Idaho and the Idaho Falls area generally offer better employment opportunities than the remainder of the country.

FIGURE 2-3: MAIN INDUSTRIES IN IDAHO FALLS MSA



Source: Bureau of Economic Analysis - 2014

2.3 AVIATION ACTIVITY

2.3.1 EXISTING AIRPORT ACTIVITIES AND USERS

The location of Idaho Falls Regional Airport in eastern Idaho allows easy access to air transportation by the metropolitan area of Idaho Falls and surrounding areas of Idaho, Wyoming, and Montana.

The airport accommodates a broad variety of aircraft including single or multi engines with pistons, turboprops, or jets, as well as rotorcraft. The current airport's users include Airlines, Freight Operators, Air Taxi, General Aviation, and Military.

Airlines

As shown in **Table 2-10,** scheduled air transportation is provided by three airlines from IDA to several destinations, all year long or seasonally. These non-stop flights to major hubs in the U.S. allow passengers to access an international air transportation network with worldwide destinations.

Aircraft used by the airlines include the Canadair CRJ-200, 700 and 900, as well as the Airbus A319 and the McDonnell Douglas MD80.

TABLE 2-10: AIRLINES DESTINATIONS AND AIRCRAFT

allegiant air	DELTA AIR LINES	UNITED
Las Vegas, NV*	Minneapolis/St Paul, MN (Seasonal)	Denver, CO*
Los Angeles, CA (Seasonal)	Salt Lake City, UT*	-
Oakland, CA (Seasonal)	-	-
Phoenix/Mesa, AZ*	-	-
Airbus A319 (C-III) McDonnell Douglas MD80 (C-III)	Canadair CRJ-200 (C-II) Canadair CRJ-700 (C-II) Canadair CRJ-900 (C-III)	Canadair CRJ-200 (C-II) Canadair CRJ-700 (C-II) Canadair CRJ-900 (C-III)

**Year-Round Non Stop Flights*
United and Delta Airlines flights are operated by Skywest
Source: Delta Airlines, Allegiant Air, United, IDA

Source: Wikimedia, Briansummers, Ch-aviation

Freight

Freight Operators at IDA Airport include:

- Ameriflight: Operates between Idaho Falls Regional Airport (IDA) and Salt Lake City International Airport (SLC) with the Fairchild Swearingen Metroliner (SW4).

- Corporate Air: Operates between IDA and SLC with the Cessna Caravan (C208).

- Empire: Operates between IDA and SLC with the ATR 42-300 (ATR43) for FedEx.

Source: Wikimedia

Delta and United Airlines also carry freight in and out of IDA on their scheduled passenger flights.

Air Taxi

Local businesses as well as governmental entities use IDA airport for professional and business air travels. Aircraft used for Air Taxi operations typically include all type of airplanes from multi-engine pistons or turboprops to light business jets. **Table 2-11** lists relevant aircraft used at IDA for Air Taxi.

TABLE 2-11: AIR TAXI AIRCRAFT

Aircraft Type	AAC - ADG
Beechcraft 90 King Air	B-II Small
Bombardier Challenger 300	B-II
Cessna Citation X	B-II
Cessna Citation V	B-II
Cessna Citation Excel	B-II
Cessna Citation Sovereign	B-II
Dassault Falcon 2000	B-II
Embraer Phenom 300	B-II
Gulfstream G200	B-II
Hawker 400	B-I Small
Learjet LJ45	C-I
Pilatus PC 12	A-II Small

Source: T-O Engineers, TFMSC FAA 2011-2016

Air Medevac

Air Medevac flights occur on a regular basis from and to IDA airport. Air Methods and the Eastern Idaho Regional Medical Center operate the Pilatus PC-12 for medical flights. Other aircraft including multi-engine turboprops, light jets and helicopters are also used.

Military

Some military activity takes place at IDA Airport, mainly for fuel stops and training. **Table 2-12** lists some common military aircraft using the airport.

TABLE 2-12: MILITARY AIRCRAFT

Aircraft Type	AAC - ADG
Beechcraft 200 Super King Air	B-II Small
Raytheon Texan 2	A-I Small
Boeing FA-18 Hornet	C-I
Bombardier Q400	C-III
Beechcraft 1900	B-II

Source: T-O Engineers, TFMSC FAA 2011-2016

General Aviation

General Aviation (GA) includes Flight Training, Recreational, Tourism, and Personal transportation. General Aviation users typically utilize aircraft suited to their needs. Typical GA aircraft at IDA Airport include single-engine pistons, multi-engine pistons and turboprops, as well as light jets. **Table 2-13** summarizes the most common GA aircraft having used the airport during the past 5 years.

TABLE 2-13: GENERAL AVIATION AIRCRAFT

Aircraft Type	AAC - ADG
Beechcraft 200 Super King Air	B-II Small
Beechcraft 90 King Air	B-II Small
Cessna Chancellor 414	B-I Small
Cessna Citation Mustang	B-I Small
Cessna Skylane 182	A-I Small
Cessna Skyhawk 172	A-I Small
Cirrus SR 22	A-I Small
Learjet LJ 45	C-I
Pilatus PC 12	A-II Small
Piper Malibu	A-I Small

Source: T-O Engineers, TFMSC FAA 2011-2016

GA activity includes local and itinerant operations from local tenants and aircraft owners, as well as visiting pilots. . With an average of 64 percent of the aircraft operations at Idaho Falls Regional Airport, GA has been the most important activity at the airport for the last 5 years. According to the FAA TFMSC, some helicopter activity takes place at the airport with the

Robinson R44 being the most common rotorcraft. Other rotorcrafts include, but are not limited to, Sikorsky Seahawk, Eurocopter EC-145 and AS-550.

Flight Training is a specific part of GA activity. It includes approach practices with touch-and-goes, as well as local and cross country flights, day or night., Utah Helicopter, and Av Center offer Flight Training at IDA for fixed-wing and rotorcraft. This offer includes training for Sport, Private, Commercial, and Airline Transport pilot licenses.

2.3.2 EXISTING ACTIVITY LEVELS

The activity at Idaho Falls Regional Airport can be evaluated by looking at the total number of aircraft operations, the number of based aircraft, or the total number of enplanements. This section summarizes the most current reported values for each of these parameters.

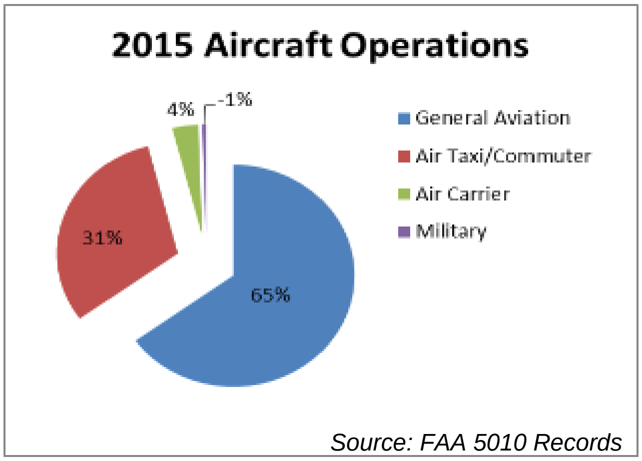
The FAA's 5010-1 Airport Master Record is the official record kept by the FAA for public-use airport activities and facility conditions. The 5010 activity data is populated by the reporting actions taken by the airport management and ITD Aeronautics. The FAA Terminal Area Forecast (TAF) also summarizes airport activity over the years.

Operations and Based Aircraft

The activity is reported in operations where a single aircraft operation is defined as either an aircraft take-off or landing; therefore, a "touch-and-go" counts as two operations.

Based on current 5010 records, 33,152 operations occurred in 2015 at the airport. As shown on **Figure 2-4**, approximately 65 percent of all the operations were General Aviation. Air Taxi/Commuter accounted for 31 percent while Air Carrier and Military operations represented respectively 3.5 percent and 0.5 percent respectively of the total annual operations.

FIGURE 2-4: OPERATION SPLIT



Source: FAA 5010 Records

Commuter operations are done by regional airlines often affiliated to major airlines and operating under their brand name. Skywest is a commuter airline operating for United and Delta from and to IDA. The FAA Traffic Flow Management System Counts (TFMSC) reports the IFR flights filling a flight plan to or from the airport. It gives a different breakdown between air carrier and air taxi operations with respectively 6,029 and 183 operations in 2015. The difference with the FAA 5010 is due to a different classification (commuters included in air carrier operations) and to unknown/other aircraft in the TFSMC.

The airport's management staff reports approximately 100 based aircraft. The 5010 Airport Master Record reports a total of 163 fixed wing aircraft, 5 rotorcraft, and 3 gliders based at IDA**.** The type of based aircraft ranges from single piston to light jets and include:

- Air Tractor
- Beechcraft Aircraft: Bonanza, King Air, Premier Jet, Hawker
- Cessna Aircraft: 206, Citation CJ, Citation, 150, 172, 180, 182, 206, 210, 302, 310, 414
- Cirrus
- Husky
- Interstate Cadet
- Maule
- Mooney M-20
- Pilatus PC 12
- Piper Aircraft: Seneca, Cub
- Stinger
- Stinson
- Interstate Cadet
- Waco

Enplanements

Enplanements at the airport quantify the number of passengers boarding at IDA for air transportation with an air carrier or commuter. The FAA reports a total of 147,923 enplanements at IDA in 2015, which represents a decrease of 11.35 percent from 2014 enplanements *(Preliminary data published in June 2016).*

Cargo

Cargo is a significant part of the commercial activity at the airport. Freight is typically carried by air carrier, air taxi or commuters. IDA reports a total cargo weight of 3,152,987lbs for 2015, with 953,654lbs enplaned and 2,199,333lbs deplaned. Based on historical data provided by IDA, the total cargo weight has remained significantly constant over the past 10 years.

Summary of Airport Activity

Table 2-14 summarizes the various parameters characterizing the existing airport activity. More details of airport activity and history are given in **Chapter 3** (Forecasts of Aviation Activity).

TABLE 2-14: EXISTING AIRPORT ACTIVITY

Aircraft Operation Type	Operations	Percentage Of Total Activity
	Itinerant*	
Air Carrier	1,152	3.5%
General Aviation	13,058	39.4%
Air Taxi/Commuter	10,140	30.6%
Military	267	0.8%
	Local*	
General Aviation	8,535	25.7%
Total	33,152	100%
Based Aircraft		100
Single Engine		70
Multi Engine		15
Jet		12
Rotorcraft		2
Gliders		1
Enplanements*		147,923 Passengers
Cargo*		3,152,987lbs

**2015 Data*
Source: T-O Engineers, Airport Management (2016), FAA 5010 (2015), FAA Enplanements Preliminary Reports (June 2016)

According to the FAA, local operations are performed by aircraft which:

- Operate in the local traffic pattern or within sight of the airport, or
- Are known to be departing for, or arriving from, flight in local practice areas located within a 20-mile radius of the airport, or
- Execute simulated instrument approaches or low passes at the airport.

Itinerant operations are all aircraft operations, other than local operations.

2.4 EXISTING AIRSIDE FACILITES

Airside facilities encompass all airport infrastructures used for aircraft operations including runways, taxiways, navigational and visual aids, and aprons. **Figure 2-5** provides an aerial view of existing airport airside facilities.

2.4.1 RUNWAYS

Runway 2-20 at IDA
Source: T-O Engineers

Runways are the main component of all airports. Aircraft use them for taking off and landing. The existing airfield configuration at IDA consists of two active converging runways. These runways are identified as Runway 2-20 and Runway 17-35.

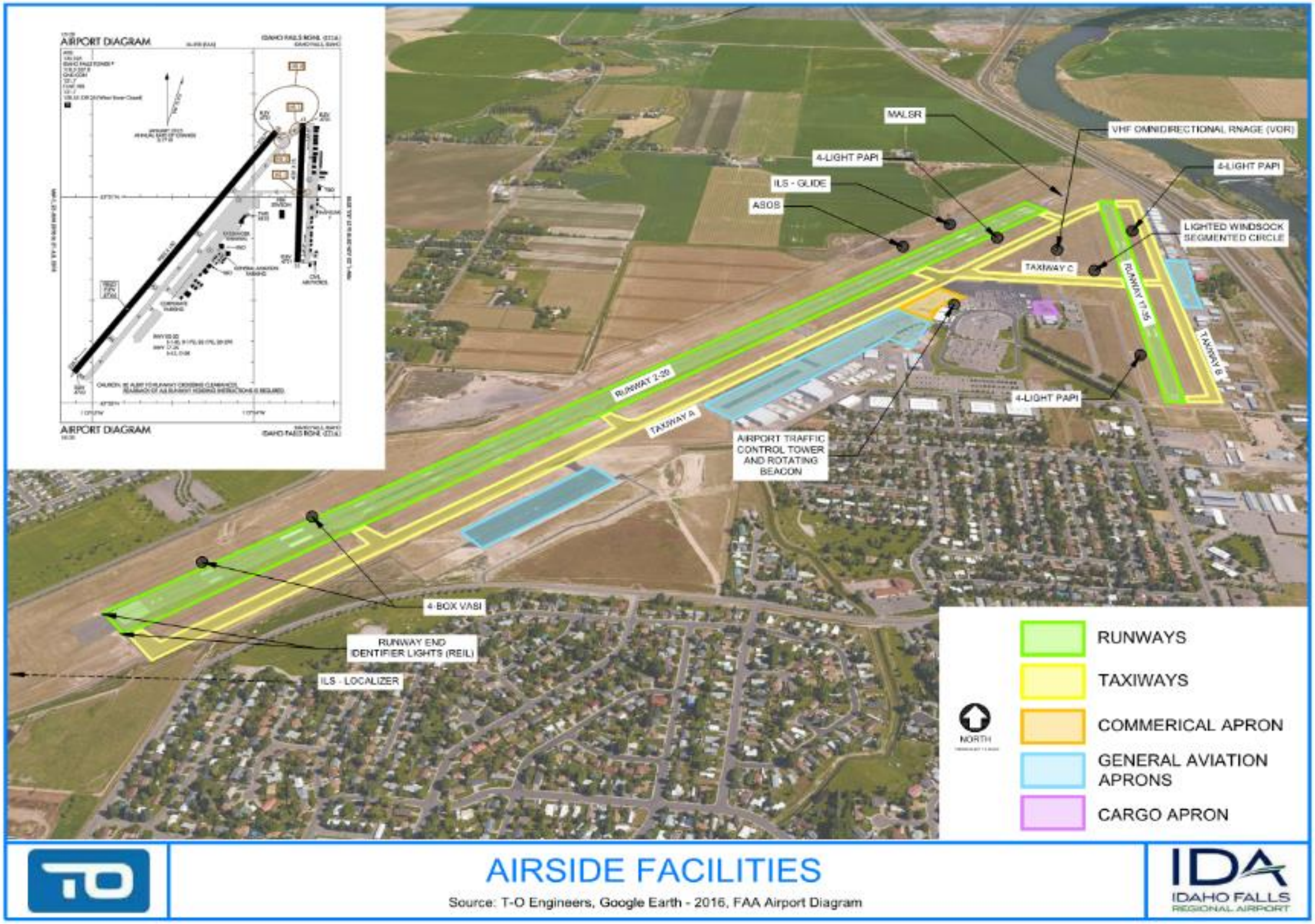
With a length of 9,002 feet, Runway 2-20 is the primary runway at IDA, equipped with a precision instrument approach. At 4,051 feet, Runway 17-35 is the secondary runway with visual approaches only.

Table 2-15 shows the dimensions and characteristics of all protections associated with the runways at the airport. These protections are depicted on **Figure 2-6** and include:

Runway Safety Area (RSA)
The RSA is a defined by the FAA as a surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway. It is designed to minimize damages in case of aircraft missing or leaving the runway, but also to provide greater accessibility for emergency equipment. The RSA should be cleared and graded and not have potentially hazardous ruts, humps, depressions, or other surface variations. It should be free of objects, except for objects that need to be there because of their function, such as navigational aids. RSA for Runway 2-20 and Runway 17-35 are overlapping to the north of the airfield.

Runway Object Free Area (ROFA)
The ROFA is defined by the FAA as a surface surrounding the runway that is required in order to keep above ground objects from protruding above the RSA edge area. Objects can be located in the ROFA for air navigation or aircraft ground maneuvering purposes including taxiing or holding aircraft. Parked aircraft are not allowed in the ROFA. The ROFA for Runway 17-35 is penetrated by the access road, utilities, and fence at the Runway 35 end.

FIGURE 2-5: AIRPORT AIRSIDE FACILITIES



Obstacle Free Zone (OFZ)

Four types of OFZ apply at IDA:

- The Runway Obstacle Free Zone (ROFZ) is a three-dimensional volume of airspace. When an aircraft is taking-off or landing, nothing can protrude into the OFZ including signs, tails or wingtips of aircraft. Its elevation at any point is the same as the closest point on the centerline.
- The Precision OFZ (POFZ) is in effect only when approach with vertical guidance, an aircraft is on final with a ceiling under 250 feet or visibility below ¾ miles. It is a 200'x800' rectangle tangent to the threshold.
- The Inner Approach OFZ applies only to runway with an ALS. It starts 200 feet from the threshold and extends 20 feet beyond the last ALS light.
- The Inner Transitional OFZ exists along the ROFZ and Inner Approach OFZ for runway with visibility minima below ¾ miles. It starts at a height H over the ROFZ edge and extend laterally with a 6:1 slope to an elevation of 150 feet above the airport elevation.

The ROFZ for Runway 17-35 is penetrated by the access road, perimeter fence, and utilities at Runway 35 end.

Runway Protection Zones (RPZ)

The RPZ is defined by the FAA as an area at ground level beyond the runway ends or prior to the thresholds that is maintained clear of incompatible objects and activity (land use) in order to enhance the safety and protection of people and property on the ground. The FAA recommends that airport sponsors control the RPZs by acquiring sufficient property interest in the RPZ. This property interest can be either fee simple ownership or acquisition of an avigation easement. The RPZ must be cleared and maintained free of incompatible uses or objects.

The airport does not currently control all its RPZ areas but is in the process of acquiring land to do so. Current control is realized by a combination of avigation easements and ownership by fee simple. Incompatible land uses in the RPZs of Runway 2-20, and Runway 17-35 include highway, and buildings (see **Figure 2-6**, **Table 2-15,** and Section 2.8.10 for more details).

Runway Visibility Zone (RVZ) and Line of Sight (LOS)

According to the FAA, the purpose of runway line of sight (LOS) requirements are to facilitate coordination among aircraft, and between aircraft and vehicles operating on active runways. This coordination allows departing and arriving aircraft to verify the location and actions of other aircraft and vehicles on the ground that could create a conflict.

The FAA has LOS standards along an individual runway and also requires an evaluation of the Runway Visibility Zone (RVZ) between intersecting runways. The FAA does not define intersecting runways but Paragraph 304 e. of FAA AC 150/5300-13A-Change 1 defines non-intersecting runways as runways whose safety areas do not overlap. With two converging runways that have overlapping RSAs, the RVZ applies at IDA. The RVZ is an area between two intersecting runways into which any point 5 feet above ground must be mutually visible at corresponding points of both runways. The RVZ for Runway 17-35 and Runway 2-20 is shown in **Figure 2-6**.

For runways with a full-length parallel taxiway, the individual LOS standard requires any point 5 feet above the runway centerline to be mutually visible with any other point 5 feet above the runway centerline located at a distance less than one-half the length of the runway. The individual LOS requirement along both the Runway 17-35 and Runway 2-20 centerlines is met.

Table 2-16 summarizes the existing physical characteristics of each runway. Runway 2-20 and Runway 17-35 were last rehabilitated in 2008 and 2004, respectively. At this time, Runway 17-35 was also narrowed to 75 feet.

TABLE 2-15: RUNWAY PROTECTION STANDARDS

Item	RWY 20		RWY 2		RWY 17-35	
	FAA Standards	Existing	FAA Standards	Existing	FAA standards	Existing
Runway Design Code (RDC)	C-III-2400*		C-III-4000*		B-II-VIS	
Runway Length	9,002'		9,002'		4,051'	
Runway Width	150'	150'	150'	150'	75'	75'
Shoulder (unpaved)	25'	25'	25'	25'	10'	10'
Runway Protection Standards						
RSA - Length Beyond Departure Runway End	1,000'	✓	1,000'	✓	300'	✓
RSA - Length Before Threshold	600'	✓	600'	✓	300'	✓
RSA Width	500'	✓	500'	✓	150'	✓
ROFA - Length Beyond Departure Runway End	1,000'	✓	1,000'	✓	300'	X
ROFA - Length Before Threshold	600'	✓	600'	✓	300'	✓
ROFA Width	800'	✓	800'	✓	500'	✓
Departure RPZ Length	1,700'	✓	1,700'	✓	1,000'	✓
Departure RPZ Inner and Outer Width	500' / 1,010'	✓	500' / 1,010'	✓	500' / 700'	✓
Approach RPZ Length	2,500'	✓	1,700'	✓	1,000'	✓
Approach RPZ Inner and Outer Width	1,000' / 1,750'	✓	1000' / 1,510'	✓	500' / 700'	✓
RPZ Control[1]	Dep: 100% - Fee Simple and Easement App: Partial – Fee Simple and Easement		Dep: Partial – Fee Simple and Easement App: 100% - Fee Simple and Easement		Partial - Fee Simple and Easement	
POFZ Length / Width	200' / 800'	✓	N/A	N/A	N/A	N/A
ROFZ Length beyond RWY End / Width	200' / 400' Centerline Elevation	✓	200' / 400' Centerline Elevation	✓	200' / 400' Centerline Elevation	✓
Inner-Approach OFZ	Note[2]	✓	N/A	N/A	N/A	N/A
Inner-Transitional OFZ	Note[3]	H=35.7' 6:1 Slope to 4894 ft MSL	N/A	N/A	N/A	N/A
RVZ	N/A	N/A	N/A	N/A	N/A	N/A
Penetration / Incompatible Land Use	None except if object is fixed by function	Taxiway A, Runway 17, and Highway in Approach RPZ. Taxiway A in POFZ	-	. Roads, Buildings, and Recreational Facilities in Approach RPZ	-	Buildings and Highway in RPZs. Fence, Access Road and Utilities in ROFA and ROFZ
Runway Separation Standards						
Parallel Taxiway	400'	✓	400'	✓	240'	270'
Holding Position	250'	✓	250'	✓	200'	✓
Aircraft Parking	500'	✓	500'	✓	250'	300'

*The most demanding ARC applies for RSA, ROFA, ROFZ, and physical dimensions on Runway 2-20.

Source: FAA AC 150/5300-13A Change 1, 2010 Airport Layout Plan, T-O Engineers.

[1] *At the date of redaction of this report, IDA was in the process of acquiring lands for total control of its RPZs.*
[2] *Runway with ALS only. Same width as ROFZ. Starts 200 feet from runway end and extend 200 feet from last ALS light. 50:1 slope.*
[3] *Start at a height H above ROFZ edge and follow a slope of 6:1 till 150 feet above airport elevation.*

FIGURE 2-6: RUNWAY PROTECTIONS AND NON STANDARD CONDITIONS

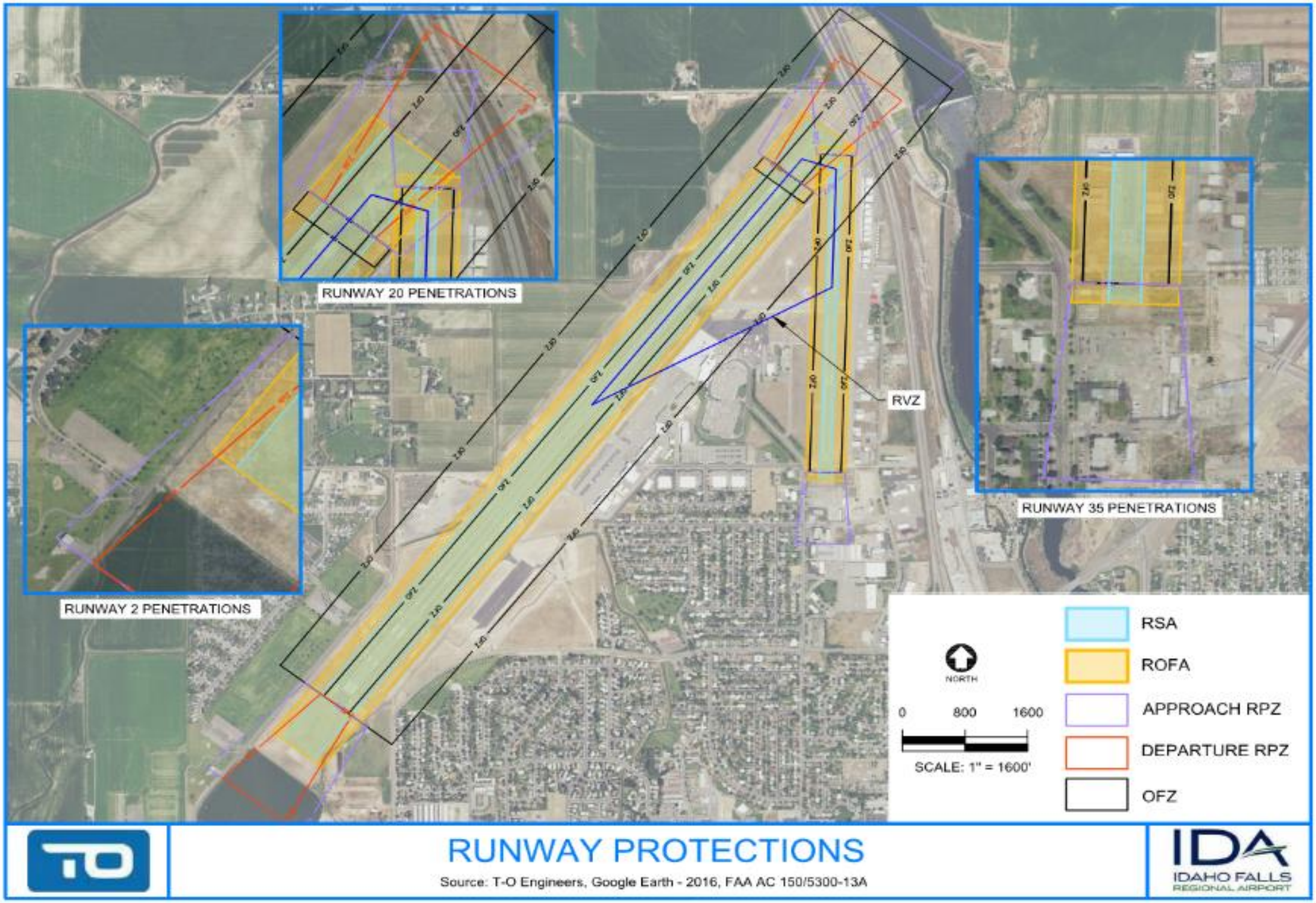


TABLE 2-16: EXISTING RUNWAY CHARACTERISTICS

Runway Elements	Runway 2-20		Runway 17-35	
	RWY 2	RWY 20	RWY 17	RWY 35
Critical Aircraft*	Boeing 737-300		Falcon 50	
Runway Design Code*	C-III-4000	C-III-2400	B-II-VIS	
Runway Length	9,002’		4,051’	
Approach Reference Code	D-IV-4000 D-V-4000	D-IV-2400 D-V-2400	B-II-VIS	
Departure Reference Code	D-V		B-II	
Runway Width	150’		75’	
Surface Type	Asphalt Treatment GRVD		Asphalt	
Surface Condition	Good		Good	
Pavement Strength	SW 120,000lbs – DW 221,000lbs DT 379,000lbs PCN - 57/F/B/X/T		SW 24,000lbs – DW 38,500lbs PCN - 7/F/B/X/T	
True Alignment	38°	218°	182°	002°
Traffic Pattern	Left	Left	Left	Left
Markings	PI	PI	Basic	
Marking Condition	Good	Good	Good	Good
Runway Edge Lights	High Intensity (2008)	High Intensity (2008)	Medium Intensity (2004)	Medium Intensity (2004)
Latitude	43°30’09.06”N	43°31’19.08”N	43°31’21.33”N	43°30’41.36”N
Longitude	112°05’06.77”W	112°03’51.56”W	112°03’41.74”W	112°03’43.57”W
Elevation	4741.6’ AMSL	4731.4 AMSL	4730.8’ AMSL	4731.1’ AMSL
Threshold Crossing Height	35’ AGL	49’ AGL	40’ AGL	45’ AGL
Visual Glide Path Angle	3°	3°	3°	3.5°
Visual Slope Indicator	4-Box VASI on left	4-Light PAPI on left (2002)	4-Light PAPI on left (2005)	4-Light PAPI on left (2005)
Runway End Identifier Lights	Yes (2008)	No	No	No
TDZE	4743.9’ AMSL	4734.5’ AMSL	4736’ AMSL	4736’ AMSL
Instrument Approach	RNAV, NPI	RNAV, PI, NPI	No	No
Last Rehabilitation	2008		2004	

**As defined in the 2010 Airport Master Plan by Armstrong Consultants*
Source: IQ 5010, National Flight Data Center, T-O Engineers, 2010 AMP

2.4.2 TAXIWAY SYSTEM

Taxiways are a crucial element of the airport because they allow traffic to move to and from the runway safely and efficiently by decreasing the time aircraft are on the runway. They are also an important link providing access to the runway from aircraft aprons and parking areas. Taxilanes are taxiways designed for lower speed. They are usually located outside the movement area (area used for aircraft operations excluding loading aprons and aircraft parking areas), to provide a link between taxiways and aprons.

IDA Airport has three main taxiways: Alpha (A), Bravo (B), and Charlie (C) as noted on **Figure 2-5**. Taxiway A is a full parallel taxiway to Runway 2-20 with five connectors identified from A1 to A5 from the north to the south. Taxiway B is a full parallel taxiway to Runway 17-35 with one connector at each end of the runway. Taxiway C connects both runways and constitutes the middle connector for Runway 17-35 and the second connector between A1 and A2 for Runway 2-20, as shown on the airport diagram on **Figure 2-5**.

The full length of Taxiway A was last rehabilitated in 2006 (sealed). Connectors A2 was milled and overlaid in 2008 and Connectors A3 and A5 were reconstructed in 2008. Taxiway B and Taxiway C were rehabilitated in 2004 and 2000, respectively. Since 2004, the airport has also performed routine maintenance on the majority of airport pavements.

Table 2-17 shows the existing physical characteristics, as well as the dimensions and penetrations of all protections associated with the taxiways at IDA. Existing taxiway protections are depicted on **Figure 2-7** and include:

Taxiway/Taxilane Safety Area (TSA)
The Taxiway Safety Area (TSA) is defined by the FAA as a surface centered on a taxiway centerline. This surface should be cleared and graded, free of obstructions, capable under dry conditions of supporting aircraft, snow removal equipment and aircraft rescue and firefighting equipment. The TSA is designed to reduce the risk of damage to an airplane unintentionally departing the taxiway and to provide room for rescue and fire-fighting operations.

Taxiway/Taxilane Object Free Area (TOFA)
The Taxiway Object Free Area (TOFA) is defined by the FAA as a surface centered on a taxiway centerline. This area prohibits roads, service vehicle, parked aircrafts and other objects except for those objects that need to be located in the TOFA for air navigation or aircraft ground maneuvering purposes. Vehicles may operate in the TOFA provided they give right of way to oncoming aircraft by either maintaining a safe distance ahead or behind the aircraft or by exiting the TOFA to let the aircraft pass.

It is important to note that the movement area boundary line for the Air Operations Area (AOA) along Taxiway B is located approximately 32 feet from the centerline of the taxiway. This distance does not meet any separation standards between aircraft taxiing and fixed or movable objects.

TABLE 2-17: EXISTING TAXIWAYS CHARACTERISTICS AND PROTECTIONS

Item	Taxiway A and Connectors		Taxiway B and Connectors		Taxiway C and Connectors	
	FAA Standards	Existing	FAA Standards	Existing	FAA Standards	Existing
Critical Aircraft*	Boeing 737-300		Falcon 50		n/a	
ADG	III		II		III	
TDG	3		2		n/a	
Taxiway Width	50'	60'	35'	40'	n/a	75'**
Shoulder Width	20'	✓	10'	✓	n/a	n/a
Surface Type	Asphalt		Asphalt		Asphalt	
Surface Condition	Poor Connectors A2 A3 & A5 Good		Good		Poor	
Pavement Strength	56/F/B/X/T		7/F/B/X/T		n/a	
Lighting	MITL (2008)		Reflector		MITL (2008)	
Marking	Fair		Good		Good	
Last Rehabilitation	2006 2008 (A2, A3, A5)		2004		2000	
Taxiway Protection Standards						
TSA Width	118'	✓	79'	X	118'	✓
TOFA Width	186'	✓	131'	X	186'	✓
Taxilane OFA	162'	✓	115'	✓	162'	✓
Penetrations	None except if object is Fixed by Function	None	-	Air Operation Area (AOA)	-	None

*As described in 2010 Airport Master Plan by Armstrong Consultants

**Taxiway C has kept its original width at the original airport design

Source: 2010 ALP, IQ 5010, National Flight Data Center, Pavement Condition Report - ARA - 2015, T-O Engineers

2.4.3 HELIPAD

There are currently no dedicated helipads for rotorcraft operations at IDA.

FIGURE 2-7: TAXIWAY PROTECTIONS

2.4.4 AIRCRAFT APRON AND TIE-DOWNS

IDA has five main aircraft parking aprons located as depicted on **Figure 2-5**. Aprons are used by GA aircraft, commercial aircraft, and cargo aircraft. The airport is equipped with a total of 83 tie-downs. **Figure 2-8** and **Table 2-18** summarize apron space usage and characteristics.

TABLE 2-18: APRON USAGE AND CHARACTERISTICS

Apron	Parking	Area (Ac)	Condition	Last Rehabilitation
Commercial	10 Stands / 2 Jet Bridges	8	Good	2015
GA Apron 1	-	5	Good	2014 (Built)
GA Apron 2	62 Tie-Downs	16	Satisfactory / Fair	2003
GA Apron 3	21 Tie-Downs	4	Fair	2003
Cargo	2 Stands	1	Good to Fair	-
TOTAL	83	34	-	-

Apron Usage	% of Total Apron Space
GA (Total)	73%
Commercial	24%
Cargo	3%

Source: T-O Engineers

2.4.5 AIRPORT PAVEMENT CONDITION

The Pavement Condition Index (PCI) and Pavement Condition Rating (PCR) are solely based on a visual inspection of pavement condition. PCI computation follows a specific methodology and provides a numerical evaluation of pavement condition with a scale ranging from 0 to 100. The PCR is a qualitative evaluation of pavement associated with ranges of PCI values.

The last PCI inspection conducted at IDA was in 2015. **Figure 2-9** depicts the pavement condition for various areas of the airport.

The pavement of Runway 2-20 is in good to satisfactory condition while the pavement of Runway 17-35 is generally in a satisfactory state. Taxiway pavements are evaluated as satisfactory to very poor with Taxiway A having the most damaged pavement. Apron pavements have a PCR evaluated from “poor” to “fair”.

The overall average PCI for all airport pavements is 79, corresponding to a PCR of “satisfactory”. Based on this report, Taxiway A needs to be rehabilitated, as planned in the 5-year CIP shown on **Figure 2-2**. Other scheduled pavement rehabilitations include Taxiway C and Runway 2-20.

FIGURE 2-8: APRON CHARACTERISTICS

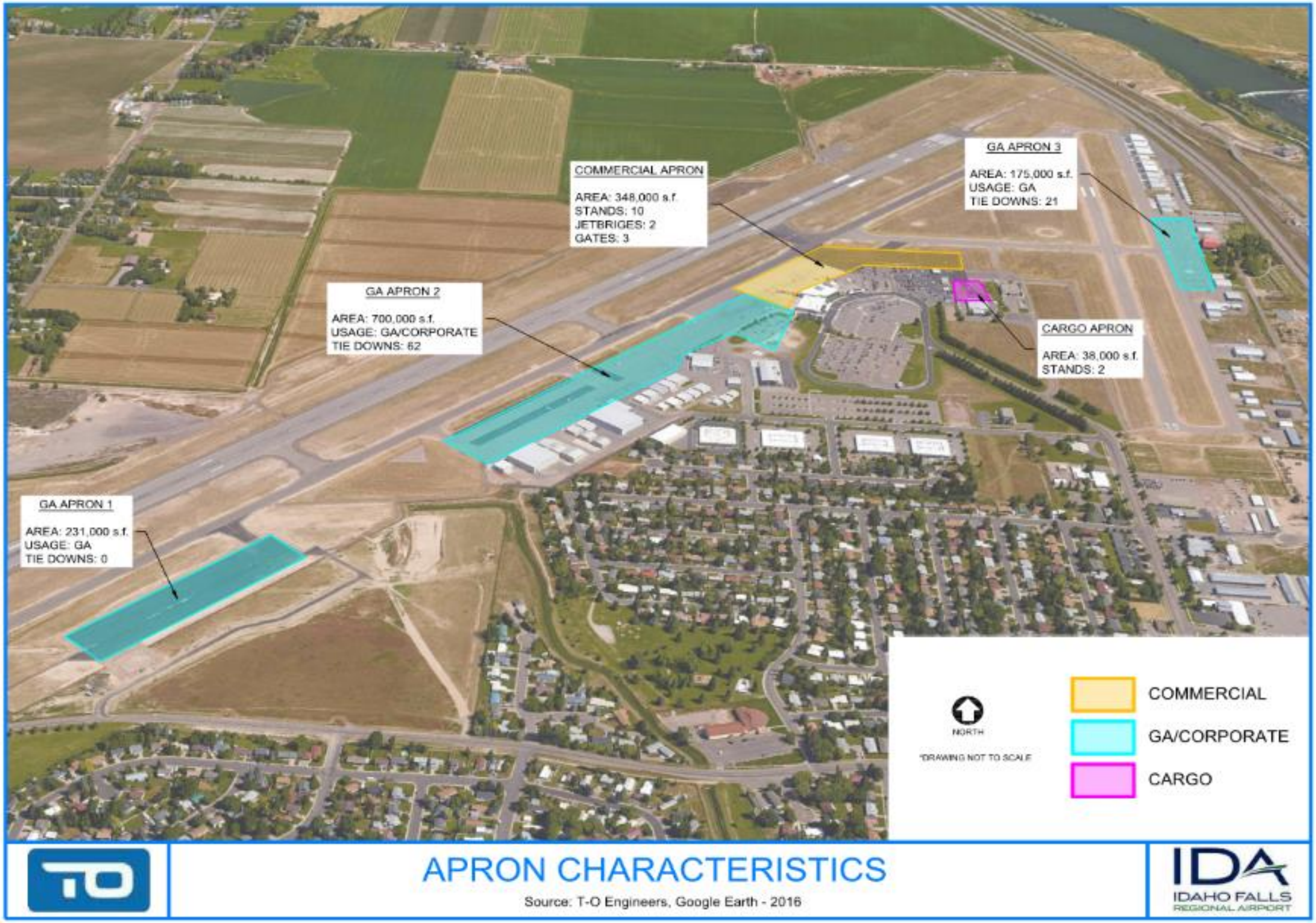
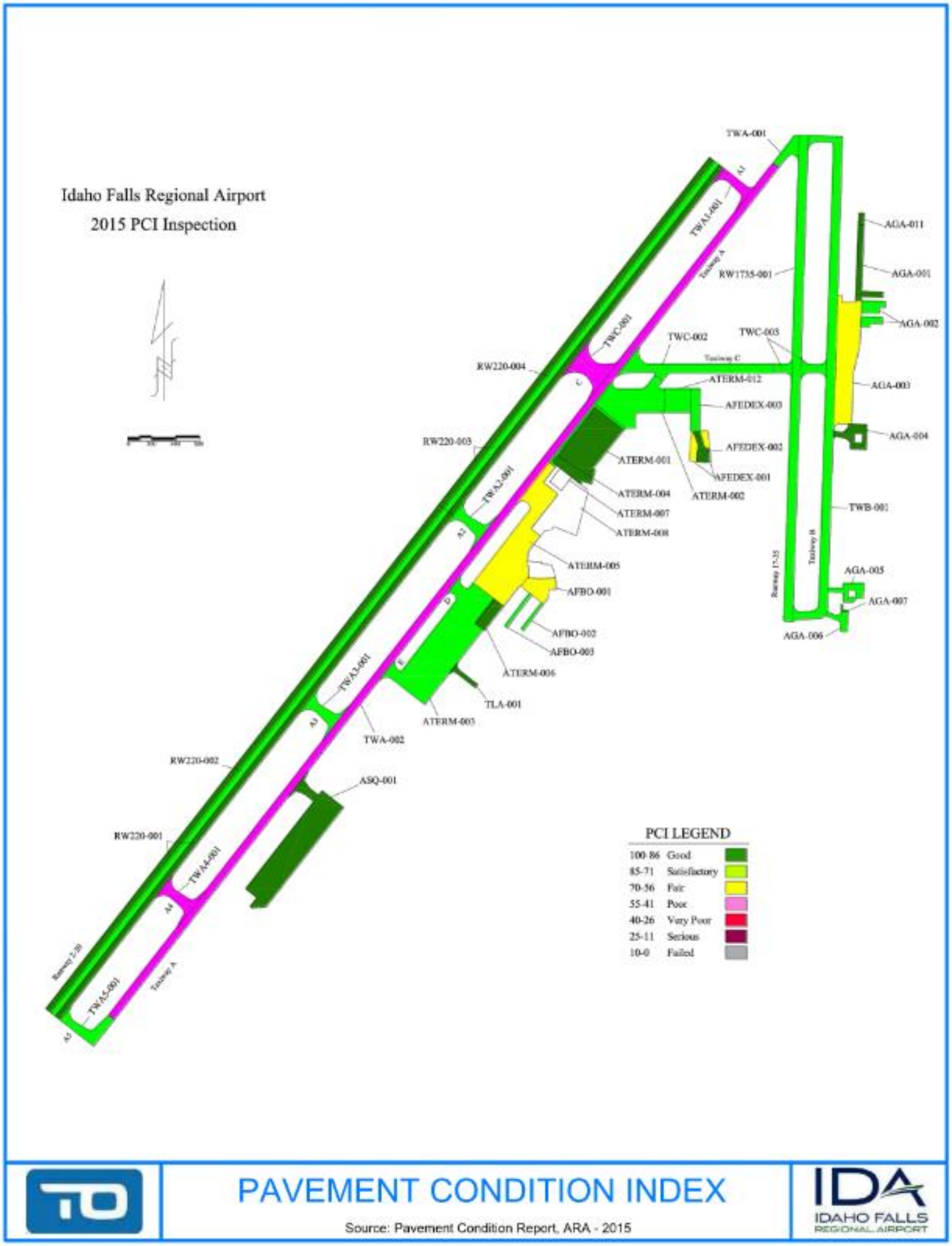


FIGURE 2-9: PAVEMENT CONDITIONS



2.4.6 Airfield Lighting, Visual Aids and NAVAIDs

IDA VOR-DME Location
Source: T-O Engineers-2015

A NAVAID is defined by the FAA as any facility used in the aid of air navigation. It includes lights, any apparatus or equipment emitting weather information, radio signals or other electronic communication, and any other structure or mechanism having similar purpose and controlling flight in the air or the landing or takeoff of aircraft.

Table 2-19 summarizes the existing aids available at IDA. Their location on the airfield is as depicted on **Figure 2-5**. IDA owns and is responsible for maintaining all the NAVAIDS that are not federally owned. Federally owned NAVAIDS include the VOR/DME IDA, the ILS equipment, RW 2 VASI, RW 35 PAPI and the ASOS.

Holding Position Sign
Source: T-O Engineers-2015

The current location of the VOR/DME prevents the airport from developing a run-up area for aircraft departing Runway 20 or from building more hangars near Runway 17 because of the VOR critical area.

2.4.7 Instrument Approach Capabilities

Idaho Falls Regional Airport has instrument approach capabilities to both Runway 2 and Runway 20.

Table 2-20 summarizes the different instrument approaches available at IDA with their associated Decision Altitude (DA), Minimum Descent Altitude (MDA), and visibility minima.

Instrument procedures plates are shown on **Figure 2-10** through **Figure 2-13**. Runway 17-35 is visual only.

TABLE 2-19: IDA VISUAL AND NAVIGATION AIDS

Item	Description
General	
Communication	• UNICOM - 122.8 MHz / CTAF - 118.5 MHz / ATIS - 135.325 MHz • Clearance Delivery and Ground Radio Frequency – 121.7 MHz • Tower Frequency – 118.5MHz • Segmented Circle
Airport Identification	• Rotating Beacon
Weather	• Lighted Wind Cone • Automated Surface Observing Station (ASOS) – 118.375 MHz
Runway 2	
Visual	• High Intensity Runway Lighting (HIRL) • 4-Box VASI • Runway End Identifier Lights (REIL) • Precision Marking
Navigation	• Localizer • VOR/DME – IDA 113.85MHz • RNAV
Runway 20	
Visual	• High Intensity Runway Lighting (HIRL) • 4-Light PAPI • Medium Intensity Approach Lighting System with runway Indicator Lights (MALSR) • Precision Marking
Navigation	• Instrument Landing System (Localizer, Glide, DME) • VOR/DME – IDA 113.85MHz • RNAV
Runway 17-35	
Visual	• Medium Intensity Runway Lighting (MIRL) • 4-Light PAPI • Basic Marking
Navigation	NONE
Taxiways	
Visual	• Yellow Marking: Centerline all Taxiways, Edge Taxiway A&C. • Direction and Location Signs • Taxiway Blue Edge Lights or Reflectors
NAVAIDS in the Vicinity	
SWU - SWEDEN	NDB – 350KHz – 6.3Nm from IDA – Bearing 39.2°
DBS DUBOIS	VORTAC – 116 MHz – 35 Nm from IDA – Bearing170.1°
PIH - POCATELLO	VOR/DME – 112.6 MHz – 46.3 Nm from IDA – Bearing 33.2°

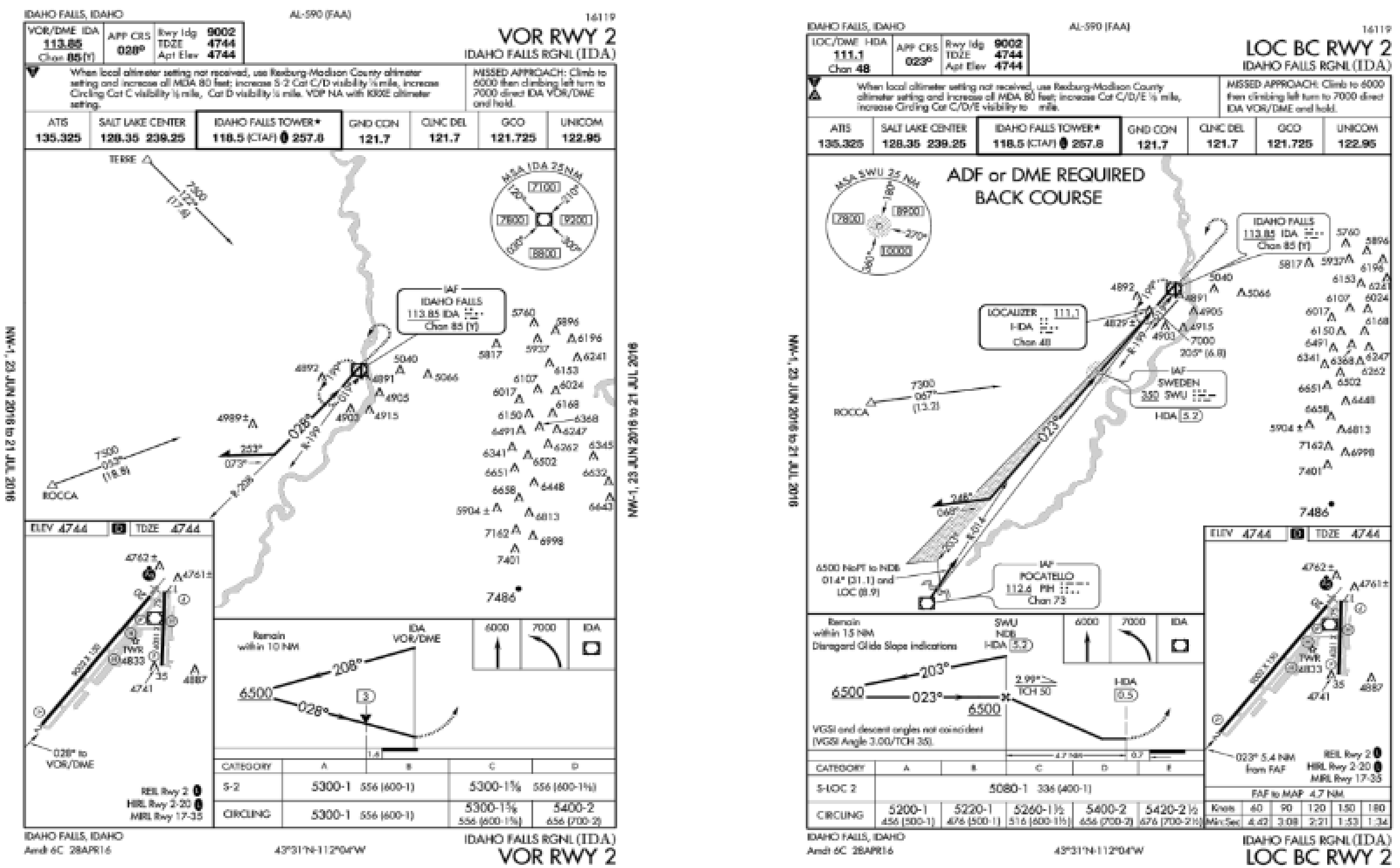
Source: T-O Engineers, IQ5010, NFDC

TABLE 2-20: IDA INSTRUMENT APPROACHES

Approach Type	Description
Runway 2	
Lateral Navigation (LNAV)	• MDA = 5100’ • Minima = 1 SM • AAC A, B, C, and D
Lateral Navigation/Vertical Navigation (LNAV/VNAV)	• DA = 5138’ • Minima = 1 3/8 SM • AAC A, B, C, and D
Localizer Performance with Vertical Guidance (LPV)	• DA = 4944’ • Minima = 3/4 SM • AAC A, B, C, and D
NAS Implementation Procedure (RNAV/RNP)	• DA = 5010’ or 5066’ • Minima = 1 SM • AAC A, B, C, and D
Localizer (LOC)	• MDA = 5080’ • Minima = 1 SM • AAC A, B, C, and D
VOR	• MDA = 5300’ • Minima = 1 SM • AAC A, B, C, and D
Runway 20	
Lateral Navigation (LNAV)	• MDA = 5140’ • Minima = RVR 2400’ (AAC A&B), RVR 4000’ (AAC C), or RVR 5000’ (AAC D)
Lateral Navigation/Vertical Navigation (LNAV/VNAV)	• DA = 5092’ • Minima = RVR 4000’ • AAC: A, B, C, and D
Localizer Performance with Vertical Guidance (LPV)	• DA = 4935’ • Minima = RVR 2400’ • AAC A, B, C, and D
NAS Implementation Procedure (RNAV/RNP)	• DA = 5011’ or 5064 • Minima = RVR 2400’ or 4000’ • AAC: A, B, C, and D
Localizer (LOC)	• MDA = 5140’ • Minima = RVR 2400’ (AAC A&B), or RVR 4000’ (AAC C&D)
VOR	• MDA = 5400’ • Minima = RVR 2400’ (AAC A&B), or 1.5 SM (AAC C&D)
ILS	• DA = 4935’ • Minima = RVR 2400’ • AAC A, B, C, and D

Source: T-O Engineers, NFDC

FIGURE 2-10: INSTRUMENT APPROACH PROCEDURES RUNWAY 2 - NPI



INSTRUMENT APPROACH RWY 2 - NON PRECISION

Source: FAA National Flight Data Center

FIGURE 2-11: INSTRUMENT APPROACH PROCEDURES RUNWAY 2 – RNAV-GPS

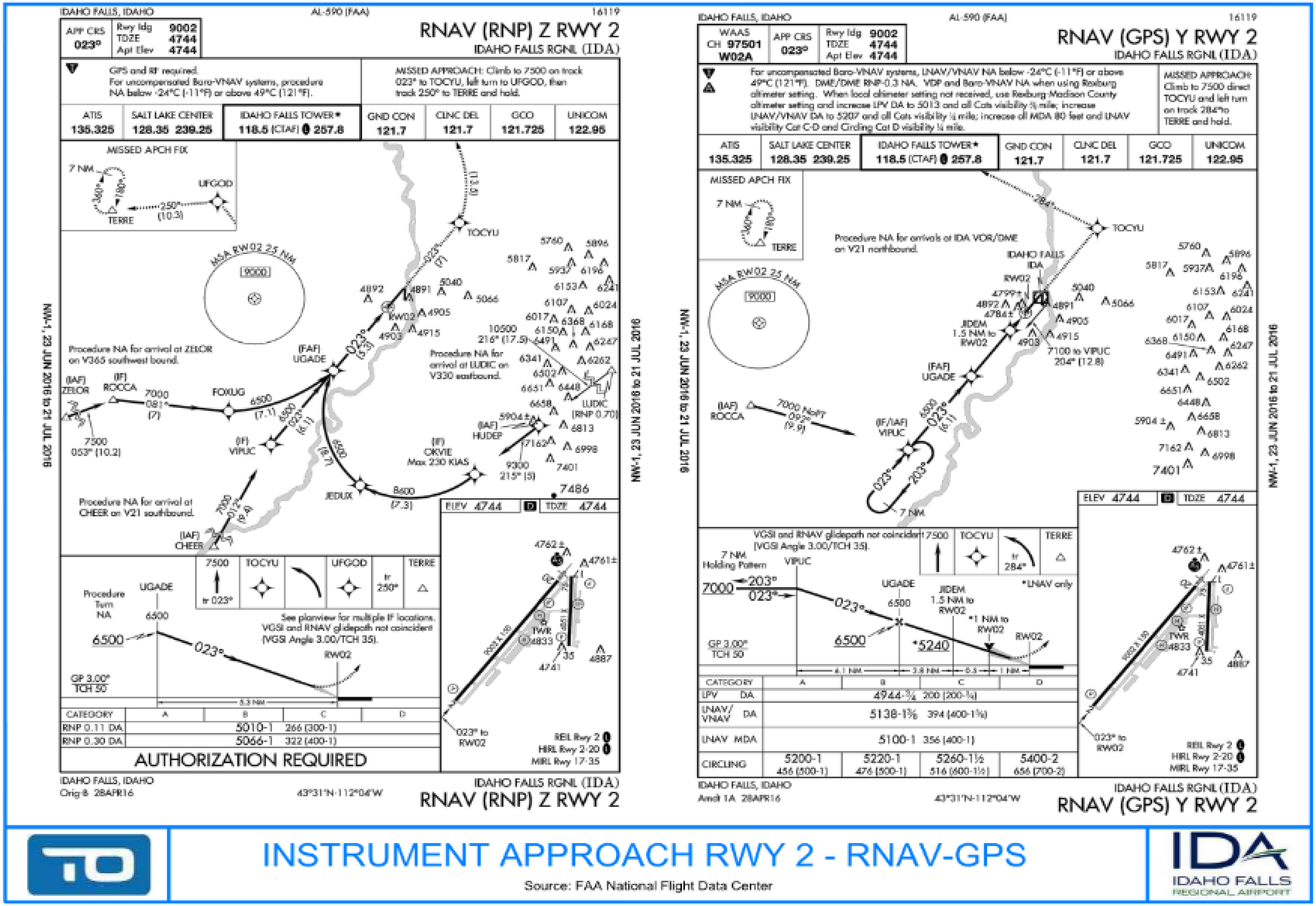
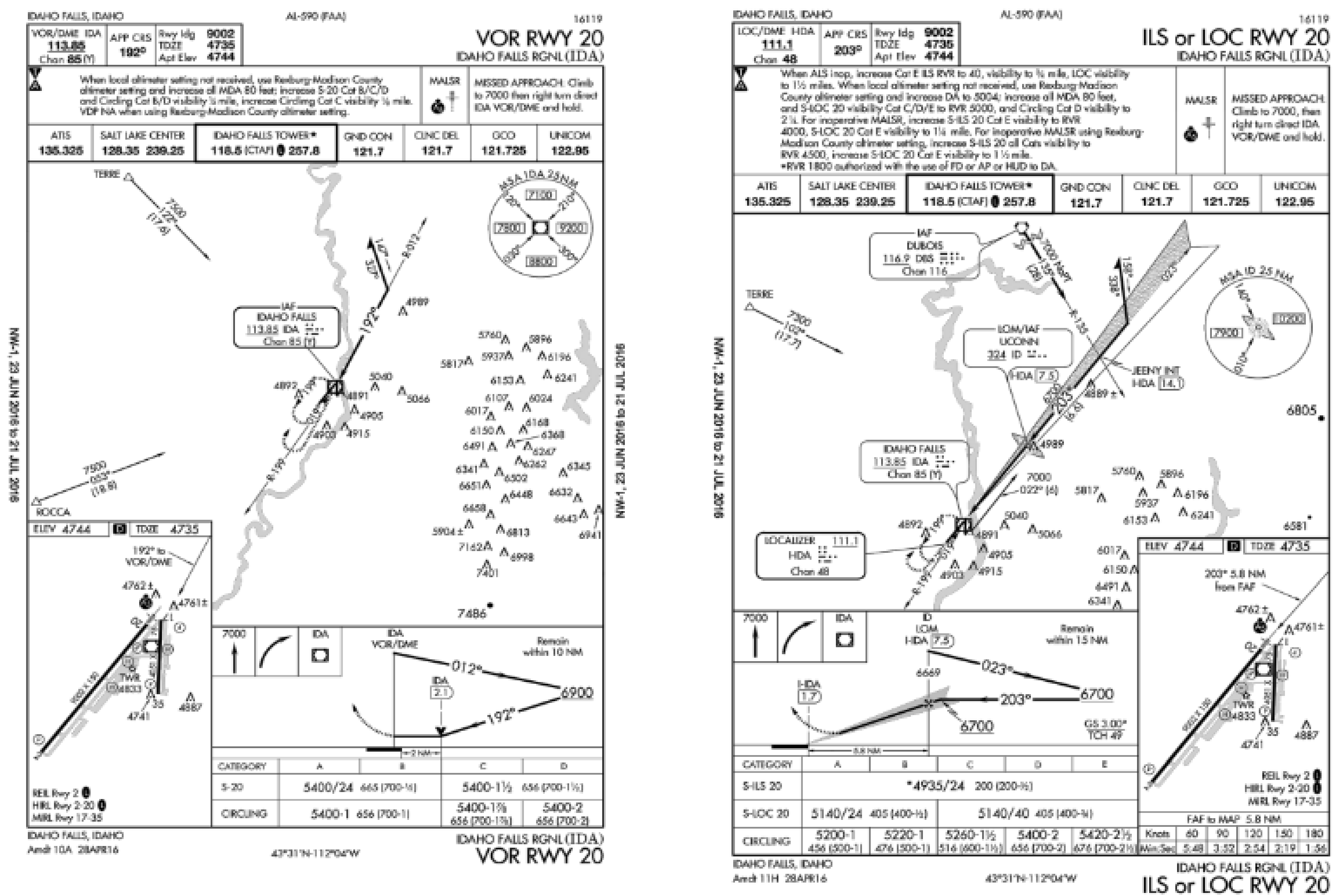


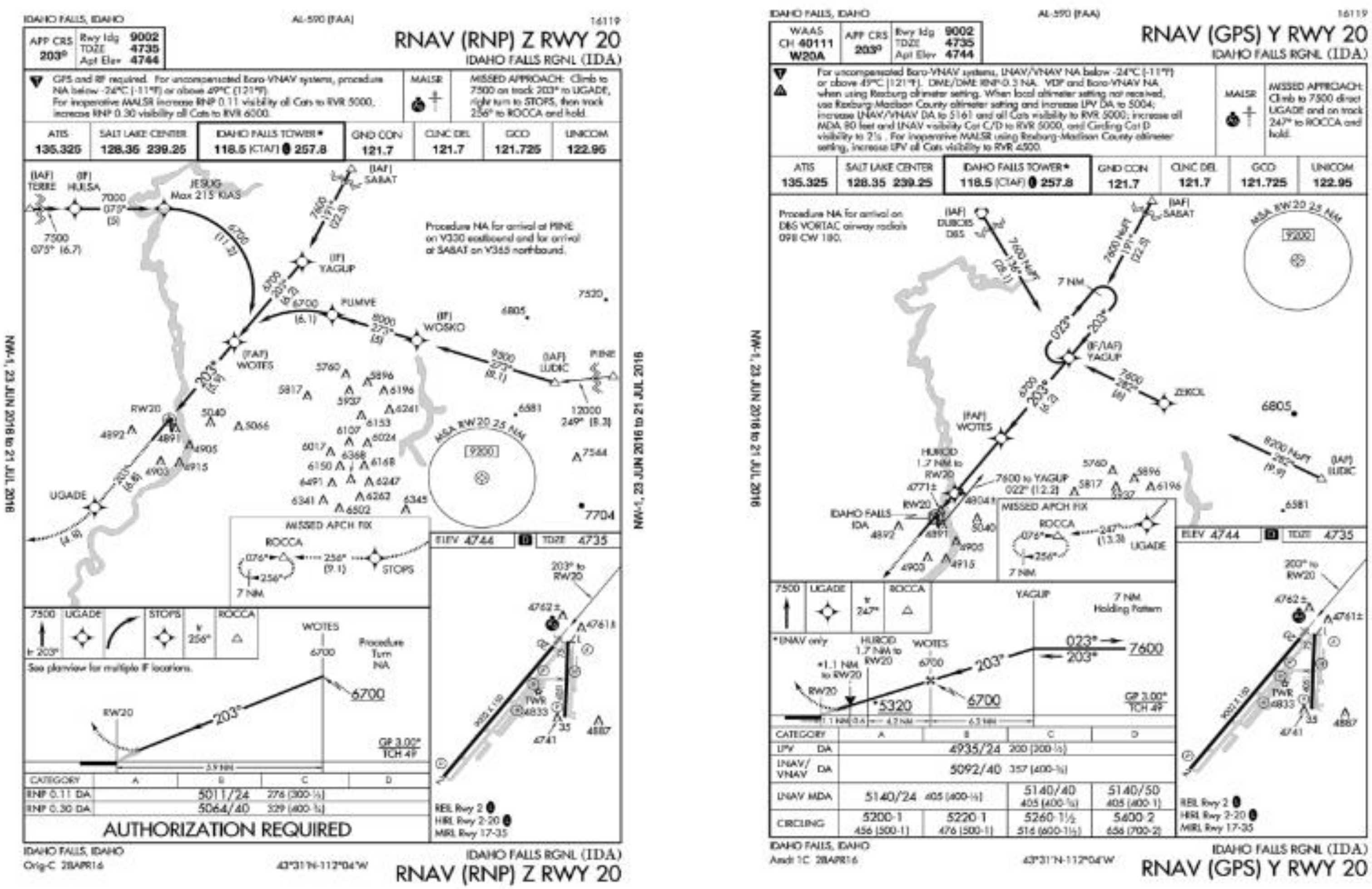
FIGURE 2-12: INSTRUMENT APPROACH PROCEDURES RUNWAY 20 – NPI & PI



INSTRUMENT APPROACH RWY 20 - NPI & PI

Source: FAA National Flight Data Center

FIGURE 2-13: INSTRUMENT APPROACH PROCEDURES RUNWAY 20 – RNAV-GPS



INSTRUMENT APPROACH RWY 20 - RNAV-GPS

Source: FAA National Flight Data Center

2.4.8 AIR TRAFFIC CONTROL

IDA ATCT
Source: World Airport Codes

Idaho Falls Regional airport has an Airport Traffic Control Tower (ATCT) managed by SERCO. It is a Federal Contract Tower funded by the FAA. The tower is located near the terminal building as shown on **Figure 2-5**. The ATCT personnel provide air traffic control services and weather information to the airport's users on the ground and in the associated airspace. They also coordinate with the en-route control center for IFR flights.

The airport is located in the jurisdiction of the Salt Lake's Air Route Traffic Control Center (ARTCC). **Table 2-21**.summarizes the characteristics of ATC services at IDA.

TABLE 2-21: ATC SERVICES

ATC Element	Decription
Tower Frequency	118.5 MHz
Ground Control Frequency	121.7 MHz
Salt Lake Center Frequency	128.35 MHz
Automatic Terminal Information Service Frequency	135.325 MHz
Unicom	122.95 MHz
Operational Hours (local time)	0700-2000
ATC Services	IFR/IFR, IFR/Special VFR and SVFR/SVFR Separation Separation for Runway Operations Landing and Take Off Clearances Ground Control (Movement Area) Coordination for IFR Clearances (DEP & APP) Flight and Weather Information

Source: National Flight Data Center

2.4.9 Hot Spots and Common Incidents

Hot spots on an airport are places where pilots might be confused and where incidents or accidents are most likely to occur. Hot spots can occur for several reasons including faulty design, inadequate or confusing marking, or bad geometry.

A total of four hot spots have been identified at IDA, as shown on **Figure 2-14**:

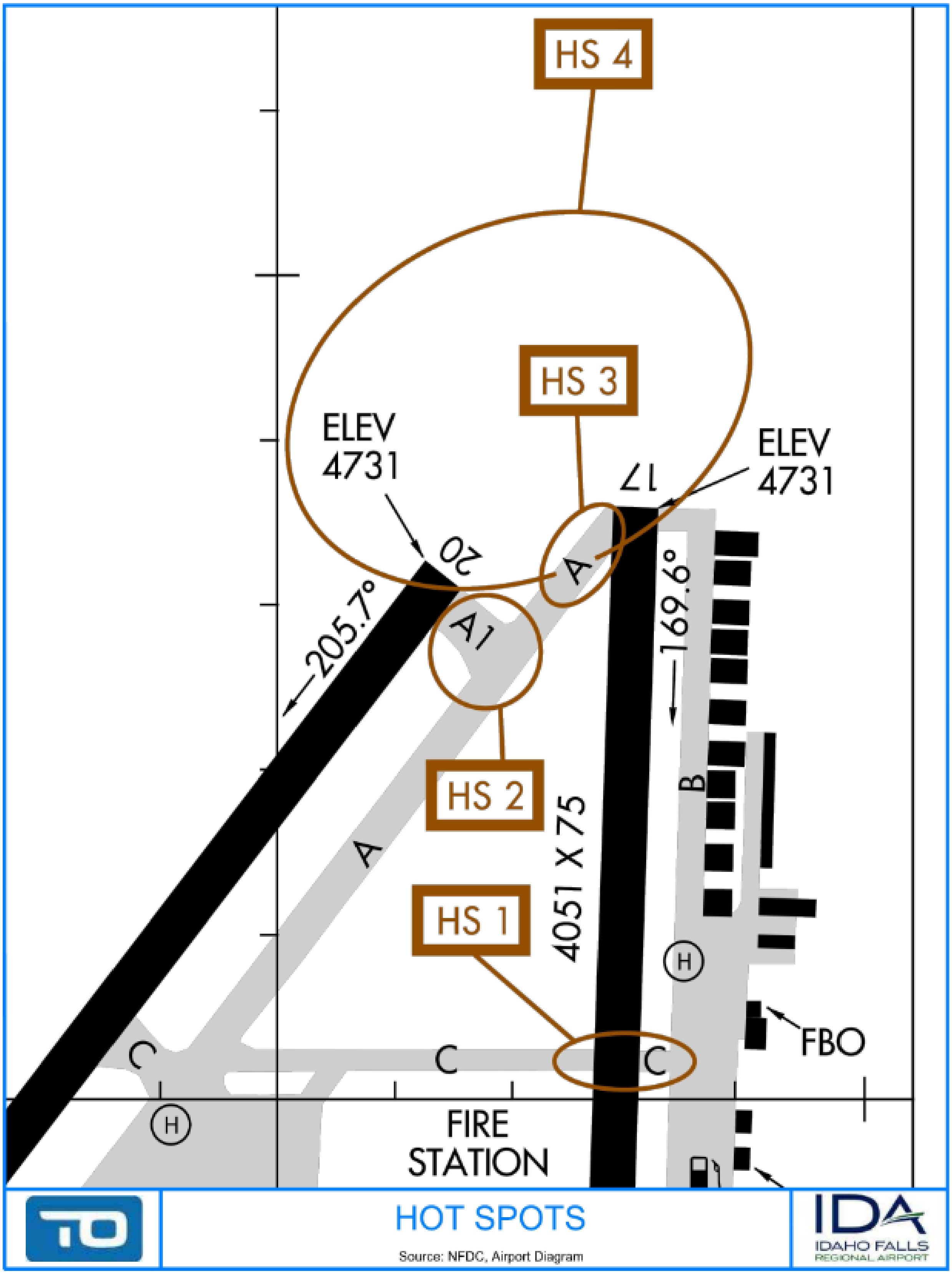
- Hot Spot #1: Runway 17-35 Taxiway C Hold Bars
- Hot Spot #2: Taxiway A1 and Runway 20 Approach Hold Bar
- Hot Spot #3: Runway 17 and Taxiway A Hold Bar
- Hot spot #4: Pilot often line up for Runway 17 instead of Runway 20 for landing. Runway 20 and Runway 17 thresholds are in close proximity.

Common incidents reported at the airport include, but are not limited to, Taxiway B incursion from the AOA, Runway 17-35 incursion from Taxiway C, or confusion between Runway 2 and Runway 20.

A Runway Safety Action Team (RSAT) meets once a year to identify incidents or accidents at the airport. A Runway Safety Action Plan (RSAP) is published with various actions to help improve safety on the airport. The last report dated 2015 lists the following items to be completed by 2017:

- Add two new signs on Taxiway B and identify Taxiway C
- Remove section of Taxiway A between Runway 17 and Runway 20 ends and add appropriate signage
- Change Runway number (02/20) to help avoid confusion - similar sounding runways

FIGURE 2-14: HOT SPOTS



2.5 EXISTING LANDSIDE FACILITES

Landside facilities encompass all airport infrastructure not used for aircraft operation, including hangars, terminal building, car parks, access and other facilities. The following **Figure 2-15** provides an aerial view of existing airport landside facilities.

2.5.1 PASSENGER TERMINAL BUILDING

IDA Passenger Terminal Building with jet bridges
Source: T-O Engineers

The passenger terminal building is used as a link between the airside and the landside of the airport. It is the place where passengers and luggage are processed from ground transportation to aircraft and vice versa.

The terminal building gathers several facilities dedicated to ticketing, enplaning/deplaning aircraft, passenger entertainment, luggage processing and security screening by the Transportation Security Administration (TSA). The IDA passenger terminal is 92,500-square-foot building on two stories. It has three gates for passenger enplanements and deplanements. On the second floor, two gates are equipped with jet bridges for access to the aircraft. One gate is located at ground level with pedestrian access to aircraft.

The terminal building was first remodeled to meet TSA requirement in 2001 and an extension of approximately 4,700 square feet was added in 2012 for airline ticket counters and office space.

Figure 2-16 depicts the terminal layout and amenities. **Table 2-22** summarizes the main characteristics of the passenger terminal building.

IDA Check-In Area
Source: IDA Airport

IDA Baggage Claim Area
Source: IDA Airport

FIGURE 2-15 – AIRPORT LANDSIDE FACILITIES

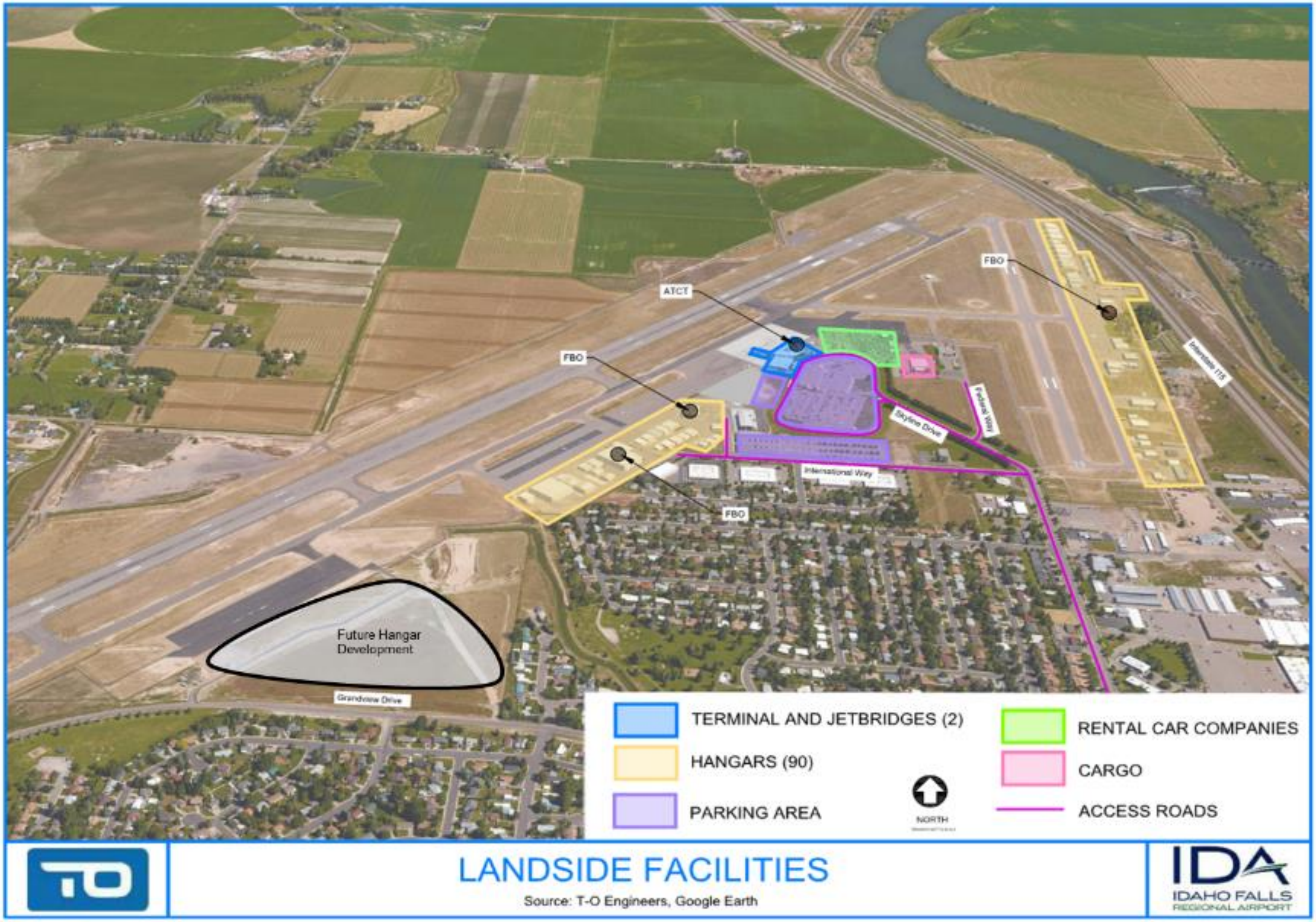


FIGURE 2-16 – PASSENGER TERMINAL BUILDING

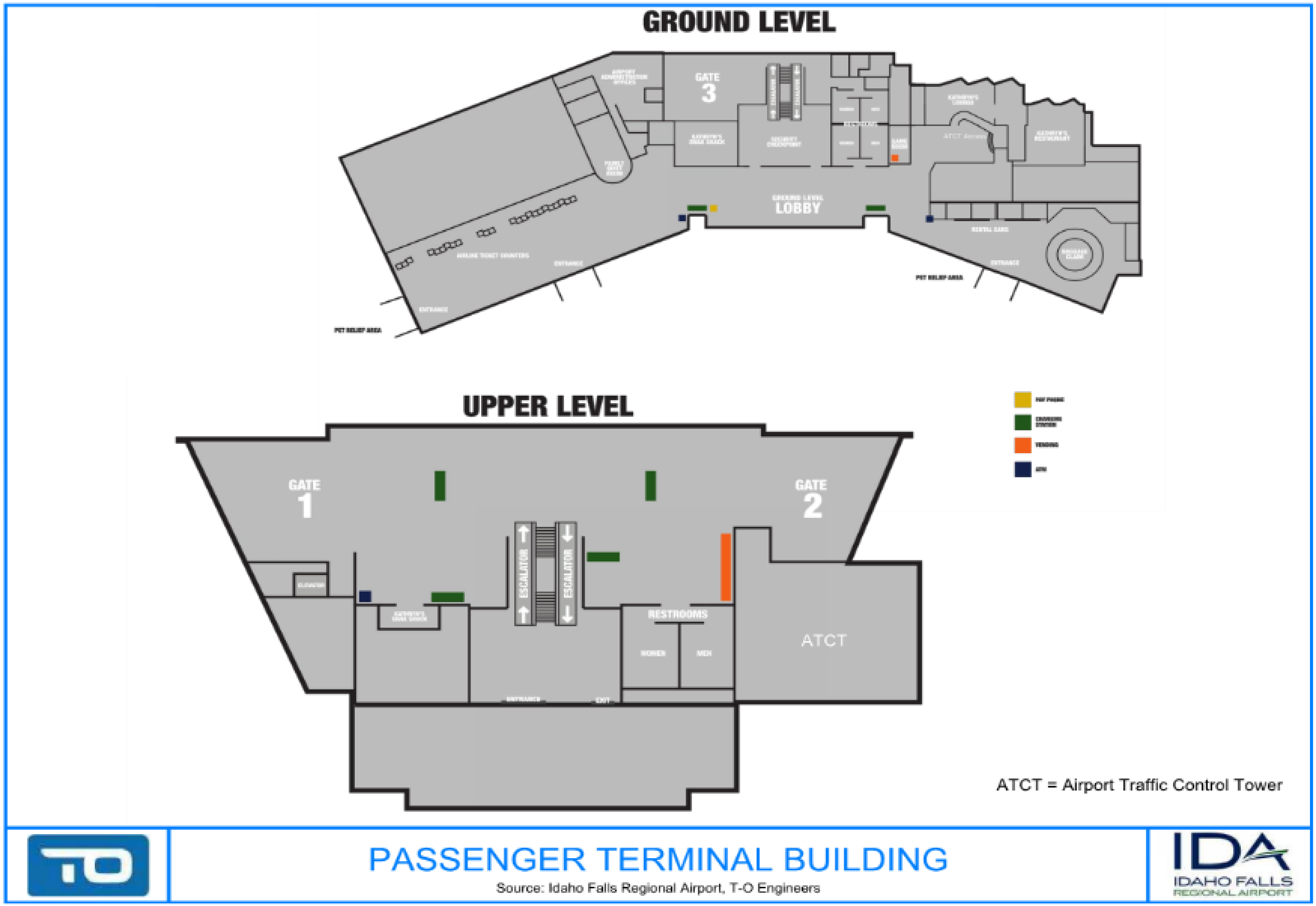


Table 2-22: Passenger Terminal Building Characteristics

Passenger Terminal Element	Description
Areas	
Total Area (all floors)	92,500 sq. ft.
Ground Level	
Lobby	6,000 sq. ft.
Ticketing Counter Space	1,400 sq. ft.
Ticketing Passenger Waiting Area	7,200 sq. ft.
Airline Operations and Offices	8,100 sq. ft.
Baggage Claim Area	5,100 sq. ft.
Concessions	2,200 sq. ft.
Game Room	270 sq. ft.
Restrooms	1,600 sq. ft.
Gate 3	2,800 sq. ft.
Security (TSA)	1,700 sq. ft.
Family room	840 Sq. Ft.
Lounge	840 sq. ft.
Administration Offices	2,800 sq. ft.
Rental Car Counter Space	750 sq. ft.
Other	6,500 sq. ft.
SubTotal	**48,100 sq. ft.**
Upper Level	
Restrooms	3,900 sq. ft.
Gate 1 & 2	33,900 sq. ft.
Concessions	510 sq. ft.
Other	6,090 sq. ft.
SubTotal	**44,400 sq. ft.**
General	
Number of Floors	2
Number of Gates	3
Jet Bridges	2
Airline Counters	8
Rental Car Counters	4
Baggage Carousel	1
Restrooms	6
Other Passenger Amenities	Restaurant & Snack, Lounge, Pet Relief Area , Family Quiet Room, Game Room, Elevators,, Vending, ATM, Phone, Charging Stations, free WiFi.

Source: T-O Engineers, Idaho Regional Airport Website

2.5.2 AIRPORT TRAFFIC CONTROL TOWER

IDA ATCT and Commercial Apron
Source: IDA Airport

Idaho Regional Airport has an Airport Traffic Control Tower (ATCT) that provides ATC services under federal contract as described in Section 2.4.8. The tower is located on top of the terminal building as depicted on **Figure 2-15** and **Figure 2-16**. The tower physical characteristics are described in **Table 2-23**.

TABLE 2-23: ATC TOWER CHARACTERISTICS

Element	Decription
Tower Elevation	-
Cab Floor Elevation	4795.3 ft.
Square Footage (Foot Print)	9,600 sq. ft.
Access	Secured

Source: T-O Engineers, Idaho Regional Airport

The tower building shows signs of age and meets building code for the State of Idaho, but not for the Federal Aviation Administration. The current location of the tower combined with its height provides adequate line of sight (LOS) on all controlled areas of the airfield. It is important to note that a LOS study should be associated with any future proposed development at the airport.

2.5.3 SECURITY

TSA Passenger Security Check - IDA
Source: IDA Airport

The main object of security at an airport is to protect the airport's users from any harmful actions such as terrorist attacks.

IDA is in the jurisdiction of the Idaho Falls Police Department for security purposes. The Transportation Security Administration (TSA) is in charge of the security screening for each passenger and their luggage that will travel on a commercial flight departing the airport.

The TSA security check point for passengers is located in the center part of the main floor of the terminal building. The administration is equipped with X-Ray machines for luggage and personal effects, as well as body scanners.

2.5.4 Cargo Terminal

Adjacent to the cargo apron, IDA has a cargo terminal operated by FedEx where cargo transported by the company to and from the airport is processed.

This cargo terminal is a FedEx ship center that operates from 9am to 5:30pm every day except for Saturday (9am to 1pm) and Sunday (closed). This center provides all the services of a FedEx facility including:

- FedEx Shipping Services
- "Pack like an Expert" Service
- Delivery
- Hold for Pickup Service

The facility is consists of a 100' x 125' warehouse with truck and aircraft access, as well as an adjacent 45' x 50' building for offices and client reception. The FedEx center provides approximately 60 parking spaces for vehicles.

2.5.5 Fixed Base Operators

A Fixed Base Operator (FBO) is a company owning or leasing infrastructures on the airport and providing different services to the airport's users. Aero Mark is the only FBO on Idaho Falls Regional Airport. It provides various services including:

- Full Service Jet-A and Avgas 100LL (refueling)
- Fuel anti-icing available on request
- Tie-downs and aircraft hangaring
- Oxygen services
- Lavatory services
- Group Power Unit
- GA pilots and passengers facilities: lobbies, conference room, flight planning room, wireless internet, courtesy car, car rentals, and hotel reservations
- Aircraft maintenance
- Avionic maintenance and installation
- Aircraft charter and rental
- Fixed wing and rotorcraft training

Aero Mark operates in three different buildings on the airport, as shown on **Figure 2-15.** The biggest hangar is approximately 150' x 200' (30,000 sq. ft.) and can park an aircraft up to the size of a MD-80.

Aero Mark Aviation FBO, IDA
Source: IDA 2010 AMP

Red Baron Hangar IDA
Source: nps.gov

The second structure, the closest to the passenger terminal, is used for aircraft maintenance and is approximately 120' x 140' (16,800 sq. ft.).

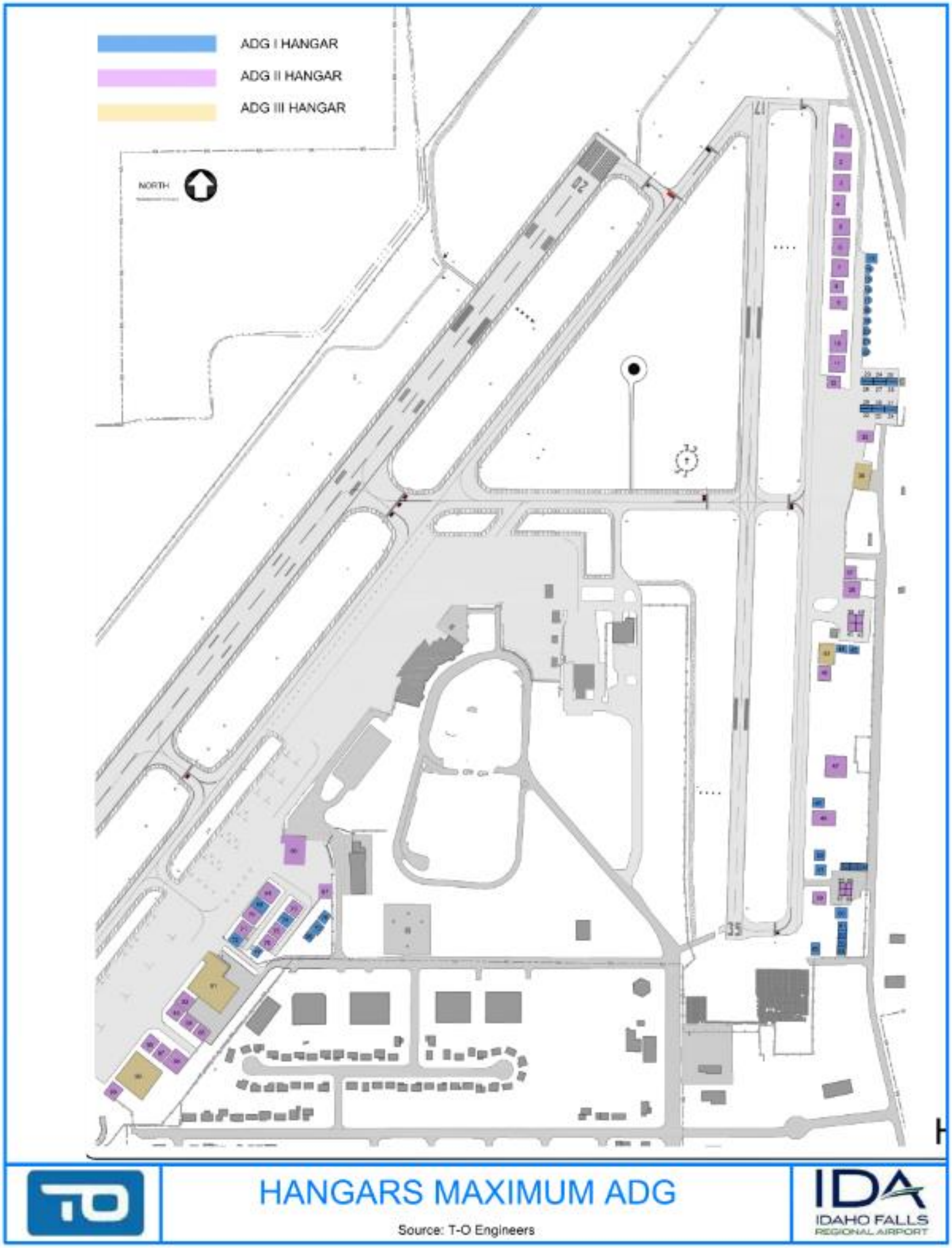
The last FBO building is a historic hangar called the "Red Baron" built in the mid-1930s. This building is owned by the airport and leased to Aero Mark. This hangar is approximately 75' x 125' and is located east of Runway 17-35. It is used for rotorcraft services provided by Utah Helicopter on behalf of Aero Mark.

2.5.6 AIRCRAFT HANGARS

Hangars are used for aircraft storage and can be owned or leased by different airport users. There are 90 hangar units available on the airport property, including the FBO facilities. There are 88 different tenants at IDA (tenant names are listed on the Airport Layout Plan). In addition, the airport is in the process of adding additional hangars south of the field as depicted on **Figure 2-15**.

Figure 2-17 summarizes the maximum ADG that can be parked in each hangar unit at IDA. The maximum allowable wingspan is 118 feet (ADG III). Hangars can vary in shape and size. Some are identified as T-Hangar, for smaller GA aircraft, and others are known as conventional box hangars for bigger and corporate aircraft. IDA has two six-unit T-Hangars, 69 conventional box hangars, and two four-unit box hangars.

FIGURE 2-17 – HANGARS MAXIMUM ADG



2.5.7 AIRPORT ROADSIDE ACCESS

The primary modes of transportation in the Idaho Falls metropolitan area are private automobiles, public transportation, hotel courtesy transportation, and taxi services. The terminal area offers amenities and multiple parking lots, as described in Section 2-5-8, to accommodate the various vehicles using the airport.

The main access to the airport terminal area is a paved road named “Skyline Drive”. This road allows direct access from the airport to the City of Idaho Falls, ID and to a road network surrounding the airport and serving the adjacent areas.

“Skyline Drive” is connected to “Grandview Drive” that leads directly to downtown and the Interstate 15. “It is also connected to “Federal Way” that serves the cargo and ARFF area, as well as “International Way” (partially paved) that serves the General Aviation (GA) area along Runway 2-20. The second GA area located on the east side of Runway 17-35 is locally served via “Foote Drive”. **Figure 2-15** depicts all the various road accesses around the airport.

2.5.8 AUTOMOBILE PARKING AND GROUND TRANSPORTATION

Figure 2-18 depicts the location and summarizes the characteristics of the existing parking areas at Idaho Falls Regional Airport.

The terminal parking lot is paved with asphalt. It has a total of 915 spaces and is divided in three zones: short-term hourly, short-term daily, and long-term. The current rates are summarized in Table 2-24.

TABLE 2-24: TERMINAL PARKING RATES (2016)

Parking	Rate
Short-Term	
Hourly	First 30 mins complimentary $1.50 per 20 mins $15 daily maximum
Daily	First 30 mins complimentary $1 each 30 mins $7 per day for the first 3 days and $9 each supplemental day
Long-Term	
Long	$2 each hour $7 daily maximum $42 weekly maximum

Source: Idaho Regional Airport

IDA has additional parking spaces available as shown on **Figure 2-18.** There are 60 spaces near the FBO main hangar and an extended parking lot south of the main terminal parking lot, as well as approximately 60 spaces near the Cargo facility. The airport staff has a dedicated parking lot located south of the terminal building. More spaces are available north of the terminal parking lot and are used by rental car companies. Additional parking is available for the emergency staff around the Aircraft Rescue and Fire Fighting (ARFF) building (For more details on ARFF, see Section 2.6.4).

The Airport is served by buses operated by the Targhee Regional Public Transportation Authority (TRPTA) with a dedicated stop located on the terminal curb. The terminal curbside represents a total of 525 linear feet of loading/unloading area for passenger and luggage, accessible for personal and courtesy vehicles, as well as taxis.

2.5.9 Rental Car

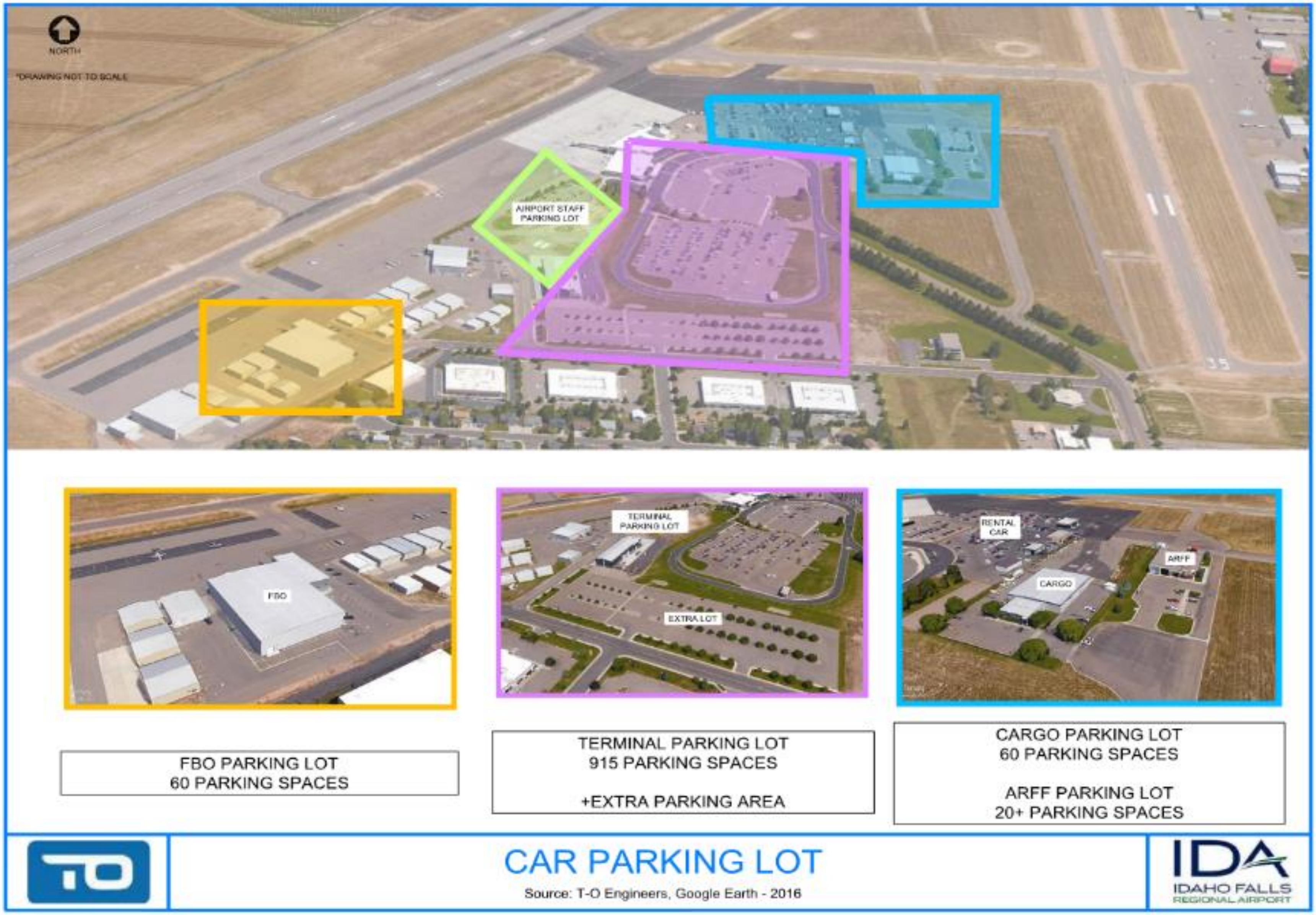
Idaho Falls Regional Airport offers rental car services to its passengers. Counters are available for rental car companies near the baggage claim area and carousel. There are six agencies offering rental car services at the airport:

- Avis
- Budget
- Enterprise
- Hertz
- National and Alamo

Rental Car Agencies - IDA
Source: IDA Airport

In addition to the terminal counters, the rental car facilities include a parking area and four building located directly north of the terminal parking lot, as shown on **Figure 2-15**. In addition, a new rental car facility has been developed and built south of the FedEx shipping center.

FIGURE 2-18 – CAR PARKING LOTS



2.6 SUPPORT FACILITIES

Support facilities at the airport include infrastructure and equipment used for support, airport maintenance and emergency response. These include fuel facilities, Aircraft Rescue and Fire Fighting (ARFF), snow removal, airport maintenance, and utilities. Support facilities for IDA are depicted on **Figure 2-19**.

2.6.1 PERIMETER FENCING AND PERIMETER ROAD

Gate V10 IDA Airport
Source: Google Earth

The IDA perimeter is fully fenced with a six-foot tall fence with barbed wire shown on **Figure 2-19**. This fence protects the airport from any undesired intrusion by animals or people. Gate characteristics are summarized in **Table 2-25**. As previously mentioned in Section 2-4-1, the fence penetrates the ROFA and RPZ of Runway 17-35.

TABLE 2-25: AIRPORT UTILITIES AND SERVICE PROVIDERS

Gates	Number
Electric Vehicle Gates	11
Manual Vehicle Gates	14
Electric Pedestrian Gates	3
Manual Pedestrian Gates	7
TOTAL	**35**

Source: IDA Airport, T-O Engineers

The airport is also equipped with a 20-foot-wide full-perimeter road depicted on **Figure 2-19**. This road is partially paved and serves the airport perimeter. It is used for airport maintenance and inspections.

FIGURE 2-19 – SUPPORT FACILITIES

2.6.2 UTILITIES

The airport is equipped with all common utilities as shown on **Figure 2-20**. These include water, sewer, gas, electricity, and phone/internet

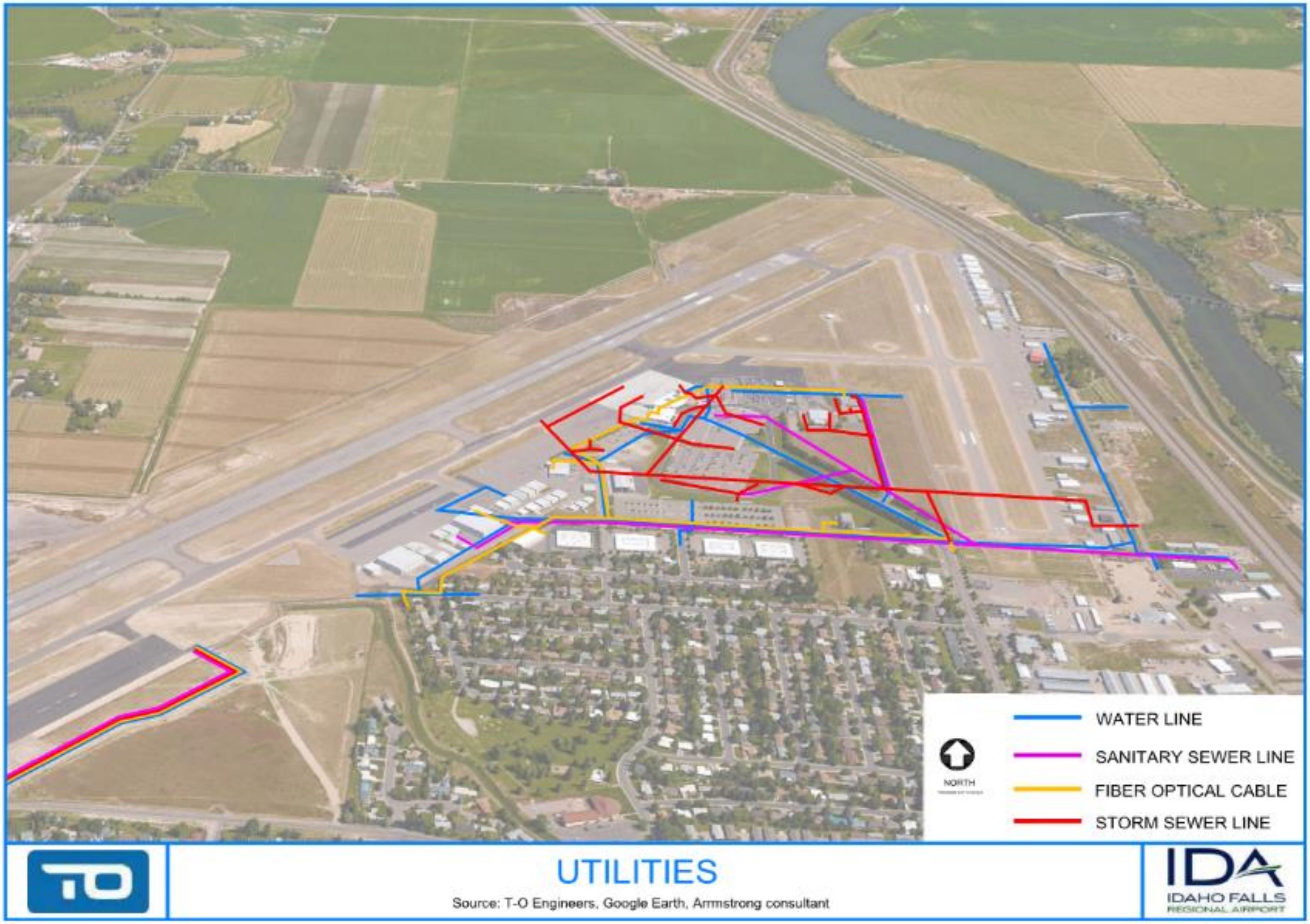
Table 2-26 summarizes the current utilities and service providers at Idaho Falls Regional Airport.

TABLE 2-26: AIRPORT UTILITIES AND SERVICE PROVIDERS

Utility	Source and Provider
Water	City of Idaho Falls
Sewer	City of Idaho Falls
Electricity	Idaho Falls Power and Rocky Mountain Power
Phone/Internet	CenturyLink (Fiber)
Internet	City of Idaho Falls
Natural Gas	Intermountain Gas

Source: IDA

FIGURE 2-20 – UTILITIES



2.6.3 FUEL FACILITIES

IDA Airport accommodates GA and Commercial aircraft and offers appropriate fuel services including AvGAS 100LL (Low Lead) and Jet A fuels.

Fuel services are offered by the airport's FBO Aero Mark. Aero Mark is equipped with two underground Jet A fuel tanks and one underground AvGAS fuel tank with a capacity of 25,000 Gallons each.

The fuel is delivered by fuel pumps located in front of the Aero Mark hangar or by trucks owned and operated by the FBO. Aero Mark has a total of five fuel trucks including:

- Three Jet A fuel trucks with a capacity of 5,000, 3,000, and 2,250 Gallons.
- Two 1,700-Gallon AvGAS 100LL fuel trucks.

Aero Mark also owns pumps for self-fueling with associated fuel tanks near the Red Baron Hangar.

The airport is in charge of maintaining and updating its Strom Water Pollution Plan (SWPPP) and has delegated the responsibility of Spill Prevention Control and Countermeasures (SPCC) to the FBO and any people offering refueling at the airport.

2.6.4 AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF)

As introduced in Section 2.1.5, Idaho Falls Regional Airport has an Index B for ARFF requirements. The ARFF index is determined by the longest air carrier aircraft with at least an average of 5 daily departures at the airport. Index B includes aircraft of at least 90 feet but less than 126 feet in length. **Table 2-27** summarizes the equipment and agent requirements for IDA based on its current Index B.

TABLE 2-27: INDEX B ARFF REQUIREMENTS

Equipment	Agent
1 Vehicle	500 pounds of sodium-based dry chemical, halon 1211, or clean agent and, 1,500 gallons of water and the commensurate quantity of AFFF for foam production
OR	
2 Vehicles	1 vehicle with 500 pounds of sodium-based dry chemical, halon 1211, or clean agent, or450 pounds of potassium-based dry chemical and water with a commensurate quantity of AFFF to total 100 gallons for simultaneous dry chemical and AFFF application and 1 vehicle carrying an amount of water and the commensurate quantity of AFFF so the total quantity of water for foam production carried by both vehicles is at least 1,500 gallons

Source: Title 14 CFR Part 139 Subpart D §139.317

IFFD Station 3 – IDA ARFF
Source: Google Earth

ARFF and emergency services at IDA are provided by the Idaho Falls Fire Department (IFFD). The Fire Station 3 of the Fire Department is located on the airport as shown on **Figure 2-15**. The building includes 3 bays for emergency vehicles and offices, as well as commodities for the fire crew on duty.

ARFF services are available24/7 every day of the year.. There is a Prior Permission Requirement (PPR) for any unscheduled air carrier aircraft arrival. The PPR is 24 hours before the arrival for unscheduled aircraft operations with more than 30 passenger seats.

The Idaho Falls Fire Department has a total of 3 ARFF vehicles dedicated for IDA as listed in **Table 2-28**. The response time to aircraft emergency is below the 3 minutes required by the CFR Part 139.

TABLE 2-28: IDA ARFF AND EMERGENCY VEHICLES

Truck Type	Description
Pumper	1,500-gallon-per-minute Class A pumper, 1,000-gallon water tank
Crash Truck	Oshkosh crash truck with 1,500-gallon water tank, 210-gallon foam tank, 500 pounds of purple K
Crash Truck	International ARFF crash truck with 500-gallon water tank, 500 pounds of purple K, 55 gallons of foam

Source: Idaho Falls Fire Department, 2009

Additional vehicles owned by the IFFD can be used at the airport, including one regional hazmat response vehicle for hazardous material and nine ambulances for ambulance services to and from one of the two local hospitals: the Eastern Idaho Regional Medical Center and the Mountain View Hospital.

2.6.5 AIRPORT MAINTENANCE

IDA SRE Building
Source: Google Earth

Airport maintenance includes maintenance of the airport facilities and property. It includes but is not limited to: airport buildings, pavement, fence, lawn, or snow removal. The airport staff is in charge of the airport maintenance under the responsibility of the airport director.

IDA owns and operates different pieces of equipment to achieve this mission, including:

- one 2002 Oshkosh truck snow pow rotary,
- one 1997 international dump truck,
- one 1977 John Deere grader,
- one 1995 Oshkosh snowplow and rotary snow blower,
- one 1998 broom sweeper,
- one 2006 New Holland tractor with loader,
- one 2007 Chevrolet ½-ton pickup,
- one 2007 Case front end loader,
- one 2007 small John Deere tract,
- one 2008 GMC ½-ton pickup,
- one 1998 GMC 1-ton pickup,
- one 2008 GMC ¾-ton pickup,
- one 2008 John Deer Mower rotary pull behind,
- one 2008 Bobcat utility vehicle,
- one 2008 Tenant sweeper,
- one 2009 Jacobsen mower rotary,
- one 1999 John Deere mower rotary pull,
- one 1997 Jacobsen mower rotary,
- one 1998 Graco walk behind paint striper walk behind,
- one 2014 Graco ride on paint striper,
- one 2014 Autocar Elgin sweeper,
- one 2013 Wausau sweeper runway,
- one 2010 Jacobsen turfcat,
- one 2015 Walker Mower,
- one 2005 Polaris 4 wheeler

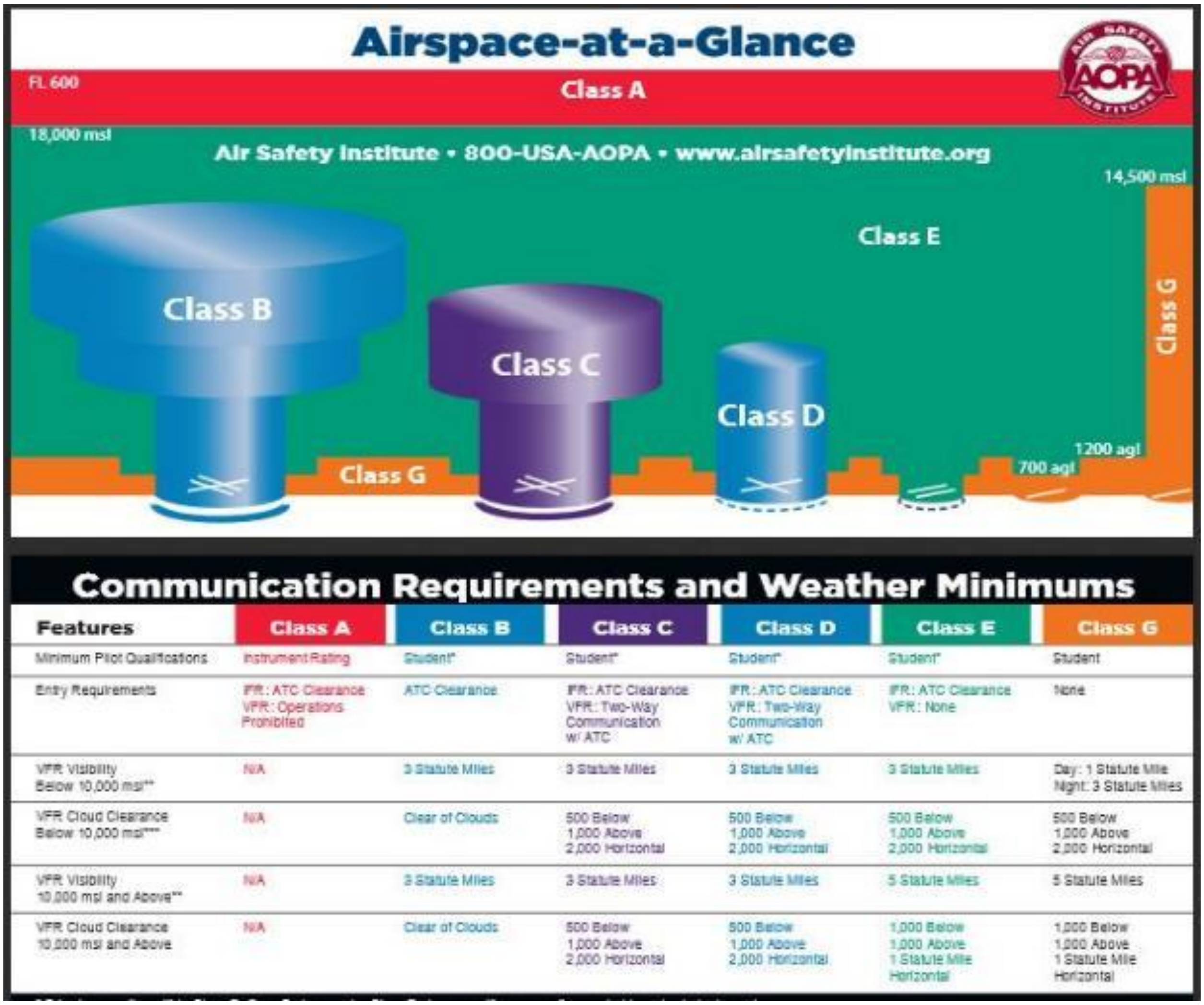
A new building was built in 2010 to store all maintenance and Snow Removal Equipment (SRE). It provides a 200' x 70' storage area with adjacent offices as shown on **Figure 2-19**.

2.7 AIRSPACE

The National Airspace System (NAS) is a combination of the various airspace, navigational facilities, and airports in the U.S. An airspace is a volume in the national sky in which aircraft operations have to follow a certain set of rules.

The NAS consists of airspace controlled by Air Traffic Control facilities (ATC), as well as uncontrolled airspace. The NAS has established operating procedures and requirements in both controlled and uncontrolled airspace. Controlled airspace includes more stringent requirements in terms of ATC procedures, aircraft equipment and pilot certification. Typically, the busier the airport and airspace, the more restrictive the airspace is and the more stringent the operating requirements.

2.7.1 SURROUNDING AIRSPACE



Features	Class A	Class B	Class C	Class D	Class E	Class G
Minimum Pilot Qualifications	Instrument Rating	Student*	Student*	Student*	Student*	Student
Entry Requirements	IFR: ATC Clearance VFR: Operations Prohibited	ATC Clearance	IFR: ATC Clearance VFR: Two-Way Communication w/ ATC	IFR: ATC Clearance VFR: Two-Way Communication w/ ATC	IFR: ATC Clearance VFR: None	None
VFR Visibility Below 10,000 msl**	N/A	3 Statute Miles	3 Statute Miles	3 Statute Miles	3 Statute Miles	Day: 1 Statute Mile Night: 3 Statute Miles
VFR Cloud Clearance Below 10,000 msl***	N/A	Clear of Clouds	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal
VFR Visibility 10,000 msl and Above**	N/A	3 Statute Miles	3 Statute Miles	3 Statute Miles	5 Statute Miles	5 Statute Miles
VFR Cloud Clearance 10,000 msl and Above	N/A	Clear of Clouds	500 Below 1,000 Above 2,000 Horizontal	500 Below 1,000 Above 2,000 Horizontal	1,000 Below 1,000 Above 1 Statute Mile Horizontal	1,000 Below 1,000 Above 1 Statute Mile Horizontal

Airspace at a Glance
Source: AOPA-2011

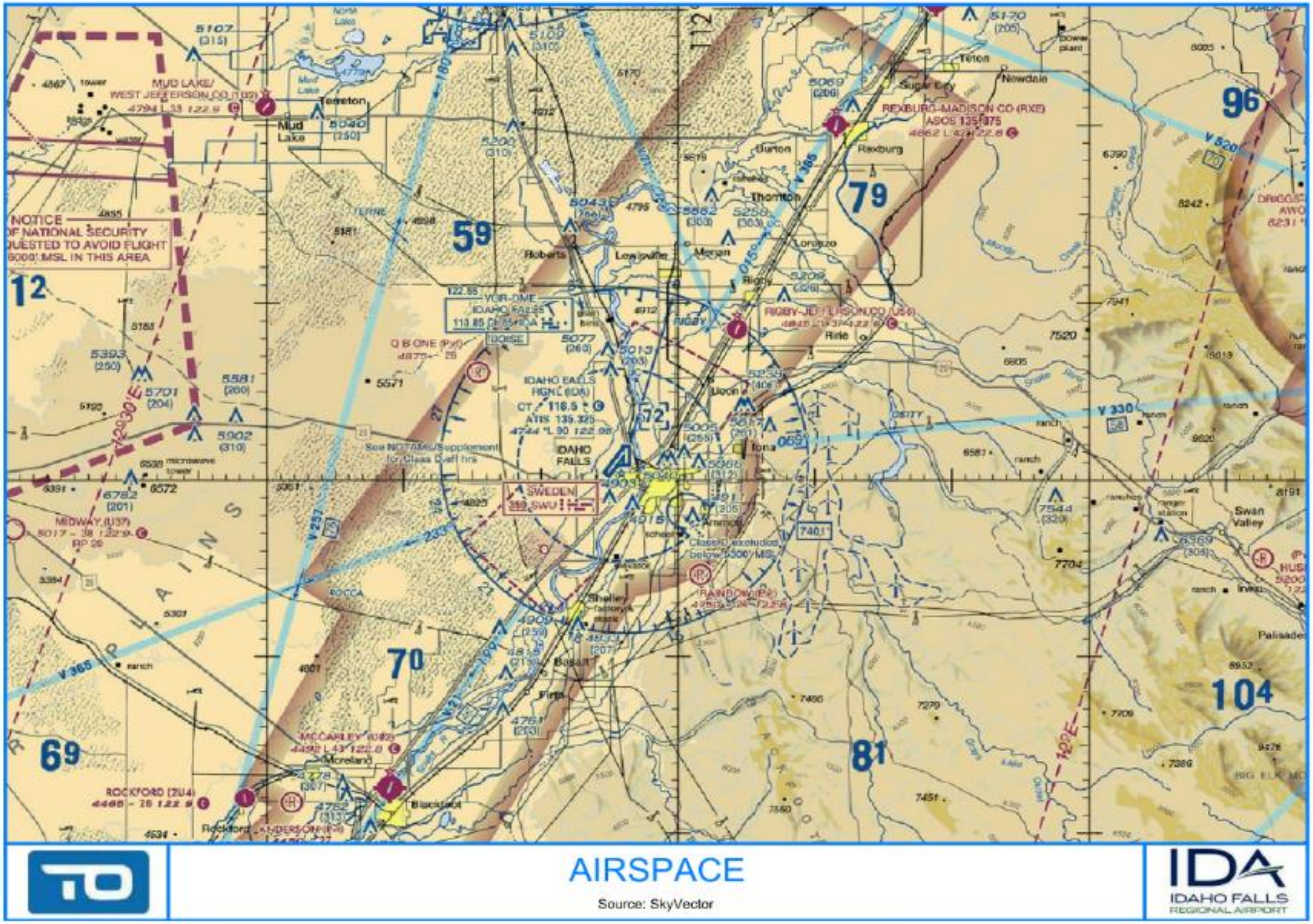
Idaho Falls Regional Airport is currently in controlled Class D airspace from the ground to an elevation of 7,200 feet Above Mean Sea Level (AMSL) or a height of 2,500 feet Above Ground Level (AGL). Above 7,200 feet AMSL (or 2,500 feet AGL), the airspace becomes Class E. The Class D airspace is declassified to uncontrolled Class E when the ATCT is closed.

The airport is under the jurisdiction of the Salt Lake Air Route Traffic Control Center (ARTCC) and the Boise Flight Service Station (FSS).

Pilots using IDA should be diligent and understand the airspace environment before operating in the vicinity of the airport. No special use airspaces, such as restricted areas, prohibited areas, warning area, military operation areas or alert areas exist in the immediate vicinity of the airport.

Figure 2-21 depicts the airspace sectional in the immediate vicinity of the airport.

FIGURE 2-21: IDAHO FALLS REGIONAL AIRPORT SURROUNDING AIRSPACE



2.7.2 CODE OF FEDERAL REGULATIONS PART 77 IMAGINARY SURFACES

Code of Federal Regulations (14 CFR) *Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace,* provides airspace protection requirements at public-use airports. It defines imaginary surfaces around an airport that are used to determine obstructions that may affect the safe and efficient use of navigable airspace and the operation of planned or existing air navigation or communication facilities. Objects that penetrate surfaces described in Part 77 are presumed hazards to air navigation unless further aeronautical studies conclude that the object is not a hazard.

Airspace requirements and surfaces are determined by the weight of the aircraft that predominantly operates at an airport and the type of instrument approach, if any, that exists or is planned at an airport.

Airport runways which predominantly accommodate aircraft 12,500 pounds maximum gross takeoff weight (MGTOW) or less are designated as “Utility” runways. Runways accommodating aircraft of greater than 12,500 pounds MGTOW are designated as “Other Than Utility” runways. Either “Utility” or “Other Than Utility” CFR Part 77 runway designations can include visual only runways, runways with a precision instrument approach or runways with a non-precision instrument approach (straight-in approaches only).

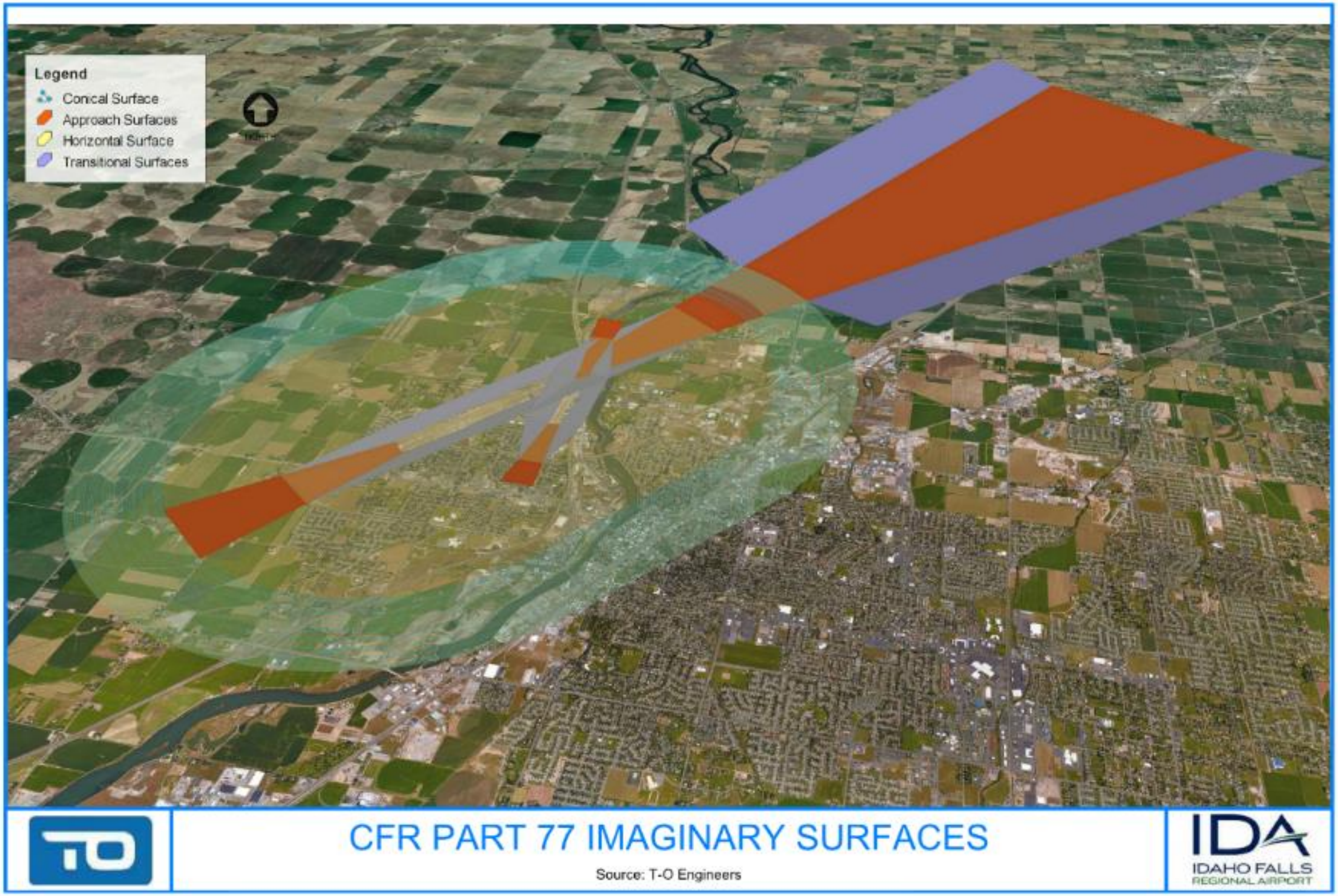
Once a runway has been designated as either ‘Utility or “Other Than Utility” and the type of approach identified, specific airspace surface dimensions can be determined. For public-use civilian airports, CFR Part 77 identifies the following “imaginary” airport airspace surfaces:

- Primary Surface
- Approach Surface
- Transitional Surface
- Horizontal Surface
- Conical Surface

Currently, for purposes of CFR Part 77, Runways 17/35 and 2/20 at IDA Airport are considered “Other than Utility” runways (by conclusion of the 2010 Airport Master Plan). Runway 17-35 has only visual approaches while Runway 2 is served by non-precision instrument approaches and Runway 20 has precision and non-precision instrument approaches.

A description of each CFR Part 77 airspace surface and specific dimensions for IDA are included below. **Figure 2-22** depicts the Primary, Approach and Transitional “imaginary” airspace surfaces as defined in CFR Part 77.

FIGURE 2-22: CFR PART 77 IMAGINARY SURFACES



Primary Surface

The Primary Surface is a rectangular surface longitudinally centered on the runway. For hard surfaced runways, the surface extends a distance of 200 feet beyond each runway end. Its elevation is the same as that of the closest point on the runway centerline. The width of the Primary Surface is set by the most demanding type of approach, existing or planned, for either end of the runway.

The dimensions of the Primary Surfaces at IDA Airport are summarized in **Table 2-29**

TABLE 2-29: PRIMARY SURFACES DIMENSIONS - IDA

Runway	Classification	Primary Surface Dimensions
2-20	Other Than Utility* Precision	1000' Wide Starts 200' from Runway Ends
17-35	Other Than Utility* Visual	500' Wide Starts 200' from Runway Ends

*2010 Airport Master Plan by Armstrong Consultants

Source: CFR Part 77

Approach Surface

The Approach Surface is trapezoidal in shape. It begins at the ends of the Primary Surface and slopes upward and outward. An Approach Surface is applied to each runway end and is based upon the type of approach planned for that runway end.

The dimensions of the Approach Surfaces at IDA Airport are summarized in **Table 2-30**

TABLE 2-30: APPROACH SURFACES DIMENSIONS - IDA

Runway	Classification	Approach Surface Dimensions
2	Other Than Utility* Non-Precision	Inner Width: 1,000ft Outer Width: 3,500ft Length: 10,000ft Slope: 34:1 Starts 200' from Runway End
20	Other Than Utility* Precision	Inner Width: 1,000ft Outer Width: 16,000ft Length: 50,000ft Slope: 50:1 and 40:1 Starts 200' from Runway End
17-35	Other Than Utility* Visual	Inner Width: 500ft Outer Width: 1,500ft Length: 5,000ft Slope: 20:1 Starts 200' from Runway Ends

*2010 Airport Master Plan by Armstrong Consultants

Source: CFR Part 77

Transitional Surface

The Transitional Surface is a sloping area that begins at the edge of the primary surface and slopes upward at a ratio of 7:1 until it intersects the horizontal surface. It also extends horizontally 5,000 feet from the edge of the approach surface which project through and beyond the limits of the conical surface.

Horizontal Surface

The Horizontal Surface is an oval-shaped, level plane situated 150 feet above the airport elevation, the perimeter of which is established by swinging arcs of specified radii from the center of each end of the Primary Surface of each runway and connecting the adjacent arcs by lines tangent to those arcs. The arcs at either end of a runway will have the same value. The radius of each arc is:

- 5,000 feet for all runways designated as "Visual" (Runway 17-25).
- 10,000 feet for all other runways (Runway 2-20).

The elevation of the Horizontal Surface at Idaho Falls Regional Airport is 4,894 feet MSL

Conical Surface

The Conical Surface is a sloping area whose inner perimeter conforms to the shape of the Horizontal Surface. It extends outward for a distance of 4,000 feet measured horizontally, while sloping upward at a 20:1 ratio resulting in an additional 200 feet of height around the Horizontal Surface.

The elevation at the outer edge of the conical surface at IDA Airport is 5,094 feet MSL.

2.7.3 APPROACH/DEPARTURE STANDARDS

Removal of obstructions to the CFR Part 77 Imaginary Surfaces, as defined previously, is not required by the FAA under Part 77. However, construction of non-compatible uses that are considered hazards may be seen as a violation of an Airport's grant assurances and could affect federal funding. Furthermore, additional Obstacle Clearance Surfaces (OCS) are defined in FAA Advisory Circular 150/5300-13A to evaluate the minimum required obstruction clearance for approach and departure procedures:

- Threshold Siting Surface (TSS): Its characteristics are based on the type of approach and aircraft that use the runway. This surface influences the location of a runway threshold.

- Departure Surface: Its dimensions are the same for all runways with instrument departure regardless of the type of aircraft that use the runway. This surface affects the Take Off Distance Available (TODA).

- Glide Path Qualification Surface (GQS): It applies to runways having instrument approaches with vertical guidance.

TSS
The runway threshold should be located in order to avoid any penetration of the TSS. For IDA, the TSS is defined as shown in **Table 2-31**

TABLE 2-31: TSS SURFACES DIMENSIONS - IDA

Runway	Classification	TSS Surface Dimensions*
17-35	Approach ends of runway expected to serve large airplanes-Visual Day/Night	Length: 10,000ft Slope: 20:1 Starts at Runway Threshold
2	Approach end of runway expected to support instrument night operations serving greater than AAC B	Trapezoid Shape Length: 10,000ft Width (Inner/Outer): 800'/3,800' Slope: 20:1 Starts 200' from Runway Threshold
20	Approach end of runway expected to accommodate instrument approaches with visibility minimums <3/4 SM	Trapezoid Shape Length: 10,000ft Width (Inner/Outer): 800'/3,800' Slope: 34:1 Starts 200' from Runway Threshold

**Dimensions are for planning purposes only. Specific cases should be evaluated based on FAA Order 8260.3C*

Source: Table 3-2 - AC 150/5300-13A Change 1

Departure Surface
A departure surface is defined for any runway with instrument operations. One of the ways to mitigate penetration to this surface is to modify the TODA for the given runway. Instrument departure procedures are defined for all runways at IDA.

The departure surface is a trapezoid defined with a slope of 40:1 and extending 10,200 feet from the end of the TODA. The inner and outer widths are respectively 1,000 feet and 6,466 feet.

Glide Path Qualification Surface (GQS)
The GQS exists for runways having an instrument approach with vertical guidance and will apply to Runway 20 and Runway 2.

The standard GQS is a trapezoid defined with a slope of 30:1 and extending 10,000 feet from the runway threshold. The inner width is 350 feet and outer width is 1,520 feet.

2.7.4 OBSTRUCTIONS TO AIR NAVIGATION

Any existing or future object penetrating a CFR Part 77 Imaginary Surface, or OCS will be considered an obstruction. Obstructions to the OCS must be mitigated. **Table 2-32** lists the obstructions to air navigation in the vicinity of the runways at IDA Airport.

TABLE 2-32: OBSTRUCTION DATA

Runway End	Object	Height Above RW CL*	Distance from RW CL	Penetration	Surface Penetrated	Close In Obstruction?**
17-35	Hangars	19' Min	365'	4' Min	Part 77 Transitional Surface (7:1)	No
2-20	ATCT	76'	800'	33'	Part 77 Transitional Surface (7:1)	No
20	Aircraft on Taxiway A or Runway 17 end	Variable	Variable	Variable	Part 77 Approach Surface (50:1) and TSS (34:1)	Yes
2	Aircraft on Taxiway A or Runway 17 end	Variable	Variable	Variable	Departure Surface (40:1)	Yes
2-17-35	As defined in Take Off Minimum Document for IDA				Departure Surface	-

**Object elevation is estimated. New survey data is required*
***Obstruction inside the Primary Surface*
Source: FAA Form 5010, T-O Engineers, Google Earth, NFDC IDA Take Off Minima

The airport is located in a valley on relatively flat terrain. The only existing obstructions identified during this inventory are the first line of GA hangars located east of Runway 17/35 and the ATCT adjacent to the terminal building. More precise survey data should be gathered to determine the exact amount of penetration to the transitional surfaces.

Obstructions to Air Navigation
Source: Google Earth, T-O Engineers

2.8 ENVIRONMENTAL AND LAND USE COMPATIBILITY

Effective compatible land use planning serves to protect the public health of both aircraft operators and the surrounding communities from safety related concerns as a result of airport operations. Such planning also serves to preserve the quality of life of surrounding neighborhoods from the by-products of airport/aircraft operations.

Effective land use planning via mechanisms such as zoning protects airspace, defines use of land and considers aircraft noise impacts. Currently the FAA considers airport compatible land use planning to be a top priority for airport sponsors to be aware of, concerned with, and prepared to address through local planning and the airport planning process.

Environmental considerations are required as part of the National Environmental Policy Act (NEPA) for every project involving federal actions, such as funding or approval. It also ensures that all environmental impacts have been identified, addressed and mitigated through adequate actions and documentations.

2.8.1 ENVIRONMENTAL OVERVIEW

An exhaustive Environmental Overview has been conducted as part of this project and is presented in **Chapter X or appendix X**.

This document assesses the environmental baseline of the airport based on criteria defined by NEPA. It provides background data used to develop environmental-friendly alternatives for proposed development at the airport. It also gathers data that can be used for any environmental documentation that might be required for future development, such as a Categorical Exclusion (CATEX), Environmental Assessment (EA), or Environmental Impact Statement (EIS).

2.8.2 IDAHO FALLS COMPREHENSIVE PLAN AND ZONING ORDINANCES

Comprehensive Plan

The Idaho Falls Regional Airport is located within the jurisdiction of the city of Idaho Falls and is owned and operated by the city. The city's current Comprehensive Plan (IFCP) was adopted in December 2013. This plan sets the general vision for zoning in the city.

The plan states that IDA would like to be consulted for any development within 4 miles of its borders. In addition, the plan identifies the approach and transitional surfaces as areas of concerns for development due to noise and aircraft operations. It recommends height restrictions by zoning ordinance and land use compatible with noise levels.

Zoning Ordinance

The City of Idaho Falls has implemented a zoning ordinance for its zoning requirements. As shown on **Figure 2-23**, the airport is located in an area with a zoning code of M-1 for Manufacturing.

By the zoning ordinance, the "airport" is a compatible use for this zone. The ordinance does not set specific height requirements "except those prescribed by the approach Zones of the airport" (*Zoning Ordinance City of Idaho Falls*).

2.8.3 BONNEVILLE COUNTY COMPREHENSIVE PLAN AND ZONING ORDINANCES

Comprehensive Plan

The Bonneville County Comprehensive Plan (BCCP) was adopted in 1995 and was last revised in 2013. The plan's recommendations for zoning include:

"Protect the public investment in Fanning Field (the Idaho Falls municipal airport), as well as the safety of aircraft pilots and passengers, by continuing to enforce the airport zoning requirements

recommended by the Federal Aviation Administration. This strategy is an extension of current policy."

Source: Bonneville County Comprehensive Plan, 2013

Zoning Ordinance

The last Zoning Map for Bonneville County was published in 1995 and is shown on **Figure.2-23** The County has a zoning ordinance last updated in 2011. The ordinance defines different zones to implement height restrictions around the airport. These surfaces include:

- Instrument Approach Zone
- Non-Instrument Approach Zone
- VFR Approach Zone
- Transition Zones
- Horizontal Zone
- Conical Zone

Each zone has a height restriction defined to limit the height of every structure and tree under the zone. According to the ordinance, "*no structure or tree shall be erected, altered, allowed to grow, or maintained in any zone created by this chapter to a height in excess of the height limit herein established for such zone" (BCCP).* In addition, the ordinance defines use restrictions to prohibit any land use that could create interference with radio communication between the airport and aircraft. It also requires owners of any nonconforming structure or tree to allow the installation of adequate markings and lightings by the airport.

The regulation presented in this zoning ordinance should not be used in a retroactive manner to require the removal or alteration of any structure or tree existing before the effective date of the associated chapter.

2.8.4 AREA OF IMPACT AGREEMENT

Idaho Code Section 67-6526 requires Bonneville County and the City of Idaho Falls to define a city Area of Impact (AOI) and to determine the comprehensive plan and zoning ordinance that apply to this area.

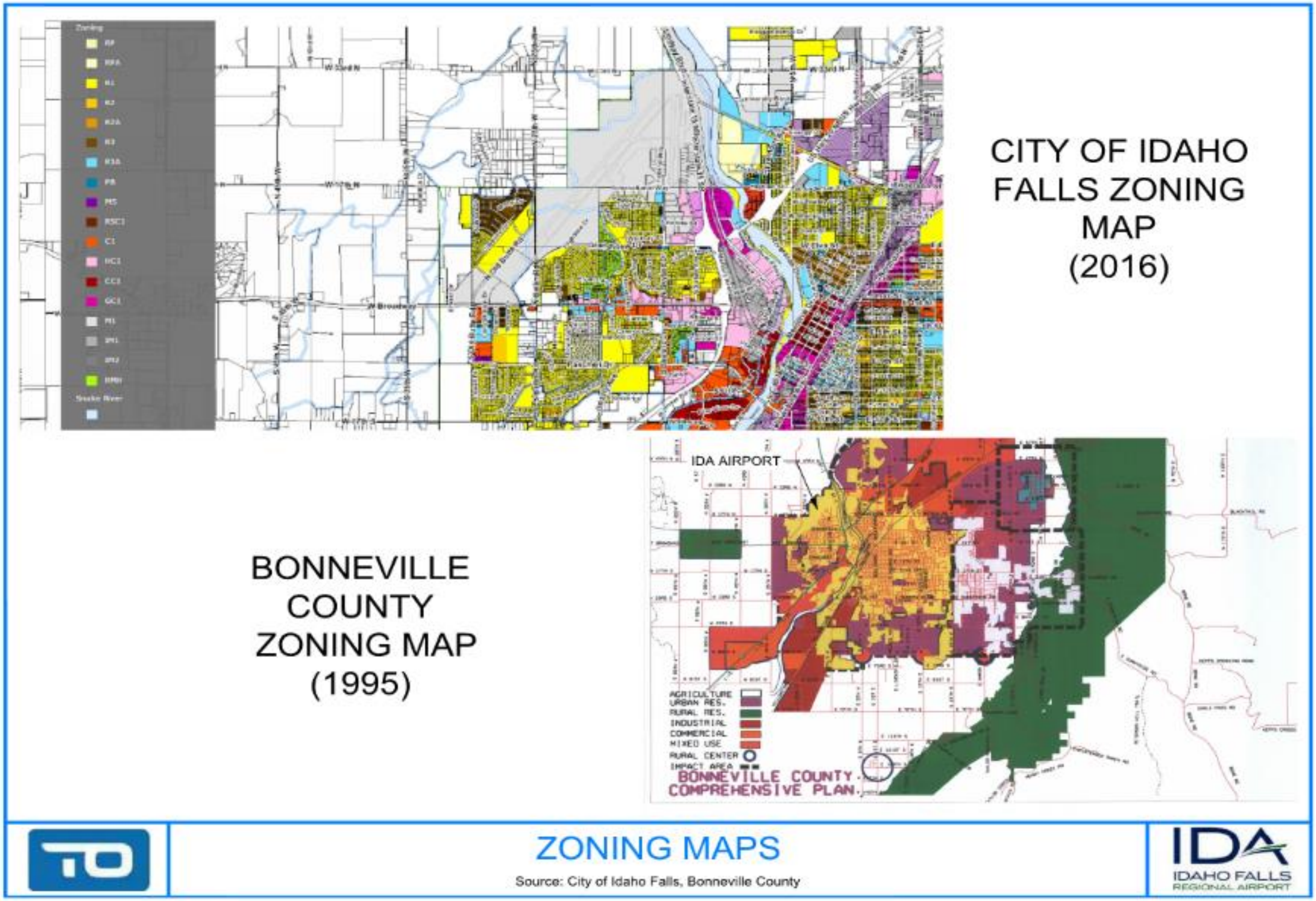
The County's comprehensive plan and zoning ordinance applies in the AOI and is supposed to match the City's zoning recommendation and regulation. Outside this area of impact, the County is in charge of the zoning.

2.8.5 INCOMPATIBLE LAND USE

Because the Idaho Falls Regional Airport receives federal funds from the FAA, the grant assurances require the owner to maintain appropriate land use on airport property and within the various protection areas and zones.

As mentioned in Section 2.4.1, the airport has highways and commercial building located within the RPZs of Runways 20, 17 and 35. According to the FAA's land use requirements, these types of uses are incompatible to the intent of the RPZs and should be mitigated. Recreational facilities, as described in Section 2-8-6, are also located on airport property as described on the most recent airport property map. Further study will be required to evaluate this land use compatibility with the Airport's grant assurances.

FIGURE 2-23: ZONING MAPS



2.8.6 SECTION 4(F) PROPERTIES

Section 4(f) of the Department of Transportation Act (DOT Act) of 1966 has for objective to protect the following types of properties from any development:

- Publicly Owned Park and Recreation Areas
- Publicly Owned Wildlife and Waterfowl Refuges
- Public or Privately Owned Historic Sites

Numerous parcels identified as airport property on the current exhibit A property map, including parcels acquired with federal funding, are being used as public parks. Non aeronautical uses of airport property should be reviewed for conformance with th City's federal grant obligation.

As shown on **Figure 2-24,** there are four parks publicly owned by the City of Idaho Falls in the direct vicinity of the airport. The canals around the airport have historical value. The Idaho Falls Historic District including the "Red Baron" hangar and caretakers cabin located East of Runway 17-35 was added to the National Register of Historic Places in 1997.

The Cultural Resources Inventory in **Appendix X** conducted as part of this study highlights the current limits of the historic district as shown on **Figure 2-25**. The report and figure also show that this historical district could potentially be expanded as depicted on the map. An eligible historical district "*possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development." In other words, a district "derives its importance from being a unified entity, even though it is often composed of a wide variety of resources*." (National Register Bulletin 15).

FIGURE 2-24: SECTION 4(F) PROPERTIES

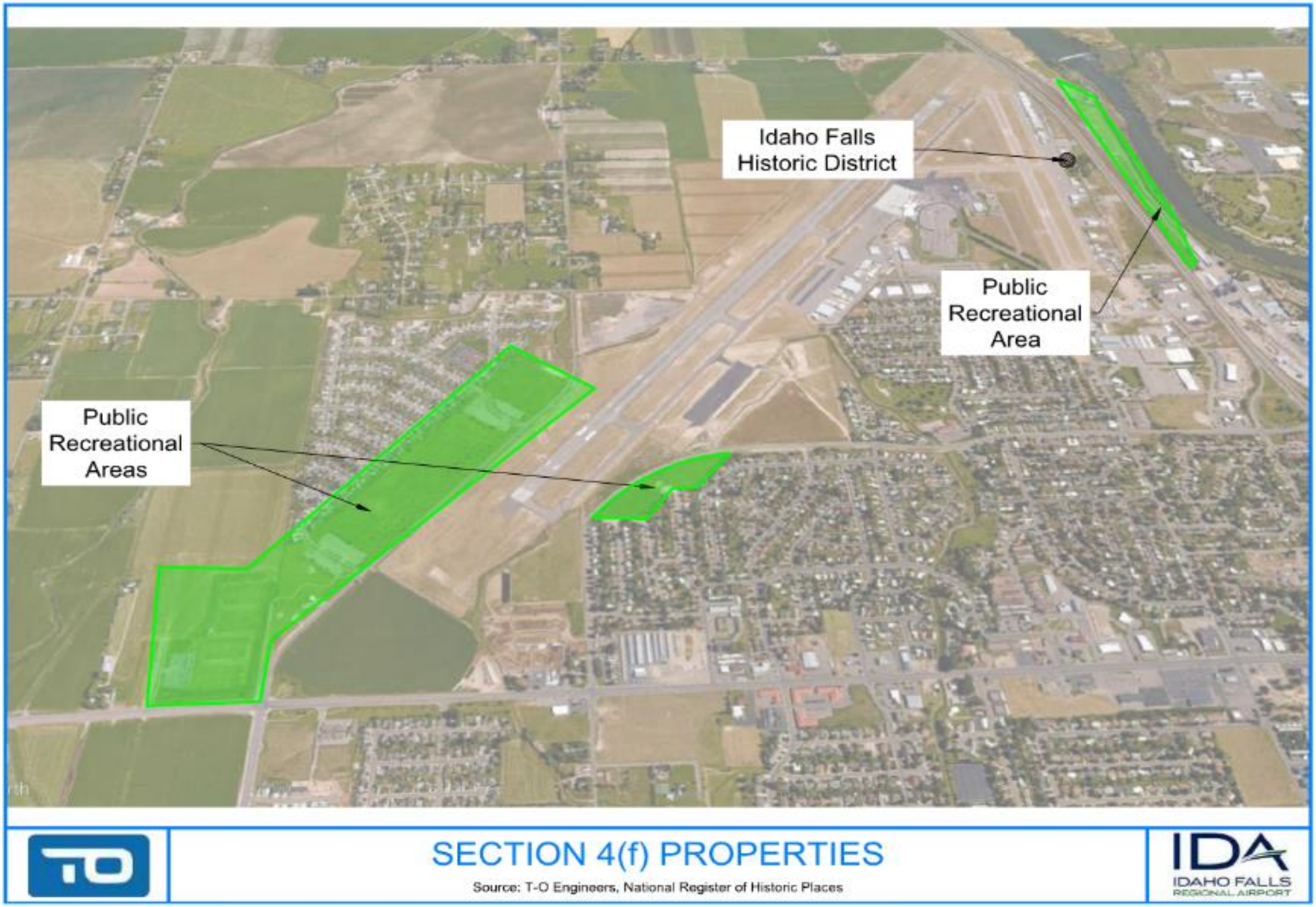
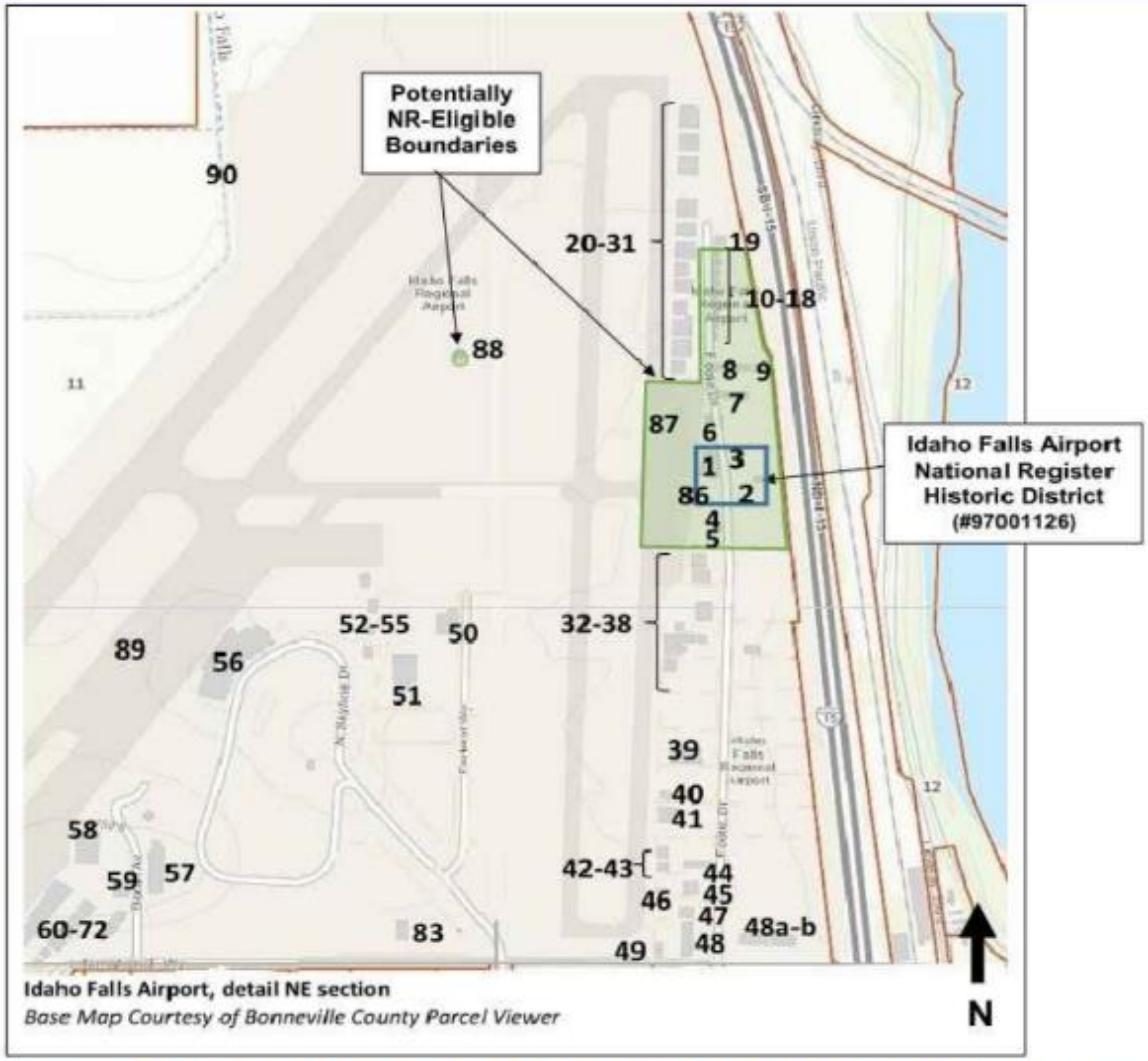


FIGURE 2-25: EXISTING AND ELIGIBLE HISTORICAL DISTRICT



EXISTING AND ELIGIBLE HISTORICAL DISTRICT

Source: Preservation Solutions LLC-August 2016

IDA IDAHO FALLS REGIONAL AIRPORT

2.8.7 NOISE LEVEL

Airport noise is generated by aircraft operations. Its level and area of impact will be influenced by the number of aircraft operations and the type of aircraft using the airport. The noise impact should be limited as much as possible with appropriate land use in order to protect both the surrounding community and the ability for the airport to develop.

Noise level measurements use the Decibel (dB) unit to characterize the Day Night Average Sound Level (DNL). The DNL represents the average noise level over a period of 24 hours. The noise between 10pm and 7am is increased by 10dB to account for the inconvenience of noise generated by night operations.

The FAA and State regulations define appropriate land use around the airport based on the DNL contours (industrial, churches, schools, hospitals, residences…). Further details are provided about compatible land use in **Chapter X**. Significant noise is commonly defined as the DNL 65dB. **Figure 2-26** depicts the latest noise contours for IDA Airport as published in the City's Comprehensive Plan in 2013.

2.8.8 THROUGH-THE-FENCE (TTF)

Through-the-fence activities are those which reside on property outside of the airport property boundary that have an access directly onto airport property. No TTF activities currently exist at the airport. Also, residential TFF is not allowed at commercial service airports such as IDA.

2.8.9 FLOODWAY/FLOODPLAIN IMPACTS ON THE AIRPORT

An examination of the Flood Insurance Rate Maps (FIRM) depicted on **Figure 2-27** shows that Idaho Falls Regional Airport is in a mapped area of the Federal Emergency Management Agency (FEMA).

The map shows the area around the Snake River (Zone A) as a FEMA Special Flood Hazard Area (SFHA), also known as the "100-year flood". The airport is located in Zone C which indicates an area with minimal flooding.

2.8.10 INDUSTRIAL PARK

In 1966, the FAA approved the development of an industrial park for non-aeronautical activity south of Runway 17-35 on airport property. Further, in 1972, the FAA approved additional non-aeronautical development within the RPZ of Runway 17-35.

These stages of development are shown on **Figure 2-28**. In both cases, the consents for developments were subject to conditions as described in the associated correspondence shown in **Appendix XX**. Currently, the industrial park contains numerous businesses with non-aeronautical activities with two specifically located in the RPZ of Runway 35:

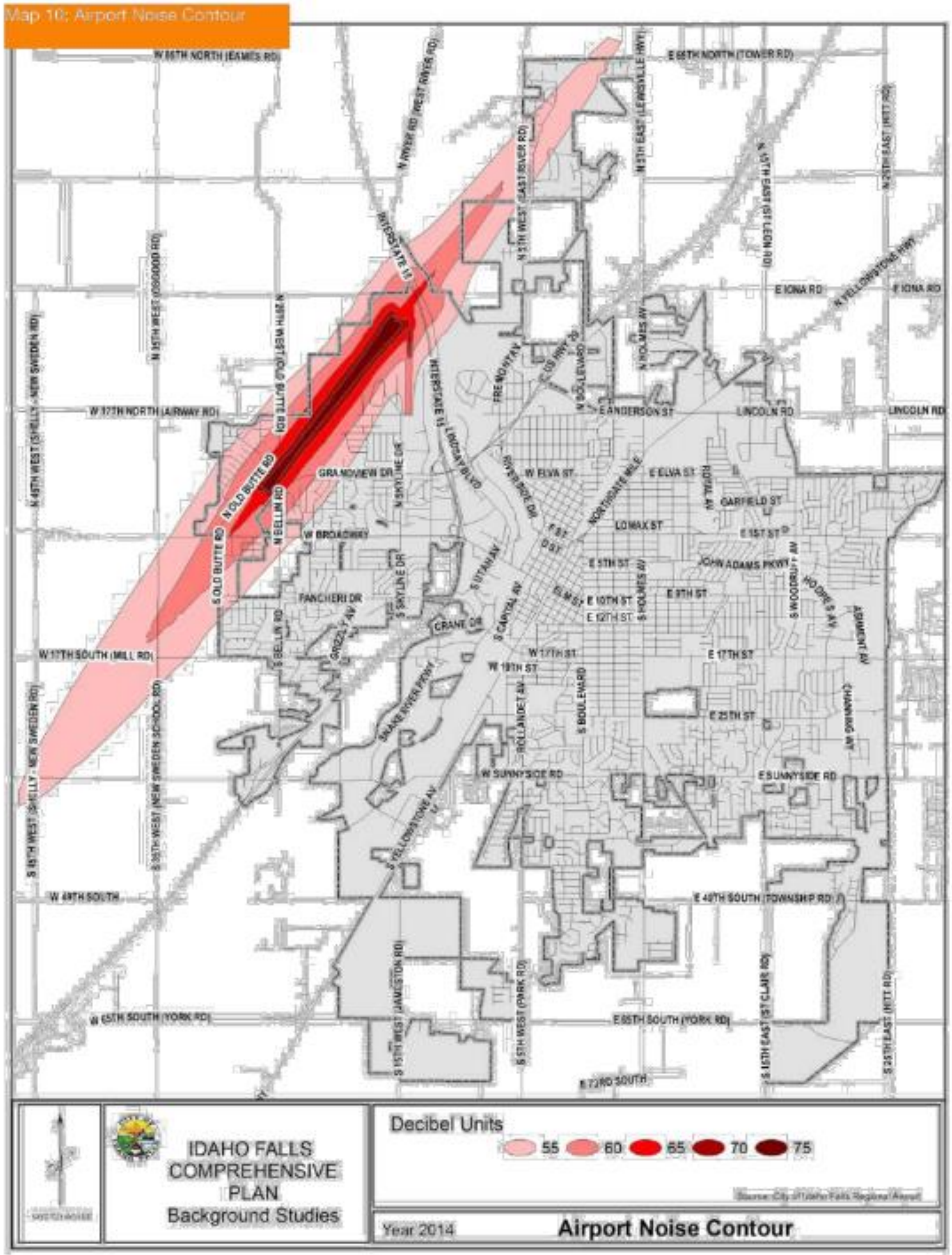
- Western Transmission/Idaho Transmission Warehouse
- Skyline Storage

Western Transmission and Idaho Transmission Warehouse are sister companies sharing several buildings in the Runway 35 RPZ. Western Transmission is a light industrial business that specializing in the repair of automotive transmissions. Idaho Transmission Warehouse is an automotive part warehouse that also manufactures toque converters. Idaho Transmission Warehouse and Western Transmission have approximately 20 employees between the two businesses.

Skyline Storage is a storage facility consisting of both indoor and outdoor storage. The main structure located in the Runway 35 RPZ is not currently occupied but is leased to Western Transmission for the storage of automotive parts. Three other storage buildings are located to the east of the main structure. Some private garages are also located at the edge of the RPZ.

RPZ Runway 35 End
Source: Google Earth, T-O Engineers

FIGURE 2-26: NOISE CONTOURS



NOISE CONTOURS

Source: City of Idaho Falls Comprehensive Plan

FIGURE 2-27: FIRMA

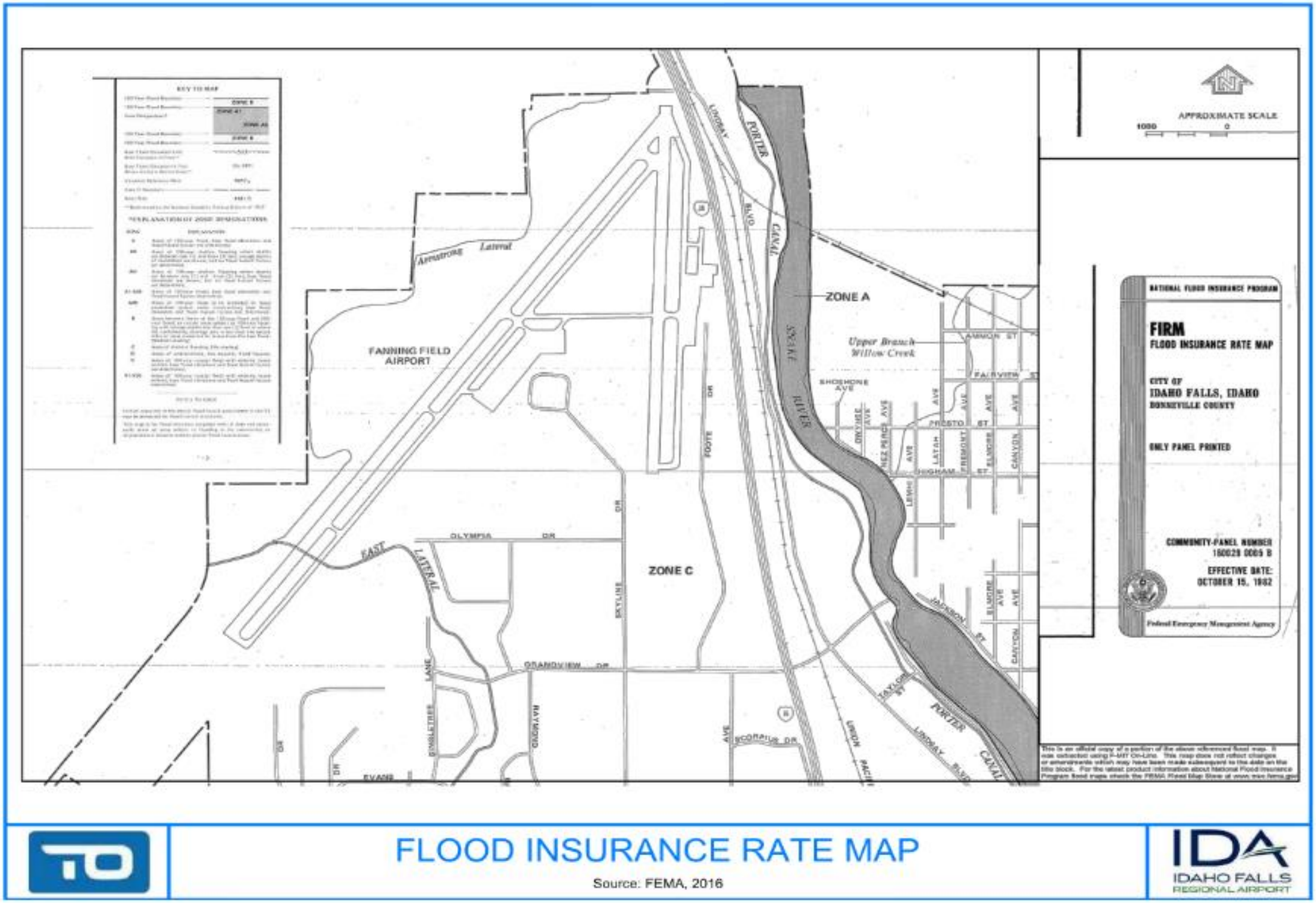
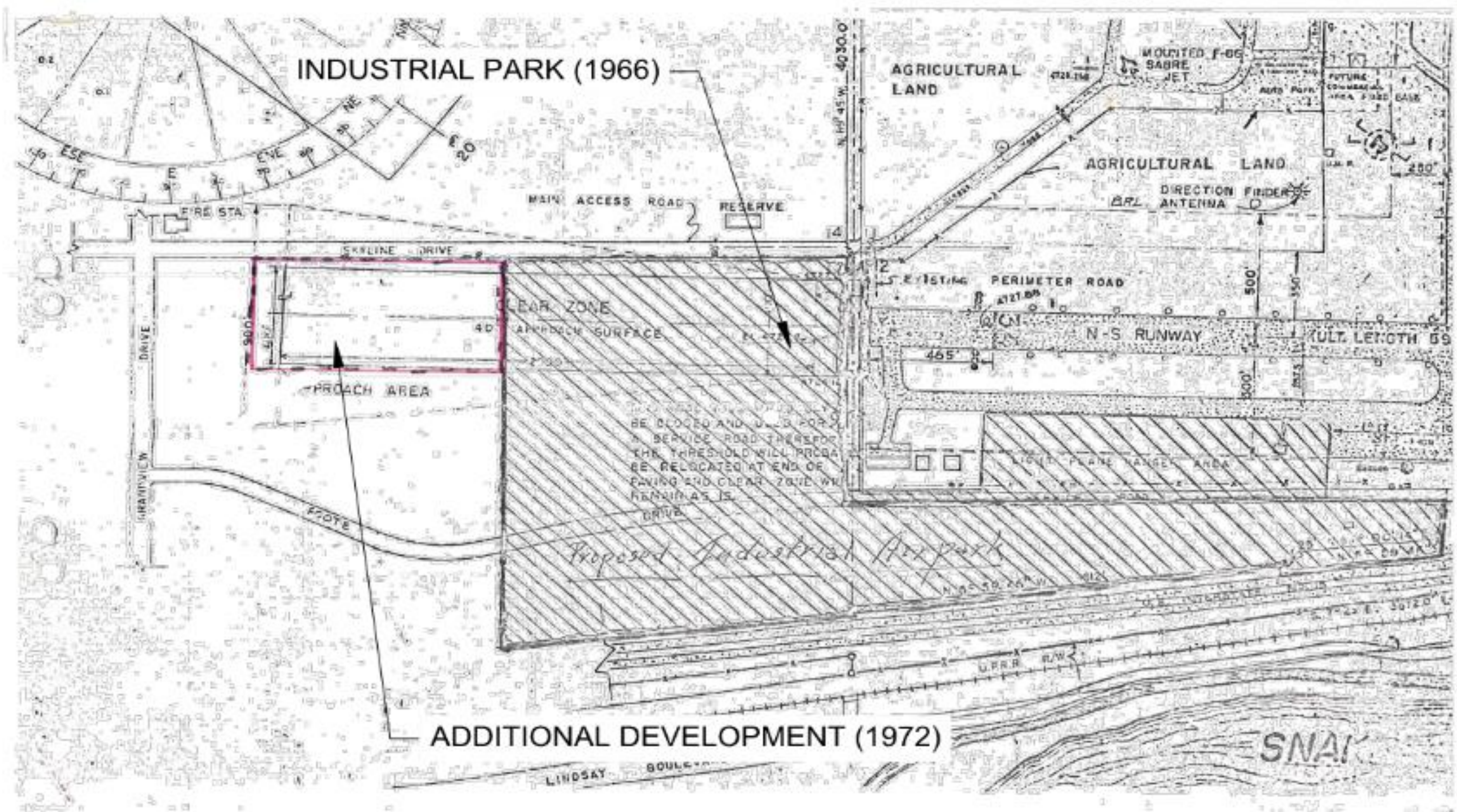


FIGURE 2-28: INDUSTRIAL PARK



INDUSTRIAL PARK

Source: T-O Engineers, Idaho Falls Regional Airport

2.9 WEATHER AND CLIMATE

2.9.1 LOCAL WEATHER AND CLIMATE

Idaho Falls is located in southeastern Idaho characterized by its semi-arid climate. According to the National Weather Services (NWS), this climate is the consequence of the geography of the area with the Cascade and Sierra Mountains to the west and the Bitterroot and Rocky Mountains to the North that block the moisture from the Pacific. The summers are generally dry, while the winters can be wet and windy with a few days with freezing temperatures. Cloudy days are common in winter and springs are also typically wet and windy.

According to the National Oceanographic and Atmospheric Administration (NOAA), over the last ten years (2006-2016), the coldest months have been January and February with minimum temperatures in the 10’s and maximums in the 30’s. The hottest month appears to be July with maximum temperatures in the high 90’s and minimums in the 50’s. The rainiest months are April and May and significant precipitation occurs during the end of the year from October to December.

2.9.2 TEMPERATURE AND PRECIPITATION

The National Centers for Environmental Information (NCEI) from the NOAA, gathers data for temperature and precipitation available from a weather station located on the Idaho Falls Regional Airport.

Table 2-33 summarizes the data available, for a 10-year period between 2006 and 2015, for temperature and precipitation respectively.

TABLE 2-33: TEMPERATURES AND PRECIPITATIONS HISTORY

Statistic-10 years	Value
Temperatures	
Average Annual	44.6°F
Average Maximum Annual	57.9°F
Average Minimum Annual	31.3°F
Hottest Month	July
Mean Daily Maximum of Hottest Month	88.5°F
Coolest Month	January
Mean Daily Minimum of Coolest Month	13.9°F
Precipitations	
Average Annual Precipitation	10.95 in.
Months with Most Precipitation	April-May
Average Annual Snowfall	35.3 in.

Source: NCEI NOAA 2006-2016

2.9.3 AUTOMATED WEATHER

Idaho Falls Regional Airport is equipped with a FAA certified Automated Surface Observing System (ASOS - USW00024145). This system provides the following meteorological parameters 24/7:

- Barometric Pressure
- Altimeter
- Wind Speed and Direction
- Temperature/Dew Point
- Visibility
- Sky Condition
- Cloud Ceiling Height
- Precipitation

2.9.4 WIND DATA AND WIND ROSE

Wind direction and speed observations were collected from the airport ASOS data available on the NOAA website. The data cover the last 10 years, from 2006 to 2015.

This data was summarized in FAA format, counting the number of observations in 10-degree increments by standard wind speed increments. The observations from the 10-year period were then entered into the FAA's Wind Analysis design tool on the FAA Airport GIS Program website to produce the wind roses.

A minimum wind coverage of 95 percent must be achieved for the primary runway, or combined with a crosswind runway, for a maximum allowable crosswind component based on the RDC. The results of the wind analysis are summarized in **Table 2-34**. Based on this data, Runway 2-20 provides adequate wind coverage for all RDC.

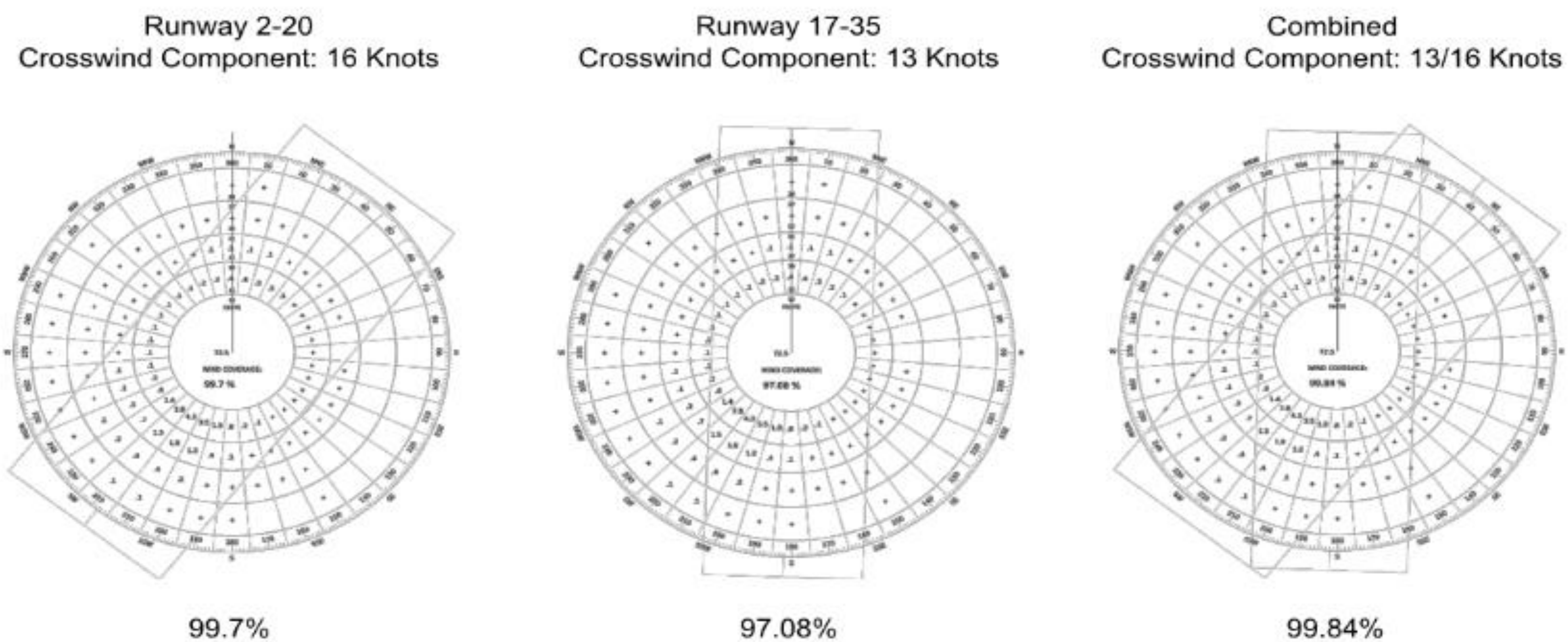
TABLE 2-34: WIND ANALYSIS

Runway	Crosswind Component	Wind Coverage
All Weather		
2-20	10.5 / 13 / 16 Knots	97.96% / 99.08% / 99.7%
17-35	10.5 / 13 Knots	93.97% / 97.08%
Combined	10.5 / 13 / 13&16 Knots	99.24% / 99.66% / 99.84%
IFR		
2-20	10.5 / 13 / 16 Knots	98.24% / 99.22% / 99.74%
17-35	No IFR Operations	

Source: NCEI NOAA 2006-2015, FAA AGIS Wind Rose Tool

Wind roses for Runway 2/20, Runway 17/35 and both runways are depicted in **Figure 2-29** and **Figure 2-30.**

FIGURE 2-29 –WIND ROSES – ALL WEATHER

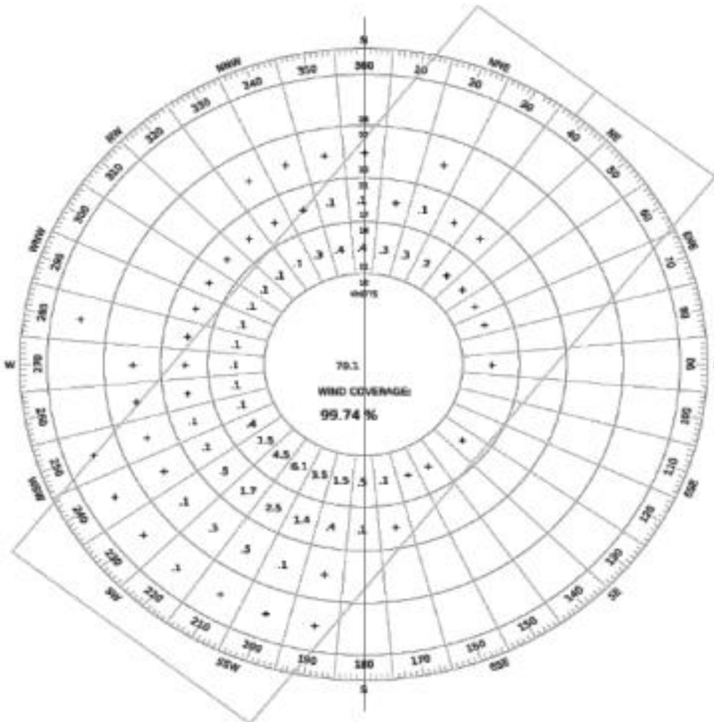


WINDROSES ALL WEATHER

Source: FAA AGIS, NOAA NCEI

FIGURE 2-30 –WIND ROSES – IFR

Runway 2-20
Crosswind Component: 16 Knots



99.74%

WINDROSES ALL WEATHER

Source: FAA AGIS, NOAA NCEI

2.10 SUMMARY OF NON-STANDARD CONDITIONS AND CONCERNS

Table 2-35 summarizes all the non-standard conditions, issues, and concerns mentioned in this chapter.

TABLE 2-35: SUMMARY OF NON-STANDARD CONDITIONS AND CONCERNS

Non-Standard Conditions
Airport
- The 2010 IASP Recommends Additional Apron Spaces - 3 Hot Spots - Add two new signs on Taxiway B and identify Taxiway C - Remove section of Taxiway A between Runway 17 and Runway 20 ends and add appropriate signage - Change Runway number (02/20) to help avoid confusion - similar sounding runways - Overlapping RSA at Runway 2 and 17 ends
Runway 2
- Roads, Buildings, and Recrational Areas in Approach RPZ
Runway 20
- Taxiway A, Runway 17 End, and Highway in Approach RPZ - Taxiway A in POFZ
Runway 17-35
- Fence, Access Road, and Utilities in ROFA and ROFZ in the Southwest Corner - Penetration of Part 77 Transitional Surface by Hangars
Runway 17
- Highway in RPZ
Runway 35
- Building and Industrial Park in RPZ
Taxiway B
- Air Operation Area in TSA and TOFA
Runway 2 - Runway 17 - Runway 35
- Various Penetrations of Departure Surfaces as Defined in the Take Off Minima Document for IDA

Source: T-O Engineers

3.0 AVIATION ACTIVITY FORECASTS

3.1 INTRODUCTION

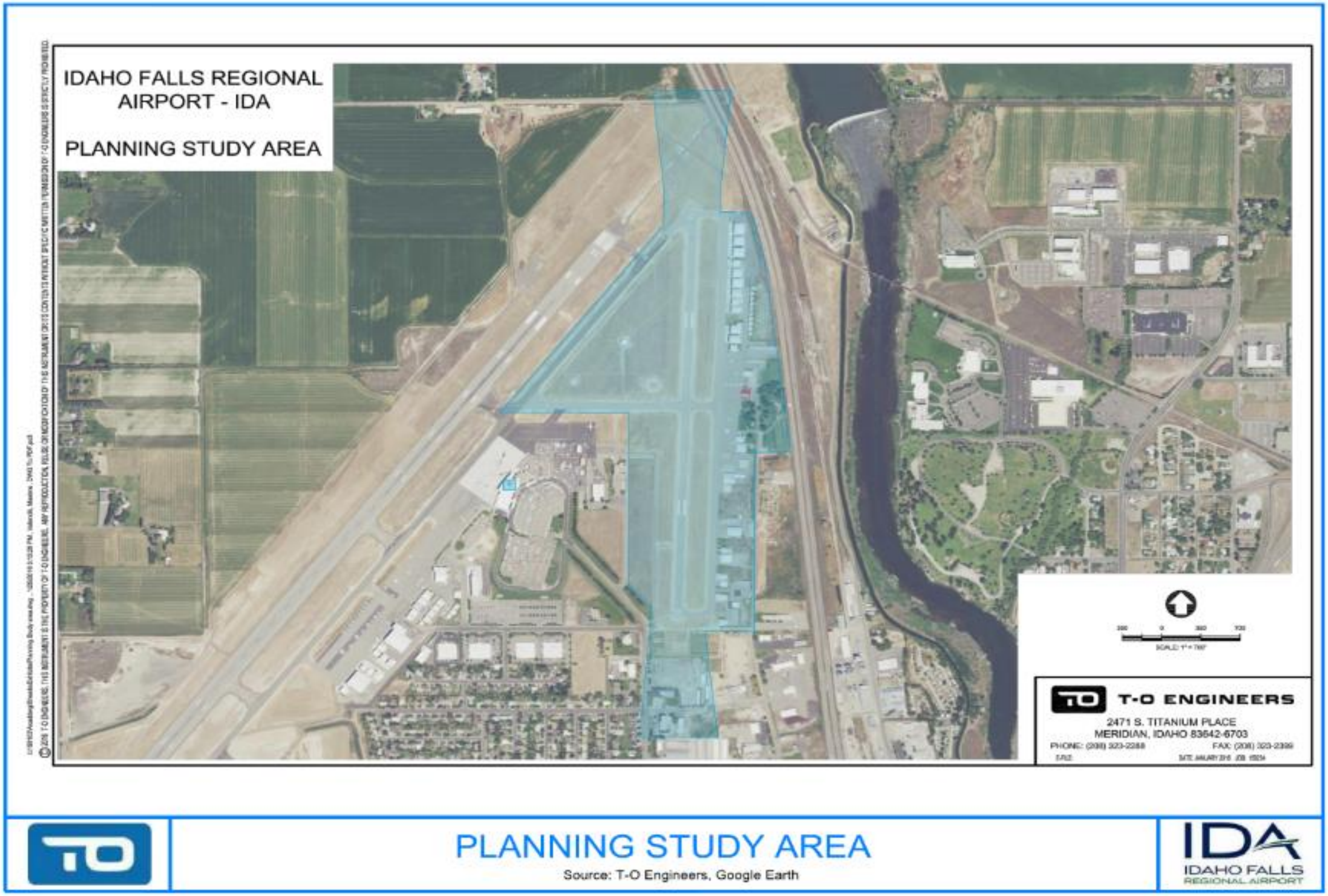
This chapter discusses the findings and methodologies used to project aviation demand at Idaho Falls Regional Airport (IDA). As part of this planning study, the forecasts will provide a framework to guide the analysis for future development needs and alternatives in the Planning Study Area as depicted on **Figure 3-1**.

It should be recognized that there are always short- and long-term fluctuations in an airport's activity due to a variety of factors. These fluctuations cannot be anticipated but this forecast attempts to account for them using industry accepted standards.

Projections of aviation activity for the airport were prepared for the 20-year planning horizon, including near-term (2016-2020), mid-term (2021-2025), and long-term (2026-2035) timeframes, with 2015 as the base year. These projections are generally unconstrained and assume that the airport will be able to develop the various facilities necessary to accommodate based aircraft and future operations. The projections of aviation demand developed for Idaho Falls Regional Airport are documented in the following sections:

- Historical Aviation Activity
- Trends/Issues Influencing Future Growth
- Projections of Aviation Demand
- Instrument Approach Operations
- Peaking Analysis
- Runway Use
- Critical Aircraft
- Summary

FIGURE 3-1 – PLANNING STUDY AREA



3.1 HISTORICAL AVIATION ACTIVITY

Historical aviation activity data typically provide the baseline from which future activity can be projected. Historical aviation activity is commonly available from different sources:

- FAA 5010 Master Records
- FAA Terminal Area Forecast (FAA TAF)
- Operational Network (OPSNET)
- Air Carrier Activity Information System (ACAIS)
- Traffic Flow Management System Counts (TFMSC)

While historical trends are not always reflective of future periods, historical data does usually provide insight into how local, regional, and national demographic and aviation-related trends may be tied to the Airport. Aviation activity is measured in operations where an operation is defined as either a takeoff or a landing. Touch-and-go operations consist of one takeoff and one landing, so two operations. There are air carrier, air taxi, general aviation (GA), and military operations at IDA.

Aircraft operations are divided into two types: local and itinerant. Local operations are classified as operations by aircraft that:

- Operate in the local traffic pattern or within sight of the airport, or
- Are known to be departing for or arriving from flights in local practice areas within a 20-mile radius of the airport, or
- Execute simulated approaches or low passes at the airport.

Itinerant operations are defined as:

- Operations performed by an aircraft that lands at an airport, arriving from outside the airport area, or departs an airport and leaves the airport area.

3.1.1 FEDERAL AVIATION ADMINISTRATION (FAA) TERMINAL AREA FORECAST AND 5010 RECORDS

The FAA TAF summarizes enplanement and aircraft operations as reported by the Air Traffic Control (ATC) services, when available, or in the FAA Form 5010 reports. The most current FAA 5010 master records (2015) reports a total of 171 based aircraft at the airport. **Table 3-1** and **Table 3-2** summarize historical based aircraft, aircraft operations, and enplanement data available in the TAF for IDA. It should be noted that the data provided by the airport indicate a total of approximately 100 aircraft currently based at IDA.

TABLE 3-1 – TAF - HISTORICAL AIRCRAFT OPERATIONS AND BASED AIRCRAFT

Year	Itinerant Operations				Local Operations		Total Ops	Based Aircraft
	Air Carrier	Air Taxi/ Commuter	GA	Military	GA	Military		
2005	726	12,800	19,715	133	12,116	125	45,615	83
2006	384	13,283	17,579	115	10,941	31	42,333	91
2007	600	12,776	18,257	189	12,735	46	44,603	95
2008	1,722	9,738	15,419	165	16,023	103	43,170	144
2009	1,218	8,755	16,687	184	15,233	42	42,119	150
2010	1,268	8,087	14,897	279	13,568	6	38,105	151
2011	594	8,982	13,612	176	14,097	8	37,469	166
2012	806	8,318	13,916	112	15,816	32	39,000	170
2013	1,098	8,502	12,517	128	13,516	74	35,835	170
2014	973	10,740	13,123	163	8,696	14	33,709	170
2015	1,218	10,060	13,695	214	8,881	92	34,160	170

Source: FAA Terminal Area Forecast (TAF)

TABLE 3-2 – TAF - HISTORICAL ENPLANEMENTS

Year	Air Carrier	Commuter	Total
2005	78	128,019	128,097
2006	11,484	137,088	148,572
2007	13,055	150,280	163,335
2008	13,245	131,957	145,202
2009	15,789	124,601	140,390
2010	19,417	123,235	142,652
2011	41,842	104,624	146,466
2012	50,443	108,724	159,167
2013	47,779	104,426	152,205
2014	48,242	111,891	160,133
2015	48,182	105,901	154,083

Source: FAA Terminal Area Forecast (TAF) 2005-2015

3.1.2 OPERATIONAL NETWORK (OPSNET)

By FAA Order 7210.55 *Operational Data Reporting Requirements*, the OPSNET is the official data reporting system for aircraft operations. **Table 3-3** shows the historical aircraft operations at IDA, as reported by the OPSNET.

TABLE 3-3 – OPSNET - HISTORICAL AIRCRAFT OPERATIONS

Year	Itinerant Operations				Local Operations		Total Ops
	Air Carrier	Air Taxi/ Commuter	GA	Military	GA	Military	
2005	720	12,953	14,494	127	11,221	134	39,649
2006	362	12,990	17,668	133	10,702	22	41,877
2007	862	12,444	17,085	175	13,254	40	43,860
2008	1,546	9,248	16,296	166	16,175	109	43,540
2009	1,309	8,489	15,997	196	15,189	36	41,216
2010	1,082	8,330	14,820	277	13,588	8	38,105
2011	590	9,166	13,487	175	14,441	12	37,871
2012	978	7,765	13,842	105	15,505	26	38,221
2013	965	9,203	12,562	114	12,414	74	35,332
2014	1,057	10,649	13,195	173	9,033	14	34,121
2015	1,152	10,140	13,058	267	8,391	144	33,152

Source: FAA OPSNET 2005-2015

3.1.3 AIR CARRIER ACTIVITY INFORMATION SYSTEM (ACAIS)

The ACAIS is a FAA database that gathers revenue passenger boarding and cargo data. It is used to support the distribution of funds to airports through the Airport Improvement Program (AIP). The ACAIS reports only enplanements at IDA, as summarized in **Table 3-4**.

TABLE 3-4 – ACAIS - HISTORICAL ENPLANEMENTS

Year	Total Enplanements
2005	135,058
2006	152,146
2007	166,503
2008	148,584
2009	138,957
2010	144,315
2011	149,315
2012	160,456
2013	147,073
2014	166,864
2015	147,923

Source: FAA ACAIS 2005-2015

3.1.4 Preferred Historical Aviation Activity Data

The OPSNET represents the official source of historical aircraft operations. The TAF provides historical data but also forecasts of future activity based upon these historical values. TAF forecasts will be used as a reference to evaluate the future forecasts of aviation activity. It is relevant to evaluate the difference in terms of historical data between these two sources. ACAIS and TAF also provide different information for enplanements.

Except for military activity, the historical operations reported in both the TAF and OPSNET are not significantly different. The difference in enplanements between ACAIS and TAF varies over the years but the average difference is not significant over the last 10 years.

Table 3-5 summarizes the average variation in aircraft operations and enplanements between sources at IDA.

Table 3-5 – IDA Operations – Variation Between OPSNET and TAF

Type of Operation	Variation of OPSNET from TAF*	Variation of ACAIS from TAF*
Itinerant Air Carrier	2.86%	-
Itinerant Air Taxi/Commuter	-0.46%	-
Itinerant General Aviation	-3.32%	-
Itinerant Military	2.12%	-
Local General Aviation	-1.27%	-
Local Military	7.07%	-
Enplanements	-	1.08%

*10-year average between 2005 and 2015

Source: T-O Engineers

Based on this analysis, T-O Engineers selected the historical airport activity from the following sources:

- OPSNET: All Aircraft Operations
- TAF and 5010 Master Records: Based Aircraft. Although the base year 2015 will be adjusted to 100 based aircraft to match the data provided by the airport.
- ACAIS: Enplanements

Figure 3-2 depicts the preferred historical data for aviation activity at IDA.

3.1.5 TOTAL OPERATIONS

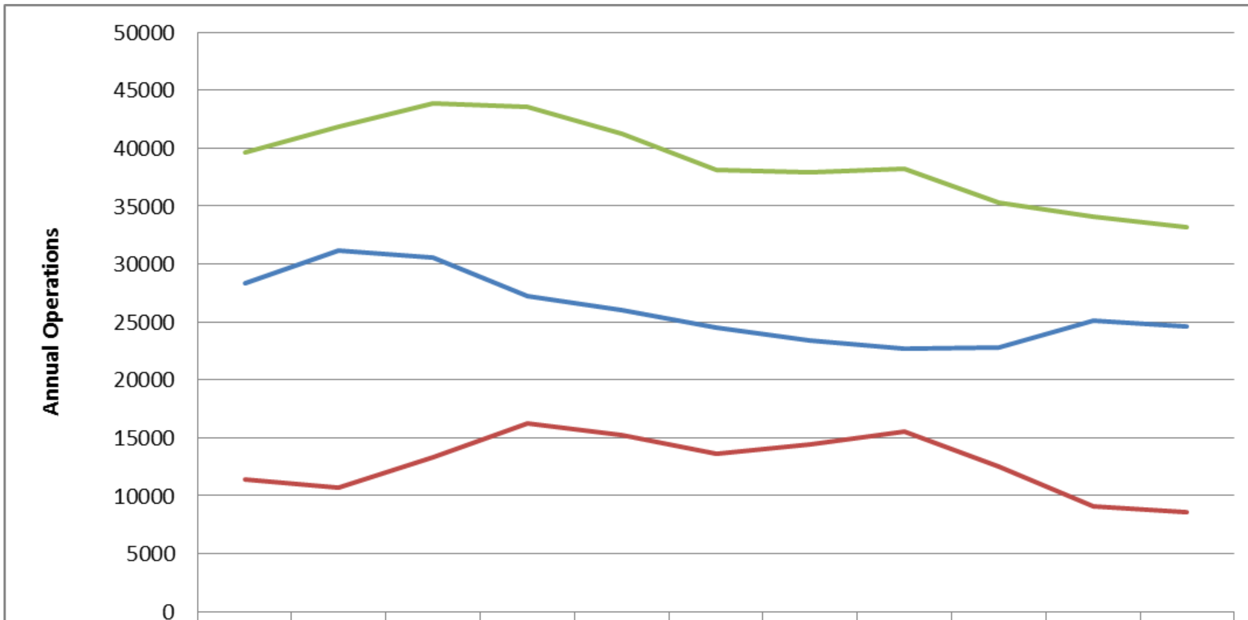
As shown on **Figure 3-2**, total annual operations have globally decreased over the last 10 years. The Compound Annual Growth Rate (CAGR) is -1.8 percent between 2005 and 2015.This decrease is mostly due to a decline in the number of local operations.

Between 2005 and 2015 local operations have fluctuated with two main peaks in 2008 and 2012 at 16,284 and 15,531 operations respectively. Since 2012, local operations have been on a continuous decrease. The overall CAGR for the past 10 years is -2.8 percent.

On the other hand, itinerant operations were on a continuous decline between 2006 and 2012 falling from 28,294 to 22,692 annual operations. For the last 3 years, itinerant aircraft have experienced an increase before stabilizing around 25,000 annual operations. The CAGR over the last 10 years is -1.4 percent.

Between 2005 and 2015, the percentage of local operations has ranged between 25% and 40%. The average split between local and itinerant operation is 33% Local and 67% Itinerant.

FIGURE 3-2 – TOTAL OPERATIONS



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Itinerant	28294	31153	30566	27256	25991	24509	23418	22690	22844	25074	24617
Local	11355	10724	13294	16284	15225	13596	14453	15531	12488	9047	8535
Total	39649	41877	43860	43540	41216	38105	37871	38221	35332	34121	33152

Source: T-O Engineers, OPSNET 2005-2015

3.1.6 AIR CARRIER

Air Carrier operations play an important role in the overall airport activity. Though they only represent an average of 4 percent of the itinerant operations at the airport (or 2.7 percent of the total operations), they play a significant role in the local economy through the transport of both passengers and cargo.

Over the last 10 years, Air Carrier operations have fluctuated with ups and downs. These variations are mostly due to airline consolidation and the closing or opening of new routes. A change in the type of aircraft used can also generate variation in the number of operations.

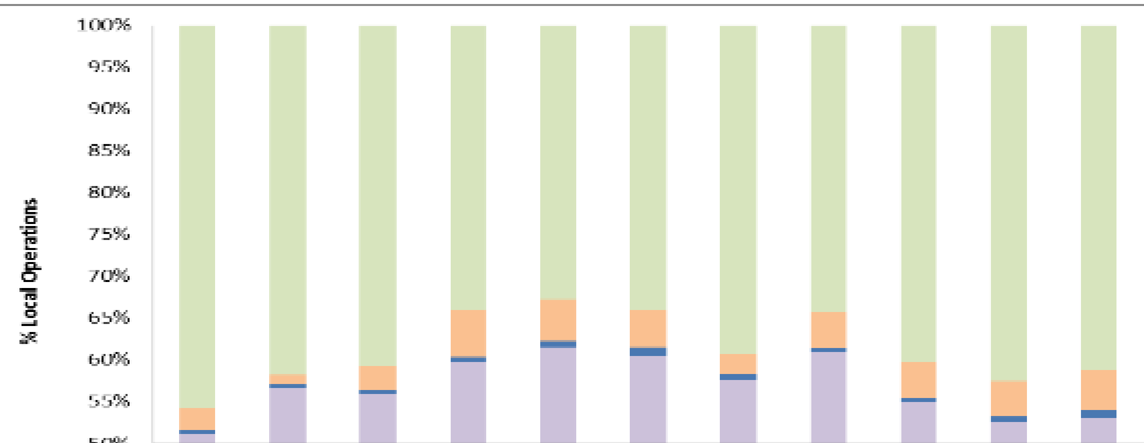
The lowest Air Carrier activity occurred in 2006 with 362 annual operations. The peak of activity took place in 2008 with 1,546 annual operations. The CAGR between 2005 and 2015 is 4.8 percent. Between 2001 and 2015, Air Carrier operations have increased from 590 to 1152 annual operations. Typical air carrier aircraft operating at IDA include the Airbus A319, the McDonnell Douglas MD80, or the Canadair CRJ 700 and 900.

3.1.7 Air Taxi and Commuter Operations

Air Taxi operations include aircraft with less than 60 passenger seats or a cargo payload under 18,000lbs. They transport cargo on a scheduled or charter basis, and/or passengers on demand or on a limited schedule (less than 4 round trips a week). Commuter operations encompass airplanes with less than 60 passenger seats that carry passengers on a scheduled basis with at least 5 round trips a week. Both Air taxi and Commuter airlines operate under the CFR Part 135.

According to the FAA OPSNET and as depicted on **Figure 3-3**, Air Taxi and Commuter operations have continuously represented between 35 and 45 percent of the total itinerant operations. The average percentage of Air Taxi and Commuter operations at the airport between 2005 and 2015 is 39 percent or 26 percent of the total operations at the airport.

Figure 3-3 – Split of Itinerant Operations



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Air Taxi	12953	12990	12444	9248	8489	8330	9166	7765	9203	10649	10140
Air Carrier	720	362	862	1546	1309	1082	590	978	965	1057	1152
Military	127	133	175	166	196	277	175	105	114	173	267
General Aviation	14494	17668	17085	16296	15997	14820	13487	13842	12562	13195	13058

Source: T-O Engineers, OPSNET 2005-2015

Between 2005 and 2012, Air Taxi operations at IDA decreased from 12,953 to 7,765 operations. Since 2012, they have experienced an increase and stabilized between 10,000 and 10,500 annual operations. The CAGR over the last 10 years is -2.4 percent. Typical commuter aircraft operating at IDA include the Canadair CRJ 200, the Swearingen Metroliner, the Atr 42-300, or the Cessna Caravan.

3.1.8 MILITARY OPERATIONS

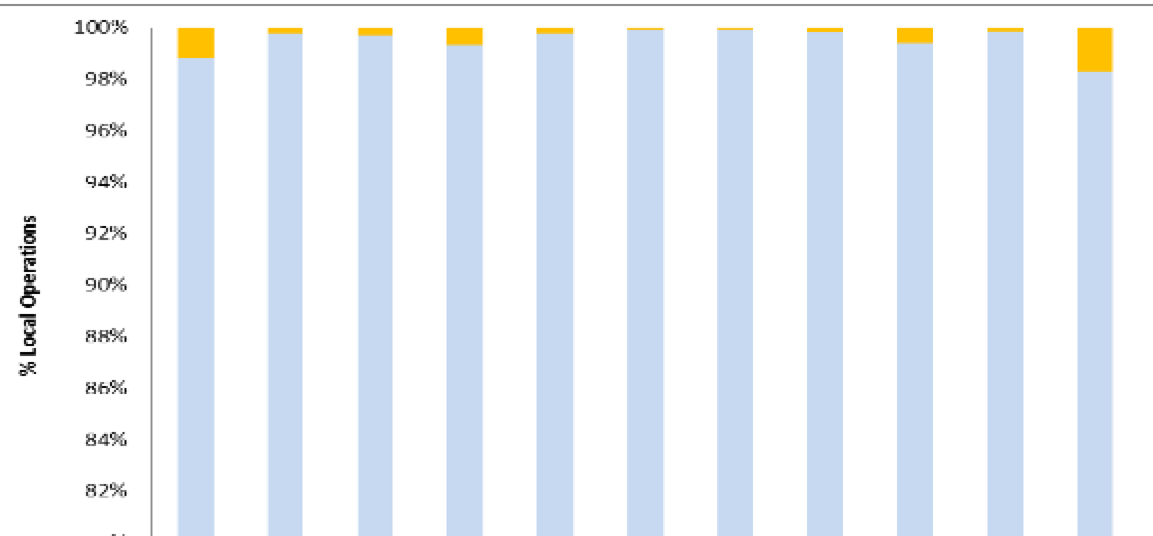
Military operations, both local and itinerant, are very volatile and hard to predict. They do not follow a specific pattern, especially for civil airports like IDA. Over the last ten years, military operations at IDA have fluctuated substantialy. They represent a very small portion of the overall airport activity at less than 1 percent of the total operations.

3.1.9 GENERAL AVIATION OPERATIONS

General aviation operations are those not done by airlines, charter operators or military. They include but are not limited to business, sightseeing, search and rescue, training, recreational, or air ambulance flights.

Figure 3-4 shows that local general aviation has represented an average of 99.5 percent of the total local operations between 2005 and 2015. Local GA experienced two peaks in 2008 and 2012 with 16,175 and 15,505 annual operations respectively. This activity has been declining since then with a low of 8,391 operations in 2015. The CAGR for the past decade is -2.8 percent.

FIGURE 3-4 – SPLIT OF LOCAL OPERATIONS



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Military	134	22	40	109	36	8	12	26	74	14	144
General Aviation	11221	10702	13254	16175	15189	13588	14441	15505	12414	9033	8391

Source: T-O Engineers, OPSNET 2005-2015

The percentage of itinerant GA operations has remained fairly constant over the last 10 years. In average, they encompass 57 percent of the itinerant operations at IDA or 38 percent of the total operations. The peak activity occured in 2006 with 17,668 operations and it decreased to 12,562 operations in 2013. Since then itinerant GA operations have increased and stabilized at about 10,000 annual operations. The CAGR between 2005 and 2015 is -1.0 percent.

The overall decrease in General Aviation activity follows the national trend for GA operations. The local activity at IDA seems to be more impacted than the itinerant activity. Local operations are highly influenced by local socio-economic factors while itinerant operations are also tied to other factors.

3.1.10 Based Aircraft

According to the FAA TAF, the number of aircraft based at Idaho Falls Regional Airport has experienced a constant increase with a CAGR of 7.4 percent over the last 10 years. According to the latest FAA 5010 Reports (2015), there are currently 128 single-engine airplanes, 29 multi-engine airplanes, 6 jets, 5 helicopters, and 3 gliders based at the airport; a total of 171 aircraft.

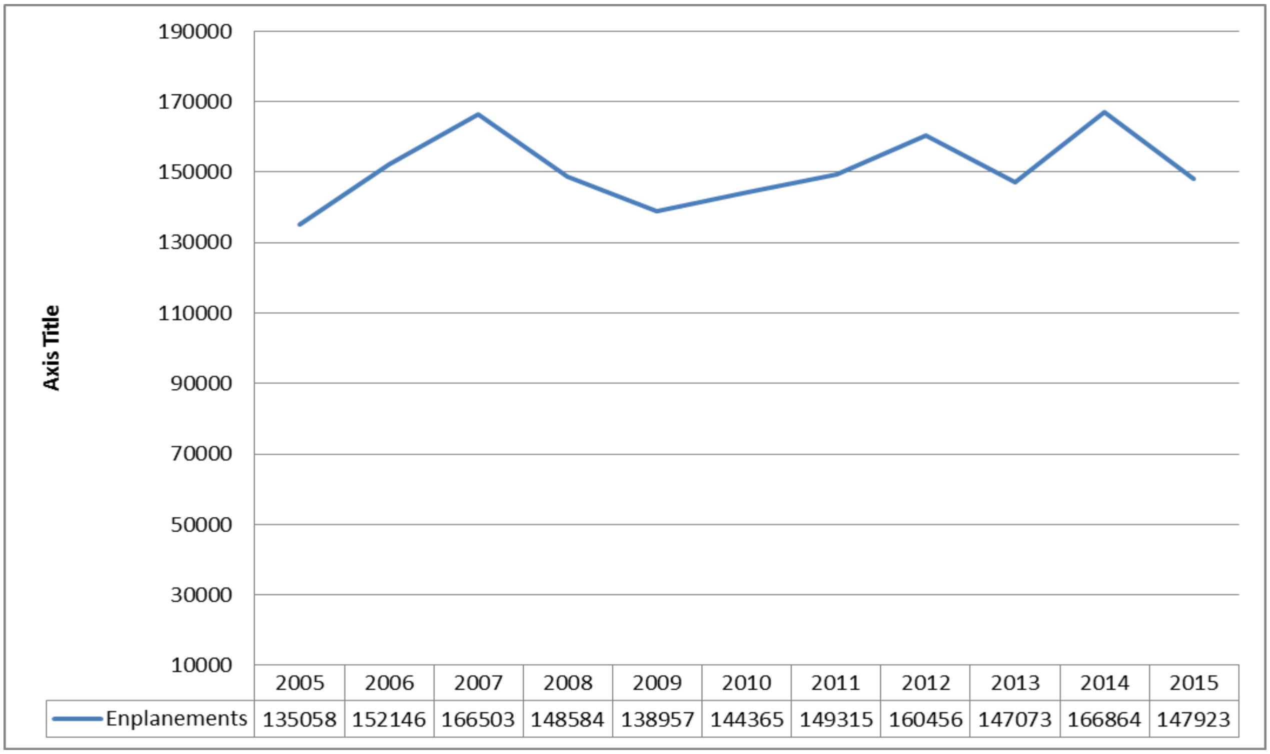
3.1.11 Enplanements

Enplanements are the number of passengers boarding an aircraft at the airport. They encompass passengers of air carrier, air taxi, and commuters. According to the ACAIS and **Figure 3-5**, in ten years, the total number of enplanements at IDA has oscillated with a peak of 166,864 passengers in 2014 and a low of 135,508 in 2005. The 10-year historical CAGR is 0.9%.

Enplanements depend not only on the number of passenger aircraft operations but also on the type of airplane used. The main airlines operating at Idaho Falls Regional Airport include Delta, Allegiant, and United. Skywest operates the aircraft for United and Delta. Allegiant has plans to phase out its McDonnell MD-83 aircraft and replace them with Airbus A319 aircraft. These two aircraft have a similar number of seats and the switch would not trigger significant changes in emplanements or operations.

As part of this specific planning study for the area around Runway 17-35, enplanements will not be studied in further details as they will not impact the study area.

FIGURE 3-5 – ENPLANEMENTS



Source: T-O Engineers, OPSNET 2005-2015

3.1.12 SUMMARY

Table 3-6 summarizes the historical CAGR and general trends for each type of operations at IDA. The CAGR is the mean annual growth rate over a specific period of time (10 years from 2005 to 2015).

TABLE 3-6 – IDA OPERATIONS – HISTORICAL CAGR AND TRENDS

Type of Operation	10-Year CAGR	Trend
Itinerant Air Carrier	4.8%	Increase
Itinerant Air Taxi	-2.4 %	Decrease
Itinerant General Aviation	-1.0%	Decrease
Itinerant Military	7.7%	Increase
Local General Aviation	-2.8%	Decrease
Local Military	0.7%	Increase
Enplanements	0.9%	Increase

Source: T-O Engineers

3.1.13 Aircraft Fleet

The type of aircraft using the airport helps determine the airport needs and capacity. Idaho Falls Regional Airport accommodates a great variety of aircraft from single engine airplanes to multi-engine, jets, gliders, and helicopters.

Fleet Mix

Section 2.3.1 of *Chapter 1 –Inventory* of this report provides information on the type of aircraft using the airfield by type of activity. Airplane Design Group (ADG) and Taxiway Design Group (TDG) drive the design standards for the airport. **Table 3-7** summarizes a general fleet mix by ADG and TDG determined using historical operation data at the airport. More information about the specific design aircraft for the study area are available in Section 3.7.

Aircraft Mix

The aircraft mix is used to evaluate the capacity of an airfield based on its geometry. It is defined by four classes of aircraft:

- Class A: Small Single-Engine (Gross Weight 12,500 lbs. or less)
- Class B: Small Twin-Engine (Gross Weight 12,500 lbs. or less)
- Class C: Large Aircraft (Gross Weight 12,500 to 300,000 lbs.)
- Class D: Heavy Aircraft (Gross Weight more than 300,000 lbs.)

Table 3-8 summarizes the aircraft mix for IDA based on historical operation data (same as fleet mix).

TABLE 3-7 – IDA HISTORICAL FLEET MIX

ADG or TDG	Percentage of Annual Operations – All RWYS[1]	Percentage of Annual Operations – RWY 17-35[2]
Airplane Design Group (ADG)		
I SMALL	15.4%	78.8%
I	3.7%	0.0%
II SMALL	3.2%	2.1%
II	68.3%	0.0%
III	8.3%	0.0%
IV	0.0%	0.0%
V	0.0%	0.0%
VI	0.0%	0.0%
Other*	1.1%	19.1%
Taxiway Design Group (TDG)		
1A	19.5%	79.5%
1B	44.0%	1.1%
2	29.7%	2.5%
3	0.7%	0.0%
4	4.5%	0.0%
5	0.6%	0.0%
6	0.0%	0.0%
7	0.0%	0.0%
Other*	1.0%	17.2%

*Gliders, Helicopters, and Unknown

Source: T-O Engineers, TFMSC 2010-2015, ATCT

[1] *Traffic Flow Management System Counts (TFMSC) for IFR operations between 2010 and 2015. Based on historical values, these operations represent an average of 68.8% of the total operations (OPSNET) for the same period of time. The TFMSC operations represent a sample of the total operations with size that gives a level of confidence of 99% with a confidence interval of +/- 0.4%. In other words, 99% of the values in Table 3-7 are accurate at +/-0.4% (Statistical Calculation for the power of the sample size).*

[2] *ATCT log for RWY 17-35 operations during July and August 2016. Based on historical data (2005-2015 OPSNET), the number of operations during July and August at the airport averages 20% of the total annual operation. The operations noted by the ATCT (448) will then represent approximately 20% of the annual operations on RWY 17-35 for 2016. Considering 2,300 annual operations on the runway for 2016, with a sample size of 448 operations, we have a confidence interval of +/- 5% at a confidence level of 99%, or +/- 4% at 95%. (Statistical Calculation for the power of the sample size).*

TABLE 3-8 – IDA HISTORICAL AIRCRAFT MIX

Class	Percentage of Annual Operations – All RWYs	Percentage of Annual Operations – RWY 17-35
A	13.1%	80.4%
B	14.7%	2.5%
C	71.2%	0.0%
D	0.0%	0.0%
Other	1.0%	17.1%

Source: T-O Engineers, TFMSC 2010-2015, ATCT

3.2 TRENDS/ISSUES INFLUENCING FUTURE AIRPORT GROWTH

There are several factors, independent of the airport, which may influence aviation activity. It is worthwhile to review outside influences to determine how they may impact future growth. These factors include regional demographics and outlook, national aviation trends and local factors.

3.2.1 SERVICE AREA

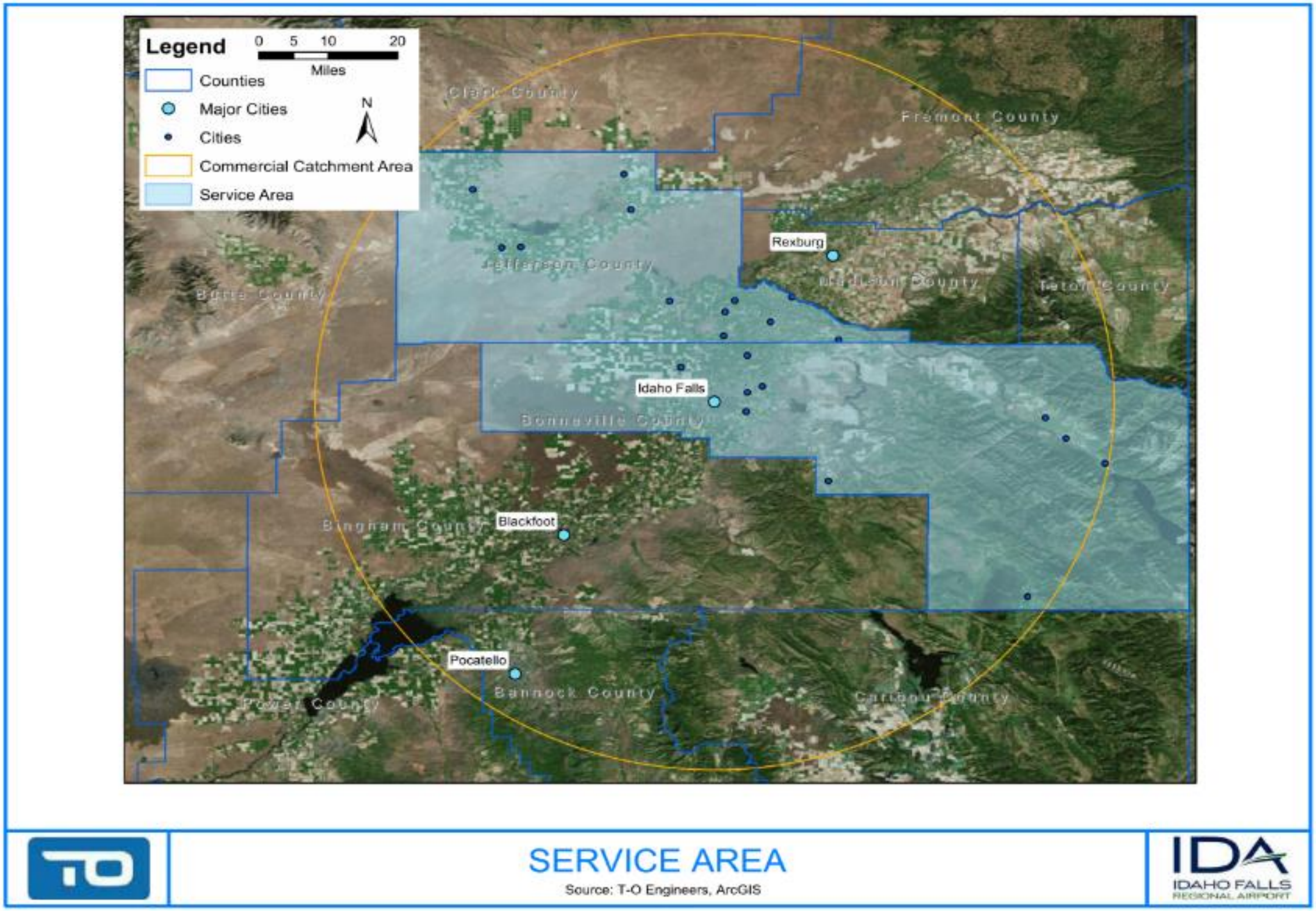
The service area is defined as the geographic area that generates demand for aviation services at the airport. IDA is located in the Metropolitan Statistical Area (MSA) of Idaho Falls and has commercial and general aviation services.

IDA is in competition with other airports offering the commercial service flights. Boise International Airport (BOI) offers more flights and destinations and is located approximately 4 hours from IDA. Salt Lake City International Airport (SLC) is located 3 hours from IDA and offers a significant number of flights and destinations. Pocatello Regional Airport (PIH) offers flights to SLC and is less than 1 hour away. Other airports offering limited commercial services in a 100-mile radius include West Yellowstone, MT and Jackson Hole, WY. In addition, multiple GA airports are located in close vicinity to Idaho Falls including Blackfoot Municipal Airport, Rexburg-Madison County Airport, Rigby Airport, and Driggs-Reed Memorial Airport.

Due to all these elements, the service area for IDA is limited both for commercial service and GA. The estimated service area for General Aviation service at IDA is mainly the Idaho Falls MSA. This MSA is made of Bonneville and Jefferson counties and includes 23 cities. The catchment area for commercial service at the airport is a 2-hour driving radius, which represents approximately 80 miles. Considering this catchment area and the proximity of PIH or other surrounding commercial airports, the estimated service area for commercial service would include the Idaho Falls MSA and the following counties located in the northeast part of the valley: Madison county, south part of Clark county, and west part of Fremont and Teton counties. Because these additional counties have a low density population, it is assumed that they have a limited impact on the socioeconomic factors influencing the commercial activity at IDA. Therefore, for the purposes of this study, only the socioeconomic factors of the Idaho Falls MSA will be used for the forecasts of all aviation activity at IDA.

Figure 3-6 depicts the General Aviation service area for IDA, consisting of the Idaho Falls MSA. A summary of historical and projected socioeconomic trends for the service area is presented in the next section.

FIGURE 3-6 – GENERAL AVIATION SERVICE AREA



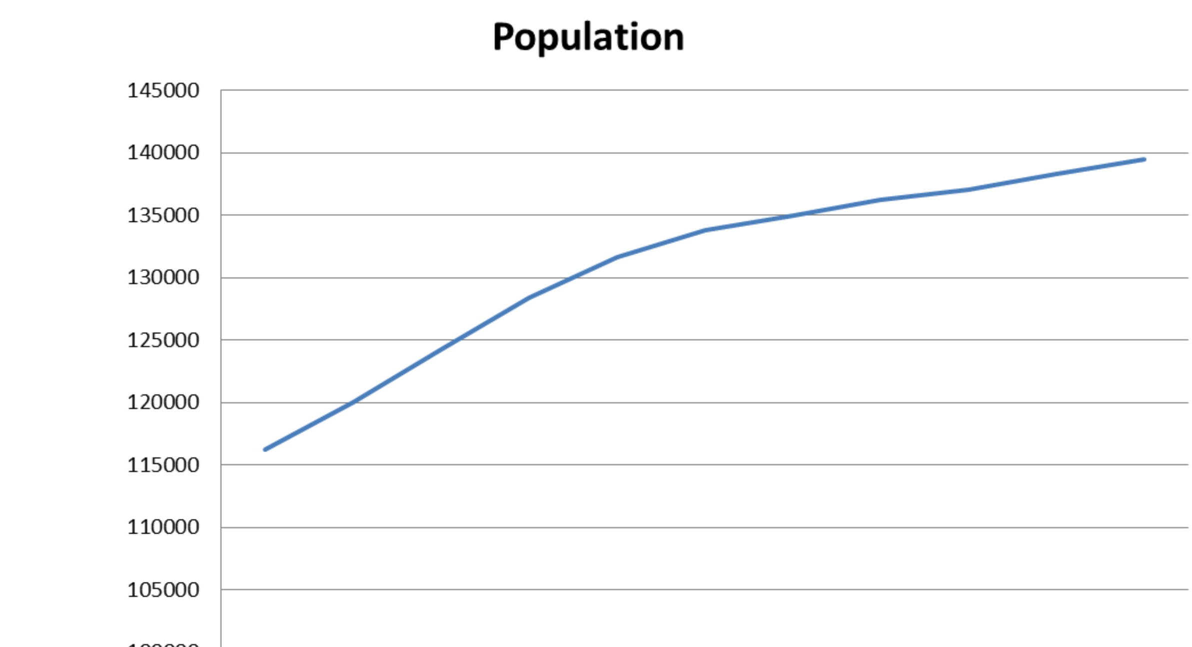
3.2.2 REGIONAL DEMOGRAPHICS

Socioeconomic characteristics are collected during the airport planning process and examined to derive an understanding of the dynamics of historical and projected growth within the geographic area served by an airport (Idaho Falls MSA). This information is then used as one tool to forecast aviation demand. The types of socioeconomic data that are presented include population, employment, and per capita personal income.

Idaho Falls MSA's Population

As shown on **Figure 3-7**, the population of the Idaho Falls MSA increased from 106,208 to 139,497 people between 2005 and 2015 with a CAGR of 1.8 percent.

FIGURE 3-7 – POPULATION



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Idaho Falls MSA	116208	119981	124203	128353	131621	133791	134922	136259	137046	138266	139497

Source: U.S. Bureau of Economic Analysis

In one decade, the population of the MSA of Idaho Falls has been continuously increasing. This local trend is slightly greater than the increase in population in the State of Idaho with a CAGR of 1.5 percent between 2005 and 2015. The MSA seems to be growing faster than the State.

Idaho Falls MSA's Employment

According to the Bureau of Economic Analysis (BEA), Idaho Falls MSA's employment has increased steadily for the past 10 years from 59,701 to 62,924 jobs.

Based on data from the Bureau of Labor Statistics (BLS), in 2005, the unemployment rate in the Idaho Falls MSA was 3.1 percent and 3.7 percent in Idaho. In 2015, the unemployment rates were 3.5 percent and 4.1 for Idaho Falls and the State of Idaho, respectively.

During the past two decades, the unemployment rate within the IDA service area fluctuated with a CAGR of 1.2 percent. It peaked in 2010 and 2011 at 7 percent. Idaho Falls MSA's unemployment rate has historically been lower than the State of Idaho, as shown in **Figure 3-8**.

FIGURE 3-8 – UNEMPLOYMENT RATE

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Idaho Falls MSA	3.1%	2.8%	2.3%	3.7%	6.5%	7.0%	7.0%	6.3%	5.4%	4.2%	3.5%
Idaho	3.7%	3.4%	3.1%	5.2%	8.8%	9.0%	8.3%	7.2%	6.1%	4.8%	4.1%

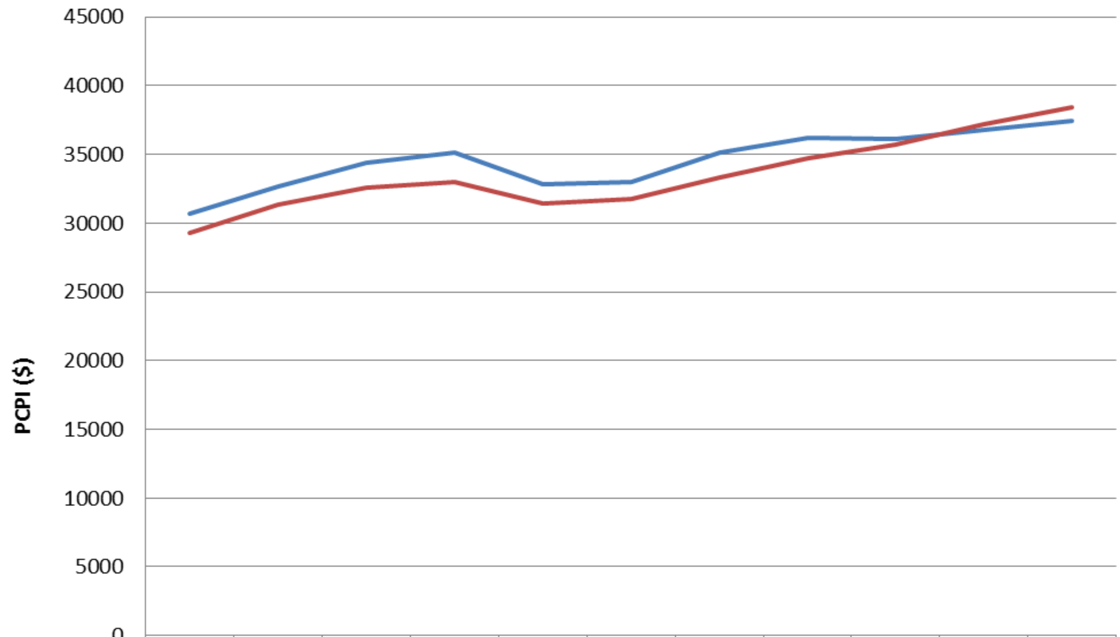
Source: Bureau of Labor Statistics

Idaho Falls MSA's Per Capita Income

In 2015, the per capita personal income (PCPI) of the Idaho Falls MSA was $37,453. The PCPI has grown over the last 10 years (2005-2015) with a CAGR of 2 percent.

The PCPI growth for Idaho Falls is lower than the State of Idaho (2.7% CAGR) for the same time period. In addition, it remained lower until 2014 as shown in **Figure 3-9**.

FIGURE 3-9 – PER CAPITA PERSONAL INCOME



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Idaho Falls MSA	30679	32698	34377	35157	32818	32989	35143	36207	36154	36798	37453
Idaho	29311	31357	32580	33031	31436	31727	33296	34691	35703	37153	38392

Source: U.S. Bureau of Economic Analysis

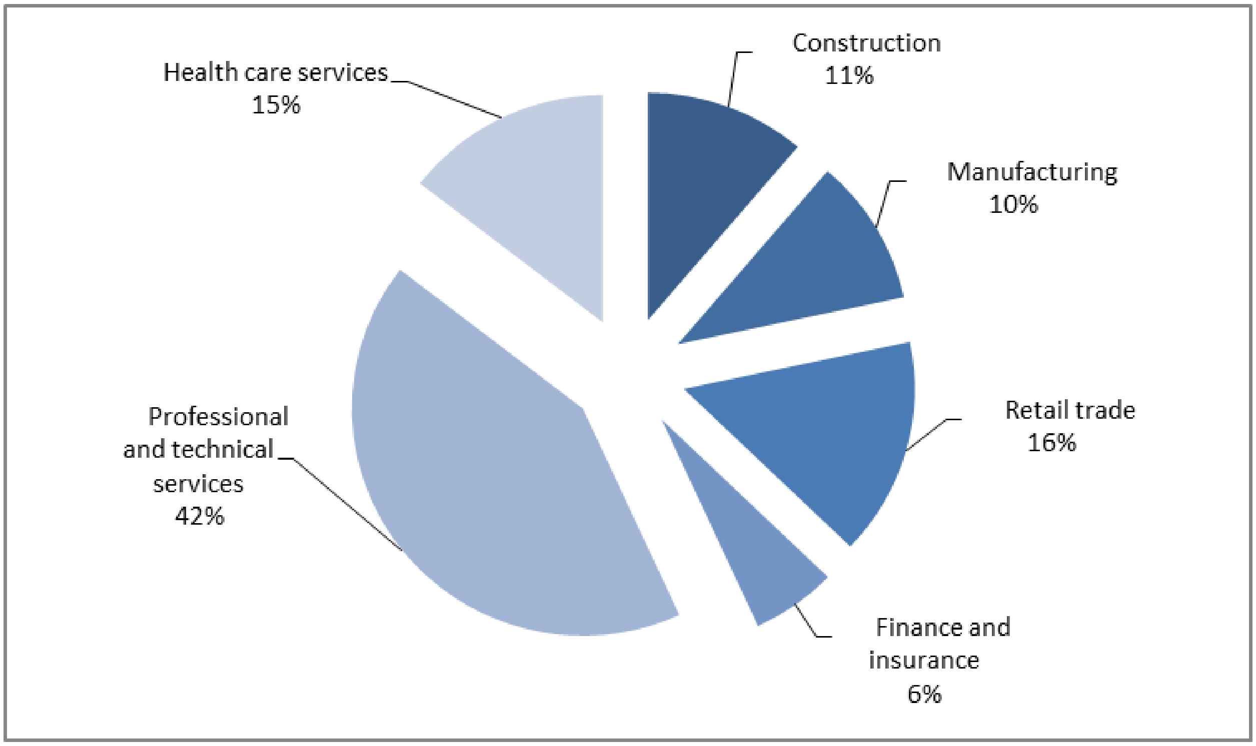
Idaho Falls MSA's Industry Mix

In 2014, the non-farming industry generated the most earnings with 96.7% of the total earnings – 3.3% being the farming industry. The private sector was the most developed with 88.8% of the total private nonfarm earnings versus 11.2% for governmental jobs.

As shown in **Figure 3-10**, Construction, Manufacturing, Retail Trade, Finance and Insurance, Professional and Technical Services and Health Care Services represented the most active industries in the MSA in 2014.

The proximity of the Idaho National Laboratory (INL) also generates high-level employment in the MSA. The laboratory footprint spreads over several counties including Bonneville and Jefferson Counties. INL is a research complex for nuclear energy, national security, and science and environment that employs approximately 8,000 people.

FIGURE 3-10 – INDUSTRY MIX



Source: Bureau of Economic Analysis - 2014

3.2.3 NATIONAL AVIATION TRENDS

Historical and anticipated trends related to air carrier and general aviation will be important considerations in developing forecasts of demand for the Idaho Falls Regional Airport. National trends can provide insight into the potential future of aviation activity and anticipated facility needs. The aviation industry has experienced significant changes over the last 30 years. This section will briefly discuss the tendencies and factors that have influenced those trends in the U.S.

National Airline Industry Trends – Domestic Market

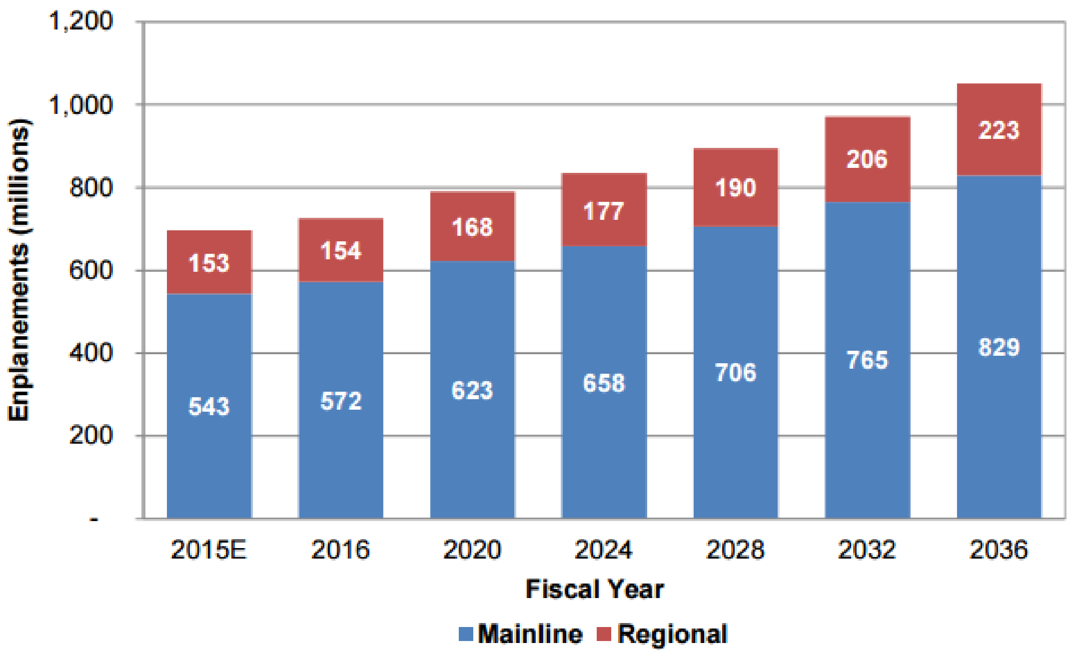
IDA offers domestic destinations to its passengers, meaning flight within the U.S. After the 9/11, U.S. airlines started to consolidate. After the merging of U.S. Airways and American, there are now four main airlines (mainlines) sharing 70% of the revenues: Delta, American, Southwest, and United. Two of them are operating from and to IDA (Delta and United). In addition, some regional airlines share the remaining part of the market.

Since 2007, there has been a decrease in regional Available Seat Miles (ASM) that measures an airline flight's passenger carrying capacity. The regional market has been taken over by mainlines and regional airlines have been fighting for more contracts with airports. However, even though the number of flights offered by mainlines has decreased, the number of passengers carried has increased, resulting in a growth of the load factors for these airlines. This also resulted in an increase of enplanements.

On an annual basis, the FAA publishes aerospace forecasts that summarize anticipated trends in all components of aviation activity. Each published forecast revisits previous aerospace forecasts and updates them after examining the previous year's trends in aviation and economic activity. Many factors are considered in the FAA's development of aerospace forecasts, some of the most important of which are U.S. and international economic forecasts and anticipated trends in fuel costs.

The *FAA Aerospace Forecast 2016-2036* publishes FAA forecast for the airline industry for the next 20 years. The most recent forecasts show an increase in U.S. domestic enplanements with a CAGR of 2 percent, as depicted in **Figure 3-11**.

FIGURE 3-11 – DOMESTIC ENPLANEMENTS FORECASTS



Source: FAA Aerospace Forecast 2016-2036

National General Aviation Industry Trends

At the national level, economic upturns and downturns resulting from the nation's business cycle have impacted general aviation demand. Slow economic recovery and economic uncertainties since the global recession starting in 2008 will continue to impact demand for general aviation at many airports throughout the U.S., including Idaho Falls Regional Airport, for the next several years.

- General Aviation Fleet Changes: While single-engine piston aircraft still account for the majority (61%) of the U.S. general aviation aircraft fleet in 2015, the national historical trends indicate that multi-engine turboprop and business jet fleets grew at a faster rate than the single-engine piston fleet. The most active growth in the fleet size has been in turbine aircraft and rotorcraft. According to the *FAA General Aviation and Air Taxi Activity Survey*s, as a result of the recent recession, the total U.S. general aviation aircraft fleet has declined 12.6% from 228,664 aircraft in 2008 to 199,927 in 2013. The general aviation industry began to show signs of recovery in 2014 and the aircraft fleet increased to 203,880 in 2015, with especially strong growth in turbine aircraft (both rotorcraft and turbo jet) deliveries.

- Active Pilots: According to the FAA U.S. Civil Airmen Statistics, there were 435,309 active pilots in the United States at the end of 2015 (not including airline transport pilots). An active pilot is a person with a pilot certificate and a valid medical certificate. There was a -1.4% CAGR in GA pilot population between 2010 and 2015. Recreational and private pilot certificates accounted for the largest declines. On the other hand, the number of sport and rotorcraft pilots has continuously increased over the last 5 years.

- General Aviation Operations: According to FAA air traffic activity, between 2010 and 2015, general aviation operations experienced a -1.5 percent CAGR. In 2015, there were approximately 33.3 million general aviation operations at 514 towered airports, 65 percent of which were itinerant operations. General aviation operations at combined FAA and contract towers were down 1.8 percent between 2014 and 2015.

The recent projections found in *FAA Aerospace Forecast Fiscal Years 2016-2036* are summarized below.

- Between 2015 and 2020, U.S. economic growth is projected to grow at a CAGR of 2.6%. For the remaining years of the forecast period, real Gross Domestic Product (GDP) growth is assumed to slow to around 2.4 percent annually.

- The FAA estimates that the U.S. general aviation aircraft fleet will grow from an estimated 203,880 aircraft in 2015 to 210,695 aircraft in 2036. This is equal to a CAGR of 0.2 percent. This growth is mainly driven by the growth of the turbine-powered aircraft fleet, while the piston-powered aircraft fleet is expected to decrease at a CAGR of 0.6 percent.

- Strong growth is anticipated in the turbine-powered aircraft fleet (including rotorcraft), estimated to grow at a CAGR of 2.1 percent between 2015 and 2036.

- General aviation hours flown are anticipated to increase at a CAGR of 1.2 percent between 2015 and 2036.

- It is anticipated that general aviation aircraft operations would grow at a CAGR of 0.3 percent through 2036.

3.2.4 Local Factors Affecting Demand

There are other factors unique to Idaho Falls Regional Airport that have the potential to impact the forecasts of aviation activity.

Fuel Price and Availability

The type and price of fuel available can play an important role in the development of the aviation activity at the airport. Currently, and as described in the Inventory Chapter, IDA has a self-service pump for AvGAS and fuel trucks for AvGas and Jet A operated by the FBO AeroMark.

AvGAS is used for piston-powered aircraft. Jet A fuel is used by turbine and jet aircraft. This fuel availability has the potential to help develop aircraft activity at the airport. Further needs in term of fuel services will be studied in the Facility Requirements chapter of this report.

The retail fuel price is also a factor in the level of aviation activity at the airport. **Table 3-9** summarizes the most recent fuel price available for the airport

Table 3-9 – IDA Fuel Retail Price

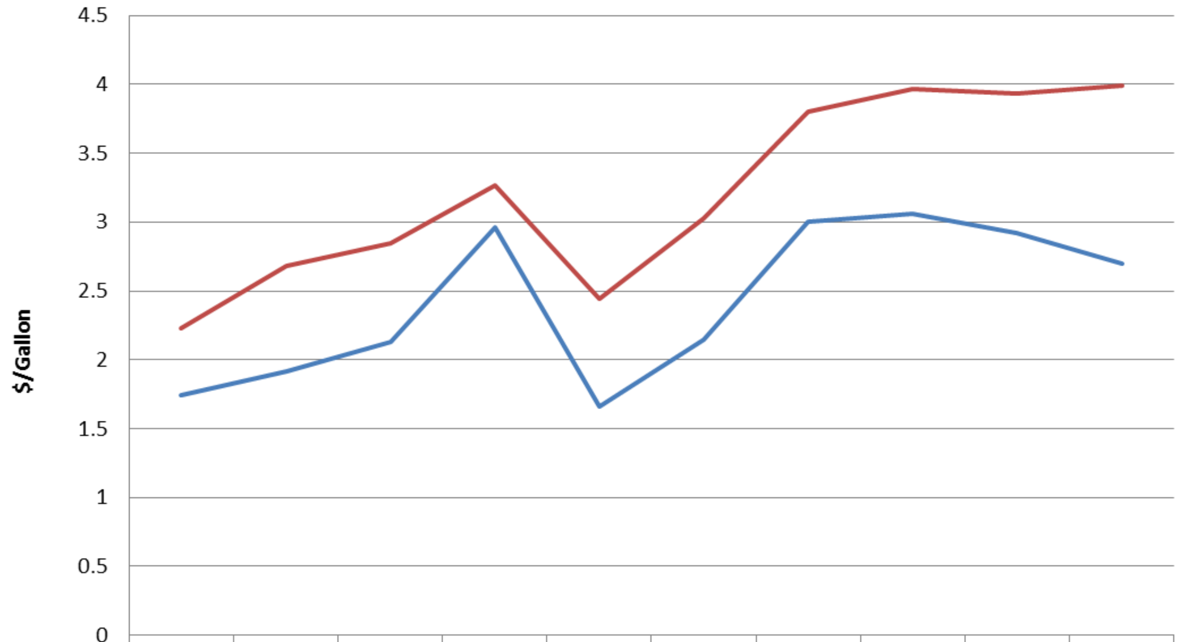
Type of Fuel	Price per Gallon
AvGAS	$5.35
AvGAS Self Service	$4.95
Jet A	$4.25 + $0.06 for Prist Add

Source: AeroMark, October 2016

Variation of local fuel prices is generally due to the fuel prices in the US and the local supply chain**. Figure 3-12** depicts the variation of AVGAS and Jet A fuel prices in the U.S. between 2005 and 2014. Fuel prices are highly volatile and hard to predict.

As of October 2016, the average prices for AvGAS and Jet A in the Northwest Mountain Region are respectively $5.16/gal and $4.26/gal (GlobalAir). Fuel prices at IDA are slightly higher than regional averages. This difference of price is mostly due to differences in the supply chain in comparison to the other states in the same region. However, these prices are not seen to be a limiting factor to aviation activity. The prices at the closest similar airport, PIH, are even higher at $5.53/per gal for AvGAS and $4.58/gal for Jet A (Airnav-October 2016).

FIGURE 3-12 –AVGAS/JET PRICES IN THE U.S.



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
JET A	1.74	1.92	2.13	2.96	1.66	2.15	3	3.06	2.92	2.7
AVGAS	2.23	2.68	2.85	3.27	2.44	3.03	3.8	3.97	3.93	3.99

Source: U.S. Energy Information Administration

Proximity to Competing Airports

The proximity to surrounding airports is one of the key determinants of the demand and size of an airport's service or catchment area. IDA has two runways and offers commercial and GA services. IDA will be facing competition in these two activities independently.

For comparative purposes, only the public airports equipped with paved runways have been included hereafter. As depicted in **Table 3-10** and **Figure 3-13**, there are 10 airports within a radius of 100 nautical miles from IDA having commercial service and/or GA with at least one paved runway.

Commercial Service

The only airport in this radius offering commercial service is the Pocatello Regional Airport (PIH) located at more than 50 Nm. The overall configurations of the two airports are similar. IDA offers more destinations and tends to be more active with more annual operations.

General Aviation

IDA has the second longest runway after PIH. It is the first airport in terms of operations just before Rexburg-Madison County Airport and McCarley Field Those two airports have smaller infrastructures but a similar amount of operations, mostly comprised of GA aircraft. They are both located less than 50Nm from IDA and have the potential to attract GA pilots who want to operate from smaller airports close to Idaho Falls.

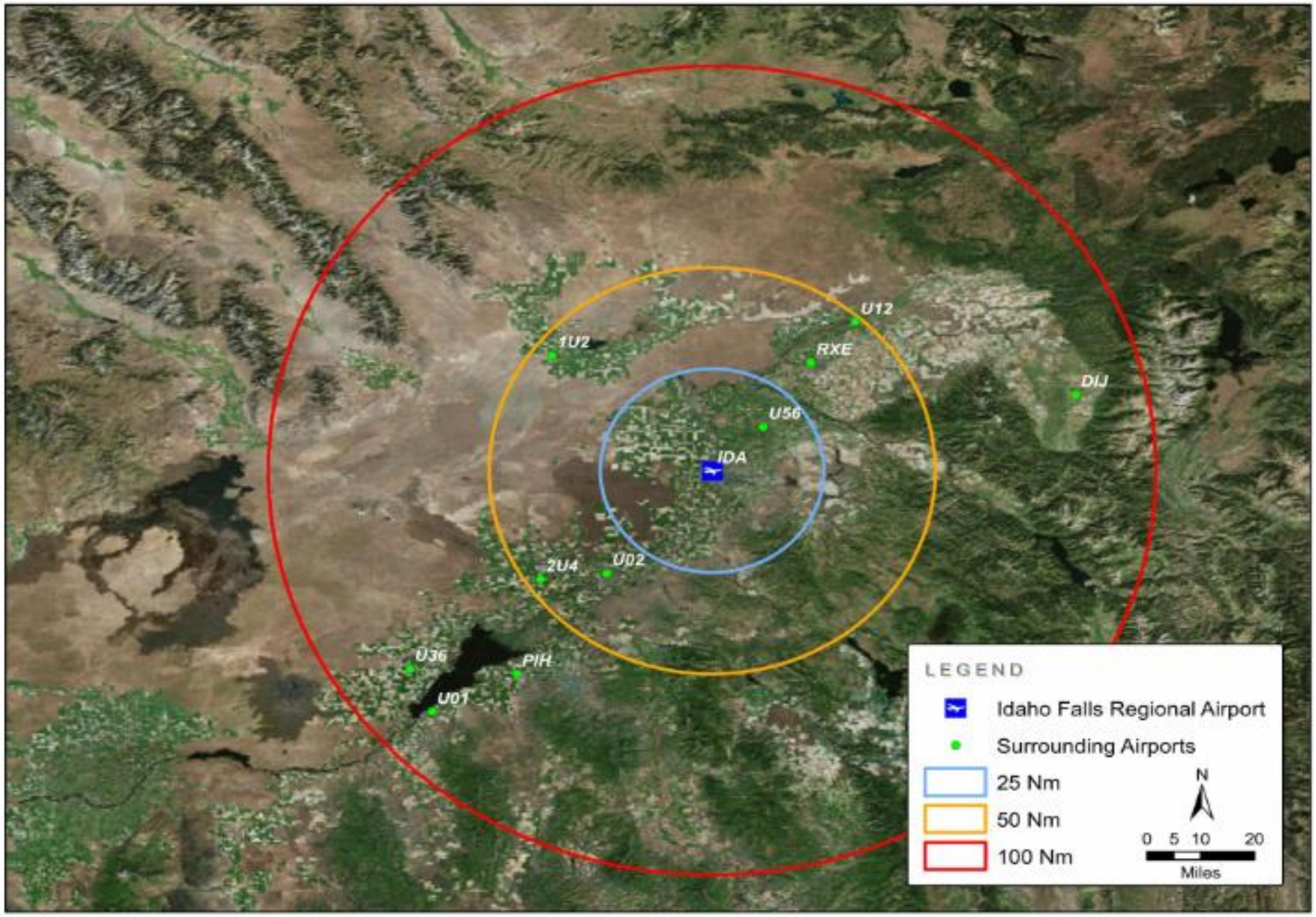
All these results show that Idaho Falls Regional Airport is very competitive in its area for commercial services but captures less GA operations due to the presence of other airports in the area.

TABLE 3-10 – SURROUNDING AIRPORTS

Name	Code	Runway Length	NPIAS	Annual Operations	ATCT	Commercial Service
Idaho Falls Regional Airport	IDA	9,002	Non Hub	33,152	Yes	Yes
Pocatello Regional Airport	PIH	9,060	Non Hub	22,910	Yes	Yes
Driggs-Reed Memorial Airport	DIJ	7,300	GA	8,000	No	No
American Falls Airport	U01	4,900	-	18,025	No	No
Stanford Field	U12	4,500	GA	4,910	No	No
McCarley Field	U02	4,311	GA	30,500	No	No
Rexburg-Madison County Airport	RXE	4,204	GA	31,150	No	No
Rigby Airport	U56	3,727	GA	10,800	No	No
Aberdeen Municipal Airport	U36	3,690	GA	7,500	No	No
Mud Lake Airport	1U2	3,300	-	3,505	No	No
Rockford Municipal Airport	2U4	2,800	-	1,200	No	No

Source: IQ 5010, T-O Engineers

FIGURE 3-13 – SURROUNDING AIRPORTS



SURROUNDING AIRPORT

Source: T-O Engineers, ESRI ArcGIS

Local Businesses and Tourism Usage

Even though quantitative impacts are hard to evaluate without a specific study, local businesses and tourism impact both the commercial and GA activities at the airport. In return, the airport has an economic impact evaluated at $103.1 million by the 2009 Idaho Airport System Plan.

Idaho Falls Regional Airport has several local businesses located on the airport property. Businesses with an aviation-related activity include:

- Kathryn's Snak Shack, Lounge, and Restaurant located in the airport terminal
- Rental Car Companies including Avis, Budget, Enterprise, Hertz, National and Alamo
- AeroMark: FBO
- Av Center: Flight Training and Aircraft Rental
- Aero Hawk: Aircraft Servicing and Maintenance
- Gate 9: Aircraft Maintenance
- Pacific Fighters: Aircraft Servicing and Renovation
- Intermountain Aerospace: Avionics
- Utah Helicopter: Commercial Operations and Flight Training
- FedEX: Freight
- Air Methods: Air Medical Transport

These businesses directly drive or benefit from the aircraft and passenger activities at IDA. Their development will impact or be impacted by airport development. Other businesses located on the airport property include:

- Western Transmission
- Skyline Storage
- Multiple Other businesses with non-aeronautical activities are located on airport property

The Idaho National Laboratory (INL) plays an important role in the economy of the Idaho Falls MSA and generates a large share of the local employment. Its quantitative impact on the airport activity is unknown but it is an asset that can drive aviation activity.

Idaho Falls is also a regional cultural city with an art center and theater. It offers numerous activities for tourists during the four seasons including hiking, mountain biking, white-water rafting, and snowmobiling. There are numerous natural features including rivers, mountains, waterfalls, lava tubes, and national parks (Yellowstone and Grand Teton National Parks) in close proximity. All these elements impact the tourism activity in the area and generate aviation activity at the airport.

In summary, local business and tourism activity reflect on the overall economy of the Idaho Falls MSA. The local economy, quantified by employment and income, is an important driver of the airport activity.

Flight School

Idaho Falls Regional Airport has several flight schools. Av Center offers fixed-wing flight training and Utah Helicopter offers rotorcraft flight training at IDA. These schools generate GA aircraft activity and contribute to the overall activity of the airport.

Medical and Ambulance Flights

IDA accommodates medical and air ambulance flights. Air Methods is a charter company with a base at IDA. It offers air medical transport as Air Idaho Rescue. It has one Pilatus PC-12 based on the airport and one Bell 407 helicopter based at the Eastern Idaho Regional Medical Center.

Other Specific Flight Activity

Other flight activity includes seasonal firefighting and crop dusting. Queen Bee Air is a private charter company specialized in air tanker operations using the Air Tractor AT-802 at IDA. They also offer specific flight training, air tractor sales, and services, and are based out of Rigby, ID.

3.3 PROJECTIONS OF AVIATION DEMAND

According to the FAA TAF, Idaho Falls Regional Airport has experienced a general decrease in its number of operations (CAGR of -1.8%) over the past 10 years. It is anticipated that this pattern will not continue over the forecasted period with the improvement of the general economy in the U.S. The rate of this growth will be somewhat dependent on future facilities and services provided at the airport.

Various methodologies were used to develop projections of aviation demand at IDA for the 20-year planning period. The results of these different methodologies are compared in order to select a preferred projection.

The following assumptions were made in developing the projections of aviation demand at IDA:

- The national and local economies will continue to grow through the overall forecast period.
- Economic disturbances may cause year-to-year traffic variations, but the long-term projections will likely be realized.
- Aviation at IDA will generally reflect the national aviation industry. The FAA projects growth in all aspects of aviation.
- Airport facilities will keep pace with and meet the demand for aviation use and a lack of facilities will not be a limiting factor to the number of based aircraft that can be accommodated in the future.
- 2015 constitutes the base year for all forecasts of aircraft operations.

3.3.1 FORECASTING METHODOLOGIES

There are two basic approaches to forecasting: top-down or bottom-up. The top-down approach forecasts aviation demand for the nation or for a region and allocates portions of the total demand to geographic areas, based on historical shares or assumed growth rate. The bottom-up approach consists in forecasting aviation demand for an airport using data for a specific geographic area.

When forecasting aviation demand, it is assumed there is a relationship between historical events and conditions, and that this relationship will continue into the future. The following methods were used to predict future activity levels at Idaho Falls Regional Airport.

Market Share (Top-Down)

This method of forecasting is relatively easy to use and the required data are often available in the FAA's Terminal Area Forecast (TAF). It assumes a top-down relationship between national, regional, and local forecasts. It considers that local forecasts are a percentage (market share) of regional or national forecasts. Historical market shares are calculated for a given time period (often a 5- or 10-year period) and used as a basis for projecting future market shares based on the forecasts available for the national or regional activity.

Regression Analysis - Trend Analysis (Bottom-Up)

A regression analysis is a type of econometrics analysis and uses mathematical and statistical tools. The value being estimated or forecasted (here aviation activity) is called the dependent variable, while the value used to prepare the forecast is called the independent variable. A simple regression analysis uses one independent variable, while multiple regression analyses use two or more independent variables.

A regression equation is computed with historical values and is used to project future values. It is possible to use socioeconomic data as independent variables, such as population, per capita income, or employment. It is also possible to use time as the independent variable to perform a Trend Analysis. This method is a basic technique, which can capture economic growth and recession.

Compound Annual Growth Rate (Bottom-Up)

The Compound Annual Growth Rate (CAGR) can be defined as the year-over-year growth rate. It is an imaginary number that describes the rate at which a data series would have grown if it had grown at a steady rate.

It is computed with the following formula:

$$CAGR = -1 + \left(\frac{Ending\ Value}{Beginning\ Value}\right)^{\left(\frac{1}{number\ of\ years}\right)}$$

It is possible to forecast future values based on the CAGR of a data series, assuming that the rate will remain the same in the future. As with every forecasting method, uncertainties remain.

Summary

These different methodologies can be used in an infinite number of ways, with several distinct variables and historical time periods considered. The choice of the historical data and variables is critical for the interpretation of the forecasts.

A 10-year historical period will capture the trends for the last 10 years, closer to the current national, regional, and local situations. A greater historical time period would probably indicate trends impacted by factors that are not relevant. Employment rate and PCPI are good economic variables to indicate the general health of the local economy. Thus, they are most likely relevant to evaluate aviation activity.

The following methodologies and variables were used to predict the number of based aircraft and operations at Idaho Falls Regional Airport:

- Linear Regression
    - With Regional Employment, PCPI, or Population as the independent variable (Based on 10-year historical period)
    - Trend Analysis (Based on 10-year historical period)

- CAGR
    - Historical Aircraft Operation Growth (Last 5 and 10 years)
    - Historical Employment Growth (Last 5 and 10 years)
    - Historical PCPI Growth (Last 5 and 10 years)
    - Historical Population Growth (Last 5 and 10 years)
    - Historical State Aircraft Operation Growth (Last 5 and 10 years)
    - Historical Region Aircraft Operation Growth (Last 5 and 10 years)
    - Projected Growth for each of this Category (20 years)

- Market Share
    - Northwest Mountain Region (5-year average)
    - Northwest Mountain Region (10-year average)
    - State of Idaho (5-year average)
    - State of Idaho (10-year average)

Only the most relevant and reasonable forecasts are presented in the following sections for:

- Based Aircraft
- Fleet Mix
- Air Carrier Itinerant Operations
- Air Taxi/Commuter Itinerant Operations
- General Aviation Itinerant Operations
- Military Itinerant Operations
- Local General Aviation Operations
- Local Military Operations

Not all methodologies described can apply to each of these forecasted elements because each could be influenced by different parameters. Enplanements will not be forecasted in this study as they do not impact the study area.

Comparison to FAA TAF

All forecasts have to be compared to the FAA TAF and should not vary significantly. For a primary non-hub airport like IDA, forecasts should:

- Differ by less than 10 percent in the 5-year forecast and 15 percent in the 10-year period, or
- Not affect the timing or scale of an airport project, or

- Not affect the role of the airport as defined in the current version of *FAA Order 5090.3, Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)*

3.3.2 BASED AIRCRAFT

Based aircraft are aircraft permanently stored at the airport. Estimating the number and type of aircraft expected to be based at Idaho Falls Regional Airport over the next 20 years is crucial to evaluate the need for future facility and infrastructure requirements. By airport report, there are 100 aircraft currently based at IDA. This number will be used as the base year (2015) based aircraft number from which projections are developed.

Based aircraft were projected using the methodologies previously described. A summary of the three methodologies yielding coherent and reasonable results is below:

- Scenario 1: Historical 5-Year Based Aircraft Growth. This scenario projects based aircraft to change at an average annual rate of growth of 2.5 percent, equal to the historical CAGR in based aircraft at IDA between 2010 and 2015. A 5-year period captures the most significant historical trend in based aircraft at the airport, encompassing the most recent fluctuations in the local parameters influencing the number of based aircraft.

- Scenario 2: Idaho Projected CAGR for Based Aircraft. This scenario assumes that the number of based aircraft at IDA will grow at the same rate as the projected growth rate over the next 20 years for the number of based aircraft in Idaho. According to the FAA TAF, the projected CAGR for based aircraft in Idaho is 1.3 percent over the planning period.

- Scenario 3: Historical 10-Year Employment Growth in the Idaho Falls MSA. This scenario assumes that the employment in the MSA will grow consistently over the next 20 years and that the number of based aircraft is tied to employment. It predicts that the number of based aircraft will increase at a CAGR of 0.5 percent equal to the historical CAGR of employment in the Idaho Falls MSA between 2005 and 2015. A 10-year period captures the impact of the last recession on the local economy, as well as the recovery period.

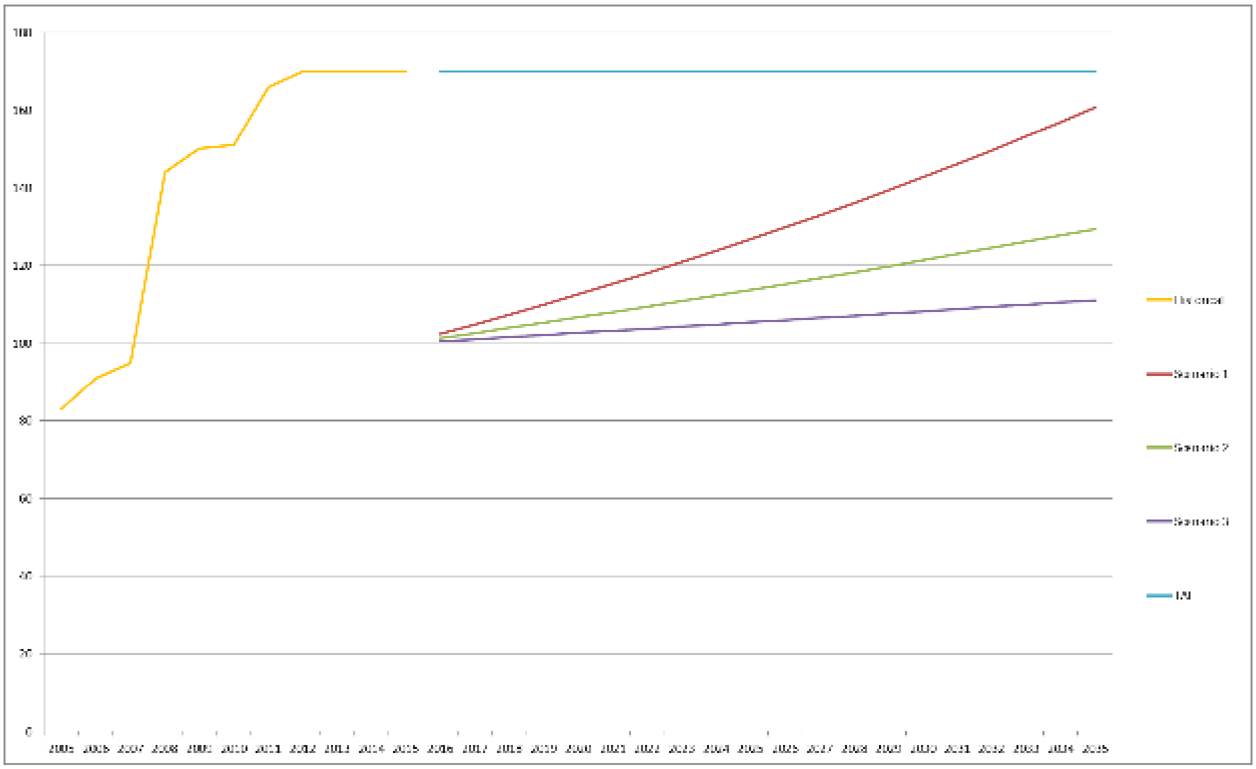
The results of these forecasting methodologies were compared and are listed and depicted in **Table 3-10 and Figure 3-14**.

TABLE 3-10 – BASED AIRCRAFT PROJECTIONS

Year	Scenario 1	Scenario 2	Scenario 3	FAA TAF
2015-Base Year	100	100	100	170
2020	113	107	103	170
2025	127	114	105	170
2035	161	129	111	170
CAGR	**2.5%**	**1.3%**	**0.5%**	**0%**
2020 Variation from TAF	**-33.5%**	**-37.0%**	**-39.4%**	**-**
2025 Variation from TAF	**-25.0%**	**-32.9%**	**-38.2%**	**-**
2035 Variation from TAF	**-5.3%**	**-24.1%**	**-34.7%**	**-**

Source: T-O Engineers, Inc., FAA TAF

FIGURE 3-14 – BASED AIRCRAFT PROJECTIONS



Source: T-O Engineers, Inc., FAATAF

The results of the three scenarios examined in this analysis were compared to the FAA's Terminal Area Forecast (TAF) for Idaho Falls Regional Airport. None of the scenario satisfies the comparison criteria because of the adjustment of the number of based aircraft for the base year from 170 (TAF) to 100 (airport data).

With planned development of new hangars south of the terminal building, it is assumed that the number of based aircraft will increase significantly over the 20-year planning period. The current FAA TAF for IDA does not forecast any growth in based aircraft, which is not coherent with the reality of the airport development. It is believed that Scenario 1 predicts a significant growth that would lead to oversized facilities considering the national trend for the GA fleet and thus the number of based aircraft. Scenario 2 and Scenario 3 seem to be the most relevant options given the current state of the airport.

Scenario 2 ties the growth of based aircraft at IDA to the growth of based aircraft in the entire State of Idaho while Scenario 3 considers local economic parameters. Aviation demand is considered to be a derived demand that depends on the level of business and leisure activity in the economy. **Scenario 3** is believed to be the most representative scenario and was chosen as the **preferred forecast**, with a CAGR of 0.5 percent leading to 111 based aircraft in 2035.

3.3.3 AIRCRAFT OPERATIONS

As defined previously, aircraft operations are divided into two types: local and itinerant. The current spilt between local to itinerant aircraft operations at IDA is 33 percent local and 67 percent itinerant.

Different factors impact the number of operations at an airport including but not limited to the total based aircraft, area demographics, activity and policies of neighboring airports and national trends. These factors were examined and projections were developed for local and itinerant operations as well as for the total number of operations.

Local Operations

Local operations at Idaho Falls Regional Airport include both GA and military operations.

Military Operations

Military operations are highly volatile and difficult to forecast. They do not depend on general economic or local factors. They are driven by the military activity at the airport, which can fluctuate substantially.

The current FAA TAF forecasts for local military operations in the State of Idaho do not predict any growth for the planning period. The same assumption was made for IDA and the local military operations are forecasted to remain the same as the base year 2015, which are 144 annual operations. **Table 3-11** summarizes the results.

TABLE 3-11 –LOCAL MILITARY OPERATIONS PROJECTIONS

Year	Scenario 1	FAA TAF
2015-Base Year	144	92
2020	144	92
2025	144	92
2035	144	92
CAGR	**0%**	**0%**
2020 Variation from TAF	**56.5%**	**-**
2025 Variation from TAF	**56.5%**	**-**
2035 Variation from TAF	**56.5%**	**-**

Source: T-O Engineers, Inc. FAA TAF

Even though this prediction does not meet the comparison criteria with the existing FAA TAF, it is believed to be more representative. In addition, military aircraft are federally-owned aircraft whose operations will not affect the design of airport facilities.

General Aviation Operations

As local GA operations and based aircraft are closely tied, similar methodologies were used to develop the projected GA aircraft local operations as were used for based aircraft. **Table 3-12** and **Figure 3-15**.summarize the results.

- Scenario 1: Historical 5-Year Local GA Growth. This scenario projects the local GA operations to change at an average annual rate of growth of -9.2 percent, equal to the historical CAGR in local GA operations at IDA between 2010 and 2015. It assumes the GA operations will continue to follow their historical trend.

- Scenario 2: Idaho Projected CAGR for Local GA Operations. This scenario assumes that the number of local GA operations at IDA will grow at the same rate as the projected growth rate over the next 20 years for local GA activity in Idaho. According to the FAA TAF, the projected CAGR for local GA operations at airports in Idaho is 1.7 percent over the planning period.

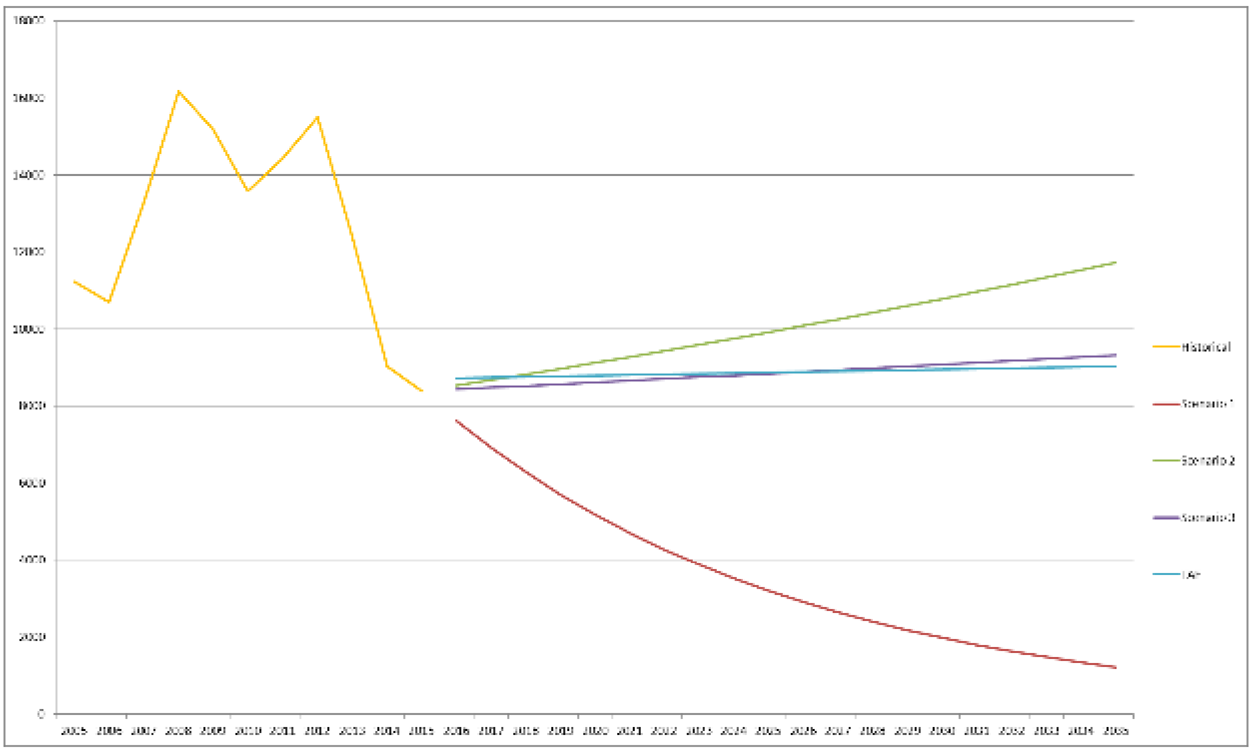
- Scenario 3: Historical 10-Year Employment Growth in the Idaho Falls MSA. This scenario assumes that the number of local GA operations relates to the employment in the MSA. It also considers that the employment in Idaho Falls will grow at a constant rate equal to the historical CAGR of 0.5 percent between 2005 and 2015. It results in a similar growth for local GA operations over the 20-year planning period.

TABLE 3-12 –LOCAL GA OPERATIONS PROJECTIONS

Year	Scenario 1	Scenario 2	Scenario 3	FAA TAF
2015-Base Year	8,391	8,391	8,391	8,881
2020	5,182	9,123	8,615	8,795
2025	3,200	9,918	8,844	8,875
2035	1,220	11,723	9,321	9,035
CAGR	**-9.2%**	**1.7%**	**0.5%**	**0.1%**
2020 Variation from TAF	**-41.1%**	**3.7%**	**-2.0%**	**-**
2025 Variation from TAF	**-63.9%**	**11.7%**	**-0.3%**	**-**
2035 Variation from TAF	**-86.5%**	**29.7%**	**3.2%**	**-**

Source: T-O Engineers, Inc. FAA TAF, OPSNET

FIGURE 3-15 – GENERAL AVIATION LOCAL OPERATIONS PROJECTIONS



Source: T-O Engineers, Inc., FAA TAF, OPSNET

Scenario 1 exceeds the tolerance for comparison to the FAA TAF of 10 percent at 5 years and 15 percent at 10 years. In addition, it forecasts a continuous decrease in local GA operations which is very unlikely as operations are highly linked to the number of based aircraft. The development of new hangars at IDA and the number of based aircraft forecasted to increase imply a similar growth in local GA operations. Thus, Scenario 2 and 3 are believed to be the most representative.

Scenario 3 predicts similar growth between based aircraft and local GA aircraft based on local economic factors. In other words, the number of local GA operations would increase because new aircraft would be based at the airport. However, it does not account for an increase in the number of operations for the aircraft already based at the airport. It is likely that in a favorable economic context, an increase of operations for existing aircraft would occur at the same time as an increase of based aircraft.

Based on this analysis, **Scenario 2** is believed to be the most plausible and was selected as the **preferred forecast**. It uses the growth of local GA operations at airports in Idaho. This scenario predicts a CAGR of 1.7 percent for local GA operations at IDA with a total of 11,723 operations in 2035.

Summary

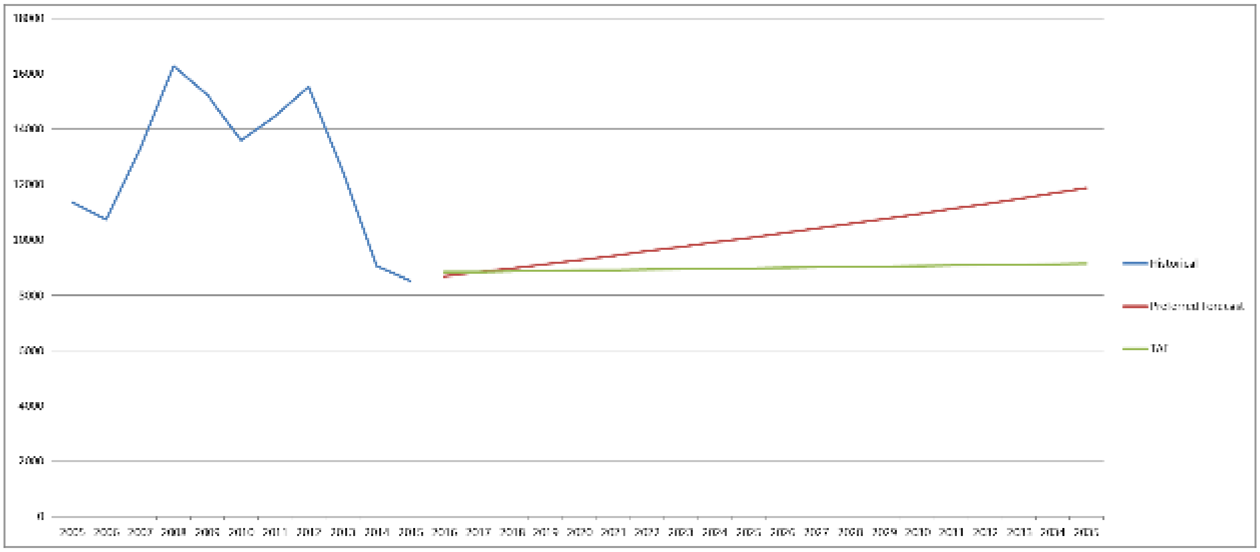
Table 3-13 and **Figure 3-16** summarize the preferred forecast for the total local operations at IDA.

TABLE 3-13 –TOTAL LOCAL OPERATIONS PREFERRED PROJECTION

Year	GA	Military	Total Local	FAA TAF
2015-Base Year	8,391	144	8,535	8,973
2020	9,123	144	9,267	8,887
2025	9,918	144	10,062	8,967
2035	11,723	144	11,867	9,127
CAGR	**1.7%**	**0%**	**1.7%**	**0.1%**
2020 Variation from TAF			**4.3%**	**-**
2025 Variation from TAF			**12.2%**	**-**
2035 Variation from TAF			**30.0%**	**-**

Source: T-O Engineers, Inc., FAA TAF, OPSNET

FIGURE 3-16 – TOTAL LOCAL OPERATIONS PREFERRED PROJECTION



Source: T-O Engineers, Inc., FAA TAF, OPSNET

Itinerant Operations

Itinerant operations at Idaho Falls Regional Airport consist of Air Carrier, Air Taxi, Military and GA operations.

Military Operations

Because military operations are volatile and do not represent a significant amount of traffic at IDA, only one scenario was studied for itinerant military operations. Like local military operations, this scenario assumes the growth of itinerant military operations will follow the forecasted 20-year CAGR for this type of operations in Idaho. **Table 3-14** summarizes the results obtained. It results in a light growth with a CAGR of 0.03 percent.

TABLE 3-14 –ITINERANT MILITARY OPERATIONS PROJECTIONS

Year	Scenario 1	FAA TAF
2015-Base Year	267	214
2020	267	234
2025	268	254
2035	269	321
CAGR	**0.03%**	**2.06%**
2020 Variation from TAF	**14.3%**	**-**
2025 Variation from TAF	**5.5%**	**-**
2035 Variation from TAF	**-16.3%**	**-**

Source: T-O Engineers, Inc. FAA TAF

Air Carrier Operations

The three scenarios used to evaluate Air Carrier operations at IDA are summarized in **Table 3-15** and on **Figure 3-17**.

- Scenario 1: Historical 10-Year Air Carrier Growth. This scenario assumes that Air Carrier operations at IDA will keep growing at the same 10-year historical CAGR of 4.8 percent. A 10-year historical period more efficiently captures patterns in air carrier activity at the airport.

- Scenario 2: 5-year Idaho Market Share. This scenario considers the market share of IDA within the entire State of Idaho. It assumes the percentage of air carrier activity at IDA will remain the same as the average percentage in the past 5 years (2.45 percent). In this case, the 5-year period is recommended to capture the most recent dynamic of the airport and its ability to attract air carriers in the current context. This scenario forecasts a CAGR of 2.7 percent.

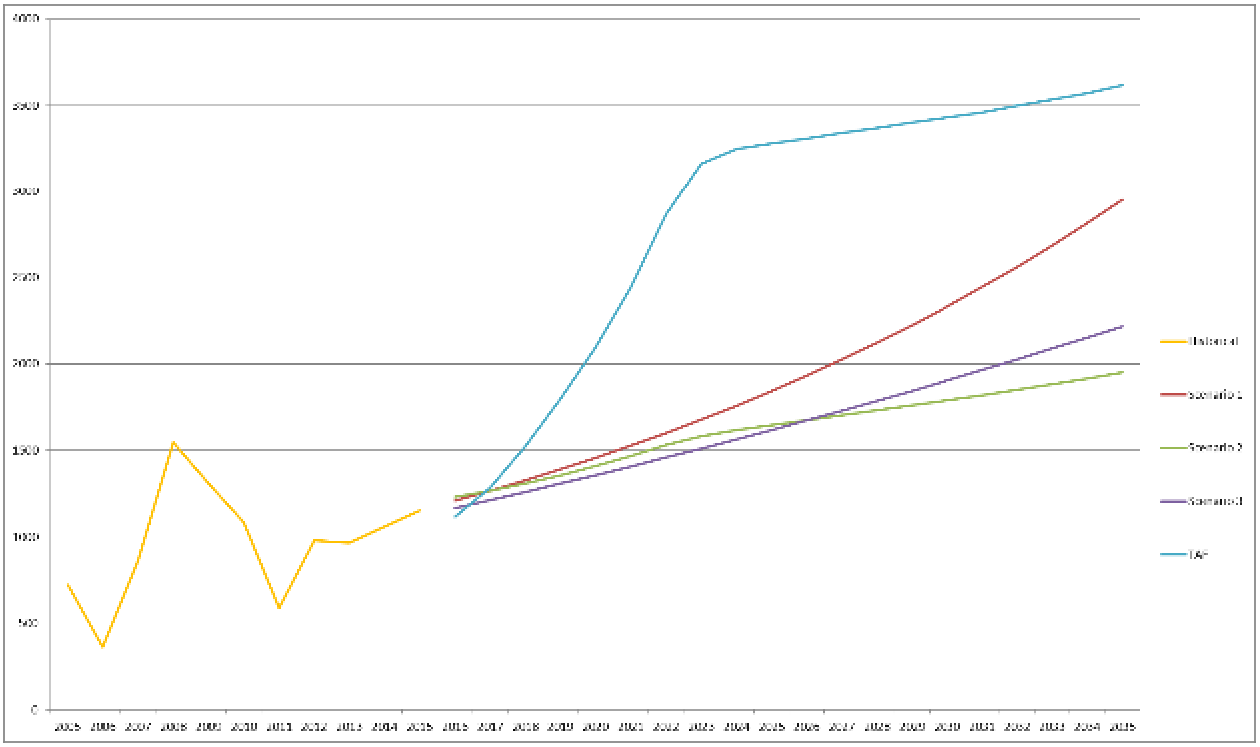
- Scenario 3: Linear Regression with MSA Population. Based on 10-year historical data, this scenario uses the population of the Idaho Falls MSA as the independent variable for a linear regression. The result is a CAGR of 3.3 percent but with a low correlation of 0.4 which means that less than 21 percent of the variation in air carrier operations can be explained by the variation in the population in the MSA.

TABLE 3-15 –ITINERANT AIR CARRIER OPERATIONS PROJECTIONS

Year	Scenario 1	Scenario 2	Scenario 3	FAA TAF
2015-Base Year	1,152	1,152	1,152	1,218
2020	1,457	1,409	1,357	2,093
2025	1,843	1,644	1,618	3,281
2035	2,949	1,950	2,218	3,616
CAGR	**4.8%**	**2.7%**	**3.3%**	**6.1%**
2020 Variation from TAF	**-30.4%**	**-32.7%**	**-35.2%**	**-**
2025 Variation from TAF	**-43.8%**	**-49.9%**	**-50.7%**	**-**
2035 Variation from TAF	**-18.4%**	**-46.1%**	**-38.7%**	**-**

Source: T-O Engineers, Inc. FAA TAF, OPSNET

FIGURE 3-17 – ITINERANT AIR CARRIER OPERATIONS PROJECTIONS



Source: T-O Engineers, Inc., FAA TAF, OPSNET

None of the scenarios meet the comparison criteria with the FAA TAF. The FAA TAF forecasts an aggressive growth of 6.1 percent well over the forecasted growth of 2 percent for air carrier activity between 2016 and 2036, as shown in the FAA aerospace forecasts. In addition, the FAA TAF appears to overestimate the number of operations for air carrier activity in 2015 (base year). Based on this analysis, the FAA TAF was not considered as a reasonable point of comparison. In addition, none of the forecast scenarios would change the role of the airport in the NPIAS or affect any airport projects.

Scenario 1 forecasts a growth with a CAGR of 4.8 percent that is greater than the national trend of 2 percent. Scenario 2 and Scenario 3 are closer to this predicted growth with CAGR of 2.7 percent and 3.3 percent, respectively. Because Scenario 3 has a low correlation, **Scenario 2** was chosen as the **preferred forecast** for Air Carrier operations at IDA.

<u>Air Taxi and Commuter Operations</u>

Like Air Carrier activity, Air Taxi and Commuter operations are tied to state and socioeconomic characteristics. They were projected using three scenarios. **Table 3-16** and **Figure 3-18** show the results.

- <u>Scenario 1: Historical 5-Year Air Taxi and Commuter Growth</u>. This scenario assumes that Air Taxi and Commuter operations at IDA will vary with a CAGR of 4 percent equal to the 5-year historical CAGR for this type of operations. Air Taxi and Commuters have experienced fewer fluctuations than Air Carrier in the past decade. Their operations dropped due to the recession starting in 2008 but have continuously increased since 2010. A 5-year historical period encompasses the most recent trend and dynamic of the airport.

- Scenario 2: 20-Year Projected CAGR for Idaho. This scenario predicts that the Air Taxi and Commuter operations will grow with the same CAGR as the projected CAGR for similar operations in the entire State of Idaho. It results in a CAGR of 0.3 percent for the next 20.years.

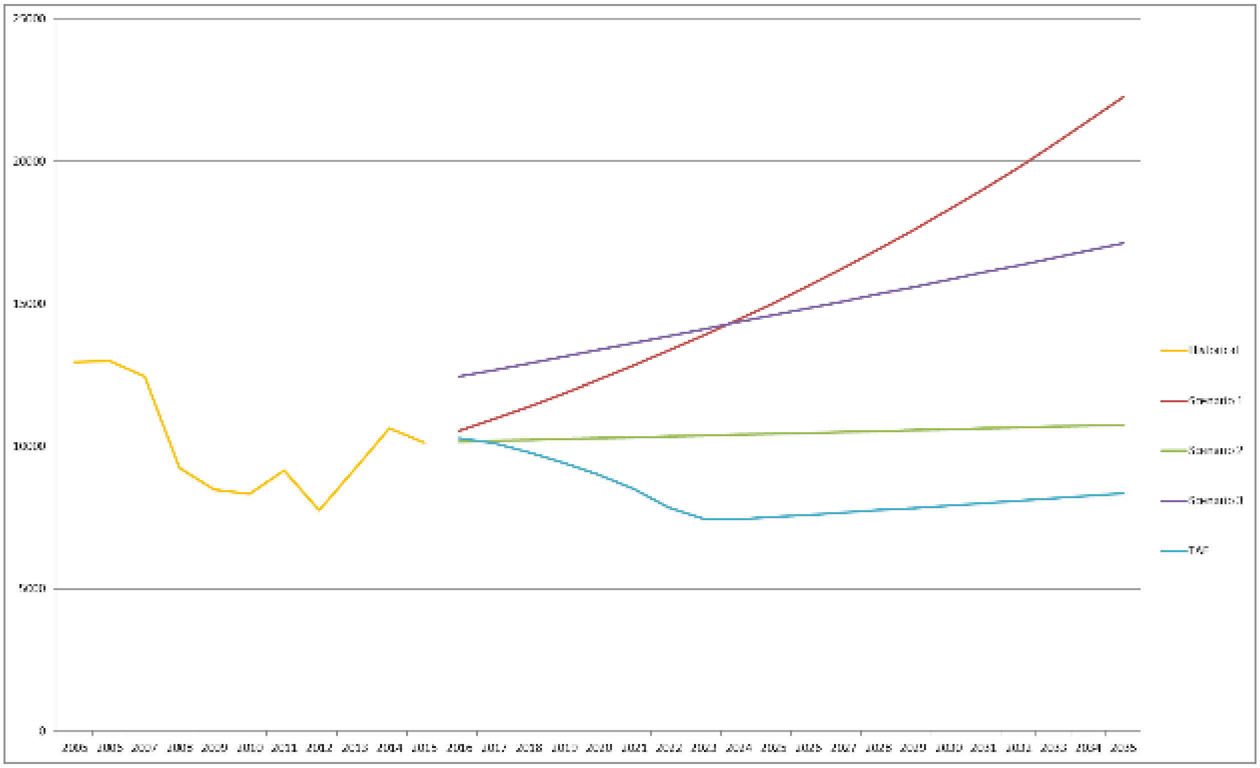
- Scenario 3: Linear Regression with MSA Employment. Based on 10-year historical data, this scenario uses the employment of the Idaho Falls MSA as the independent variable for a linear regression. The result is a CAGR of 2.6 percent but with a correlation of 0.51 which means that at least 26 percent of the variation in Air Taxi and Commuter operations can be explained by the variation in employment in the MSA.

TABLE 3-16 –ITINERANT AIR TAXI / COMMUTER OPERATIONS PROJECTIONS

Year	Scenario 1	Scenario 2	Scenario 3	FAA TAF
2015-Base Year	10,140	10,140	10,140	10,060
2020	12,343	10,291	13,384	9,013
2025	15,025	10,445	14,596	7,520
2035	22,264	10,760	17,119	8,346
CAGR	**4%**	**0.3%**	**2.6%**	**-1%**
2020 Variation from TAF	**36.9%**	**14.2%**	**48.5%**	**-**
2025 Variation from TAF	**99.8%**	**38.9%**	**94.1%**	**-**
2035 Variation from TAF	**166.8%**	**28.9%**	**105.1%**	**-**

Source: T-O Engineers, Inc. FAA TAF, OPSNET

FIGURE 3-18 – ITINERANT AIR TAXI / COMMUTER OPERATIONS PROJECTIONS



Source: T-O Engineers, Inc. FAA TAF, OPSNET

The FAA TAF forecasts a decrease in operations before a slow growth. The CAGR for the 20-year planning period is -1%. Once again, this is not coherent with the national trend for passenger transportation which indicates a growth of 2 percent for the next 20 years (FAA Aerospace Forecasts).

Scenario 1 forecasts a growth of 4 percent annually while Scenario 2 shows a very slow growth with a CAGR at 0.3 percent. Scenario 3 forecasts a CAGR of 2.6 percent more coherent with the national trend and similar to the growth forecasted for Air Carrier operations at IDA. In addition, it shows a moderate relationship between local socioeconomic factors (employment) and Air Taxi / Commuter activity at the airport (Correlation > 0.5).

Based on this analysis, **Scenario 3** was chosen as the **preferred forecast** for Air Taxi and Commuter operations at Idaho Falls Regional Airport.

General Aviation Operations

A summary of the methodologies used to develop the projections for GA itinerant operations is listed below and results are shown in **Table 3-17** and **Figure 3-19.**

- Scenario 1: 5-Year Idaho Market Share. This scenario projects GA itinerant operations to match the same market share of 2.3 percent with the market in the State of Idaho between 2010 and 2015. It results in a CAGR of 1.5 percent over the planning period.

- Scenario 2: 5-Year NW Region Market Share. This scenario predicts that the GA itinerant activity at IDA will follow a CAGR of 0.9 percent. It assumes the airport will maintain a market share of 0.35 percent with the market in the Northwest Mountain Region for itinerant GA (historical 5-year average).

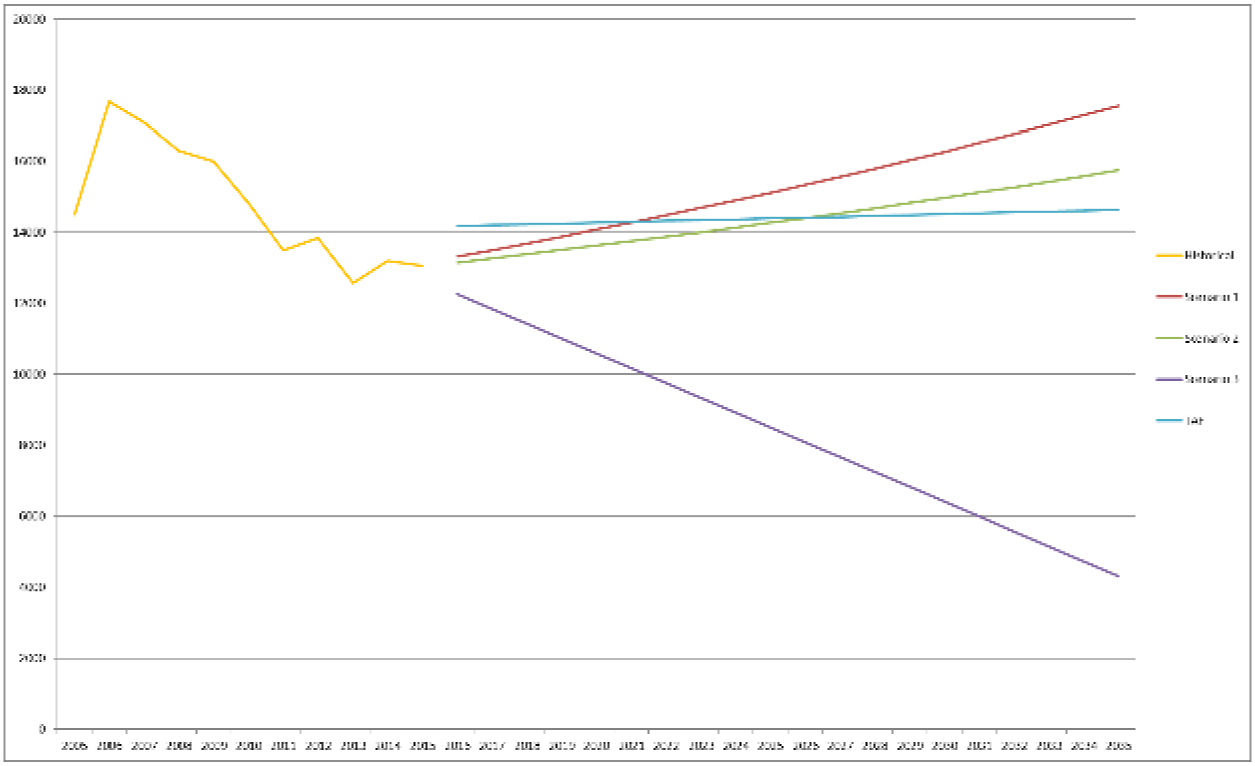
- Scenario 3: Trend Analysis. This scenario uses 10 years of historical data for a trend analysis. It predicts a decrease of the itinerant GA operations with a CAGR of -5.4 percent. The correlation for this analysis is -0.7 which indicates a strong negative relationship between the historical data.

TABLE 3- 17– ITINERANT GENERAL AVIATION OPERATIONS PROJECTIONS

Year	Scenario 1	Scenario 2	Scenario 3	FAA TAF
2015-Base Year	13,058	13,058	13,058	13,695
2020	14,077	13,627	10,586	14,272
2025	15,114	14,268	8,492	14,392
2035	17,556	15,751	4,305	14,638
CAGR	**1.5%**	**0.9%**	**-5.4%**	**0.2%**
2020 Variation from TAF	**-1.4%**	**-4.5%**	**-25.8%**	**-**
2025 Variation from TAF	**5.0%**	**-0.9%**	**-41.0%**	**-**
2035 Variation from TAF	**19.9%**	**7.6%**	**-70.6%**	**-**

Source: T-O Engineers, Inc., FAA TAF, OPSNET

FIGURE 3-19 – ITINERANT GENERAL AVIATION OPERATIONS PROJECTIONS



Source: T-O Engineers, Inc., FAA TAF

The FAA TAF base year operations differs from the OPSNET base year for Scenarios 1 through 3. This difference in base years leads to significant differences throughout the forecast period.

Both Scenario 1 and Scenario 2 use a market share methodology. Considering that most of the aircraft flying to IDA are likely to come from other airports in Idaho, Scenario 1 uses the average 5-year historical market share of IDA with the state of Idaho. Assuming this percentage will stay constant over the planning period, Scenario 1 predicts a CAGR of 1.5 percent. This growth is close to the national trend for the forecasted number of GA hours flown.

Scenario 2 uses the predictions and market share for the entire Northwest Mountain Region. It forecasts a smaller growth than Scenario 1 with a CAGR of 0.9 percent. On the other hand, this scenario might not capture the dynamics of either the state of Idaho or the local area as it encompasses a full region. Scenario 3 uses a trend analysis. Historically, itinerant GA operations have decreased at IDA and the trend analysis captures this diminution and forecasts a CAGR of -5.4 percent. Considering the national growth in terms of GA hours flown and the dynamics in the State of Idaho (+1.4 percent), this prediction is not coherent.

Based on this analysis, **Scenario 1** was chosen as the **preferred forecast** for itinerant GA operations at Idaho Falls Regional Airport.

Summary

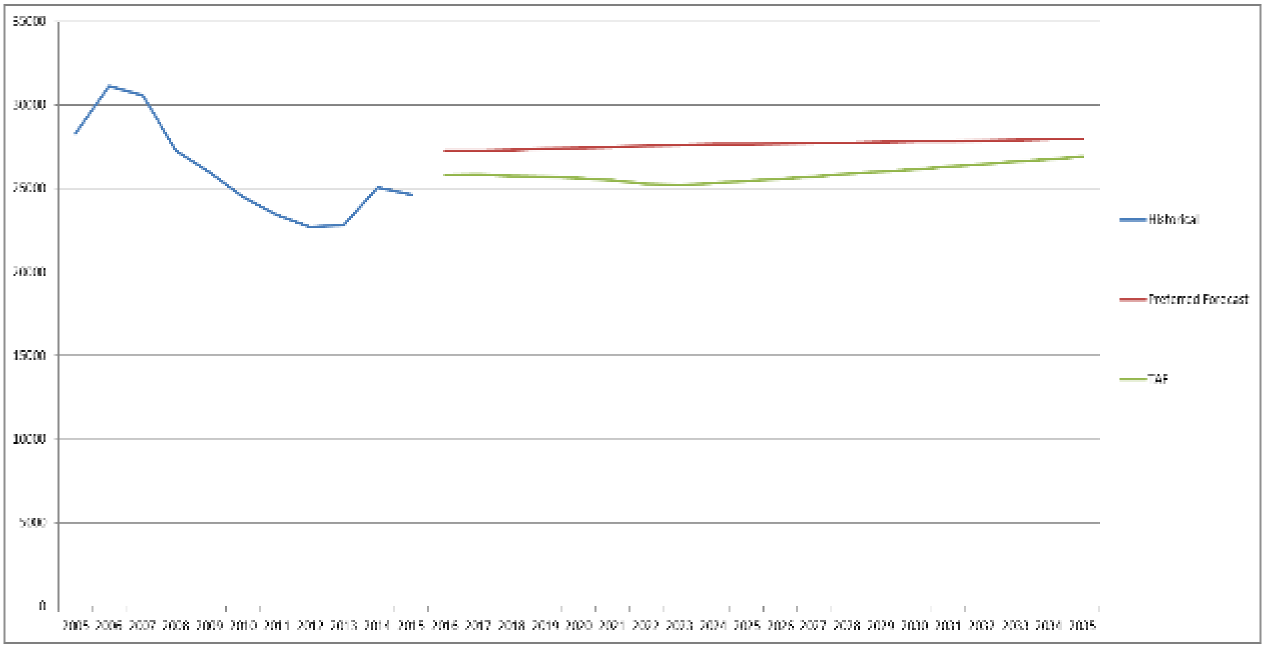
Table 3-18 and **Figure 3-20** summarize the projections for all itinerant operations at IDA. It includes the preferred forecast for Air Carrier, Air Taxi and Commuter, Military and General Aviation itinerant operations.

TABLE 3-18 –TOTAL ITINERANT OPERATIONS PREFERRED PROJECTION

Year	Air Carrier	GA	Air Taxi/ Commuter	Military	Total Itinerant	FAA TAF
2015-Base Year	1,152	13,058	10,140	267	24,617	25,187
2020	1,409	14,077	13,384	267	27,423	25,612
2025	1,644	15,114	14,596	268	27,658	25,447
2035	1,950	17,556	17,119	269	27,965	26,921
CAGR	**2.7%**	**1.5%**	**2.6%**	**0.03%**	**0.64%**	**0.3%**
	2020 Variation from TAF				**7.1%**	**-**
	2025 Variation from TAF				**8.7%**	**-**
	2035 Variation from TAF				**3.9%**	**-**

Source: T-O Engineers, Inc., FAA TAF, OPSNET

FIGURE 3-20 – ITINERANT OPERATIONS PREFERRED PROJECTIONS



Source: T-O Engineers, Inc., FAA TAF, OPSNET

Total Operations

The projection for the total aircraft operations was derived by combining the preferred forecast for both local and itinerant operations. The total aircraft operations were also compared to the FAA TAF, as shown in **Table 3-19** and **Figure 3-21.**

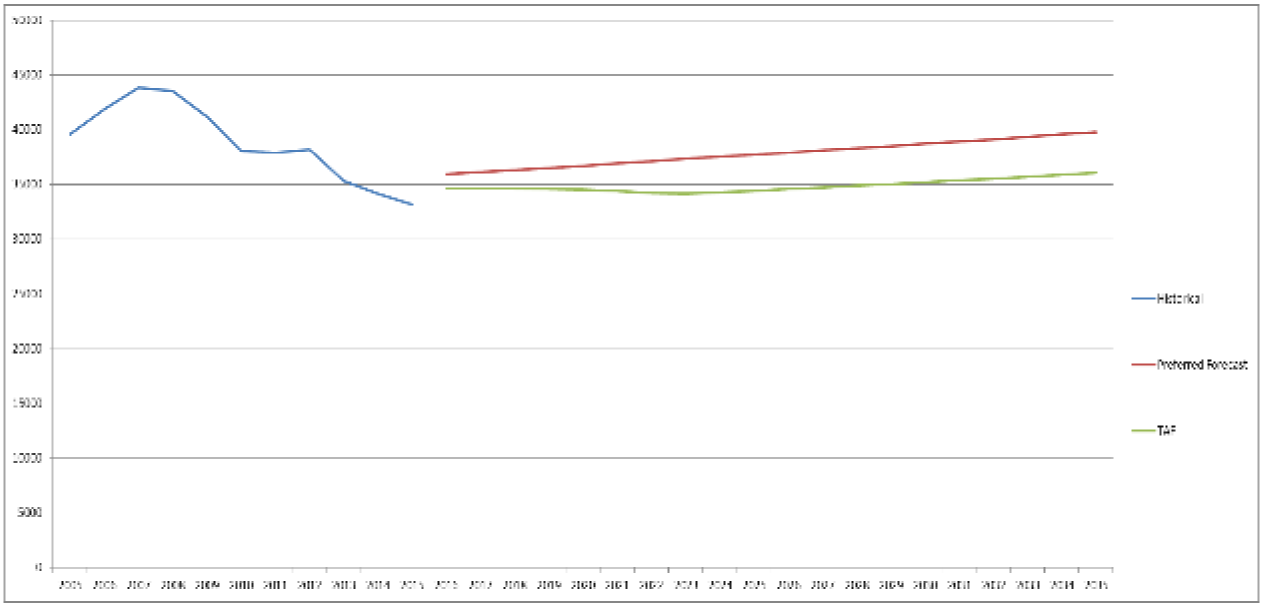
This methodology results in an annual growth rate of 0.9 percent, which is greater than the FAA TAF annual growth rate of 0.3 percent, for total annual aircraft operations at Idaho Falls Regional Airport.,

TABLE 3-19 –TOTAL AIRCRAFT OPERATIONS PREFERRED PROJECTION

Year	Itinerant	Local	Total Operations	FAA TAF
2015-Base Year	24,617	8,535	33,152	34,160
2020	27,423	9,267	36,690	34,499
2025	27,658	10,062	37,720	34,414
2035	27,965	11,867	39,832	36,048
CAGR	**0.64%**	**1.7%**	**0.9%**	**0.3%**
2020 Variation from TAF			**6.3%**	**-**
2025 Variation from TAF			**9.6%**	**-**
2035 Variation from TAF			**10.5%**	**-**

Source: T-O Engineers, Inc., FAA TAF, OPSNET

FIGURE 3-21 – TOTAL AIRCRAFT OPERATIONS PREFERRED PROJECTION



Source: T-O Engineers, Inc., FAA TAF, OPSNET

According to these projections 39,832 aircraft operations are expected to occur at IDA, by the end of the forecast period in 2035. This is 10.5 percent more than the FAA TAF projection with 36,048 total operations in 2035. These preferred aviation activity projections for IDA are carried forward in the planning process and are used to examine future airport facility needs.

3.3.4 AIRCRAFT FLEET

The aircraft fleet mix using the airfield is important in determining the facilities requirements and in evaluating the capacity of the airport.

Based Aircraft

Projected based aircraft were allocated to five aircraft categories – single-engine, multi-engine, jet, helicopter and other to develop a projection of the airport's based aircraft fleet mix through the planning period.

The based aircraft fleet mix projections developed for IDA were based on the preferred forecast for based aircraft, the current fleet mix percentages exhibited at the airport, and on the *FAA Aerospace Forecast, Fiscal Years 2016-2036* projections of active general aviation aircraft.

The FAA aerospace forecasts for the national GA fleet were used to compute the variation in the percentage of the fleet mix at a national level over the next 20 years. This method assumes that the fleet mix of based aircraft at IDA will follow the same national trend. A variation rate in percentage was computed for each type of aircraft and applied to the existing fleet mix percentages to predict the split of based aircraft over the planning period. **Table 3-20** summarizes the results.

TABLE 3-20 – PROJECTED BASED AIRCRAFT FLEET MIX

Aircraft Type	2015	2020	2025	2035	CAGR
Single-Engine	70	70	69	68	-0.2%
Multi-Engine	15	16	17	18	1.0%
Jet	12	14	15	19	2.3%
Helicopter	2	3	4	5	4.9%
Other*	1	1	1	1	-0.3%
Total	**100**	**103**	**105**	**111**	**0.5%**

*Gliders

Source: T-O Engineers

IDA is expected to experience a shift in its based aircraft fleet mix with less single-engine aircraft and more multi-engine and jets. Based single-engine aircraft are forecasted to slightly decrease at a CAGR of -0.1 percent. The national trend for this category of aircraft is a CAGR of -0.7 percent for the next 20 years. This difference is largely attributable to the type of GA operations at many airports in Idaho. Idaho has a higher percentage of operations conducted to and from backcountry airports where single engine aircraft are preferred.

Aircraft Mix

The aircraft mix as defined in Section 3.1.13 is essential in determining the airport capacity. As shown in the results presented in the same section, there is a significant difference between the aircraft mix for the overall airport and the aircraft mix for the planning study area.

As noted previously for the based aircraft fleet mix and according to trends in the national GA fleet presented in the *FAA Aerospace Forecasts 2016-2036*, the airport will most likely experience a growth in multi-engine piston and turbine aircraft operations, as well as in helicopter activity. Multi-engine and jet aircraft are divided into Class B and Class C. Over the 20-year planning period, the airport will most likely see a change in the aircraft mix with a higher percentage of helicopters (Others), Class B aircraft, and Class C aircraft.

The forecasted aircraft mix is different for the airport as a whole than the planning study area. Despite a national increase in the percentage of Class D aircraft, it is believed that Runway 17-35 will not be used by Class D aircraft within the next 20 years. As Class C (gross weight between 12,500 and 300,000 lbs) encompasses a large range of business jets as well as single engine turbine and multi engine aircraft, it is reasonable to forecast that Runway 17-35 will receive a small share of the increased Class C traffic during the planning period. However, it is estimated that the forecasted amount of Class C traffic on Runway 17-35 will remain below the substantial use of 500 annual operations.

Forecasts were developed using a similar methodology as for the based aircraft fleet mix. **Table 3-21** summarizes the forecast for the aircraft mix at IDA.

TABLE 3-21 – PROJECTED AIRCRAFT FLEET MIX

Aircraft Type	2015	2020	2025	2035
Both Runways				
Class A	13.1%	10.8%	8.4%	3.7%
Class B	14.7%	14.8%	15.0%	15.3%
Class C	71.2%	72.4%	73.7%	76.2%
Class D	0.0%	0.3%	0.7%	1.3%
Others*	1.0%	1.6%	2.3%	3.5%
Runway 17-35				
Class A	80.4%	78.1%	75.7%	71.0%
Class B	2.5%	3.0%	3.4%	4.4%
Class C	0.0%	1.2%	2.5%	5.0%
Class D	0.0%	0.0%	0.0%	0.0%
Others*	17.1%	17.7%	18.4%	19.6%

*Gliders and Helicopters

Source: T-O Engineers

3.4 INSTRUMENT APPROACH OPERATIONS

Forecasts of annual instrument approaches are used by the FAA in evaluating an airport's requirements for navigational aid facilities. The FAA defines an instrument approach as an approach to an airport with the intent to land an aircraft in accordance with an Instrument Flight Rule (IFR) flight plan when visibility is less than three miles and/or when the ceiling is at or below the minimum initial approach altitude.

Idaho Falls Regional Airport is equipped with four instrument approaches at each end of Runway 2-20. Runway 17-35 does not have any instrument approaches. Historical values for the number of aircraft flying under IFR flight plans can be found in the FAA TFMSC. Over the past 10 years (2005-2015), the number of IFR operations has represented an average of 37% of the total aircraft operations at the airport.

The historical CAGR for the last 10 years is -3.6 percent which illustrates a decrease in the number of IFR flights between 2005 and 2015. This result mirrors the historical decrease in the total number of operations at the airport (CAGR of -1.8 percent).

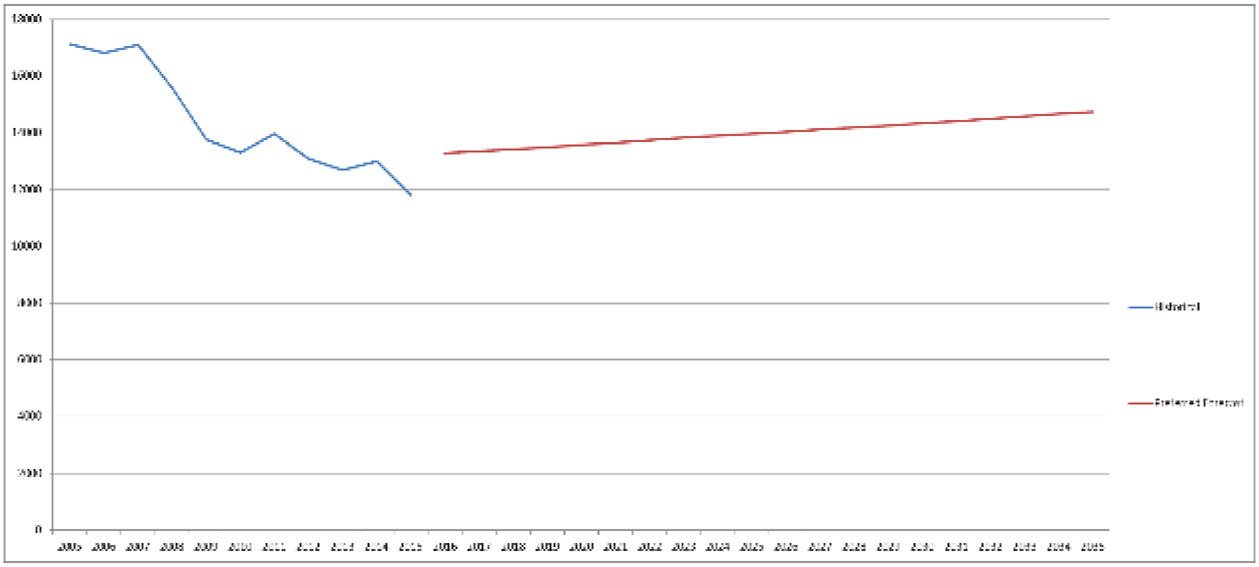
The preferred forecast for total operations at the airport was used to derivate the forecast for IFR flights by applying the historical average 37-percent share for these operations. This method assumes that IFR flights will grow proportionally to the total number of operations. **Table 3-22** and **Figure 3-19** show the results.

TABLE 3-22 –INSTRUMENT OPERATIONS PREFERRED PROJECTION

Year	IFR Flights	% Total Operations
2015-Base Year	11,802	35.6%
2020	13,574	37%
2025	13,955	37%
2035	14,736	37%
CAGR	**1.12%**	**-**

Source: T-O Engineers, OPSNET

FIGURE 3-22 – IFR OPERATIONS PREFERRED PROJECTION



Source: T-O Engineers, OPSNET

3.5 PEAKING ANALYSIS

Another primary consideration for facility planning at airports relates to peak hour, also referred to as design level activity. This operational characteristic is decisive because some facilities, such as the aircraft apron, should be sized to accommodate the peaks in activity. For the purpose of this planning study, no peaking analysis was done for commercial traffic (air carrier, and part of air taxi and commuters), involving airline schedules.

In calculating the number of aircraft operations occurring during the peak hour, it was assumed that the peak day was 20 percent higher than the average day and that the peak hour was 20 percent of the peak day operations. The operations used as a base to evaluate the peak factors include GA and military operations, as well as 10 percent of the air taxi and commuter aircraft.

These operations will use the airport facilities included in the planning study area as defined on **Figure 3-1** and the GA facilities along Runway 2-20. Air carrier operations are not included in this study. **Table 3-23** presents peak factors for the 20-year planning period (2015-2035).

TABLE 3-23 – OPERATIONS FORECASTS – PEAKING FACTORS

Year	Total Annual Operations*	Average Daily Total	Peak Day	Peak Hour
2015 Base Year	22,874	63	75	15
2020	25,360	69	83	17
2025	26,904	74	88	18
2035	31,404	86	103	21

*Expected to use the planning study area. GA (itinerant and local) and 10% of Air Taxi and Commuters

Source: T-O Engineers

3.6 RUNWAY USE

Idaho Falls Regional Airport has two runways and aircraft operations are split between each. The type of aircraft using each runway can depend on the runway dimensions (length and width), its location, or the type of approach available.

Section 3.3.4 summarizes the aircraft and fleet mix using the airport and specifically Runway 17-35 included in the planning study area shown on **Figure 3-1**. Knowing the runway split in terms of operations associated with the aircraft and fleet mix will help determine capacity issues and future design standards.

The ATCT logged every operation occurring on Runway 17-35 during the months of July and August in the summer of 2016. This log reports a total of 448 operations over two months. Between 2005 and 2015, the OPSNET data show that the operations during these two months represent an average of 20 percent of the annual operations at IDA.

Because of the absence of specific data for the years before 2016, the runway split was determined solely on 2016 data as shown in **Table 3-24**.

TABLE 3-24 –TOTAL OPERATIONS –RUNWAY SPLIT

Date	Total Operations*	Runway 17-35 Operations**	% Runway 17-35	% Runway 2-20
July 2016	2,831	211	7.5%	92.5%
August 2016	2,989	237	7.9%	92.1%
Total	**5,820**	**448**	**7.7%**	**92.3%**

*OPSNET data for July and August 2016
**ATCT log for July and August 2016
Source: T-O Engineers, OPSNET, IDA ATCT

Considering the preferred forecast for total operations as shown on **Figure 3-18**, it is predicted that IDA will have 35,920 operations in 2016. Considering that the ATCT logged every operation on Runway 17-35 out of the 5,820 occurring on the airport in July and August 2016, the sample size would be 5,820 for a total of 35,920 operations. Statistically speaking, it means that the runway split percentage is accurate at +/-1.5% at a confidence level of 95%.

Runway 17-35 receives an average of 7.7 percent of the total aircraft operations at IDA. These operations are mostly GA operations and represent an average of 14.9 percent of the total GA operations at IDA. **Table 3-25** summarizes the percentage of GA operations on each runway.

TABLE 3-25 –GA OPERATIONS –RUNWAY SPLIT

Date	GA Operations*	Runway 17-35 Operations**	% Runway 17-35	% Runway 2-20
July 2016	1,465	211	14.4%	85.6%
August 2016	1,541	237	15.4%	84.6%
Total	**3,006**	**448**	**14.9%**	**85.1%**

*OPSNET data for July and August 2016
**ATCT log for July and August 2016
Source: T-O Engineers, OPSNET, IDA ATCT

Several GA airport users were interviewed and estimated using Runway 17-35 for 10 to 25 percent of their total operations, with an average of 17 percent. This result is close to the values shown in the previous table.

The proposed runway split remains an estimation made with the data available at the airport. The choice between runways is influenced by different parameters including approach available, runway dimensions, density altitude, wind coverage, as well as hangar and apron location.

Based on the preferred forecasts for the total aircraft at IDA, and the percentages presented in this section, **Table 3-26** summarizes the projections for the operations on Runway 17-35. This scenario assumes the percentage of use for Runway 17-35 will stay the same during the planning period.

TABLE 3-26 –RUNWAY 17-35 OPERATIONS PROJECTION

Year	Total Airport Operations*	RWY 17-35 Operations**
2015-Base Year	33,152	2,553
2020	36,690	2,825
2025	37,720	2,904
2035	39,832	3,067
CAGR	**0.9%**	**0.9%**

*OPSNET and Preferred Forecast
**7.7% of Total Airport Operations
Source: T-O Engineers, OPSNET

3.7 CRITICAL AIRCRAFT

The development of airport facilities is impacted by both the demand and the type of aircraft expected to make use of those facilities. Airport infrastructure is designed to accommodate the most demanding aircraft (or combination of aircraft), which will utilize the facilities on a regular basis, also referred to as the critical or design aircraft.

The factors used to determine the design aircraft include the Aircraft Approach Category (AAC), Airplane Design Group (ADG) and Taxiway Design Group (TDG) of the most demanding class of aircraft anticipated to perform at least 500 annual operations at the airport during the 20 year planning period.

The Idaho Falls Regional Airport has multiple facilities with differing critical aircraft determinations. These include Runway 2-20, Runway 17-35, Taxiway A, Taxiway B and Taxiway C. As part of the 2010 Master Plan Update, the critical aircraft for Runway 2-20 was designated as the 737-800 (C-III) while the critical aircraft for Runway 17-35 was designated as the Falcon 50 (B-II).

In 2012, the FAA issued a major revision to AC 150/5300-13 Airport Design. This revision included the introduction of Taxiway Design Groups (TDG). Unlike ADG which is based on wingspan and tail height, TDG was based on the gear configuration of the aircraft. As this change occurred after the 2010 Master Plan Update, no critical aircraft designation has been completed for Taxiways A, B or C.

As part of this planning study, the critical aircraft for Runway 2-20 and 17-35 will be designated by AAC and ADG while the critical aircraft for Taxiways A, B and C will be designated by ADG and TDG. Data sources used to assist in the designation of critical aircraft include operations data from the FAA's Traffic Flow Management System Counts (TFMSC), tower operation logs and an inventory of based aircraft location and hangar size.

As Runway 2-20 is the only Part 139 certificated runway on the airfield, it was assumed all commercial service operations take place on Runway 2-20. As no facilities serving commercial service aircraft are located on the east side of the airfield, no commercial service aircraft were assumed to use Runway 17-35 or Taxiway B. In addition, all commercial service operations are assumed to use Taxiway A. **Table 3-27** below shows the aircraft with more than 100 annual operations from the TFMSC data for Calendar Year 2015.

TABLE 3-27 – AIRCRAFT FLEET MIX FROM TFMSC

Aircraft Type	2015 Annual Operations	AAC	ADG	TDG
CRJ2 - Bombardier CRJ-200	3,897	B	II	1B
PC12 - Pilatus PC-12	1,038	A	II	2
CRJ9 - Bombardier CRJ-900	852	C	III	2
MD83/88 - Boeing (Douglas) MD 83/88	537	C	III	4
SW4 - Swearingen Merlin 4/4A Metro2	526	A	II	2
AT43 - ATR 42-200/300/320	430	B	III	2
BE20 - Beech 200 Super King	236	B	II	2
C525 - Cessna Citation Jet/CJ1	232	B	I	1A
C208 - Cessna 208 Caravan	221	A	II	1A
C560 - Cessna Citation V/Ultra/Encore	213	B	II	1B
CRJ7 - Bombardier CRJ-700	212	C	II	2
C25C - Cessna Citation CJ4	211	B	II	1B
BE99 - Beech Airliner 99	206	A	I	1A
C750 - Cessna Citation X	160	B	II	1B
BE40 - Raytheon Beechjet 400/T-1	148	B	I	1A
BE9T - Beech F90 King Air	142	B	II	1A
CL30 - Bombardier Challenger 300	137	B	II	1B
PRM1 - Raytheon Premier 1/390	132	B	I	1A
C510 - Cessna Citation Mustang	130	A	I	1A
C56X - Cessna Excel/XLS	111	B	II	1B

Source: T-O Engineers, TFMSC

From a review of the TFMSC data, it was determined the critical aircraft for Runway 2-20 and Taxiway A was the MD 83/88. This aircraft has an AAC of C, ADG of III and a TDG of 4.

In assigning a critical aircraft for Runway 17-35, the TFMSC data was again reviewed to determine which of the aircraft could potentially use Runway 17-35 based on runway length requirements. **Table 3-28** below lists the aircraft from the TFMSC data which could potentially use the runway. One item to note is the TFMSC data only includes those aircraft operating under Instrument Flight Rules (IFR). In the case of Runway 17-35, a substantial number of operations are conducted under Visual Flight Rules (VFR).

TABLE 3-28 – POTENTIAL CRITICAL AIRCRAFT FOR RUNWAY 17-35 FROM TFMSC

Aircraft	Total Operations	AAC	ADG	Weight Category
PC12 - Pilatus PC-12	1,038	B	II	Small
BE20 - Beech 200 Super King	236	B	II	Small
C525 - Cessna Citation Jet/CJ1	232	B	I	Small
C208 - Cessna 208 Caravan	221	B	II	Small
BE99 - Beech Airliner 99	206	B	I	Small
BE9T - Beech F90 King Air	142	B	I	Small
PRM1 - Raytheon 390 Premier 1	132	B	I	Small
C510 - Cessna Citation Mustang	130	B	I	Small

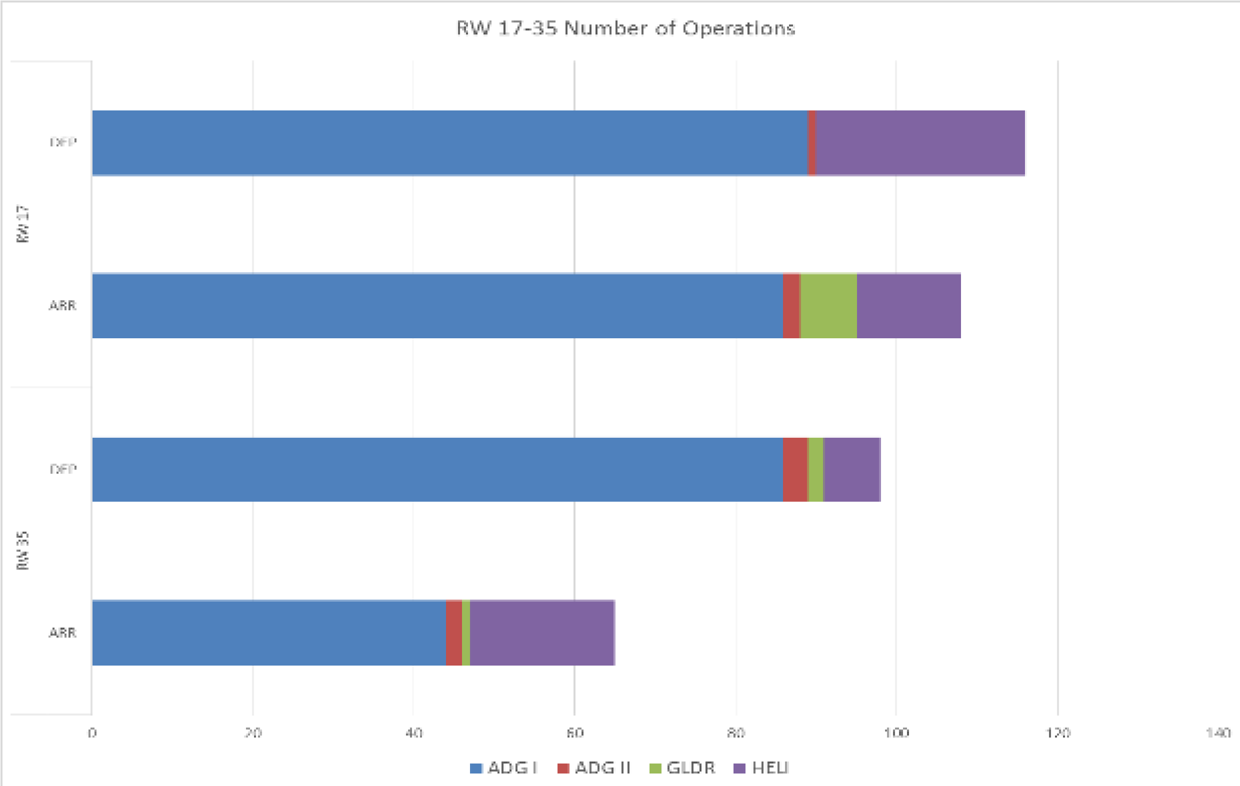
Note: Bold Aircraft are those aircraft known to be based at IDA

Source: T-O Engineers, TFMSC

As the number of Pilatus PC-12 operations was significantly greater than 500 annual operations, the owners of these based aircraft were contacted to discuss their operations at IDA. There are currently three PC-12 aircraft based at IDA, two of these aircraft are used for personal business and one is used by Air Methods, an Emergency Medical Services (EMS) provider. As both of the private owners hangar their aircraft near Runway 17-35, they utilize the runway for certain operations. Both private operators indicated they typically depart on Runway 35 and land on Runway 17 when the wind permits. They both indicated they do not typically use Runway 17 for takeoff or Runway 35 for landing. The EMS provider indicated they rarely use Runway 17-35 as their aircraft is hangered near the midfield of Runway 2-20. They did say if winds favor Runway 17-35, they would use the runway. Between the three operators, they estimated a total of 100 operations on Runway 17-35 annually, well below the critical aircraft threshold of 500 operations.

To assist in the designation of the critical aircraft, the ATCT collected operations data on Runway 17-35 from July through September of 2016. During this time, the ATCT logged the type of aircraft, type of operation (Landing or Takeoff) and runway end used. **Figure 3-23** below shows the percent of operations by ADG and type of aircraft (Glider or Helicopter) on each runway end.

Figure 3-23 Runway 17-35 Number of Operations by ADG



Source: T-O Engineers, IDA ATCT

During the months of July and August, eight B-II aircraft used Runway 17-35 and none of these aircraft had a MTOW greater than 12,500 lbs. The remainder of the operations were conducted by either B-I Small aircraft or Helicopters. During this period, the aircraft that utilized the runway most frequently included the Cessna 172, Cessna 182, Cessna 206, and Cessna 337 fixed wing aircraft and the Robinson R22 helicopter. The operations by each of these aircraft as well as the projected total annual operations are show in **Table 3-30** below.

TABLE 3-30 – AIRCRAFT OPERATIONS ON RUNWAY 17-35 FROM ATCT

Aircraft	Summer Operations	Total Operations	ADG	Weight Category
Cessna 172	126	551	I	Small
Robinson R22	58	432	N/A	Small
Cessna 182	52	224	I	Small
Cessna 206	24	171	I	Small
Cessna 337	20	142	I	Small

Source: T-O Engineers, IDA ATCT

Based on this analysis, the **Cessna 172/182** aircraft was chosen as the new **critical aircraft** for Runway 17-35. This aircraft is a TDG I aircraft, however future taxiway designs should follow ADG II and TDG 2 standards to accommodate larger aircraft based in the study area who do not use Runway 17-35. **Table 3-31** summarizes the characteristics of the selected critical aircraft.

TABLE 3-31 – CHARACTERISTICS OF DESIGN AIRCRAFT

Cessna 182	
Approach Speed	92 kts
Wing Span	36’
Length	29’
Tail Height	9’-4”
Maximum Take Off Weight	3,110 lbs
ADG	I-Small
TDG	1A
AAC	B

Source: cessna.com, T-O Engineers, Inc.

Figure 3-24 Cessna 182

Source: cessna.com, T-O Engineers, Inc.

The Idaho Falls Regional Airport should plan future airfield infrastructure development for Runway 17-35 at an ARC of B-I Small and for taxiways at ADG II and TDG 2. There is no reason to believe that larger aircraft will use Runway 17-35 over the substantial use of 500 annual operations, as long as Runway 2-20 is available.

3.8 FORECAST SUMMARY

Aviation activity projections were developed using 2015 as a base year. The OPSNET was used as a reference for historical aircraft operation data at IDA. Based aircraft historical data were taken from the FAA TAF and 5010 Master Records, and Enplanements were retrieved from the ACAIS.

It is anticipated that Idaho Falls Regional Airport will see some growth in all activity areas during the 20-year planning period. By 2035, approximately 39,832 aircraft operations are projected to occur and 190 aircraft are projected to be based at the airport.

It was also identified that the airport will need to accommodate design standards for B-I-Small aircraft for Runway 17-35, as well as ADG II and TDG 2 for Taxiways B within the 20-year planning period.

Table 3-32 summarizes the projections made in this chapter.

TABLE 3-32 – SUMMARY OF AVIATION ACTIVITY FORECASTS 2015-2035

Year	Itinerant Operations	Local Operations	Total Operations	Based Aircraft
2015 – Base Year	24617	8535	33152	100
2020	27423	9267	36690	103
2025	27658	10062	37720	105
2035	27965	11867	39832	111
CAGR	**0.64%**	**1.7%**	**0.9%**	**0.5%**
2020 Variation from TAF	**7.1%**	**4.3%**	**6.3%**	**-39.4%**
2025 Variation from TAF	**8.7%**	**12.2%**	**9.6%**	**-38.2%**
2035 Variation from TAF	**3.9%**	**30.0%**	**10.5%**	**-34.7%**
Planning Study Area				
Future Aircraft Approach Category			A/B	
Future Airplane Design Group for Runway 17-35			I-SMALL	
Future Airplane Design Group for Taxiway B			II	
Future Taxiway Design Group			2	
Runway 17-35 Use				
% of Total Airport Operations			**7.7%**	
% of Airport Air Carrier Operations			**0%**	
% of Airport Air Taxi/Commuter Operations			**0%**	
% of Airport General Aviation Operations			**14.9%**	
% of Airport Military Operations			**0%**	

Source: T-O Engineers

4.0 FACILITIES REQUIREMENTS

4.1 INTRODUCTION

4.1.1 GENERAL

The purpose of this chapter of the Idaho Falls Regional Airport (IDA) Planning Study for Runway 17-35 is to identify the needs for additional facilities, or improvements to existing facilities over a 20-year planning horizon. This study only covers a specific area on the airport as shown on **Figure 4-1**.

Using the 20-year forecasts presented in **Chapter 3 - Aviation Activity Forecasts**, and approved by the FAA in XXXXXXX, this chapter assesses the relationship between the 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 for existing facilities to meet projected demand for each planning horizon year (2020, 2025 and 2035).

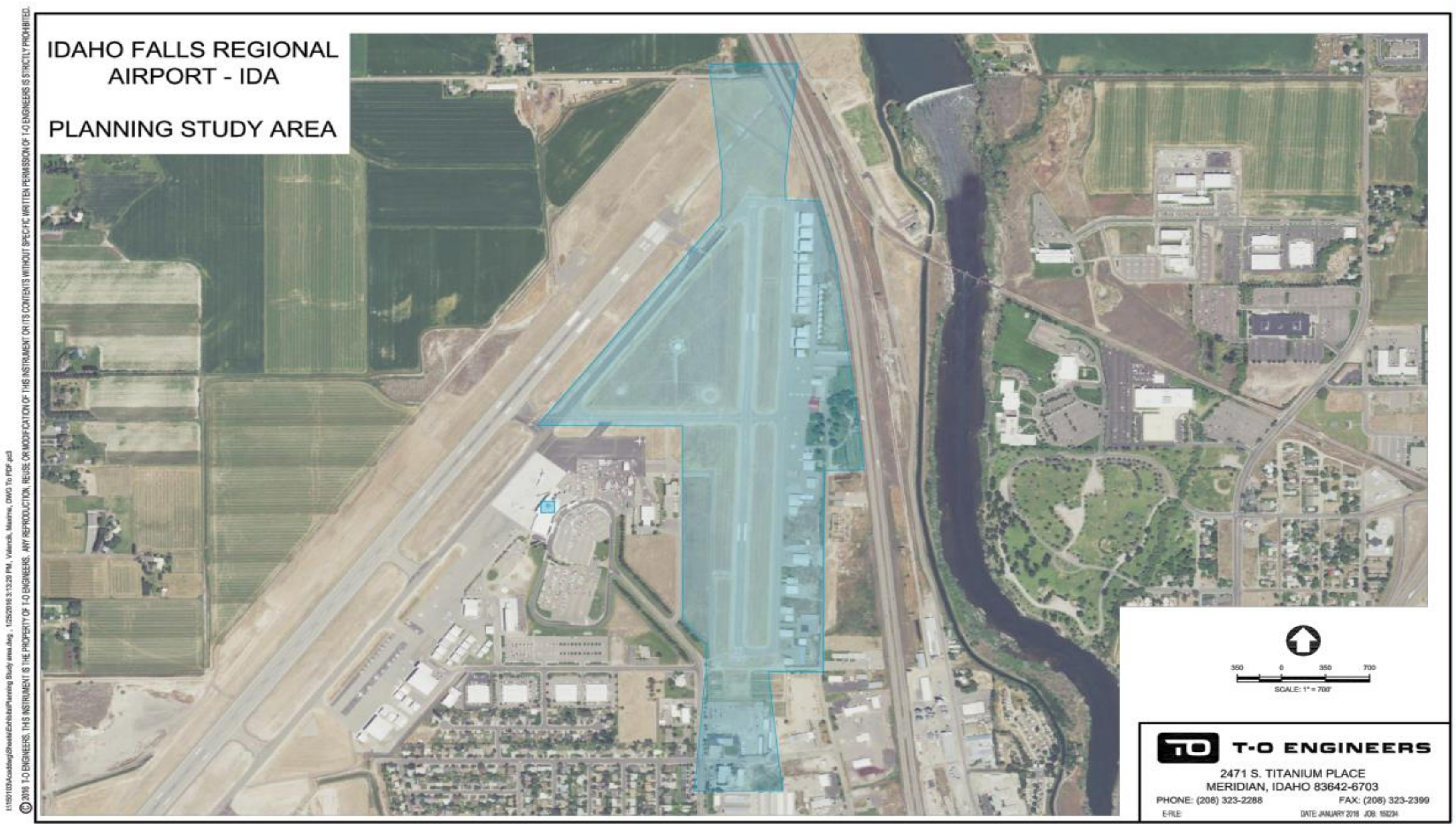
Facilities improvements can be justified to meet FAA design standards, most of which relate to airport safety, but also based on criteria set forth by the FAA in Advisory Circulars (AC). Specific recommendations for improvements for IDA developed as part of the Idaho Aviation state Plan (IASP) in 2010 and by the Runway Safety Action Team (RSAT) will also be taken into consideration.

The following operational areas are evaluated to determine existing and future facilities requirements in the planning study area for Idaho Falls Regional Airport; these include:

- Airside Facilities
- Landside Facilities
- Support Facilities
- Other Requirements

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.

FIGURE 4-1 – PLANNING STUDY AREA



PLANNING STUDY AREA

Source: T-O Engineers, Google Earth

IDA IDAHO FALLS REGIONAL AIRPORT

4.1.2 Idaho Aviation State Plan Recommendations

The latest Idaho Aviation System Plan (IASP) was published by the Idaho Transportation Department - Division of Aeronautics in 2010. The 2010 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 IDA. Whether or not recommended improvements can be implemented at an airport must still be analyzed and justified during an airport specific planning process.

The only recommendation made in the 2010 IASP report is about adding apron space. Additional apron space has already been added for both general aviation and commercial service aircraft since the publication of this report. Further evaluation of apron space needed for the planning study area is presented in Section 4.2.9.

4.1.3 Runway Safety Action Team (RSAT)

The airport has conducted annual RSAT meetings to improve safety for aircraft operations. The latest RSAT report published in 2015 recommends the following actions at IDA:

- Add two new signs on Taxiway B and identify Taxiway C
- Remove section of Taxiway A between Runway 17 and Runway 20 ends and add appropriate signage
- Change Runway number (02/20) to help avoid confusion - similar sounding runways

The need for these recommendations will be addressed in the appropriate sections of this chapter, according to the facilities requirements identified.

4.2 AIRSIDE FACILITY REQUIREMENTS

IDA plays an important role in the Idaho Falls community and in the State of Idaho. It is one of the 6 commercial airports in the State and provides essential services and opportunities including: Commercial Flights, Medical Flights, Freight, Aircraft Services, Recreational Flights, Tourism, Flight Training, or Business.

This role should not be overlooked while evaluating the facilities requirement in the airport's area impacted by this study. The airside facilities evaluated include:

- Runway 17-35
- Taxiways B and C, portion of Taxiway A leading to the Runway 17 end
- Aprons and associated taxilanes on the east side of Runway 17-35

4.2.1 AIRFIELD CAPACITY ANALYSIS

A formal capacity analysis was conducted at IDA to assess the capacity of the airport. Primary factors that affect capacity include:

- Runway/Taxiway Configuration and Use
- Aircraft Mix Index
- Percentage of Touch & Go Operations
- Weather Conditions
- Arrival and Departure Percentage
- Airspace

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.

This capacity analysis uses the long-term range methodology presented in the AC to determine the ASV for IDA. This method uses assumptions for the factors influencing capacity, as explained below.

Runway/Taxiway Configuration and Use

FAA AC 150/5060-5 categorizes runway configurations typical of airports throughout the United States in order to determine the ASV. There are 19 runway-use configurations available. The long-term range methodology assumes that the existing airport layout can be approximated by one of these configurations. The configuration of IDA most closely reflects the operational and physical characteristics of Configuration Number 14, two diverging active runways, as depicted in AC 150/5060-5.

Other assumptions are made for the taxiway layout including: a full parallel taxiway, ample runway entrance/exit taxiways and no taxiway crossing problems. It is assumed that IDA taxiway layout respects these assumptions for both Runway 17-35 and Runway 2-20.

Aircraft Mix Index

For capacity purposes, the aircraft mix is defined by four classes:

- Class A: Small Single-Engine (Gross Weight 12,500 lbs. or less)
- Class B: Small Twin-Engine (Gross Weight 12,500 lbs. or less)
- Class C: Large Aircraft (Gross Weight 12,500 lbs. to 300,000 lbs.)
- Class D: Heavy Aircraft (Gross Weight more than 300,000 lbs.)

The Aircraft Mix Index is defined by %C+3*%D. The Aircraft Mix for both runways at IDA was determined in **Chapter 3 - Aviation Activity Forecasts** and is summarized in **Table 4-1**.

TABLE 4-1 – IDA AIRCRAFT MIX INDEX

Aircraft Type	2015	2020	2025	2035
Class A	13.1%	10.8%	8.4%	3.7%
Class B	14.7%	14.8%	15.0%	15.3%
Class C	71.2%	72.4%	73.7%	76.2%
Class D	0.0%	0.3%	0.7%	1.3%
Aircraft Mix Index	71.2%	73.3%	75.8%	80.1%

Source: T-O Engineers, Inc., Chapter 3-Aviation Activity Forecasts

Percentage of Touch & Go Operations

The long-term range methodology assumes that the percentage of Touch & Go operations represents between 0 and 20 percent of the airport operations for an aircraft mix index between 51 and 80 percent. IDA is believed to respect this assumption.

Arrival and Departure Percentage

The methodology assumes that there is an equal repartition between arrivals and departures, which is believed to be true at IDA.

Airspace

There should not be any airspace limitations that could adversely impact flight operations. Also, missed approach protection should be assured for all converging operations in Instrument Meteorological Conditions (IMC). This assumption is verified at IDA.

Weather Conditions

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. The presence of IMC greatly impacts airport capacity due to specialized aircraft and airspace procedures.

The long-term range methodology assumes that IMC only occur less than 10 percent of the time and that at least one runway is equipped with an ILS. Also, Air Traffic Control (ATC) facilities should carryout operations in a radar environment. Idaho Falls Regional Airport has currently one ILS to Runway 20 and an ATC tower. Because IDA does not have a radar environment, the final IFR capacity will be reduced by 10 percent.

Existing Airfield Capacity

The existing capacity of IDA is summarized in **Table 4-2**.

TABLE 4-2 – IDA EXISTING CAPACITY

Capacity	Normal*	Adjustment**	IDA***
VFR (Ops/Hr)	85	1	85
IFR (Ops/Hr)	56	0.9	50
ASV (Ops/Year)	220,000	0.96	211,200

*Runway-Use Configuration #14 in AC 150/5060-5, all assumptions verified and mix index between 51 and 80%
**Adjustment for differences from assumptions
***Estimated capacity for IDA
Source: T-O Engineers, Inc., FAA AC 150/5060-5

Future Capacity Requirements

The aircraft mix index is forecasted to stay over 51 percent and under 81 percent during the 20-year planning period. In this condition and assuming that the current airspace and airport layout will not be improved, the estimated capacity at IDA will remain the same, as shown in **Table 4-2,** for the next 20 years.

Development projects can be justified for capacity reasons when the demand at the airport exceeds 60 percent of the ASV. **Table 4-3** summarizes the demand-ASV ratio for the planning period.

TABLE 4-3 – IDA FUTURE CAPACITY REQUIREMENTS

Year	Demand	ASV	Ratio of Demand to ASV
2015	33,152	211,200	15.7%
2020	36,690	211,200	17.4%
2025	37,720	211,200	17.9%
2035	39,832	211,200	18.9%

Source: T-O Engineers, Inc., Chapter 3-Aviation Activity Forecasts

Aircraft operations at IDA were forecasted to grow at a constant compound annual growth rate (CAGR) of 0.9 percent. Considering that this CAGR will remain constant after the 20-year planning period, it is forecasted that IDA will reach 60 percent of its capacity in 2164.

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.

Capacity Analysis for One-Runway Configuration

The purpose of this section is to evaluate the need of Runway 17-35 as a secondary runway for capacity purposes.

Considering only Runway 2-20 at IDA, the configuration of the airport would be identical to Configuration Number 1, single runway, depicted in AC 150/5060-5. All assumptions made for the long-term methodology are verified for Runway 2-20.

Using the mix index as shown in **Table 4-1**, **Table 4-4** summarizes the capacity considering only Runway 2-20 at IDA. **Table 4-5** shows the forecasted capacity in this configuration assuming no change in layout.

TABLE 4-4 – ONE-RUNWAY CONFIGURATION CAPACITY

Capacity	Normal*	Adjustment**	IDA***
VFR (Ops/Hr)	63	1	63
IFR (Ops/Hr)	56	0.9	50
ASV (Ops/Year)	205,000	0.96	196,800

*Runway-Use Configuration #1 in AC 150/5060-5, all assumptions verified and mix index between 51 and 80%
**Adjustment for differences from assumptions
***Estimated capacity for IDA in one-runway configuration
Source: T-O Engineers, Inc., FAA AC 150/5060-5

TABLE 4-5 – ONE-RUNWAY CONFIGURATION FUTURE CAPACITY REQUIREMENTS

Year	Demand	ASV	Ratio Demand/ASV
2015	33,152	205,000	16.2%
2020	36,690	205,000	17.9%
2025	37,720	205,000	18.4%
2035	39,832	205,000	19.4%

Source: T-O Engineers, Inc., Chapter 3-Aviation Activity Forecasts

Assuming that the forecasted CAGR for aircraft operations at IDA will remain constant beyond the planning period, it is anticipated that with only Runway 2-20 open, IDA will reach 60 percent of its capacity in 2156. With this reasoning, a secondary runway such as Runway 17-35 will not be required for capacity, and thus not be eligible for federal funding, before this date. Requirements for wind coverage are described later in this report.

4.2.2 INSTRUMENT APPROACH PROCEDURES

Idaho Falls Regional Airport currently has only visual approach capabilities to Runway 17-35. Non-precision and precision instrument approaches are available to Runway 2-20. The instrument procedures already available at the airport enable aircraft to operate in IMC with minima as low as 1/2 mile. In addition, most of the aircraft using instrument procedures will prefer a longer runway for safety purposes.

Table 4-6 shows the forecasted number of IFR operations at IDA in comparison with the airport IFR capacity. Based on these results, the development of additional instrument procedures to Runway 17-35 is not required.

TABLE 4-6 – IDA IFR DEMAND AND CAPACITY

Years	IFR Capacity (Ops/Hr)*	IFR Demand (Annual Ops)	IFR Demand (Ops/Hr)**	Ratio
2015	56	11,802	2	3.6%
2020	56	13,574	2	3.6%
2025	56	13,955	2	3.6%
2035	56	14,736	2	3.6%

*Assume no change in airport configuration and instrument procedures

**Average hourly operations derivate from forecasts of annual operations (rounded up)

Source: T-O Engineers

Recommendations: It is recommended to keep visual approaches only to Runway 17-35. Based on capacity analysis, there is no need for additional instrument approaches at the airport. Also, the airspace surfaces and design standards associated with such procedures would increase significantly and impact the surrounding environment of Runway 17-35.

4.2.3 DESIGN STANDARDS AND ACCOMMODATING FUTURE DESIGN AIRCRAFT FOR RUNWAY 17-35

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

The existing Airport Reference Code (ARC) for IDA is C-III. However, as this ARC encompasses the whole airport, it will not be used to determine design standards in the planning study area. A detailed study of the type of aircraft using the airport and more specifically the study area was made in **Chapter 3 - Forecasts of Aviation Activity**.

It is the policy of the FAA to meet design standards for the design aircraft determined for the 20-year planning period. **Table 4-7** summarizes the new design requirements to follow for the specific planning study area at IDA, as approved in **Chapter 3 - Aviation Activity Forecasts**.

TABLE 4-7 – PLANNING STUDY AREA NEW DESIGN REQUIREMENTS

Standard	Requirements*
Airplane Design Group (ADG) for Runway 17-35	I-SMALL
Airplane Design Group (ADG) for Taxiway B, Half Taxiway C, and Taxilanes	II
ADG for Taxiway A and Half Taxiway C	III
Aircraft Approach Category (AAC)	B
Pavement Strength	12,500 lbs.
Taxiway Design Group (TDG) for Taxiway B, Half Taxiway C, and Taxilanes	4
TDG for Taxiway A and Half Taxiway C	2
Visibility	Visual
Runway Design Code (RDC)	B-I SMALL-VIS

*Design Aircraft Cessna 182 and TDG approved by FAA on XXXXXX.
**Parts of Taxiway A and C included in the planning study area will be designed according to ADG III and TDG 4
Source: T-O Engineers, Chapter 3-Aviation Activity Forecasts

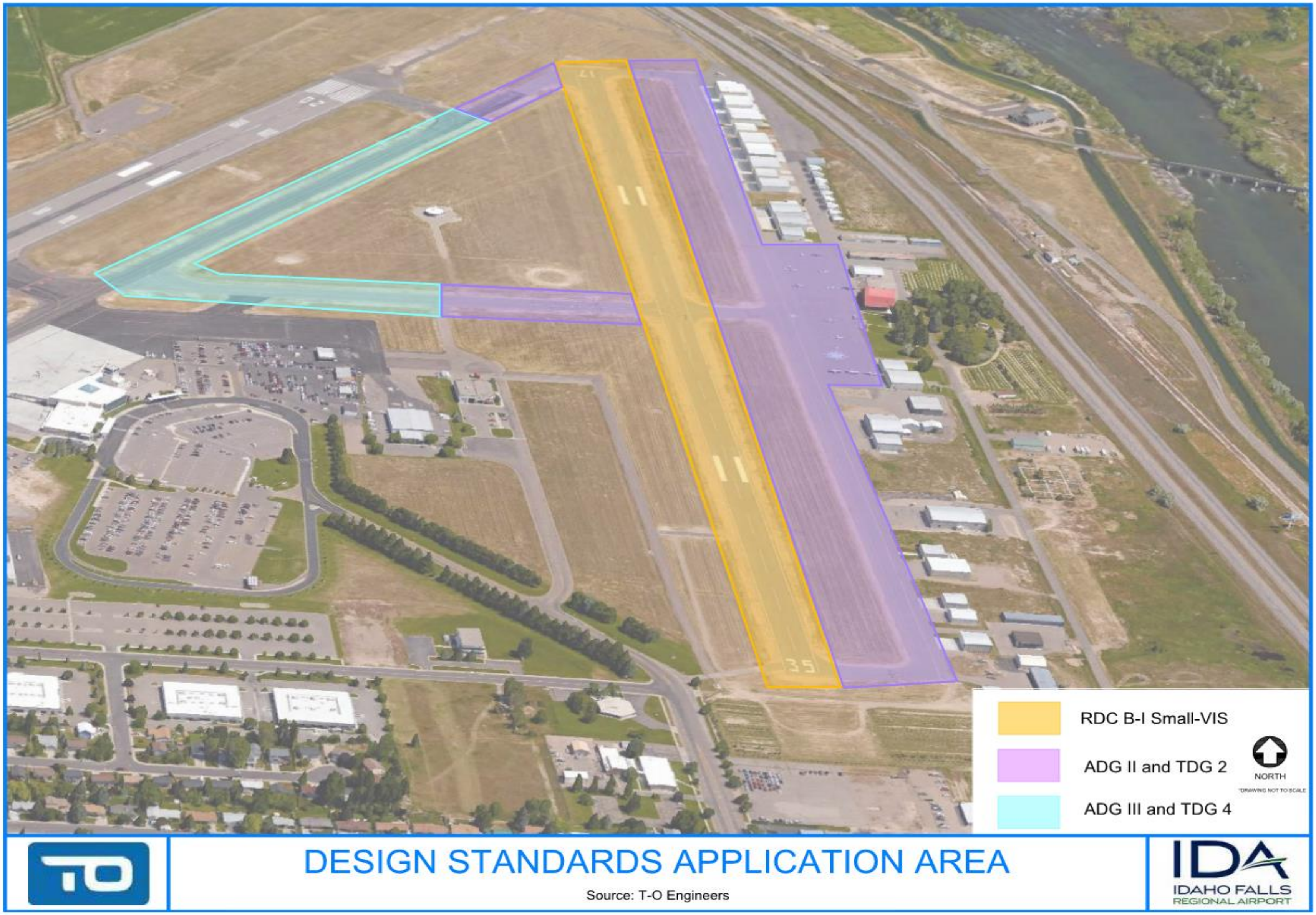
Accommodating ADG II/TDG 2 for taxiways, and RDC B-I SMALL-VIS for Runway 17-35 will have little impact on the existing facilities. The design standards associated with this configuration are described in **Table 4-8. Figure 4-2** depicts the application area of the proposed design standards. Alternatives to address these new standards will be included in **Chapter 5 - Alternatives Analysis**. New configurations, timelines, and general scale of the cost will also be included in the analysis.

TABLE 4-8 – PLANNING AREA FUTURE DESIGN STANDARDS

Item	Future FAA Standards	Deficiencies
Runway Design Code (RDC)	B-I SMALL-VIS	-
Runway Width	60’	No
Shoulder Width (Unpaved)	10’	No
Runway Protection Standards		
RSA Length beyond each runway end	240’	No
RSA Width	120’	No
ROFA Length beyond each runway end	240’	No
ROFA Width	240’	No
RPZ Length	1000’	No
RPZ Inner and Outer Width	250’/450’	Yes*
ROFZ Width	250’	No
ROFZ Length beyond runway end	200’	No
Runway Separation Standards**		
Runway Centerline to Partial Parallel Taxiway Centerline	165’	No
Runway Centerline to Holding position	125’	No
Runway Centerline to Edge of Aircraft Parking	125’	No
Taxiway Geometry Taxiway B and Half Taxiway C		
TDG/ADG	2/II	-
Taxiway Width	35’	No
Shoulders	10’	No
Taxiway Protection Standards Taxiway B and Half Taxiway C		
TSA Width	79’	Yes***
Taxiway OFA Width	131’	Yes***
Taxilane OFA Width	115’	No
Taxiway Geometry Taxiway A and Half Taxiway C		
TDG/ADG	4/III	-
Taxiway Width	50’	No
Shoulders	10’	No
Taxiway Protection Standards Taxiway A and Half Taxiway C		
TSA Width	118’	No
Taxiway OFA Width	186’	No
Taxilane OFA Width	162’	No

*Penetration of RPZ by buildings and roads
**Based on ROFZ for Runway 17-35 (250’) and ADG II wingspan for Taxiway B (80’)
***Airport operation Area in TSA and TOFA
Source: FAA AC 150/5300-13A Change 1, T-O Engineers

FIGURE 4-2 – DESIGN STANDARDS APPLICATION AREAS



4.2.4 Runway 17-35 Design

The Runway Design Code (RDC) is a coding system signifying the design standards to which a specific runway is built. It has three components based on the approach speed, wingspan and tail height of the critical aircraft, and 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 and RDC are used for planning and design only and do not limit the aircraft that may be able to operate on the airport or a specific runway.

Only the RDC for Runway 17-35 will be considered in this planning study. The RDC is used to design and determine the dimensions of runway pavement. As introduced earlier in this chapter, the future RDC to consider for Runway 17-35 is B-I SMALL-VIS. All the associated design standards are shown in **Table 4-8**.

Runway Length

Airport function, elevation, mean maximum temperature of the hottest month of the year, 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 the 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, Runway 17-35 at IDA is predominately used by small propeller-driven aircraft (MTOW 12,500 lbs or less) and its design aircraft is the Cessna 182. The runway length requirement was evaluated following two methodologies:

- FAA AC 150/5325-4C methodology for small aircraft.
- Aircraft manufacturer's performance manual for the forecasted design aircraft.

Runway Length for Small Propeller Driven Aircraft

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 4-9** presents the results based on an airport elevation of 4,744 feet MSL and a mean maximum temperature of 86 degrees Fahrenheit for the hottest month of the year (National Oceanographic and Atmospheric Administration).

TABLE 4-9: RUNWAY LENGTHS RECOMMENDED FOR RUNWAY 17-35 DESIGN

Airport and Runway Data	Inputs
Airport Elevation	4,744' MSL
Mean Maximum Temperature of the hottest month	86° F
Small airplanes with less than 10 passenger seats	
95 percent of these small airplanes	5,800'
100 percent of these small airplanes	6,000'
Small airplanes with 10 or more passengers	6,000'

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

Runway Length for Design Aircraft and Common Aircraft

As discussed in **Chapter 3, Aviation Activity Forecasts**, the approved design aircraft for Runway 17-35 is the Cessna 182. **Table 4-10** presents the runway length requirements for this aircraft at IDA.

TABLE 4-10: RUNWAY LENGTHS RECOMMENDED FOR DESIGN AIRCRAFT

Data	Inputs
Airport Elevation	4,744' MSL
Mean Maximum Temperature of the hottest month	86° F
Design Aircraft	Cessna 182
MTOW	2,950 lbs.
Take Off Distance	2,397'
Take Off Ground Roll	1,203'
Landing Distance	1,599'
Landing Roll Distance	739'
Accelerated Stop Distance	n/a
Recommended Runway Length	**2,397'**

Source: T-O Engineers, Cessna 182 Pilot's Operational Handbook

Table 4-11 summarizes runway requirements for the most common aircraft using Runway 17-35 at IDA.

TABLE 4-11: RUNWAY LENGTHS RECOMMENDED FOR COMMON AIRCRAFT

Aircraft	Runway Length Required*
Cessna 172	2,903’
Cessna 182	2,397’
Cessna 206	2,530’
Cessna 337	5,853’

*Most demanding of takeoff, landing, or acceleration stop distance
Source: Cessna Pilot’s Operational Handbooks

Runway 17-35 at IDA is 4,051-foot long without declared distances. The full length is available for takeoff, landing, or acceleration stop in both directions. According to the previous analysis, this runway length is enough to accommodate most of the common aircraft using the runway, including the design aircraft. However, based on the FAA AC 150/5325-4C, the existing runway length of Runway 17-35 could lead to operational limitations for some aircraft during warm weather conditions. Runway 2-20 is 9,002-foot long and offers enough pavement to accommodate any type of small aircraft that could not use Runway 17-35.

Recommendations**:** The current length of Runway 17-35 accommodates the design aircraft for the next 20 years. Also, in case of operational limitation, aircraft can use Runway 2-20 without impacting the airport’s capacity. In these conditions and because of limited space, it is recommended to maintain the current length for Runway 17-35.

Runway Width

Per FAA airport design standards, the runway width for RDC B-I SMALL-VIS is 60 feet. The existing width of Runway 17-35 is 75 feet.

Recommendation: As the runway was last rehabilitated in 2004 and a new runway lighting system was installed at that time, it is recommended to maintain the existing runway width of 75 feet. However, the runway width could be reduced at the end of the lighting systems useful life to reduce maintenance costs.

Runway Strength and Pavement

Current Runway 17-35 pavement strength is reported to be 24,000 pounds single wheel and 38,500 pounds dual wheels loading with a PCN of 7/F/B/X/T as published on the FAA 5320 Form (*T-O Engineers, Inc.).* The critical aircraft for Runway 17-35 at IDA, Cessna 182, has a maximum gross weight lower than 12,500 lbs. (small aircraft).

Runway 17-35 was last reconstructed in 2004 and the pavement is in good condition.

Recommendation:. Current pavement strength is sufficient to accommodate existing as well as the forecasted aircraft activity expected to operate on the runway, on a regular basis throughout the planning period. Foreseeable conditions do not indicate the need for additional runway pavement strength.

It is also recommended that pavement maintenance include at least one overlay and regular crack maintenance (every 5 years) over the 20-year planning period.

Runway Markings

Runway 17-35 is a visual only runway with basic marking (with aiming points and edge stripes) in good condition. Edge stripes were added to Runway 17-35 in 2008 to reduce pilot confusion of whether they were on Runway 17-35 or Taxiway B. There is no change in the type of approaches anticipated over the 20-year planning period.

Further, according to the National Geophysical Data Center, the magnetic declination is changing by 7’ W per year at IDA, so a change of 133’ W (2°13’ W) at the end of the planning period. The current declination is 12°6’ E (2016). In 2035, the new declination will be 9°53’ E. **Table 4-12** summarizes the impact of magnetic declination shift on runway designation.

TABLE 4-12 – RUNWAY 17-35 DESIGNATOR

Item	2016	2035*
True Orientation	001°54’54”-181°54’54”	
Magnetic Declination	12°06’E	09°53’E
Magnetic Orientation	168°47’06”-348°47’06”	172°01’54”-352°01’54”
Landing Designator	17-35	17-35

*End of 20-year Planning Period (2015-2035)

Source: T-O Engineers, National Geophysical Data Center 2016

Recommendation: The existing runway markings are appropriate for the existing and future visual approaches. It is recommended that the runways’ markings be re-painted as needed during runway maintenance projects. The landing designators for Runway 17-35 do not need to be updated before 2061.

Runway Visual Aids

Runway visual aids give pilots awareness of their location on the airport and assistance for landing. They include signs, marking, and lighting. Runway 17-35 at IDA is equipped with Medium Intensity Runway Lighting (MIRL) in addition to 4-light PAPIs at both ends, and standard holding position signs. Requirements for runway markings are described in the previous section.

The PAPI at the Runway 17 end has slope of 3° while the PAPI at the Runway 35 end has a slope of 3.5°. Both PAPIs are located at the appropriate distance from the thresholds, by siting criteria as defined in AC 150/5340-30H. **Figure 4-3** depicts the existing Obstacle Clearance Surface (OCS) and shows no obstruction. The new design standards B-I SMALL-VIS will not affect these OCS. A new study will be required if the PAPIs are relocated.

Recommendation: With visual approaches only, the signage and visual aids are adequate for Runway 17-35 and no specific improvements are recommended.

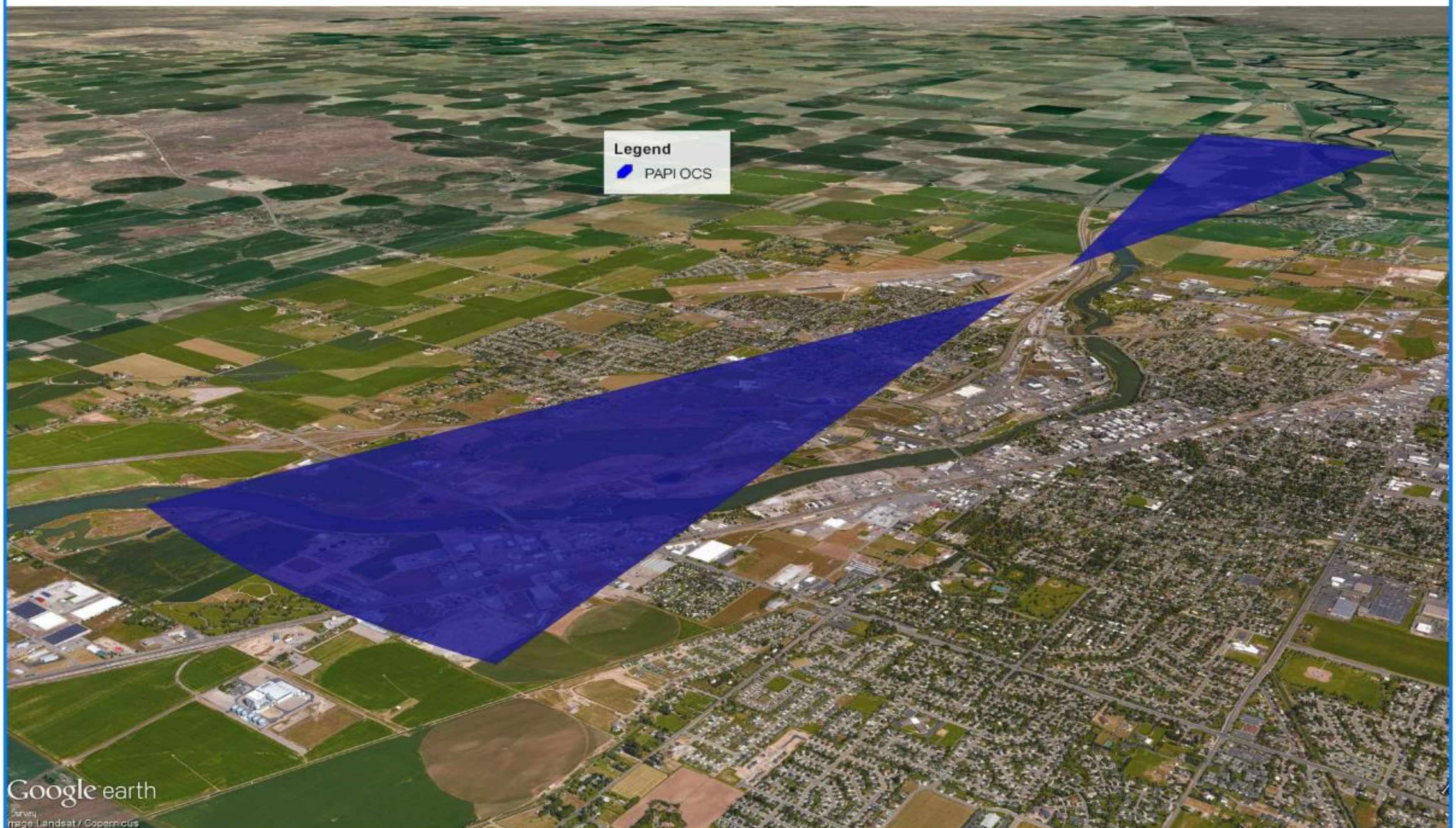
Wind Coverage

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. The wind coverage is also used to justify the need for a secondary runway when the primary runway does not have the appropriate wind coverage.

Wind data from the ASOS located at the airport were reviewed and used to evaluate the wind coverage at IDA. Based on this data and on a maximum allowable crosswind speed of 10.5 knots for B-I SMALL aircraft, the annual average wind coverage is 93.97 percent for Runway 17-35. The wind coverage is 97.96 percent for Runway 2-20 and 99.24 percent for both runways combined.

Recommendation: Based on the previous analysis, Runway 17-35 does not meet recommended wind coverage without being combined with the primary runway, Runway 2-20. Also, Runway 2-20 meets wind coverage without a need for a secondary runway. Runway 17-35 is not justified for wind coverage and in the future may not be eligible for federal funding as a crosswind runway.

FIGURE 4-3 – PAPI OCS RUNWAY 17-35



PAPI OCS

Source: T-O Engineers, Google earth 2017

4.2.5 TAXIWAY DESIGN

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.

Taxiway and Taxilane Layout

The taxiway system in the planning study area at IDA was analyzed to determine potential deficiencies. It consists of a full parallel taxiway (Taxiway B) on the east side of Runway 17-35 with three connector taxiways.

As depicted on **Figure 2-5** in **Chapter 2 - Inventory of Existing Conditions**, Taxiway B runs directly along the existing hangars and GA aprons. One connector is Taxiway C crossing in the middle of Runway 17-35, and is identified as a hotspot. The two other connectors serve each end of the runway. On the west side of Runway 17-35, Taxiway A, which is parallel to Runway 2-20, connects to the Runway 17 end at a non-right angle and constitutes another hotspot.

Recommendations: A full-length parallel taxiway, parallel to Runway 17-35, contributes to an increased level of safety by reducing the need for back-taxi operations on the runway. It is recommended to maintain the parallel taxiway while improving the hotspot at connector C. and near the Runway 17 end to improve the safety of the airfield. Alternatives to solve these issues are presented in **Chapter 5 - Alternatives Analysis.**

Taxiway Geometry

Taxiway and taxilane geometry, including width and the design of pavement fillets 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 approved TDG for the design of taxiways and taxilanes in the planning study area at IDA is TDG 2. All the associated design standards are shown in **Table 4-8**. It should be noted that the portion of Taxiway A included in the planning study area should be designed according to TDG 4 standards.

The existing taxiway system in the planning study area was designed before the new FAA guidance for taxiway fillet design, published in AC 150/5300-13A-change 1. The current width of Taxiway B and associated connectors is 40 feet which exceeds TDG 2 standards (35 feet). The width of Taxiway A is 60 feet which exceeds TDG 3/4 standards (50 feet) however the taxiway does not have 20’ wide paved shoulders which are recommended for ADG III aircraft. With a width of 75 feet, Taxiway C meets both TDG 2 and TDG 3/4 standards. It does not meet the recommended paved shoulder width of 20’ for TDG 3/4 aircraft.

Recommendation: It is recommended to redesign the taxiway fillets in accordance with FAA standards as published in AC 150-5300-13A Change 1. This geometry adjustment could occur at the next taxiway reconstruction project.

Taxiway Strength and Pavement Condition

The current PCN of Taxiway B and connectors is 7/F/B/X/T. 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 in the planning study area throughout the planning period. In addition, this strength matches Runway 17-35 pavement strength. Foreseeable conditions do not indicate the need for additional taxiway pavement strength. The pavement strength of Taxiway A matches the strength of Runway 2-20. The current strength of Taxiway C is unknown.

Taxiway B pavement is in in good condition and was last rehabilitated in 2004. Taxiway C and the portion of Taxiway A included in the planning study area are in poor condition and will be rehabilitated as part of an upcoming project. The last rehabilitations for Taxiway C and Taxiway A were in 2000 and 2004, respectively.

Recommendation: It is recommended that future taxiways continue to match the existing runway strength. Based on the latest Pavement Condition report published in 2015 for IDA, it is major rehabilitation of Taxiways A and C within the next 5 years and a rehabilitation of Taxiways B within 10 years. It is also recommended to ensure the structural integrity of existing and future taxiway pavement sections correlates with the strength of the aprons and runways throughout the planning period.

Taxiway Visual Aids

The planning study area includes Taxiway B, Taxiway C, and a portion of Taxiway A. Similar to the runway, taxiway visual aids include marking, lighting, and signs.

Taxiway A and Taxiway C west of Runway 17-35 is properly marked, with adequate sign and lighting systems for their usage. Taxiway B and the portion of Taxiway C east of Runway 17-35 have reflectors instead of a full lighting system. Their marking and signage are standard and in good condition.

Recommendation: It is recommended to maintain the appropriate marking and signs on all taxiways to ensure pilot awareness and improve safety. Alternative marking and/or signage could be an alternative to solve hotspot issues (see Section 4.1.10). Marking maintenance should be coupled with pavement maintenance. It is also recommended to install a medium-intensity taxiway lighting system to match the lighting system of the runway, in order to improve safety during night operations.

4.2.6 PROTECTION AND SEPARATION STANDARDS

Design standards include not only the geometry of the pavement at the airport but also protection and separation requirements between runways, taxiways, taxilanes, aprons, buildings, and objects. This section details the requirements for the following standards:

- 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
- Runway Centerline to Edge of Aircraft Parking Separation
- Runway Visibility Zone and Line of Sight
- Taxiway Safety Area (TSA)
- Taxiway and Taxilane OFA (TOFA)

These separations and protection standards will drive the location of facilities, aids, signs and markings in the planning study area. Recommendations for runway protection and separation requirements to accommodate RDC B-I SMALL-VIS standards for Runway 17-35, as well as ADG II standards for taxiways and taxilanes, are included below. Standard dimensions associated with these protections are summarized in **Table 4-8**. The Airport Layout Plan (ALP) also depicts existing and ultimate protections presented in this chapter.

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 visual runways accommodating B-I SMALL aircraft extends 240 feet beyond departure end and prior to the landing threshold at a width of 120 feet. The existing RSA of Runway 17-35 has wider dimensions and meets B-II standards with no penetrations. However, the RSA beyond the Runway 17 end overlaps with the RSA of Runway 2-20. Even with lower dimensions, the issue will persist as shown on **Figure 4-4**.

The FAA AC 150/5300-13A-Change 1 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*."

<u>Recommendations</u>: It is recommended to reduce the existing dimensions of the RSA to meet B-I SMALL standards. Also, it is essential to decouple both runways and avoid overlapping of both runways' RSA.

<u>Runway Object Free Area (ROFA)</u>

The current ROFA for a B-II-VIS runway is 500 feet wide. The required ROFA for Runway 17-35 with a RDC B-I SMALL-VIS is 250-foot wide and extends 240 feet beyond departure end and prior to the landing threshold. The existing 500-feet wide ROFA is penetrated by the access road, utilities, and fence on the west side of the Runway 35 end . Reducing the ROFA in size to B-I SMALL-VIS standards, will remove penetrations as shown on **Figure 4-4**.

<u>Recommendations</u>: It is recommended to reduce the existing dimensions of the ROFA to meet B-I SMALL standards and remove existing penetrations.

<u>Runway Obstacle Free Zone (ROFZ)</u>

The current ROFZ extends 200 feet beyond each end of the runway and is 400 feet wide for operations by large aircraft, with an approach speed of 50 knots or more. The required ROFZ for runways accommodating a B-I SMALL-VIS RDC is 250 feet wide for operations by small aircraft. Like the ROFA, the existing ROFZ is penetrated by the fence, utilities, and access road on the Runway 35 end. The new RDC B-I SMALL-VIS will remove these penetrations of the OFZ as shown on **Figure 4-4**.

Also, the Precision OFZ (POFZ) for Runway 20 is penetrated by aircraft accessing the Runway 17 end by Taxiway A.

<u>Recommendations</u>: It is recommended to reduce the size of the ROFZ to meet new B-I SMALL-VIS standards which will remove all existing penetrations. Alternatives should be evaluated to solve the POFZ penetration issue for Runway 20.

<u>Runway Protection Zone (RPZ)</u>

For Runway 17-35 at IDA, arrival and departure RPZs have identical dimensions. The total area of the existing RPZs at each end of the runway is currently 13.77 acres. For an RDC of B-I SMALL-VIS, this area drops to 8.035 acres.

The existing RPZs for Runway 17-35 are penetrated by both buildings and roads. These elements are considered incompatible land uses within an RPZ by the FAA. As depicted on

Figure 4-5, reducing the RPZ size to new standards will reduce but not eliminate the penetrations.

***Recommendations*:** It is recommended to reduce the size of the RPZs to meet new B-I SMALL-VIS design standards. Also, it is recommended to avoid any incompatible land use within the RPZs. As much as possible, the portions of the RPZs not currently under the airport control should be acquired via fee simple acquisition or protected by an avigation easement. Disposition of RPZ penetrations and dimensions will be discussed in **Chapter 5, Alternatives Analysis**.

Runway Separation Standards

The runway separation standards ensure operational safety at the airport. They are based on the Runway Design Code. 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 separation.

Runway/Taxiway Separation

The current separation distance between Runway 17-35 and parallel Taxiway B is 270 feet while the required separation is 165 feet. The separation between a runway and parallel taxiway should prevent any part of an aircraft from penetrating the ROFZ. This dimension was computed using half the width of the ROFZ for Runway 17-35(125 feet) plus half the maximum wingspan of the design ADG for Taxiway B (40 feet).

Recommendations: It is recommended to meet a minimum separation of 165 feet between Runway 17-35 and Taxiway B. Further discussion of the TOFA requirements for Taxiway B will be discussed later in this chapter.

Runway Centerline to Holding Position Distance

The current runway centerline to holding position distance is 200 feet and is greater than the minimum requirement, for a B-I SMALL-VIS runway, of 125 feet.

Recommendations: It is recommended the future runway centerline to holding position distance should be a minimum of 125 feet.

Runway Centerline to Edge of Aircraft Parking Distance

The required separation distance between the runway centerline and the edge of the aircraft parking is 125 feet for B-I SMALL-VIS. The current Runway/Edge of Aircraft Parking is 250 feet.

Recommendations: The existing separation distance between the runway centerline and the edge of the aircraft parking is greater than B-I SMALL-VIS standards. Future apron areas should not be located less than 125 feet from the runway centerline.

FIGURE 4-4 – NEW RUNWAY STANDARDS

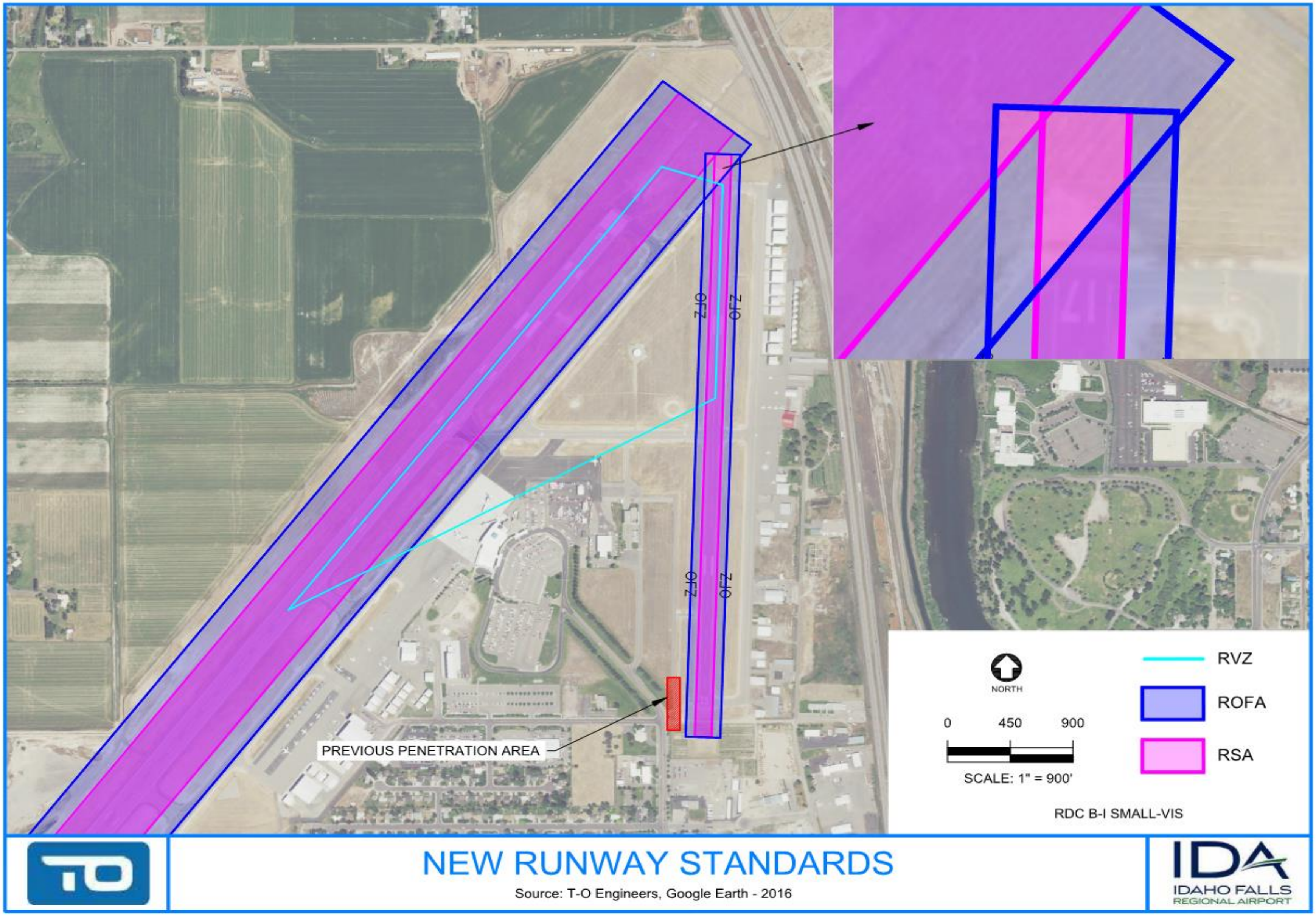
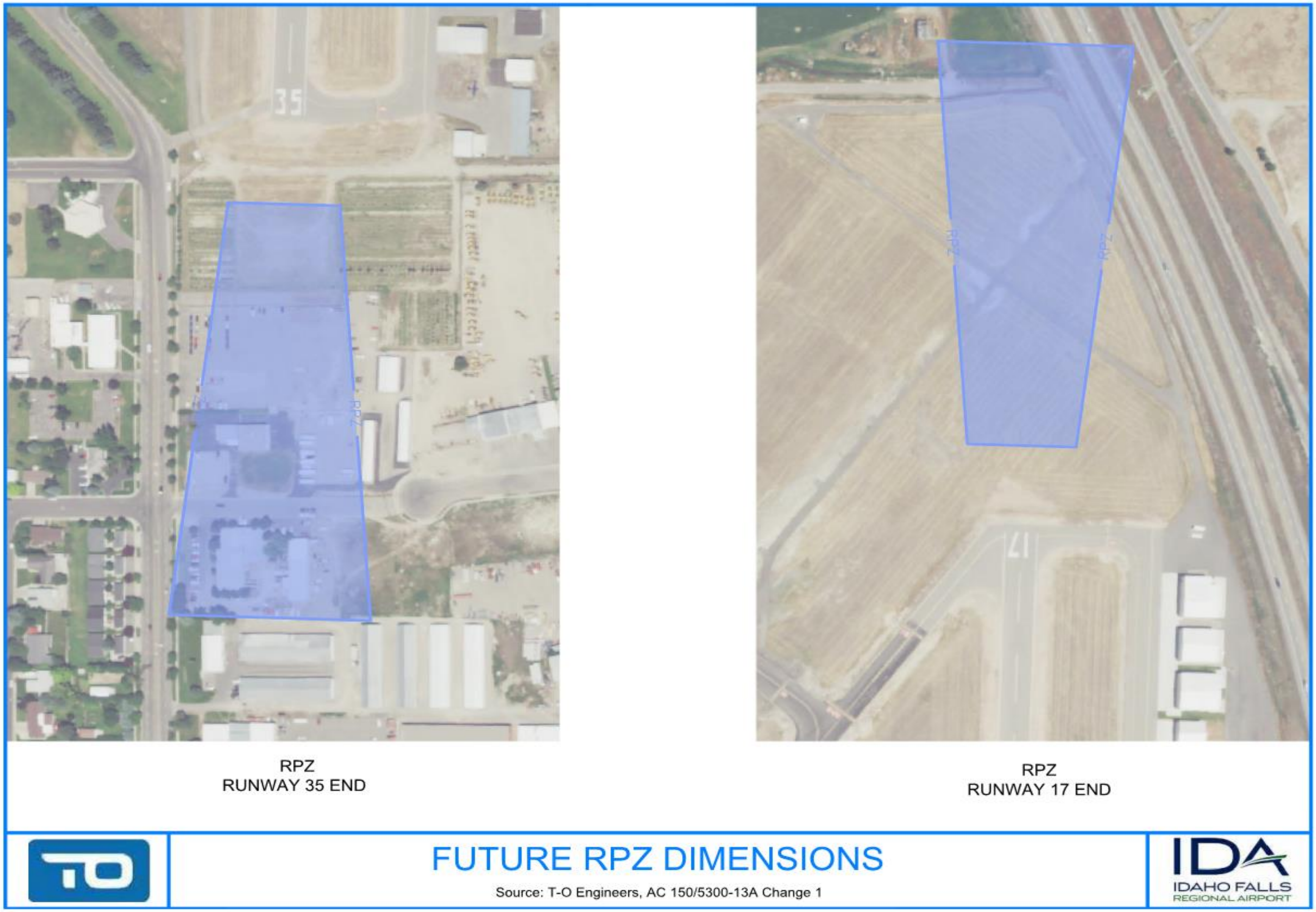


FIGURE 4-5 – NEW RUNWAY STANDARDS



Runway Visibility Zone (RVZ) and Line of Sight (LOS)

Idaho Falls Regional Airport has two converging runways, Runway 17-35 and Runway 2-20. As discussed in **Chapter 2 - Inventory of Existing Conditions,** the runway pavements currently do not physically intersect but the existing RSAs of the two runways overlap at the Runway 2 and 17 ends and therefore the RVZ standard applies. The reduction of the RSA dimensions to B-I SMALL-VIS standards for Runway 17-35 will reduce the overlap but not eliminate it. **Figure 4-4** depicts the runway layout, RVZ, and the overlap between RSAs.

In addition to RVZ requirements, Runway 17-35 must also meet LOS requirements along its centerline. Runway 17-35 meets this requirement.

<u>Recommendation</u>: As mentioned earlier, it is recommended to decouple the runways to remove the overlapping RSAs. This will also remove the requirements for a RVZ as there is no requirement for an RVZ between non--intersecting runways. This is a critical safety issue for the FAA. Alternatives are discussed in **Chapter 5, Alternatives Analysis**. Other LOS requirements are met.

Taxiway/Taxilane Protection Standards

Taxiway/taxilane protections include the Taxiway and Taxilane Object Free Area (TOFA), and the Taxiway and Taxilane Safety Area (TSA). In the planning study area, the standard dimensions for these protections are driven by an ADG II design standard for Taxiway B and part of Taxiway C and ADG III design standard for the remainder of Taxiway C and Taxiway A as shown on **Figure 4-2**.

<u>Taxiway/Taxilane Object Free Area</u>

The TOFA standard dimensions for ADG II are 131 feet for taxiways and 115 for taxilanes. The TOFA for Taxiway B is penetrated by the non-movement area east of the taxiway. This non-conformity is due to a lack of space in this area of the airport. Other TOFA in the planning study area are clear of penetrations.

<u>Recommendation:</u> It is recommended to remove all existing penetrations of the TOFA for Taxiway B by relocating the non-movement area line or the taxiway. Alternatives are discussed in **Chapter 5 - Alternative Analysis**. It is also recommended to maintain all TOFA clear for future airport development.

<u>Taxiway/Taxilane Safety Area</u>

The TSA dimension for ADG II standards is 79 feet for taxiways and taxilanes. Like the TOFA, the TSA for Taxiway B is penetrated by the non-movement area. There is no penetrations of the TSAs for Taxiway C and A, that meet ADG II/III standards.

Recommendation: It is recommended to maintain all TSA clear for future airport development, including the TSA for Taxiway B.

4.2.7 HOTSPOTS

As previously mentioned in Section 2.4.9 of **Chapter 2 - Inventory of Existing Conditions**, there are three hotspots in the planning study area. Each of these hotspots represents a safety issue for aircraft operations and needs to be modified.

Recommendation: It is recommended to evaluate alternate geometry, marking, and/or signage to improve safety at the three hotspots at IDA. Alternatives will be discussed in **Chapter 5, Alternatives Analysis**.

4.2.8 NAVIGATIONAL AIDS

Navigational Aids (NAVAIDS) are defined as any kind of aids used for air navigation. They include navigational beacons, weather stations, and any visual aids. Visual aids requirements, including runway and taxiway lighting as well as marking and signage, are presented in the previous sections. This section explains the requirements for the weather station, navigational beacons, windcone, and segmented circle.

Automated Weather

IDA is equipped with an ASOS weather station. This station provides weather information to the Airport Traffic control Tower (ATCT) and pilots using the airport, independently of the runway.

Recommendations: There is no specific recommendation to improve the weather reporting system. In addition, its location on the airfield will not have any impact on the development of the planning study area.

Navigational Beacons

One VHF Omnidirectional Range (VOR) beacon is locates on the airport and more specifically in the planning study area, between the two runways, north of Taxiway C. This VOR has a defined critical area.

Recommendations: It is recommended to study alternatives for the planning study area that will limit the impact on the VOR critical area. A relocation of the VOR was previously evaluated in XXXX.

Windcone and Segmented Circle

The windcone and segmented circle at IDA are located between the two runways, north of Taxiway C. they are lighted and in good condition, and can be used by pilots using both runways.

Recommendations: No improvement is recommended for these two items. Relocation will be evaluated as needed in **Chapter 5 - Alternative Analysis**.

4.2.9 AIRCRAFT APRON

The aircraft apron area encompassed in the planning study area is located east of Runway 17-35, along Taxiway B. It includes tie-downs and apron space available for based and transient aircraft. The design of this area should follow standards to accommodate general aviation (GA) aircraft using not only Runway 17-35 but also Runway 2-20. The design standards for the apron area should match ADG II and TDG 2 standards, similar to Taxiway B.

Apron Configuration

In the planning study area, the aircraft apron currently has 21 tie-down spaces with a total area of approximately 175,000 square feet.

Recommendation: It is recommended to reevaluate the apron configuration to accommodate ADG II and TDG 2 aircraft in accordance with the existing and future hangar layout. Also, it is recommended to maintain the non-movement area outside the TOFA of Taxiway B.

Apron Condition and Strength

The apron was last rehabilitated in 2003 and is fair condition. The existing strength of the pavement is unknown but appears to be sufficient for existing and foreseeable users of the airport. Any new apron pavement should be constructed to match the pavement strength of Taxiway B. Locations and configurations of future apron areas will be included in **Chapter 5 - Alternatives Analysis**.

Recommendation: It is recommended that future apron match the strength of Taxiway B. According to the 2015 Pavement Condition Report, rehabilitation is recommended in the short-term period (within 5 years).

Based Aircraft Apron 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 IDA and due to specific climate conditions, it was assumed that 90 percent of based aircraft would be stored in hangars through the planning period.

According to data presented in **Chapter 2 - Inventory of Existing Conditions**, approximately 70 percent of the based aircraft at the airport are located in the planning study area.

Recommendation: It is recommended to design tie-downs for approximately 7 percent of the number of based aircraft at the airport. Results over the planning period are summarized in **Table 4-13.** The size and location of the tie-downs are discussed in **Chapter 5 - Alternative Analysis**.

Transient Aircraft Apron Requirements

When determining the amount of 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. This distinction is defined as transient versus itinerant operations.

Transient operations are a subset of itinerant operations. 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 large aircraft and that they are unfamiliar with the airport. Thus it is prudent to provide extra space for the aircraft to operate.

Based on data shown in **Chapter 2 - Inventory of Existing Conditions**, the planning study area currently provides approximately 25 percent of the tie-downs at the airport for GA aircraft. Given the limited space for development in this area of the airport, it is assumed that this share will remain constant over the planning period.

The following assumptions were made to evaluate the number of tie-downs required for transient GA aircraft:

- Space should be provided for 80% of the peak day transient aircraft.
- Transient operations represent approximately 50% of the operations, and thus peak day operations, at the airport[1].
- The tie-down spaces in the planning study area will mainly be used by Class A and Class B aircraft, as well as 20 percent of the Class C aircraft[2] at the airport.

Also, it was assumed that 80 percent of the tie-downs will be used by single-engine aircraft and 20 percent by multi-engine aircraft. These proportions are derivate from the based aircraft fleet mix projections over the 20-year planning period.

[1] Over the planning period, itinerant operations represent an average of 72% of the total operations (including peak hour operations) at IDA. Transient operations are assumed to be 70% of the itinerant operations.

[2] As defined in Section 3.3.4 of **Chapter 3 - Forecasts of Aviation Activity.** Class A gathers small single-engine aircraft. Class B groups small twin-engine aircraft.

Recommendations: It is recommended to provide the number of tie-down spaces as summarized in **Table 4-13.** The size and location of the tie-downs are discussed in **Chapter 5 - Alternative Analysis**. Also, the current apron is located in the NHRP Historic District associated with the Red Baron Hangar, as depicted on **Figure 4-6**. Alteration of this area should be made adequately to this status.

TABLE 4-13: AIRCRAFT APRON REQUIREMENTS

Items	2015*	2020	2025	2035
Existing Number of Tie-Down Spaces in Planning Study Area	21	21	21	21
Peak Day Operations at IDA**	75	83	88	103
Percentage of Class A, B and C Aircraft**	42.1%	40.1%	38.1%	34.2%
Transient Tie-Downs Required***	13	14	14	15
Based Aircraft at IDA	100	103	105	111
Based Aircraft Tie-Downs Required****	7	8	8	8
Total Tie-Downs Required	**20**	**22**	**22**	**23**
Tie-Down Surplus (+)/Shortfall (-)	**+1**	**-1**	**-1**	**-2**
Single-Engine Tie-Downs (ADG I)	**16**	**17**	**17**	**18**
Multi-Engine Tie-Downs (ADG II)	**4**	**5**	**5**	**5**
Apron Space Required	**To accommodate all tie downs and Meet ADG II and TDG 2 standards**			

*Base Year
**As defined in Section 3.3.4 and Section 3.5 of Chapter 3 - Forecasts of Aviation Activity. Consider only 20% of the Class C aircraft
***In Planning Study Area - 80% of Class A, Class B, and Class C transient operations-Transient operations represent 50% of peak day itinerant operations at IDA.
****7% of Based Aircraft
Source: TO Engineers

Helicopter Parking

Helicopter flight training is offered by Utah Helicopter out of the Red Baron Hangar. In addition, the potential exists for helicopter operations related to aerial firefighting, medical evacuation, and transportation activities at IDA, 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 two paved helipad locations be reserved in the planning study area. It should be separate from fixed wing aircraft, due to the generally incompatible nature of helicopters and fixed wing aircraft. Dimensions and location of helipads are discussed in **Chapter 5 - Alternative Analysis**.

4.2.10 Airspace and Obstructions

Airspace can be defined as a volume of air surrounding the airport in which aircraft have to follow specific rules for communication and separations. Those rules depend on the classification of the airspace. Several factors can affect airspace, 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). Also, CFR Part 77 defines imaginary surfaces to restrict the height of objects in the airport's airspace, so they do not affect aircraft operations. Additional surfaces such as Threshold Siting Surface (TSS), and Departure Surface also further restrict object heights in the vicinity of the airport.

Airspace Analysis

IDA currently has Class D airspace from the ground to an elevation of 7,200 feet AMSL, that becomes Class E above or when the airport traffic control tower is closed. There is currently no restrictions to the airspace that could affect operations in the planning study area.

***Recommendations*:** Changes to the surrounding airspace is not anticipated during the 20-year planning period.

Obstructions

This section summarizes the requirements for obstructions around the airfield.

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 ROFA 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 threshold

Siting Surface (TSS) 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.

TSS requirements for RDC B-I SMALL-VIS are summarized in **Table 4-14**.

TABLE 4-14: RUNWAY 17-35 FUTURE TSS REQUIREMENTS

Item	Value
RDC	B-I Small-VIS
TSS Type	Type 2: Approach end of runways expected to serve small airplanes with approach speeds of 50 knots or more (visual only, day/night)
Inner Width	250
Outer Width	700
Total Length	5,000 feet
Slope	20:1
Starting Point	Runway Threshold

Source: TO Engineers, AC 150/5300-13A Change 1

Both ends of Runway 17-35 currently meet threshold siting requirements for visual approaches (day and night) serving large aircraft, without displacement of the thresholds. The TSS has a 20:1 slope starting at each threshold. For visual approaches used by small aircraft, the slope remains the same but with smaller lateral TSS dimensions. The TSS for Runway 20 end is penetrated by aircraft located at the end of Runway 17 and on the north portion of Taxiway A leading to Runway 17.

Recommendation: With its existing length, Runway 17-35 does not need displaced thresholds due to TSS requirements. Alternatives to mitigate penetrations of Runway 20 TSS are studied in **Chapter 5- Alternative Analysis**.

During construction, a displaced threshold may be required if construction equipment penetrates the TSS and/or RSA and ROFA. Displaced thresholds might also be necessary to meet RSA and ROFA requirements after runway decoupling (see Section 4.1.9).

Departure Surface

Departure surfaces apply to all runways at IDA. **Table 4-15** presents the dimensions of such surfaces at IDA.

TABLE 4-15: IDA DEPARTURE SURFACE REQUIREMENTS

Item	Value
Application	All Runway Ends
Inner Width	1,000 feet
Outer Width	6,466 feet
Total Length	10,200 feet
Slope	40:1
Starting Point	End of Take Off Distance Available (TODA)

Source: TO Engineers, AC 150/5300-13A Change 1

Existing Runway 17-35 departure surfaces have penetrations as shown in the Take Off Minima document. The departure surface for Runway 2 is penetrated by aircraft located at Runway 17 end, in addition to a pole located northwest of the runway departure end. Runway 20 departure surface does not have penetrations. Dimensions of the departure surfaces remain the same, independently of the RDC.

Recommendation: It is recommended to study alternatives to mitigate penetrations of the departure surfaces at IDA. Alternatives are evaluated in **Chapter 5 - Alternative Analysis**. It is important to note that any penetration of a departure surface might affect the take-off distance available for the associated runway.

CFR Part 77 Imaginary Surfaces

The dimensions for the CFR Part 77 Imaginary Surfaces associated with the future RDC B-I SMALL-VIS of Runway 17-35 are summarized in **Table 4-16.**

TABLE 4-16: FUTURE PART 77 DIMENSIONAL STANDARDS

Surface	Visual Utility Runway
Width of Primary Surface	250’
Radius of Horizontal Surface	5,000’
Horizontal Surface Elevation	4,894’
Approach Surface Width at end	1,250’
Approach Surface Length	5,000’
Approach Slope	20:1
Transitional Surface Slope	7:1
Conical Surface Slope	20:1

Source: CFR Part 77

As explained in **Chapter 2 - Inventory**, there are multiple hangar obstructions to the current Part 77 transitional surface associated with Runway 17-35. The existing transitional surface starts at the edge of the primary surface, whose width of 500 feet is based on Runway 17-35 being classified as an “other than utility” runway (for large aircraft). The future designation as a B-I SMALL-VIS runway reduces the width of the primary surface to 250 feet and the transitional surface will shift 125 feet closer to the centerline of the runway, which will mitigate the obstructions[3].

As summarized in **Chapter 2 - Inventory**, the proximity of the Runway 17 and 20 ends leads to a penetration of the Part 77 Approach Surface of Runway 20 by any aircraft located at the end of Runway 17.

Recommendations: The future RDC for Runway 17-35 mitigates the obstructions identified for the runway. On the other hand, it is recommended to study alternatives to increase the separation between the Runway 20 and 17 ends to mitigate penetrations of the approach surface for Runway 20 and improve safety. Alternatives are evaluated in **Chapter 5 - Alternative Analysis**.

[3] Exact penetration values are shown on the Airport Layout Plan.

4.3 LANDSIDE FACILITY REQUIREMENTS

As part of this planning study, requirements were evaluated for the landside facilities included in the planning study area as depicted on **Figure 4-1**. They include:

- Aircraft Hangars
- FBO “Red Baron” Facilities
- Automobile Parking and Access
- Airport Traffic Control Tower (ATCT)

4.3.1 AIRCRAFT HANGARS

There are currently 65 hangar spaces located in the planning study area, out of the 92 on the airfield. These hangars are located east of the Runway 17-35, along Taxiway B. As explained in **Chapter 2 - Inventory of Existing Conditions**, Protecting for B-II standards along Taxiway B leads to a limited amount of space in front of the existing hangars, with the non-movement area marking located inside the TOFA and TSA.

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. The current hangar utilization rate is 100 percent at IDA.

The planning study area is served by Taxiway B designed for ADG II and TDG 2 aircraft, which will limit the type of aircraft that could use the hangars on a regular basis. Currently, approximately 70 percent of the airport hangars are located in the study area. This proportion should be maintained over the planning period because it provides a good approximation of the percentage of based aircraft at the airport with an ADG II or less. As previously mentioned, it is assumed that 90 percent of the based aircraft will be stored in hangars at IDA.

Recommendations: It is recommended to provide hangars in the planning study area as summarized in **Table 4-17.** Prudent and proactive planning dictates to protect areas for the construction of potential new hangars. Future development should avoid significant impact on wetlands located on the southeast part of the planning study area and the NHRP Historic District associated with the Red Baron Hangar, as depicted on **Figure 4-6.** Due to the limited space available, other areas of the airport could also be evaluated for GA development. Alternatives are discussed in **Chapter 5 - Alternative Analysis**.

It is further recommended that future hangars, and associated hangar access taxilanes, be developed for ADG II/TDG 2 aircraft. Also, separation concerns along Taxiway B should be addressed.

TABLE 4-17: AIRCRAFT HANGAR REQUIREMENTS

Items	2015*	2020	2025	2035
Based Aircraft	100	103	105	111
Minimum Hangar needed in Study Area**	63	65	67	70
Current Hangars Available in Study Area	65	65	65	65
Current Hangar Surplus (+)/Shortfall (-)	**+2**	**0**	**-2**	**-5**

*Base Year
** 63% of the Based Aircraft at IDA (70% * 90% Total Based Aircraft)
Source: T-O Engineers

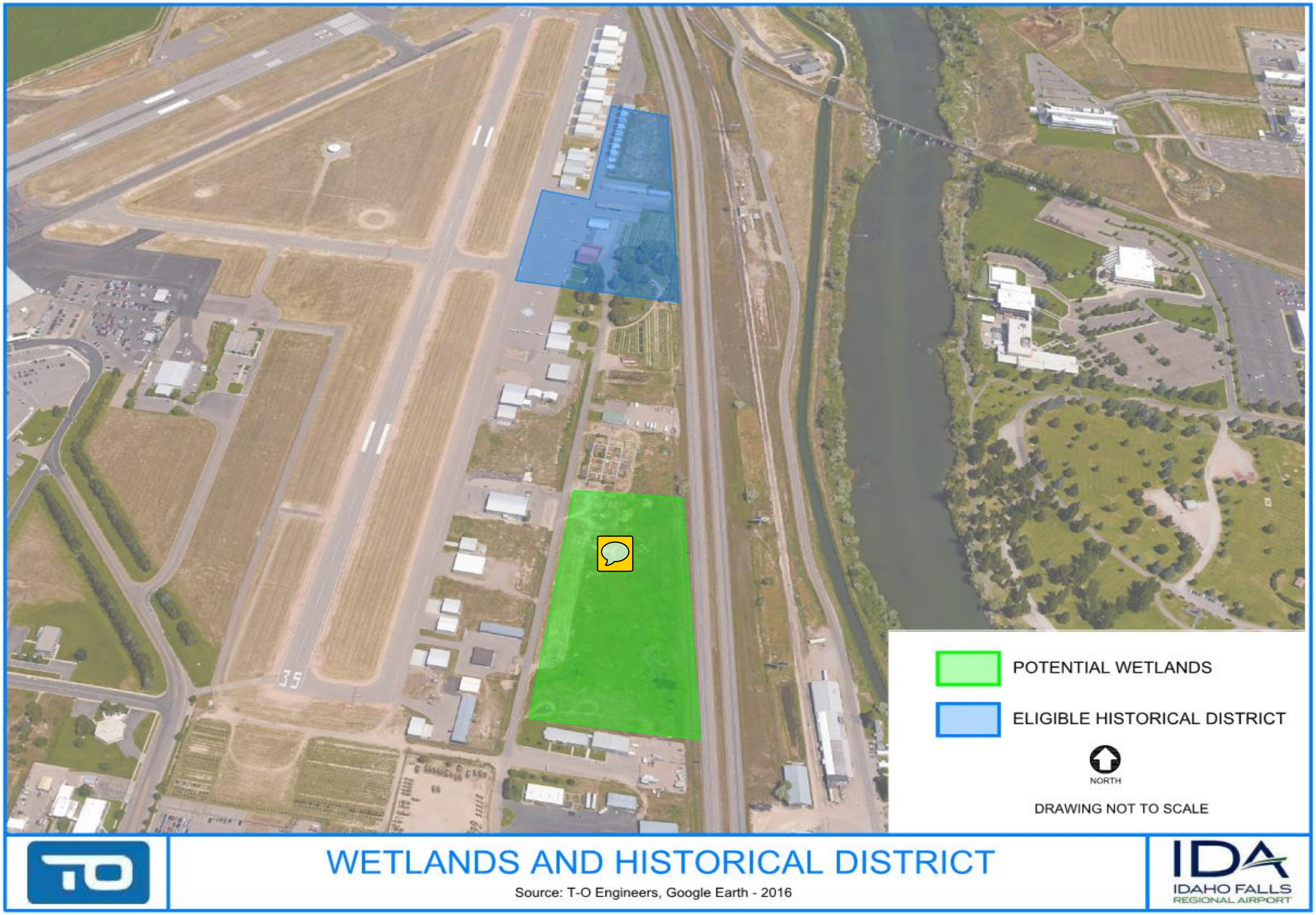
4.3.2 FIXED BASED OPERATOR (FBO)

The only FBO at the airport, AeroMark, leases the “Red Baron” hangar located at the edge of the GA apron in the planning study area. Currently, Utah Helicopter uses the building for helicopter services on behalf of the FBO.

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.

Recommendations: Prudent and proactive planning dictates to reserve at least a 20,000-square-foot area to accommodate a new FBO or an extension of the existing FBO in the planning study area. However, the economics involved for the FBO and the airport will largely determine the type of facilities that are developed. In addition, any impacts of proposed development on the existing NHRP Historic District will need to be evaluated. Alternatives are presented in **Chapter 5 -Alternatives Analysis**.

FIGURE 4-6: POTENTIAL WETLAND AREA



4.3.3 AUTOMOBILE PARKING AND ACCESS

In the planning study area, most of the hangars have available space for automobile parking in their vicinity. Parking space requirements for general aviation areas vary depending on the specific needs for this activity. The following assumptions where made for this study:

- 1.5 parking spaces required for each design hour pilot/passenger at the FBO facility (Red Baron),
- One pilot and one passenger per peak hour flight, and one pilot
- The number of peak hour flights in the study area is a percentage of the total peak hour operations at IDA. This percentage equals the percentage of Class A, Class B, and part of Class C aircraft[4] at the airport.
- 2 parking spaces adjacent to each conventional hangars,
- 400 square feet per parking space.

The current road infrastructure in the planning study does not limit the access to the existing hangars.

Recommendations: It is recommended to provide the number of automobile parking spaces as presented in **Table 4-18**. Also, any new hangar built in the planning area should be easily accessible and integrated with the current roadway infrastructures.

TABLE 4-18: FUTURE AUTOMOBILE PARKING REQUIREMENTS

Items	2015*	2020	2025	2035
Peak Hour Operations at IDA	15	17	18	21
Percentage of Class A, B, and C Aircraft**	42.1%	40.1%	38.1%	34.2%
Parking Space FBO / Total Area	**19/7,600 SF**	**21/8,400 SF**	**21/8,400 SF**	**22/8,800 SF.**
Parking Space per Hangar / Total Area	**2/800 SF.**	**2/800 SF**	**2/800 SF**	**2/800 SF**

*Base Year
**As defined in Section 3.3.4 of Chapter 3 - Forecasts of Aviation Activity. Consider only 20% of the Class C aircraft
Source: T-O Engineers

4.3.4 AIRPORT TRAFFIC CONTROL TOWER (ATCT)

The contract ATCT at IDA is located on top of the passenger terminal building. It is aged and does not meet building code requirements for the FAA but does met local building code requirements. Also, contract ATCTs must meet certain criteria as defined in FAA Order 6480.4A, including:

[4] As defined in Section 3.3.4 of **Chapter 3 - Forecasts of Aviation Activity.** Class A gathers small single-engine aircraft. Class B groups small twin-engine aircraft.

- Visual Performance: line of sight angle and object discrimination. Visual on movement area at all time.
- TERPS and Part 77: potential impacts
- Sunlight and Daylight: impact of natural light glare
- Artificial Light: impact of artificial lights glare
- Atmospheric Conditions: identify any condition that could limit visibility from site
- Industrial Municipal Discharge: consider visual impact of any potential discharge
- Site Access
- Interior Physical Barrier

Recommendations: It is recommended to consider the relocation of the ATCT at a new location. Alternatives and compliance with FAA requirements for contract tower are presented in **Chapter 5 - Alternative Analysis**. Also, it is recommended to evaluate the impact on the tower Line Of Sight (LOS) for every proposed airport development project.

4.4 SUPPORT FACILITY REQUIREMENTS

Requirements for the support facilities in the planning study area as shown on **Figure 4-1**, were evaluated for:

- Perimeter Fencing and Perimeter Road
- Utilities
- Fuel Facilities

4.4.1 PERIMETER FENCING AND PERIMETER ROAD

The fence and access gates in the study area are in good condition and do not present any deficiencies that could affect the airport's security. The existing perimeter road allows access to all critical points in this part of the airport.

The existing perimeter road and fence penetrate the ADG II ROFA of Runway 17-35 at the south end. The requirements for the future RDC B-I SMALL-VIS narrow the width of the TOFA and resolve this issue.

Recommendations: There is no specific recommendation for improvement of the fencing and perimeter road in the planning study area. The ROFA penetration at the south end of Runway 17-35 is no longer a concern for RDC B-I SMALL-VIS. If additional development areas are identified outside of the existing perimeter fence, the fence and gates should be relocated accordingly.

4.4.2 UTILITIES

The existing utilities are sufficient for the existing infrastructures in the planning study area. As shown on **Figure 4-6**, the drainage system of the airport outlets to the east of Runway 35 and could potentially lead to wetland issues for future development.

Recommendations: All new facilities added in the planning study area, as part of airport development, should be given access to existing utilities. Wetland mitigation should be evaluated before pursuing any development in the southeast part of the study area.

4.4.3 FUELING FACILITIES

100LL Jet A fuels are available at IDA for every aircraft using the planning study area. The FBO, Aeromark, owns self-serving fuel pumps with associated tanks for 100LL near the 'Red Baron' hangar.

Recommendations: It is recommended to reevaluate the location of the fuel pumps as needed, in accordance with the new development proposed in this area of airport. There are no specific needs for additional fuel services.

4.5 OTHER REQUIREMENTS

4.5.1 RPZ AND INDUSTRIAL PARK

As explained in **Chapter 2 - Inventory of Existing Conditions**, the FAA allowed the development of an industrial park on airport property, south of the Runway 35' end, for non-aeronautical use. This leads to incompatible land use within the RPZ associated with the runway. Also, the RPZ at the Runway 17 end is penetrated by Interstate 15.

Recommendations: It is recommended that IDA achieve full control of the RPZ associated with its runways. The principal objective of an RPZ is to ensure the safety of people and infrastructures on the ground. Therefore, it is suggested to study alternatives to clear the RPZ penetrated by buildings from the industrial park and Interstate 15. Alternatives are presented in **Chapter 5 - Alternative Analysis**.

4.5.2 PAVEMENT MAINTENANCE

It is recommended that all airport pavements be monitored closely for deterioration and maintenance performed accordingly. 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.

4.5.3 ENVIRONMENTAL AND LAND USE CONSIDERATIONS

Every development proposed during this study should consider impact on land use and environment (wildlife and wetlands) in the vicinity of the airport, as well as on the historical district identified on the airport.

4.5.4 RUNWAY 2-20

Chapter 2 - Inventory of Existing Conditions highlights some non-standard conditions that might be of concern for Runway 2-20, including penetrations of the RPZ associated with the end of Runway 2 by roads, buildings, and recreational areas. These elements, being located outside of the study area defined for this study, will not be treated.

4.6 SUMMARY OF REQUIREMENTS AND RECOMMENDATIONS

Table 4-19 summarizes the main requirements and recommendations for facilities improvement in the planning study area at IDA, over the 20-year planning period. For more details, refer to the appropriate sections of this chapter.

TABLE 4-19: SUMMARY OF REQUIREMENTS AND RECOMMENDATIONS

Facility	Existing	Recommended
Runway 17-35		
RDC	B-II-VIS	B-I SMALL-VIS
Length	4,051 feet	4,051 feet
Strength	7/B/X/T	7/B/X/T
RPZ	Penetrations by roads and building, Industrial Park	Clear and control
Other Protections	ROFA and ROFZ penetrated by access road, fence and utilities	Clear and keep clear all protections
	RSA and ROFA overlapping with RSA/ROFA of Runway 2-20	Mitigate
Hot Spots	3	Improve
CFR PART 77		
Runway 20	Approach penetrated by aircraft at Runway 17 end	Mitigate
Departure Surfaces		
Runway 2	Penetrated by Aircraft on Runway 17	Mitigate
Runway 17-35	Mitigate all existing penetrations	
Taxiway B, Half Taxiway C, Connector A to Runway 17		
ADG	II	II
TDG	-	2
Strength	7/B/X/T	7/B/X/T
TSA/TOFA	Penetrated by non-movement area	Clear and keep clear of all penetrations
Taxiway A, Other Half Taxiway C		
ADG	III	III
TDG	-	4
Aircraft Storage in Planning Study Area		
Apron ADG/TDG	-	II/2
Tie-Downs	21	23
Apron Strength	-	Same as Taxiway B
Hangars	65	70
Helicopter Pads	-	> 2
Automobile Parking		
Parking Spaces	18 + Hangars	22 + 2/Hangar
Other Considerations		
Wetlands	Limit Impact	
Historic District	Impacted by any apron modification and potential hangar development	

Source: T-O engineers