BEAR LAKE COUNTY AIRPORT MASTER PLAN

MASTER PLAN NARRATIVE REPORT | SEPTEMBER 8, 2016

T-O ENGINEERS

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1.0 INTRODUCTION

1.1 GENERAL

The purpose of the airport master planning process for Bear Lake County Airport is to assist Bear Lake County in ensuring that the airport is developed in a manner that coincides with current and future aviation demand. The local community initiated this airport planning effort with the desire to continue to meet the needs of the existing airport users as well as to understand the demands that future users will place upon the facility and reconcile the necessary improvements that need be made to the airport facilities in order to meet the expected demands. This planning process intends to address these local needs while maintaining compliance with the Federal Aviation Administration (FAA) and Idaho Transportation Department – Division of Aeronautics (ITD) requirements.

This airport master plan incorporates information from the previous Airport Layout Plan Update completed in 2010 and identifies new airport planning and development recommendations that are consistent with the airport's present and future needs for a 20-year planning horizon. The recommendations included in this plan were developed using sound variables based on the best current practices in the airport planning discipline.

1.2 PROJECT BACKGROUND

This airport master plan was originally identified and programmed through the FAA. Bear Lake County intends to identify sound planning recommendations in this airport master plan in order to meet the FAA's requirements for safe and efficient facilities as well as provide for a well-planned airport that is vital to the health and vitality of the Bear Lake County community.

1.2.1 PUBLIC OUTREACH

Over the course of the planning process, project meetings were held in the city of Paris, Idaho, to discuss project goals, ideas, and status. Public outreach efforts for this master plan included the following: formal Project Advisory Committee (PAC) coordination, public information and involvement meetings with the Bear Lake County Board of County Commissioners. Attendance at the public involvement meeting was decent for an airport this size and ample feedback was received.

All public meetings were advertised according to County requirements providing ample notice to the community regarding the planning project. Comments from the Public, PAC, Commissioners and Airport Board were incorporated as appropriate into the planning documents.

1.3 PROJECT GOALS

- Document existing airport facilities and activity levels.
- Update aircraft activity and fleet mix forecasts for the airport.
- Identify the present and future role(s) of the airport.
- Identify the size and layout of airside and landside facilities to accommodate projected aircraft demand and FAA airport design standards.
- Identify optimum landside uses that enhance the economic benefits of the airport and are compatible with airside operations.
- Quantify the airport's economic contribution to the community.
- Prepare compatible land-use and height restriction plans consistent for the airport vicinity including recommended zoning protection within the airport influence area.
- Involve the public throughout the planning process in a meaningful, efficient and productive manner.
- Develop realistic phased development and maintenance plans for the airport that provides the basis for future federal, state, local government and private investment in the airport.
- Screen proposed development projects for potential environmental impacts.
- Prepare an Airport Layout Plan drawing set and associated Master Plan narrative report that meets current FAA standards.

1.4 FUNDING AND ADMINISTRATION

This planning study is funded in part with Federal Aviation Administration (FAA) Airport Improvement Program (AIP) funds; Idaho Department of Transportation, Division of Aeronautics, Idaho Airport Aid Program (IAAP) and with local funds. FAA funding for this project was 90 percent of the total project cost with the remaining 10 percent split equally between IAAP and local funds. The master plan update document and Airport Layout Plan were prepared in accordance with the current regional FAA ALP checklist and guidance provided in FAA:

- Advisory Circular (AC) 150/5070-6B, Change 2 [*Airport Master Plans*]
- AC 150/5300-13A, Change 1, [*Airport Design*]
- AC 150/5060-5, [*Airport Capacity and Delay*]
- AC 150/5325-4C, [*Runway Length Recommendations for Airport Design*]
- FAR Part 77, [*Safe, Efficient Use and Preservation of the Navigable Airspace*]
- FAA Order 5100.38D, [*AIP Handbook*]
- FAA Order 1050.1E, Change 1, [*Environmental Impacts: Policies and Procedures*]
- Other applicable Advisory Circulars (ACs) and changes, FAA Orders and Federal Aviation Regulations (FARs)
- State of Idaho guidance

1.5 PLAN PROCESS

Development of the airport master plan with ALP requires a series of specific steps. The planning process will address several basic elements in the following chapters.

1.5.1 INVENTORY

The airport inventory is a collection of information about the existing airport facilities, including characteristics of the existing runway and taxiways, airport access, property holdings, airport users, airport services, hangars and aircraft parking aprons, population changes, land uses, development trends, changes in employment, and income and future trends in the study area.

1.5.2 AVIATION ACTIVITY FORECASTS

The development of the aviation activity forecast for Bear Lake County Airport provides a prediction of future aircraft operation levels and the types of aircraft that will operate at the airport. All predictions are made based on the accepted statistical methods practiced within the aviation planning industry, recognizing that no method for predicting future events exists which produces 100 percent accurate results. Forecasts are developed using various mathematical, market share and trend projection techniques to develop a statistically justifiable estimate of the future number of based aircraft, type of aircraft, and the total number of aircraft operations that should be expected at this airport. Anticipated levels of airport activity at the airport are organized in set intervals describing the expected future users. The FAA must approve aviation activity forecasts.

1.5.3 FACILITY REQUIREMENTS ANALYSIS

This section compares existing airport conditions to the expected future condition and recommends what is needed to sustain the current activity levels and the levels of activity forecast for the future. Using this comparison, it is possible to identify where there are deficiencies or excesses within the airport facility. The output of this section is a list of facility improvements that the airport plans to achieve.

1.5.4 AIRPORT ALTERNATIVES ANALYSIS

This portion of the master plan update compares the possible actions that may be taken to meet the needs of the airport. The options considered in the alternatives analysis can range from minor to major undertakings on the airport property and its facilities. The various alternatives

designated for this project will form the basis for future airport development at the Bear Lake County Airport.

1.5.5 DEVELOPMENT PLAN

The development plan and the associated airport Capital Improvement Program (CIP) is a key plan for airport decision makers. It is a realistic listing of the projects required to satisfy the facilities requirements including the most viable manner of meeting these needs. The CIP includes a cost estimate based on current construction costs for each development. The CIP also identifies sources of funding and the phasing of the required improvements.

1.5.6 AIRPORT COMPLIANCE AND LAND USE POLICY REVIEW AND RECOMMENDATIONS

This section provides Bear Lake County Airport with a clear understanding of its federal and state regulatory requirements and grant assurances. The management best practices the airport should have in place in order to ensure compliance with grant assurances and other policies are discussed.

In addition, compatible land use and zoning have become increasingly important for airports over the last decade and the FAA has stressed that each airport should have appropriate measures in place to ensure appropriate development occurs within the airport environs. This portion of the airport master plan will review existing policy and zoning in Bear Lake County and the nearby cities of Paris and Montpelier, regarding airport land use and future development. Recommendations for improved policy to prevent incompatible land use surrounding the airport are also identified.

1.5.7 AIRPORT LAYOUT PLAN (ALP) DRAWING SET

Tied to the development of the airport master plan is the preparation of a series of drawings depicting the existing airport and the proposed changes to the airport over the next 20 years, commonly referred to as the ALP. A complete drawing set is included with a description of each drawing in the Bear Lake County Airport ALP.

2.0 INVENTORY OF EXISTING CONDITIONS

2.1 INTRODUCTION AND PLANNING CONTEXT

2.1.1 GENERAL

The purpose of the inventory section of the Airport Master Plan is to summarize existing conditions of all the facilities at Bear Lake County Airport (1U7); as well as 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 Bear Lake County 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 (Bear Lake County), City of Montpelier, City of Paris, airport tenants, Idaho Transportation Department – Division of Aeronautics (ITD) and other knowledgeable sources.

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

The United States has developed a national airport system. Known as the National Plan of Integrated Airport Systems (NPIAS), this system 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 2013-2017 NPIAS Report to Congress, guiding principles of the NPIAS include:

- Providing a safe, efficient and integrated system of airports;
- Ensuring 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
- Supporting a variety of critical national objectives such as defense, emergency readiness, law enforcement, and postal delivery.

In addition, this system plan helps to promote airport permanence, to ensure the airports will remain open for aeronautical use over the long term; as well as compatible development with the surrounding communities, to maintain 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 is updated and published biennially by the FAA. The updated NPIAS report is submitted to Congress and identifies and reaffirms airports in the system along with the amounts and types of airport development eligible for AIP funds over the next 5 year period.

Currently, there are 3,317 public-use airports included in the NPIAS. The airports included in the NPIAS are classified into different categories: Primary Commercial Service Airports (further divided into large-, medium-, small- and non-hub), Non-Primary Commercial Service Airports, and General Aviation Airports. General Aviation airports are usually classified as Basic Utility, designed to handle single-engine and small twin-engine propeller aircraft and General Utility, designed to accommodate larger aircraft. 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 primary and commercial service airports and selected general aviation airports are included in the NPIAS.

The FAA also released a study providing a deeper classification of the General Aviation 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.

Bear Lake County Airport is part of the FAA's NPIAS and is recognized as a General Aviation airport. In addition, in the FAA study General Aviation Airports: A National Asset, Bear Lake County Airport is classified as a Basic Airport, which is an airport often serving critical aeronautical functions within local and regional markets.

2.1.3 IDAHO AIRPORT SYSTEM PLAN (IASP)

The Idaho Airport System Plan (IASP) was initiated by the Idaho Transportation Department (ITD) Division of Aeronautics, to ensure that the state's airport system is developed to meet all of the transportation safety and economic needs. During this comprehensive study, each airport in the system was evaluated to gauge its role, activity, and needs for infrastructures. The IASP analyzed 75 of the 119 public use airports in Idaho.

The airports included in the IASP 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 ITD State Aviation System Plan identifies the role for Bear Lake County Airport to be Community Business. Community Business airports serve a limited role in regional economies, primarily supporting community economies. They accommodate a variety of general aviation activities such as business, recreational, and personal flying. (Idaho Airport System Plan, 2010).

2.2 AIRPORT AND COMMUNITY BACKGROUND

2.2.1 GENERAL

Bear Lake County Airport is located in Bear Lake County, in southeastern Idaho, approximately three miles east of the city of Paris and six miles southwest of the town of Montpelier. The airport is located in the Bear River Valley, north of Bear Lake, and covers an area of approximately 1,180 acres. It serves the Bear Lake County region and adjacent areas. Nearby attractions include Bear Lake, Bear Lake State Park, and Bear Lake National Wildlife Refuge as well as the National Oregon – California Trail Museum and the Oregon Trail – Bear Lake Scenic Byway.

2.2.2 AIRPORT LOCATION

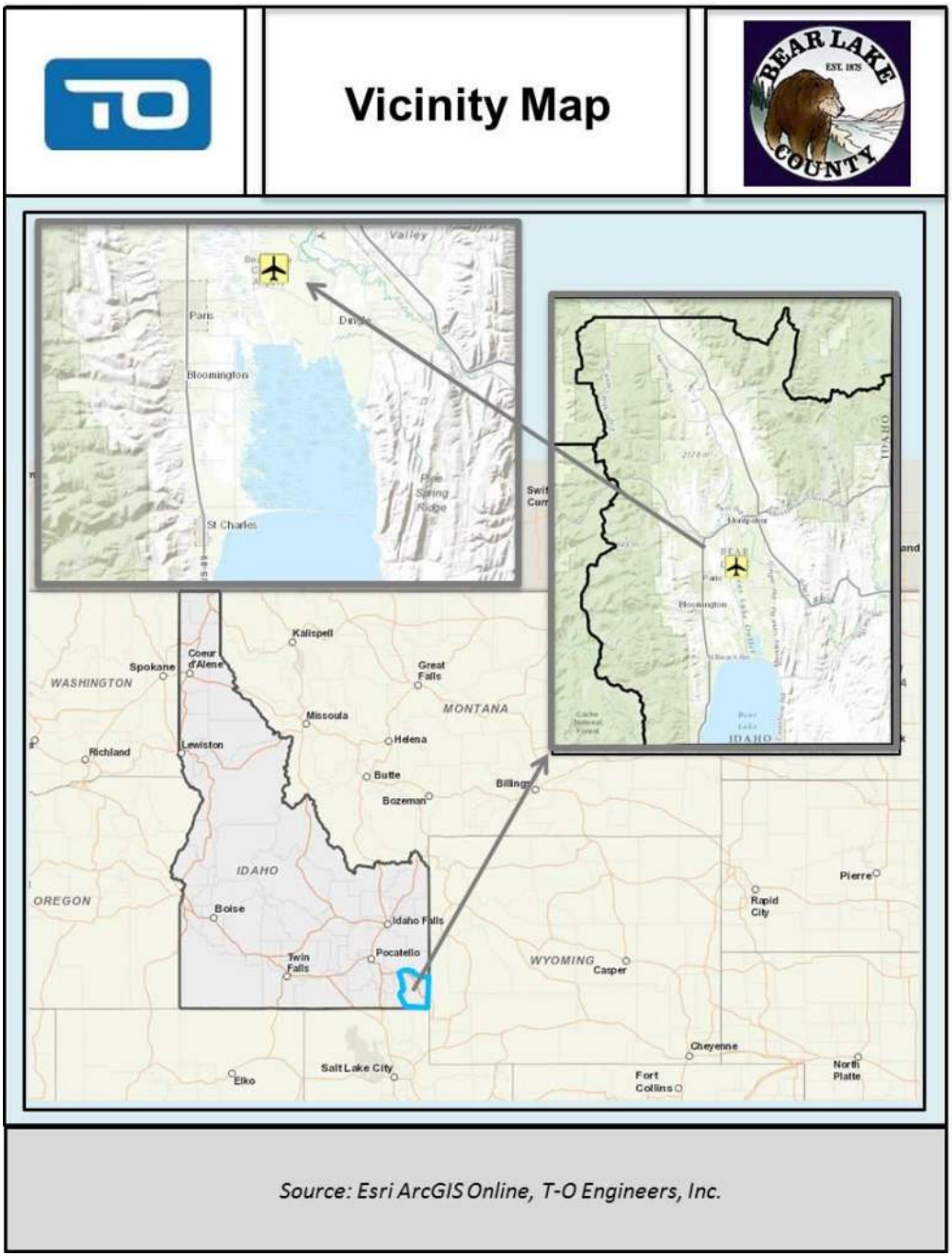
The airport is located in southern Idaho at 42° 14' 59.10" north latitude and 111° 20' 29.90" west longitude. The true orientation of the runways is 115°06'04.20" (Runway 10/28) and 175°06'02.98" (Runway 16/34). The airport elevation is 5,932.6 feet (surveyed).

Bear Lake County Airport is situated halfway between U.S Route 89 and U.S Route 30. U.S Route 89 is a north-south highway, which extends from Arizona to the Canadian border and provides access, from Bear Lake County to Northern Utah and Southern Wyoming. U.S Route 30 is an east-west highway, which crosses the United States from Astoria, Oregon to Atlantic City, New Jersey. From Bear Lake County, U.S Route 30 provides access to Southern Wyoming and Northern Idaho.

The airport is situated on a valley floor, surrounded by mountainous terrain including the high mountains of the Bear River Range on the west side of the valley. Wetland areas surround the airport and both Bear Lake and the Bear Lake National Wildlife Refuge are located to the south of the airport. Further, the Bear River is situated to the east of the airport and the outlet canal which adjoins Bear Lake; the Bear River is to the west.

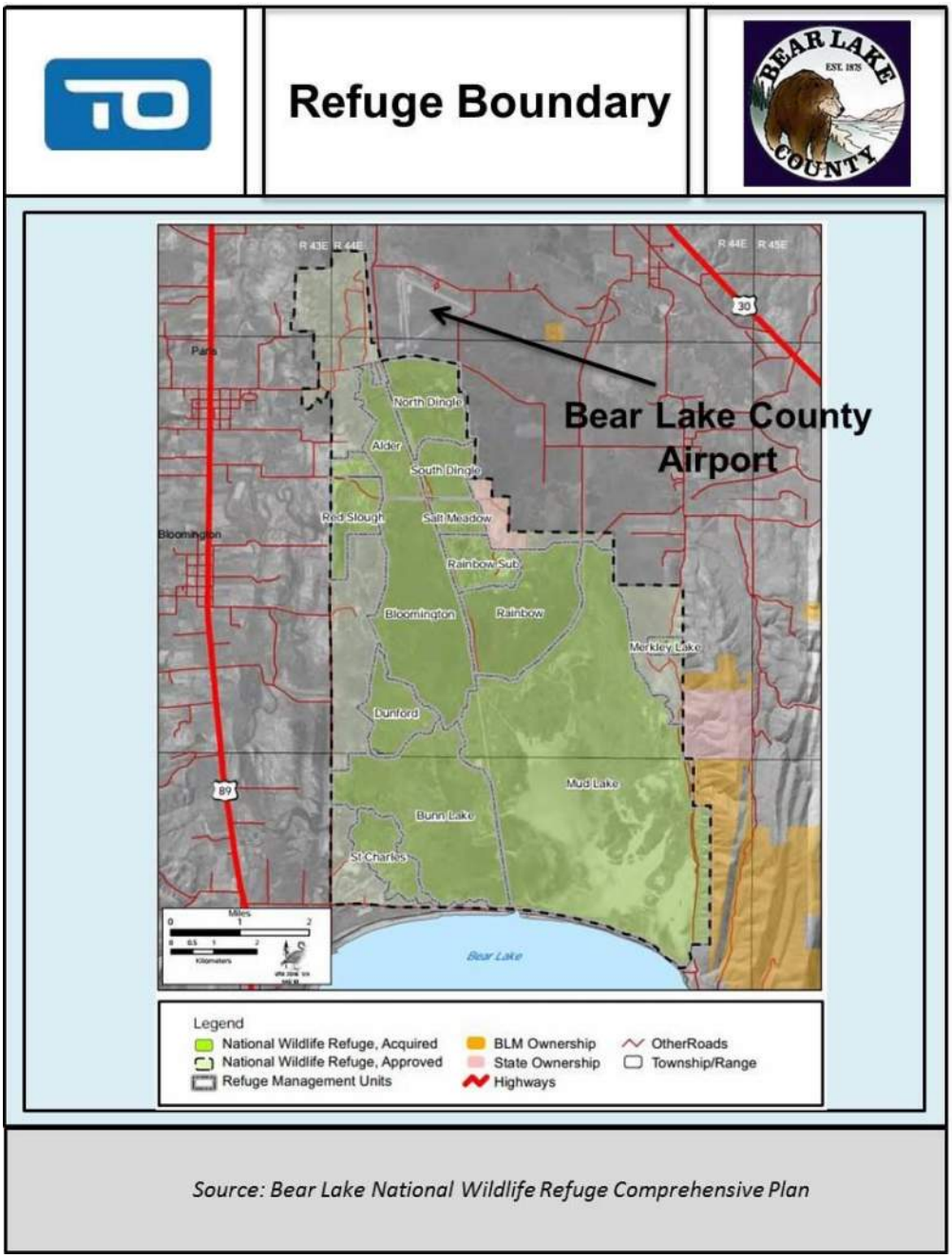
Figure 2-1 depicts a vicinity map for reference and **Figure 2-2** illustrates the location of the wildlife refuge in relation to the airport's location.

FIGURE 2-1 – VICINITY MAP



Source: Esri ArcGIS Online, T-O Engineers, Inc.

FIGURE 2-2 – REFUGE BOUNDARY



2.2.3 AIRPORT OWNERSHIP AND MANAGEMENT

The airport is currently owned, operated, and managed by Bear Lake County. A full-time airport manager is located on site and oversees day-to-day operations at the airport. A six-member airport board oversees administrative functions of the airport and formulates recommendations regarding airport policy and direction. The board transmits their recommendations to the County Commissioners for final action.

2.2.4 AIRPORT HISTORY, PROJECTS, AND MILESTONES

The land on which Bear Lake County Airport is located was acquired by Bear Lake County in 1942 under guidance from the United States Government. Bear Lake County Airport was constructed in 1943 and it became operational in February 1944 as a military airfield for emergency landings. The airport consisted of three paved runways in a triangular configuration, typical of military airports built during World War II. It has been developed over time to the present two paved runways configuration. The third runway, originally orientated along a northeast-southwest axis, was converted and used as a taxiway until it was abandoned in the late 1970s to early 1980s.

Some recently completed projects include building construction, fuel farm improvement as well as an apron, taxiway and runways rehabilitation. In addition, a partial parallel taxiway was under construction in 2013 and was completed during the summer of 2014.

2.2.5 SOCIOECONOMIC CONDITIONS

According to sources including the U.S. Bureau of Economic Analysis, the University of Idaho and the Idaho Department of Commerce, the total population of Bear Lake County was approximately 5,943 in 2013. Bear Lake County's per capita personal income was reported to be approximately $33,647 in 2012 and the median household income was reported to be approximately $42,751.

The City of Paris is inhabited by approximately 538 people (9.1% total County population) in 205 households, with a reported median household income of $46,363. The City of Montpelier has approximately 2,725 inhabitants (46.1% total County population) in 1,045 households with a reported median household income of $37,723.00. The City of Soda Springs, in Caribou County, contains approximately 3,095 people with a reported median household income of $49,852. The City of Preston, in Franklin County, is inhabited by approximately 5,373 people with a reported median household income of $46,015.

Bear Lake County currently ranks 36th among the 44 Idaho counties in population, 24th in median household income and 32nd in the area (approximately 628,000 acres).

The county consists of approximately 305,000 acres (or 48.6 percent) of private land, with the remaining land under public ownership. The federal government owns approximately 303,931 acres (or 48.4 percent) divided between the Bureau of Land Management, the U.S Fish and Wildlife Service and the National Forests. The remaining area is divided between State Land, County Land, and Municipal Land.

The government, agriculture, retail trade and accommodation, as well as food services, provide the foundation for the local economy. Additional economic contributors include real estate, rental and leasing, health care, social assistance, finance, insurance, manufacturing, arts entertainment, recreation, and other services. In 2012, government accounted for 20.9 percent of total employment in Bear Lake County, agriculture accounted for 14.90 percent, retail trade for 12.10 percent and accommodation and food services for 6.70 percent.

The tourism sector in Bear Lake County is an important part of the local economy and much of the County's economic base is tied to the fluctuating levels of seasonal activity. Major employers in the region include Alco Discount Store, Bear Lake County, Bear Lake County School District #33, Bear Lake Memorial Hospital, Broulims Foodtown, IVI Hotel Management, U.S Forest Service and Walton Feed, Inc.

Rich County, Utah borders Bear Lake County to the south and is in the immediate vicinity of the airport. Bear Lake and the surrounding areas are popular tourist destinations during the summer months. Several marinas, beaches and the tourist towns of Garden City and Laketown are located in Rich County, Utah. Therefore, developments in the northern portions of Rich County have current and potential impacts on demand at the airport. Rich County seat is Randolph, and the largest town is Garden City, which is located on the shores of Bear Lake, approximately 30 minutes from Bear Lake County Airport. According to the Utah Department of Workforce, the population of Rich County was approximately 2,255 in 2012. Rich County's per capita personal income was reported to be approximately $25,376 in 2010 and the median household income was reported to be approximately $49,803. Lastly, there were approximately 805 households.

Table 2-1 summarizes the population, households and median household income of the major cities in Bear Lake County and Rich County, Utah.

TABLE 2-1: SOCIOECONOMIC CONDITIONS

City	Population	Percentage of County	Number of Households	Median Household Income
Bear Lake County	5,943	-	2,281	$42,751
Paris	538	9.1%	205	$46,363
Montpelier	2,725	45.6%	1,045	$49,852
Bloomington	216	3.6%	84	$49,791
Georgetown	499	8.4%	182	$55,666
St. Charles	138	2.3%	53	$49,374
Rich County	2,255	-	805	$49,803
Laketown	248	11.0%	86	$68,250
Garden	181	8.0%	78	$52,708
Garden City	562	24.9%	215	$36,625
Randolph	464	20.6%	156	$52,083
Woodruff	180	8.0%	56	$66,875

Source: T-O Engineers, Idaho Department of Commerce, University of Idaho, Utah Department of Workforce, United States Census Bureau

2.3 AVIATION ACTIVITY

2.3.1 EXISTING AIRPORT ACTIVITIES AND USERS

Bear Lake County Airport provides for a variety of aviation uses and activities. The airport predominantly serves single-engine aircraft, with occasional use by small multi-engine aircraft, turboprop as well as some small jet traffic. Principal aviation activities occurring at this airport include recreational, corporate/business, medical related transport, search and rescue, and government firefighting (Idaho Department of Lands, Bureau of Land Management and/or U.S. Forest Service) as well as extensive use by U.S. Fish and Wildlife Service and Idaho Fish and Game for various wildlife related purposes between December and February. The airport is often used as a refueling stop for cross-country flights, by summer home owners, and for recreational purposes.

Most of the aircraft using the airport are single-engine aircraft, such as Piper Malibu PA-46, Piper Cherokee PA-28, Cessna 182 and 172 as well as Aviat Husky. In addition, Cessna 525 Citation Jet, Cessna 510 Citation Mustang, Beechcraft Super King Air B200, Pilatus PC-12 and other turboprop aircraft and light jets occasionally use the airport for business purposes.

Per the ITD Individual Airport Summary (2009), developed as part of the IASP, airport activities include student pilots' training, recreational flights into the backcountry for hunting, fishing, backpacking and site-seeing. The airport is also used for agriculture purposes, wildlife counts by the Idaho Fish and Game, mosquito control operations around Bear Lake, and by government

agencies during the fire season. Lastly, medical evacuation and supplies are sometimes transported to and from larger urban areas, using both helicopters and fixed wing aircraft at the airport.

2.3.2 EXISTING ACTIVITY LEVELS

Airport activity levels include the number of aircraft operations and based aircraft. 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. 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.

The airport's most recent FAA 5010 (05/29/2014) and airport records identify a total of six single-engine aircraft based at Bear Lake County Airport. The FAA's National Based Aircraft Inventory Program was also reviewed and it too reports 6 based aircraft. It should be noted that the Based Aircraft Inventory has not been updated since February 2012. The six based aircraft are all single-engine and include one Cessna 150, one Cessna 182, two Cessna 172, one Piper PA-46, and one Cessna 205.

Based on current records, an estimated 2,400 operations occur annually at the airport; approximately 85% of all the operations are itinerant and 15% are local. 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. Bear Lake County Airport is not used by air taxi, air carrier or military aircraft. With the absence of an Air Traffic Control Tower, or other regular means of counting operations, it is important to recognize that current usage is an estimate. More detailed analysis of airport-based aircraft and activity is included in Chapter 3, Aviation Activity Forecasts.

2.4 EXISTING AIRSIDE FACILITIES

2.4.1 RUNWAY

The existing airfield configuration at Bear Lake County Airport consists of two active runways. These runways are identified as Runway 10/28 and Runway 16/34 and are depicted in **Figure 2-3**.

Runway 10/28 is the primary runway and is oriented northwest/southeast. It is 5,728 feet long by 75 feet wide. This runway is a visual only runway with basic markings in good condition. Runway 10/28 is constructed out of asphalt, in good condition, to support aircraft with a weight-bearing capacity no greater than 12,500 pounds for Single Wheel Gear (SWG) equipped aircraft.

Runway 16/34 is oriented north/south and is 4,590 feet long by 60 feet wide. This runway is also a visual only runway with basic markings in good condition. Runway 16/34 has runway edge markings, which delineate the usable portion of the pavement. It is constructed out of asphalt, in good condition, and based on the FAA 5010, it supports aircraft with a weight-bearing capacity no greater than 50,000 pounds for Single Wheel Gear (SWG) equipped aircraft, 64,000 pounds for Double Wheel Gear (DWG) equipped aircraft and 102,000 pounds for Double Tandem Gear (DTG) equipped aircraft. It appears that the pavement strength data published on the FAA 5010 for Runway 16/34 has been obtained from mid-1980's pavement strength survey. To our knowledge, no new pavement strength survey has since been completed and the pavement strength has not been updated since. However, we do not believe that the actual pavement strength for Runway 16/34 is this high nor is it intended to be for the current fleet using the airport. Additional analysis and future requirements of pavement strength will be discussed in later portions of this planning study. Further, the differences of pavement strength between the various facilities of the airport will be addressed in Chapter 4, Facility Requirements.

Runway 10/28 is the primary runway and accommodates approximately 90 percent of the aircraft operations (Runway 10 accommodates 10 percent, while Runway 28 accommodates 80 percent). Runway 16/34 is the secondary runway and accommodates the remaining 10% (each runway ends accommodates approximately 5 percent) of aircraft operations.

2.4.2 TAXIWAY SYSTEM

Taxiways are a crucial element of the airport because they allow the 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.

Bear Lake County Airport is currently equipped with a partial parallel taxiway and a connector taxiway. The partial parallel taxiway is parallel to Runway 10/28 and allows access from the apron to the thresholds of Runway 10 and 16. This parallel taxiway is 25 feet wide and constructed out of asphalt; it is not lit, but it is equipped with reflective markers.

The connector taxiway enters Runway 10/28 directly from the apron, approximately 3,025 feet from the threshold of Runway 10 and 2,705 feet from the threshold of Runway 28. This access taxiway is constructed out of asphalt and is approximately 450 feet long by 40 feet wide. It is not lit but equipped with reflective markers.

Figure 2-3 provides an aerial view of existing airport airside facilities.

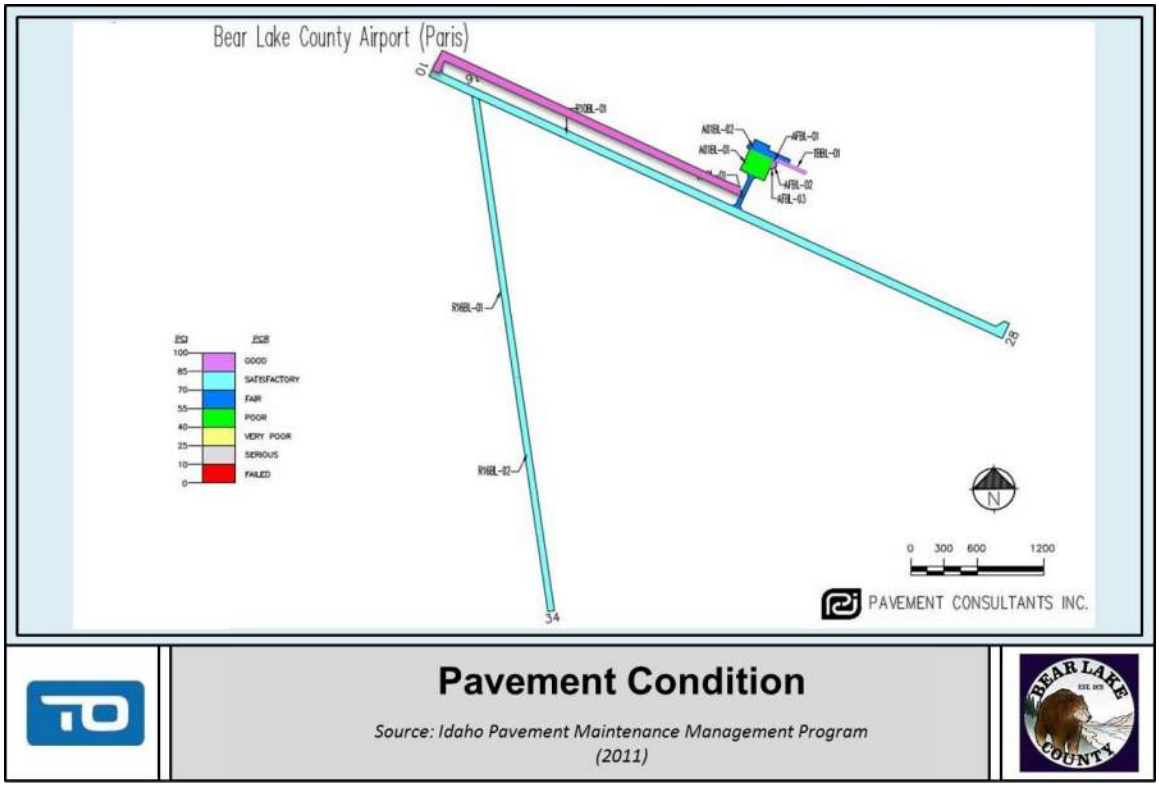
FIGURE 2-3: AIRPORT AIRSIDE FACILITIES

2.4.3 AIRPORT PAVEMENT CONDITION

The Pavement Condition Index (PCI) and Pavement Condition Rating (PCR) are based on a visual inspection of pavement condition only. ITD completes a full PCI inspection of airport pavements on a statewide basis every three years. The last PCI inspection conducted at the Bear Lake County Airport by ITD was in 2011. **Figure 2-4** depicts the pavement condition for various areas of the airport.

In 2011, ITD established that the pavement condition for Runway 10/28 had a PCI of 75, which is considered as satisfactory. Runway 16/34 also had a satisfactory pavement condition; one section had a PCI of 75 and the other section had a PCI of 72. The pavement on the connector taxiway was considered in fair condition, with a PCI of 64 and the pavement of the apron was in fair or poor condition, with a PCI of 59 and 55, depending on the location. The area-weighted average PCI of all airport pavements is 73, corresponding to an overall PCR of satisfactory. The pavement of the new parallel taxiway has been installed during the summer 2014 and is in good condition.

FIGURE 2-4: PAVEMENT CONDITION



2.4.4 AIRFIELD LIGHTING, VISUAL AIDS, AND NAVAIDS

A NAVAID is defined by the FAA as any facility used in the aid of air navigation, including landing areas, lights, any apparatus or equipment for disseminating weather information, for signaling, for radio direction-finding, or for radio 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.

Runway 10/28 is equipped with a Medium Intensity Runway Lighting (MIRL) system. The existing runway edge light system is currently non-standard due to light post height (+/- 40 inches high) and because numerous light stakes do not meet the Runway Safety Area (RSA) requirements - numerous light bases exceed the RSA grade by greater than three inches.

The lighting can be controlled through a Pilot Controlled Lighting (PCL) system, activated via the Common Traffic Advisory Frequency (CTAF) – 122.8. Runway 16/34 is not equipped with any runway edge lights.

None of the runways are equipped with a Precision Approach Path Indicator (PAPI), or a Runway End Identifier Light (REIL) system.

A segmented circle with a lighted wind cone exists on the south side of Runway 10/28 across from the taxiway and the apron area. Bear Lake County airport is also equipped with a white-green beacon, which indicates a light landed airport and operates sunset to sunrise.

Table 2-2 summarizes the existing visual aids and NAVAIDs available at Bear Lake County Airport.

TABLE 2-2: BEAR LAKE COUNTY AIRPORT VISUAL AND NAVIGATION AIDS (NAVAIDS)

GENERAL
UNICOM - 122.8
Rotating Beacon
Lighted Wind Cone and Segmented Circle
RUNWAY 10/28
Non-Standard Medium Intensity Runway Lighting (MIRL)

Source: T-O Engineers, 5010

Nearby Navigation Aids are summarized in **Table 2-3**.

TABLE 2-3: NEARBY NAVIGATION AIDS

ID	Type	Name	Frequency	Range	Radial/Bearing
LHO	VOR/DME	Brigham City	112.9	40.5 nm	033°
MLD	VOR/DME	Malad City	117.4	49.6 nm	069°
BPI	VOR/DME	Big Piney	116.5	58.2 nm	234°
EVW	VOR/DME	Evanston	109.6	60.1 nm	334°
BMC	NDB	Brigham City	294	55 nm	202°
PI	NDB	Tyhee	383	67.4 nm	294°
PNA	NDB	Wenz	392	75.5 nm	048°

Source: SkyVector.com, T-O Engineers

2.4.5 INSTRUMENT APPROACH CAPABILITIES

Bear Lake County Airport is currently a VFR-only airport, with no instrument approach capabilities. Nearby airports in the vicinity of Bear Lake County Airport equipped with instrument approach procedures include Afton Municipal Airport, Logan-Cache Airport and Kemmerer Municipal Airport. **Table 2-4** lists the nearby airports equipped with instrument approaches.

TABLE 2-4: NEARBY AIRPORTS EQUIPPED WITH INSTRUMENT APPROACHES

ID	Name (State)	Distance	Direction	Type of Approach	Height Above Touchdown (HAT)	Visibility AAC A (AAC B)*
KAFO	Afton Municipal Airport (WY)	33 nm	Northeast	RNAV (GPS) RWY 16	952	1¼ (1½)
				RNAV (GPS) RWY 34	1399	1¼ (1½)
KLGU	Logan-Cache Airport (UT)	36 nm	Southwest	ILS RWY 17	200	¾
				RNAV (GPS) RWY 17	683	½
				RNAV (GPS) RWY 35	289	1
KEMM	Kemmerer Municipal Airport (WY)	43 nm	Southeast	RNAV (GPS) RWY 16	435	1
				RNAV (GPS) RWY 34	264	1
KBMC	Brigham City Airport (UT)	53 nm	Southwest	RNAV (GPS) RWY 35	430	1
				NDB-A	411 (451)	1
KBPI	Miley Memorial Field (WY)	58 nm	East	GPS RWY 31	475	1
				VOR RWY 31	715	1

* Visibility in Statute Miles. Aircraft Approach Category A (Aircraft Approach Category B if different)

Source: Airnav.com, T-O Engineers

2.4.6 AIR TRAFFIC CONTROL

Bear Lake County airport is not equipped with an Air Traffic Control Tower (ATCT). The airport is located in the service area of Boise Flight Service Station (FSS) and in the jurisdiction of the Salt Lake City's Air Route Traffic Control Center (ARTCC).

2.4.7 OBSTRUCTIONS TO AIR NAVIGATION

The airport, being located near the center of a wide valley, has no major obstructions to air navigation. The few existing obstructions include a power line. The only other impact to air navigation in the area is birds on and in the vicinity of the airport. Bear Lake County Airport is located immediately north of a National Wildlife Refuge; this area and the associated waterbodies and wetlands in the vicinity of the airport draw significant numbers of waterfowl and other birds.

Additional information regarding airspace and Part 77 is included in Section 2.9, Airspace. **Table 2-5** lists the obstructions to Air Navigation in the vicinity of the runways of Bear Lake County Airport.

TABLE 2-5: PART 77 OBSTRUCTION DATA

Runway End	Obstructions	Obstruction Height Above RW end	Obstruction Distance from RW end	Clearance Slope	Recommended Slope	Close In Obstruction?
10	Power line	60’	2,500’ from runway	38:1	20:1	No
28	Road	12’	500' from runway	25:1	20:1	No
16	Road	19’	1,000 from runway	42:1	20:1	No
34	None	None	None	None	20:1	N/A

Source: FAA Form 5010, T-O Engineers

2.4.8 HELIPAD

Although Bear Lake County Airport occasionally accommodates helicopter operations, the airport is not equipped with a helipad.

2.4.9 SUMMARY OF AIRSIDE FACILITIES

Table 2-6 summarizes the existing airside facilities at Bear Lake County Airport. The differences of pavement strength between the various facilities of the airport will be addressed in Chapter 4, Facility Requirements.

TABLE 2-6: SUMMARY OF EXISTING AIRSIDE FACILITIES

ITEM		CURRENT DATA
Airport Role		GA/Basic (FAA)/Community Service (ITD)
Airport Elevation		5,932.6' MSL
Airport Property (acres)		1,180
Highest Average of Monthly Maximum Temperature		85.5°F
Airport Reference Point Coordinates (NAD 83)	Latitude	42° 14' 59.10" N
	Longitude	111° 20' 29.60" W
Magnetic Declination (Year 2015)		11° 43' 48'' E
Annual Magnetic Variation (Year 2014)		0° 8.3' W per year
Instrument Approaches		None
Primary Runway (10/28)		
Runway Length		5,728'
Runway Width		75'
Runway Pavement Type		Asphalt
Runway Pavement Strength - SW		12,500 lbs.
Runway Pavement Strength - DW		---
% Effective Runway Gradient		0.05%
Runway Lighting Type		Non-standard MIRL
Runway Marking Type		Visual
Secondary Runway (16/34)		
Runway Length		4,590'
Runway Width		60'
Runway Pavement Type		Asphalt
Runway Pavement Strength – SW*		50,000 lbs*
Runway Pavement Strength – DW*		64,000 lbs*
Runway Pavement Strength – DTW*		102,000 lbs*
% Effective Runway Gradient		0%
Runway Lighting Type		None
Runway Marking Type		Visual with Runway Side Stripe Marking (Delineate usable pavement)
Taxiways		
Partial Parallel Taxiway		
Taxiway Pavement Type		Asphalt
Taxiway Pavement Strength - SW		16,000 lbs.
Taxiway Width		25'
Taxiway Lighting Type		Reflector
Connector Taxiway		
Taxiway Pavement Type		Asphalt
Taxiway Pavement Strength - SW		16,000 lbs.
Taxiway Width		40'
Taxiway Lighting Type		Reflector

* Obtained from mid-1980's pavement strength survey and currently published in the FAA 5010. This pavement strength is not intended to be for the current fleet using the airport and actual pavement strength is likely to be lower. Additional discussion in later chapters of this study.

Source: 1998 ALP and Narrative, T-O Engineers, NOAA, FAA Form 5010

2.5 AIRPORT DESIGN STANDARDS

Airport design criteria and dimensional standards for airport facilities are determined by the Runway Design Code (RDC). The RDC is a code signifying the design standards to which the runway is to be built. Runway design standards are related not only to operational and physical characteristics of the critical aircraft intended to operate at the airport, such as aircraft approach speed, wingspan, and tail height, but also to the approach visibility minimum associated with the runway. Typically, the FAA determination of a critical aircraft is based on a substantial use threshold of 500 or more operations per year of the most demanding aircraft.

Design standards associated with the RDC provide for the runway width and proper ground based “setbacks” or safety related areas around the runway environment. The RDC has three components related to the airport design aircraft; (a) approach speed, (b) wingspan and tail height, and (c) designated or planned approach visibility minimums.

The first component of the RDC is depicted by a letter and is based on the aircraft approach speed. The second component, depicted by a Roman numeral, is the airplane "Design Group" and is based on either the aircraft wingspan or the tail height. The third component, depicted by a numeric value or “VIS” (visual approach only), is the visibility minimums expressed by Runway Visual Range (RVR) values in feet. A summary of the FAA approach categories, design groups, and visibility minimums that result in the RDC is included below:

Aircraft Approach Category (AAC): Grouping of aircraft based on 1.3 times their stall speed in their landing configuration at their maximum certificated landing weight. The categories are as follows:

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

Airplane Design Group (ADG): A classification of airplanes based on their wingspan or tail height. The groups are depicted in **Table 2-7** below:

TABLE 2-7: AIRPLANE DESIGN GROUP (ADG)

Group	Tail Height	Wingspan
I	**< 20’**	**< 49’**
II	20’ - < 30’	49’ - < 79’
III	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

Visibility Minimums: A grouping of RVR values based on flight visibility category (statute mile). The RVR's are as follows:

- 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).
- 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**

Bear Lake County Airport's runways (Runways 16/34 and 10/28) are currently classified as RDC B-I Small-VIS. The airport primarily serves small single-engine aircraft weighing 12,500 pounds or less, with approach speeds of 91 knots or more but less than 121 knots, wingspans less than 49 feet and tail height less than 20'. As previously mentioned, the airport is currently visual only with no instrument approach capabilities.

Further, the Airport Reference Code (ARC) is an airport designation that signifies the airport's highest RDC, minus the third (visibility) component of the RDC. The ARC is used for planning and design only and does not limit the aircraft that may be able to operate safely on the airport. The ARC and RDC are used during the airport planning process to design and determine the dimensions of most airfield pavements. As both the runways have the same RDC, the ARC at Bear Lake County Airport is currently B-I Small. This designation is a reflection of the types of aircraft that predominately use the airport.

While the RDC relates to the design standards the runway is planning to meet, the Runway Reference Code (RRC) identifies the current standards met by the runway. In this case, RDC and RRC are the same.

2.5.1 RUNWAY PROTECTION STANDARDS

FAA design standards help promote an acceptable level of safety at the airport. 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 is a defined 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.

The design standard for B-I Small-VIS is 120 feet wide and 240 feet beyond each runway end. The RSA of Runway 16/34 at Bear Lake County Airport meets design standards. The RSA of

Runway 10/28 at Bear Lake County Airport does not meet design standards beyond Runway 28 end and it needs to be widened to meet design standards.

Runway Object Free Area (ROFA)

The ROFA is a defined 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 OFA for air navigation or aircraft ground maneuvering purposes including taxiing or holding aircraft. Parked aircraft are not allowed in the OFA.

The design standards for a B-I Small-VIS ROFA is 250 feet wide and 240 feet beyond each runway end. The ROFA for Runway 10/28 and Runway 16/34 at Bear Lake County Airport meets design standards. However, it was noted by the FAA during the compliance inspection that upon completion of harvest this year, some of the hay bales had been harvested in the ROFA, which prevented the airport from meeting ROFA design standards. Further, a Wildlife Hazard Site Visit has been conducted at Bear Lake County Airport and is included in **Appendix B** to this Airport Master Plan.

The Wildlife Hazard Site Visit noted that the hay bales were in the ROFA and pointed that the current FAA guidance (FAA AC 150/5200-33) recommends against agricultural production on airport property but does not prohibit such activity if certain economic and wildlife mitigation conditions are met. However, agricultural activity should be conducted in accordance with both FAA AC 150/5200-33 and AC 150/5300-13A (as amended). The airport must meet design standards, including ROFA design standards, and it is recommended to remove hay bales from the ROFA, RSA, RPZ and Primary Surface.

Runway Obstacle Free Zone (OFZ)

The Runway Obstacle Free Zone (OFZ) is a three-dimensional volume of airspace reserved for the exclusive use of one aircraft landing or taking off from the runway. It is centered on the runway centerline, extends 200 feet beyond each end of the runway and is 250 feet wide for operations by small aircraft for runways with approach visibility minimums not lower than ¾ statute miles or 400 feet wide for use by large airplanes. When an aircraft is taking off or landing nothing can protrude into the OFZ such as signs or other tails or wingtips of aircraft.

The OFZ for Runway 10/28 and Runway 16/34 at Bear Lake County Airport meets design standards.

Runway Protection Zones (RPZ)

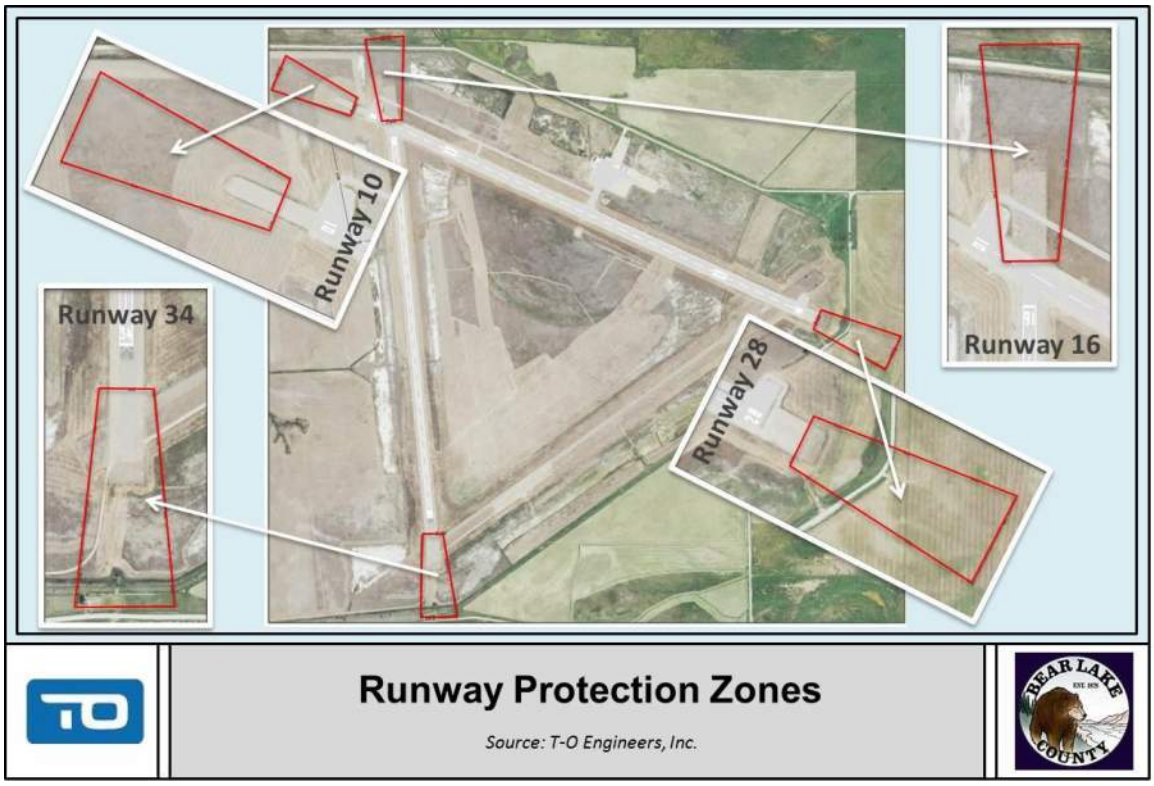
RPZ's are defined areas at ground level beyond the runway end or prior to the threshold that are maintained clear of incompatible objects and activity in order to enhance the safety and protection of people and property on the ground. The FAA recommends airport sponsors control the RPZs, preferably exercised through the acquisition of sufficient property interest in the RPZ and clearing RPZ areas (and maintaining them clear) of incompatible uses or objects.

The RPZ is trapezoidal in shape, centered about the extended runway centerline and it usually begins 200 feet beyond the runway end. The RPZs associated with Runways 10/28 and 16/34 are sized to accommodate FAA design standards for “visual approach only visibility minimums”.

The design standard for B-I Small-VIS is 1,000 feet long, an inner width of 250 feet, an outer width of 450 feet and an area of 8.035 acres. Gravel roads are located east of the airport in Runway 28 RPZ and north of the airport in Runway 16 RPZ.

Figure 2-5 depicts the RPZs at Bear Lake County Airport.

FIGURE 2-5: RPZS



2.5.2 RUNWAY SEPARATION STANDARDS

Runway separation standards ensure operational safety at the airport. They are based on the Aircraft Approach Category (AAC), the Airplane Design Group (ADG) and Visibility minimum. The runway separation standards include the runway centerline to parallel taxiway centerline separation, the runway centerline to holdline separation and the runway centerline to the edge of parking distance.

Runway/Taxiway Separation
The required separation distance between a runway centerline and a parallel taxiway centerline is 150 feet for ARC B-I Small airports, with visual runways.

The partial parallel taxiway is located 240 feet from the runway centerline, which meets design standards B-II (and therefore B-I Small).

Runway/Holding Position Separation
The required separation distance between a runway centerline and a holding point position is 125 feet for B-I Small airports, with visual runways.

The current runway/holding position separations at Bear Lake County Airport are 125 feet, which meet design standards for a B-I Small airport.

Runway/Aircraft Parking Area Separation
The required separation distance between a runway centerline and an aircraft parking area is 125 feet for ARC B-I Small airports, with visual runways.

The existing runway/aircraft parking area separation at Bear Lake County Airport is 440 feet and meets design standards.

2.5.3 TAXIWAY DESIGN STANDARDS

The required distance between a taxiway/taxilane centerline and other objects is based on the required wingtip clearance, which is a function of the wingspan, and thus determined by the Airplane Design Group (ADG) the second component of the Airport Reference Code (ARC). The design of pavement fillets must consider aircraft undercarriage dimensions and is based on the Taxiway Design Group (TDG), a coding system according to the Main Gear Width (MGW) and the Cockpit to Main Gear Distance (CMG). The existing taxiway fillets at the airport are designed based on TDG-I, however, design criteria changed after the project was constructed. The existing pavement fillets do not meet the current design criteria however they meet the design criteria at the time of design.

Taxiway Safety Area (TSA)
The Taxiway Safety Area (TSA) is a defined surface centered on a taxiway centerline. This surface should be cleared and graded, free of objects, 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.

The design standard for Airplane Design Group (ADG) I is 49 feet wide. The TSA at Bear Lake County Airport meets design standards.

Taxiway Object Free Area (TOFA)

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

The design standard for ADG I is 89 feet wide. The TOFA at Bear Lake County Airport meets design standards.

2.5.4 DESIGN STANDARD SUMMARY

Table 2-8 summarizes the different FAA design standards (runway protection standards and runway separation standards) as well as the existing conditions at Bear Lake County Airport.

TABLE 2-8: AIRPORT DIMENSIONAL CRITERIA (FEET)

FAA DESIGN STANDARD	FAA STANDARD (B-I Small)	EXISTING (RWY 10/28)	EXISTING (RWY 16/34)
Runway Design Code (RDC)	-	B-I Small-VIS	
Approach and Departure Reference Codes	-	Approach: B-I Small-VIS Departure: B-I Small	
Runway Width	60	75	60
Runway Protection Standards			
Runway Safety Area Length beyond each runway end (RSA)	240	240*	240
Runway Safety Area Width (RSA)	120	120*	120
Runway Object Free Area (ROFA) Length beyond each runway end	240	240	240
Runway Object Free Area (ROFA) Width	250	250	250
Runway Protection Zone (RPZ) Length	1000	1000	1000
Runway Protection Zone (RPZ) Inner and Outer Width	250 / 450	250 / 450	250 / 450
Runway Obstacle Free Zone (OFZ)	250 (Small aircraft) 400 (Large aircraft)	250	250
Runway Separation Standards			
Runway Centerline to Partial Parallel Taxiway Centerline	150	240	
Runway Centerline to Holding position	125	125	
Runway Centerline to Edge of Aircraft Parking	125	440	
Taxiway Design Standards			
Taxiway Width	25	25	
Taxiway Safety Area (TSA)	49	49	
Taxiway Object Free Area (TOFA)	89	89	

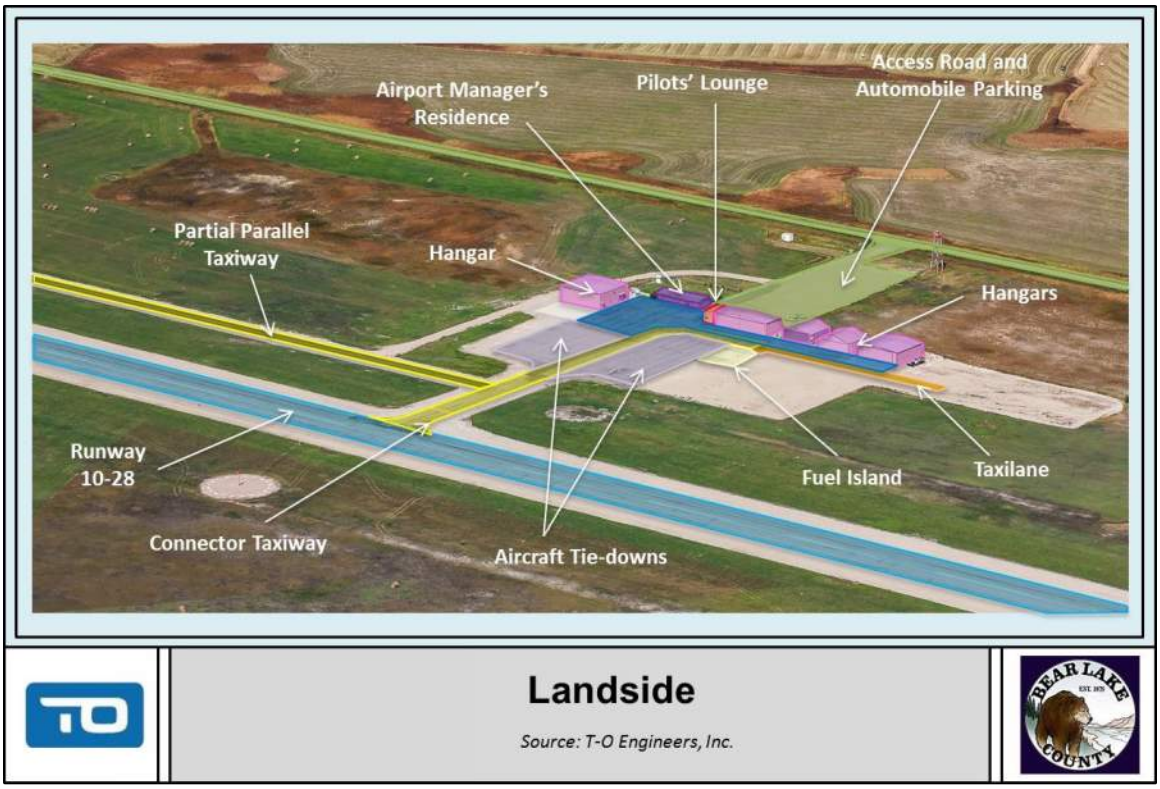
* The RSA does not meet design standards beyond Runway 28 end and needs to be widened to meet design standards.

Source: 1998 ALP and Narrative, T-O Engineers

2.6 EXISTING LANDSIDE FACILITIES

Figure 2-6 hereafter provides an aerial view of existing airport landside facilities.

FIGURE 2-6 – AIRPORT LANDSIDE FACILITIES



2.6.1 GENERAL AVIATION TERMINAL

The public terminal facility is a small pilot/passenger lounge adjoining one of the hangars. It includes restroom facilities, a lounge area, telephone and Internet (wifi), a computer and printer for the pilots as well as a microwave and fridge. A soft-drink machine is also available at the airport.

2.6.2 AIRCRAFT APRON AND TIE-DOWNS

The aircraft parking apron is located on the northeast side of the airport, approximately halfway between the two thresholds of Runway 10/28. The parking apron consists of 14 tie downs available for based or itinerant users. These tie-downs are organized in two distinct areas of 7 tie-downs, on each side of the access taxiway. They are designed for Airplane Design Group I aircraft. Airport management advises that additional aircraft parking can be accommodated in

the grass west of the current apron with space to accommodate approximately four additional aircraft.

2.6.3 HANGARS

There are 6 hangars located on the airport property, all box hangar styles; one 3,900 square feet hangar, one 3,600 square feet hangar and four 2,000 square-feet hangars. Currently, there is a 100% utilization rate for hangar capacity.

2.6.4 AIRPORT ROADSIDE ACCESS

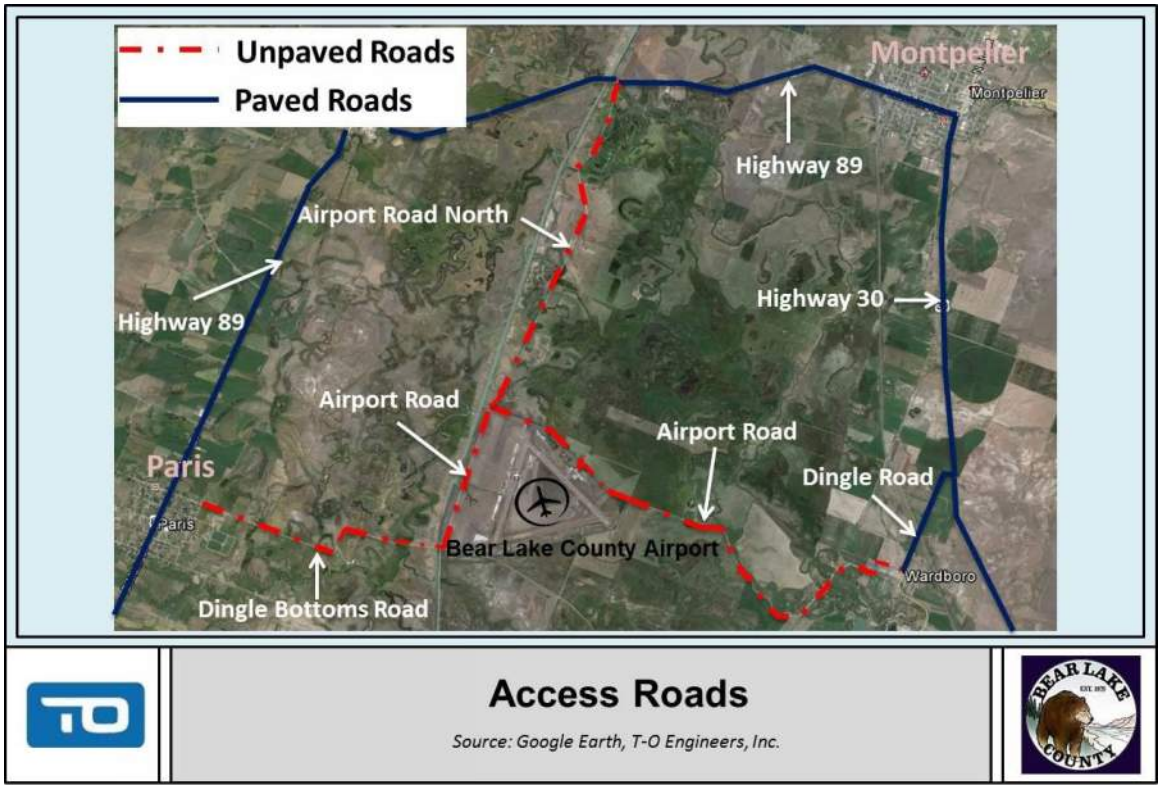
The primary mode of transportation in Bear Lake County is by private automobile. The county does not offer public transportation, such as bus or train. There is no paved access to Bear Lake County airport. The nearest paved road is Highway 89, located approximately 4.5 miles from the terminal area. Access to Bear Lake County Airport is possible via three single lane gravel roadways, Airport Road East, Airport Road North and Dingle Road. As only gravel roads serve Bear Lake County Airport, accessing the airport can be time-consuming, especially during the winter months or after a rain when the roads are muddy and slippery.

It is possible to access Paris to the west using Airport Road and the Dingle Bottoms Road, which covers approximately 6 miles. Dingle Bottoms Road is a dirt road located near wetland areas and can be very muddy in the spring or after rain.

Further, it is possible to join Highway 30 to the east, using Airport Road and Dingle Road, for approximately 5 miles. Airport Road is an unpaved road, while Dingle Road is paved between Wardboro and the Highway 30.

Lastly, it is possible to reach Montpelier using Airport Road North and then Highway 89. **Figure 2-7** depicts the existing access roads.

FIGURE 2-7 – ACCESS ROADS



2.6.5 PERIMETER FENCING

Bear Lake County Airport has a barbed-wire cattle fence surrounding the airport property. However, no full perimeter wildlife fence is installed at the airport.

2.6.6 AUTOMOBILE PARKING AND GROUND TRANSPORTATION

No dedicated paved parking spaces are available at the airport, but a gravel surface near the airport office and hangars can accommodate automobile parking. This area is approximately 25,000 square feet. Two courtesy vehicles are stored at the airport and are available for public use with a nominal use fee.

2.7 WEATHER AND CLIMATE

2.7.1 LOCAL WEATHER AND CLIMATE

According to the National Weather Service (NWS), the climate in southeast Idaho is characterized by a variety of weather. Although there is a NWS site located on the airport, this particular station does not have a formal climate narrative on the NWS website. As climate information for Paris or Montpelier was not available, Pocatello climate information was used. Pocatello is located approximately 70 miles northwest of Bear Lake County Airport and the elevation difference between the airport and Pocatello is approximately 1,500 feet. However, this was deemed to be the best climate information available.

According to the National Weather Service (NWS), Pocatello's climate is semi-arid. Summers are warm and dry, with showers and thunderstorms common from late spring through summer. Autumn are cool with generally dry conditions. The first cold wave with highs below 20° F and low around 0° F may arrive anytime between late November and Christmas. There are usually a number of days each winter when temperature remains below freezing. Cloudy and unsettled weather is common during winters with measurable precipitation occurring on about one-third of the days. Snowfall may accumulate to a depth of a foot of more. Spring months are normally wet and windy. High elevation snow pack can persist into late June.

According to the Bear Lake Comprehensive Plan, the climate of Bear Lake County is very comfortable in the summer with high temperatures averaging in the 80's and low temperatures near 50. Extreme highs can reach into the 90's and lows into the 30's. Winters are cold with low temperatures in the 30's or lower most of the time. The average annual precipitation ranges from 9.5 inches at Bear Lake to 13.5 inches near Montpelier in the center of the county.

2.7.2 TEMPERATURE AND PRECIPITATION

On the National Climatic Data Center, from the National Oceanographic and Atmospheric Administration (NOAA), data was available from a weather station in Lifton Pumping Station, ID, located approximately 8 miles south of the airport, near the Bear Lake National Wildlife Refuge and another station located in Bern, ID, approximately 6 miles north of the airport.

Although there is a NWS site located at the airport, no formal report summarizing parameters of interest, such as temperature and precipitation, over the last 30 years was available. Therefore, data for the stations located in Lifton and Bern were obtained and analyzed.

In Lifton, between 1981 and 2010, the average annual temperature was 41.7° F while the average annual maximum temperature was 54.9° F. The highest average of monthly maximum temperature was 82.5° F and occurred in July. The lowest average of monthly average

temperature was 18.2° F and occurred in January. In Bern, between 1981 and 2010, the average annual temperature was 41.4° F while the average annual maximum temperature was 56.1° F. The highest average of monthly maximum temperature was 85.5° F and also occurred in July. The lowest average of monthly average temperature was 17.8° F and occurred in January.

The area around Bear Lake County Airport typically receives the majority of the yearly precipitation during the winter and spring months (specifically November to May), but still receives moderate precipitation throughout the year. The average annual precipitation for Lifton Pumping Station is 11.26 inches and the average annual snowfall is 3.81 inches. The month of May typically accumulates the most precipitation (1.59 inches) and the month of July typically accumulates the least (0.73 inches). Snowfall is most likely to occur between November and April, with the heaviest snowfall usually recorded in January (0.97 inches). The average annual precipitation for Bern is 17.18 inches and the average annual snowfall is 9.45 inches. The month of May typically accumulates the most precipitation (2.07 inches) and the month of July typically accumulates the least (0.72 inches). Snowfall is most likely to occur between November and April, with the heaviest snowfall usually recorded in January (2.45 inches).

The difference in the level of precipitations recorded, and especially in snowfall, can be explained by the location of Lifton Pumping Station, at the north tip of Bear Lake. It is likely that the lake moderates the weather. As Bear Lake County Airport is located between these two stations, the influence of Bear Lake is probably less present.

2.7.3 AUTOMATED WEATHER AND ALTIMETER

Bear Lake County Airport is currently not equipped with a FAA certified automated weather reporting system. However, the airport is equipped with a National Weather Service (NWS) automated weather system reporting the wind, precipitation, temperature and dew point. Data from this automated system is made available on the MesoWest website. Additional information on this station and on MesoWest is provided in Section 2.7.4, Wind Data and Wind Rose.

The airport is equipped with a certified altimeter. This altimeter was installed by the County in anticipation of future instrument approach procedures at the airport. It is located in the on-site airport manager's house and is certified by the FAA. Currently, the altimeter setting is provided by the airport manager via pilot request.

Certified weather data in the general vicinity is available 24 hours a day from an automated system at Afton Municipal, WY located 33 nautical miles (NM) northeast of Bear Lake County Airport, or at Logan-Cache Airport, UT located 36 nautical miles (NM) southwest of the airport.

Other automatic stations in the vicinity include Kemmerer Municipal Airport, in Wyoming (43 NM to the southeast of the airport), Miley Memorial Field Airport, WY (58 NM to the northeast of the airport) and Pocatello Regional Airport (68 NM to the northwest of the airport).

2.7.4 WIND DATA AND WIND ROSE

Bear Lake County Airport does not have an on-site certified weather station. Available data from the National Climatic Data Center (NCDC) was reviewed; however, no NCDC site was in reasonable proximity to the airport. The MesoWest weather station summary website, made available from the University of Utah, was reviewed to determine if any other weather stations were located in a reasonable proximity to the airport. MesoWest is an ongoing cooperative project between the University of Utah and different educational institutions, public agencies and commercial firms. The project started in 1996 and its goal is to provide access to current and archived weather observations across the United States.

The MesoWest website showed that one station was located on the airport, and several other weather stations were located within 25 miles of the airport. Data available from these stations was reviewed for use in evaluating weather conditions at the airport.

Station K1U7 is located on the airport. It is a station from the NWS and has only five full years of data available. In addition, the wind sensor is located in the immediate vicinity of hangars, which could potentially lead to slightly flawed information. Station E3600 is the closest weather station after K1U7 and it is located approximately 5 miles north of the airport. It has less than one year of data available. Station ITD35 is located approximately 12 miles east of the airport and has nine full years of data available.

Wind data from weather station K1U7 was obtained from December 2008 to July 2014. Wind data from weather station ITD35 was obtained from October 2004 to July 2014 and wind data from weather station E3600 was obtained from October 2013 to July 2014.

Weather station ITD35 and E3600 are located near terrain and relief slightly different than the one near the airport. Bear Lake County airport is located in a valley floor, while the two other stations are located near relief and higher elevations. Despite some differences, due to the specificities of each location, the prevailing winds are comparative and the directions and speeds are consistent between the three stations.

Wind direction and speed observations were obtained from the K1U7 station from the MesoWest website with weather observations recorded every hour. 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 5-year period were then entered into the FAA's Wind Analysis design tool on the FAA Airport GIS Program website to produce the wind rose. The wind rose utilizing data from K1U7 station indicates 94.13 percent wind coverage for

Runway 16/34, 93.99 percent wind coverage for Runway 10/28 and 98.97 percent wind coverage for both runways, with a crosswind component of 10.5 kts.

Windroses for Runway 10/28, Runway 16/34 and both runways are depicted in **Figures 2-8**, **2-9** and **2-10**.

FIGURE 2-8 – RUNWAY 10/28 WINDROSE

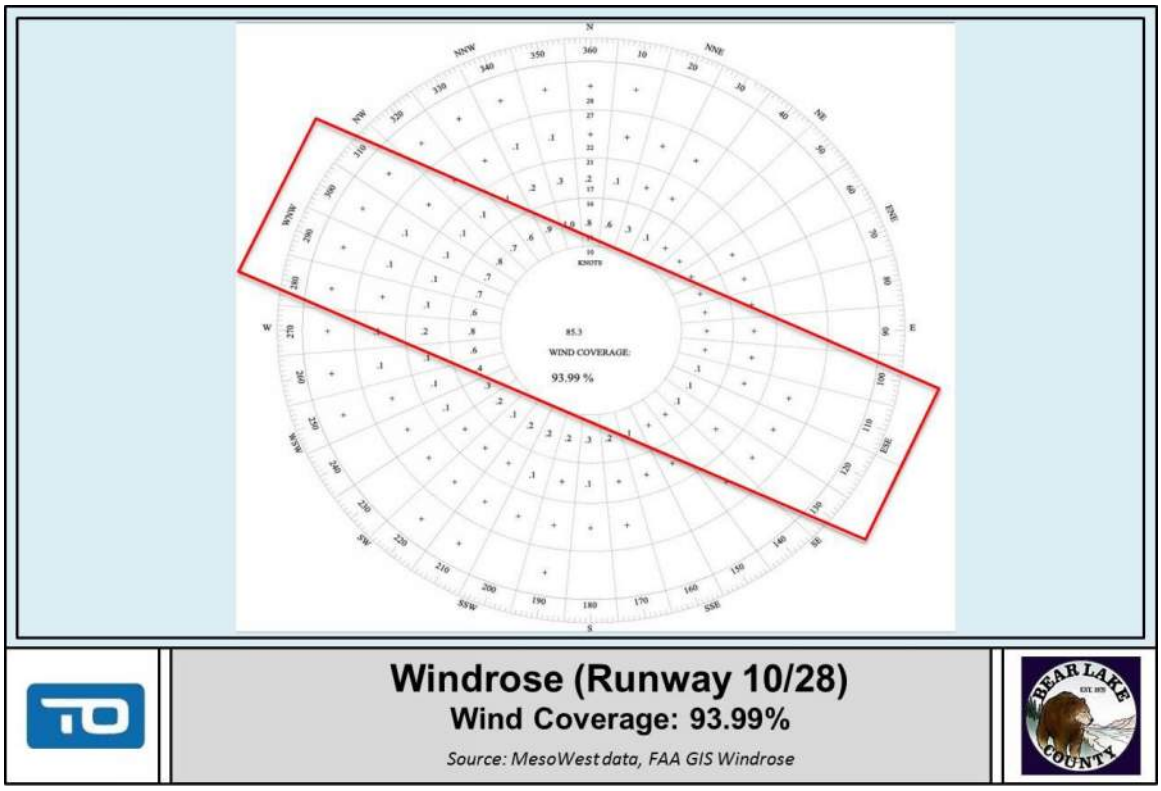


FIGURE 2-9 – RUNWAY 16/34 WINDROSE

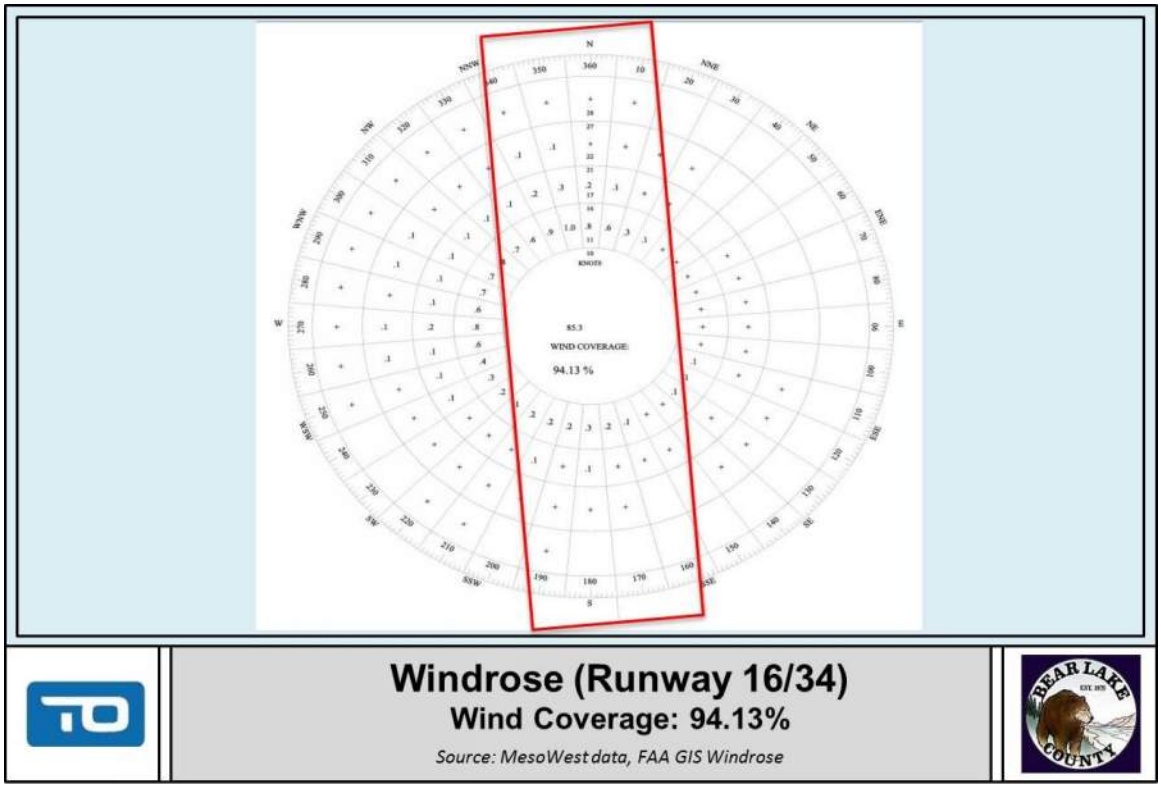
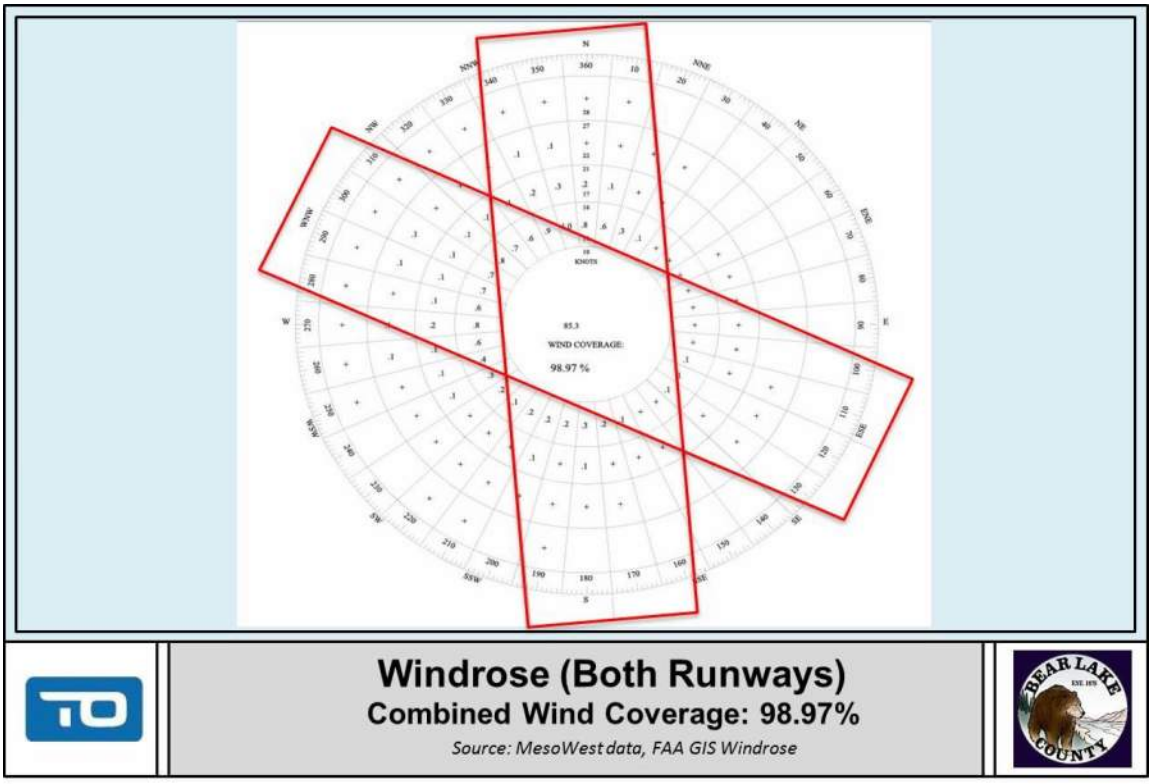


FIGURE 2-10 – BOTH RUNWAY WINDROSE



2.8 SUPPORT FACILITIES

The airport sponsor, Bear Lake County, and the airport manager fulfill most maintenance activities and support functions for the airport including snow removal, weed abatement, landscape maintenance and emergency response. All pavement maintenance is completed on a contract basis. Additional details about maintenance and support activities are provided in subsequent sections.

2.8.1 FUEL FACILITIES

The airport currently provides Avgas (100LL) only. Avgas fuel is stored in a 4,000-gallon underground tank and self-service fuel is available 24 hours a day. At the moment, no Jet A fuel is available at the airport. Some users of Bear Lake County airport, such as agricultural sprayers, truck in their own Jet A for their personal use.

2.8.2 AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF)

Currently, emergency response and security efforts are conducted by Bear Lake County Sheriff's Office in Bear Lake as well as volunteers. Emergency Medical Service and Search and Rescue is provided by approximately 40 volunteers, serving at least 24 hours per month in 4-hour shifts. Fire Protection in the Bear Lake County Fire District is provided by 100 volunteers. Ten stations, including one in Paris, are operated by the district. Each station has a pumper truck. Dispatch is provided through the Bear Lake County Dispatch center in Montpelier and the estimated response time is 15 minutes. Bear Lake County airport does not have any dedicated ARFF equipment at the airport as general aviation airports are not required to provide this service onsite.

2.8.3 SNOW REMOVAL

Bear Lake County Airport Manager provides primary snow removal at the airport on an as-needed basis, using snow removal equipment based on the airport. Bear Lake County road and bridge crew provides backup as needed. The snow removal is only provided for Runway 10/28 and there is no snow removal on Runway 16/34.

The airport is equipped with two trucks: a 1991 Ford L8000 Snow Plow and a 1998 Chevrolet ¾ ton pick-up. The 1991 Ford is dedicated to snow removal operations. The 1998 Chevy pickup is equipped with a plow attachment and is used for both snow removal operations and general airport maintenance purposes. Both vehicles are considered to be in fair condition though nearing the end of their useful life.

2.8.4 AIRPORT MAINTENANCE

The airport sponsor, Bear Lake County, and the Bear Lake County Airport Manager provide most maintenance activities for the airport, such as limited mowing and weed spraying, on an as-needed basis. As previously mentioned, the airport is equipped with two trucks in fair condition used for general airport maintenance and business. All pavement maintenance, including pavement crack sealing and seal coats, is completed on a contract basis.

2.8.5 UTILITIES

The airport is not served by a water distribution system. The existing water service is provided by an untreated well, suitable for drinking. Sewer service is provided through the use of septic tanks. Electricity is available at the airport and provided by Pacificorp (Utah Power & Light). The solid waste pick up service is owned and operated by the county. Lastly, phone and Internet service are available at the airport.
Table 2-9 depicts the current utilities and service providers at Bear Lake County Airport.

TABLE 2-9: AIRPORT UTILITIES AND SERVICE PROVIDERS

Utility	Source and Provider
Water	Well
Sewer	Septic System
Electricity	Yes (Pacificorp - Utah Power & Light)
Phone	Yes
Internet	Digis
Natural Gas	Not Available
Refuse	Offsite dumpster Available (Bear Lake County)
Emergency Response	Bear Lake County Sheriff Department and Fire Department Volunteer

Source: T-O Engineers

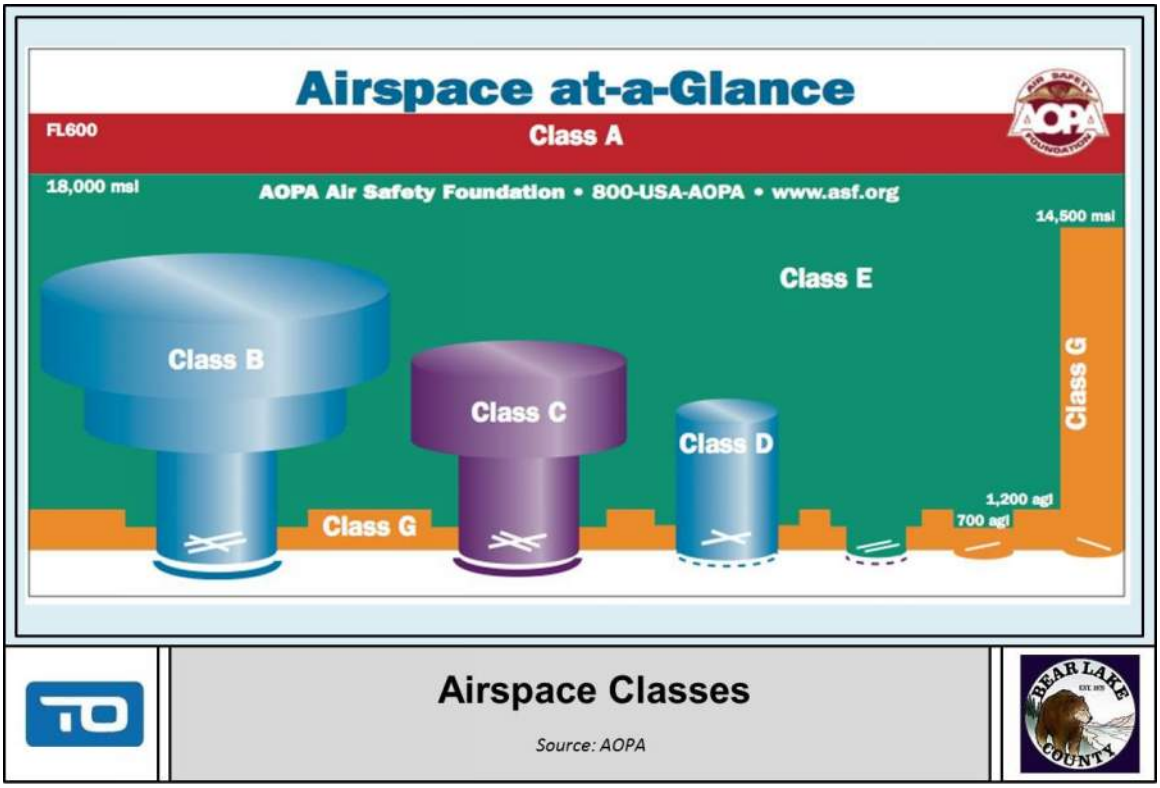
2.9 AIRSPACE

2.9.1 SURROUNDING AIRSPACE

The National Airspace System (NAS) is configured based on areas of controlled and uncontrolled airspace. There are established operating procedures and requirements in both controlled and uncontrolled airspace. Controlled airspace includes more stringent requirements in terms of Air Traffic Control (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. **Figure 2-11** below depicts the current U.S. airspace classifications.

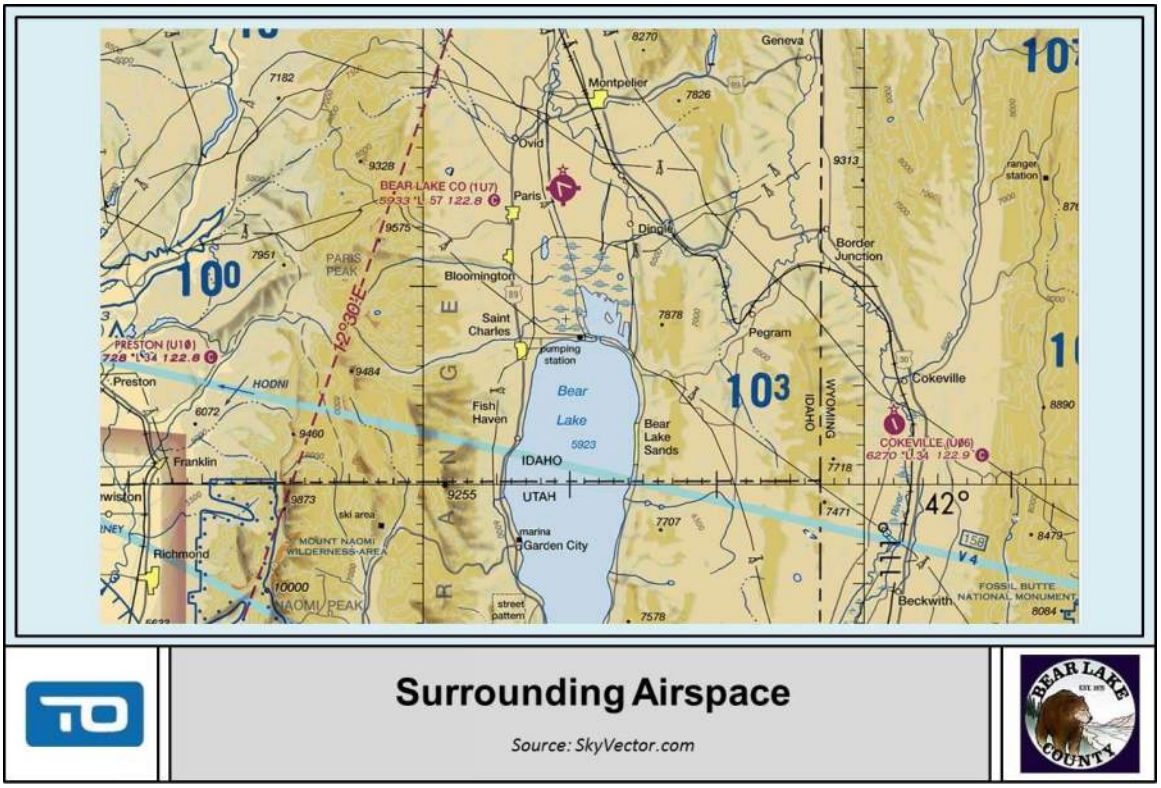
FIGURE 2-11: AIRSPACE CLASSES



Bear Lake County Airport is currently in Class G uncontrolled airspace. VFR minimums for Class G airspace are 1-mile flight visibility and clear of clouds. Pilots using Bear Lake County Airport 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 2-12 depicts the airspace sectional in the immediate vicinity of the airport.

FIGURE 2-12: BEAR LAKE COUNTY AIRPORT SURROUNDING AIRSPACE



2.9.2 CODE OF FEDERAL REGULATIONS PART 77 IMAGINARY SURFACES

Code of Federal Regulations 14 CFR Part 77 (Part 77), Safe, Efficient Use, and Preservation of the Navigable Airspace, provides airspace protection requirements at public-use airports. Airspace requirements 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 this airport.

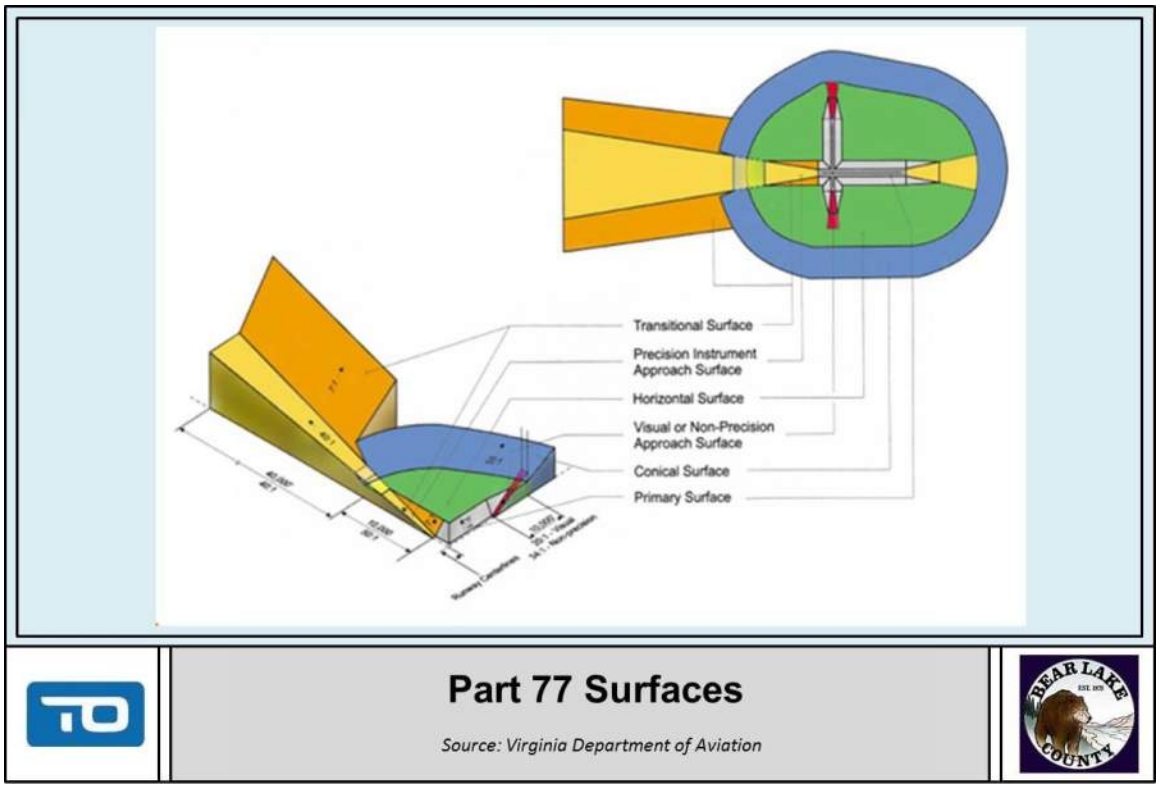
Airport runways which predominantly accommodate aircraft of less than or equal to 12,500 pounds maximum gross takeoff weight (MGTOW) are known as “Utility” runways. Runways accommodating aircraft weighing more than 12,500 pounds MGTOW are known as “Other Than Utility Runways”. Either “Utility” or “Other Than Utility” Part 77 runway designations can include visual only runways, runways with a precision instrument approach or runways with a non-precision instrument approach. Once a runway has been designated as either ‘Utility or “Other Than Utility” and the type of approach identified, specific airspace dimensions can be determined.

For public-use civilian airports, Part 77 identifies the following "imaginary" airport airspace surfaces:

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

For purposes of Part 77, Runways 10/28 and 16/34 at Bear Lake County Airport are considered Utility runways. Both runways have only visual approaches. A description of each Part 77 airspace surface and specific dimensions for Bear Lake County Airport are included below. **Figure 2-13** generally depicts the airspace surfaces as defined in Part 77.

FIGURE 2-13: CFR PART 77 IMAGINARY SURFACES



Primary Surface

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 runway at any given point perpendicular to the runway at that point. The width of the Primary Surface is set by the most demanding type of approach, existing or planned, at either end of the runway. Widths can be 250 feet, 500 feet or 1,000 feet if the existing or planned approach has approach visibility minimums as low as ¾ statute mile or a precision instrument approach.

The width of the Primary Surface for Utility runways with visual approaches is 250 feet, or 125 feet either side of the centerline and extending 200 feet beyond each runway end.

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 on the type of approach planned for that runway end. For utility and visual “Other Than Utility” runways, the Approach Surface slope extends for a distance of 5,000 feet at a slope of 20:1. For all non-precision instrument runways “Other Than Utility” the distance is 10,000 feet at a slope of 34:1. For all precision instrument runways, the slope is 50:1 for 10,000 feet then 40:1 for additional 40,000 feet. The ultimate width of the Approach Surface is dependent upon the specific approach minimum to that runway end.

As ”Utility” visual runways, the current Approach Surfaces for Runways 10, 28, 16 and 34 are 5,000 feet in length with a slope of 20:1. The ultimate width of the Approach Slope is 1,250 feet.

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.

Horizontal Surface
The Horizontal Surface is an oval-shaped, level area 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 will have the same value. The radius of each arc is:

- 5,000 feet for all runways designated as “Utility” or ”Visual”
- 10,000 feet for all other runways.

The elevation of the Horizontal Surface at Bear Lake County Airport is 6,082.6 feet MSL and the radius of the arcs of the Horizontal Surface are 5,000 feet.

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 Bear Lake County Airport is 6,282.6 ft. MSL.

2.10 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, which include such things as aircraft noise, dust, and fumes. Effective land use planning via mechanisms such as zoning protects airspace, defines the use of land and considers aircraft noise impacts. Currently, the FAA and the State of Idaho consider 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.

Following is a summary of the land use planning related to the airport per Bear Lake County and surrounding jurisdictions in close proximity to the airport.

2.10.1 BEAR LAKE COUNTY COMPREHENSIVE PLAN AND ZONING ORDINANCE

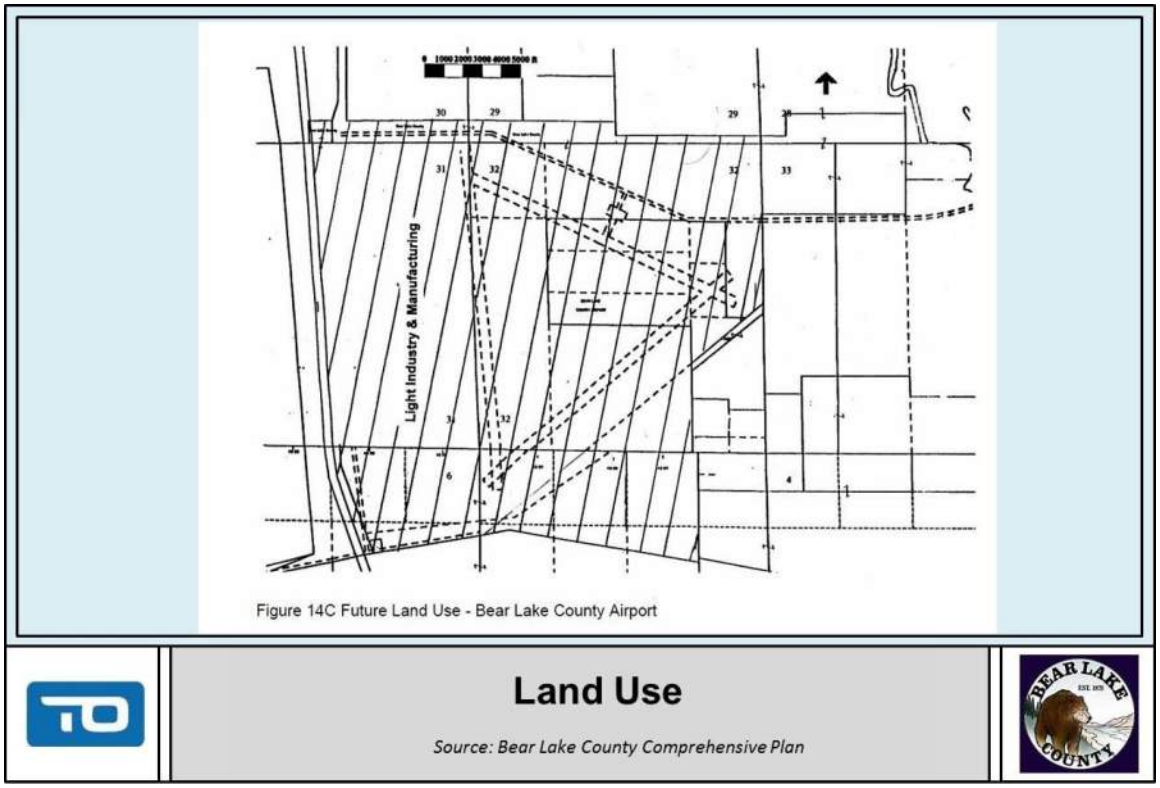
Bear Lake County Airport is located within the jurisdiction of Bear Lake County and is owned and operated by the County. The County's current Comprehensive Plan was adopted in March 2002. Air Transportation (page 23), briefly discusses and describes Bear Lake County Airport. Under the County's transportation goals and objectives of the plan (page 72), it is stated that the County will "protect the public investment in the county airport and the safety of air travelers by enforcing the Bear Lake County Airport Hazards Ordinance."

The predominant activity around the airport consists of agricultural and grazing lands; there are a few scattered ranches in the airport vicinity. Bear Lake County Airport is bordered on all sides by gravel roads as well as by the Bear Lake National Wildlife Refuge on the south side.

In the Bear Lake County Comprehensive Plan, the airport and surrounding areas were outlined as Light Industry & Manufacturing land use, which are lands providing a location for light manufacturing that is clean, quiet and free of an objectionable level of noise, odors or smoke. These lands were further described as providing for wholesale business and warehouse to supply the business sector. Access to transportation routes and airports is important. This category is not a specific land use zone for the county zoning ordinance but serve as guidance for zones and their included uses.

Figure 2-14 generally depicts the land use as outlined in the Bear Lake County Comprehensive Plan.

FIGURE 2-14: LAND USE – BEAR LAKE COUNTY AIRPORT



Zoning Ordinances

The zoning districts established by Bear Lake County are Agricultural, Rural Community, Community Expansion, Multiple Use (Public Lands), Recreation, Rural Conservation, Lakeshore (Beach Development), Commercial and Industrial.

The zoning ordinance does not include zoning restrictions or land use restrictions related to the airport.

2.10.2 SURROUNDING JURISDICTIONS

Communities in close proximity to the airport include Paris, Montpelier, St Charles and Bloomington. A review of the comprehensive plans from Montpelier, St Charles, and Bloomington was conducted. Of the three comprehensive plans reviewed, only Montpelier and St Charles' plans mention the airport.

The current comprehensive plan for the City of Montpelier was developed in 2002. The airport is described in general terms in the Transportation section on page 34. The current comprehensive plan for the City of St. Charles was developed in 2010. Bear Lake County

Airport is briefly mentioned in the Transportation section on page 20. Further, mention of the closest airports for passenger service (Logan, UT and Pocatello, ID) is also made page 20.

Zoning Ordinance
Zoning ordinances for Montpelier, St Charles and Bloomington do not include zoning restrictions related to the airport.

2.10.3 FUTURE LAND USE PLANNING

Per Idaho Statewide Land Use Legislation, effective July 1, 2014, all local jurisdictions with a public-use airport in or near their jurisdiction are required to include a separate Airport section in their Comprehensive Plans. This section must consider current and future needs of the airport, as well as impacts on the communities in the vicinity of the airport. In addition, the local planning and zoning commissions must adopt standards and zoning mechanisms to protect lands around airports from incompatible land use or incompatible development.

Additional information and recommendations regarding land use and airport zoning around the airport can be found in **Chapter 7.**

2.10.4 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. Currently, no TTF activities exist at the airport.

2.11 FLOODWAY/FLOODPLAIN IMPACTS ON THE AIRPORT

An examination of the Flood Insurance Rate Maps (FIRM) shows that Bear Lake County Airport is in an unmapped area and that there is no FEMA Floods Maps for this area. The only flowing water in close proximity to the airport is the Bear Lake Outlet Canal, which is a controlled channel. The closest mapped area is the city of Paris, Idaho, located approximately three miles east of the airport.

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3.0 AVIATION ACTIVITY FORECAST

This chapter discusses the findings and methodologies used to project aviation demand at Bear Lake County Airport. The forecasts developed in the airport master plan provide a framework to guide the analysis for future development needs and alternatives. It should be recognized that there are always short and long-term fluctuations, which cannot be anticipated, in an airport's activity due to a variety of factors.

Projections of aviation activity for the airport were prepared for the 20-year planning horizon, including near-term (2014-2019), mid-term (2020-2024), and long-term (2025-2034) timeframes. These projections are generally unconstrained and assume 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 Bear Lake County Airport are documented in the following sections:

- Historic Aviation Activity
- Trends/Issues Influencing Future Growth
- Projections of Aviation Demand
  - Forecasting Methodologies
  - Based Aircraft Projections
  - Aircraft Local Operations Projections
  - Aircraft Itinerant Operations Projections
  - Aircraft Total Operations Projections
- Peaking Characteristics
- Critical Aircraft
- Summary

3.1 HISTORIC AVIATION ACTIVITY

Historic activity data for the airport provides the baseline from which future activity can be projected. Historic aviation activity and aviation activity projections at the airport are based on FAA 5010 Master Records and available FAA Terminal Area Forecasts (FAA TAF) data.

While historic trends are not always reflective of future periods, historic data does 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. Historic aircraft operations data for Bear Lake County Airport are summarized in **Table 3-1**.

TABLE 3-1 – HISTORIC AIRCRAFT OPERATIONS AND BASED AIRCRAFT

Year	Itinerant Operations				Local Operations			TOTAL ALL OPS	Based Aircraft
	Air Taxi	General Aviation	Military	Total	General Aviation	Military	Total		
2004	0	7,678	0	**7,678**	1,049	0	**1,049**	**8,727**	**5**
2005	0	8,159	0	**8,159**	1,133	0	**1,133**	**9,292**	**5**
2006	0	8,502	0	**8,502**	1,189	0	**1,189**	**9,691**	**5**
2007	0	8,859	0	**8,859**	1,248	0	**1,248**	**10,107**	**9**
2008	0	2,000	0	**2,000**	400	0	**400**	**2,400**	**6**
2009	0	2,000	0	**2,000**	400	0	**400**	**2,400**	**5**
2010	0	2,000	0	**2,000**	400	0	**400**	**2,400**	**4**
2011	0	2,000	0	**2,000**	400	0	**400**	**2,400**	**4**
2012	0	2,000	0	**2,000**	400	0	**400**	**2,400**	**5**
2013	0	2,083	0	**2,083**	420	0	**420**	**2,503**	**6**
2014	0	2,170	0	**2,170**	441	0	**441**	**2,611**	**6**

Source: FAA 5010 Master Records, FAA TAF and Airport Records

- Total Operations: As shown, according to the FAA TAF and FAA 5010 records, total annual operations have declined over the last 10 years, down 70% overall or a compound annual growth rate (CAGR) of -11.4% between 2004 and 2014. This decline in general aviation activity at Bear Lake County Airport is consistent with national trends.

- Air Taxi Operations: There were no air taxi operations at Bear Lake County Airport over the last 10 years.

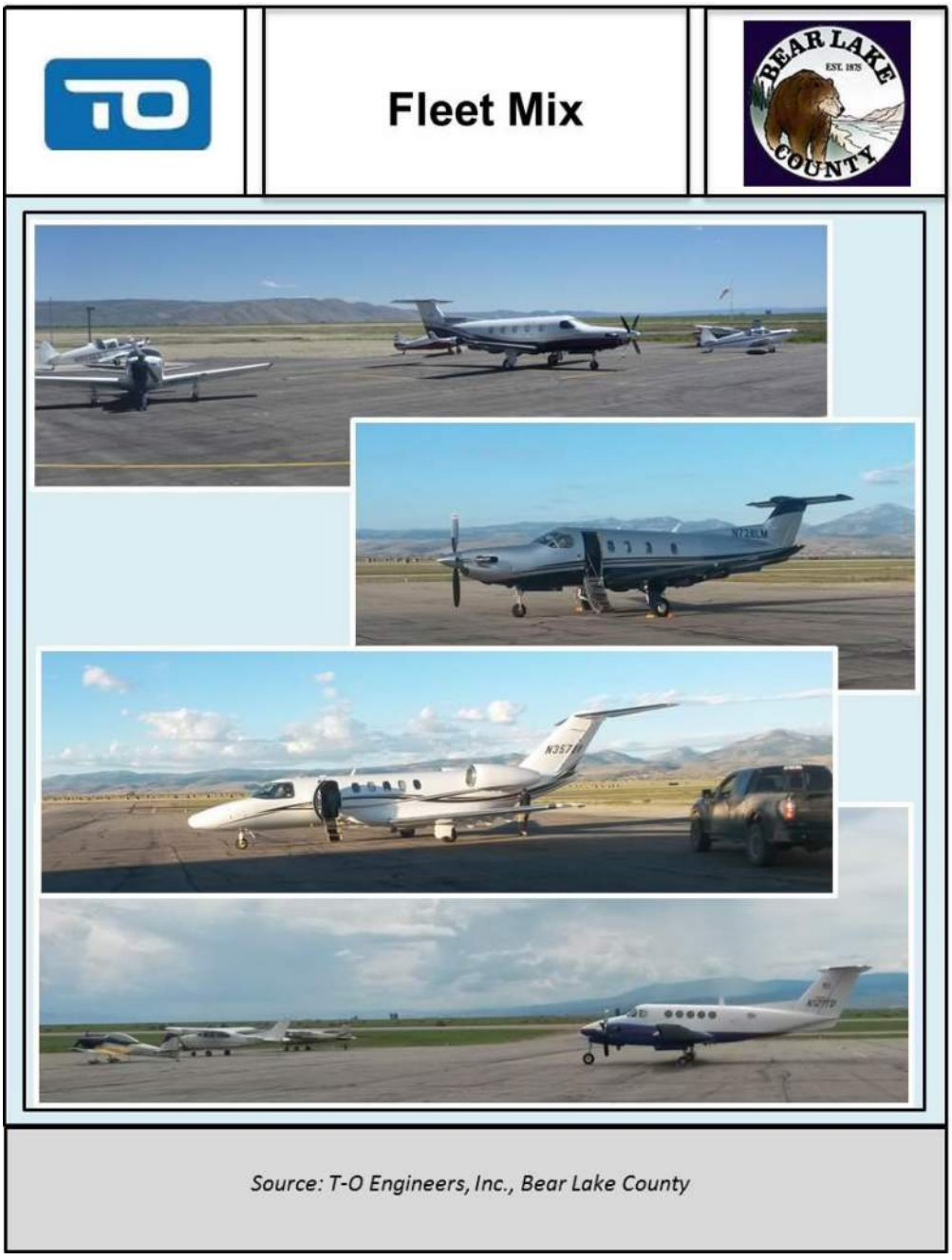
- General Aviation Operations: Total general aviation operations (both local and itinerant) have declined over the last 10 years. Operations peaked in 2007 at 10,107 annual operations. In 2008, general aviation operations dropped to 2,400 per year and have remained of the same order of magnitude since 2008. This decline is not unique to Bear Lake County Airport and is reflective of the decline in general aviation activity across the nation due to economic weakness during the recession coupled with high fuel prices.

- Military Operations: Bear Lake County Airport might have accommodated a minimal amount of military operations; however, the FAA TAF indicates no military operations at the airport since 1993.

- Based Aircraft: Historically, the number of aircraft based at Bear Lake County Airport has greatly fluctuated over the last 20 years. In 1997, only 2 aircraft were based at the airport, while 9 aircraft were based at the airport in 2007. In 2014, 6 aircraft were based at Bear Lake County Airport; all single-engine aircraft.

- Fleet Mix. Airport records maintained by the Airport's Manager and Instrument Flight Rules (IFR) records, provided by GCR Inc., were obtained and reviewed. Both the activity logs kept at the airport and the IFR records were used to identify the type of traffic and type of users at Bear Lake County Airport. Although these records do not include all the operations, they allow a better grasp of the nature of the traffic at the airport. The traffic at Bear Lake County Airport ranges from small single-engine piston aircraft, such as Cessna 172 or 182, which represent the bulk of the traffic, to larger turboprop and jet aircraft, including Citation CJ3 (C525) and Pilatus PC-12, which occasionally use the airport. An airport users' survey developed as part of this Airport Master Plan indicates occasional use by Beech King Air and Super King Air (B-100 and B-200). In addition, airport records indicated that in 2014 Bear Lake County airport was occasionally used by Piper Meridian, TBM as well as Citation CJ4 aircraft. **Figures 3-1** depicts the variety of aircraft using Bear Lake County Airport.

FIGURE 3-1 – FLEET MIX



3.2 TRENDS/ISSUES WITH THE POTENTIAL TO INFLUENCE FUTURE AIRPORT GROWTH

There are several factors, independent of airport activity, 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 REGIONAL DEMOGRAPHICS

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

The airport serves Bear Lake County in southeastern Idaho and Rich County in northeast Utah. Bear Lake County is comprised of several towns including Paris, Montpellier, Bloomington, St. Charles, and Georgetown. The towns in Rich County include Randolph, Garden City, Garden, Laketown, and Woodruff. A summary of historic and projected socioeconomic trends for Bear Lake County and Rich County is presented below.

Bear Lake County's Population

Between 1982 and 1990, the population of Bear Lake County declined 17% from 7,385 to 6,082. In the 1990s, the population increased slightly from 6,082 to 6,424 in 2000, fueled by the development of affordable recreational homes near Bear Lake. However, in the 2000s, the population started decreasing again to a low of 5,907 in 2012. The local communities in the county work to promote tourism, create jobs and retain young people in the area.

Tourism and recreational activities are important sources for economic activity within the county. The last five years have seen an increase in the number of building permits delivered for large high-priced vacation homes in the southeast part of the County, near Bear Lake. (Source: U.S. Census Bureau, Idaho Department of Labor and Bear Lake County Building Official)

Bear Lake County's Employment

According to the Idaho Department of Labor, Bear Lake County's labor market has been tight during the last 10 years, providing jobs for most individuals who wanted to live in the county. The civilian labor force increased 13 percent between 2003 and 2013; from 2,887 in 2003, with an unemployment rate of 5.3 percent to 3,321 in 2013, with an unemployment rate of 4.4 percent.

The unemployment rate peaked in 2010 at 6.2 percent and has been slowly declining over the last three years. In 2012, the unemployment rate in Bear Lake County was 4.7 percent; comparatively, the unemployment rates for Idaho and the U.S. were 7.3 percent and 8.1 percent, respectively. In May 2014, the unemployment rate was 3.1 percent.

Employment in Southeastern Idaho (Bannock, Bear Lake, Bingham, Caribou, Franklin, Oneida and Power counties) is projected to grow at a CAGR of 1.35 percent between 2010 and 2020. The largest growth is anticipated in the healthcare and service industries. (Source: Idaho Regional Economic Analysis Project, U.S. Bureau of Economic Analysis, Idaho Department of Labor)

Bear Lake County's Per Capita Income

In 2012, the per capita personal income (PCPI) of Bear Lake County was $33,161. The PCPI has grown over the last 22 years (1990 - 2012) with a CAGR of 5.07 percent. The PCPI growth for Bear Lake County has outpaced that of Idaho (3.57 percent CAGR) and of the U.S. (3.72 percent CAGR). However, the level of the PCPI in Bear Lake County remains lower than that of Idaho and the United States (respectively $34,481 and $43,735 in 2012). (Source: Idaho Regional Economic Analysis Project, U.S. Bureau of Economic Analysis)

Bear Lake County's Industry Mix

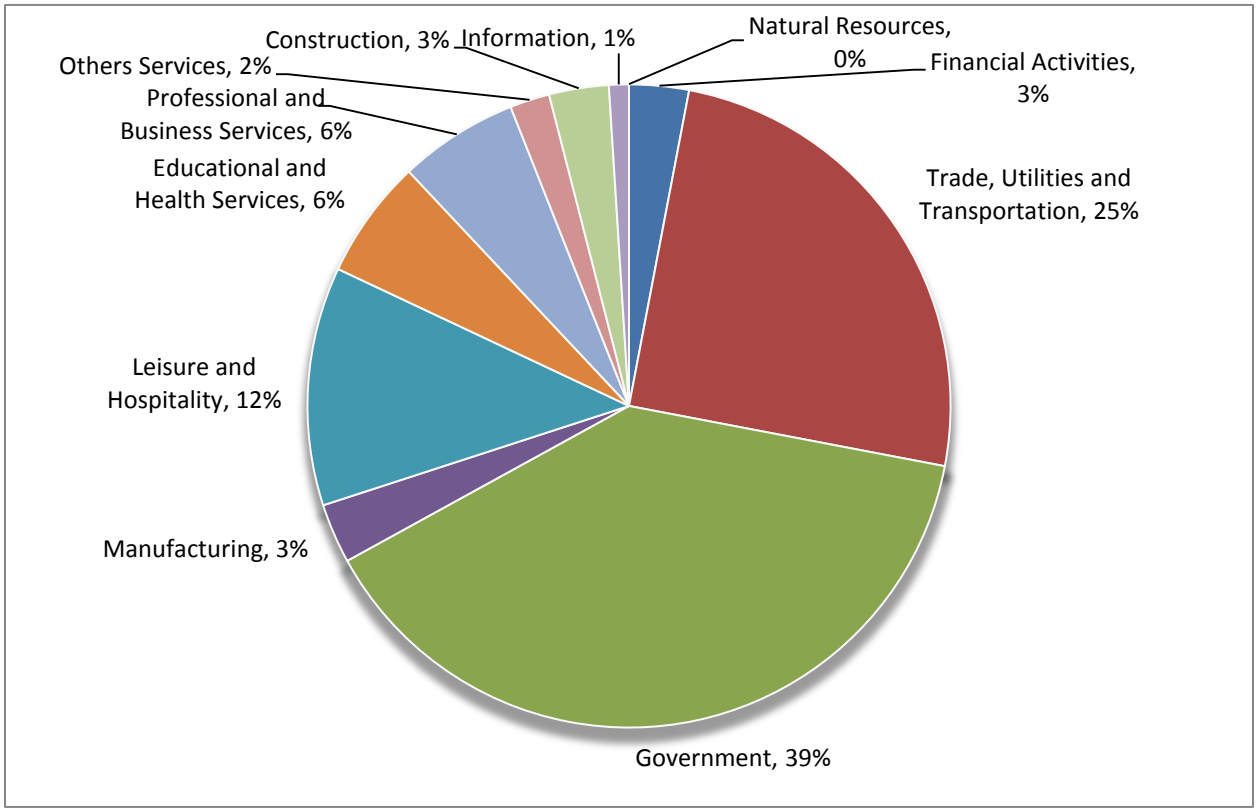
The largest nonfarm industries in Bear Lake County are government, leisure and hospitality, and trade. In 2012, government accounted for 20.9 percent of total employment in Bear Lake County, agriculture accounted for 14.9 percent, retail trade for 12.1 percent and accommodation and food services for 6.7 percent.

The government, agriculture, retail trade and accommodation, as well as food services, provide the foundation for the local economy. Additional economic contributors include real estate, rental and leasing, health care and social assistance, other services, finance and insurance, manufacturing and arts entertainment and recreation.

In 2012, a quarter of the nonfarm jobs in the Bear Lake County were in the trade, utilities, and transportation industries. The government sector accounted for 39 percent of the nonfarm jobs in the county and leisure and hospitality jobs accounted for 12 percent of the county jobs. In addition, Educational and Health Services and Professional and Business Services sectors both accounted for 6 percent of the nonfarm jobs. **Figure 3-2** displays the repartition of the nonfarm payroll jobs in Bear Lake County in 2012

Further, Montpelier is home to the Oregon-California Trail interpretive Center while the Bear Lake National Wildlife Refuge is located near the north end of Bear Lake in the southern portion of the County. Both serve as primary tourists attractants, helping to benefit the local economy. (Source: Idaho Department of Labor)

FIGURE 3-2 – NONFARM PAYROLL JOBS



Source: T-O Engineers, Inc., Idaho Department of Labor

Rich County, UT

As previously mentioned in the Inventory chapter, Rich County, UT, borders Bear Lake County to the south and is in the immediate vicinity of the airport. Bear Lake and the surrounding areas are a popular tourist destination during the summer months. Several marinas, beaches and the tourist towns of Garden City and Laketown are located in Rich County. Therefore, developments in the northern portions of Rich County have potential impacts on demand at the airport. Garden City is located on the shores of Bear Lake, approximately 41 minutes from Bear Lake County Airport. It is a popular summer resort destination. Recreation in the Bear Lake area is an important resource for both Rich County and the Bear Lake Valley.

The population of Rich County sharply declined from 2,350 in 1982 to a low of 1,721 in 1991. In the 1990s, the population started slightly increasing and has been on an upward trend since 2000 reaching a population of 2,255 in 2012. (Source: Utah Department of Workforce)

In Rich County, the overall labor force remained constant between 2003 and 2013 with an unemployment rate of 4.0 percent in 2003 and 3.5 percent in 2013. The unemployment rate peaked in 2010 at 5.9 percent and has been declining over the last three years. In 2012, the unemployment rate in Rich County and in Utah was respectively 4 percent and 5.4 percent. (Source: Utah Department of Workforce)

3.2.2 NATIONAL AVIATION TRENDS

Historic and anticipated trends related to general aviation will be important considerations in developing forecasts of demand for Bear Lake County 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 General Aviation Industry Trends

At the national level, fluctuating trends regarding general aviation usage and economic upturns/downturns resulting from the nation's business cycle have impacted general aviation demand. Slow economic recovery and economic uncertainties will continue to impact demand for general aviation at many airports throughout the U.S., including Bear Lake County Airport, over 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 2013, the national historic 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 U.S. general aviation aircraft fleet has declined 4.7% from 231,606 aircraft in 2007 to an estimated 202,875 in 2013. General aviation industry began to show signs of recovery in 2012 and 2013, especially with strong growth in turbine aircraft (both rotorcraft and turbojet) deliveries.

- Active Pilots: There were over 599,000 active pilots in the United States at the end of 2013. An active pilot is a person with a pilot certificate and a valid medical certificate. There was a -0.3% CAGR in pilot population between 2000 and 2013. Recreational and private pilot certificates accounted for the largest declines.

- General Aviation Operations: According to FAA air traffic activity, between 2000 and 2013, general aviation operations experienced a -3.3% CAGR. In 2013, there were approximately 25.8 million general aviation operations at 514 towered airports, 55% of which were itinerant operations. General aviation operations at combined FAA and contract towers were down 1.2% between 2012 and 2013.

National Projections of Demand

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 forecast and anticipated trends

in fuel costs. The recent projections found in *FAA Aerospace Forecast Fiscal Years 2014-2034* are summarized below.

- During the five-year period between 2013 and 2018, U.S. economic growth is projected to grow at a CAGR of 2.9%. For the remaining years of the forecast period, real Gross Domestic Product (GDP) growth is assumed to slow to around 2.4% annually.

- The FAA estimates that the U.S. general aviation aircraft fleet will grow from an estimated 203,000 aircraft in 2013 to 225,700 aircraft in 2034. This is equal to a CAGR of 0.5%. Most of this growth is driven by turbojet, turboprop, and turbine rotorcraft markets, while the number of piston aircraft is expected to slightly decrease. It is probable that this trend will have an effect on the fleet mix at Bear Lake County Airport. However, it is difficult to quantify precisely the amount of change at the airport.

- Strong growth is anticipated in the turbine aircraft (turboprop and jets) fleet, estimated to grow at a CAGR of 2.4% between 2013 and 2034.

- General aviation hours flown will increase at a CAGR of 1.4% between 2013 and 2034.

- It is anticipated that general aviation aircraft operations will grow at a CAGR of 0.5% through 2034.

3.2.3 LOCAL FACTORS AFFECTING DEMAND

There are other factors unique to Bear Lake County Airport that have the potential to impact the forecasts developed in this chapter.

Proximity to Competing Airports

The proximity to competing airports is one of the key determinants of the demand and size of an airport's service or catchment area. For comparative purposes, only the airports equipped with a paved runway have been included hereafter. Due to the mountainous terrain, there are few airports in southeastern Idaho, northern Utah, and southwestern Wyoming that are within close proximity of Bear Lake County Airport. As depicted in **Figure 3-3**, there is no other public-use airport within a 20 miles radius of Bear Lake County Airport. There is only one airport within a 30 miles radius, Cokeville Municipal Airport, which has one based aircraft and approximately 40 operations per year.

As noted in **Table 3-2**, the runway length at Bear Lake County Airport meets or exceeds that presently available at several of the neighboring or competing airports. When total based aircraft among all of the general aviation airports in the area are considered, there are presently 194

general aviation aircraft based in the area, most of them based at Logan-Cache Airport, UT, and Afton, WY.

Nearby airports, including Soda Springs and Preston, show higher numbers of annual operations than Bear Lake County Airport. Bear Lake County Airport board members noted that these activity levels may be high. For comparison purpose, only the data contained in the Form 5010 has been included in the following table. As previously mentioned, it is difficult to understand and quantify the number of operations at non-towered airports.

FIGURE 3-3 – AREA AIRPORTS

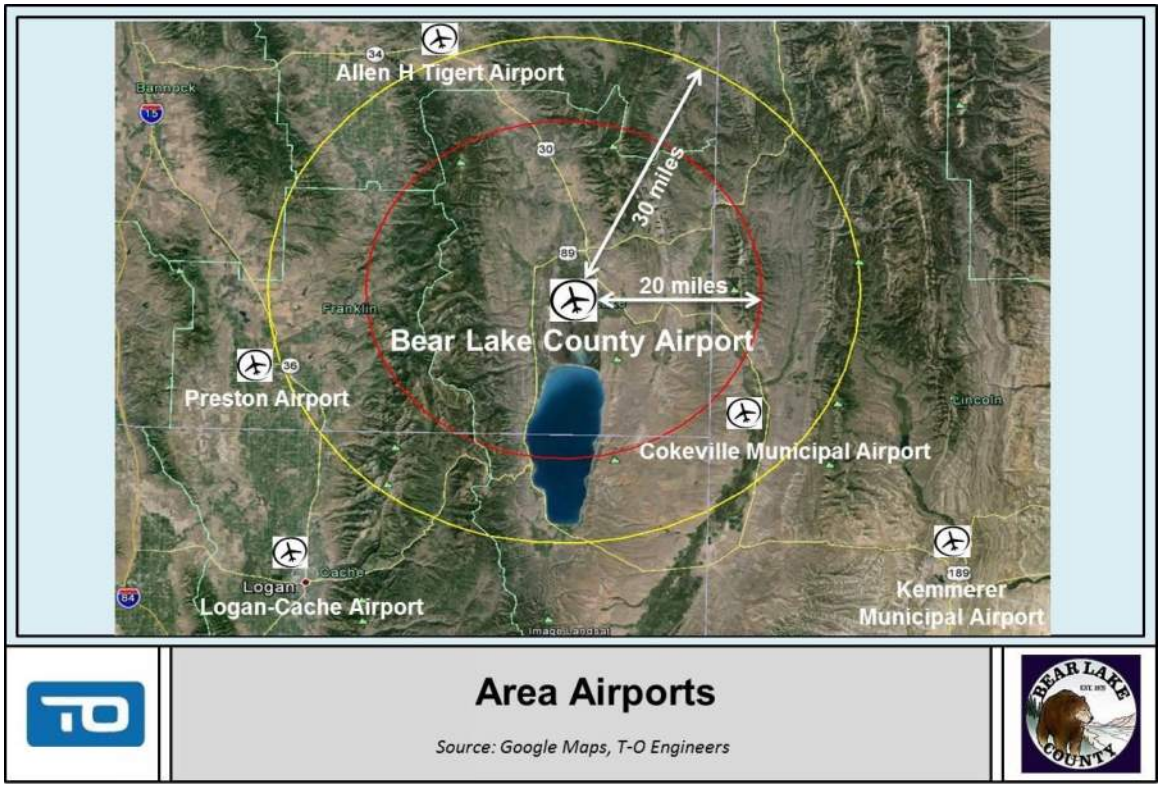


TABLE 3-2 – AREA AIRPORTS SUMMARY

Airport	Runway Length*	Based Aircraft**	Annual Operations	Distance from Bear Lake County Airport
Bear Lake County	5,728 feet	6	2,083	-
Cokeville (WY)	3,400 feet	1	40	23.9 miles
Soda Springs (Allen H Tigert)	2,500 feet	6	7,300	30.2 miles
Preston	3,457 feet	1	7,040	30.9 miles
Afton (WY)	7,025 feet	51	8,600	37.1 miles
Logan-Cache (UT)	5,005 feet	119	72,828	41.1 miles
Downey (Hyde Memorial)	3,550 feet	2	1,550	41.1 miles
Kemmerer (WY)	2,671 feet	3	3,000	49.9 miles
Malad City	4,950 feet	5	4,450	57.1 miles
	TOTAL	***194***	***106,891***	

* Longest Runway if the airport is equipped with several runways

** Includes Fixed-wing aircraft (Single-engine, multi-engine and jet), Helicopters, Gliders and Ultra-Light

Source: FAA 5010 Master Records and T-O Engineers, Inc.

Local Business and Tourism Usage

There are several areas of economic growth in Bear Lake County that also have the potential to increase the usage of Bear Lake County Airport.

Per the Bear Lake Valley Blueprint, which was developed in 2010 to explore growth issues and choices for the Bear Lake region, 61 percent of the houses were secondary residences in 2010 and it was projected that 74 percent of the houses would be secondary residences in 2060. According to discussions with Building Inspectors and Planning and Zoning Officials, the market of large high-priced recreational houses is in expansion near Bear Lake. Both Bear Lake County and Rich County have seen an increase in large and expensive houses in the Bear Lake area over the last five to ten years, and the interest in general aviation to access the area is increasing as a result since it is easier to fly from Salt Lake City than to drive.

Further, realtors in the Bear Lake area confirmed this increase in the number of high-priced houses being built in the Bear Lake Valley. They also indicated that, in the past, most of their clients were not aware of the existence of the airport. However, they mentioned that it was an important asset for the Bear Lake Valley. One realtor indicated that they were meeting guests and residents of the area at the airport eight to twelve times a year. This does not include guests and residents who use the airport and reach their final destination on their own. Propeller aircraft are most common, but jets are occasionally being used. According to the realtor, most of the guests and residents are from Idaho and neighboring states, primarily Utah, and are coming from areas within three hours of the Bear Lake Valley. With the economy picking up, multiple new houses and secondary residences are being built and there is potential for growth at the airport.

In addition, the Bear Lake Valley is becoming a popular tourist destination. The reputation of Bear Lake for its scenic landscapes, recreational and outdoors activities fuels the tourism in the

area. According to the Idaho Department of Labor, the tourism industry may experience increased growth in Bear Lake County as the Bear Lake Scenic Highway and the Oregon-California Trail Interpretive Center attract tourists driving between Salt Lake City, UT, Jackson Hole, WY, and Yellowstone National Park. In addition, according to the Bureau of Economic and Business Research, from the University of Utah, Rich County had a 33.9% leisure and hospitality share of total private jobs in 2013, ranking 8th statewide. In the summers, visitors can boat, fish and swim as well as bike, hike, and hunt. Bear Lake hosts a variety of athletic races, as well as the popular Raspberry Days Festival, which increases the interest in the area.

Further, Paris Hills Agricom is investigating the feasibility of opening a phosphate mine near Paris, ID which would significantly boost the economy of the county. According to the Idaho Department of Labor, the Paris Hills Mine could provide a very positive economic impact adding many high-wage jobs. This mine could employ approximately 350 employees when reaching full-scale operations and it could increase the demand for air travel at Bear Lake County Airport, with increased corporate travel and additional needs for expedited deliveries.
Lastly, at least two hunting preserves may be operating in the area. It is possible to attribute activity at the airport for at least one of these, which has used the airport in the past to fly clients in the Bear Lake area instead of driving from Salt Lake City Airport. In the future, new hunting services or preserves might be interested in using the airport during the hunting season.

Aerial Firefighting

Due to the access, it provides to southeastern Idaho mountains, Bear Lake County Airport has supported aerial firefighting aircraft during the fire season. The magnitude of use is dictated by the severity of the fire season and the proximity of the fire to the airport. The ability of the airport to support aerial firefighting activity is viewed as critical to the overall health and well-being of the community.

Life Flight/Medical Related Activity

Per information provided by multiple Life Flight operators in the area, the relative proximity of Bear Lake County Airport to Pocatello means the airport is in the range of Life Flight helicopters which can directly access the local hospital. A Life Flight operator out of Pocatello indicated operating approximately 30 to 50 times a year with helicopters out of the hospital. Another Life Flight operator out of Salt Lake City advised that between March 2014 and August 2014 their helicopters flew 23 times to the local hospital.

Both operators advised that their fixed wing aircraft flew approximately 3 times a year to the airport, but were severely restricted by the lack of instrument procedures. The isolated location of the Bear Lake County area requires some fixed wing Life Flight activity throughout the year. However, the lack of instrument approach procedures and fog issues at the airport is currently a pivotal factor in Life Flight operations.

Although Bear Lake County Airport is currently utilized infrequently by Life Flight operators, there is a need for fixed wing aircraft at the airport to transport passengers or doctors, especially

during the winter months. Life Flight operators noted that medical evacuation or transports that could have been conducted by aircraft were often conducted by ground transportation due to the lack of instrument approach procedures. A rough estimate of this type of activity was provided by a Life Flight operator who estimated that as many as 100 ground operations per year could be conducted to transfer patients to Salt Lake City or Pocatello.

Life Flight operators contacted as part of this Airport Master Plan operate Pilatus PC-12, Beech King Air 200, and Beech 90 aircraft.

Flight Schools

According to discussions with the airport's manager and users of the airport, Bear Lake County Airport has seen an increased growth in the number of flight schools using the airport for flight training operations. Repeated attempts to talk to Flight Schools were unsuccessful. However, available information indicates training activities primarily originate from the greater Salt Lake City Area. Records indicate single engine aircraft are the most common training aircraft that use the airport.

As previously mentioned, the FAA estimates that the number of turbojet and turboprop aircraft is expected to grow during the next 20 years, while the number of piston aircraft is expected to slightly decrease. It is probable that this trend will have an effect on the fleet mix at Bear Lake County Airport and on the aircraft used by the flight schools. However, it is likely that the flight schools will continue using single-engine aircraft during initial training. In addition, it is difficult to quantify precisely the amount of change at the airport. Traffic and aircraft types using Bear Lake County Airport should continue to be monitored to track and identify changing patterns and fleet mix.

Summary of local factors

The use of Bear Lake County Airport for business, tourism, aerial firefighting, and Life Flight operations is considered to be an important function of the airport over the planning horizon.

While it is not anticipated that the various aircraft associated with these activities will approach the threshold to consider changes to the identified critical aircraft at the airport, these activities represent both opportunities and challenges. Future activity at the airport should be based on a *quality versus quantity* basis in terms of accommodating future demand and the development of new improvements. Although, the activities previously described have the potential to increase at Bear Lake County, it is difficult to quantify how these activities will impact future demand. The airport and Bear Lake County need to track shifts in aviation demand and aircraft types as things progress in the future. Recommended facilities and strategies to address potential impacts are considered in later chapters of this report.

3.3 PROJECTIONS OF DEMAND

While the Bear Lake County Airport has experienced a decline in its number of based aircraft and operations since the events of September 11, 2001, and the recent economic recession; it is considered to be unlikely that this pattern will continue over the forecasted period. The airport will most likely experience moderate growth over the next 20-year forecast period, the rate of that growth will be somewhat comparable to others in the region but somewhat dependent on the future facilities and services provided at the airport.

Projections of aviation demand at Bear Lake County Airport for the 20-year planning period are presented here using various methodologies. The results of these different methodologies are compared and a preferred projection of each is selected.

The following assumptions were made in developing the projections of aviation demand at Bear Lake County Airport:

- 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 Bear Lake County Airport 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 limit the number of based aircraft to be accommodated in the future.

3.3.1 FORECASTING METHODOLOGIES

Several forecasting techniques were used to project future aviation demand at Bear Lake County Airport. 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 Bear Lake County Airport.

Market Share

This method of forecasting is a relatively easy method to use and the required data is often available in the FAA's Terminal Area Forecast (TAF). It assumes a top-down relationship

between national, regional and local forecasts and 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.

Regression Analysis - Trend Analysis

A regression analysis is a type of statistical analysis that uses historical data to project future trends. 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

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:

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

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. Regression analyses can be used with population, employment, personal per capita income, or even a combination of the three as the independent variable. Market share can be computed using a five-year average or a ten-year average and data from the state or from a FAA region. In addition, predictions with the CAGR can be computed using the historic rate for the last 10 years, or the historic rate for the last 20 years, as well as the projected employment growth or the historic Per Capita Personal Income (PCPI) growth.

The following methodologies and variables were used to predict the number of based aircraft and operations at Bear Lake County Airport.

- Linear Regression
  - With Employment as the independent variable
  - Trend Analysis
- CAGR
  - Historic Growth (Last 10 years)
  - Historic Growth (Last 20 years)
  - Projected Employment Growth
  - Historic PCPI growth
- 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)

Not all these methodologies yielded coherent or reasonable results. For instance, some methodologies predicted increases of 800 percent, which is not realistic at Bear Lake County Airport. Therefore, not all the methodologies used during the initial analysis will be presented in the subsequent sections of this report; only the methods leading to coherent and reasonable results will be described in details hereafter.

3.3.2 BASED AIRCRAFT

Based aircraft are those aircraft that are permanently stored at an airport. Estimating the number and type of aircraft expected to be based at Bear Lake County Airport over the next 20 years is crucial to evaluate the need for future facility and infrastructure requirements.

As discussed in the Inventory chapter, the airport's most recent FAA 5010 (05/29/2014) and the FAA National Based Aircraft Inventory Program identify six aircraft based at Bear Lake County Airport (all single-engine aircraft). Six based aircraft will be used as the base year (2014) based aircraft number from which projections are developed.

Based aircraft at Bear Lake County Airport were projected using the methodologies previously described. A summary of the methodologies yielding coherent and reasonable results is shown in **Table 3-3** and **Figure 3-4**.

- Scenario 1: Historic Based Aircraft Growth. This scenario projects based aircraft to increase at an average annual rate of growth of 1.67%, equal to the historic CAGR in based aircraft at Bear Lake County Airport between 2004 and 2014.

- Scenario 2: Projected Employment Growth. This scenario projects operations to increase at an average annual rate of growth of 1.35%, equal to the projected employment growth developed for southeastern Idaho, as part of the Idaho Regional Economic Analysis Project.

- Scenario 3: Linear Regression with Employment as the independent variable. This scenario assumes that the growth of based aircraft at Bear Lake County Airport will be projected using a linear regression analysis with employment as the independent variable. The annual growth rate for this scenario is 3.82%.

- Scenario 4: 10-year average Market Share of Idaho Based Aircraft. During the last ten years, Bear Lake County Airport's share of Idaho's based aircraft fleet as reported in the FAA's Terminal Area Forecasts was on average 0.20%. This scenario assumes that Bear Lake County Airport will maintain this share of the State of Idaho Based Aircraft and that the Idaho Based Aircraft will grow as predicted in the FAA's Terminal Area Forecasts. The annual growth rate for this scenario is 1.20%.

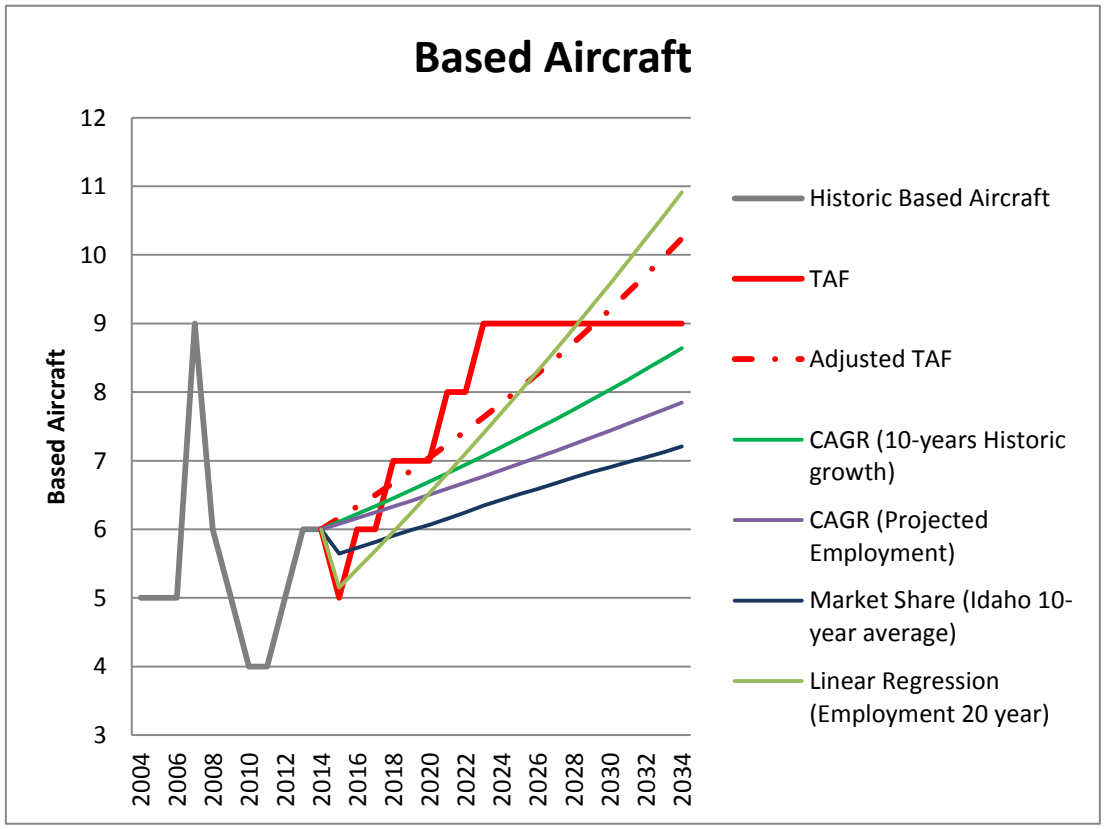
The results of these forecasting methodologies were compared and are listed and depicted in **Table 3-3 and Figure 3-4**. The FAA TAF notes that five aircraft were based at the airport. However, six aircraft are currently based at Bear Lake County Airport. The TAF was adjusted to six based aircraft, utilizing the growth rate published in the TAF.

TABLE 3-3 BASED AIRCRAFT PROJECTIONS

Year	Scenario 1 Historic Based Aircraft Growth	Scenario 2 Projected Employment Growth	Scenario 3 Linear Regression (Employment)	Scenario 4 Idaho Market Share	FAA Terminal Area Forecast (TAF)	FAA TAF Adjusted Forecast
2014	6	6	6	6	5	6
2019	7	6	6	6	7	7
2024	7	7	8	6	9	8
2034	9	8	11	7	9	10
CAGR	**1.84%**	**1.35%**	**3.82%**	**1.20%**	**2.71%**	**2.71%**
2019 Variation from Adjusted TAF	**-4.15%**	**-6.43%**	**-8.95%**	**-12.67%**	**2.08%**	**-**
2024 Variation from Adjusted TAF	**-8.14%**	**-12.45%**	**-1.80%**	**-18.00%**	**14.83%**	**-**
2034 Variation from Adjusted TAF	**-15.61%**	**-23.35%**	**6.59%**	**-29.62%**	**-9.71%**	**-**

Source: T-O Engineers, Inc.

FIGURE 3-4 – BASED AIRCRAFT PROJECTIONS



Source: T-O Engineers, Inc.

Note: TAF Adjusted figures reflect adjusting the base year figure from the TAF to match actual data figures. TAF growth rates are then applied to the actual data figure for the duration of the planning period.

The results of the four scenarios examined in this analysis were compared to the FAA's Terminal Area Forecast (TAF) for Bear Lake County Airport.

Over the first ten years of the planning period, all scenarios are lower than the adjusted TAF projections. Throughout the last ten years of the planning period Scenario 3 is then slightly higher than the adjusted TAF, while all the other scenarios remain lower than the adjusted TAF. Scenario 3, which is a linear regression based on the projected employment growth in Bear Lake County, is the preferred forecast, with a CAGR of 3.82%. Based on this methodology, by the end of the forecast period, 11 aircraft are projected to be based at Bear Lake County Airport. This is 6.59% more than the adjusted TAF projections of based aircraft.

Aviation demand is considered to be a derived demand; one that depends on the level of business and leisure activity in the economy. The projected employment growth as noted by the State of Idaho points to new jobs and business growth around Bear Lake County which can correlate to anticipated increased future usage and number of based aircraft at the airport Based on this correlation as well as the consultant's professional opinion, the linear regression with the employment as the independent variable (Scenario 3) is the preferred forecast for

based aircraft. The preferred based aircraft projection for Bear Lake County Airport is carried forward in the master planning process and is used to examine future airport facility needs.

Fleet Mix

Total based aircraft projected for the airport over the planning period using the preferred based aircraft projection were allocated to four aircraft categories (single-engine, multi-engine and jet, helicopter, and other) to develop a projection of the airport's based aircraft fleet mix through the planning period. The fleet mix projections developed for Bear Lake County Airport were developed based on the fleet mix percentages exhibited at the airport and in the *FAA Aerospace Forecast, Fiscal Years 2014-2034* projection of active general aviation aircraft.

The preferred based aircraft fleet mix projections are shown in **Table 3-4**. With the anticipated national growth in turbine aircraft through the forecast period, two multi-engine and turbine aircraft are estimated to be based at Bear Lake County Airport by 2034.

Based on the anticipated national growth in turboprop and jet aircraft through the forecast period, there is potential for a based jet aircraft at Bear Lake County Airport. As previously mentioned, the market of large high-priced recreational houses is in expansion and the interest in using the airport to access the area is increasing as a result.

Out of the predicted multi-engine and turbine aircraft, one or several may be jet aircraft, depending on the leisure and recreational development in the county and on the evolution of the demand at the airport.

TABLE 3-4 – PROJECTED BASED AIRCRAFT FLEET MIX

Aircraft Type	2014	2019	2024	2034	CAGR 2014-34
Single-Engine	6	6	7	9	2.05%
Multi-Engine and jet	0	0	1	2	-
Helicopter	0	0	0	0	-
Other	0	0	0	0	-
Total	**6**	**6**	**8**	**11**	**3.82%**

Source: T-O Engineers, Inc.

3.3.3 AIRCRAFT OPERATIONS

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

- All other operations other than local.

The current ratio of local to itinerant general aviation is 15 percent local and 85 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 the local operations, itinerant operations as well as for the total number of operations.

Local Operations

A summary of the methodologies used to develop the projected aircraft local operations are below and shown in **Table 3-5** and **Figure 3-5.**

- Scenario 1: Projected Employment Growth. This scenario projects local operations to increase at a CAGR of 1.35%, equal to the projected employment growth developed for Southeastern Idaho, as part of the Idaho Regional Economic Analysis Project.

- Scenario 2: Historic Per Capita Personal Income Growth. This scenario projects local operations to increase at a CAGR of 4.76%, equal to the historic CAGR in PCPI in Bear Lake County the last five years.

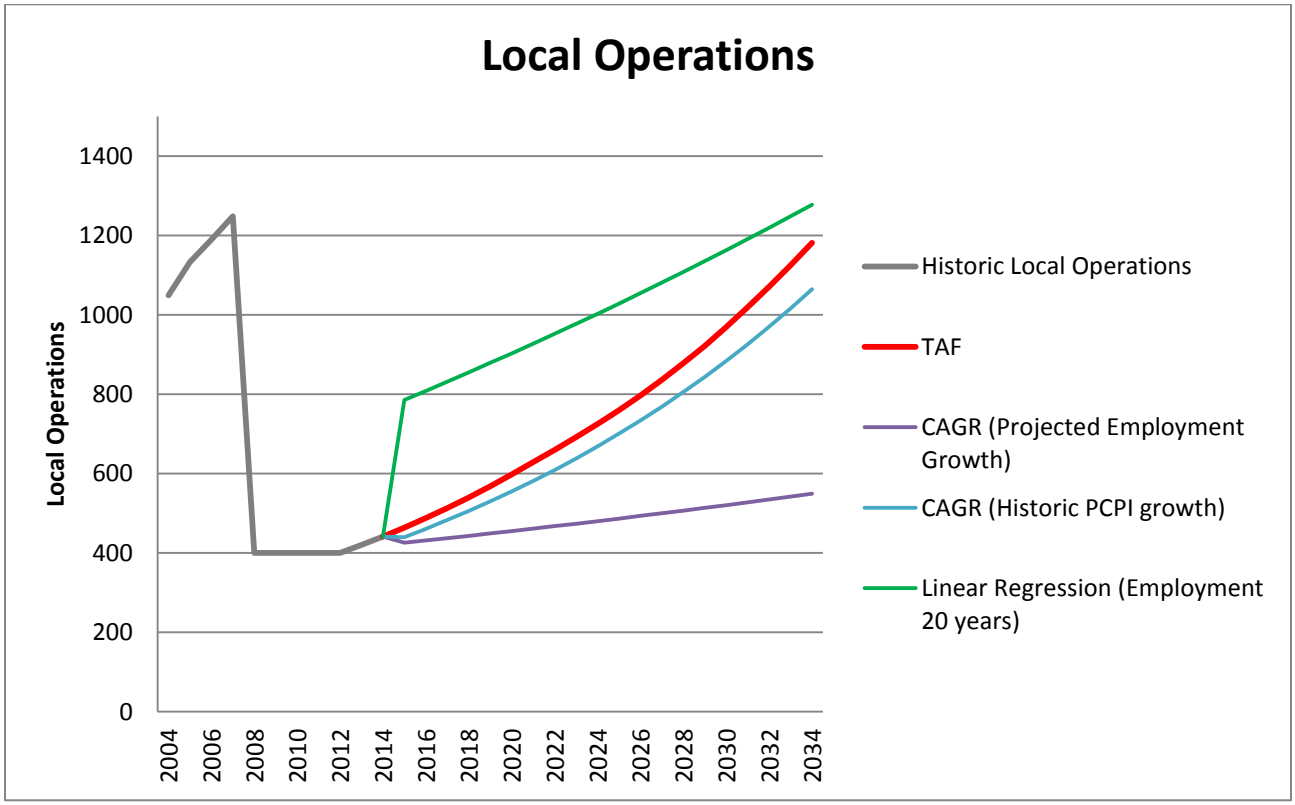
- Scenario 3: Linear Regression with Employment as the independent variable. This scenario assumes that the growth of local operations at Bear Lake County Airport will be projected using a linear regression analysis with employment as the independent variable. The annual growth rate for this scenario is 2.46%.

TABLE 3-5 – GENERAL AVIATION LOCAL OPERATIONS PROJECTIONS

Year	Scenario 1 Projected Employment Growth	Scenario 2 Historic PCPI Growth	Scenario 3 Linear Regression (Employment)	FAA Terminal Area Forecast (TAF)
2014	441	441	441	441
2019	449	530	879	568
2024	480	669	1,003	725
2034	549	1,065	1,277	1,181
CAGR	**1.35%**	**4.76%**	**2.46%**	**4.78%**
2019 Variation from TAF	**-20.92%**	**-6.7%**	**54.69%**	**-**
2024 Variation from TAF	**-33.75%**	**-7.8%**	**38.30%**	**-**
2034 Variation from TAF	**-53.49%**	**-9.9%**	**8.15%**	**-**

Source: T-O Engineers, Inc.

FIGURE 3-5 – GENERAL AVIATION LOCAL OPERATIONS PROJECTIONS



Source: T-O Engineers, Inc.

The results of the three scenarios examined in this analysis were compared to the FAA's TAF for Bear Lake County Airport. Scenario 2 (Historic PCPI growth) was chosen as the preferred general aviation local operations projection, with a CAGR of 4.76%. Based on this methodology, 1,065 local operations are projected at Bear Lake County Airport, by the end of the forecast period. This is 9.9% less than the TAF projection of local operations.

Aviation demand is considered to be a derived demand; one that depends on the level of business and leisure activity in the economy. General aviation activity is highly dependent on the economy and personal income, as it is one of the first costs to be cut during times of economic hardships.

The historic per capita personal income growth points to increased income around Bear Lake County which can correlate to increased future usage and an increase in the number of local operations at the airport. Based on this correlation as well as the consultant's professional opinion, the historic PCPI Growth rate methodology (Scenario 2) is the preferred forecast for general aviation local operations. In addition, based on airport users' survey developed as part of this Airport Master Plan, most of the users who answered the survey were itinerant. Therefore, most of the growth in the total number of operations is expected to be driven by itinerant operations.

Itinerant Operations

A summary of the methodologies used to develop the aircraft itinerant operations are below and shown in **Table 3-6** and **Figure 3-6.**

- Scenario 1: Projected Employment Growth. This scenario projects itinerant operations to increase at a CAGR of 1.35%, equal to the projected employment growth developed for Southeastern Idaho, as part of the Idaho Regional Economic Analysis Project.

- Scenario 2: Historic Per Capita Personal Income Growth. This scenario projects itinerant operations to increase at a CAGR of 4.76%, equal to the historic CAGR in PCPI in Bear Lake County the last five years.

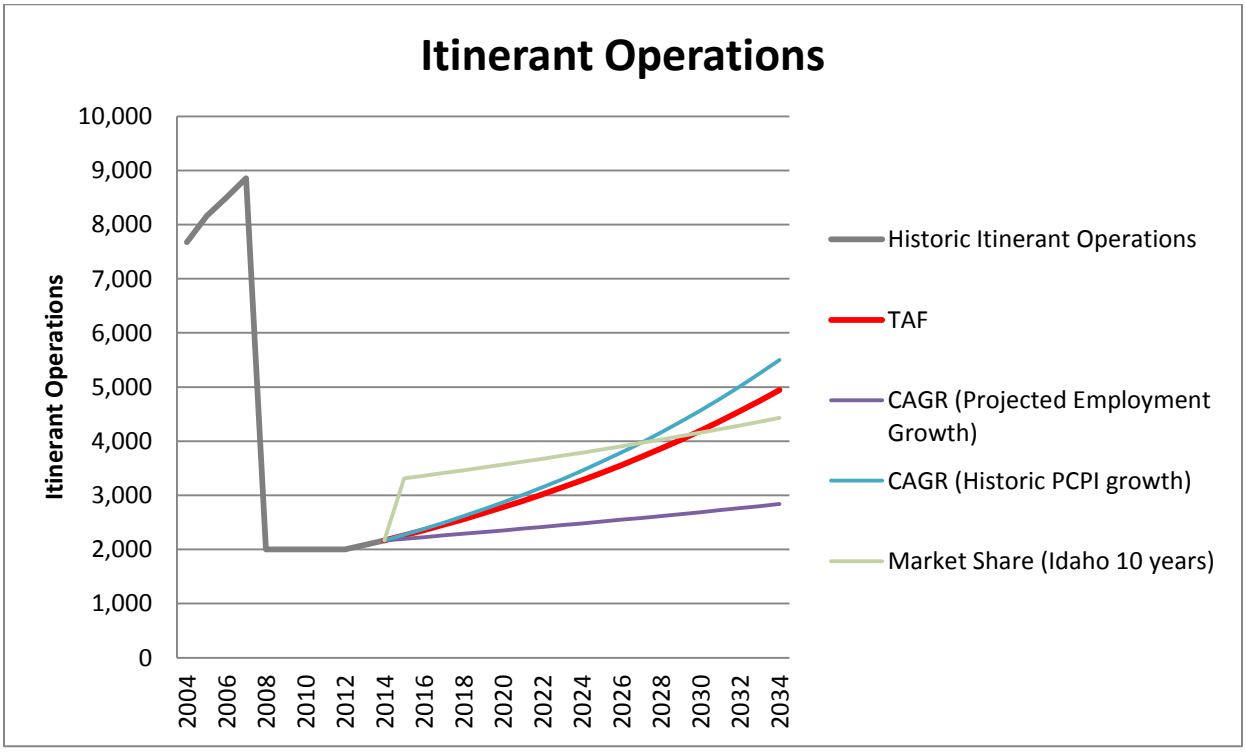
- Scenario 3: 10-year average of Market Share of Idaho Itinerant Operations. During the last ten years, Bear Lake County Airport's share of Idaho's general aviation itinerant operations as reported in the FAA's Terminal Area Forecasts was 0.65%. This scenario assumes that Bear Lake County Airport will maintain this share of the State of Idaho Itinerant Operations and that the Idaho Itinerant Operations will grow as predicted in the FAA's Terminal Area Forecasts. The annual growth rate for this scenario is 1.46%.

TABLE 3-6 – GENERAL AVIATION ITINERANT OPERATIONS PROJECTIONS

Year	Scenario 1 Projected Employment Growth	Scenario 2 Historic PCPI Growth	Scenario 3 Idaho Market Share	FAA Terminal Area Forecast (TAF)
2014	2,170	2,170	2,170	2,170
2019	2,321	2,738	3,516	2,667
2024	2,482	3,455	3,789	3,278
2034	2,838	5,500	4,429	4,943
CAGR	**1.35%**	**4.76%**	**1.46%**	**3.99%**
2019 Variation from TAF	**-12.99%**	**2.66%**	**32.82%**	**-**
2024 Variation from TAF	**-24.29%**	**5.39%**	**15.60%**	**-**
2034 Variation from TAF	**-42.58%**	**11.27%**	**-10.4%**	**-**

Source: T-O Engineers, Inc.

FIGURE 3-6 – GENERAL AVIATION ITINERANT OPERATIONS PROJECTIONS



Source: T-O Engineers, Inc.

The results of the three scenarios examined in this analysis were compared to the FAA's TAF for Bear Lake County Airport. Scenario 2 (Historic PCPI growth) was chosen as the preferred general aviation itinerant operations projection, with a CAGR of 4.76%. Based on this methodology, by the end of the forecast period, 5,500 itinerant operations are projected at Bear Lake County Airport. This is 11.3% more than the TAF projections of itinerant operations.

As previously mentioned, aviation demand is considered to be a derived demand and depends on the level of business and leisure activity in the economy. General aviation activity is highly dependent on the economy and personal income, as it is one of the first costs to be cut during times of economic hardships.

The historic per capita personal income growth points to increased income and revenue around Bear Lake County which can correlate to increased future usage of the airport not only for business and tourism, but also aerial firefighting, and Life Flight operations as discussed above. Based on this correlation as well as the consultant's professional opinion, the historic PCPI Growth rate methodology (Scenario 2) is the preferred forecast for general aviation itinerant operations.

In addition to PCPI growth, improved instrument approach capabilities also have the potential to increase the use of the airport and the number of itinerant operations. At this time, we are unable to quantify these potential impacts. However, the airport will continue to monitor this

potential increase in traffic if/when improved instrument approach capabilities have been developed for the airport.

Total Operations

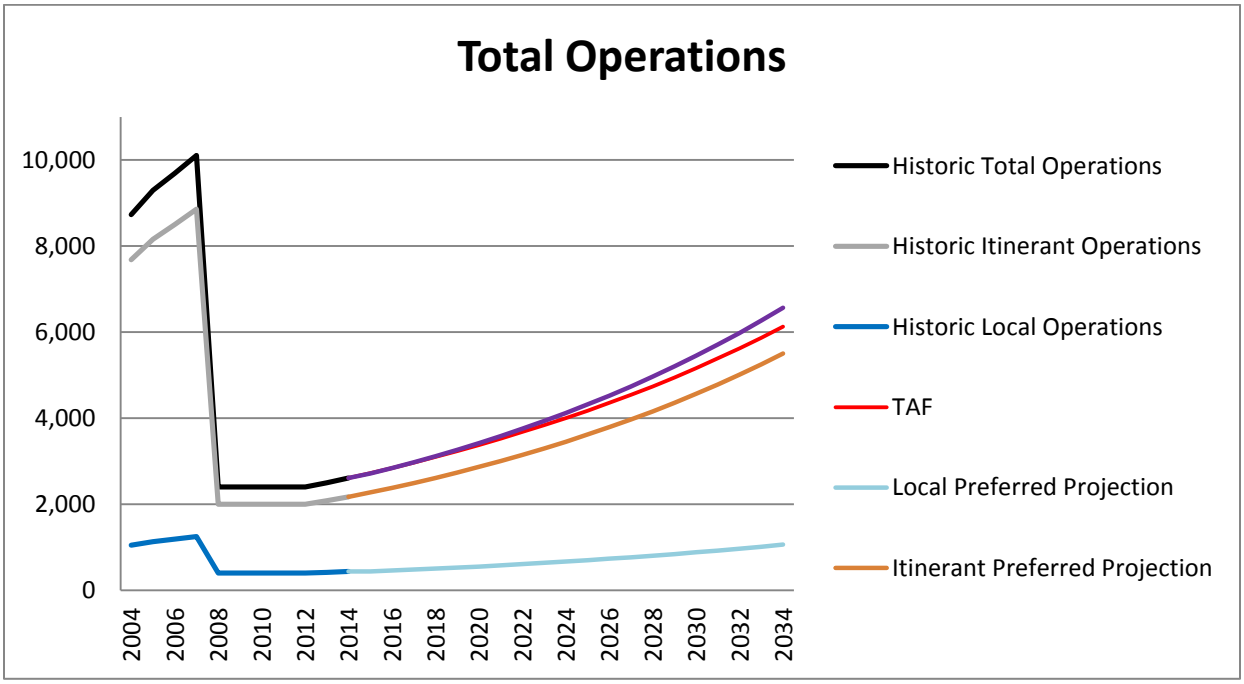
Total aircraft operations projections were derived by combining the local and itinerant operations preferred forecasts. The total aircraft operations were also compared to the FAA TAF, as shown in **Table 3-7** and **Figure 3-7.**

TABLE 3-7 – GENERAL AVIATION TOTAL OPERATIONS PROJECTIONS

Year	Local Operations Preferred Forecast	Itinerant Operations Preferred Forecast	Total Operations Projections	FAA Terminal Area Forecast (TAF)
2014	441	2,170	2,611	2,611
2019	530	2,738	3,268	3,235
2024	669	3,455	4,123	4,003
2034	1,065	5,550	6,565	6,124
CAGR	**4.76%**	**4.76%**	**4.76%**	**4.13%**
2019 Variation from TAF	**-6.7%**	**2.66%**	**1.02%**	**-**
2024 Variation from TAF	**-7.8%**	**5.39%**	**3.01%**	**-**
2034 Variation from TAF	**-9.9%**	**11.3%**	**7.19%**	**-**

Source: T-O Engineers, Inc.

FIGURE 3-7 – GENERAL AVIATION TOTAL OPERATIONS PROJECTIONS



Source: T-O Engineers, Inc.

This methodology results in an annual growth rate of 4.76%, which is slightly higher than the TAF's annual growth rate of 4.35%. Based on this methodology, 6,565 general aviation operations are projected to occur at Bear Lake County Airport, by the end of the forecast period. This is 7.19% more than the adjusted TAF projections of total operations in 2034. The preferred general aviation operations projection for Bear Lake County Airport is carried forward in the master planning process and is used to examine future airport facility needs.

3.3.4 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 should be sized to accommodate the peaks in activity, for example, the aircraft apron or terminal areas.

In calculating the number of general aviation 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. **Table 3-8** presents peak factors for the 20-year planning period.

TABLE 3-8 – OPERATIONS FORECASTS – PEAKING FACTORS

Year	Total Annual Operations	Average Daily Total	Peak Day	Peak Hour
2014	2,611	7	9	2
2019	3,268	9	11	2
2024	4,123	11	14	3
2034	6,565	18	22	4

Source: T-O Engineers, Inc.

3.3.5 ANNUAL 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.

Currently, Bear Lake County Airport does not have an instrument approach. Analysis on the ability of the airport to obtain approach capabilities over the 20-year planning horizon is included in later chapters. Because no instrument approaches currently exist, no forecast has been developed for annual instrument approaches.

While the airport has no instrument approach, based on available GCR data, nearly 200 IFR flight plans to and from the airport have been filed over the last several years. This data

indicates that pilots are filing instrument flight plans to get close to the airport and then canceling when they are within close proximity as well as when departing from the airport. Examples of users reported within the FAA data include recreational/individual fliers, flight training, state law enforcement, and development corporations.

However, when the IFR flight plan is canceled in flight before reaching Bear Lake County Airport it does not appear in the database. Therefore, when the flights are terminated at other airports with instrument approaches because of bad weather conditions at Bear Lake County Airport, they do not appear. Although this data does not provide a full understanding of IFR operations at the airport, it shows there is demand for an instrument procedure at the airport. Airport user surveys developed as part of this Airport Master Plan indicate the lack of instrument approaches is an issue for several of the users of the airport. Eleven out of fourteen users who answered the survey indicated the lack of instrument approach was an important shortcoming of Bear Lake County Airport and they considered an instrument approach as an essential improvement for the airport to provide.

3.3.6 CRITICAL AIRCRAFT

The development of airport facilities is impacted by both the demand for those facilities and the type of aircraft expected to make use of those facilities. Generally, airport infrastructure components are designed to accommodate the most demanding aircraft which will utilize the facilities on a regular basis, also referred to as the critical aircraft. The factors used to determine an airport's critical aircraft are the approach speed and wing span 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 existing ARC for Bear Lake County Airport is B-I Small. Common aircraft using the airport today include piston-driven single and twin-engine aircraft as well as small turboprop and jet aircraft including the Beech/Raytheon King Air, Pilatus PC-12 and Cessna Citation aircraft. Based on available operating data at the airport and discussions with airport management, it appears aircraft 12,500 lbs or less (small aircraft) are the primary aircraft type operating at the airport.

As described in section 3.2.3, larger corporate aircraft do utilize the airport multiple times throughout the year; however discussions with both aircraft operators and airport management indicate this activity is not occurring on a "regular basis" (more than 500 annual operations) as defined by the FAA. A liberal estimate of this type of activity is likely around 100 annual operations. Based on the analysis completed as part of this forecasting effort, no solid data exists that would indicate increased demand for larger aircraft over the 500 annual operations threshold during the forecast period.

Based on information obtained by the consultant and conversations with users and airport management, including input from airport management, the Piper Malibu PA-46 was selected as the critical aircraft. This aircraft is based at the airport and is regularly flown. This PA-46, along with two Cessna 182 aircraft currently based at the airport, account for approximately 40 percent of the total operations at Bear Lake County Airport based on activity records collected during this planning study.

In general, the characteristics of the PA-46 are representative of single-engine aircraft that currently use the airport on a regular basis, and presents similar attributes to the overall fleet using this airport. Based on its regular use of the airport, and the consultant's professional opinion, the Piper Malibu PA-46 was deemed an appropriate aircraft to select as the critical aircraft. **Table 3-9** summarizes the characteristics of the selected critical aircraft.

TABLE 3-9 – CHARACTERISTICS OF DESIGN AIRCRAFT

Approach Speed	78 knots
Wing Span	43.0 feet
Length	28.7 feet
Tail Height	11.3 feet
Maximum Take Off Weight	4,318 lbs

Source: PA46 Information Manual and Bear Lake County

Based on the analysis conducted in this forecasting effort, the fleet using the airport today will be similar in the future; small aircraft with use by larger aircraft on an occasional basis.

Prudent and proactive planning dictates that the county protects areas for potential improvements to accommodate larger aircraft where practical. It is not reasonably foreseeable that the airport will accommodate A/B-II aircraft on a regular basis in the short- or mid-term. However, because the airport is not constrained at the moment and has the space to protect for larger standards, long-term proactive planning recommends analyzing the feasibility to meet A/B-II standards, and more specifically separations standards, in the future and beyond the planning period. In addition, a precedent has been established with the partial parallel taxiway built in 2014. The partial parallel taxiway centerline is located 240 feet from the runway centerline, which meets design standards A/B-II.

Because the airport has the space and a precedent has been established, a proactive approach to planning is vital at Bear Lake County Airport. This approach allows protecting areas for future expansion or development.

3.3.7 FORECAST SUMMARY

It is anticipated that Bear Lake County Airport will see some growth in all activity areas during the 20-year planning period. By 2034, approximately 6,565 general aviation operations are projected to occur and 11 aircraft are projected to be based at Bear Lake County Airport. **Table 3-10** summarizes the projections in this chapter.

TABLE 3-10 – SUMMARY OF AVIATION ACTIVITY FORECASTS 2014-2034

Year	Local Operations Preferred Forecast	Itinerant Operations Preferred Forecast	Total Operations Projections	Based Aircraft
2014 - Actual	441	2,170	**2,611**	**6**
2019	530	2,738	**3,268**	**6**
2024	669	3,455	**4,123**	**8**
2034	1,065	5,550	**6,565**	**11**
2019 Variation from TAF	**-6.7%**	**2.66%**	**1.02%**	**-16.44%**
2024 Variation from TAF	**-7.8%**	**5.39%**	**3.01%**	**-8.95%**
2034 Variation from TAF	**-9.9%**	**11.3%**	**7.19%**	**6.59%***

Note: *The 2014 FAA TAF based aircraft were adjusted to match actual data figures reported by the airport manager, the actual TAF growth rate between 2014 and 2034 was then applied to 2014 actual based aircraft for the duration of the planning period. The preferred based aircraft projection is 6.59 % more than the adjusted TAF projection.

Source: T-O Engineers, Inc. and FAA Terminal Area Forecasts

4.0 FACILITY REQUIREMENTS

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

Facility improvements can be justified to meet FAA design standards, most of which relate to airport safety, but also based on criteria set forth by the FAA in Advisory Circulars (AC). Specific recommendations for improvements developed as part of the Idaho Airport System Plan for Bear Lake County Airport in 2010 will also be taken into consideration in developing facility requirements.

The following operational areas are evaluated to determine existing and future facility requirements for Bear Lake County Airport; these include:

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

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

4.1 IDAHO AIRPORT SYSTEM PLAN RECOMMENDATIONS FOR BEAR LAKE COUNTY AIRPORT

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

The IASP placed each airport in one of five functional roles or categories based on current airport performance. Facility and service objectives were then developed for each airport role category. Individual airport recommendations depend on which role the airport plays in the overall system. Bear Lake County Airport was categorized in the IASP as a "Community Business" airport. According to the IASP, Community Business Airports "serve a limited role in region economies, primarily supporting community economies. They accommodate a variety of general aviation activities such a business, recreational, and personal flying." Bear Lake County Airport met the recommendations for several facilities including primary runway length, runway width and strength, terminal, and services. The IASP facility and services recommendations for the airport, based on the Community Business role, are summarized in **Table 4-1**.

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

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

Source: Idaho Airport System Plan, 2010

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

4.2 AIRSIDE FACILITY REQUIREMENTS

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

Examples of these services include:

- Emergency medical evacuation (Life Flights)
- Specialized professional services ("flying" doctors)
- Wildland firefighting
- Law enforcement
- Mail/package delivery
- Business and commerce (mining operations, real estate, legal proceedings, etc.)
- Recreation (hiking, biking, fishing, hunting, etc.)
- Wildlife-related services, such as wildlife tracking (Idaho Fish and Game and U.S. Fish and Wildlife Service)

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

When considering the needs of Bear Lake County Airport over the next twenty years, the above dynamics should not be overlooked.

4.2.1 AIRFIELD CAPACITY ANALYSIS

Airport capacity is a function of the number and physical layout of available runways and taxiways, as well as their orientation and their relative location. A formal capacity analysis was conducted at Bear Lake County Airport to assess the capacity of the airport.

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

ASV is a reasonable estimate of an airport's annual capacity that takes into consideration a variety of applicable parameters affecting airfield capacity levels, including the following factors:

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

FAA Advisory Circular 150/5060-5 categorizes runway configurations typical of those at airports throughout the United States in order to determine the ASV. The configuration of Bear Lake County Airport most closely reflects the operational and physical characteristics of configuration Number 15, two active runways, as depicted in AC 150/5060-5. Supporting the two runway configuration at the airport is a partial parallel taxiway. The presence of a full parallel taxiway system at the airport would enhance the capacity of the runways.

The Aircraft Mix Index is the percentage of aircraft operations by large (more than 12,500 lbs) multi-engine aircraft. The primary usage of Bear Lake County Airport is currently by single-engine and small multi-engine aircraft. Based on the current fleet using the airport, the mix index is assumed to be less than one percent.

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

Existing Airfield Capacity

The ASV for a two-runway airport with a full-length parallel taxiway is estimated to be 260,000 annual operations. The hourly capacity for this type of airport is estimated to be approximately 132 VFR operations. Because the airport does not have a full parallel taxiway, capacity is assumed to be reduced by 20%.

Future Capacity Requirements

In 2034, projected demand at Bear Lake County Airport is forecast to grow to approximately 6,565 annual operations. These projected operations represent 3.2 percent of the estimated ASV of 208,000 annual operations. FAA guidelines suggest that facility improvements should be considered to increase capacity when annual operations reach 60 percent of the Annual Service Volume. Although Bear Lake County Airport is not currently equipped with a full-length parallel taxiway, the airport is not expected to have any capacity issues over the planning period.

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

4.2.2 DESIGN STANDARDS AND ACCOMMODATING ARC B-II

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

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

It is the policy of the FAA to meet design standards for the design aircraft determined for the 20-year planning period, which is B-I Small at Bear Lake County Airport. The policy of meeting design standards provides an increased level of safety and a more proactive approach to airport planning.

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

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

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

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

4.2.3 RUNWAYS

Runways are the single most important element of the airfield and have the most impact on overall airport accessibility and safety. The Runway Design Code (RDC) is a coding system signifying the design standards to which a runway is built. As previously discussed in Section 2.10, Design standards, the RDC has three components based not only on the approach speed, the wingspan and tail height of the critical aircraft but also on the designated or planned visibility minimum. Further, the Airport Reference Code (ARC) is an airport designation that signifies the airport's highest RDC, minus the third component (visibility). The ARC is used for planning and design only and does not limit the aircraft that may be able to operate on the airport. The ARC and RDC are used during the airport planning process to design and determine the dimensions of most airfield pavements.

Currently, Runways 10/28 and 16/34 both have a RDC of B-I (small airplanes exclusively)-VIS, B-I (S)-VIS. As both runways have the same RDC, the ARC of Bear Lake County Airport is B-I (Small). This designation is a reflection of the types of aircraft that predominately use the airport. No major change in the fleet is expected and the critical aircraft is expected to remain the Piper Malibu PA-46 over the planning period. However, it is recommended that operations continue to be monitored at Bear Lake County airport to evaluate the use by larger aircraft. The following sections will discuss design factors that directly impact runway geometry and, therefore, the ARC.

Runway Length

A review of Bear Lake County Airport's role and how that role relates to FAA runway length criteria is necessary when discussing required runway length. Airport function, elevation, mean maximum temperature of the hottest month, aircraft take-off weight, aircraft performance, runway gradient and runway surface condition are some of the criteria used when calculating required runway length. These factors affect 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, Bear Lake County Airport is predominately used by small aircraft (MGTOW 12,500 lbs or less). Aircraft Approach Category (AAC) and Airplane Design Group (ADG) for these aircraft consist of an approach speed of 91 knots or more, but less than 121 knots (Category B) and with wingspans up to but not including 49 feet (Group I) respectively.

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

Table 4-2 presents the runway length requirements, based on an airport elevation of 5,932.6 feet MSL and a mean maximum temperature of 85.5 degrees Fahrenheit for the hottest month of the year. The runway length requirement ranges from 7,100 feet to 7,200 feet for small airplanes (aircraft with maximum takeoff weights of 12,500 pounds or less).

TABLE 4-2: RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN

Airport and Runway Data	Inputs
Airport Elevation	5,932.6 MSL
Mean Maximum Temperature of the hottest month	85.5° F
Small propeller-driven airplanes with approach speeds of more than 50 knots	
Small airplanes with less than 10 passenger seats	
95 percent of these small airplanes	7,100’
100 percent of these small airplanes	7,200’
Small airplanes with 10 or more passengers	7,200’

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

As discussed in Chapter 3, Aviation Activity Forecasts, a variety of high-performance corporate aircraft including small jets, and turboprop aircraft such as Cessna Citation, Pilatus PC-12, and Beech B200, occasionally operate at Bear Lake County Airport. The runway length requirements for a sample of these jet, multi-engine and turboprop aircraft was computed based on guidance in the FAA AC 150/5325-4C, Runway Length Recommendations for Airport Design, using manufacturer’s Airport Planning Manuals, the mean daily maximum temperature of the hottest month of the year and the airport elevation.

Table 4-3 presents the runway length requirements at Bear Lake County Airport for a sample of the jet and larger aircraft using the airport.

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

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

* Unless otherwise specified, all distances are Takeoff Field Length
**Temperature above Climb Weight Temperature Limit and requires reduction in MTOW
Per the FAA AC 150/5325-4C, Lengths of 30 feet and over are rounded to the next 100-foot interval.
Source: T-O Engineers Inc., FAA AC 150/5325-4C, Beechcraft B200 Pilot's Operating Handbook, Cessna Flight Planning Guide, PC-12 Digital Airplane Flight Manual, Piper Malibu Mirage Pilot's Operating Handbook.

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

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

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

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

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

Recommendations: Based on the FAA runway length requirements, a runway extension is justified to accommodate 100 percent of the small airplanes with less than 10 passenger seats.

Based on Pilot's Operating Handbook, current and future aircraft demand, and IASP recommendations, the current length at Bear Lake County Airport allows accommodating the design aircraft as well as small general aviation aircraft such as the PA-46 or Cessna 182. Although larger corporate aircraft and propeller airplanes do utilize the airport multiple times throughout the year, this activity does not occur on a regular basis and is not forecast to meet the substantial use threshold (more than 500 annual operations) over the planning period.

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

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

Runway Width

Per FAA airport design standards, runway width for Airplane Design Group I is 60 feet. The width of Runway 10/28 is 75 feet and the width of Runway 16/34 is 60 feet. The required Runway Width for airports accommodating ARC B-II is 75 feet.

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

Runway Strength

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

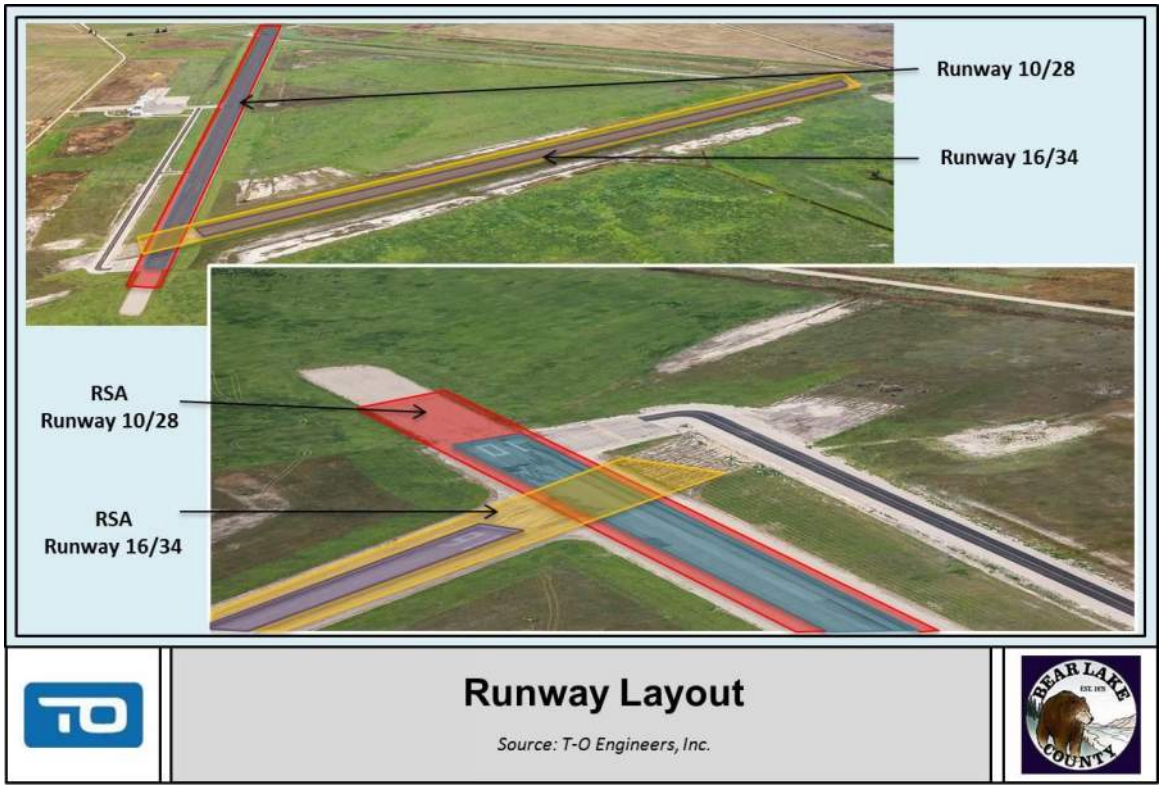
The pavement strength computed using current FAA guidelines and FAA AC 150/5335-5C is reported to be 34,500 pounds (SW) and 46,000 (DW) for Runway 10-28, and 21,500 pounds (SW). The designated critical aircraft at Bear Lake County Airport, the Piper Malibu PA-46, has a maximum gross takeoff weight (MGTOW) of 4,318 pounds.

Recommendation: It is recommended that the FAA 5010 master data record be updated to report a pavement strength of 34,500 pounds (SW) and 46,000 (DW) for Runway 10/28 and 21,500 pounds (SW) for Runway 16/34. Current pavement strength is sufficient to accommodate existing as well as the forecasted aircraft activity expected to operate at the airport on a regular basis throughout the planning period. Foreseeable conditions do not indicate the need for additional runway pavement strength.

Runway 10 and 16 Intersection

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

FIGURE 4-1: RUNWAY LAYOUT



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

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

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

Runway Markings

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

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

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

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

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

Runway Signs

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

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

4.2.4 WIND COVERAGE AND FUTURE OF THE CROSSWIND RUNWAY

Wind Coverage and Crosswind Analysis

The wind coverage is the percentage of time when the crosswind component does not exceed the limit for the design aircraft using the runway. FAA criterion recommends a minimum of 95 percent wind coverage for all airports. Wind data from the weather station K1U7, located at the airport, was reviewed and used to evaluate the wind coverage at Bear Lake County Airport. In the absence of FAA certified weather station at the airport, this was deemed to be the best data available.

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

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

Crosswind Runway

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

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

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

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

Recommendation: Based on the data available, the two runways are necessary to meet the FAA recommendations. It should be noted that the existing wind sensor is located behind hangars, which has the potential to flaw the data. At airports that do not meet the minimum wind coverage, crosswind runways are eligible for federal funds and assistance. However, being eligible does not mean that it is fundable, especially given the annual apportionment allotted to

Bear Lake County Airport. A cost-benefit analysis to realign the runway and maintain only one runway at Bear Lake County Airport, or to convert Runway 16/34 to turf or grass, will be conducted in Chapter 5, Alternatives Analysis.

4.2.5 DESIGN STANDARDS

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

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

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

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

Runway Protection Standards

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

Runway Safety Area (RSA)

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

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

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

Runway Object Free Area (ROFA)

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

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

Runway Obstacle Free Zone (OFZ)

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

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

Runway Protection Zone (RPZ)

The RPZ for airports accommodating B-I (Small) aircraft has a total length of 1,000 feet, an inner width of 250 feet and an outer width of 450 feet. The total area is 8.035 acres. Bear Lake County Airport RPZs are currently sized to B-I (Small) standards. The RPZs beyond the Runway 10 and 34 ends are penetrated by small gravel roads.

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

with visibility minimum not lower than ¾ miles has a length of 1,700 feet, an inner width of 1,000 feet and an outer width of 1,510 feet. The total area is 48.978 acres.

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

Runway Separation Standards

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

Runway/Taxiway Separation

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

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

Runway/Holding Point Distance

The current Runway/Holding Point distance is 125 feet and meets the FAA requirement for a B-I (Small) airport only. The required separation distance between the runway and holding point positions is 200 feet for airports accommodating a RDC of B-II with visibility minimum not lower than ¾ miles.

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

Runway/Edge of Aircraft Parking Distance

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

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

4.2.6 THRESHOLD SITING REQUIREMENTS

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

When a hazard to air navigation exists, the amount of displacement of the threshold should be based on the operational requirements of the most demanding aircraft using the facility. Displacement of a threshold reduces the length of the runway available for landings in a given direction. Depending on the reason for displacement of the threshold, the portion of the runway behind a displaced threshold may be available for takeoffs in either direction or landings from the opposite direction using declared distances.

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

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

4.2.7 TAXIWAYS

Taxiway and Taxilane Geometry

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

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

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

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

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

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

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

Taxiway Width

The existing taxiway system at Bear Lake County Airport complies with FAA criteria for the TDG 1A width of 25 feet and provides the necessary airfield capacity. The existing taxiway fillets at the airport are designed based on TDG-I. However, design criteria changed after the project was constructed and the existing pavement fillets meet the design criteria at the time of design, but not the current design standards.

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

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

Taxiway Strength

The current strength of the parallel taxiway and connectors is 16,000 pounds single wheel. These taxiway pavements accommodate the activities of existing general aviation aircraft that use the facility on a regular basis as well as the forecast aircraft activity expected to operate at the airport throughout the planning period. Foreseeable conditions do not indicate the need for additional taxiway pavement strength.

Recommendation: It is recommended that future taxiways conform to existing strength and/or match runway strength. A nominal overlay of existing pavements will likely be required in the latter stages of the planning period due to deterioration from weathering and oxidation. Further analysis is also recommended during the latter stages of the planning period to ensure the structural integrity of existing taxiway pavement sections correlates with the strength of the apron and runway.

4.2.8 SUMMARY OF DESIGN STANDARDS

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

TABLE 4-4: SUMMARY OF DESIGN STANDARDS

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

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

4.2.9 NAVIGATIONAL AIDS AND INSTRUMENT APPROACH PROCEDURES

Visual Aids and Lighting

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

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

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

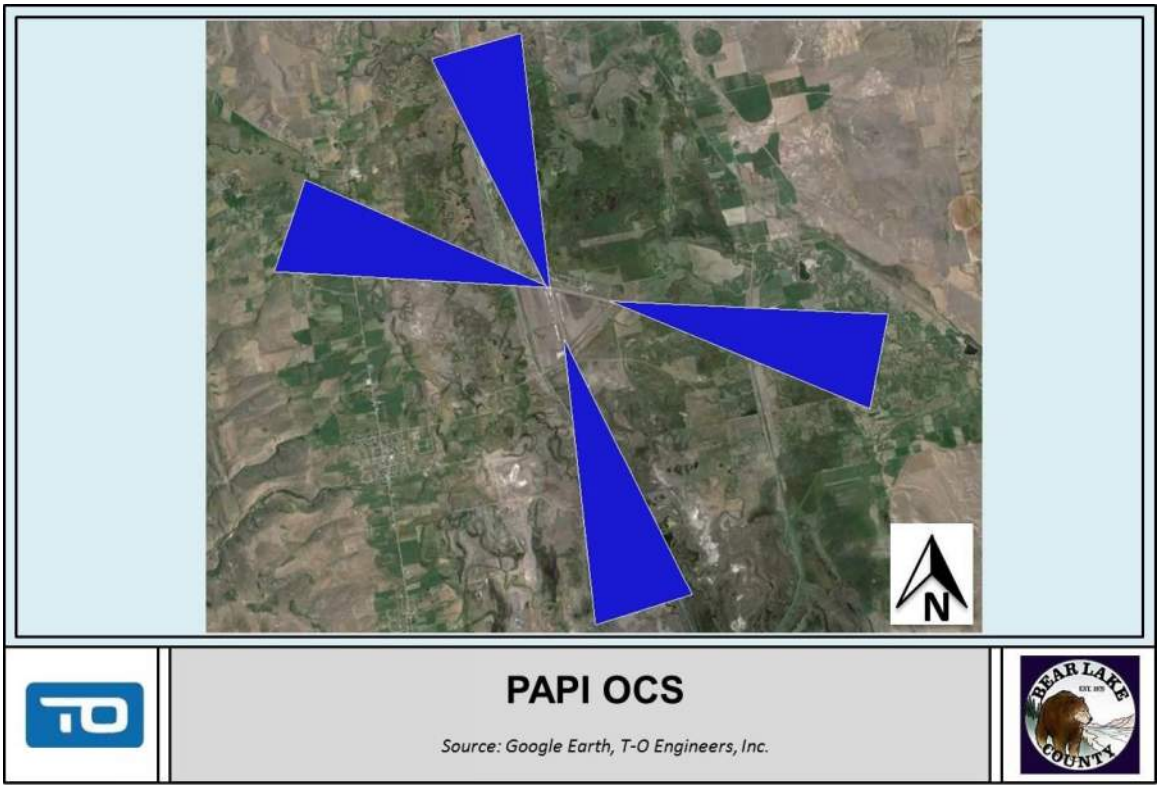
The existing rotating beacon, lighted wind cone and segmented circle are in good condition. The existing equipment in the electrical vault is also in good condition, while the runway lighting system is nearing the end of its useful life and the wiring consists of direct buried wire which is inefficient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

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

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

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

FIGURE 4-2: PAPI OCS OBSTRUCTIONS



Instrument Approach Procedures

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

The FAA is continuing to expand development of global navigational satellite systems using Area Navigation (RNAV) Global Positioning System (GPS) technology for instrument approaches. GPS satellite-based navigational system is able to provide instant and precise aircraft position information for every phase of a flight. Non-precision approaches do not require ground-based facilities on or near the airport for navigation. The GPS receiver uses satellites for navigation allowing for procedures with limited ground-based navigation aids. Therefore, it involves little or no cost to the Airport Sponsor.

Further, instrument approaches increase the utility of airports by providing the capability to operate in inclement weather conditions. This is especially important for Life Flight and business flights. Life Flight operators have noted that the lack of instrument approach procedures currently precludes them from operating at the airport at night and in winter, in all but the most critical of situations. In addition, an instrument approach is also useful for conducting training and maintaining instrument currency and proficiency requirements. Information gathered during

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

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

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

An initial feasibility analysis for NPI capabilities at Bear Lake County Airport was completed by the FAA FPO in 2013. The analysis studied NPI approaches to Runways 16, 34, 10 and 28. Due to terrain and obstacles limitations, an approach to Runway 10 would be the most restricted with visibility minima greater than 1 mile. Approaches to Runway 16 and 34 would offer the lowest minimums given the position of the airspace and terrain. However, these approaches would not be operational at night, unless runway lights are installed. Runway 28 would potentially offer visibility minimum as low as ¾ miles if a parallel taxiway is added.

Continued coordination with FAA FPO by the airport board after completion of the feasibility analysis has resulted in approval by the FAA Regional Airspace Planning Team (RAPT) to include the airport in the FAA's Instrument Flight Procedure (IFP) Production Plan. Scheduled publication of new procedures per the plan is February 2, 2018, for RNAV (GPS) procedures to Runway 10 and Runway 28. Procedure development will also include the development of an NPI approach and RNAV departure procedures.

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

airport board has been proactive in removing trees identified in the 2012 obstruction survey. Removal of the trees has been verified with the FAA and obstructions are no longer present. The completion of an environmental assessment will also be necessary for procedure development. This environmental action will be initiated by the FAA FPO prior to approach design. Lastly, submittal of FAA Form 7480-1 to change the status of the airport from VFR to IFR will be necessary prior to publication of the procedures. Initiating this process is recommended no later than summer of 2015. Continued coordination with the FAA FPO and ADO is recommended to ensure the airport stays in front of FAA required milestones.

Automated Weather

Bear Lake County Airport is not equipped with a FAA certified Automated Weather Observation System (AWOS). Certified weather data in the general vicinity is available 24 hours a day from an automated system at Afton Municipal, WY and Logan-Cache Airport, UT, located respectively at 37.1 miles and 41.1 miles, however, each of these airports is separated from Bear Lake County Airport by significant terrain.

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

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

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

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

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

It should be noted that a benefit-cost analysis will be required prior to the installation of an AWOS III.

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

4.2.10 AIRSPACE

Surrounding Airspace Analysis

Airspace can be affected by different factors, such as special use airspaces, obstacle constraints, and other operational constraints. Special use airspaces, also known as special area of operations (SAO), accommodate particular activities that may require limitation for the aircraft not involved in these activities. Special area of operations includes prohibited areas; restricted areas, warning areas, military operation areas (MOAs), alert areas and controlled firing areas (CFAs). As described in Section 2.14 Surrounding Airspace, Bear Lake County Airport is currently in Class G uncontrolled airspace. No special use airspaces exist in the immediate vicinity of the airport.

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

FAR PART 77 Airspace

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

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

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

Source: FAA Form 5010, T-O Engineers

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

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

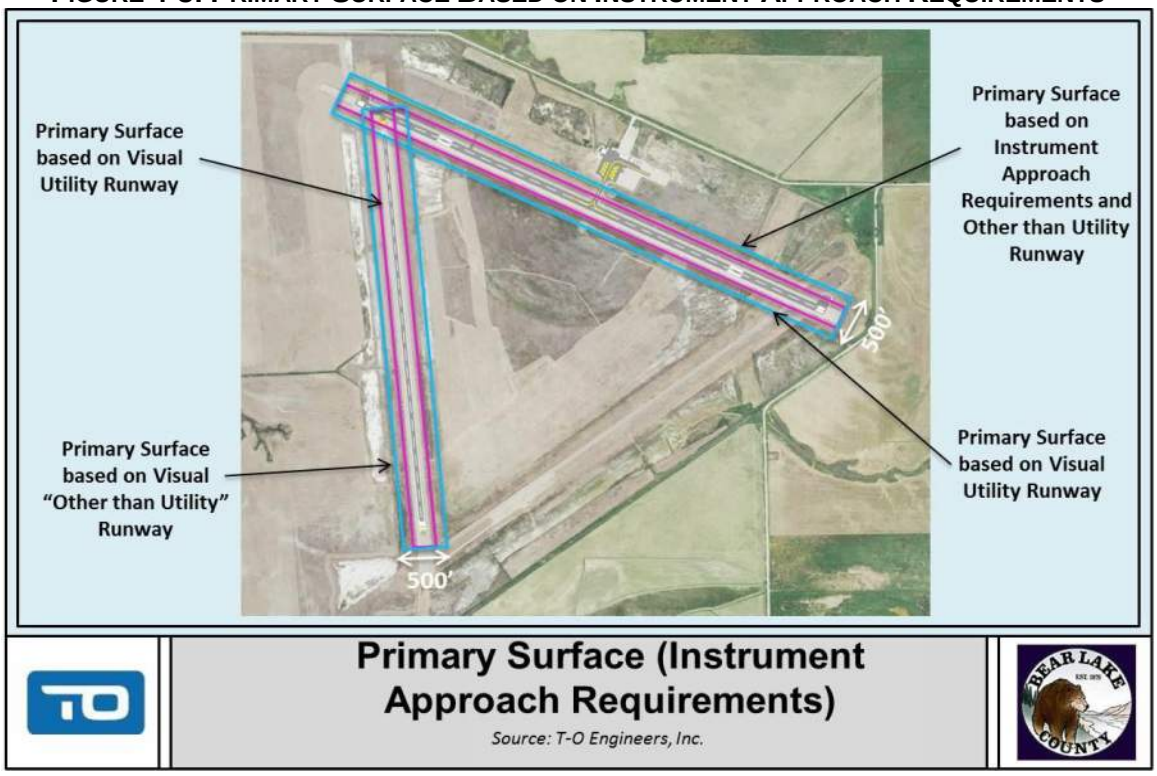
Table 4-6 lists the Part 77 Dimensional standards for various runway configurations and **Figure 4-3** depicts the 500 feet wide Primary Surface for Runway 10/28 and Runway 16/34.

TABLE 4-6: PART 77 DIMENSIONAL STANDARDS

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

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

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



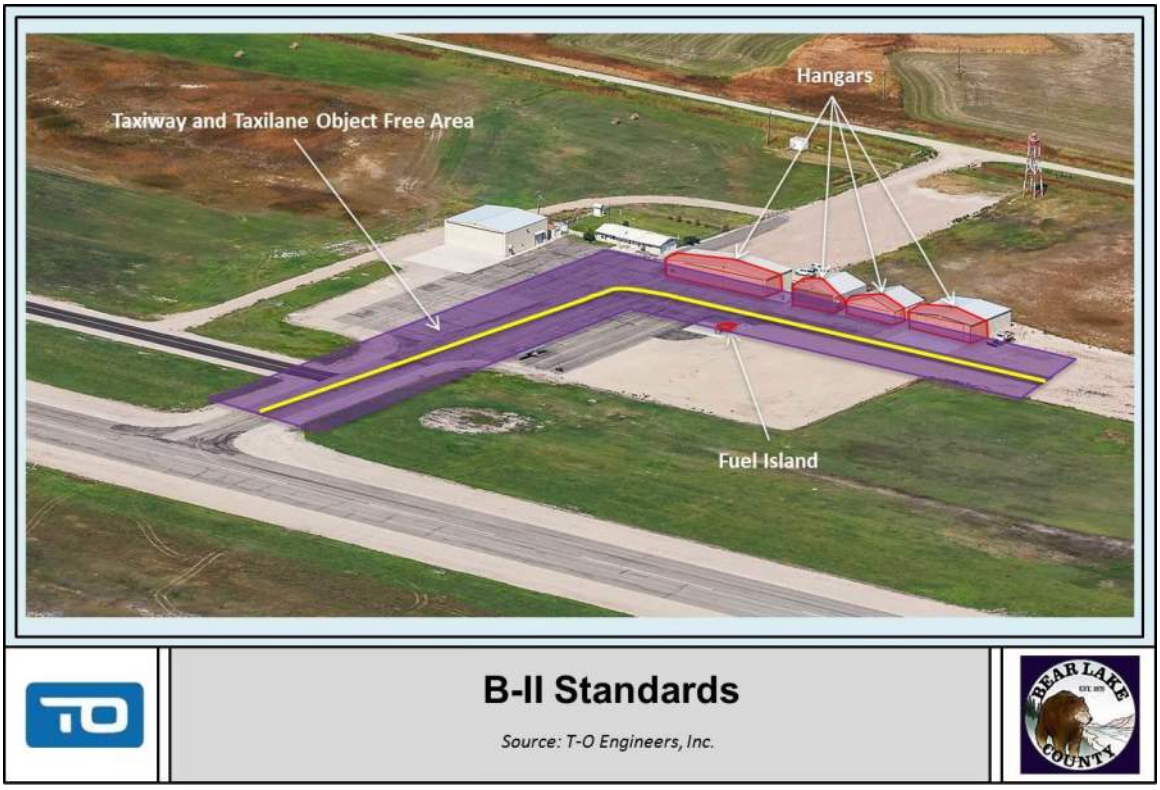
4.3 TERMINAL FACILITY REQUIREMENTS

4.3.1 EFFECTS OF ARC B-II ON TERMINAL FACILITY REQUIREMENTS

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

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

FIGURE 4-2: RELOCATION OF INFRASTRUCTURE



4.3.2 AIRCRAFT PARKING AND STORAGE

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

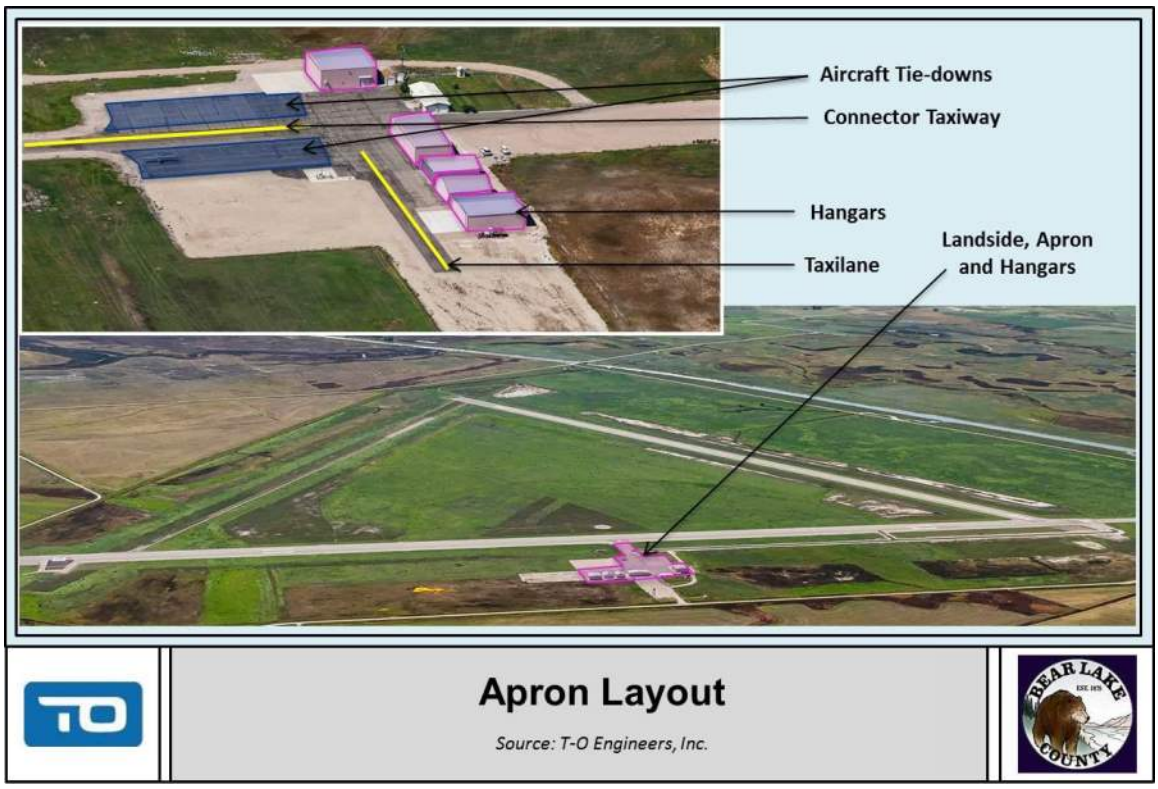
Although the airport currently meets the design standard for an ARC B-I (Small), the proactive approach should consider protecting the area to easily accommodate larger aircraft if the need

arise. To meet the design requirements for an ARC of B-II, Bear Lake County airport would need to increase the separation between the connector taxiway and the apron and tie-down positions as well as between the taxilane and the hangars. To avoid significant impacts on wetlands located along Airport Road, a prudent and proactive approach is to move the taxilane farther from existing hangars and alternatives to address B-II standards will be included in Chapter 5, Alternatives Analysis.

Apron Configuration

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

FIGURE 4-5: APRON LAYOUT



Apron Strength

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

Recommendation: It is recommended that future apron conforms to the existing strength and/or matches the runway strength. Pavement rehabilitation is included in the airport's CIP and anticipated in 2016. Further, a nominal overlay of existing pavements will likely be required in the latter stages of the planning period due to deterioration from weathering and oxidation.

Based Aircraft Storage Requirements

It is usually assumed, for planning purposes, that approximately 80 percent of based aircraft are stored in hangars. However, based on historical trends at Bear Lake County Airport and airports of similar size in similar climates and mountainous area, it was assumed that 95 percent of based aircraft would be stored in hangars through the planning period.

Transient Aircraft Storage Requirements

When determining the amount of apron space required for aircraft tie-downs, a distinction must be made between those aircraft departing from or returning to the airport and those temporarily visiting. A transient operation originates at another airport and temporarily requires tie-down space at Bear Lake County Airport. This distinction is defined as transient versus itinerant operations.

Transient operations are a subset of itinerant operations and are of interest when planning apron space requirements. Transient apron areas are commonly located adjacent to FBO facilities where transient operators commonly park their aircraft. It is typically assumed that transient aircraft operations are conducted by larger aircraft including the larger twin and corporate/business aircraft fleet.

Further, it is assumed that transient aircraft operators are unfamiliar with the airport, thus it is prudent to provide extra space for the aircraft to operate. This translates into the need to reserve extra tie-down space requirements per aircraft when compared to based aircraft.

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

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

FAA AC 5300/13A Change 1 states that the total amount of apron area required is based on local conditions and will vary from airport to airport. This area will vary based on the design aircraft or the fleet mix. Based on the design aircraft at Bear Lake County Airport, the Piper

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

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

Recommendations: Although, meeting B-II design standards reduces the number of tie-downs from fourteen tie-downs to seven tie-downs, based on projected transient and based aircraft operations there is no foreseeable apron shortfall at the end of the 20-year planning period. However, prudent and proactive planning dictates to protect areas for potential improvements.

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

TABLE 4-7: AIRCRAFT APRON REQUIREMENTS

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

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

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

Hangars

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

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

It should be noted that construction of new hangars is demand driven and should only be considered when and if demand at the airport warrants. Actual demand can and should dictate needs. Current utilization and demand for new hangars indicate negative hangar capacity at the airport. **Table 4-8** presents the projected hangar needs throughout the planning period.

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

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

TABLE 4-8: AIRCRAFT HANGAR REQUIREMENTS

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

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

4.3.3 HELICOPTER PARKING

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

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

4.3.4 TERMINAL BUILDING

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

Recommendations: Existing terminal building facilities are in good condition and adequate to meet the needs of the airport, based on current and foreseeable activity. The FAA guidance for determining terminal space requirements indicates that an additional 450 square feet could be considered for the terminal building. Should demand increase and the need arises, an improved terminal building facility could be considered. Recommended improvements could include offices for airport management, restaurant space or other food service facilities as desired. Future space and improvements could be considered at that time should demand warrant.

4.3.5 FIXED BASED OPERATOR (FBO)

There is currently no full-service FBO located at the Airport. Bear Lake County provides the terminal facilities, pilot's lounge, and fueling facilities. The pilot's lounge is open during the day, and 100LL is available through a self-service station. Aircraft repairs are not provided at the airport.

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

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

4.3.6 AUTOMOBILE PARKING AND ACCESS

Currently, no dedicated automobile parking spaces are available for pilots, passengers, tenants, and employees. However, a gravel surface near the airport office and hangars can accommodate automobile parking. Additional gravel parking is available for hangar owners in the vicinity of their hangars.

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

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

GA Automobile Spaces = 2.34 x Peak Hour Operations

Table 4-9 lists the total projected general aviation automobile parking requirements using this equation. Performing this calculation results in a current demand of approximately 12 automobile parking spaces (including 2 courtesy vehicles) at the end of the planning period.

TABLE 4-9: AUTOMOBILE PARKING REQUIREMENTS

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

*Base Year
Source: T-O Engineers Inc.

Recommendations: Although, the current gravel area used as automobile parking lot is large enough to accommodate existing and foreseeable demand, it is recommended to build paved vehicle parking at the airport and identify and mark automobile parking spaces. An analysis of the location of automobile parking area will be provided in Chapter 5, Alternatives Analysis.

It should be noted that even if this particular project is eligible for federal funding, it is not a priority. Additional details will be provided in Chapter 6, Development Plan and Financial Overview.

4.3.7 FUELING FACILITIES

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

Recommendations: It is recommended that the airport continues to provide 100LL. It is also recommended that Jet A be offered at the airport to meet current demand from the existing fleet

mix. Supplying this service is likely to attract additional activity and provide an additional revenue source associated with a fuel flowage fee. A new Jet A fuel tank could be incorporated into an above ground fuel facility. Service could also be provided sooner via the use of a mobile tank truck.

It should be noted that supplying Jet A is to address the existing demand. The addition of Jet A may attract additional large aircraft activity, outside of the design standards. An important shift in the fleet mix toward larger aircraft could necessitate changing the critical aircraft and therefore changing the Airport Reference Code (ARC) and should be monitored.

In addition, there is a national movement by the general aviation community to work with the FAA to allow supplemental certification for current and future GA aircraft to use automotive fuel (MOGAS). MOGAS is less expensive than 100LL which may increase general aviation activity by making it more affordable. Although there is currently no demand for MOGAS at Bear Lake County Airport, the county should monitor this trend in aviation and consider offering MOGAS for future aeronautical activity, if demand arises in the future.

4.4 SUPPORT FACILITY REQUIREMENTS

4.4.1 ACCESS ROAD

Access roadways enable originating and terminating airport users to enter and exit the airport landside facilities. Users can access the airport from the east, the west or the north using respectively Airport Road East, Airport Road North and Dingle Road. None of these roads are paved and the airport is served by gravel roadway.

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

Recommendations: It is recommended that at least one paved access be provided to the airport. The access road will be analyzed with several alternatives in Chapter 5, Alternatives Analysis. Proper coordination with Bear Lake County and Idaho Transportation Department will be necessary. Only the portion of the access road serving the airport exclusively is eligible for federal funding. Additional details will be provided in Chapter 6, Development Plan and Financial Overview.

4.4.2 INFRASTRUCTURE AND UTILITIES

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

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

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

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

4.4.3 FENCING AND SECURITY

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

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

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

4.4.4 SNOW REMOVAL EQUIPMENT (SRE)

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

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

A dedicated piece of airport SRE equipment is recommended. This would most likely be a single piece of equipment that could serve both for snow removal and routine airport maintenance.

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

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

4.5 OTHER REQUIREMENTS

4.5.1 AIRPORT PROPERTY

Existing Property

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

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

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

4.5.2 PAVEMENT MAINTENANCE

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

4.6 SUMMARY OF REQUIREMENTS AND RECOMMENDATIONS

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

It is understood that the need for full build-out of the airport as depicted on the ALP drawing set is speculative to a certain degree and not currently justified based on the aviation activity forecasts performed as part of this study. Nevertheless, recommendations have been developed based on a proactive planning approach. Long-term guidance is presented to the County to assist them in facilitating logical and orderly development over the planning period as

opposed to developing what is most convenient and expedient at the time. Many of the recommendations are demand driven and should only be considered when and if demand at the airport warrants.

Although it is not anticipated that the airport will need to meet design standards beyond B-II over the planning period, Bear Lake County needs to continue monitoring the traffic as well as the fleet mix using the airport.

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

TABLE 4-10: SUMMARY OF FACILITY REQUIREMENTS

Facility	Existing	Recommended
Runway 10/28		
Length (usable)	5,728’	Minimum 5,728’
Width	75’	75'
Strength	12.5 SWG	34.5 SWG / 46 DWG
Markings	Visual	Non-Precision Instrument
Runway 16/34		
Length (usable)	4,590’	4,590’
Width	60’	60'
Strength	50 SWG/64 DW/102 DTW	21.5 SWG
Markings	Visual	Visual
Taxiways		
Type	Partial Parallel Taxiway (Runway 10/28)	Full Parallel (Recommended Runway 10/28 only)
Width	25'	35'
Strength	16 SWG	16 SWG
Navaids, Visual Aids, and Lighting		
Approach	Visual	Instrument Approach
Automated Weather	Non-certified weather and certified altimeter	AWOS
Runway Lights	Non-standards MIRL (Runway 10/28)	MIRL Runway (10/28)
Taxiway Lights	Reflectors	Reflectors
REILs	None	All Runways (Priority Runway 28)
Precision Approach Path Indicator (PAPI)*	None	All Runways (Priority Runway 28)
Airfield Signage	None	Yes (Taxiway/Runway holding position signs)
Segmented Circle	Yes	Yes (supplemental wind cone on each runway end)
Wind Cone	Yes	Yes
Airport Beacon	Yes	Yes
Aircraft Storage		
Tiedowns	14	14
Apron Strength	12.5 SWG	47.2 SWG / 40 DWG
Box Hangars	6	10
Terminal/FBO		
Terminal	Approximately 500 sq. ft.	Minimum of 500 sq. ft.
FBO	No	Yes (Demand-driven)
Access and Parking		
Automobile	Gravel Area	12 (paved)
Snow Removal/Maintenance		
SRE and Maintenance	Yes (inadequate)	New SRE and Storage Building
Fuel		
100LL	Yes	Yes
Jet-A	No	Yes
MOGAS	No	Yes
Fuel Service	24-hour reader	24-hour reader
Airport Property		
Land	1,130 acres	TBD

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

Source: T-O Engineers

Additional Requirements

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

5.0 ALTERNATIVES ANALYSIS

The Alternative Analysis section of the airport master plan identifies options to meet the projected facility requirements and assesses each alternative to select a preferred development plan that accommodates the identified demand, facility requirements, and recommendations.

Multiple options for both airside and landside alternatives were considered by the planning team and the County in arriving at the preferred alternatives. These preferred alternatives serve as the basis for the Airport Layout Plan (ALP) drawing set shown in **Chapter 8**.

5.1 AIRPORT DEVELOPMENT ASSUMPTIONS

The previous chapters of the airport master plan, and in particular Chapter 3, Aviation Activity Forecasts, and Chapter 4, Facility Requirements, have analyzed the future demand and the need for improvements at the airport. Further, Chapter 4, Facility Requirements, addressed the impact growth may have on specific airport features such as the runway, taxiway system, aprons and hangar space. This chapter will take the process a step further and outline specific development alternatives as well as the rationale behind the selection of specific alternatives.

The following sections describe specific considerations for development of the selected alternatives.

5.1.1 AIRPORT USERS

Chapter 3, Aviation Activity Forecasts, profiled typical users of the Bear Lake County Airport today and over the course of the planning horizon. Currently, single-engine piston aircraft are the primary users of the airport, with occasional use by larger corporate aircraft. Although single-engine piston aircraft will continue to dominate the demographic of the airport during the planning period, the forecast predicts a slight increase in multi-engine, including turbine, aircraft.

5.1.2 ACTIVITY LEVELS

The level of activity at Bear Lake County Airport is predicted to slowly increase during the planning period. The growth of both based aircraft and total number of operations reflects national and state trends in aviation activity. Details of projected growth are reflected in Chapter 3, Aviation Activity Forecasts.

5.1.3 FACILITIES CONFIGURATION

The configuration of existing facilities at Bear Lake County airport was also a determining factor when analyzing the potential layout of future facilities. The layout of new aprons, taxiways and hangars must be complementary to existing facilities to provide useable and cost effective

options to the airport. This airport master plan seeks to make use of existing facilities to the greatest extent possible and enhance them for future development.

5.2 AIRPORT DEVELOPMENT GOALS

Realistic goals for development, which reflect the role of Bear Lake County Airport in the community, have been identified in this planning effort. These goals were developed with consideration of both the short-term and long-term needs of the airport including interest of airport users, compatibility with the surrounding land use, safety, noise, financial and economic conditions.

These goals include:

- Preparation of a logical development program for the airport that provides a realistic vision for the future.
- Analysis that provides financially feasible projects that enhance the self-sustaining capability of the airport.
- Adherence to minimum design standards, rules and regulations.
- Preservation of existing private and public investment in the airport and related facilities through land use compatibility.
- Minimize environmental impacts of future development.

As mentioned in Chapter 4, Facility Requirements, it is understood that the need for *full* build-out of the airport as depicted on the ALP drawing set is unlikely and not justified based on the aviation activity forecasts performed as part of this study. Nevertheless, recommendations and alternatives have been developed based on a proactive planning approach whereby long-term guidance has been presented to the County to assist them in facilitating logical and orderly development over the planning period, and beyond.

When such a plan does not exist, it is not uncommon to make development decisions based on what is most convenient and expedient at the time. For example, a new tenant may wish to build a hangar at a certain location at the airport. In the short-term, this location may work fine and be expedient. In the long-term, however, this location might have been better suited for other future development. The alternatives and plan presented provide the roadmap and guidance to Bear Lake County to avoid falling into this trap. Further, it is understood that inclusion of the identified projects on the ALP do not indicate a commitment on the part of the FAA or the State of Idaho to provide funding for any or all of the projects. This said projects are *not* eligible if *not* shown on the airport's approved ALP.

As previously stated, many of the recommendations contained in this planning study are demand driven and will only be considered when and if demand at the airport warrants.

5.3 EVALUATION CRITERIA

In order to assess and evaluate the different alternatives, several evaluation criteria were used:

- Operational
- Environmental
- Feasibility
- Compatibility with future needs
- Cost

Operational

The operational criterion assesses the ability to accommodate current and forecast demand in a safe and efficient manner.

Environmental

This criterion assesses the level of environmental impacts and environmental disruptions.

Feasibility

The feasibility criterion assesses the construction feasibility of each alternative, with special attention given to the wetlands and farmlands.

Compatibility with future needs

This criterion assesses the compatibility with future short- and long-term needs.

Cost

This evaluation criterion provides an estimation of the project expenses and assesses the ability to answer the needs costs-effectively.

5.4 AIRPORT FACILITIES REQUIREMENTS

Table 5-1 lists all the facilities recommended at the airport, as previously identified in Chapter 4, Facility Requirements.

TABLE 5-1: SUMMARY OF FACILITY REQUIREMENTS

Facility	Existing	Recommended
Airside Alternatives		
Design Standards*	B-I Small	B-II (Runway 10/28) B-I Small (Runway 16/34)
Runway 10/28 Length*	5,728'	At least 5,728' (FAA recommends 7,200'**)
Runway 16/34*	Paved Runway	See Section 5.6.2
Taxiway*	Partial Parallel Taxiway (Runway 10/28)	Full Parallel (Recommended Runway 10/28 only)
Helicopter Parking Pad*	No	Yes
Landside Alternatives		
Tiedowns*	14	14
Terminal/pilot's lounge*	Approximately 500 sq. ft.	Minimum of 500 sq. ft.
Box Hangars*	6	10
Fuel Facility*	Yes (Avgas Only)	Yes (Avgas, Jet A, Mogas)
FBO*	No	Yes
Access Road and Automobile Parking*	Gravel Area	12 (paved)
Utilities Extension	-	As necessary
Other requirements listed on ALP		
Approach	Visual	Non-precision Instrument Approach
Automated Weather	Non-certified weather and certified altimeter	AWOS
REILs	None	Runway 28 (and other ends as necessary)
Precision Approach Path Indicator (PAPI)*	None	Runway 28 (and other ends as necessary)
Airfield Signage	None	Yes (Taxiway/Runway holding position signs)
Segmented Circle	Yes	Yes (supplemental wind cone on each runway end)
Wind Cone	Yes	Yes
Airport Beacon	Yes	Yes
SRE and Maintenance	Partial (inadequate)	New SRE and Storage Building
Renumber Runways	10/28 and 16/34	11/29 and 17/35 (2030)
Perimeter Fence*	Barbed-wire cattle fence	Wildlife fence

*Facilities that will be detailed in this chapter of the Airport Master Plan.
**Figure 2-1 in FAA AC 150/5325-4B
The other facilities will only be depicted on the ALP.
Source: T-O Engineers

The facilities that will be detailed in the following sections of this Airport Master Plan are:

- Airside
  - B-II Standards
  - Runway Extension
  - Future of the secondary runway
  - Runway decoupling
  - Taxiway
  - Wind cone and segmented circle

- Automated Weather (AWOS)
- Landside
  - Aircraft Apron and FBO
  - Fuel Facility
  - Aircraft Storage and Hangars
  - Road Access
  - Automobile Parking
  - Airport Fence

The other facilities, outside of those listed above, do not require a detailed analysis of alternatives. However, they will be listed and depicted on the ALP as appropriate.

5.5 AIRPORT DESIGN STANDARDS

As mentioned in Section 4.2.2, Design Standards and Accommodating ARC B-II, protecting for B-II standards at Bear Lake County Airport is recommended as a prudent, proactive planning approach. Because the airport is not constrained and because a precedent has been established with the new partial parallel taxiway, protecting for larger standards before the facilities are constrained is reasonable and recommended.

In addition, accommodating RDC B-II and meeting the new runway protection and runway separation requirements will have little impact on the existing facilities; most of the impact will be on apron and hangars areas, which will be addressed in Section 5.7, Landside Alternatives. Several of the existing facilities could remain at their existing location, but other facilities including aircraft parking aprons, and the fueling facilities may need to be relocated depending on the preferred landside alternative. It was assumed that Runway 16/34 would be maintained as a B-I Small runway. An additional discussion is provided in Section 5.6.2, Future of the Crosswind Runway.

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

An initial feasibility analysis for NPI capabilities at Bear Lake County Airport was completed by the FAA FPO in 2013. It indicates that Runway 28 would potentially offer visibility minimum as low as ¾ miles if a parallel taxiway is added. This requires a larger approach Runway Protection Zone (RPZ) on the Runway 28 end as summarized in **Table 5-2**.

Table 5-2 summarizes the design standards impacted by the change of ARC; only the design standards not already met at Bear Lake County Airport are included in this table. Alternatives to address these deficiencies are detailed in Section 5.6, Airside.

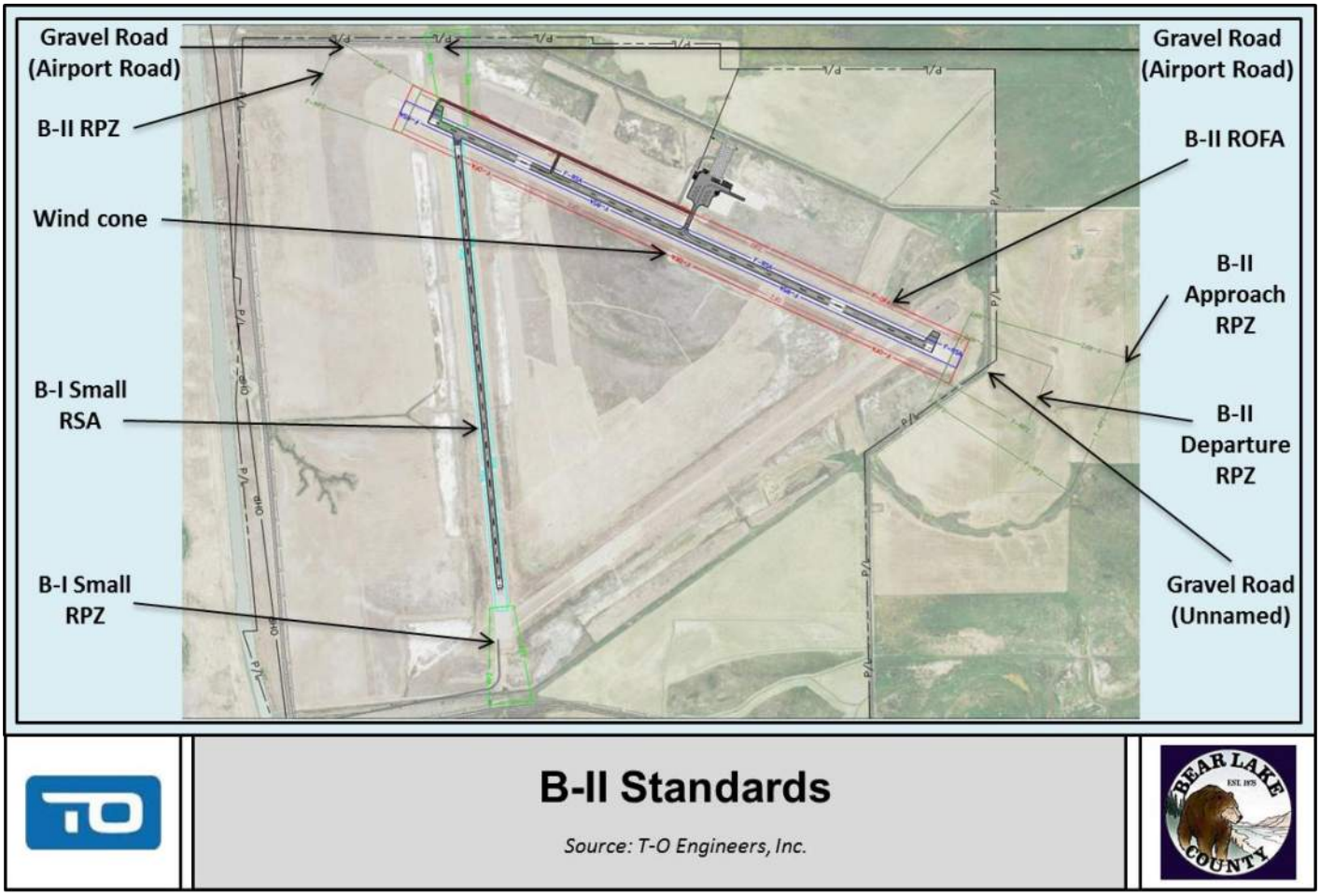
TABLE 5-2: SUMMARY OF DESIGN STANDARDS

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

*B-II standards for visibility minimum not lower than ¾ miles
**Gravel roads penetrate the B-II RPZs beyond Runways 10 and 28 ends, and B-I Small RPZs beyond Runways 16 and 28 ends
Source: Existing ALP and Narrative, T-O Engineers

Figure 5-1 depicts the B-II Runway Protection standards.

FIGURE 5-1: B-II RUNWAY PROTECTION STANDARDS



5.5.1 RUNWAY OBJECT FREE AREA (ROFA)

Based on B-II design standards, the wind cone and segmented circle is in the ROFA and needs to be relocated. Additional discussion on the wind cone is provided in Section 5.6.5, Wind cone and segmented circle.

No other significant impacts on the ROFA are expected from meeting B-II design standards. The hay bales in the ROFA, noted by the FAA during the compliance inspection, are temporary obstacles by nature and have since been removed. Recommendations have been made to the airport and agricultural operators to maintain agricultural activity in accordance with both FAA AC 150/5200-33 and AC 150/5300-13A (as amended). The airport has since revised the agreement with the farmers to address this issue.

5.5.2 RUNWAY PROTECTION ZONE (RPZ)

As previously mentioned, gravel roads are located east of the airport in the Runway 28 B-I Small RPZ and north of the airport in Runway 16 B-I Small RPZ. Further, when protecting for B-II standards, the gravel road east of the airport is still a penetration of the Runway 28 B-II RPZ, while the gravel road north of the airport penetrates the far corner of the Runway 10 B-II RPZ. **Table 5-3** summarizes the RPZ penetrations and **Figure 5-2** depicts the B-II RPZs. As previously mentioned, the potential visibility minimum for the NPI approach on Runway 28 (¾ miles) necessitates a larger B-II approach RPZ on Runway 28 end.

TABLE 5-3: SUMMARY OF DESIGN STANDARDS

Runway	B-I Small*	B-II*
10	-	Road in the farther corner of the RPZ
28	Road in the RPZ (central portion)	Road in the RPZ (central portion)
16	Road in the RPZ (central portion)	N/A**
34	-	N/A**

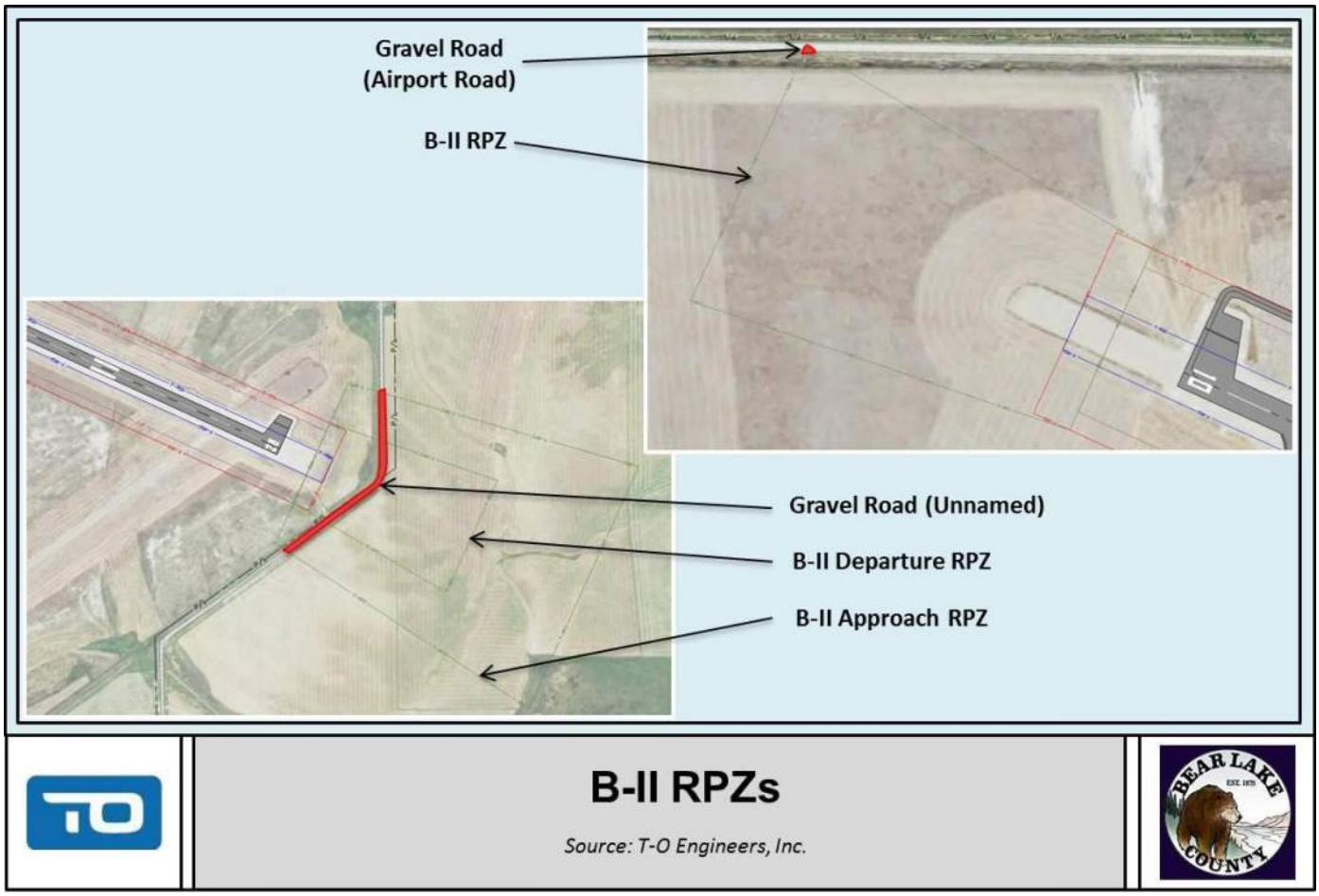
* Mitigation measures will be addressed in Sections 5.6.1 and 5.6.3

** Runway 16/34 is not anticipated to meet B-II standards

Source: T-O Engineers

Alternatives to address the B-II RPZ penetration for Runway 10/28 will be discussed in Section 5.6.1, Runway 10/28 Extension, while alternatives to address the Runway 16 RPZ will be discussed in Section 5.6.3, Runway Decoupling. Based on the preferred runway extension alternative, the road east of the airport will be relocated to accommodate a future runway extension. In addition, based on the preferred runway decoupling alternative, the road north of the airport will be removed from the Runway 16 B-I Small RPZ.

FIGURE 5-2: B-II RPZ



5.6 AIRSIDE ALTERNATIVES

Primary airside facility recommendations include an extension of Runway 10/28, analysis of the crosswind runway (Runway 16/34), runway decoupling and a parallel taxiway extension.

5.6.1 RUNWAY 10/28 EXTENSION

As discussed in Section 4.2.3, Runways, based on the FAA runway length requirements, a runway extension of up to 1,472 feet is justified to accommodate 100 percent of the small airplanes with less than 10 passenger seats. This scenario should be implemented when and if the airport activity warrants.

To accommodate an extension of this length, four alternatives were developed:

- Alternative 1: Extend Runway 10 965’ and Runway 28 72’
- Alternative 2: Extend Runway 10 770’ and Runway 28 72’
- Alternative 3: Extend Runway 10 500’ and Runway 28 972’
- Alternative 4: Extend Runway 10 1,472’

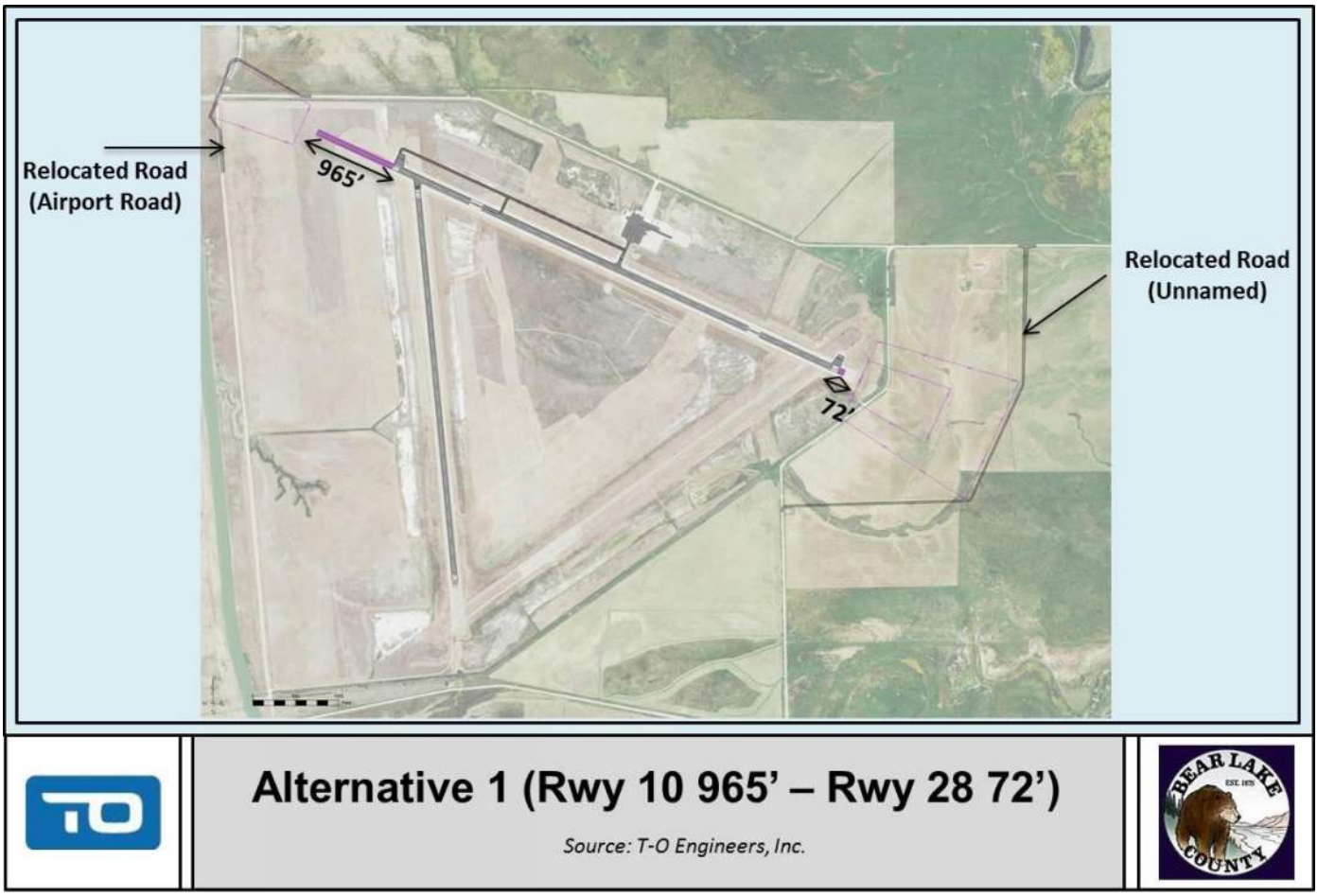
Alternatives 1 and 2 do not meet the runway length recommended in FAA guidance but were designed to maintain the RSA, ROFA, and OFZ on existing airport property. Alternatives 3 and 4 meet the runway length recommended in FAA guidance but extend beyond existing airport property limits. Both roads impacted by each of the alternatives do not currently meet the county standard roadway width of 24 feet. The following alternatives include the cost of relocating and widening the roads to county standard but do not include the cost of widening other portions of the road outside of what is impacted by each alternative. Furthermore, the airport is located in an area with numerous wetlands. As part of the project, wetlands were delineated and a cultural survey performed within a portion of the airport. In addition to the wetlands delineated as part of the project, numerous wetlands surround the airport and will be impacted by each of the alternatives. Also, the cultural resource survey identified the existing beacon tower and the canal paralleling Airport Road as resources eligible for list on the National Register of Historic Places. The beacon tower would not be impacted by any of the proposed alternatives but several alternatives would impact the historic canal. The following paragraphs summarize the four alternatives.

Alternative 1: Extend Runway 10 965' and Runway 28 72'

Alternative 1 extends Runway 10 965' to the North and Runway 28 72' to the South. This alternative maintains the RSA, ROFA, and OFZ on airport property. The RPZs on both runway ends are penetrated by incompatible land uses, namely, gravel roads and these roads would have to be relocated. In addition, the RPZs extend outside airport property and the airport would have to acquire the land or secure an avigation easement. Further, if an instrument departure were to be planned for the Runway 28 end, the power line and power poles located to the northeast of the airport would be an obstruction to the 40:1 departure slope. This alternative also impacts wetlands, the known historic canal along Airport Road and some farmland.

Figure 5-3 depicts this alternative. The estimated costs for this alternative, including the road relocation and land acquisition, are $4,240,300.

FIGURE 5-3: ALTERNATIVE 1



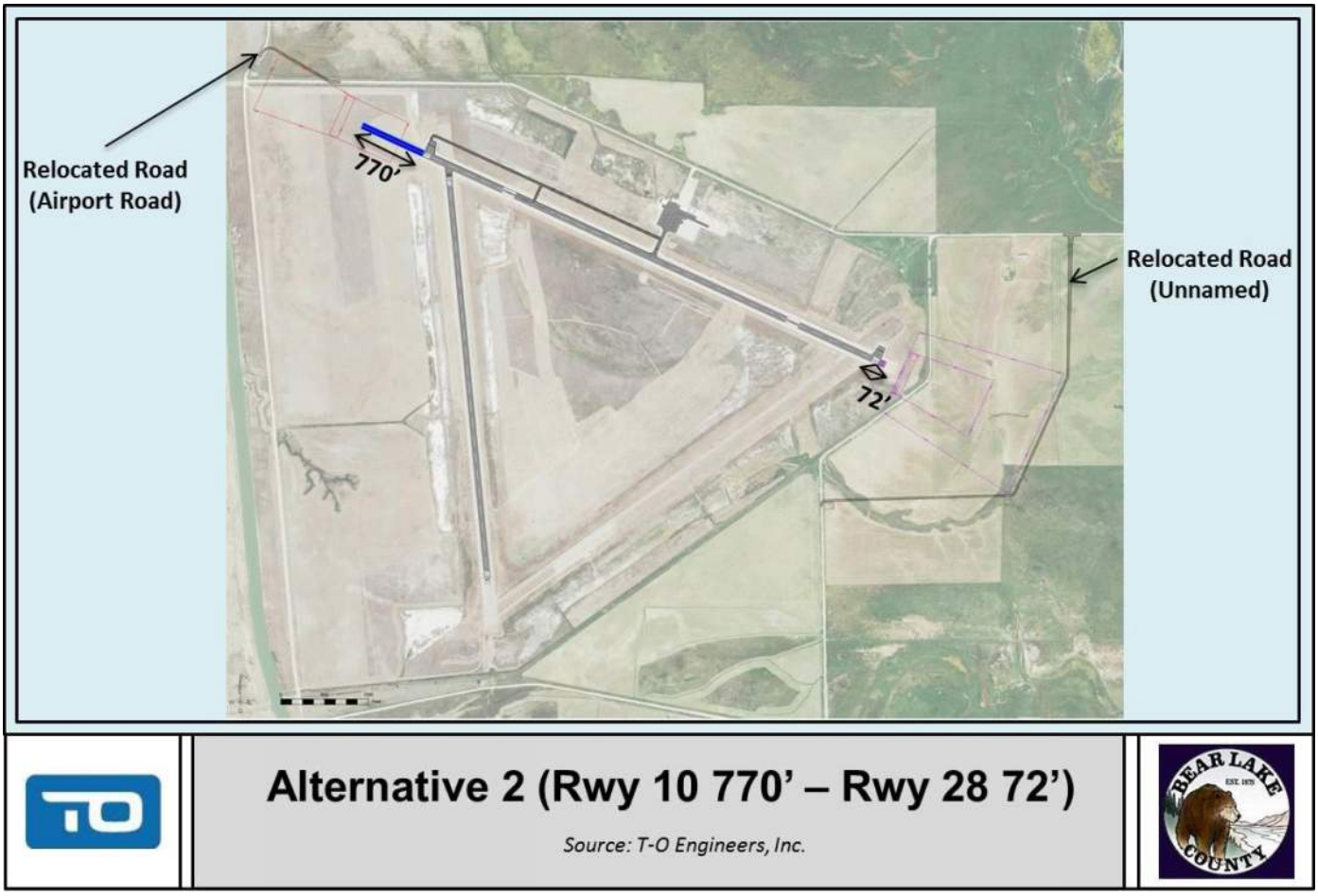
Alternative 2: Extend Runway 10 770' and Runway 28 72'

Alternative 2 extends Runway 10 770' and Runway 28 72'. As in Alternative 1, this alternative maintains the RSA, ROFA, and OFZ on airport property. In addition, this alternative was designed to avoid relocating North Airport Road. However, the access road to the airport, Airport Road, will still need to be relocated as well as the road south of the airport.

The RPZs on both ends extend beyond airport property and the airport would either have to acquire the land or secure an avigation easement. Further, if an instrument departure were to be planned for Runway 28 end, the power line and power poles located to the northeast of the airport would be an obstruction to the 40:1 departure surface. This alternative also impacts wetlands, the known historic canal along Airport Road and some farmland.

Figure 5-4 depicts this alternative. The estimated costs for this alternative, including the road relocation and land acquisition, are $3,683,300.

FIGURE 5-4: ALTERNATIVE 2



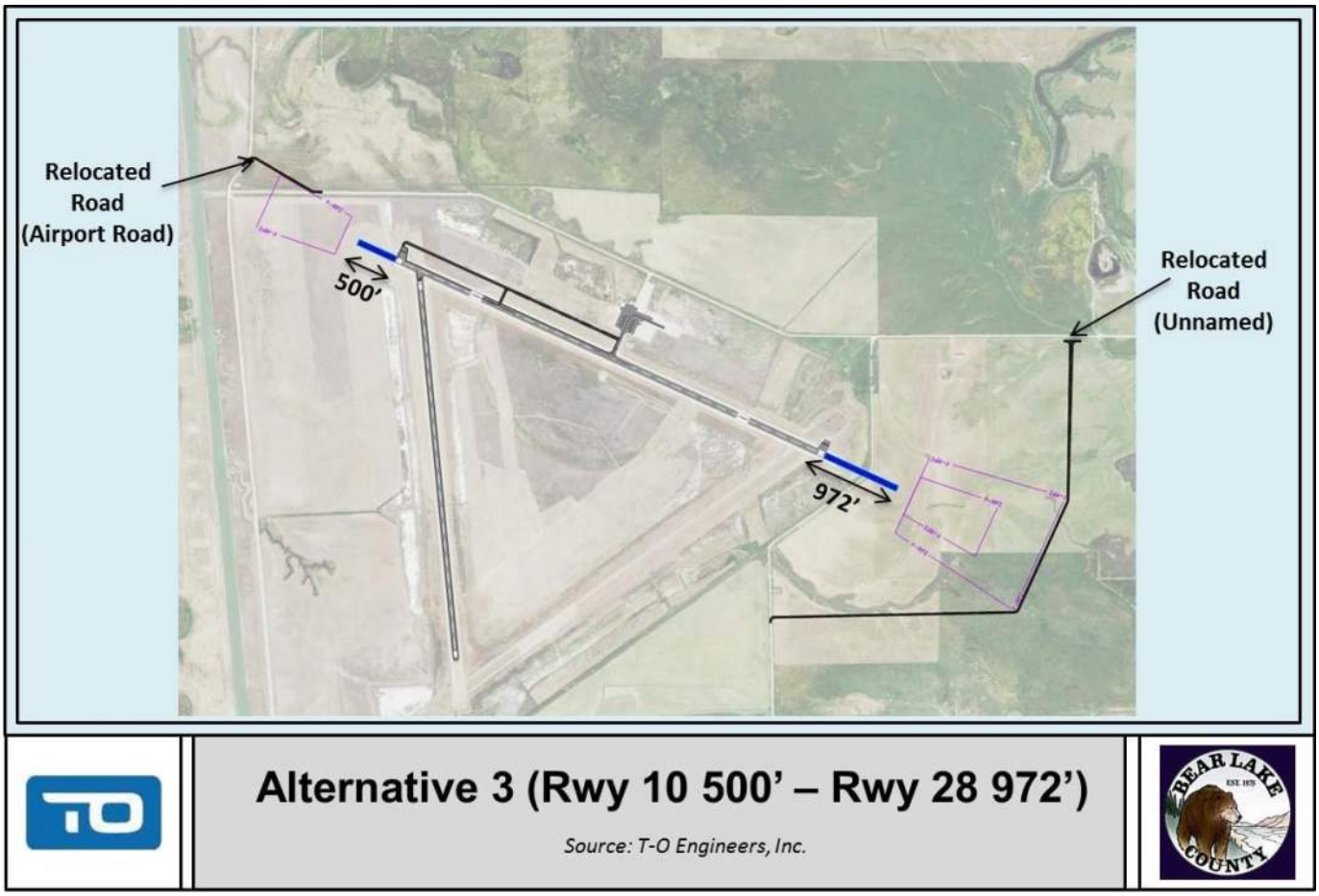
Alternative 3: Extend Runway 10 500' and Runway 28 972'

Alternative 3 extends Runway 10 500' and Runway 28 972'. This alternative maintains the RSA, ROFA, and OFZ prior to Runway 10 threshold on airport property. However, it extends beyond airport property limits on the southeast (beyond Runway 28 threshold). Fee simple land acquisition will be necessary to extend the runway to the south.

This alternative does not require relocating North Airport Road. However, the access road to the airport, Airport Road, would need to be relocated as well as the road south of the airport. In addition, Runway 10 RPZ extends beyond airport property and the airport would need to acquire the land or secure an avigation easement. This alternative maintains the power line and power poles located to the northeast of the airport out of the 40:1 departure surface. This alternative also impacts wetlands, the known historic canal along Airport Road and some farmland.

Figure 5-5 depicts this alternative. The estimated costs for this alternative, including the road relocation and land acquisition, are $4,757,200.

FIGURE 5-5: ALTERNATIVE 3

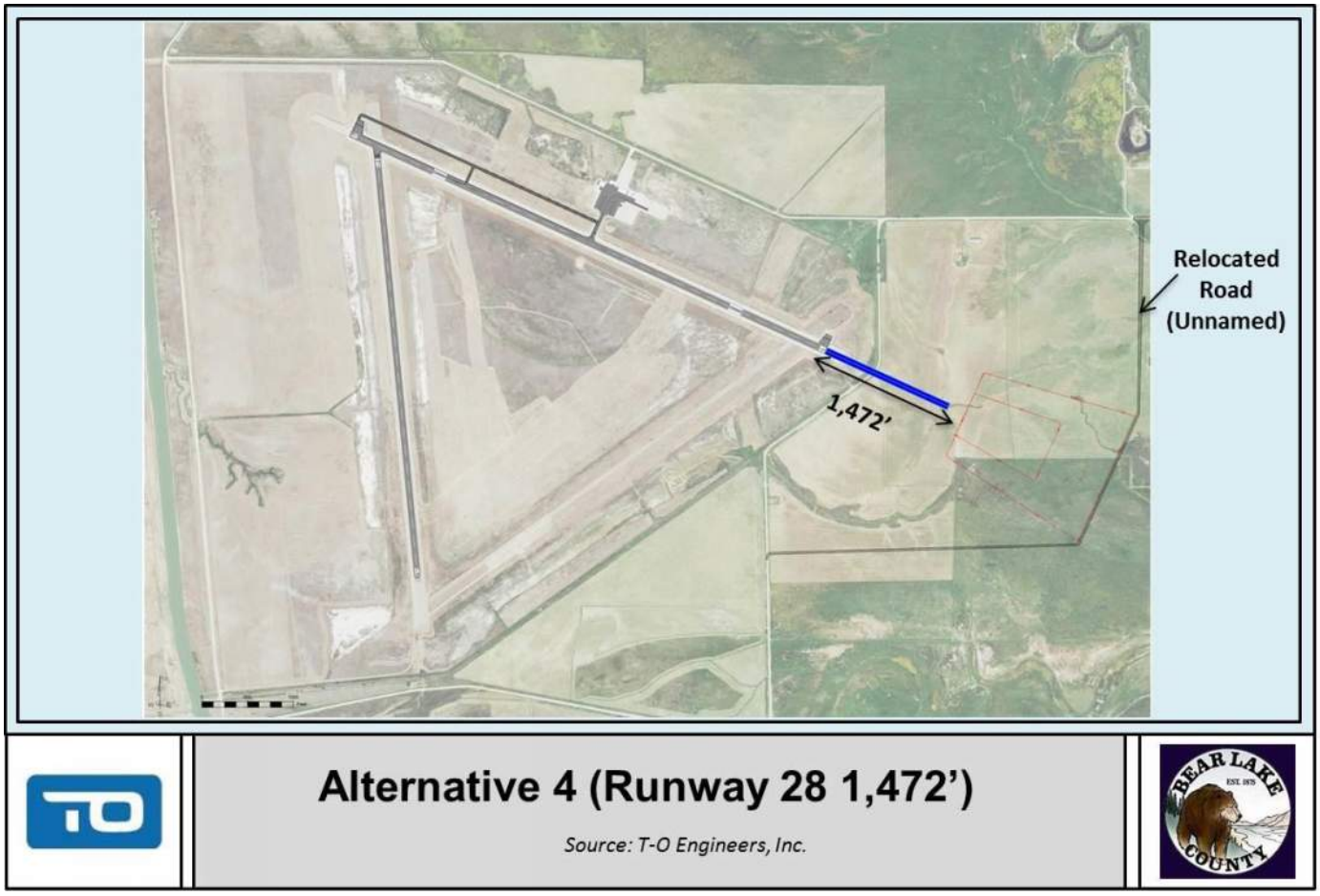


Alternative 4: Extend Runway 10 1,472'

Alternative 4 extends Runway 10 1,472'. This alternative extends beyond airport property and the airport would need to acquire land. The gravel road south of the airport would need to be relocated or closed to remain out of the new RPZ. The access road to the airport is in the corner of the B-II RPZ. A benefit costs analysis would be required to analyze whether the road needs to be rerouted or the impact of relocating the road through a wetland area outweighs the benefits. This alternative also impacts wetlands and some farmland but does not impact the known historic canal along Airport Road.

Figure 5-6 depicts this alternative. The estimated costs for this alternative, including the road relocation and land acquisition, are $4,622,000.

FIGURE 5-6: ALTERNATIVE 4



Alternatives Evaluation

Table 5-4 summarizes the different alternatives in relation to the selected criteria.

TABLE 5-4: RUNWAY EXTENSION ALTERNATIVES SUMMARY

	"No-Action" Alternative	Alternative 1: RW 10 965' – RW 28 72'	Alternative 2: RW 10 770' - RW 28 72'	Alternative 3: RW 10 500' - RW 28 972'	Alternative 4: RW 28 1,472'
Operational	Maintain existing operational capabilities.	Extends Runway 10/28 by 1,037', less than the FAA recommendation of 1,472'. Power line and power pole in 40:1 departure surface.	Extends Runway 10/28 by 842', less than the FAA recommendation of 1,472'. Power line and power pole in 40:1 departure surface.	Extends Runway 10/28 by 1,472', as recommended by FAA guidance. Power line and power pole out of 40:1 departure surface.	Extends Runway 10/28 by 1,472', as recommended by FAA guidance. Power line and power pole out of 40:1 departure surface.
Environmental	No additional environmental impacts.	Impact areas with no previous development, but Runway extension remains entirely on airport property. Earthwork and environmental coordination necessary. The road relocation may impact wetlands and wetland delineation will be necessary. Wetland mitigation may also be necessary. The canal along the road is eligible for the NHRP and impacts to the canal from road relocation may require mitigation.		Impacts areas with no previous development. Land acquisition is necessary. Earthwork and environmental coordination necessary. May impact wetlands and farmlands. Wetland delineation will be necessary, as well as environmental coordination.	
		Significant road relocation and wetland impacts on both runway ends. Impacts the NHRP eligible canal along road on Runway 10 end.	Significant road relocation and wetland impacts on both runway ends. Impacts the NHRP eligible canal along road on Runway 10 end.	Significant road relocation and wetland impacts on both runway ends. Impacts the NHRP eligible canal along road on Runway 10 end.	Significant road relocation and wetland impacts on Runway 10 end..
Feasibility	Feasible.	The runway extension and RSA/ROFA/OFZ remain on airport property. Fee simple acquisition or avigation easement will be necessary. Requires relocating North Airport Road and Airport Road.	The runway extension and RSA/ROFA/OFZ remain on airport property. Fee simple acquisition or avigation easement will be necessary. Requires relocating Airport Road only.	The runway extension and RSA/ROFA/OFZ extend beyond airport property. Fee simple acquisition will be necessary. Requires relocating road out of the RPZ or closing the road.	
Compatibility with future needs	May limit aircraft using the airport (especially jet aircraft and multi-engine aircraft)	Increase the runway length by 1,037' but may limit aircraft using the airport (especially jet aircraft and multi-engine aircraft)	Increase the runway length by 842' but may limit aircraft using the airport (especially jet aircraft and multi-engine aircraft)	Increase the runway length by 1,472' as recommended in FAA guidance.	Increase the runway length by 1,472' as recommended in FAA guidance.
Costs	No additional costs.	Costs Estimate: $4,240,300.	Cost Estimates: $3,683,300	Cost Estimates: $4,757,200	Cost Estimates: $4,622,000

Source: T-O Engineers, Inc.

Table 5-5 shows the evaluation matrix with the values attributed to the different alternatives, each criteria being graded out of 5. Alternative 4 scores the highest.

TABLE 5-5: RUNWAY EXTENSION ALTERNATIVES EVALUATION MATRIX

	No Action	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Operational	0	4	3	5	5
Environmental	5	2	2	2	3
Feasibility	5	2	3	2	3
Compatibility with Future Need	0	4	3	5	5
Costs	5	3	4	2	2
TOTAL	**15**	**15**	**15**	**16**	**18**

Source: T-O Engineers, Inc.

Preferred Alternative

The preferred alternative is Alternative 4, as shown on the ALP. A runway extension of 1,472 feet will allow Bear Lake County Airport to meet the runway length as recommended in FAA guidance. As previously mentioned, the access road to the airport is in the corner of the future B-II RPZ and a benefit costs analysis will be required to analyze whether the road needs to be relocated or the costs of relocating the road in a wetland area outweigh the benefits. The road to the south of the airport will have to be either relocated as part of the runway extension or closed.

Because this project will require land acquisition and will impact wetlands, farmlands, and areas that have no previous development, it is expected an Environmental Assessment will be necessary.

Phasing may be necessary and will be addressed in Chapter 6, Development Plan/Financial Overview.

5.6.2 FUTURE OF RUNWAY 16/34

As discussed in a Runway Configuration Technical Memorandum, included as **Appendix C,** five alternatives were developed to minimize the maintenance expenses while maintaining the wind coverage for small aircraft:

- Alternative 1: No Action - Maintain the two paved runways
- Alternative 2: Maintain only Runway 10/28 at its existing alignment
- Alternative 3: Realign Runway 10/28 and maintain only one runway
- Alternative 4: Convert Runway 16/34 to gravel runway
- Alternative 5: Convert Runway 16/34 to turf runway

Additional details on each of these alternatives are provided in **Appendix C**, Runway Configuration Technical Memorandum. **Table 5-5** and **Figure 5-7** provides a comparison of the maintenance costs of the different alternatives. These costs include engineering and contingency costs.

TABLE 5-5: MAINTENANCE COSTS COMPARISON

	Initial Costs	Average Annual Maintenance Costs	Total
Alternative 1	**$200,000**	**$173,250**	**$3,665,000**
Alternative 2	**$225,000**	**$106,250**	**$2,350,000**
Alternative 3	**$7,100,000**	**$18,750**	**$7,475,000**
Alternative 4	**$350,000**	**$123,325**	**$2,816,500**
Alternative 5	**$400,000**	**$110,870**	**$2,617,400**

Source: T-O Engineers, Inc.

Alternatives Evaluation

Table 5-6 summarizes the different alternatives in relation to the selected criteria.

TABLE 5-6: FUTURE OF SECONDARY RUNWAY SUMMARY

	Alternative 1: "No-Action" Alternative – Maintain two Runways	Alternative 2: Maintain only Runway 10/28 at its existing location	Alternative 3: Realign Runway 10/28 and maintain only one runway	Alternative 4: Convert Runway 16/34 to gravel	Alternative 5: Convert Runway 16/34 to turf
Operational	Maintain the operational capacity of the airport	Reduces slightly the operational capability of the airport, for small general aviation aircraft when crosswind is strong.	Maintain the operational capacity of the airport and provides appropriate crosswind capacity for all type of aircraft.	Maintain the operational capacity of the airport.	Maintain the operational capacity of the airport. Runway may be unusable after strong rains or thunderstorms.
Environmental	No additional environmental impacts.	No additional environmental impacts.	Major environmental impacts in areas previously undisturbed.	Limited environmental impacts to convert Runway 16/34 to gravel, in areas already disturbed.	Limited environmental impacts to convert Runway 16/34 to grass, in areas already disturbed.
Feasibility	Feasible, but high maintenance costs.	Feasible, without major investments.	Feasible, but extremely costly. The initial costs of this alternative are equivalent to the costs of maintaining two paved runways over a 45-year period.	Feasible.	Feasible. Grass runway may be unusable, especially in the spring after strong rains or thunderstorms.
Compatibility with future needs	Compatible with future needs but high maintenance costs.	May limit small general aviation aircraft when crosswinds are strong.	Compatible with future needs but costly.	Compatible with future needs but costly over a long period of time (gravel runways are expensive to maintain).	Compatible with future needs but runway may become unusable after strong rains or thunderstorms.
Costs	Costs Estimate: $3,665,000.	Costs Estimate: $2,350,000.	Cost Estimates: $7,475,000.	Cost Estimates: $2,816,500.	Costs Estimate: $2,617,400.

Source: T-O Engineers, Inc.

Preferred Alternative

It is important to note that Runway 16/34 has an estimated life of at least 10 more years if regular maintenance is conducted on the runway. The airport board advises they want to maintain Runway 16/34 to the end of its service life.

It is recommended to reconsider this study closer to the end of Runway 16/34 service life. If additional wind data is available at this time, wind coverage analysis should be updated.

5.6.3 RUNWAY DECOUPLING

Regardless of the surface type of Runway 16/34 in the future, a decoupling of the Runway 10 and 16 ends will be required to meet current FAA design standards regarding overlapping RSA. Three alternatives were developed to decouple Runways 10/28 and 16/34:

- Alternative 1: Lengthen Runway 16/34 towards the north
- Alternative 2: Shorten Runway 16 / Lengthen Runway 34
- Alternative 3: Shorten Runway 16/34

The following paragraphs summarize these alternatives.

No Action

A “No-action” alternative is not considered desirable by the FAA Helena Airports District Office. A No Action alternative does not meet design standards regarding overlapping RSA and therefore does not provide a safe operating environment meeting current and foreseeable needs. The goal of this planning study is to provide the County with options for necessary improvements and for future development. This alternative does not meet this goal nor does it meet safety standards. Therefore, this alternative was not considered viable.

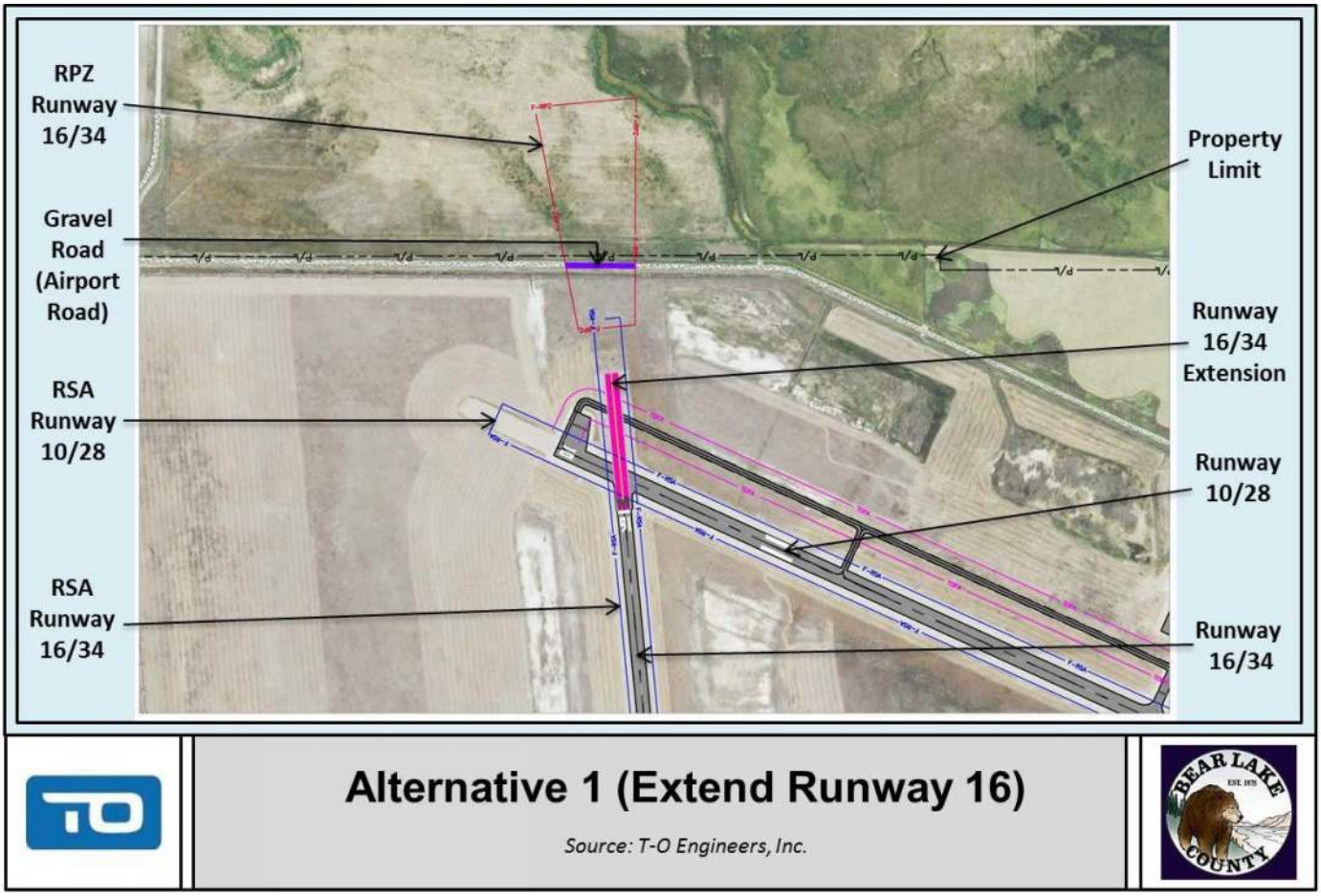
Alternative 1: Lengthen Runway 16/34 towards the north

This alternative consists of the extension of paved Runway 16/34 by 610 feet towards the North. Given the runway/taxiway layout, this is the minimal distance to address the overlapping RSAs while maintaining an appropriate taxiway configuration. The gravel road located north of the airport will have to be relocated out of the new RPZ. Further, the new RPZ extends beyond airport property and the airport will have to acquire land through fee simple acquisition or avigation easement.

As the two runways cross, this alternative is not feasible if Runway 16/34 is converted to grass or turf. In addition, due to AIP grant assurances, the extension would forbid the closure of Runway 16-34 for 20 years after the addition of new pavement.

Figure 5-8 depicts this alternative. The estimated costs for this alternative, including the road relocation and land acquisition, are $1,384,000.

FIGURE 5-8: LENGTHEN RUNWAY 16/34 TO THE NORTH

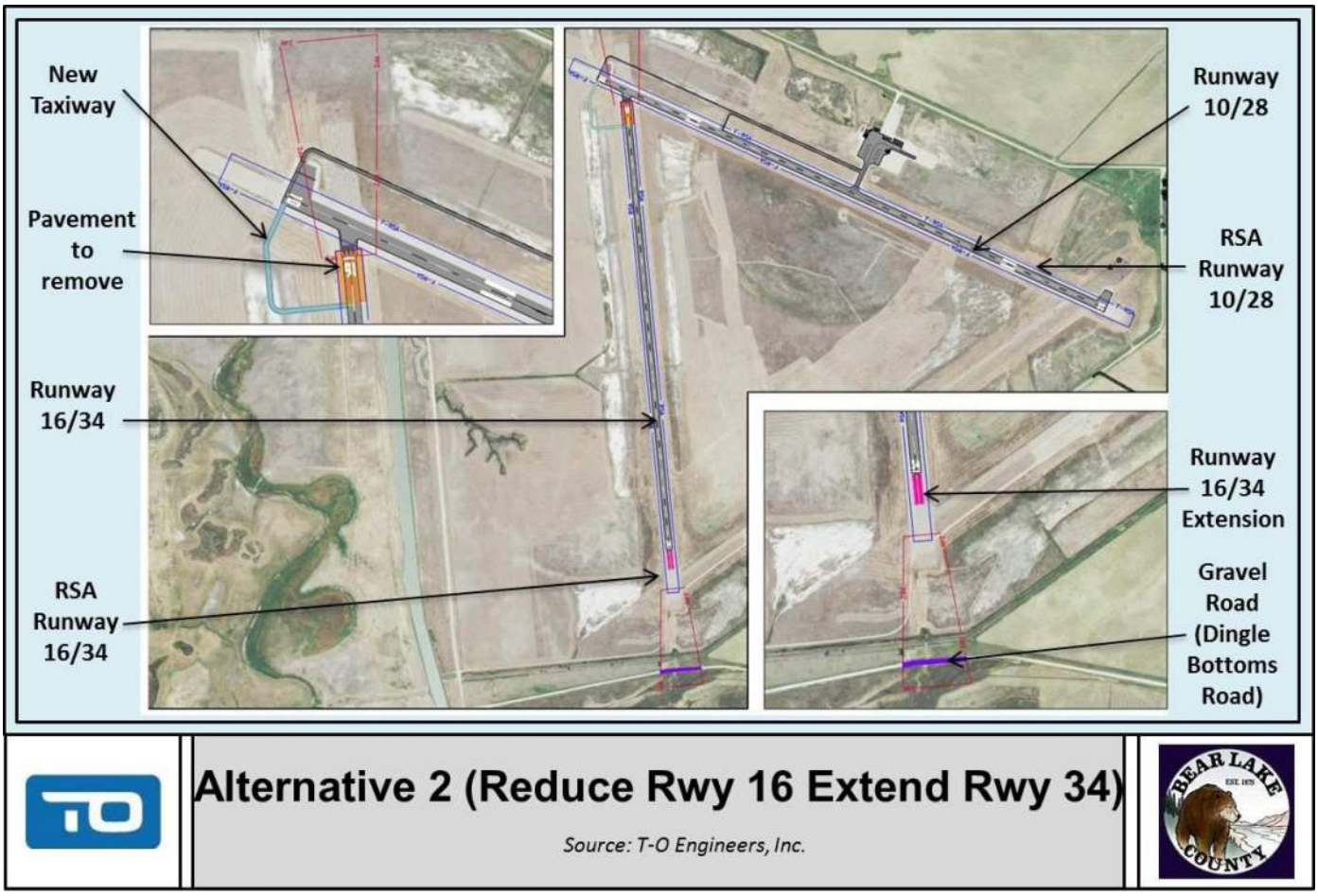


Alternative 2: Shorten Runway 16 / Lengthen Runway 34

This alternative consists of shortening Runway 16 by 210 feet and extending Runway 34 by 210 feet to maintain the same overall runway length. The gravel road located south of the airport would have to be relocated out of the new RPZ, while this alternative clears the north gravel road from Runway 16 RPZ. No land acquisition is necessary as both RPZs remain on airport property. However, the relocated gravel road will have to be relocated through the Wildlife Refuge. This alternative also includes an access taxiway to join the new Runway 16 threshold. Like Alternative 1, the addition of new pavement would delay the runway closure by 20 years if this option is selected.

Figure 5-9 depicts this alternative. The estimated costs for this alternative, including the road relocation and access taxiway, are $935,900.

FIGURE 5-9: SHORTEN RUNWAY 16 END / LENGTHEN RUNWAY 34 END TO THE SOUTH



Alternative 3: Shorten Runway 16/34

This alternative consists of shortening Runway 16 by 210 feet. This alternative also includes an access taxiway to join the new Runway 16 threshold. This alternative clears the gravel roads from Runway 16 and 34 RPZ.

Figure 5-10 depicts this alternative. The estimated costs for this alternative, with the access taxiway, are $520,500.

FIGURE 5-10: SHORTEN RUNWAY 16/34

Alternatives Evaluation

Table 5-7 summarizes the different alternatives in relation to the selected criteria.

TABLE 5-7: RUNWAY DECOUPLING ALTERNATIVES SUMMARY

	"No-Action" Alternative	Alternative 1: Lengthen Runway 16	Alternative 2: Shorten Runway 16 / Lengthen Runway 34	Alternative 3: Shorten Runway 16
Operational	Does not meet safety standards (Overlapping RSA).	Solve the overlap between the RSAs and increase the separation between Runway 16 and Runway 10 ends. Increase the runway length available. Create an undesirable situation with the parallel taxiway as the taxiway does not intersect the extended runway at a right angle. Increase the potential for a runway incursion.	Solve the overlap between the RSA and increase the separation between Runway 16 and Runway 10 Ends. Require a new taxiway access to Runway 16 threshold. Maintain the runway length available.	Solve the overlap between the RSAs and increase the separation between Runway 16 and Runway 10 Ends. Require a new taxiway access to Runway 16 threshold. Reduce the runway length available.
Environmental	No additional environmental impacts.	Road relocation is likely to impact wetlands and historic canal. Limited environmental impact on already disturbed areas to extend the runway to the north.	Road relocation is likely to impact wetlands and the wildlife refuge. Limited environmental impact on already disturbed areas to extend the runway to the south and build the new parallel taxiway.	Limited environmental impact on already disturbed areas to build the new parallel taxiway. Alternative 3 has less impact than the other two alternatives as no road relocation is necessary.
Feasibility	Feasible, but does not meet design standards	Feasible, necessitate closing Runway 16/34 and 10/28 for an extended period of time.		
Compatibility with future needs	Does not meet design standards and is not compatible with future needs.	Runway 16/34 is extended by 610' toward the north. Not feasible if Runway 16/34 is converted to grass, turf or gravel.	Runway 16/34 is maintained at its current length.	Runway 16/34 length is reduced by 210 feet. Impact on the general aviation fleet (main users of this runway) is expected to be very limited.
Costs	No additional costs.	Costs Estimate: $1,384,000.	Cost Estimates: $935,900 (include access taxiway).	Cost Estimates: $520,500 (include access taxiway).

Source: T-O Engineers, Inc.

Preferred Alternative

The preferred alternative is Alternative 3, as shown on the ALP. This alternative is the less costly and has the less environmental impacts. It reduces the potential for runway incursions and meets safety standards as it solves the overlapping RSAs issues. Although it slightly reduces the runway length available, the impact on the small general aviation aircraft using this runway is not expected to be significant.

5.6.4 PARALLEL TAXIWAY

Bear Lake County Airport is currently equipped with a partial parallel taxiway to the Runway 10 end. The partial parallel taxiway meets the runway centerline to taxiway centerline B-II separation standard of 240 feet. However, it is only 25 feet wide only, instead of 35 feet to meet TDG 2. A full-length parallel taxiway would contribute to an increased level of safety at the airport. It is recommended by proactive planning that this parallel taxiway meets B-II and TDG 2 design standards. The taxiway dimensions should be based on the critical aircraft at the time of construction, should this aircraft drive different standards.
One alternative was developed to improve the existing taxiway system and meet B-II design standards:

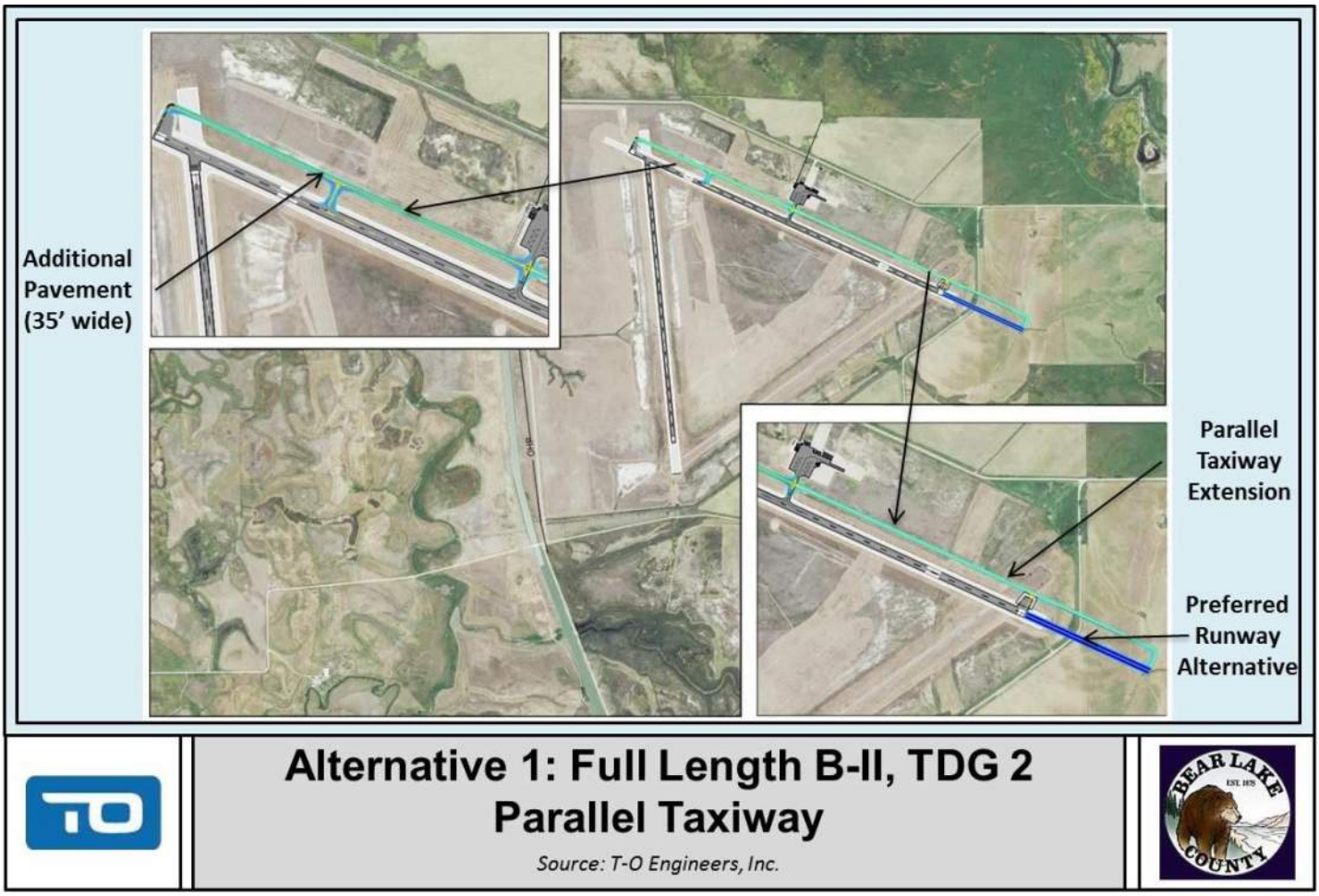
- Alternative 1: Extend the parallel taxiway to Runway 28 threshold and widen existing taxiway

Following is a summary of the alternatives.

No Action
A "No-action" alternative consists of maintaining only a partial parallel taxiway with a width of 25 feet for TDG 1-A design standards. The goal of this planning study is to provide the County with options for necessary improvements and future development. This alternative does not meet this goal.

Alternative 1: Full Parallel Taxiway
This alternative consists of extending the partial parallel taxiway to Runway 28 threshold and widening the existing taxiway to 35 feet. The taxiway centerline would be located 240 feet from the runway centerline to meet B-II design standards and the taxiway would be 35 feet wide. **Figure 5-11** depicts this alternative. The estimated costs of this project are $3,045,000.

FIGURE 5-11: FULL PARALLEL TAXIWAY



Alternatives Evaluation

Table 5-8 summarizes the different alternatives in relation to the selected criteria.

TABLE 5-8: TAXIWAY ALTERNATIVES SUMMARY

	"No-Action" Alternative	Alternative 1: Full-Length B-II TDG 2 Parallel Taxiway
Operational	Does not limit back-taxi operations and does not minimize the potential for runway incursions.	Contribute to an increased level of safety at the airport by reducing the need for back-taxi operations.
Environmental	No additional environmental impacts.	Remains Entirely on airport property. Impacts areas that have not been disturbed, including wetlands near Runway 28 threshold and farmlands. Earthwork and environmental coordination necessary. Wetland delineation will be necessary, and wetland mitigation may also be necessary.
Feasibility	Feasible as it does not necessitate any construction or action.	Feasible without major impacts on the existing layout and airfield configuration.
Compatibility with future needs	Not compatible with future needs as existing taxiway would not meet design standards B-II.	Compatible with future needs and provides an increased level of safety as it eliminates the need for back-taxi operations.
Costs	No additional costs.	Costs Estimate: $3,045,000.

Source: T-O Engineers, Inc.

Preferred Alternative

The Preferred Alternative is Alternative 1: Construction of a full-length B-II, TDG 2 parallel taxiway. Runway 28 is used for most of the operations (80 percent). This alternative will provide an increased level of safety and eliminate the need for back-taxi operations.

Because this action has the potential to affect farmlands and wetlands in the wet meadow near Runway 28 threshold, while impacting areas that have no previous airport development, it is expected environmental coordination will be necessary for this project.

In addition, given the high costs and low priority of this project, it is expected that it will be completed in the mid- to long-term. Phasing will be addressed in Chapter 6, Development Plan/Financial Overview

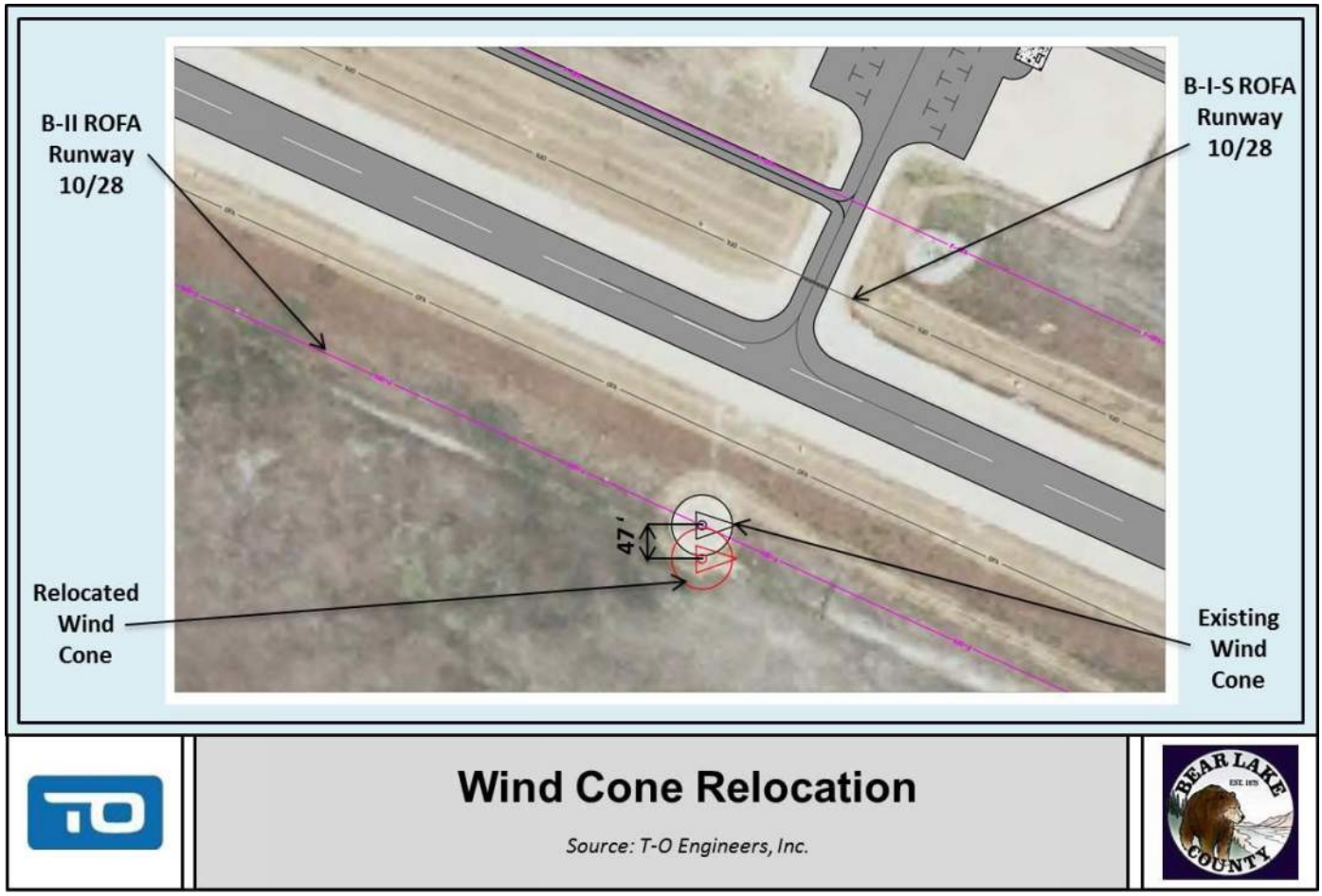
5.6.5 WIND CONE AND SEGMENTED CIRCLE

To meet B-II design standards, the ROFA needs to be widened from 250 feet to 500 feet. With this runway protection standard, the existing wind cone and segmented circle are located inside the ROFA.

A “No-action” alternative is not acceptable as the existing location of the wind cone and segmented circle does not meet safety standards. Therefore, they have to be relocated outside of the ROFA.

To relocate the wind cone outside of the ROFA the existing wind cone and segmented circle would need to be relocated approximately 47 feet south of its existing position, as depicted in **Figure 5-12**. The estimated costs for this project are $22,000. This project is a low priority, as the airport does not justify meeting B-II standards at the moment, it is expected that it will be completed in the mid- to long-term.

FIGURE 5-12: WIND CONE RELOCATION



5.6.6 AUTOMATED WEATHER OBSERVING SYSTEM (AWOS)

As mentioned in Chapter 4, Facility Requirements, the installation of an Automated Weather Observing System (AWOS) would provide critical real-time weather information to pilots and contribute to enhanced safety in the entire region. Further, without certified on-field weather observation, aircraft operating under FAR Part 135 cannot operate in IFR conditions at Bear Lake County Airport.

However, Bear Lake County should keep in mind that AWOS equipment is expensive and the initial costs, approximately $150,000 to $200,000, do not include annual maintenance and certification requirements, which can average $4,000 to $6,000 per year, not including additional unforeseeable maintenance repairs. A proposed AWOS site was analyzed and is depicted on the ALP and in **Figure 5-13**.

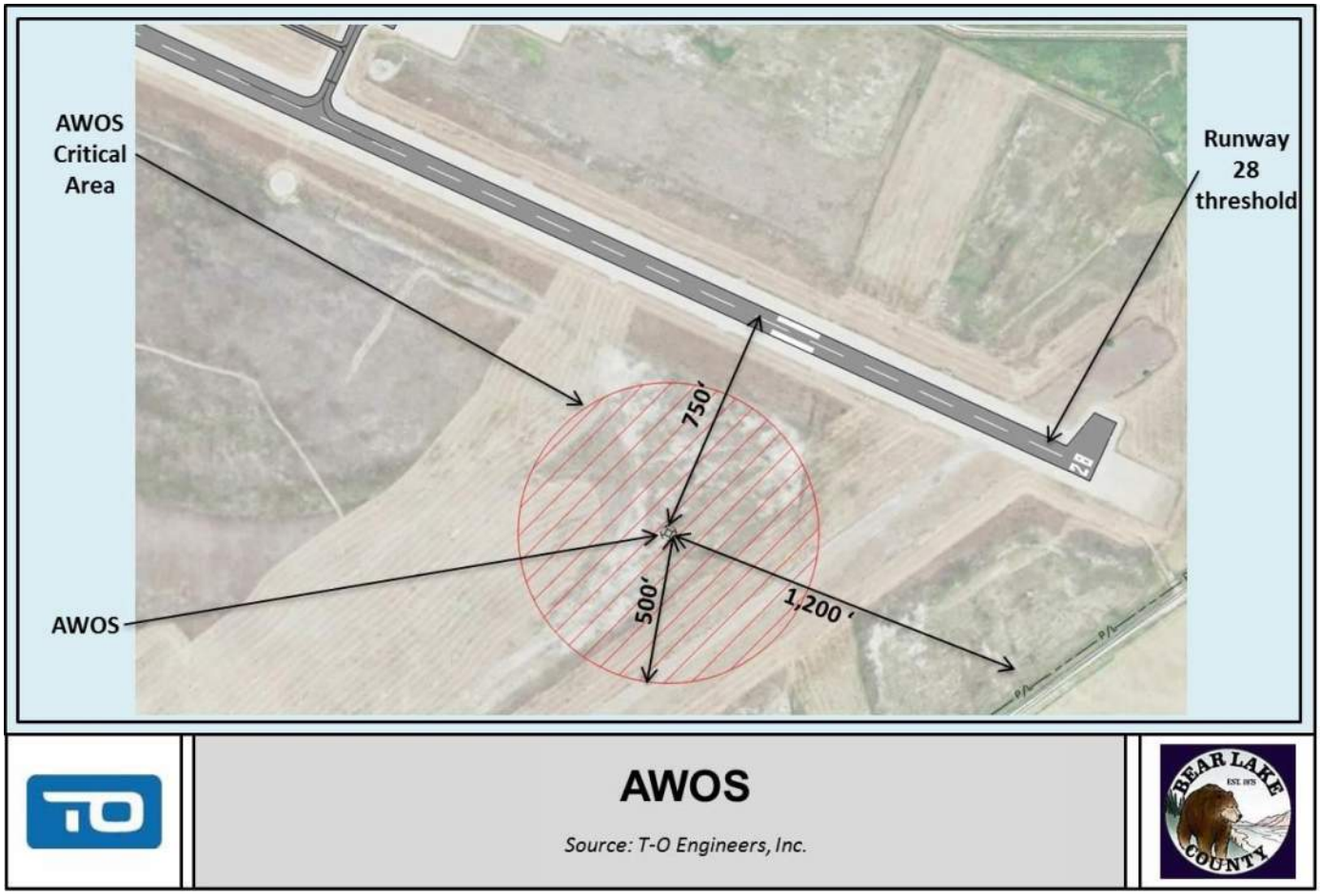
A non-precision instrument approach (NPI) is part of the recommendations listed in Chapter 4, Facility Requirements and an initial feasibility analysis for NPI capabilities at Bear Lake County Airport were completed by the FAA Flight Procedures Office (FAA FPO) in 2013. It is recommended that this approach is developed for Runway 28.

In accordance with the FAA Order 6560.2B, Siting Criteria for Automated Weather Observing Systems, the AWOS has a 500-foot radius critical area, which needs to be protected to provide accurate wind and weather information.

The proposed location is 1,200 feet from the threshold of Runway 28 and 750 feet from the runway centerline. This location is also appropriate if Runway 28 is extended to the South. After the runway extension, the AWOS would be located 2,672 feet from the threshold of Runway 28, which meets FAA Order 6560.2B siting criteria of 1,000 feet to 3,000 feet down from the runway threshold.

Based on the proposed location the AWOS and critical area would remain entirely on airport property.

FIGURE 5-13: AWOS



5.7 LANDSIDE ALTERNATIVES

The following section discusses the alternatives considered during the landside development alternatives process.

Landside facility development includes aircraft storage facilities, airport access roads, vehicle parking, and commercial development directly related to the aeronautical activity. This section summarizes the various landside development alternatives considered and describes the selected alternative in each case.

When analyzing and developing the various landside alternatives, several basic development principles and goals were considered to guide the process:

- Future development will be planned in a manner whereby phased development is possible over the planning period thus providing flexibility to the County to accommodate growth as demand warrants.
- The need for *full* build-out of the airport as depicted on the ALP drawing set is not justified based on the aviation activity forecasts performed as part of this study. However, recommendations have been developed based on a proactive planning approach where space should be reserved and facilities will be built as demand warrants.
- Future development of the airport should be mindful of various aircraft and activity types:
    - Uses such as helicopter traffic should be located in areas that ensure compatibility with other surrounding aviation uses (due to the potential of foreign object debris (FOD)).
    - Orderly development of hangar areas to ensure compatibility with FAA design standards based on current and anticipated aircraft use (i.e. aircraft design groups)
- Future development of the airport should be done in a manner that best optimizes access to public infrastructure including:
    - Vehicle/road access
    - Utilities
    - Available land/surrounding uses
- Future development should take into consideration and be mindful of environmental issues at the airport, including the presence of wetlands, historic resources and farmlands in the vicinity of the airport and on airport property. In addition, future development should minimize potential effect on the environment.

5.7.1 APRON AND AIRCRAFT HANGARS

The existing general aviation apron area at Bear Lake County Airport is divided into two distinct areas and configured to accommodate a total of fourteen apron tie-down positions, thirteen tie-down spaces are used for transient aircraft and one is used for based aircraft.

As identified in Chapter 4, Facilities Requirements, the apron should at least maintain these fourteen tie-downs at the end of the planning period. However, Bear Lake County should keep in mind that pavement is expensive to maintain. Bear Lake County Airport is isolated and bringing construction materials to the airport for maintenance and repair is expensive. Many of the recommendations included in this airport master plan are demand driven and should only be considered when and if demand at the airport warrants.

One area was studied for development opportunities at Bear Lake County Airport. This area is located in the vicinity of the access road and near existing apron and hangars. To keep

development costs as low as possible, it is more desirable to build new development near existing taxilanes and developed areas.

Four alternatives were developed for the airport. The four alternatives include hangars, apron, a FBO, a Snow Removal Equipment Building (SRE) as well as a helicopter parking. In addition, the four alternatives plan for B-II standards in the future.

The four alternatives remain entirely on airport property and do not require land acquisition. Most of the hangars are planned beyond the 25' Building Restriction Line (BRL). However, in several alternatives, hangars are within the 25' BRL and may be limited in height based on the definitive ground elevation. Coordination with the FAA, using the Form 7460-1, will have to be made prior to construction.

All of the alternatives impact wetland areas and areas currently used for farming. Because all the alternatives may impact farmlands, wetlands, and areas that have no previous airport development, it is expected at minimum a Categorical Exclusion or possibly an Environmental Assessment will be necessary. Wetland mitigation may also be necessary.

All the alternatives could be easily phased in several stages to answer demand if and when needs warrant.

No Action

A "No-action" alternative would consist in doing nothing and not planning for any new apron or hangars. This is not considered as a viable alternative nor is it desirable to the County. The goal of this planning study is to provide the County with options for necessary improvements and for future development. A "No-action" alternative does not meet this goal.

Alternative 1

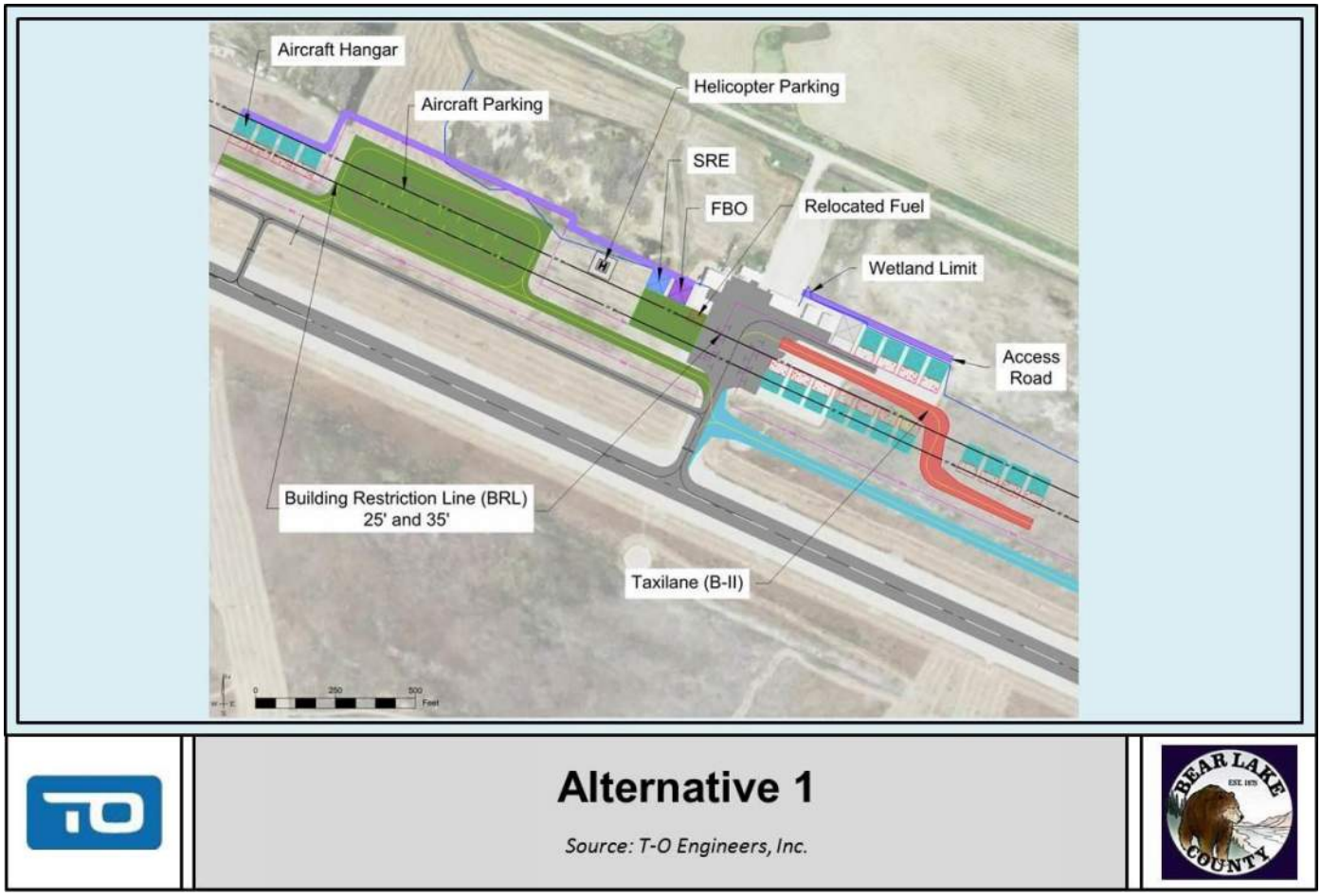
This alternative provides nineteen individual box hangars (60'x60'), as well as apron areas to accommodate fifteen aircraft (designed to accommodate the Beech 200 and Pilatus PC-12), as depicted in **Figure 5-14.**

Twelve of the new individual box hangars are facing south, while the remaining are facing north. The existing taxilane is relocated to meet B-II standards. This relocation would require relocation of the fuel tank and the fuel island. The helicopter parking pad is isolated from parked aircraft and hangars to minimize the potential of FOD.

All development in this alternative remains entirely on airport property and does not require land acquisition. Seven hangars are within the 25' BRL, which may restrict their height, based on definitive ground elevation in this area.

The estimated full build out cost of this alternative is $3,229,000, not including hangars construction costs.

FIGURE 5-14: ALTERNATIVE 1



Alternative 2

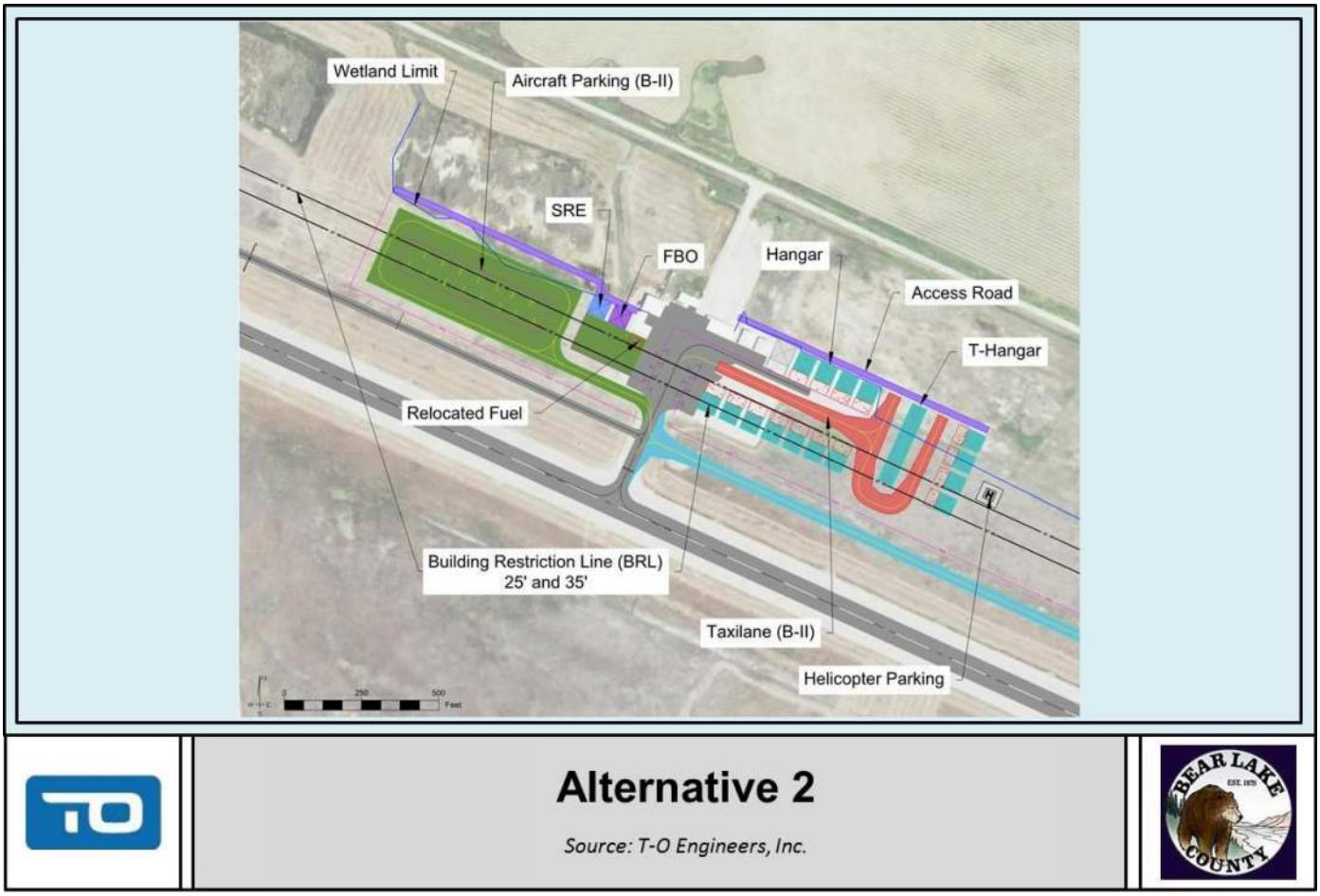
This alternative provides fifteen individual box hangars (60'x60'), a row of T-Hangar accommodating twelve aircraft as well as apron areas to accommodate fifteen aircraft (designed to accommodate the Beech 200 and Pilatus PC-12), as depicted in **Figure 5-15.**

Four of the new individual box hangars are facing south, four are facing west, while the remaining 7 face north. The T-hangars are facing east and west. The existing taxilane is relocated to meet B-II standards, and will require relocation of the fuel tank and the fuel island. The helicopter parking pad is isolated from parked aircraft to minimize the risk of FOD.

All development in this alternative remains entirely on airport property and does not require land acquisition. Seven hangars are within the 25' BRL, which may restrict their height, based on definitive ground elevation in this area.

The estimated full build out cost of this alternative is $3,118,000, not including hangars construction costs.

FIGURE 5-15: ALTERNATIVE 2



Alternative 3

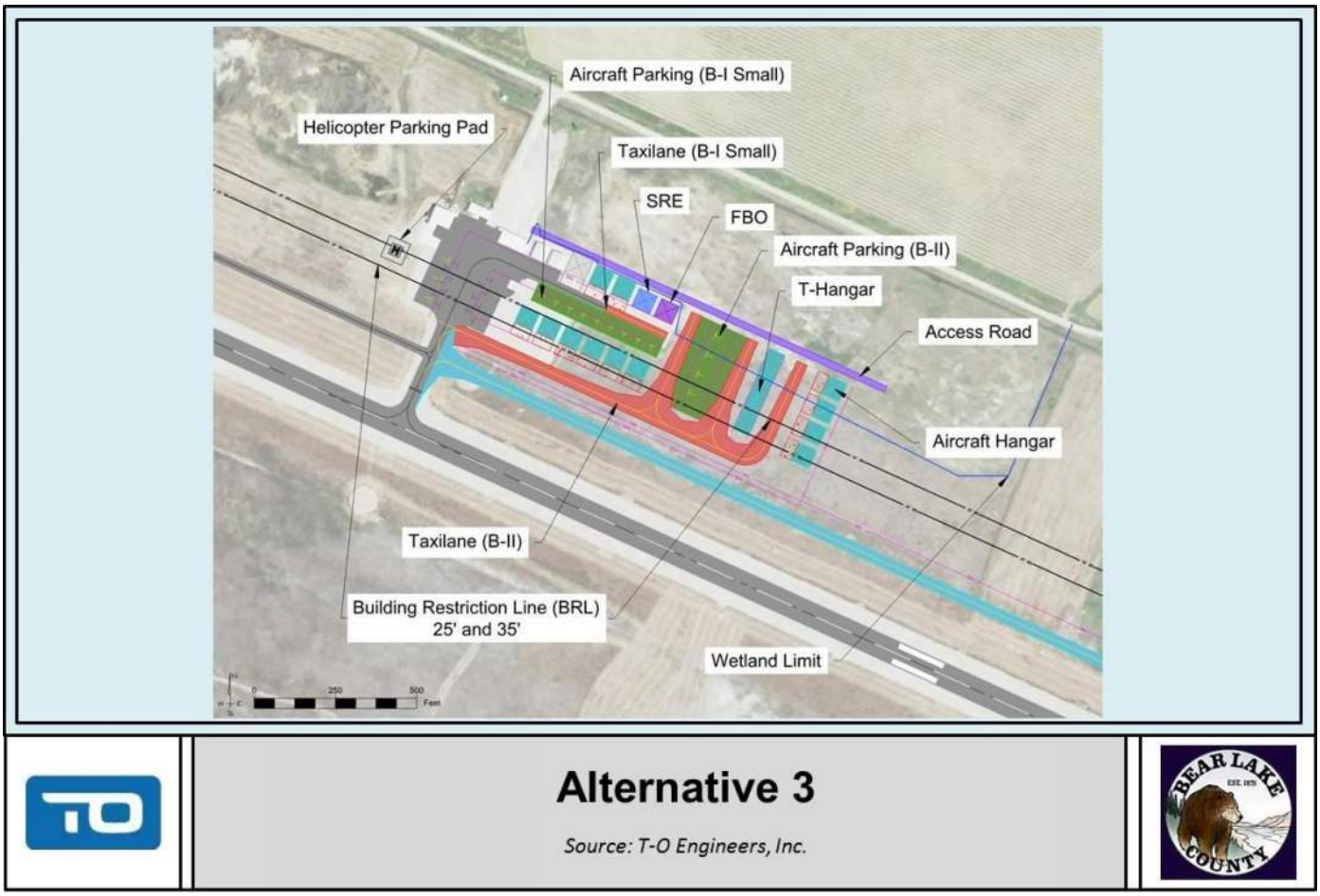
This alternative provides twelve individual box hangars (60'x60'), a row of T-Hangar accommodating twelve aircraft, as well as apron areas to accommodate nine small piston aircraft (designed for the PA-46) and seven turboprop aircraft (designed to accommodate the Beech 200 and Pilatus PC-12), as depicted in **Figure 5-16.**

Eight of the new individual box hangars face south, while the remaining 4 face west. The T-hangars face east and west. The existing taxilane is maintained at its current location and designed for B-I Small standards only. A second taxilane designed to B-II standards allows access to additional apron and hangar area. The helicopter parking pad is isolated from parked aircraft to minimize the risk of FOD.

All development in this alternative remains entirely on airport property and does not require land acquisition. Most of the hangars are beyond the 25' BRL, except for one hangar.

The estimated full build out cost of this alternative is $1,948,500, not including hangars construction costs.

FIGURE 5-16: ALTERNATIVE 3



Alternative 4

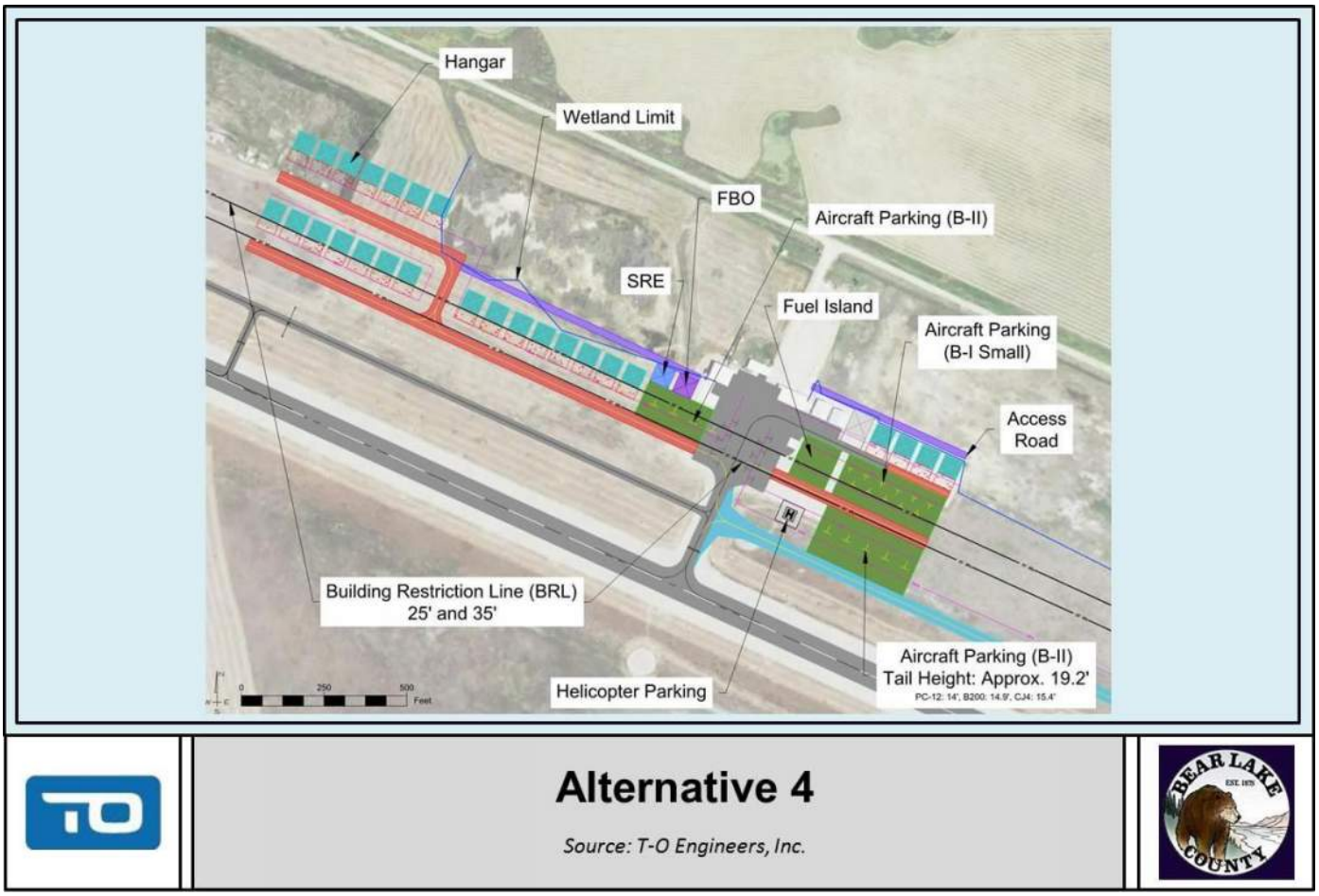
This alternative provides twenty-six south-facing individual box hangars (60'x60'), as well as apron areas to accommodate nine small piston aircraft (designed for the PA-46) and eleven turboprop aircraft (designed to accommodate the Beech 200 and Pilatus PC-12), as depicted in **Figure 5-17.**

The existing taxilane is maintained at its current location and designed for B-I Small standards only. Two additional taxilanes designed to B-II standards allow access to additional apron and hangar area. The helicopter parking pad is isolated from parked aircraft and hangars to minimize the risk of FOD. This alternative also includes a new fuel island to provide easier access to the fuel station.

All development in this alternative remains entirely on airport property and does not require land acquisition. All of the hangars are beyond the 35' BRL. However, five of the aircraft tie-downs are within the 25' BRL. Based on a definitive ground elevation in the apron area, this may restrict the height of aircraft that can use these tie-downs. Preliminary analysis indicates that the tail height should be restricted to approximately 19.2 feet. Common aircraft using the airport such as the Pilatus PC-12 (14'), the Cessna Citation CJ-4 (15.4'), or the Beech 200 (14.9') could use this area without restriction. Coordination with the FAA, using the Form 7460-1, will have to be made prior to construction.

The estimated full build out cost of this alternative is $2,585,000, not including hangars construction costs.

FIGURE 5-17: ALTERNATIVE 4



Alternatives Evaluation

Table 5-9 summarizes the different alternatives in relation to the selected criteria.

TABLE 5-9: APRON AND HANGARS ALTERNATIVES SUMMARY

	Alternative 1	Alternative 2	Alternative 3	Alternative 4
Operational	Provides a different number of hangars and apron space, but provide enough space to meet existing and future demand at the airport. Relocate the existing taxilane to B-II standards. All the taxilanes and tie-downs meet B-II standards. Require relocation of the fuel tank and fuel island.		Provides a different number of hangars and apron space, but provide enough space to meet existing and future demand at the airport. Existing taxilane maintained to B-I Small standards. All other taxilanes meet B-II standards. Aircraft tie-downs distinct for B-I Small and B-II aircraft.	
Environmental	Impacts wetlands and farmlands. Similar impacts on areas that have no previous airport development. Earthwork and environmental coordination will be required. It is expected that wetlands mitigation may be necessary.			
Feasibility	Technically feasible and could be phased appropriately to answer the current and future demand. In addition, each of these alternatives could be developed as demand warrants. The four alternatives could be constructed in a phased approach based on demand. A FAA form 7460-1 will have to be filled prior to any construction.			
Compatibility with future needs	Provide aircraft apron areas and aircraft hangars.			
Costs	Costs Estimate: $3,229,000.	Costs Estimate: $3,118,000.	Costs Estimate: $1,948,500.	Costs Estimate: $2,585,000.

Source: TO Engineers Inc.

Preferred Alternative

The Preferred Alternative is combination and variation of Alternatives 2 and 4. It is depicted in Section 5.7.2, Preferred Alternative.

5.7.2 PREFERRED ALTERNATIVE

The preferred alternative is depicted in **Figure 5-18**. This alternative provides 19 box hangars, all south-facing, as desired by the Airport Board, as well as an apron and tie-downs areas to accommodate ten small piston aircraft (designed for the PA-46) and 23 turboprop aircraft (designed to accommodate the Beech 200 and Pilatus PC-12).

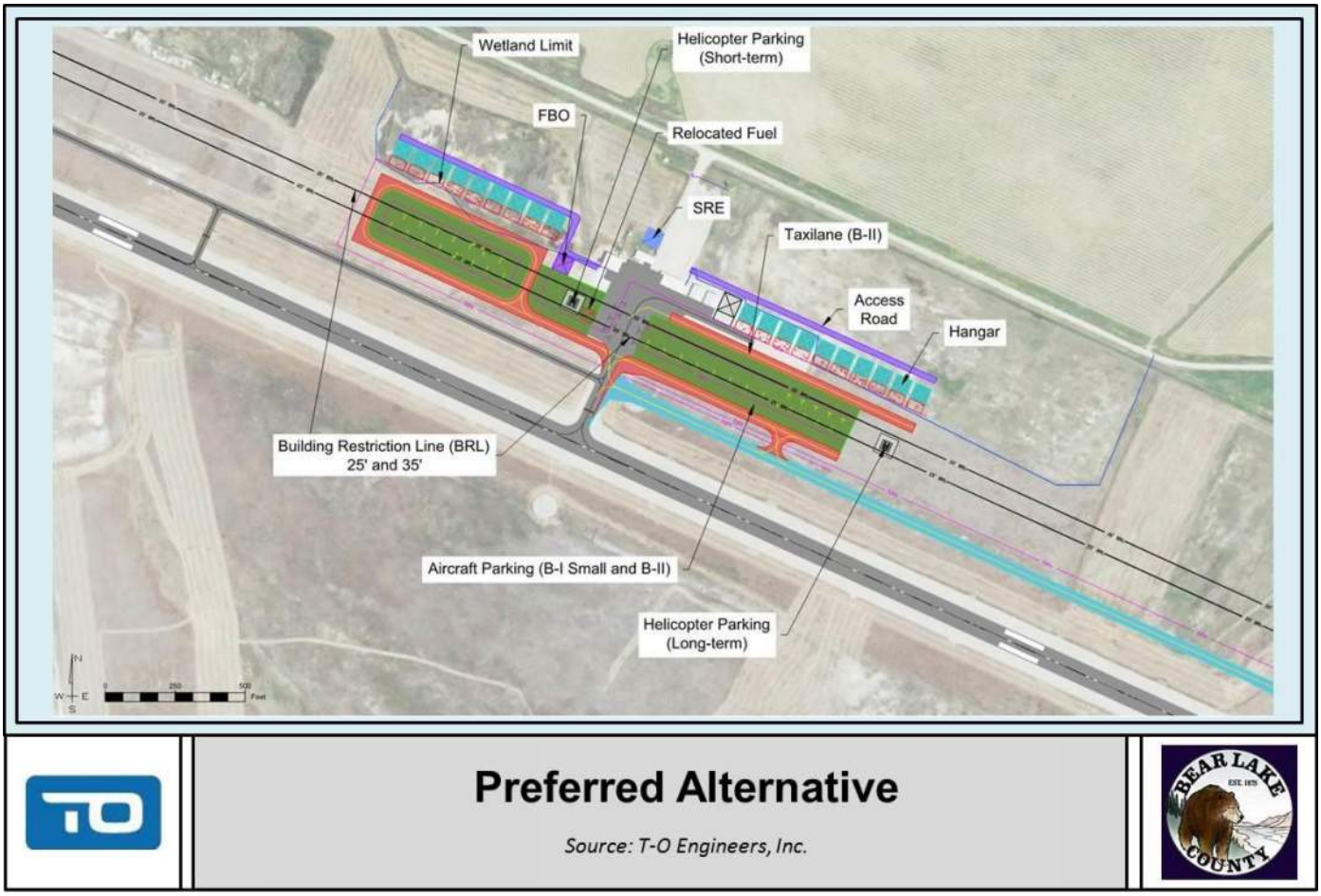
This alternative also includes two helicopter parking pads, one closer to the existing apron could be built in the short-term, while the other, farther from existing developed areas, could be built in the long-term when additional apron space is added at the Airport. Both locations are isolated from parked aircraft to minimize the risk of FOD.

Because hangars and small portions of the apron will impact wetlands, it is expected an environmental determination and wetland mitigation may be necessary at some point in the future.

The estimated full build out cost of this alternative is $3,731,000, not including hangars construction costs. This alternative could be phased appropriately, and such phasing will be addressed in Chapter 6, Development Plan/Financial Overview.

Bear Lake County should keep in mind that such a development is not fully justified at this time based on existing and foreseeable traffic at the airport. In addition, as pavement is expensive to maintain, this alternative should only be built as necessary, when demand warrants

FIGURE 5-18: PREFERRED ALTERNATIVE



5.7.3 ACCESS ROAD

There are multiple roads that lead from the various communities to the airport. None of the existing roads leading to the airport are paved. According to the Bear Lake Valley Blueprint, better access to the airport is desirable to the County and the inhabitants of the Bear Lake Valley.

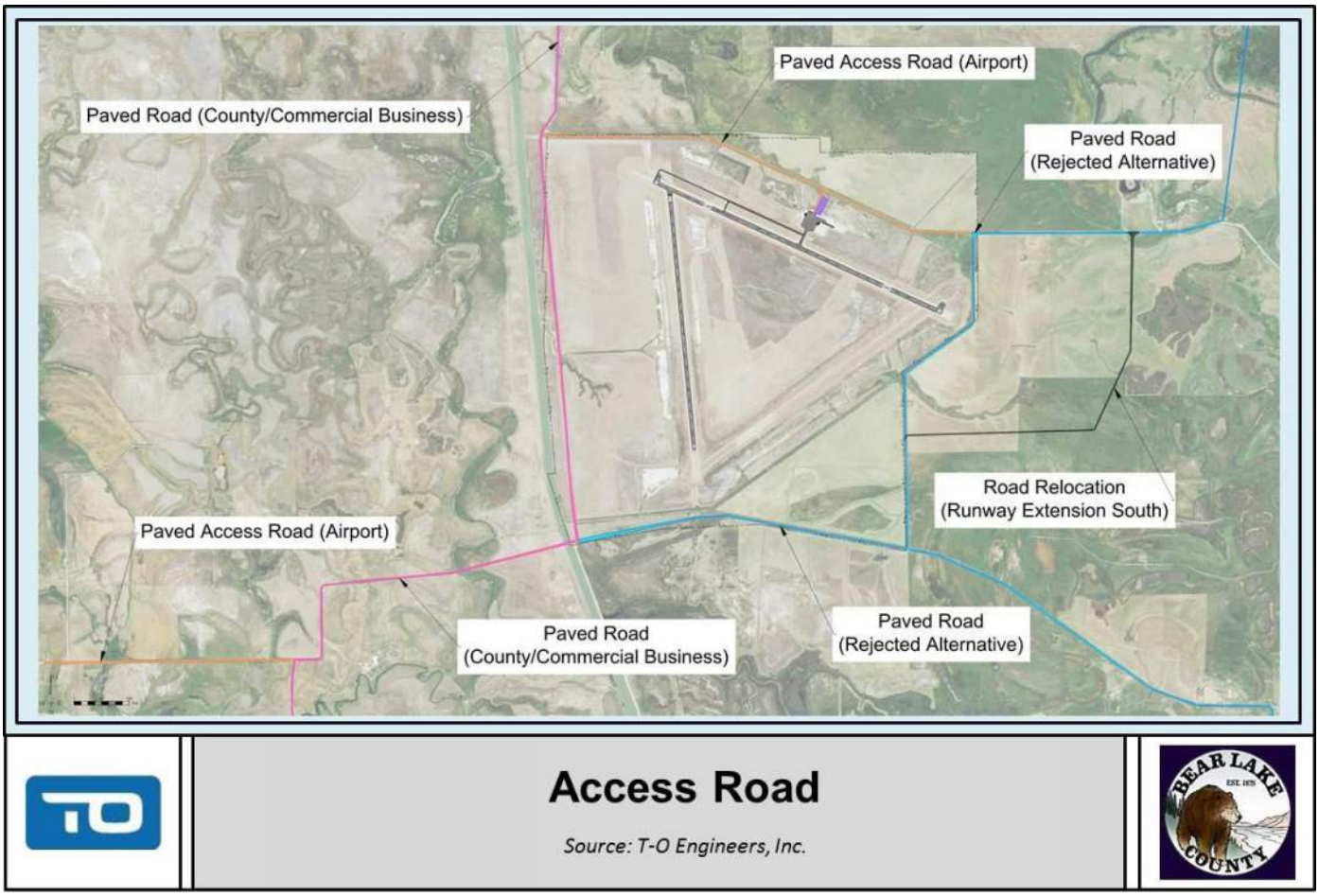
No Action

A “No-action” alternative would consist of doing nothing and maintaining only unpaved roads. This is not desirable by the County.

Alternatives

Several studies have been conducted to analyze the potential of improving existing roads in the vicinity of the airport. Several of these alternatives are depicted in **Figure 5-19**.

FIGURE 5-19: ACCESS ROAD



From previous studies, the preferred alternative included improvement of the county road running from Paris to Montpelier that traverses along the west boundary of the airport. As only the portion of an access road serving the airport exclusively is eligible for federal funding, this alternative would not be eligible for federal funding. However, if this alternative is developed at some time in the future, the section of Airport road from the new access road to the airport should be improved. The road is currently able to support one-way traffic as its existing width of 19 feet is less than the county standard. When this road is improved it should also be widened to 24 feet wide.

This road does serve other areas in addition to the airport and additional coordination with the FAA will be required to assess the eligibility of road improvements. Also, any improvements to this section of road may impact the historic canal along the south side of the road and the wetlands on either side of the road. The improvement of this road will require additional studies to evaluate the environmental impacts. Additional details will be provided in Chapter 6, Development Plan and Financial Overview.

Alternatives Evaluation

Table 5-10 summarizes the different alternatives in relation to the selected criteria.

Alternatives Evaluation

TABLE 5-10: ALTERNATIVES SUMMARY

	"No-Action" Alternative	Alternative 1
Operational	Does not provide a paved access to the airport.	Provide a paved access to the airport and facilitate the access to the airport with a wider road.
Environmental	A "No-Action" Alternative has no additional environmental impacts.	Affects existing unpaved roads. The road relocation to the south of the airport will affect wetlands and farmlands and will require land acquisition. Earthwork and environmental coordination will be required. It is expected that wetlands mitigation will be necessary.
Feasibility	Feasible but not recommended as it does not meet the County goals to provide paved access to the airport.	Technically feasible and could be phased appropriately.
Compatibility with future needs	Not compatible with future needs or future growth at the airport.	Compatible with future needs and with airport growth.
Costs	No additional costs.	Costs Estimate: $4,594,000.

Source: T-O Engineers Inc.

Preferred Alternative

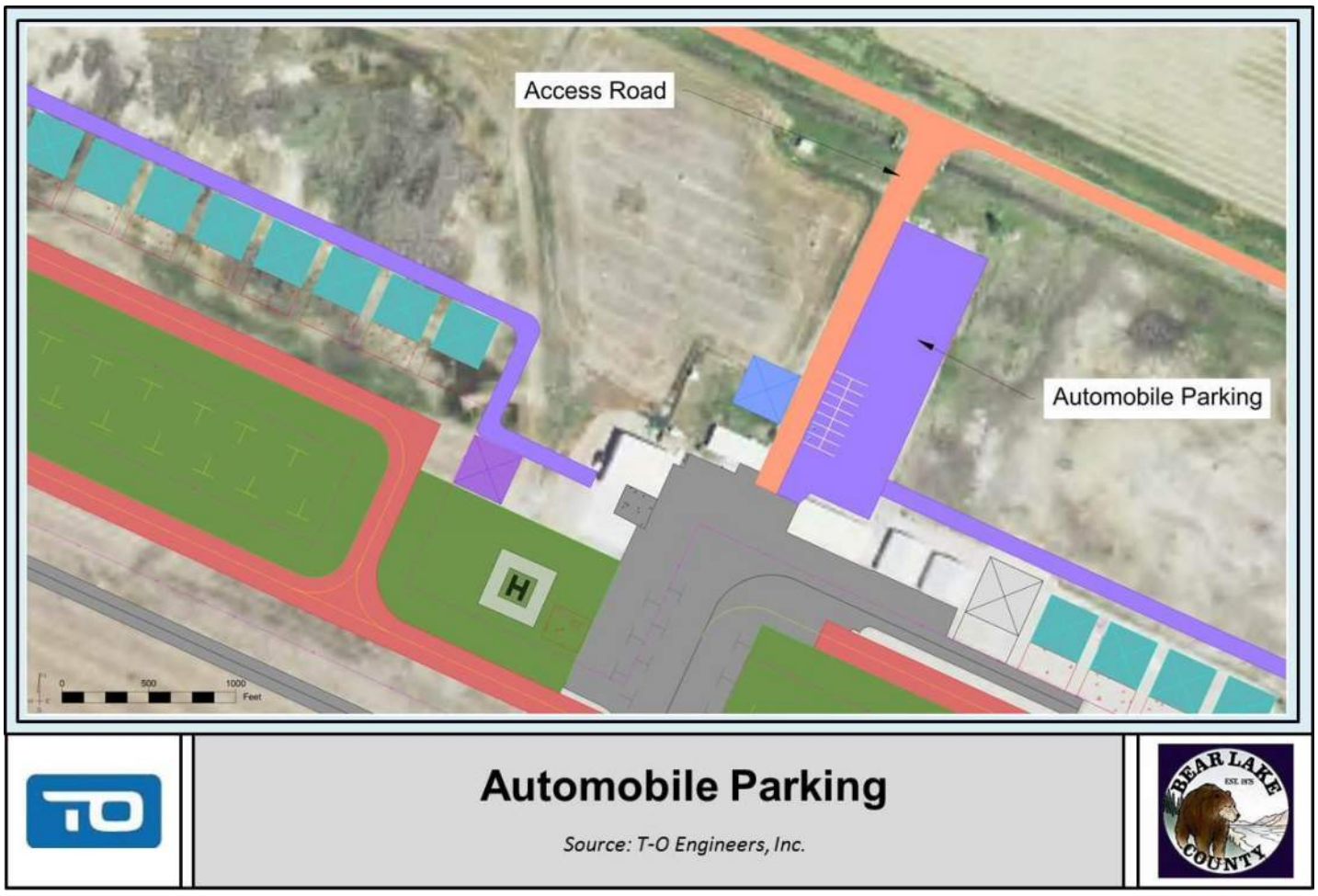
Alternative 1 is the preferred Road Relocation Alternative. The road relocation to the south of the airport, due to the runway extension, will impact wetlands, farmlands, and areas that have no previous development. In addition, it will require land acquisition. It is expected an Environmental Assessment will be necessary as part of the runway extension project.

Paving of existing gravel roads is expected to have limited environmental consequences; however, this road does not meet the minimum width requirement for a county road. Proper coordination with Bear Lake County will be necessary and only the portion of the access road serving the airport exclusively is eligible for federal funding. Phasing and funding will be addressed in Chapter 6, Development Plan/Financial Overview.

5.7.4 AUTOMOBILE PARKING

Automobile parking was developed based on the Preferred Alternative and is depicted in **Figure 5-20**. The automobile parking was based on the facilities requirements chapter which identifies the need for 12 parking stalls recommended at the end of the planning period.

FIGURE 5-20: AUTOMOBILE PARKING

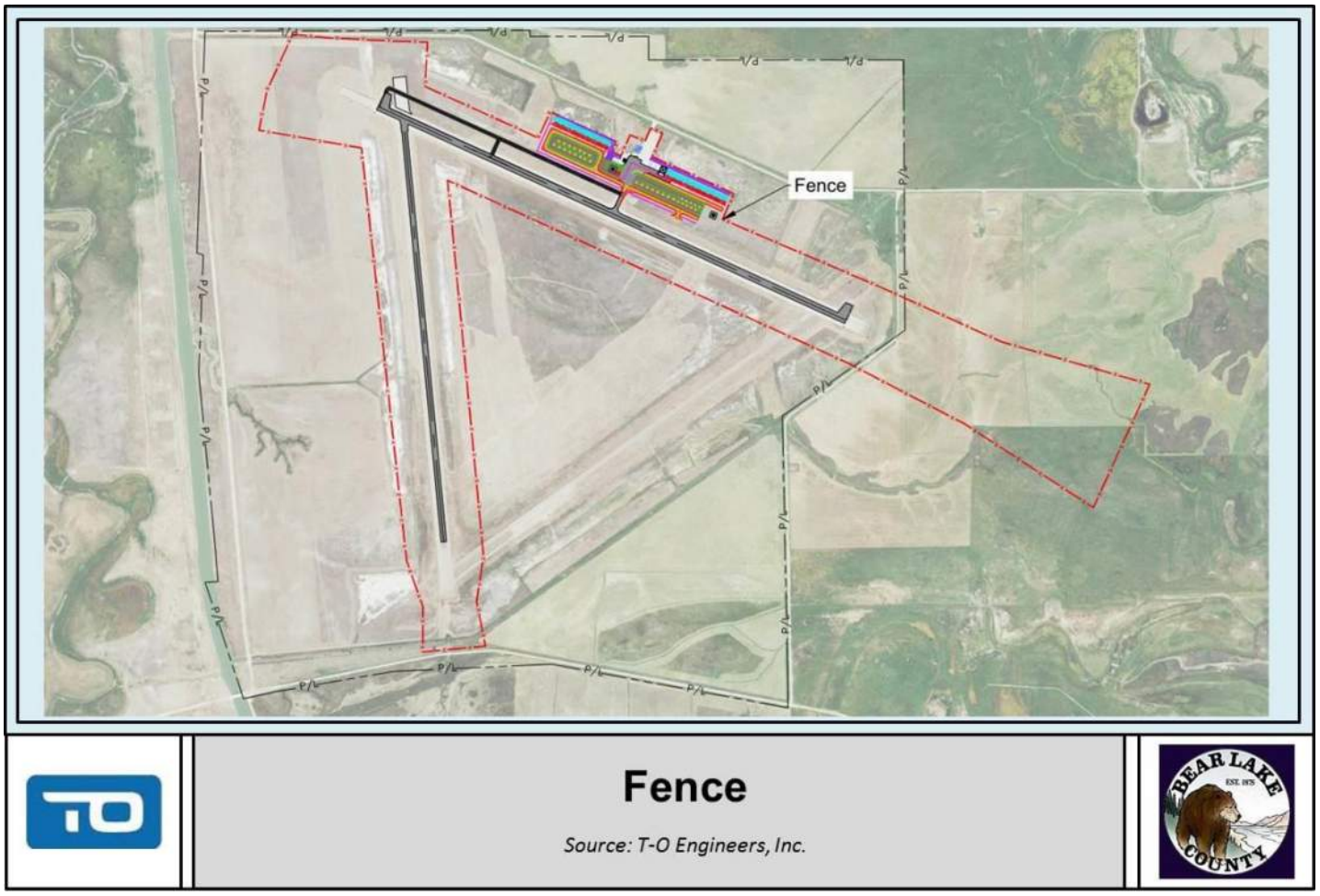


5.7.5 FENCE

A wildlife/security fence is recommended at Bear Lake County Airport to improve security and reduce wildlife hazard and animal incursions on airport property. This was part of the recommendations included in the wildlife hazard site visit report, included in **Appendix B**. The report recommended an 11-feet high wildlife fence. This wildlife/security fence should be planned out of the Runway Protection Zones and out of the Part 77 surfaces. It is depicted in **Figure 5-21**. This fence will go through wetlands and an environmental determination will be necessary.

This fence would be 23,370 feet long and the estimated costs of this project are between $650,000 and $900,000 depending on the type of fence. Fencing around the airport would be eligible for FAA funding. Phasing will be addressed in Chapter 6, Development plan/Financial Overview.

FIGURE 5-21: FENCE



5.8 SUMMARY OF CONCLUSIONS

Following is a summary of conclusions. It is understood that the need for *full* build-out of the airport as depicted on the ALP drawing set is unlikely and not justified based on the aviation activity forecasts performed as part of this study. However, the various alternatives and recommendations have been developed based on a proactive planning approach whereby long-term guidance has been presented to the County to assist them in facilitating logical and orderly development over the planning period.

5.8.1 AIRSIDE ALTERNATIVES

Runway Length

The preferred alternative is to extend the runway 10/28 1,472 feet to the south, to reach a runway length of 7,200' as recommended in the FAA guidance. Phasing may be necessary and will be addressed in Chapter 6, Development Plan/Financial Overview.

Secondary Runway

Based on the current condition of Runway 16-34 pavement, it is estimated that Runway 16/34 has a remaining service life of approximately 10 years before major pavement maintenance/rehabilitation. Thus, a decision on the future of the secondary runway can be addressed at the end of this service life. If additional wind data is available it is recommended the wind coverage analysis be revisited.

Runway Decoupling

The preferred alternative is to reduce the Runway 16/34 length by 210'. This reduces the potential for runway incursions and addresses the overlapping RSAs issues. Although it slightly reduces the runway length available, the impact on the general aviation aircraft using this runway is not expected to be significant.

Parallel Taxiway

The construction of a full parallel taxiway at Bear Lake County Airport will improve the overall level of safety at the airport and limit the need for back-taxi operations. Phasing will be addressed in Chapter 6, Development plan/Financial Overview.

Other Airside Facilities

The existing wind cone and segmented circle are in the B-II ROFA and OFZ. Both the wind cone and segmented circle need to be relocated outside the ROFA and the OFZ. A proposed location was analyzed, approximately 47 feet south of the existing position.

In addition, a proposed location for an AWOS was analyzed. The AWOS has a 500-feet radius critical area. The proposed location is 1,200 feet from the threshold of Runway 28 and 750 feet from the runway centerline. This location remains on airport property.

5.8.2 LANDSIDE ALTERNATIVES

Alternatives for landside development at Bear Lake County Airport focus on one area near existing apron and hangars. All alternatives included a variety of hangars, taxilanes and apron layouts. Future needs can be met without land acquisition and all the alternatives remain entirely remained on airport property.

The preferred alternative will meet short- and long-term needs at the airport. It includes additional apron space, hangar space, a FBO and SRE building, as well as a helicopter parking pad, separated from the other facilities.

This alternative could be constructed in a phased approach based on demand. In the short-term, four hangars can be built along the existing taxilane, as demand warrants, while apron and additional taxilanes could be built in the mid- to long-term.

Portions of this alternative are in the wetlands and may affect farmlands, and it is expected that an environmental determination and wetlands mitigation will be necessary.

A paved access road and automobile parking is also part of the recommendations and will be depicted on the ALP. In addition, a wildlife fence should be installed to increase the level of safety and reduce wildlife hazard.

5.8.3 LIST OF ACTIONS

The following is a summary of different projects and actions recommended at Bear Lake County Airport based on the alternative analysis.

- **Airside Facilities**
  - Lengthen Runway 10/28
  - Decouple Runway 10/28 and 16/34 by reducing Runway 16/34 length
  - Built access taxiway to access Runway 16 relocated threshold
  - Relocate existing windcone outside of the ROFA
  - Provide supplemental windcone near runway ends
  - Construct full length parallel taxiway
  - Install REILs on Runways 10 and 28
  - Install airfield signage, including runway direction signs, and holding position signs
  - Install AWOS
  - Renumber runway as necessary through the planning period (2030)
  - Install a PAPI on Runway 28 end, and Runway 10 end as needed

- **Apron and Hangars**
  - Provide lease space for small box hangars, and tie-down spaces
  - Construct Taxilanes to access new apron and hangar sites

- **Terminal Building/Pilot's lounge and Fixed Base Operator (FBO)**
  - Reserve space for a future FBO

- **Fueling Facilities**
  - Relocate fueling facility during taxilane reconstruction/reconfiguration (B-II standards)

- **Airport Property/Fence**
  - Install wildlife fence around airport property

- **Automobile Access and Parking**
  - Pave existing access road and relocate road to the south during Runway 28 extension
  - Provide paved automobile parking

5.9 ENVIRONMENTAL CONSIDERATIONS AND PERMITTING PRIOR TO DEVELOPMENT

A detailed overview of the environmental setting and potential environmental consequences at Bear Lake County Airport is provided in **Chapter 2**, Environmental Overview for the Bear Lake County Airport; additional details on the wetlands in the vicinity of the airport are provided in **Appendix B**, Wetland Determination Report

A more detailed environmental analysis will be required before proceeding with actual construction. This should include coordination with agencies such as FAA, United States Army Corps of Engineers, U.S. Fish and Wildlife Service, State Historical Preservation Office and others as deemed necessary.

An Environment Assessment will likely be required for many of the projects and may also be required if projects impact wetlands, farmlands, historic resources or Section 4f resources. In addition, before any hangar construction, the form 7460-1, Notice of Proposed Construction or Alteration, must be submitted to the FAA and an environmental clearance for development must be obtained.

A determination on the necessary action will be completed at the appropriate time to best facilitate the proposed project(s). The majority of new development at the airport is expected to be demand driven and will only be considered when, and if, demand at the airport warrants.

The following sections provide additional details regarding the permitting process and constraints due to the presence of wetlands in the vicinity of the airport and on airport property.

5.9.1 CLEAN WATER ACT PERMITTING

According to the USFWS online wetlands mapper tool, there are wetlands in the vicinity of the airport and wetlands may exist in the proposed development areas. In addition, based on the Wetland Determination Report and wetlands delineation conducted in August 2014 as part of this airport master plan, the wetlands delineated encompass 0.48 acres and are presumed to be jurisdictional. **Figure 5-22** depicts the area of study and wetlands location.

Prior to construction and development in areas not covered by the Wetland Determination Report, a wetland delineation should be performed to determine if wetlands are present in the project area.

A Clean Water Act Section 404 permit might be necessary and a wetland mitigation might be required if wetlands are impacted by development or construction. It is likely that such permitting will be necessary, for several projects.

Lastly, construction activities that disturb one acre or more of land (including clearing, grading, and excavating) require coverage by a National Pollutant Discharge Elimination System (NPDES) stormwater permit. Future projects at Bear Lake County Airport that impact more than 1 acre of land, will require a NPDES permit. In addition, and a Storm Water Pollution Prevention Plan (SWPPP) will be required to describe the site controls.

5.9.2 LOCAL BUILDING PERMIT

In addition, a building permit has to be obtained, prior to the construction of any structure, throughout Bear Lake County.

FIGURE 5-22 – WETLANDS DELINEATION

Wetlands Delineation

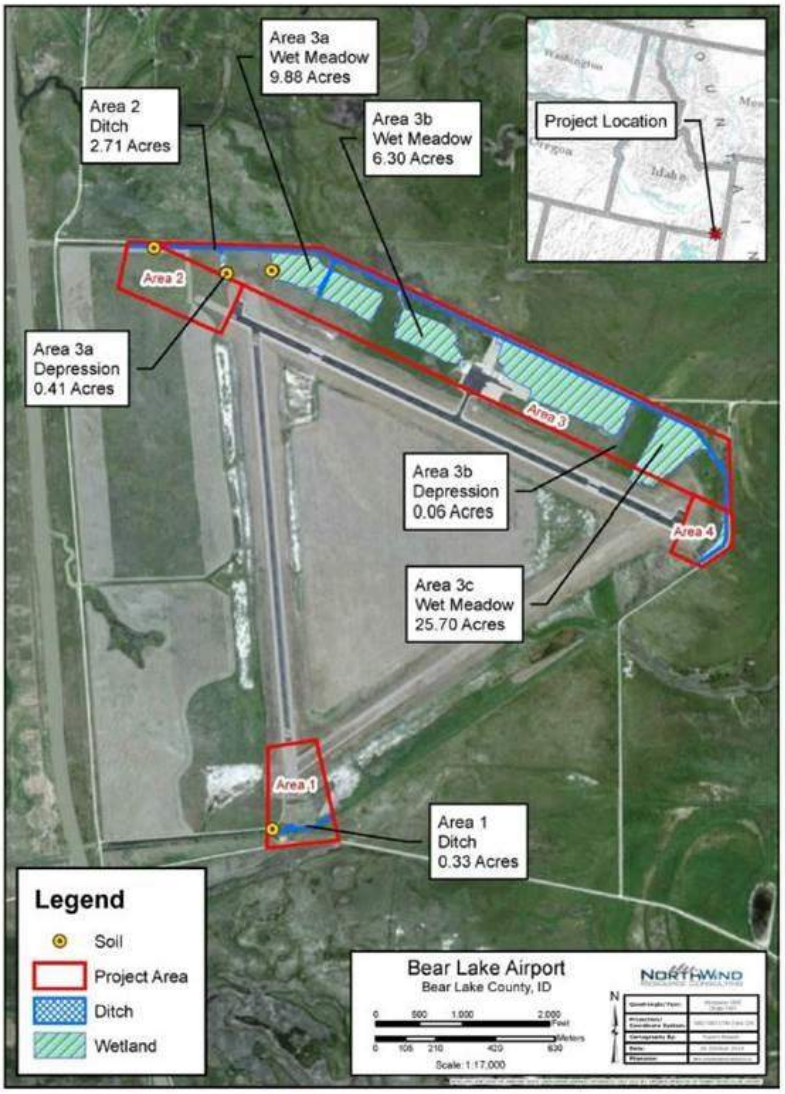


Figure 3. Map showing locations and acreages of the wetlands.

Source: Wetlands Determination Report - Northwind

6.0 DEVELOPMENT PLAN/FINANCIAL OVERVIEW

Previous sections of this airport master plan reviewed the requirements and alternatives necessary for the Bear Lake County Airport to meet the identified current and future demand. The next step is to analyze the financial commitment needed to implement the recommendations over the next 20 years. This chapter:

- Outlines the Bear Lake County Airport development plan (or capital improvement program)
- Discusses the potential sources of funding for implementing the projects outlined in the development plan
- Presents an evaluation of the airport's current financial operating environment
- And recommends enhancements to increase airport revenue

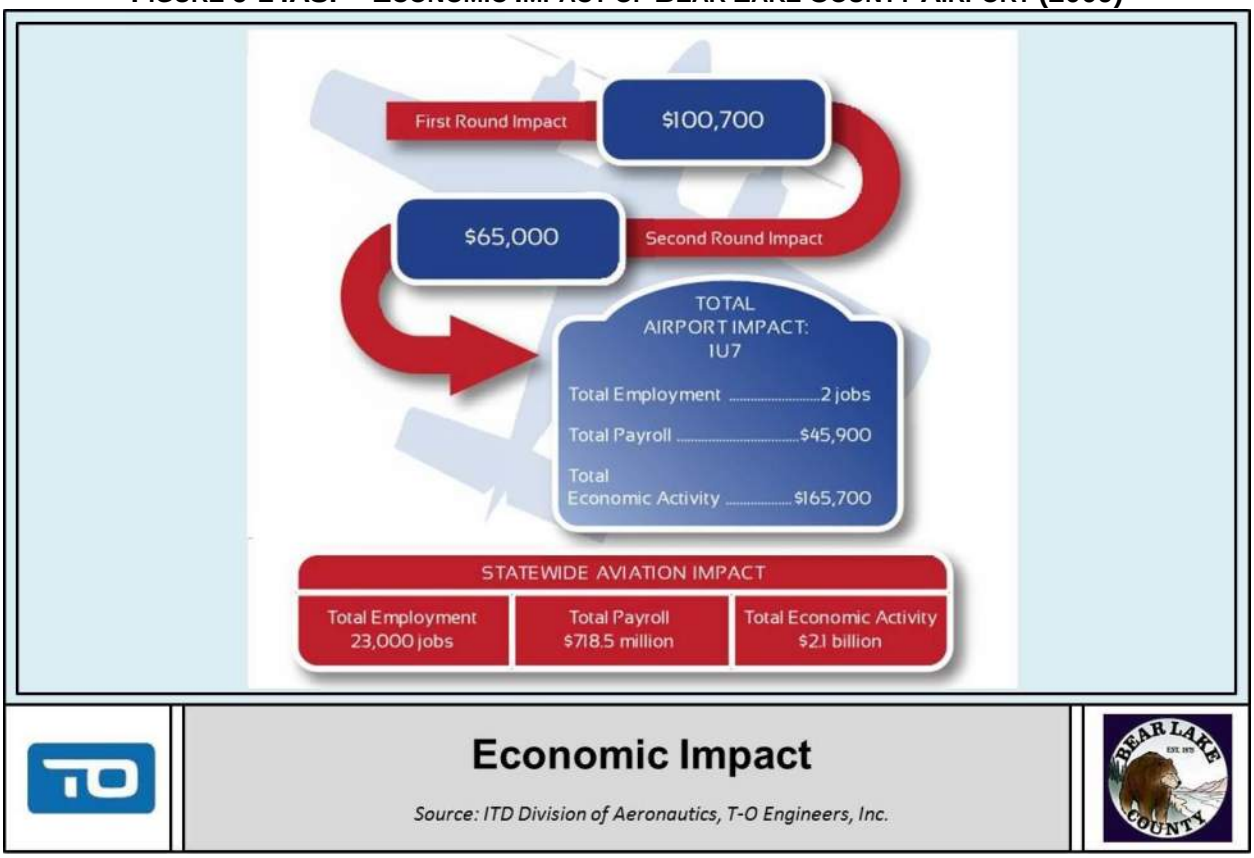
The Idaho Airport System Plan (IASP), initiated by the Idaho Transportation Department (ITD) Division of Aeronautics, in 2009, evaluated the economic impact of Bear Lake County Airport. The direct economic benefits related to on-airport business tenants and the indirect benefits associated with visitor-related expenditures were determined for each study airport. The multiplier effect of these benefits was then calculated to determine the total airport related impact. The total economic activity is the sum of all direct (on-airport) and indirect (off-airport), and multiplier impacts.

The overall economic impact of Bear Lake County Airport was estimated at $165,700 in 2009 and the airport also, directly and indirectly, provided the community with 2 jobs, as depicted in **Figure 6-1**. Additional detailed information relative to this analysis can be found in the IASP technical report available from ITD Division of Aeronautics. The individual airport summary for Bear Lake County Airport created as output from the system plan is included in **Appendix E** for reference.

The airport supports the operations of recreational aviation users as well as some business activity in the area. Other intangible benefits of the airport and its activities such as medical evacuation and shipments, Life Flight activity, as well as wildlife counts and mosquito control around the Bear Lake area should not be overlooked as to their importance to the economy and overall well-being of the community.

When considering the financial implications of implementing this master plan and the possible increases or new fees needed to support development, it is important to discuss the inherent value of the airport to the community and the airport's economic contribution. The airport's economic value should be articulated to airport users, county decision-makers, and the general public to help understand why such fees and investment are justified and necessary.

FIGURE 6-1 IASP - ECONOMIC IMPACT OF BEAR LAKE COUNTY AIRPORT (2009)



6.1 DEVELOPMENT PLAN AND COST ESTIMATES

A list of capital improvement projects has been assembled based on the preferred development alternatives established in Chapter 5 of this airport master plan. This project list has been coordinated with the Airport Layout Plan (ALP) drawing set and the development plan used to create the airport's Capital Improvements Program (CIP). The airport's CIP should be routinely updated by airport management and submitted to the FAA through ITD Division of Aeronautics. In addition to identifying improvement projects, this CIP also presents a reasonable order of implementation along with estimated total costs and anticipated funding sources of the projects.

The plan was developed utilizing a phased approach rather than assigning projects to a specific year. Due to the fluid nature of FAA funding, ITD and the Helena Airport District Office (HLN-ADO) cannot accurately determine where each of the projects identified in the "phases" will eventually fit into the Federal CIP. Proposed projects from this development plan are generally prioritized by project and timeframe.

When formulating the following development plan, only FAA, State and Local funding sources were considered. At this time, no private or other revenue sources have been identified to assist with any airport development. Also, all FAA cost shares are based on the current 90 percent

Federal participation, 2.5 percent state participation is also assumed for eligible projects, with local funding making up the difference. Cost estimates were prepared using 2015 dollars.

It is important to note that inclusion of a project in a CIP provides no guarantee a project will be funded in that timeframe or year. Additionally, all or some component of a project, shown on the ALP, may not be eligible for federal grant participation. The detailed funding plan for an individual project is typically defined during the predesign or formulation phase of the project.

Projects are organized by phases with Phase I (Short Term) in the 0-5 year timeframe; Phase II (Mid Term) in the 6-10 year timeframe; and Phase III (Long Term) in the 11-20 year timeframe. Project descriptions which relate to development based on demand are by nature general as projects will need to be planned in greater detail as specific project goals and need become more defined.

It should also be noted that the projects below are shown as individual projects however due to the high cost of completing small projects, multiple projects should be combined into larger projects to reduce the overall cost.

6.1.1 SHORT TERM DEVELOPMENT - PHASE 1 (0-5 YEARS)

TABLE 6-1: SHORT-TERM DEVELOPMENT PROJECTS AND COST ESTIMATES- PHASE I

Project		Funding Source			Total Project Costs
ID	Description	Federal (90%)	State (2.5%)	Local	
1-1	Runway Pavement Maintenance	$180,000	$5,000	$15,000	$200,000
1-2	Apron rehabilitation	$810,000	$22,500	$67,500	$900,000
1-3	Runway lighting	$405,000	$11,250	$33,750	$450,000
1-4	AWOS and PAPI	$315,000	$8,750	$26,250	$350,000
1-5	Snow Removal Equipment and Snow Removal Equipment Building	$270,000	$7,500	$22,500	$300,000
1-6	PAPI, REILs and Supplemental Windcone	$112,500	$3,125	$9,375	$125,000
	SHORT-TERM TOTAL	**$2,092,500**	**$58,125**	**$174,375**	**$2,325,000**

Source: T-O Engineers Inc.
Note: All estimates are in 2015 dollars

1-1 Runway Pavement Maintenance
This project includes pavement maintenance to include seal coat, crack fill and remarking on Runways 10/28 and 16/34.

1-2 Apron Rehabilitation
This project includes full rehabilitation of the apron and the connecting taxiway to Runway 10-28.

1-3 Runway Lighting
This project includes the installation of new Medium Intensity Runway Lights on Runway 10-28 to meet design standards.

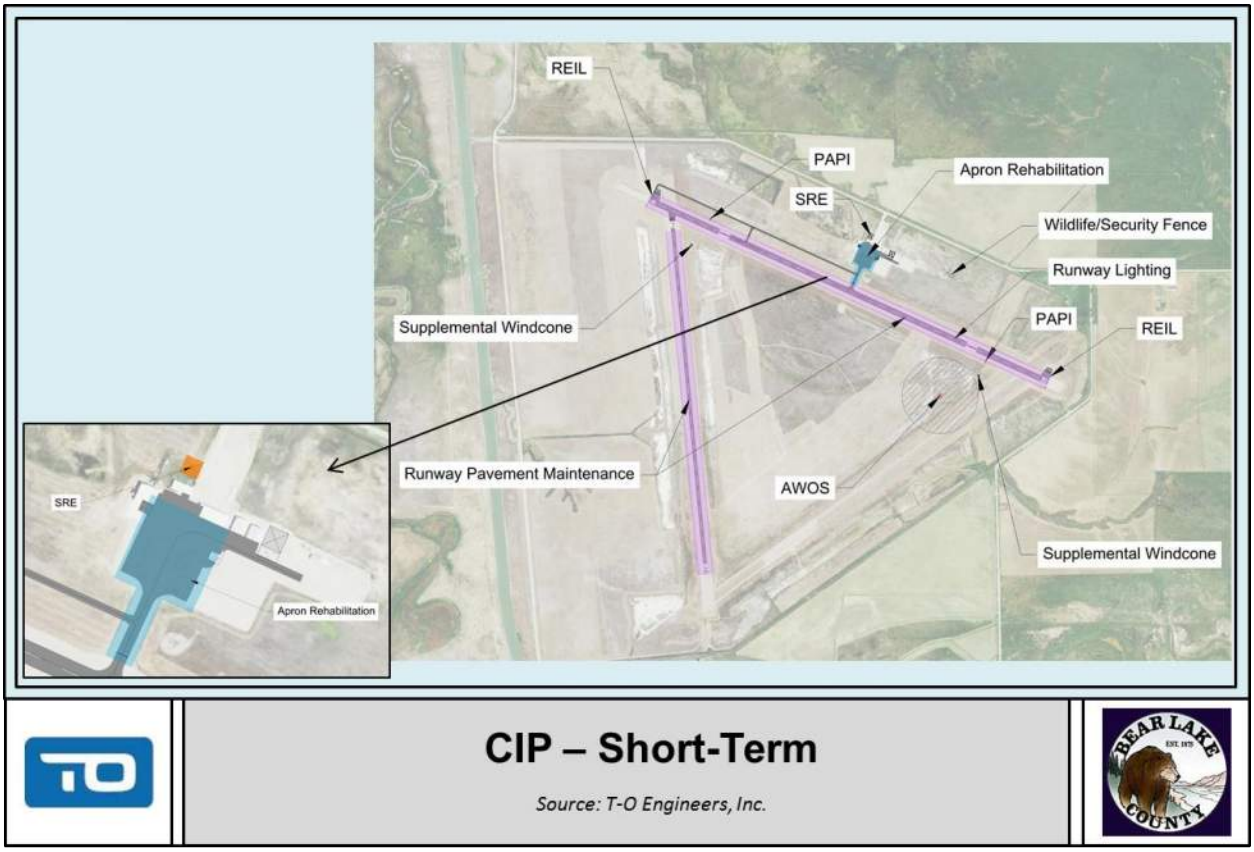
1-4 AWOS and PAPI
This project includes the installation of an AWOS and PAPI on the Runway 28 end.

1-5 Acquire Snow Removal Equipment (SRE) and Construct Storage Building
This project will consist in acquiring Snow Removal Equipment (SRE). It is anticipated the SRE will consist of a multi-directional tractor with implements such as plow, broom and blower. It will also consist of building a new storage building to store and protect the new SRE equipment.

1-6 Install PAPI, REILs and Supplemental Wind Cones.
This project includes the installation of Precision Approach Path Indicators (PAPI) on the Runway 10 end as well as supplemental wind cones and Runway End Identifier Lights (REILs) on each end of Runway 10/28.

Figure 6-2 depicts Short Term Development projects in a graphical format.

FIGURE 6-2: SHORT-TERM DEVELOPMENT PROJECTS



6.1.2 MID-TERM DEVELOPMENT - PHASE 2 (5-10 YEARS)

TABLE 6-2: MID-TERM DEVELOPMENT PROJECTS AND COST ESTIMATES- PHASE II

Project		Funding Source			Total Project Costs
ID	Description	Federal (90%)	State (2.5%)	Local	
2-1	Rehabilitate Runway 10-28	$3,096,000	$86,000	$258,000	$3,440,000
2-2	Acquire Land for Approach Protection	$90,000	$2,500	$7,500	$100,000
2-3	Pavement Maintenance on Apron, Taxiways and Runway 16-34	$360,000	$10,000	$30,000	$400,000
2-4	Wildlife/Security fence	$810,000	$22,500	$67,500	$900,000
2-5	Taxilane Extension	$225,000	$6,250	$18,750	$250,000
2-6	Decouple runway ends and access taxiway	$472,500	$13,125	$39,375	$525,000
MID-TERM TOTAL		**$5,053,500**	**$140,375**	**$421,125**	**$5,615,000**

Source: T-O Engineers Inc.
Note: All estimates are in 2015 dollars

2-1 Rehabilitate Runway 10/28

This project includes the rehabilitation of Runway 10/28. The cost includes reconstructing the HMA and base course and installation of edge drains. The actual method of rehabilitation will be determined during design.

2-2 Land Acquisition

This project includes the acquisition of land not already owned in the current RPZs off of each runway. The amount of property necessary to own all areas of the current RPZ's is approximately 6 acres.

2-3 Pavement Maintenance on Apron, Taxiways and Runway 16-34

This project includes pavement maintenance including crack seal, seal coat and remarking as necessary for various pavements of the airport.

2-4 Install Wildlife/Security Fence

This project includes the installation of a security fence around the airport to improve security and minimize wildlife hazard and wildlife incursions at the airport. The fence will be installed on existing airport property. Once land acquisition and runway extension have been completed, the fence will be extended to include the runway extension footprint as part of future project. Additional funds are planned for the runway extension project to budget for the fence extension.

2-5 Taxilane Extension

The project includes the extension of the existing taxilane to provide additional area hangar development.

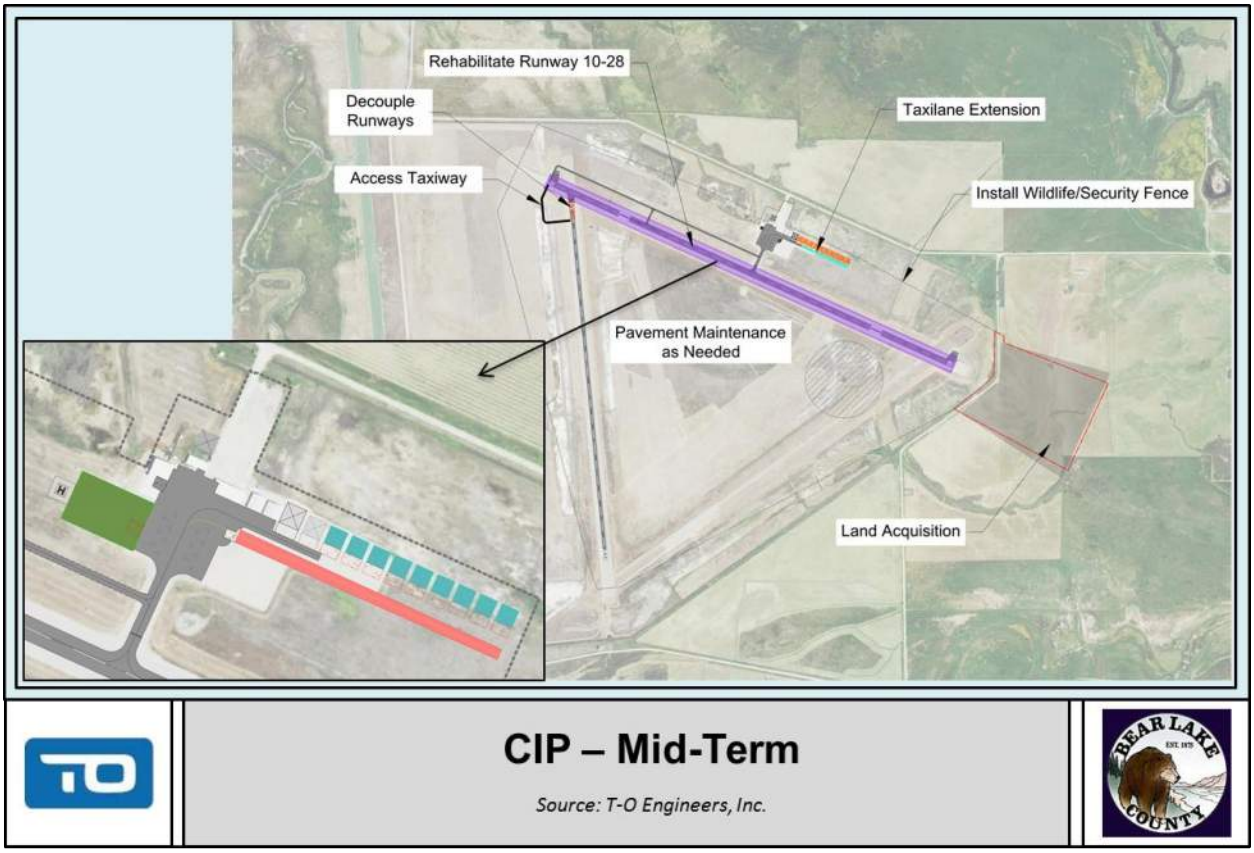
2-6 Decouple Runway and Access Taxiway

The project includes the decoupling of Runway 16/34 and Runway 10/28. It includes 210 feet of pavement removal near Runway 16 threshold as well as the construction of an access taxiway to access the relocated Runway 16 threshold.

This project will happen only if Runway 16/34 is maintained beyond its 10-year life expectancy. It is recommended to analyze updated wind data from the new AWOS, by the end of the mid-term period, in order to re-evaluate the need for Runway 16/34 as a crosswind runway.

Figure 6-3 depicts Mid-Term Development projects in a graphical format.

FIGURE 6-3: MID-TERM DEVELOPMENT PROJECTS



6.1.3 LONG TERM DEVELOPMENT - PHASE 3 (11-20 YEARS)

TABLE 6-3: LONG-TERM DEVELOPMENT PROJECTS AND COST ESTIMATES- PHASE III

Project		Funding Source			Total Project Costs
ID	Description	Federal (90%)	State (2.5%)	Local	
3-1	Widen Parallel Taxiway	$373,500	$10,375	$31,125	$415,000
3-2	Reconfigure Apron	$1,035,000	$28,750	$86,250	$1,150,000
3-3	Helicopter parking	$45,000	$1,250	$3,750	$50,000
3-4	Taxilane, Apron and Landside Development	$2,196,450	$61,013	$183,038	$2,440,500
3-5	Pave Access Road	$2,062,800	$57,300	$171,900	$2,292,000
3-6	Airport Master Plan Update	$153,000	$4,250	$12,750	$170,000
3-7	Environmental Assessment for Runway Extension	$270,000	$7,500	$22,500	$300,000
3-8	Acquire Land for Runway 10-28 Extension	$214,425	$5,956	$17,869	$238,250
3-9	Wetland Mitigation	$1,179,000	$32,750	$98,250	$1,310,000
3-10	Extend Runway 10-28	$1,579,500	$43,875	$131,625	$1,755,000
3-11	Relocate Road	$2,205,000	$61,250	$183,750	$2,450,000
3-12	Extend Parallel Taxiway	$1,714,500	$47,625	$142,875	$1,905,000
3-13	Relocate Windcone and Segmented Circle	$19,800	$550	$1,650	$22,000
LONG-TERM TOTAL		**$13,047,975**	**$362,444**	**$1,087,332**	**$14,497,750**

Source: T-O Engineers Inc.
Notes: All estimates are in 2015 dollars

3-1 Widen Parallel Taxiway

This project includes the widening of the existing parallel taxiway. This project is necessary to meet TDG 2 standards, when demand warrants, as the existing parallel taxiway is only 25 feet wide.

3-2 Reconfigure Apron

The project includes reconfiguration of the apron to meet B-II standards. As part of this reconfiguration, it also includes the relocation of the fuel tank and taxilane, to meet B-II design standards, as well as the construction of a fuel island/apron area and space for an FBO. The work associated with the fuel tanks is required to meet B-II design standards, however the eligibility of the work associated with fuel tanks should be reviewed with the FAA.

3-3 Construct Helicopter Parking Pad

This project includes the installation of a helicopter parking pad to minimize the Foreign Object Damage (FOD).

3-4 Taxilane, Apron and Landside Development

This project includes the construction of taxilanes and aprons in the landside area. This project will provide additional aircraft parking and hangar spots as well as space for vehicle parking.

3-5 Pave Access Road

This project includes the paving of the access road to the airport as well as automobile parking. It should be noted that this project is not entirely eligible for AIP funding and only the portion of the access road serving the airport exclusively is eligible for federal funding. It was assumed that FAA participation would be available to pave Airport Road between the junction with Airport Road North and the pilot's lounge and that local funding would be used to pave Dingle Bottoms Road from Paris. If federal funds are not available, the entire project will have to be funded with local funds.

3-6 Airport Master Plan Update

This project includes the Update of the airport master plan and airport layout plan.

3-7 Environmental Assessment for Runway 10/28 Extension

This project includes an Environmental Assessment, which will be necessary before extending Runway 28 and relocating the road. The runway extension requires land acquisition and wetlands mitigation and will require environmental coordination.

3-8 Land Acquisition for Runway Extension

This project includes the acquisition of land to the southeast of the airport, necessary to extend Runway 28 and relocate the road. It was assumed the airport would acquire enough land to own up to the 25-foot BRL. This will allow the airport to own the RSA, OFZ, ROFA, and RPZ, extend the taxiway to the Runway 28 end, protect for TOFA, and extend the wildlife/security fence. In addition, it was assumed that a right-of-way would be necessary for the relocated road.

The minimum property required to own up to the 25-foot BRL is 75.0 acres, while the right-of-way for the relocated road is 4.3 acres for a total land acquisition of 79.3 acres. If possible, it is recommended the airport acquire additional land to ensure land use compatibility, mitigate for potential future noise issues and allow for future extension of aeronautical development if necessary.

3-9 Wetland Mitigation

The National Wetland Inventory identifies the entire area south of the airport as wetlands. Prior to construction, a wetland delineation will have to be completed to confirm the presence of wetlands and assess their status. Based on the delineation, precise remediation costs, which depend on the quality of the wetlands and the level of mitigation necessary, can be computed.
It was assumed the entire area south of the airport consists of wetlands, as shown on the National Wetland Inventory and that wetlands in this area would require remediation. As a rough estimation, it was assumed the costs of remediation would be $25,000 per acre.

For airports serving mainly piston-powered aircraft, such as Bear Lake County Airport, the FAA recommends a separation of 5,000 feet between wildlife attractants (including wetlands) and the airport. This goal seems difficult to achieve at Bear Lake County Airport as the area in the vicinity of the airport counts multiple wetlands and it would require extensive wetlands mitigation. Therefore, it was assumed that wetland remediation would be conducted for the runway and taxiway extension, as well as the road relocation and in the RSA, OFZ, ROFA, RPZ, and TOFA for a total area of 52.4 acres.

3-10 Runway 10-28 Extension
This project includes the lengthening of Runway 10-28 by 1,472' and relocation of the road.

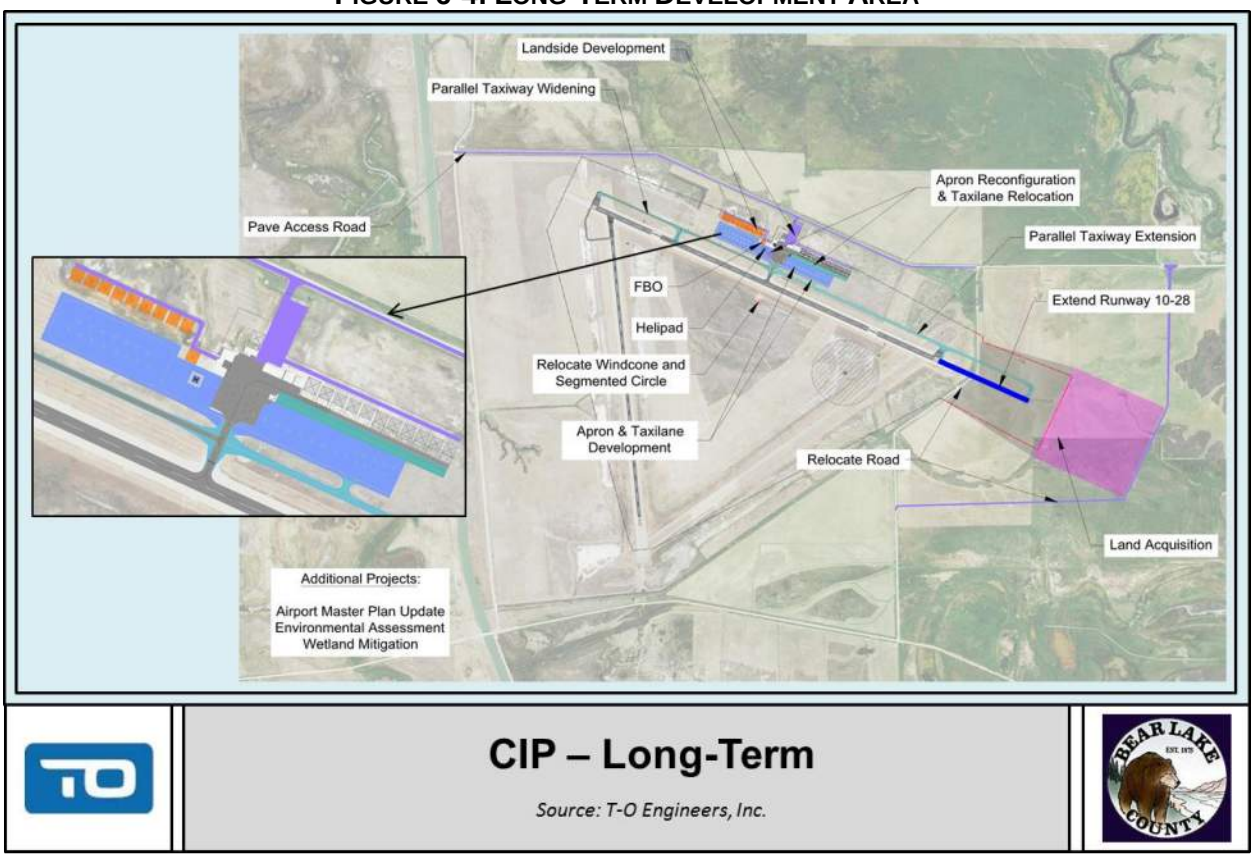
3-11 Relocate Road
This project includes the relocation of the road in the Runway 28 RPZ to accommodate the future runway extension. The relocated road will be 24' wide and approximately 7,060' in length.

3-12 Extend Parallel Taxiway to Runway 28 End
This project includes the lengthening of the parallel taxiway to Runway 28 end at a width of 35' to have a full-length parallel taxiway.

3-13 Relocate Wind Cone and Segmented Circle
This project includes the relocation of the existing wind cone and segmented circle. This project is necessary to meet B-II standards when demand warrants, as the existing wind cone and segmented circle are in the ROFA.

Figure 6-4 depicts Long Term Development projects in a graphical format.
It should be noted that landside development will be demand driven.

FIGURE 6-4: LONG-TERM DEVELOPMENT AREA



6.1.4 COST ESTIMATE SUMMARY

Table 6-4 summarizes the total costs to implement the proposed development plan. The proposed 20-year development plan depicts the need for an average of approximately $1,121,888 of funding per year.

It is important to reiterate that the development plan (and the Master Plan Update process in general) is a 20-year plan created using present day information and variables relevant at the time of its drafting. The funding and CIP process is very fluid in nature and changes frequently. To be successful, Bear Lake County must work very closely with FAA and ITD to schedule the projects presented in this ALP Update into the Federal CIP when appropriate and revise the plan as circumstances at the airport warrant.

TABLE 6-4: 20 YEAR DEVELOPMENT PLAN SUMMARY FOR BEAR LAKE COUNTY AIRPORT

Phases	Cost Estimate and Funding Source			
	Federal	State	Local	Total Project Costs
Phase I (1-5 Years)	$2,092,500	$58,125	$174,375	$2,325,000
Phase II (6-10 Years)	$5,053,500	$140,375	$421,125	$5,615,000
Phase III (11-20 Years)	$13,047,975	$362,444	$1,087,331	$14,497,750
TOTAL 20 YEAR	**$20,193,975**	**$560,944**	**$1,682,831**	**$22,437,750**

Source: T-O Engineers
Note: All estimates are in 2015 dollars.

6.2 CAPITAL IMPROVEMENT FUNDING

This section describes the funding sources available to Bear Lake County to fund the proposed projects included in the development plan. As previously noted, the FAA's AIP is expected to be the primary source of funding for all of the eligible projects. FAA, the State of Idaho, local, and other funding sources will be described in greater detail below.

6.2.1 FAA FUNDING

The current FAA funding program, known as the Airport Improvement Program (AIP), was initially established by the Airport and Airway Improvement Act of 1982. Since 1982, the AIP program has been authorized and appropriated on a continuous basis. Funding for this program is located in a dedicated Trust Fund with revenues generated from a tax on airline tickets, freight waybills, international departure fees, a tax on general aviation fuel, and a tax on aviation jet fuel. This is a user fee-based program.

Current FAA legislation funds eligible airports and eligible projects up to a maximum of 90% of total project costs for general aviation airports. Bear Lake County Airport is an eligible airport and has received FAA funds for previous projects. Recent project funding has been at the 90% level. The remaining 10% of capital construction costs are required to come from State and local sources. FAA participation has been as high as 95% in the previous authorization act. AIP is presently authorized through September of 2017.

The current AIP legislation funds the following programs: Non-Primary Entitlement (NPE) program, State Apportionment funds, and Discretionary funds. Since its inception in 2001, the NPE program has provided small General Aviation airports, like Bear Lake County Airport, on average, $150,000 a year in the form of an entitlement for eligible projects. This program has given these airports the opportunity to enhance their facilities via maintenance and small capital improvement projects. The recommended development plan assumes the continuation of the NPE program throughout the planning period.

In the event that the U.S. Congress changes the FAA NPE program, to the extent that this development plan is rendered ineffective, the airport sponsor should take immediate action to revise the development plan in order to satisfy the funding requirements resulting from the most

current legislation in effect. Airports have the ability to carry over their NPE funds for three years so that they can be accumulated to accomplish a single larger project. This is often done in combination with State apportionment funds for large projects.

FAA State Apportionment (ST) funding is formulated for each of the 50 states. ST funding is a discretionary fund available to all eligible Non-Primary airports in Idaho. State Apportionment funding is typically reserved for large scale, high priority projects. It is anticipated that ST funding will be necessary to complete some or most of the projects included in the proposed development plan. As noted above, ST funds are often combined with NPE funds to accomplish larger projects. ITD provides FAA with input as to the use of ST funds at eligible airports in Idaho, but FAA determines which airports receive ST project funding.

FAA Discretionary (DI) funding is typically reserved for high cost, high priority projects at primary airports and large General Aviation Reliever airports. Such projects and airports compete for Discretionary funds on a national and regional basis. It is anticipated DI funding may be necessary to complete the runway project. As noted above, DI funds are often combined with ST and NPE funds to accomplish larger projects.

6.2.2 IDAHO TRANSPORTATION DEPARTMENT (ITD) FUNDING

State project funding is available from ITD Division of Aeronautics. It is common for local communities to utilize the funding from the Idaho Airport Aid Program (IAAP) for local match requirements of FAA AIP funded projects as well as airport improvement projects not eligible for FAA funding. IAAP funding comes from taxes applied to AvGas and Jet fuel sold in the state and is determined annually through appropriations from the State Legislature. In addition, ITD implements a pavement maintenance program to assist airports with pavement maintenance needs as warranted by the airport's specific PCI values. Bear Lake County Airport is eligible to participate and has received such assistance in the past.

ITD also has two additional funding programs to assist Idaho airports. The first program, the Maintenance and Safety Supplies Program provides funding to airports for maintenance as safety-related supplies such as airport edge lights, tie-down chains, and replacement windsocks. The second funding program, the Small Projects Program, provides grant funding for emergency or unscheduled improvements of less than $2,000.

6.2.3 LOCAL FUNDING

Local funds are those derived from income resulting from the operation of the airport itself, or contributions by the sponsoring agency (or agencies) of the airport from general or other funds. Local funds are typically used for FAA AIP grant local match requirements and to fund airport operations; including administration, maintenance, or other projects not eligible for FAA or State funding support. FAA Grant Assurance #25 requires revenue generated by the airport be expended for the capital or operating costs of the airport.

Idaho Airport Debt Amendment

In November 2010, Idaho voters approved a new constitutional amendment **The Idaho Airport Debt Amendment,** also known as House Joint Resolution 5 (HJR 5). The Idaho Constitution now allows local governments that operate airports to issue revenue bonds and special facility bonds in order to improve facilities, equipment, and acquisitions such as real property so long as those debts are paid back exclusively through airport revenues instead of using taxpayer money.

Due to the currently limited airport revenue, it is unlikely that Bear Lake County would issue such bonds in the near-term. However, it is recommended that the County monitor developments and opportunities to use this funding mechanism for future airport improvements.

6.2.4 PRIVATE FUNDING

Private funding sources are typically financial contributions to the airport or airport sponsor by an individual(s) or business entity. Typically such donors make extensive use of the airport and are contributing to the maintenance, expansion, and operation of the facility to further enhance their use of the facility. Considering the many expensive needs of airports and the limited amount of public funding available to meet these needs, the use of private funds to offset airport costs is a concept that continues to receive attention.

Improvements such as water, sewer, and electrical extension and paving necessary to construct hangars and other privately owned facilities on the airport should be fully funded by the lessee. If the airport funds any of these improvements then an additional fee should added to the lease fee to include an amortized recovery of these expenses over a reasonable period of time.

6.2.5 OTHER FUNDING

It is highly encouraged that Bear Lake County research other potential funding sources to aid future development of the airport. Due to FAA and State eligibility limitations for certain types of development, communities and airports must look internally or to other sources of funding for utilities and infrastructure development such as hangars and terminal buildings. Additional sources of funding are available from federal and state agencies other than the FAA and ITD. However, it must be cautioned that federal funds from one source cannot be used as a match for federal funds from another source.

Airports, an important part of planned economic growth, can leverage funding from agencies such as the Idaho Economic Development Association (EDA), farm loan boards, or the U.S. Department of Agriculture. In addition, if extensive aerial firefighting activity is taking place at an airport, supplemental funding from the U.S. Bureau of Land Management (BLM) and the U.S. Forest Service (USFS) may be available to airport sponsors to support the needed facilities at

the airport. A few of these programs that can be considered by Bear Lake County are described in more detail in the following paragraphs.

Idaho Gem Grants

Rural communities with a population of less than 10,000 are eligible to receive Idaho Gem Grants (IGG). These grants are provided by the Idaho Department of Commerce to assist in rural economic development efforts. In recent years, Idaho Gem Grants have been used by several rural airports in Idaho for a hangar feasibility study, a business development study, and infrastructure improvements (septic and water). Bear Lake County should investigate the availability of this funding source for future development that may not be funded by the FAA. In addition, these funds can be used for matching grants to economic development projects.

USDA Rural Development Grants

The U.S. Department of Agriculture (USDA) Rural Development offers grants, loans, and technical assistance for rural communities throughout the U.S. The USDA defines "Rural" as an area with a population of fewer than 50,000 and not adjacent to a city or town with 50,000 or more people. Through the Rural Business Opportunity Grant (RBOG) program, Bear Lake County Airport may be able to obtain grant funding for planning projects that promote economic development, such as hangar feasibility studies or airport economic development plans. Guaranteed Community Facility Grants and Loans are also available from the USDA to improve public service facilities including airports in rural areas. This type of funding can be used for hangar development and land acquisition.

6.3 BEAR LAKE COUNTY AIRPORT FINANCIAL OVERVIEW

6.3.1 AIRPORT GRANT HISTORY

Receipt of airport improvement grants is an important piece of the financial puzzle at the airport. Such grants are the backbone for important capital improvement/development and maintenance projects. Bear Lake County and Bear Lake County Airport have an established history of receiving grants from the FAA AIP fund and ITD Aeronautics IAAP for such projects.

According to the FAA & ITD, since 1971, Bear Lake County has received over $3.5 million from FAA AIP, and over $252,000 from ITD for capital improvement projects. Over the same period, the County has used airport revenue to invest substantially into the airport for such things as a local financial match for grants and standard operations and maintenance expenses. FAA and ITD grant histories, as provided by the FAA and ITD, are included in **Appendix F**. Continued use of such grant funds will be critical to the airport's long-term viability.

6.3.2 CURRENT FISCAL POLICY

To gain a perspective of the future financial outlook of the airport, it is important to provide a brief summary of current fiscal policy.

Revenues and Expenses

Airport revenues are typically generated through user fees for airport facilities and services. Airport operating revenues are collected at Bear Lake County Airport from hangar leases, sales of hay and grain, and other revenues. Airport revenues are offset by airport expenses, which at Bear Lake County Airport include utilities, supplies, maintenance, and grant match. Bear Lake County Airport expenses also include the local capital costs associated with airport improvements.

Table 6-5 summarizes the revenues and expenses at the airport between 2011 and 2015. Following are traditional rates and charges which the County should consider and implement as appropriate for their particular set of circumstances.

TABLE 6-5: BEAR LAKE COUNTY AIRPORT OPERATING INCOME AND EXPENSES

Description	2011	2012	2013	2014	2015 (Until July 2015)
Revenues					
Real property Taxes	$37,094.97	$1,622.27	$21,832.46	$15,422.08	$11,436.97
Penalty	$3.56	$0.00	$0.00	$0.00	$0.00
Interest	$334.76	$307.44	$238.94	$283.16	$122.08
Sales Tax	$4,158.57	$0.00	$1,748.00	$1,762.42	$1,136.88
Sales of Hay & Grain and Hangar Leases	$29,490.40	$30,202.92	$30,137.94	$30,045.92	$21,305.92
Grants	$5,004.00	$21,113.00	$186,530.00	$579,449.00	$46,514.00
Miscellaneous Revenue	$0.00	$0.00	$1.86	$249.00	$0.00
Total Revenues	**$76,086.26**	**$53,245.63**	**$240,489.20**	**$627,211.58**	**$80,515.85**
Expenses					
Supplies & Misc (Fuel Expense)	$4,531.00	$3,596.04	$1,396.28	$5,333.94	$1,396.28
Utilities	$9,459.38	$10,082.22	$8,896.63	$11,563.58	$8,896.63
Maintenance/Snow Removal/Weed Spraying	$77.00	$2,835.31	$2,573.49	$5,551.58	$2,573.49
Administration/Agreements & Contracts	$595.00	$995.00	$713.00	$595.00	$713.00
Airport Improvements/Capital Expenditures	$12,502.64	$31,159.09	$147,388.67	$649,224.88	$147,388.67
Other Expenses	$4,263.67	$170.26	$0.00	$0.00	$0.00
Total Expenses	**$31,428.69**	**$48,837.92**	**$160,968.07**	**$672,268.98**	**$160,968.07**

Source: Bear Lake County Records, T-O Engineers

Fee Structure

User fees at the Bear Lake County Airport are established by County Commissioners. Existing user fees include hangar lease fees.

6.4 POTENTIAL REVENUE ENHANCEMENT

It is the responsibility of an airport sponsor under Grant Assurance #24 Fee and Rental Structure to maintain a fee and rental structure for the facilities and services at the airport which will make the airport as self-sustaining as possible under the circumstances existing at the airport, taking into account such factors as the volume of traffic and economy of collection. Further discussion of the Grant Assurances can be found in Chapter 7, FAA Compliance Overview and Land Use Compatibility Review and Recommendations. FAA Order 5190.6b states that fair market value fees are required for non-aeronautical use of the airport. e.g., lease of land. Fair market pricing of airport facilities can be determined by reference to negotiated fees charged for similar uses of the airport or by an appraisal of comparable properties.

However, in view of the various restrictions on the use of property on an airport (i.e., limits on the use of airport property, height restrictions, etc.), it may be ideal for the airport to develop an

Airport Business Plan. A business plan is a dynamic document created to assist an airport with current and future business decisions. A business plan provides airport-specific information, analysis, and recommendations for improved airport operation. Goals of a business plan often include:

- To operate as a financially self-supporting airport.
- To attract and retain a base of personal and business/corporate aircraft
- To promote the airport for use by transient and business/corporate aircraft operations
- To implement the airport's capital improvement plan.
- Support the region's economic development goals.

At a minimum, the airport should continually evaluate the regional market value for similar services and fees at competing airports annually. This evaluation should compare the airport's cost of providing services with the compensation it receives for providing these services with the goal of maintaining the profit margin necessary to continue to provide for these services and identifying the resources required to conduct the daily business of the airport. To this end, this section briefly explores the revenue enhancement options available to Bear Lake County.

6.4.1 RATES AND CHARGES

Bear Lake County Airport has a low aircraft operations activity and 6 based aircraft. This changes the manner in which traditional airport rates and charges analysis is approached as many traditional airport revenue sources would likely bring in very little income and be cost inefficient to collect.

Landing Fees - Since the airport is essentially a B-I small airport, there are few aircraft with a Maximum Gross Takeoff Weight (MTOW) in excess of 12,500 lbs. Many airports charge landing fees to aircraft over 7,000 lbs. MTOW. FAA recognized the difficulty of collecting landing fees in this type of environment and normally does not expect that a GA airport of this size would implement an aircraft landing fee.

In the future, if the airport is successful in attracting larger aircraft operations, a graduated landing fee could be considered to reflect the true cost of the size and type of aircraft using the airport. Faster and heavier turboprop and jet aircraft cause a higher cost to the airport and therefore could be charged a higher fee to utilize the airport. A sliding scale landing fee schedule could be considered in the future based on maximum certified take-off weight. The benefit of landing fees may be offset by the difficulty and cost of tracking and collecting such fees.

Tie-Down Fees - The airport has one based aircraft tie-down.
Fuel Flowage Fee - The airport does not charge a fuel flowage fee for inclusion in the airport fund. While this could be a small source of revenue to the county's airport fund, it would be very

small. It is not determined what effect implementing a fuel flowage fee would have on the amount of transient aircraft that visit the airport.

Hangar Lease and Land Lease - FAA expects that a CPI is applied to land lease fees at least every five years. These fees should be reviewed and discussed with the hangar owners to assure that they receive a value and that they place an appropriate monetary value on their use and benefit from using airport property. Construction of new hangars may require extra permitting as compared to other airports including possible wetlands permitting.

New Hangar Land Leases - FAA Order 5190.6b states that if the airport owner or operator and a person who owns an aircraft agree that a hangar is to be constructed at the airport for the aircraft at the aircraft owner's expense, the airport owner or operator will grant to the aircraft owner for the hangar a long term lease that is subject to such terms and conditions on the hangar as the airport owner or operator may impose. Bear Lake County should include CPI/rate adjustment at least every five years within the agreement.

Hangar Owners Maintenance Fee - This fee would work similar to a homeowners fee to collect from hangar owners fees for the maintenance and improvement to the aprons and taxiways that are either exclusively or predominantly beneficial to them.

Concession Fees - If there were car rentals, goods sold, or privately owned vehicles parked at the airport for extended periods of time, a fee could be analyzed to see if it was appropriate and if it could be economically collected.

Summary - In conducting its day-to-day business, Bear Lake County Airport leases hangars and land for private hangars (which in turn generates personal property tax). Hangar lease fees are the primary source of revenue for Bear Lake County Airport. The first step is to review the current rates and charges that the airport has established. These include hangar rental rates, and ground lease rates.

It is strongly recommended that Bear Lake County regularly monitor changing financial needs at the airport and consider adjustments to all fees on an annual basis or as airport activity and needs dictate. It is common for various state aviation agencies and other airports to conduct regular Rates and Charges studies to provide guidance on appropriate fees. It is recommended that the County utilize such resources as available to assist them in evaluating their fees. Hangar rental rates should be adjusted annually per the Consumer Price Index.

Operating Licenses

On an as-needed basis, Bear Lake County could consider charging an annual fee for certain types of businesses to operate at the airport. Airports often charge a fee for the following types of on-airport businesses and activities:

- Fixed base operators
- Agriculture operations
- Aerial ambulance operations
- Firefighting operations
- Skydiving operations

Annual fees could range from $100 to $500.

Commercial Use Fees

If the airport were to provide products, property, and services to businesses, fees associated with these businesses could present a potential revenue source. Current low activity levels at the airport and the lack of many services does not warrant charging such a fee at this time.

In the future, if a business is interested in using the airport facilities, the County should examine the cost of providing services to airport businesses, the income generated by current sales and their existing profit margin as a source of revenue.

- A percentage of gross sales of services offered by FBO's, flight schools, aircraft powerplant and avionics shops, and other similar types of aviation businesses
- Rental car fees (if ever needed or made available at the airport)
- Retail sales (aeronautical charts, clothing, aviation accessories)
- Vending machines

6.4.2 EXPENSES

The airport, as part of a public entity, is eligible to purchase supplies and equipment on state and federal contracts in most cases. The Federal Surplus Equipment Program has many avenues for procurement of used government equipment, mostly military, ranging from computers to firefighting vehicles and heavy equipment. The savings can be substantial, especially on big-ticket items such as airport vehicles and other large equipment.

A review of yearly maintenance costs should be performed to see if there are any tasks that can be done at lower cost by having those contracted or vice versa, current contracted work to be done by the County instead. Examples may include pavement maintenance such as crack sealing or airfield painting.

6.4.3 REVENUE ENHANCEMENT SUMMARY

In summary, it is often difficult for airports and communities like Bear Lake County to generate significant airport related revenues to become self-sufficient. It is recommended that the County continue to monitor changing financial demands at the airport and consider adjustments to existing fees and new fees as airport activity and needs dictate.

6.5 JOINT SPONSORSHIP WITH RICH COUNTY

The airport serves not only the communities in Bear Lake County, where it is located but also several communities in Rich County which surrounds the south half of Bear Lake. At times in the past, there has been a discussion of joint sponsorship of the airport by both Bear Lake and Rich Counties. Several key items should be considered if joint sponsorship of the airport were to be implemented.

Currently, there are several other airports in Idaho and the surrounding states that have some level of joint sponsorship. The level of involvement by each of the sponsors varies from strictly financial support up to an airport authority made up of members from each sponsoring municipality who has equal financial and decision-making control of the airport.

Once the level of sponsorship is determined, it will be important to discuss the impacts, if any, of joint sponsorship with ITD Aeronautics, UDOT Aeronautics, and the FAA.

6.6 SUMMARY

This chapter presents a development plan for recommended airport improvements including project descriptions and estimated costs. Some projects are needed to correct deficiencies in existing facilities ability to solve existing users; while other projects are driven by anticipated demand. Revenue sources for financing of projects are also reviewed. The FAA/AIP grant program has been and will remain this primary source for funding eligible facility improvements. The applicability of this source to all desired airport improvements must be closely monitored. Some components of aircraft hangar development such as access roads, utilities, and the hangars are not AIP eligible and will require a private funding source or some form of a private/public partnership to finance.

It should be a priority of Bear Lake County to continue maintaining and operating the airport as self-sufficiently as possible. Doing so will serve to protect current investment and continue the airport's valuable role as an economic contributor to the community and region. To do so will require monitoring of rates and charges in comparison to services provided and the aviation industry as a whole as well as seeking opportunities to enhance revenues consistent with

management practices at peer airports. Suggestions are presented in the chapter for consideration.

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7.0 FAA COMPLIANCE OVERVIEW AND LAND USE COMPATIBILITY REVIEW AND RECOMMENDATIONS

As a recipient of both federal and state airport improvement funds, the airport's sponsor, Bear Lake County is bound by various sponsor obligations. This chapter provides a general overview of the Federal Aviation Administration (FAA) and state airport compliance considerations as they pertain to sponsor obligations and Bear Lake County Airport.

For the purposes of this planning study, a detailed review of existing compatible land use policy, which is a high priority compliance issue, was conducted. Contrary to other airports in Idaho, Bear Lake County Airport is located in an unconstrained and sparsely populated area. Therefore, it is the ideal time to develop and adopt policies that will protect both the airport and future population, and prevent more severe conflicts down the road. Recommendations to improve existing policies are made in the subsequent sections. Review and analysis of other common sponsor compliance related issues was limited to providing a general understanding and recommendations on methods and tools to ensure compliance with sponsor obligations.

7.1 AIRPORT COMPLIANCE - EXPECTATIONS OF THE FAA AND IDAHO AERONAUTICS

As previously mentioned, the airport's sponsor, Bear Lake County, is bound by various sponsor obligations. These obligations are described in detail in federal and state grant assurances and state statute and administrative code. They express the commitment made by the airport sponsor to fulfil the intent of the grantor (FAA and state of Idaho) required as a result of accepting federal and/or state funding for airport improvements.

The purpose of the grant assurances and other requirements are to protect the significant investment made by the FAA, state, county, and ultimately the taxpayer, to develop and maintain the airport leaving it accessible to the general flying public. Failure to comply with the grant assurances may result in the request for a full reimbursement to the grantor and/or forfeiture of future funding. Currently there are 39 FAA and 23 state grant assurances, a copy of both FAA and state grant assurances is included in **Appendix G**.

7.1.1 FAA COMPLIANCE PROGRAM AND FAA GRANT ASSURANCES

Policies and procedures as well as interpretation, administration, and oversight of federal sponsor obligations are generally carried out by the FAA through its Airport Compliance Program. Currently, FAA Order 5190.6B, Airport Compliance Manual, sets forth policies, federal obligations and procedures for the Airport Compliance Program.

Order 5190.6B, states that the FAA Airport Compliance Program is, *"…designed to monitor and enforce obligations agreed to by airport sponsors in exchange for valuable benefits and rights granted by the United States in return for substantial direct grants of funds and for conveyances of federal property for airport purposes. The Airport Compliance Program is designed to protect the public interest in civil aviation. Grants and property conveyances are made in exchange for binding commitments (federal obligations) designed to ensure that the public interest in civil aviation will be served. The FAA bears the important responsibility of seeing that these commitments are met. This Order addresses the types of these commitments, how they apply to airports, and what FAA personnel are required to do to enforce them.*"

It should be noted that Order 5190.6B is not regulatory and is not controlling with regard to airport sponsor conduct; rather, it establishes the policies and procedures for FAA personnel to follow in carrying out the FAA's responsibilities for ensuring airport compliance.

To better understand the intent of the sponsor obligations and the FAA Compliance Program, it is important to understand the FAA's goals for a national airport system of which the Bear Lake County Airport is a part of. The national airport system is known as the FAA National Plan of Integrated Airport Systems (NPIAS). The guiding principles of the NPIAS have been in place since 1946 and, for the most part, have remained unchanged since.

According to the FAA Order 5090.3C, Field Formulation of the National Plan of Integrated Airport Systems, cooperation between the FAA, state and local agencies should result in an airport system with the following attributes:

- Airports should be safe and efficient, located at optimum sites, and be developed and maintained to appropriate standards.
- Airports should be operated efficiently both for aeronautical users and the government, relying primarily on user fees and placing minimal burden on the general revenues of the local, state, and federal governments.
- Airports should be flexible and expandable, able to meet increased demand and accommodate new aircraft types.
- Airports should be permanent, with assurance that they will remain open for aeronautical use over the long term.
- Airports should be compatible with surrounding communities, maintaining a balance between the needs of aviation and the requirements of residents in neighboring areas.
- Airports should be developed in concert with improvements to the air traffic control system.
- The airport system should support national objectives for defense, emergency readiness, and postal delivery.
- The airport system should be extensive, providing as many people as possible with convenient access to air transportation, typically not more than 20 miles of travel to the nearest NPIAS airport.
- The airport system should help air transportation contribute to a productive national economy and international competitiveness.

While sponsor obligations are contractually based and Order 5190.6B is a primary tool providing guidance to FAA personnel in carrying out the FAA Compliance Program, the program does not attempt to control or direct the operation of airports. As the airport sponsor, Bear Lake County is responsible for the direct control and operation of the airport. Familiarity and proper implementation of the sponsor obligations, the FAA grant assurances in particular, is key to the future compliance success. Order 5190.6B and communication with the FAA Northwest Mountain Region Compliance Office are excellent resources for Bear Lake County to help maintain compliance.

As previously mentioned, there are currently 39 FAA grant assurance associated with receipt of federal Airport Improvement Program (AIP) funding. The assurances are classified by type in **Table 7-1**. While sponsors should understand and comply with all grant assurances, there are several assurances that are common "stumbling blocks" or recurring issues for airport sponsors throughout the country. These are highlighted in the table and discussed in more detail below. All 39 grant assurances in their entirety can be found in **Appendix G**.

TABLE 7-1: THE FAA'S AIRPORT SPONSOR GRANT ASSURANCES

Project Planning/Design & Contracting	General Airport	Land Use	Day-to Day Airport Management
2- Sponsor Responsibility 3- Sponsor Fund Availability 7- Local Interest Consideration 8- User Consultation 9- Public Hearings 10-Air & Water Quality Standards 13- Project Accounting/ Reporting 14- Minimum Wage Rates 15- Veteran Preference 16- Plan Conformity 18- Planning Projects 30- Civil Rights 33- Foreign Market Restrictions 34- Following FAA Policy 35- Property Acquisition & Relocation 37- DBE Program	1-Federal Requirements 4- Good Title 5-Preserving Rights 29- Up to Date Airport Layout Plan 31- Disposal of Land	6- Consistent with Local Plans 20-Hazard Removal & Mitigation 21- Compatible Land Use	22- Economic Nondiscrimination 23- Exclusive Rights Prohibition 26- Reporting Requirements 38- Hangar Construction
	Airport Operations	**Leases & Financial**	**Other**
	11- Pavement Maintenance 19-Operation and Maintenance	24- Fee and Rental Structure 25- Airport Revenue	12-Air Carrier Terminal Development 27-Use by Government Aircraft 28-Land for Federal Facilities 36- Access by Intercity Buses 39- Air Carrier Access
	Project Construction		
	17-Construction Approval 32-Contracting Engineering Services		

Note: Highlighted assurances represent common airport stumbling blocks.

Source: FAA Order 5190.6B

The airport sponsor should have a clear understanding of and comply with all assurances. The following sections describe the selected assurances highlighted in **Table 7-1** in more detail.

Duration

The terms, conditions and assurance of a grant agreement with the FAA remain in effect for the useful life of a development project, which is typically 20 years from the receipt of the last grant. Terms, conditions and assurances associated with land purchased with federal funds do not expire.

Project Planning/Design and Contracting

Sponsor Fund Availability (Assurance #3)

Once a grant is given to an airport sponsor, the receiving sponsor commits to providing the funding to cover their portion of the project. Currently this amount is typically 10% of the total eligible project cost, although it may be lower depending on the particular project components or makeup. The State of Idaho typically provided 4 to 5% of the total eligible project cost, but lack of available funding reduced this participation to 2.5% in the recent years. Once the project has been completed, the receiving airport also commits to having adequate funds to maintain and operate the airport in the appropriate manner to protect the investment in accordance with the terms of the assurances attached to and made a part of the grant agreement.

Accounting System, Audit, and Record Keeping (Assurance #13)

All project accounts and records must be made available at any time. Records should include documentation of cost, how grant funds were spent, funding paid by other sources and any other financial record associated with the project at hand. Any books, records, documents, or papers that pertain to the project should be available at all times for an audit or examination.

General Airport

Good Title (Assurance #4)

The airport owner must have a Good Title to affected property when considering projects associated with land, building or equipment. Good Title meaning the sponsor can show complete ownership of the property without any legal questions, or show it will soon be acquired.

Preserving Rights and Powers (Assurance #5)

No actions are allowed which might take away any rights or powers which are necessary for the sponsor to perform or fulfill any condition set forth by the assurance included as part of the grant agreement. If there is an action that might hinder any of those rights or powers, it should be discontinued. An example of an action which could hinder the rights and powers of the airport is a Through-the-Fence (TTF) activity. TTF activities allow access to airport facilities from off-airport users. In many instances, the airport sponsor cannot control the activities of those operating off the airport resulting in less sponsor control. Furthermore, many times TTF users do not pay the same rates and charges as on-airport users resulting in an unfair competitive advantage.

Airport Layout Plan (ALP) (Assurance #29)

The airport should keep an up-to-date ALP. An ALP should include current and future airport boundaries, facilities/structures, the location of any non-aviation areas, and improvements. No changes should be made at the airport to hinder the safety of operations; also no changes should be made to the airport that is not in conformity with the ALP. Any changes of this nature could adversely affect the safety, utility, or efficiency of the airport. If any adverse changes are made to the airport without authorization, the changes must be altered back to their original condition or the airport will have to bear all cost associated with moving or altering the change to an acceptable design or location. Additionally, no federal participation will occur for improvement projects not shown on an approved ALP.

Disposal of Land (Assurance #31)

Land purchased with the financial participation of an FAA Grant cannot be sold or disposed of by the airport sponsor at their sole discretion. Disposal of such lands are subject to FAA approval and a definitive process established by the FAA. If airport land is no longer considered necessary for airport purposes, and the sale is authorized by the FAA, the land must be sold at fair market value. Proceeds from the sale of the land must either be repaid to the FAA or reinvested into another eligible airport improvement or noise compatibility project. Land disposal requirements typically arise when a community is building a new airport, the land on which the airport was located is sold, and the proceeds used to offset costs of the new airport. In general, land purchased with FAA funds is rarely sold by a sponsor.

Airport Operations

Pavement Preventative Maintenance (Assurance #11)

Since January 1995, the FAA has mandated that it will only give a grant for airport pavement replacement or reconstruction projects if an effective airport pavement maintenance-management program is in place. The program should identify the maintenance of all pavements funded with federal financial assistance. The Idaho Transportation Department Aeronautic Division (ITD) has had an active statewide pavement maintenance program since the 1980s. ITD provides airports with a report of their pavement conditions every three years to assist airports in making decisions regarding pavement maintenance and ensure compliance with the federal mandate. The report provides a pavement condition index (PCI) rating (0 to 100) for various sections of aprons, runways, taxiways, and a score for the airport overall. In the IASP, the state of Idaho recommends that runways be maintained at a PCI of 81 or greater.

Operations and Maintenance (Assurance #19)

All federally funded airport facilities must operate at all times in a safe and serviceable manner. The airport sponsor should not allow for any activities which inhibit or prevent this. The airport sponsor must always promptly mark and light any hazards on the airport, and promptly issue Notices to Airmen (NOTAMs) to advise users of any conditions which could affect safe aeronautical use. Exceptions to this assurance include when temporary weather conditions make it

unreasonable to maintain the airport. Furthermore, this assurance does not require the airport sponsor to repair conditions which have resulted due to a situation beyond the control of the sponsor.

Land Use

Local Plans (Assurance #6)

All projects must be consistent with City and County comprehensive plans, transportation plans, zoning ordinances, development code, and hazard mitigation plans. The airport sponsor and planners should all familiarize themselves with local planning documents before a project is considered and ensure that all projects follow local plans and ordinances.

In addition to understanding local plans, airport sponsors should be proactive in order to prevent noncompliance with this assurance. The airport sponsor should assist in the development of local plans that incorporate the airport and consider its unique aviation related needs. Sponsor efforts should include the development of goals, policies, and any implementation strategies to protect the airport as part of local plans and ordinances.

Airspace (Assurance #20)

Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace (Part 77), provides the basis for airspace protection requirements at public-use airports at the federal level by identifying and defining critical airspace surfaces. Airspace requirements are determined by the weight of the aircraft that predominantly operate at an airport and the type of instrument approach, existing or planned.

FAA Grant Assurance #20 states, "*Hazard Removal and Mitigation. Airport sponsors will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport will be adequately cleared and protected…*" Communities protect the Part 77 airspace surfaces by defining them in the ALP and further identifying them in ordinance or code and requiring that no object penetrates these airspace surfaces as a result of development.

Communities also protect airspace by encouraging those land uses that are likely to be compatible with the airport operations and prohibiting those uses that are likely to be incompatible with the airport operations. Per Part 77, proponents proposing development at certain height above the ground or within a certain proximity to the airport are required to submit FAA Form 7460-1 to the FAA for determination that such development will not adversely impact airspace or the safety of aircraft operators. For on airport development, Form 7460-1 must either be submitted by the airport sponsor or the sponsor must assure that the leaseholder submits the form appropriately.

Compatible Land Use (Assurance #21)

Land uses around an airport should be planned and implemented in such a manner that ensures surrounding development and activities are compatible with the airport. FAA Grant Assurance #21 states, *"It (sponsor) will take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility program measures upon which Federal funds have been expended."*

To ensure compatibility, the sponsor will take appropriate action, to the extent reasonable, including the adoption of zoning laws. Incompatible land uses surrounding airports represents one of the greatest threats to the future viability of airports today. Further discussion of compatible land use is included later in this chapter.

The FAA does not have statutory authority to mandate to airport sponsors the specific land use methods they must implement in order to meet this grant assurance. Rather, the action(s) taken by the sponsor must be considered reasonable to the FAA.

Day to Day Airport Management

Economic Non-Discrimination (Assurance #22)

Any reasonable aeronautical activity offering service to the public should be permitted to operate at the airport as long as the activity complies with airport established standards for that activity. Any contract or agreement made with the airport will have provisions ensuring the person, firm or corporation will not be discriminatory when it comes to services rendered as well as rates or prices charged to customers. Provisions include:

- All FBOs on the airport should be subject to the same rate fees, rentals and other charges.
- All persons, firms or corporations operating aircraft can work on their own aircraft with their own employees.
- If the airport sponsor exercises the rights and privileges of this assurance they will be under all of the same conditions as any other airport user would be.
- The sponsor has the ability to establish fair conditions which need to be met by all airport users to make the airport safer and more efficient.

The sponsor can prohibit any type, kind or class of aeronautical activity for the safety of the airport. An example of an activity which may be considered for prohibition is sky diving. It is important to point out that the FAA will review such prohibitions and will make the final determination as to whether a particular activity is deemed unsafe at the airport based on current operational dynamics.

Exclusive Rights (Assurance #23)

Exclusive Rights at an airport is a subject which can be complicated and is usually specific to individual airport situations. The assurance states the sponsor "*will permit no exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public…*", There are exceptions to this rule. If the airport sponsor can prove that bringing in similar business would be unreasonably costly, impractical or result in a safety concern, the sponsor may consider granting an exclusive right. To deny a business opportunity because of safety, the sponsor must demonstrate how that particular business will compromise safety at the airport. Exclusive rights are very often found in airport relationships with an FBO but exclusive rights may also be established with any other business at the airport which could assist in the operation of an aircraft at the airport. If an unapproved exclusive rights agreement exists, it must be dissolved before a future federal grant is awarded to the airport.

If a sponsor is contemplating denial of a business use at the airport, it is strongly encouraged that they contact their FAA Airport District Office (ADO) in order to ensure that they have all necessary information and that denial of access is not going to be seen as unjust discrimination. For more in depth information on exclusive rights reference Advisory Circular 150/5190-6, Exclusive Rights at Federally Obligated Airports.

Leases and Financial

Fee and Rental Structure (Assurance #24)

Simply put, the fee and rental structure at the airport must be implemented with the goal of generating enough revenue from airport related fees and rents to become self-sufficient in funding the airports day to day operational needs. The airport sponsor should be constantly monitoring its fee and rental structure to ensure reasonable fees are being charged to meet this financial goal. Common fees and rents charged by airports include fuel flowage fees, tie-down fees, landing fees, and hangar rent.

Airport Revenue (Assurance #25)

Revenue generated by airport activities must be used to support the continued operation and maintenance of the airport. Use of airport revenue to support or subsidize other non-aviation activities or functions of the sponsor is not allowed and is considered revenue diversion. Revenue diversion is considered a significant compliance issue and is subject to scrutiny by the FAA.

7.1.2 OTHER FAA COMPLIANCE REQUIREMENTS

Other Federal Contracting and Procurement Documents

Whenever an airport sponsor accepts an AIP grant from the FAA, the sponsor agrees to adhere to various federal contracting and procurement requirements. Advisory circulars are required for use

in AIP funded projects. Included in each grant request is a federal funding checklist that identifies the requirements an airport should take into consideration before accepting the grant.

The following items are noted in the checklist:

- ALPs should be up to date
- Exhibit A Property Map may need to be updated after the acquisition of additional property
- Land Inventory may need to be updated if land has been recently acquired with federal assistance
- Airports must hold good title to the airport landing area
- Appropriate signage and markings must be in place
- RPZ and approach surface deficiencies must be identified and steps to address deficiencies must be noted
- RSAs must meet FAA standards if planning a runway project
- DBE program goals must be met on projects more than $250,000 in Federal Funds
- Procedures should be in place to handle bid protests
- Open AIP grant projects need to be identified
- Project closeout form must be submitted within 90 days of work completion
- A “Certification of Economic Justification” must be included for routine pavement maintenance projects
- A “Revenue Generating Facility Eligibility Evaluation” must be completed for hangar construction or fueling facilities
- A “Reimbursable Agreement” and “Non-Fed Coordination” must be completed for navigational aid projects
- A “Relocation Plan” must be completed if a project requires residences or businesses to be relocated.

Special Conditions

In addition to the standard grant assurances discussed previously, the state or the FAA may require “Special Conditions” to individual grants which supplement or expand the standard grant assurances. Special Conditions are unique to an individual airport and can be project oriented or administrative in nature. Airport sponsors need to be aware of such conditions that may be applied to their airport.

7.1.3 IDAHO DIVISION OF AERONAUTICS GRANT ASSURANCES

Like the FAA, ITD has sponsor obligations associated with receipt of Idaho Airport Aid Program (IAAP) funds. Currently, there are 23 state grant assurances. In addition to the grant assurances, the state also has requirements in state statute and administrative code imposed by receipt of IAAP funding. Unlike the FAA, ITD does not actively maintain an official Compliance Program.

Currently, oversight and enforcement of the state's airport grant assurances and other requirements is carried out by the Administrator of ITD and staff.

The state grant assurances and requirements are briefly summarized in **Table 7-2** and described in detail in **Appendix G**. Readers will note the similar intent to the FAA requirements.

Table 7-2: ITD Idaho Airport Aid Program Grant Assurances

Project Related	General Airport Operations
2- Timely Completion	1- Comply with Non-Discrimination Regulations
3- Completion According to Plans	7- Remain Open
4- Follow Construction Bidding Procedures	8- No Exclusive Use
5- Property Appraisals for Acquisitions	16- Develop Airport According to ITD Standards
6- Proof of Funding	17- No Activities that Interfere with Operations
9- Costs Eligibility	18- Allow All Safe Aeronautical Activities
10- Commencement Date Report	19- Allow People to Service Own Aircraft
11- Progress Reports	20- Airport Generated Revenue Should be Used for Airport Purposes
12- Approval for Changes	21- Approved Master Plan or Airport/Heliport Layout Plan
13- Completion Report/Inspection Request	22- Proof of Ownership or Lease of All Land
14- Allocation Agreement in Effect Throughout Useful Life of the Project, Not to Exceed 20 Years	23- Compatible Land Use and Height Zoning
15- Allocation Agreement	

Source: ITD Division of Aeronautics

The above information only provides a brief summary of the grant assurances. As the airport sponsor, Bear Lake County is encouraged to read all grant assurances and become familiar with the requirements of the sponsor obligations using the available resources as provided by the FAA and ITD. Compliance with grant assurances, or lack thereof, is frequently a legal consideration the resolution of which requires expert legal advice preferably from legal counsel familiar with FAA policies and compliance.

7.2 COMPLIANCE AND BEAR LAKE COUNTY AIRPORT

A cursory review of existing and potential compliance issues was conducted as part of this planning effort. This review was completed based on recent guidance from the FAA Northwest Mountain Region. As stated in the introduction, the main focal point of the work effort associated with the compliance review was on land use compatibility around the airport.

Bear Lake County Airport is isolated and surrounding land uses are mainly rural and agricultural, including rangeland, forest and wetlands. There are no residential buildings with the exception of the airport's manager residence, and encroachment of incompatible land uses does not appear to be an issue at the moment. Thus, it is the perfect time to assess the situation and elaborate measures to avoid future incompatible land use issues in the future; a situation not uncommon at many airports throughout the state of Idaho. Main talking points at Bear Lake County Airport include the proximity of the Bear Lake National Wildlife Refuge (NWR) as well as agricultural operations on airport property. Additional details and recommendations are provided in Section

7.3, Land Use Compatibility Planning around Bear Lake County Airport and Section 7.6, Recommended Improvements to Existing Land Use Regulations in Bear Lake County.

There are no existing or proposed TTF activities and all obstacles and/or obstructions in the airspace have been accounted for. A gravel road is in Runway 10 RPZ and penetrates the future threshold sitting surface. Mitigation measures include the installation of obstruction lights and a modification to standards for the RPZ. Ideally, the airport wants to acquire the land, improve the access road to the airport and close this gravel road.

7.2.1 INCOMPATIBLE LAND USES AND THE ABSENCE OF APPROPRIATE ZONING CONTROLS

Bear Lake County should be proactive in developing compatible land use, planning around the Airport and continued, active development and implementation of compatible land use as necessary. Recommendations for the steps the County should consider to ensure long term land use compatibility at the airport can be found in Section 7.6, Recommended Improvements to Existing Land Use Regulations in Bear Lake County.

7.2.2 EXISTING "THROUGH-THE-FENCE" ACCESS FOR AIRCRAFT BASED OFF AIRPORT PROPERTY

Bear Lake County does not permit any "Through-the-Fence" access or activity. Airport and County policy should continue to discourage such activity in the future.

7.2.3 REVENUE DIVERSION (INCLUDING IMPROPER USE OF AIRPORT PROPERTY)

No indications of revenue diversion were identified at the airport. The County should continue to analyze all existing uses of airport property to ensure that all tenants are appropriately contributing to the airport's revenue.

7.2.4 ON-AIRPORT RESIDENTIAL USE

The only on-airport residential use consists of a building for the Airport Manager. On-Airport Residential Use, except for the Airport Manager, should continue to be discouraged in the future.

7.2.5 NON-AERONAUTICAL LOCAL EVENTS CLOSING THE AIRPORT OR A RUNWAY

Bear Lake County Airport does not host or support any non-aeronautical events that would close the runway or airport. Such events should continue to be discouraged.

7.2.6 TREES OR STRUCTURES

There are a few obstructions in the immediate vicinity of the airport located within the defined airport safety areas or Part 77 imaginary surfaces. These obstructions include a public road and a tree in the approach surface, and the existing windcone in the transitional surface. These are highlighted and discussed in the ALP included in this update.

It is recommended that these obstacles be either removed or properly lighted. Furthermore, improvements to the current airspace zoning ordinance are recommended to prevent future hazards. Additional recommendations will be provided in Section 7.6, Recommended Improvements to Existing Land Use Regulations in Bear Lake County.

7.2.7 GENERAL RECOMMENDATIONS

Following are some recommended strategies and tools Bear Lake County should consider to assist in effectively maintaining and operating the airport and ensuring compliance with the sponsor obligations.

- Have a designated point of contact, such as an appointed airport manager or County representative, available to conduct airport business and respond to emergencies when needed.
- Develop a reoccurring educational program to educate County Commissioners, the Airport Board, legal counsel, potential FBO, Tenants, and the general public about the sponsor obligations and the grant assurances. It is particularly important to target the County Commissioners and the Airport Board as members of these bodies can and do change often. Educating new members about sponsor obligations is critical to ensure informed decisions while maintaining compliance with grant assurances.
- Use airport facilities for aeronautical purposes only, unless otherwise specified by the airport and approved by the FAA.
- Perform services in a non-discriminatory manner regardless of race, creed, color, national origin, or sex.
- Actively promote compatible land use around the airport.
- Consider the development of Minimum Standards and Rules and Regulations documents. These documents help ensure all airport users and tenants are conducting operations and activities with the same understanding and knowledge of what is acceptable at the airport. If an issue of concern arises, having these documents at hand can assist in addressing problems promptly and on a consistent basis. See Advisory Circular (AC) 150/5190-7, Minimum Standards for Commercial Aeronautical Activities.
- Maintain a current and up-to-date aircraft roster of all based aircraft, this should include but not be limited to; aircraft tail number, aircraft type, aircraft model, and aircraft owner's name

- No exclusive rights should be extended to any business on the airport which is performing aeronautical activities. See AC 150/5190-6, Exclusive Rights at Federally Obligated Airports.
- Develop a routine self-inspection program including the completion of a safety inspection checklist. See AC 150/5200-18C, Airport Safety Self Inspection.
- The County should have an emergency procedure plan in place and all County employees and lessees responsible for the maintenance and operation of the airport should be familiar with the plan in the event of an emergency.
- Bear Lake County should annually compare the Airport's fees and rental structure with those offered at other airports in the region and evaluate market value for similar services and fees.
- The County should continually monitor the financial demands of the Airport and consider adjustments to existing fees and the addition of new fees as airport activity and needs dictate.

7.3 LAND USE COMPATIBILITY PLANNING AROUND BEAR LAKE COUNTY AIRPORT

Airports typically represent an important asset to many communities. They provide the community access to essential services such as life flight, agricultural and firefighting activity to name a few. Many airports also serve as a vital local, regional, state and national point of connectivity. As a result, the airport also represents an important economic engine by directly providing local jobs as well as other indirect economic impacts to a community.

However, airports are unique in that their operations can have far reaching impacts. While located in one jurisdiction, aircraft operations can and do impact nearby communities. Effective compatible land use planning by communities adjacent to an airport is important because such measures not only protect the airport but they also protect the surrounding communities from the impacts of typical airport operations.

Bear Lake County Airport is currently in a sparsely developed area. However, as the community continues to grow, it is important that proactive efforts are undertaken to protect the airport, the community and its citizens, from future incompatible growth. The issues described below are typical at multiple airports throughout the state of Idaho and the country. It is now the perfect time to protect Bear Lake County Airport and avoid these issues in the future.

Furthermore, ineffective airport land use planning degrades the daily business and functionality of the airport, restricts its growth potential, and introduces significant obstacles to economic development in the community. These limitations can be mitigated by the implementation of effective compatible land use planning.

7.3.1 COMPONENTS OF EFFECTIVE AIRPORT COMPATIBLE LAND USE PLANNING

Effective compatible land use planning protects the airport and community from height, safety and noise concerns. In many instances, a community's willingness to take a proactive approach in addressing compatible land use planning prevents the need to be reactive and also prevents more severe conflicts down the road. Effective, comprehensive land use compatibility plans take such considerations into account and incorporate both height restrictive and basic land use restrictions through zoning. Coupled with other proactive measures, such as voluntary noise abatement programs and selective fee-simple land acquisition, proactive planning around the airport will protect both the airport and the surrounding community.

It is important to point out there is a very distinct difference between height restriction zoning and basic land use zoning. As its name implies, height restriction zoning generally conforms to CFR Part 77 with the intent of protecting the airspace around an airport from objects or structures which may pose hazards to aircraft operators. On the other hand, the intent of land use zoning should be to prevent incompatible land uses from being allowed near an airport where the impacts of airport operations, such as noise and/or aircraft accidents, can have a potentially negative impact on that land use or the impact of the incompatible land use can have a potentially negative impact on the airport.

7.3.2 IMPORTANT AIRPORT LAND USE PLANNING CONSIDERATIONS AND CHALLENGES

When considering land use planning around the Bear Lake County Airport, understanding the following challenges and considerations will be helpful. While some of these issues are less likely to arise at Bear Lake as the airport is mainly surrounded by agricultural land uses, it is the perfect time to protect the airport and surrounding communities and avoid problems in the future.

Encroachment of Incompatible Development

One of the greatest threats to the viability of airports today is the encroachment of incompatible land use. Encroaching incompatible land use poses a significant threat to the state and national airport system as well as the communities they serve. More recently, FAA and ITD have been working with Idaho's airports to strengthen airport land use compatibility policies and practices to reverse this trend.

Safety and Quality of Life

Proactive planning around the airport ensures the safety of both aircraft operators and airport neighbors from potential aircraft accidents. It also protects the quality of life of airport neighbors by ensuring they are not impacted by the noise, dust and fumes associated with airport operations.

Sponsor Obligations and Grant Assurances

As previously discussed, grant assurances include specific requirements that the County protect the airport's airspace and prevent incompatible land uses around the airport through zoning. Failure to do so may result in the FAA and ITD no longer funding the airport if they do not believe the County has taken reasonable steps to protect the airports from incompatible development. The duration of these grant assurances is a period of 20 years from when the County received the last grant with the exception of grant assurances associated with land acquisitions. The grant assurances associated with land acquisitions exist into perpetuity or until the land is sold (at fair market value) and the grant funds are paid back to the FAA.

Jurisdiction

One major challenge airport owners face when promoting compatible land use is lack of jurisdiction. Airport operations and associated potential impacts (i.e. safety, noise, dust, fumes) can and do extend beyond the physical boundary of the airport property. Although the airport owner is liable for adherence to the FAA and ITD grant assurances, in many instances surrounding jurisdictions have control of land in the vicinity of the airport, not the owner, thus the owner has no say in land use policies and decisions. If the surrounding jurisdictions do not wish to proactively plan around the airport, they do not have to.

It should be noted that neither the FAA nor ITD have jurisdiction over local land use nor do they have any enforcement authority to stop incompatible encroachment. As such, local communities are heavily relied upon and responsible for undertaking such efforts.

Contrary to other airports in Idaho, jurisdictional issues are less likely to arise around Bear Lake County Airport, since the airport is county-owned and operated, and surrounded by unincorporated and county lands. However, future communication and coordination with the Cities of Paris and Montpelier, and with the Bear Lake NWR, regarding compatible land use planning around the airport will protect both the airport and surrounding communities from incompatible land use issues in the future.

Protection of local, state and federal investment

Bear Lake County Airport has received substantial financial investment from the FAA and ITD for many years. The County itself has invested significant funding into the airport to both operate and maintain it. Proactive planning around the airport, including effective land use zoning, will help ensure the airport is protected and can remain operational for the long term, thus protecting the substantial federal, state, and local investment.

As the FAA and ITD consider future investments at the airport, a major consideration is the community's willingness to protect the investment. This begins with effective compatible land use planning.

Economic Benefit

Bear Lake County Airport provides an important economic benefit to the County and its citizens. Per the ITD Individual Airport Summary, completed in 2009, the estimated total airport impact is 2 jobs, a total payroll of $45,900 and a total economic activity of $165,700. Users such as businesses and life flight operators use the airport and contribute to the local economy. Bear Lake County Airport needs to be protected so it can continue to provide access to the community and economic benefits for many years to come.

7.3.3 FAA AND ITD LAND USE RELATED GRANT ASSURANCES AND REQUIREMENTS

As previously highlighted in Section 7.1.1, the FAA and ITD grant assurances, Idaho Code, and state Administrative Code include specific requirements applicable to airspace protection and compatible land use. Following is a brief summary of FAA and state requirements as well as considerations associated with FAA and state requirements for airspace and compatible land use planning.

FAA

In recent years, the FAA has become more active in working with airport sponsors in encouraging compatible land use planning around airports as a condition of their grant assurances. As reiterated from Section 7.1.1, there are three critical grant assurances sponsors need to be aware of related to land use planning:

- Local Plans (Assurance #6)
- Airspace (Assurance #20)
- Compatible Land Use (Assurance #21)

ITD Aeronautics

Current ITD grant assurances related to airspace and compatible land use planning include:

- The Sponsor cannot allow any activity or action on the airport that would interfere with its use for airport purposes.

- The Sponsor should have compatible land use and height zoning for the airport to prevent incompatible land uses and the creation or establishment of structures or objects of natural growth which would constitute hazards or obstructions to aircraft operating to, from, on, or in the vicinity of the subject airport.

Idaho Administrative Code, IDAPA Code 39, Title 4, Chapter 2 - Rules Governing Marking of Hazards to Air Flight (IDAPA 39.04.02), and Chapter, Title 4, Chapter 4, Rules Governing the

Idaho Air Program (IDAPA 39.04.04), include the following state requirements related to airspace protection in Idaho:

IDAPA 39.04.02
Establishes the requirements for marking of hazards to air flight through the airspace of and over the state of Idaho in order to protect and ensure the general public safety, and the safety of persons operating, using or traveling in aircraft.

IDAPA 39.04.04
The sponsor should have the airport zoned to prevent the creation or establishment of structures or objects of natural growth which would constitute hazards or obstructions to aircraft operating to, from, or in the vicinity of the subject airport.

IDAHO STATE LAND USE LEGISLATION
Idaho Senate Bill 1265 effective July 1, 2014 amended Idaho Code Title 21, Chapter 5, Airport Zoning Act, and Title 67, Chapter 65, Local Land Use Planning. The bill's intent was to require more proactive land use compatibility planning around the state's airports by city and county entities through the local comprehensive planning process. The new legislation will result in closer collaboration between local zoning authorities, local airport authorities and ITD in the interest of flight and community safety. The main provisions of the new legislation are as follows:

- Repeals ITD's authority in Title 21, Chapter 5, Sections 21-503 through 21-508, and part of Section 21-502 503, to adopt, administer, and enforce land use planning and zoning zone for airports and requires the political subdivision having zoning ordinance authority (i.e. counties and cities) to complete planning and zoning around airports in accordance with Title 67, Chapter 65. As written, this legislation maintains the requirement for ITD to continue to protect the State's airspace and regulate aviation hazards as identified in the remainder of Title 21.

- Identifies; in 67-6502; public airports as essential community facilities that provide safe transportation alternatives and contribute to the economy of the state.

- Requires; in 67-6508; that planning and zoning commissions consider as part of their comprehensive plan, with the assistance of ITD (if requested by the local agency) and the local airport manager (or person in charge of the airport), the current and future needs and community impacts of the airport. **Political subdivisions must now include a separate section "q" in their comprehensive plans specifically addressing Public Airport Facilities within their jurisdiction or if impacted by an airport outside their jurisdiction.**

- Requires; in 67-6509, 67-6512, 67-6515A, and 67-6516; that planning and zoning commissions (and their governing boards) notify the local airport manager (or person in charge) when recommending, adopting, amending, repealing their comprehensive plan.

In addition, the notification requirement pertaining to the local airport manager (or person in charge of the airport) applies to other land use actions that require public notice (i.e. Special Use Permits, Conditional Use Permits, Transfer of Development Rights, Variances, etc.) when encroaching on the airport or which may create an aviation hazard.

It is important to note that the inclusion of airport related goals and strategies related to compatible land use planning in the comprehensive plan creates the necessary legal mechanism for the airport sponsor to consider and implement zoning around airports as part of the local planning and zoning process under current state law.

7.3.4 CONTINUAL PLANNING PROCESS

Land use planning needs in a community can and do change. The County should create a formal process for policy development that identifies the airport land use planning process as a critical component of its community and comprehensive planning process. To assist in developing effective airport land use policy, it is also important to establish the identification of stakeholders who may be impacted by the airport ***or*** have an impact on the airport. Such stakeholders could include airport tenants/users, surrounding jurisdictions, in particular the Cities of Paris and Montpelier, the Bear Lake NWR and adjacent neighbors and businesses. Proactive coordination with these stakeholders can greatly improve compatible land use efforts in the future.

7.3.5 WILDLIFE REFUGE

The northernmost limit of the Bear Lake NWR is located approximately 1,400 feet south of the runway 34 threshold. The Bear Lake NWR is a 18,000 acre refuge, which provides habitats for a variety of bird species.

A wildlife hazard site visit was completed at Bear Lake County Airport in August 2014. The Wildlife Hazard Site Visit Report reports that the refuge provides shelter for at least 214 bird species; a typical breeding season on the refuge will produce 4,500 ducks and 1,800 geese. In the spring up to 5,000 adult White Faced Ibis may be present; in late September, flocks of 200-500 Sandhill Cranes feed in refuge grain fields, and in the fall, American White Pelicans are present in the area. During the survey conducted at the airport sixty species of birds were observed. However, it should be noted that many more species and much larger numbers of birds would be expected to be present during the spring and fall migrations.

The wildlife hazard site visit report, included in **Appendix B**, includes several recommendations to improve wildlife management and recommends an integrated approach to wildlife management that emphasizes habitat modification and maintenance, non-lethal wildlife control (harassment,

deterrence, and enclosures), combined with lethal wildlife population control (as necessary) to minimize wildlife attractiveness.

Recommendations also included:

- Remove Hay bales from primary surface, Runway Safety Areas (RSA), Runway Object Free Areas (ROFA), Runway Protection Zones (RPZ) and at least 250 feet from runway centerline. This has been addressed by the airport and the agreement with the farmers has been revised to address this issue.
- Maintain drainage and limit wetlands expansion
- Upgrade security fencing
- Construct bird-proof airport buildings and hangars

The report noted that turf management and insect control were currently in place and effective and the airport should continue these activities to minimize attractants.

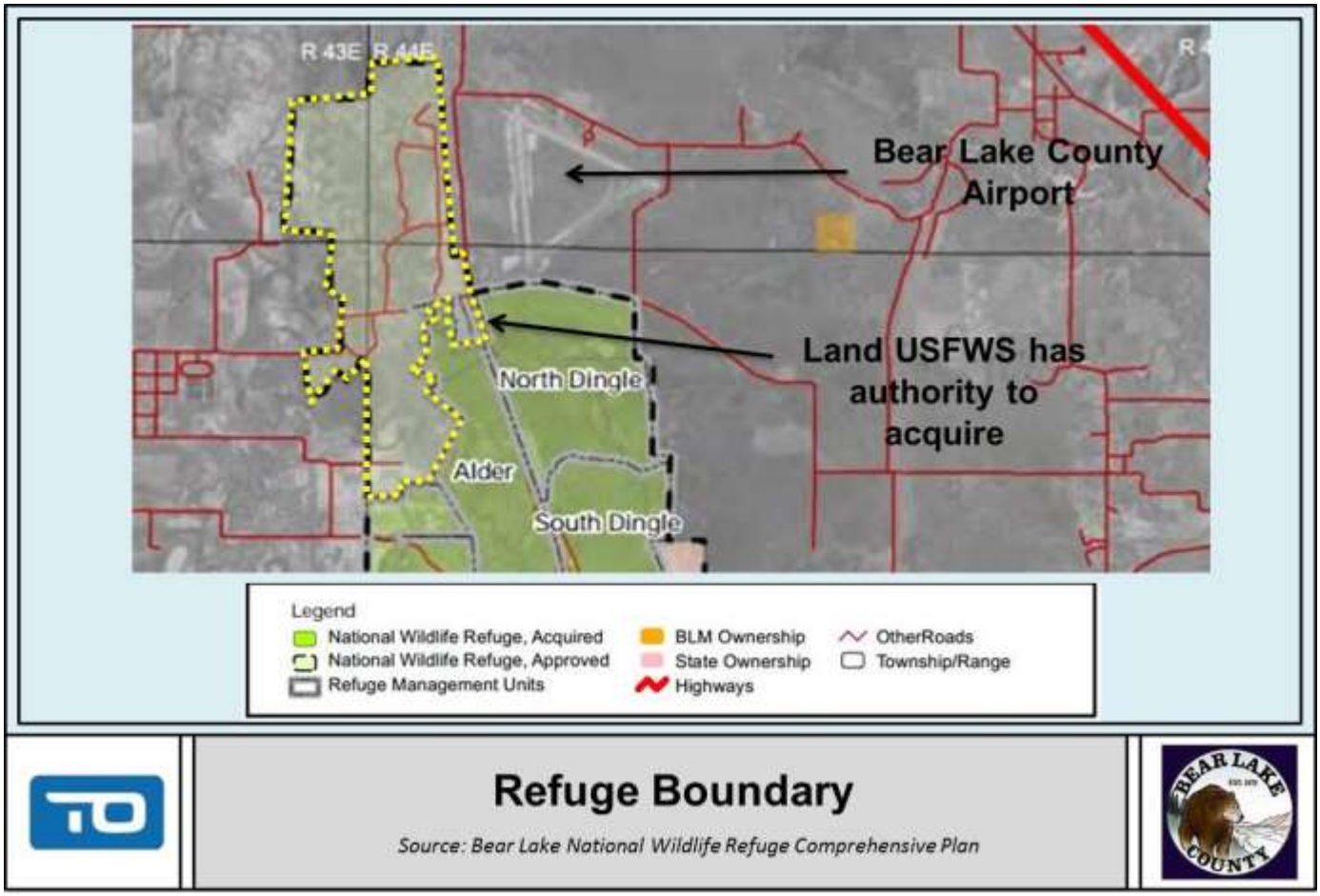
Lastly, the U.S. Fish and Wildlife Services (USFWS) have authority to acquire land to the north of the existing NWR limits, as depicted in **Figure 7-1**. Acquisition of this land would significantly extend the refuge to the north and the future boundary of the refuge would lie directly under the flight paths of aircraft using Runway 10/28, the primary runway of the airport.

Further extension of the wildlife refuge in close proximity to the airport is not recommended and this extension may present significant hazards to the users of the airport as well as to people on the ground. The future boundary of the refuge lies directly under the flight paths of aircraft, where potentially negative impacts of the airport, such as noise, dust, or fume, are more important.

FAA recommends at least 5,000 feet between the airport and any wildlife attractants. As previously mentioned, FAA Grant Assurance #21 states the sponsor will take appropriate actions to restrict the use of land in the vicinity of the airport to activities compatible with normal operations. Similarly, ITD Grant Assurance states that the sponsor should prevent incompatible land uses.

Bear Lake County should coordinate with the USFWS and should strongly advise against the extension of the refuge to the north.

FIGURE 7-1: WILDLIFE REFUGE BOUNDARY



7.3.6 AGRICULTURAL ACTIVITY ON AIRPORT PROPERTY

Agricultural operations on airport property are an important source of revenue at Bear Lake County Airport. However, crops and hay bales provide foods and cover for rodents and serve as perches for multiple raptors.

To minimize the wildlife hazard it is recommended agricultural crops be limited to grass hay; certain crops, such as grains, are less desirable on the airport because they act as wildlife/bird attractants.

Bear Lake County Airport has revised its agreement with farmers to maintain agricultural activity in accordance with both FAA AC 150/5200-33 and AC 150/5300-13A (as amended). The agreement includes the following requirements: all hay bales/rolls must be removed from within 400 feet of runway center lines, runway safety areas and 200 feet of taxiway centerlines by the end of the day that the hay bales/rolls are produced and placed, and all hay bales/rolls must be removed from the airport property within 10 calendar days. Lastly, no machinery or vehicles can be operated within

400 feet of the centerline of any runway or within 400 feet of runway object free and safety areas or the runway protection zones (RPZ) or within 200 feet of taxiway centerlines without permission from the airport manager and two-way radio communications capability.

7.4 EXISTING LAND USES REGULATIONS IN BEAR LAKE COUNTY

Currently the FAA and the state of Idaho consider airport compatible land use planning to be a top priority for airport sponsors to address through local planning. Many airports in Idaho are surrounded by multiple jurisdictions requiring more diligent, proactive and coordinated planning efforts to ensure the airport is protected from incompatible development. Although this is less true at Bear Lake County Airport, coordination and communication with the surrounding jurisdictions and stakeholders will allow protecting the airport and avoiding significant problems to arise in the future.

The role of the local comprehensive planning process and the recommendations included in a community's comprehensive plan are vital to the implementation of zoning ordinances. Following is a summary of the Bear Lake County Comprehensive Plan and Zoning Ordinances as they relate to the airport.

7.4.1 BEAR LAKE COUNTY COMPREHENSIVE PLAN

Bear Lake County's current Comprehensive Plan was adopted in March 2002. Air Transportation (page 23), briefly discusses and describes Bear Lake County Airport. Under the County's transportation goals and objectives of the plan (page 72), it is stated that the County will "protect the public investment in the county airport and the safety of air travelers by enforcing the Bear Lake County Airport Hazards Ordinance."

The predominant activity around the airport consists of agricultural and grazing lands; there are a few scattered ranches in the airport vicinity. Bear Lake County Airport is bordered on all sides by gravel roads as well as by the Bear Lake NWR on the south side.

In the Bear Lake County Comprehensive Plan, the airport and surrounding areas were outlined as Light Industry & Manufacturing land use, which are lands providing a location for light manufacturing that is clean, quiet and free of objectionable level of noise, odors or smoke. These lands were further described as providing for wholesale business and warehouse to supply the business sector. Access to transportation routes and airports is important. This category is not a specific land use zone for the county zoning ordinance, but serve as guidance for zones and their included uses.

7.4.2 BEAR LAKE COUNTY AIRPORT ZONING ORDINANCE

The zoning districts established by Bear Lake County are: Agricultural, Rural Community, Community Expansion, Multiple Use (Public Lands), Recreation, Rural Conservation, Lakeshore (Beach Development), Commercial and Industrial.

The zoning ordinance does not include zoning restrictions or land use restrictions related to the airport.

7.4.3 SURROUNDING JURISDICTION COMPREHENSIVE PLANS

Communities in close proximity to the airport include Paris, Montpelier, St Charles and Bloomington. A review of the comprehensive plans from Montpelier, St Charles and Bloomington has been conducted. Of the three comprehensive plans reviewed, only Montpelier and St Charles' plans mention the airport. The current comprehensive plan for the City of Montpelier was developed in 2002 and the current comprehensive plan for the City of St. Charles was developed in 2010. These two comprehensive plans briefly describe the airport, in general terms, under the transportation section, respectively page 34 and 20.

7.4.4 SURROUNDING JURISDICTIONS AIRPORT HAZARD ZONING ORDINANCE

Zoning ordinances for Montpelier, St Charles and Bloomington do not include zoning restrictions related to the airport.

7.5 AIRPORT NOISE

Noise contours, which represent levels of noise exposure, have been prepared at Bear Lake County Airport. The noise metric used for this study is the Day Night Average Sound Level (DNL). This metric is used to quantify noise levels at many airports in the United States and represents the 365-day average, in decibels, day-night average sound level. It should be noted that the DNL is an average noise level; this metric does not take into account the peak noise level that can occasionally be experienced at one location. In addition, some people can be more sensitive to noise and the level of annoyance can depend on not only the time of the day, the time of the year, but also the activities of the people.

Areas below 65 DNL are considered to be compatible with all land uses. In addition, residential or school uses can be allowed within the DNL 65 to 75 decibels range, if measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25, 30 or 35 dB (depending on the situation) are achieved.

Additional information on the process and methodologies used to prepare these noise contours are included in **Appendix B**.

Noise Contours were prepared for Bear Lake County Airport for the base year (Year 2014) and the long-term forecast (Year 2034). **Figures 7-2 and 7-3** depict the DNL 60 to DNL 85 (with 5 DNL increments) noise contours for the base year and the long-term forecast (Year 2034).

The area encompassed by the long-term noise contour is slightly larger than that of the base year. The total area of the 65 DNL noise contour is 34.7 acres in 2014 and is expected to be 66.4 acres in 2034. As depicted in **Figure 7-2**, Bear Lake County Airport has entire control of the DNL 65, which remains entirely on airport property. This allows appropriately mitigating for incompatible land uses and enhancing noise control. Further, no buildings are currently in the existing or predicted 65 DNL noise contour.

After the runway is extended, it is recommended the airport acquire property up to the 65 DNL, to prevent incompatible land uses in the future and enhance noise control.

FIGURE 7-2: 2014 NOISE CONTOURS

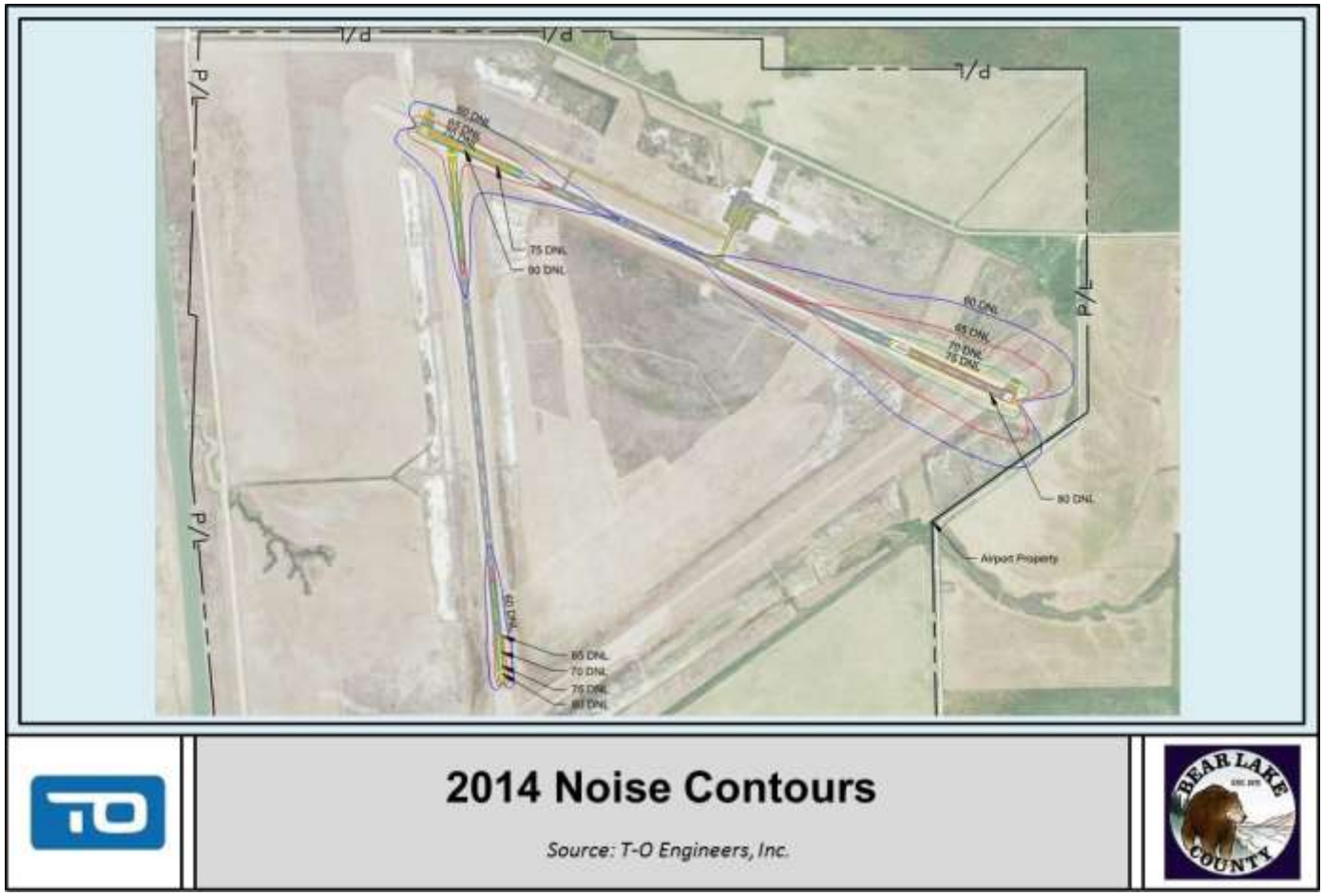
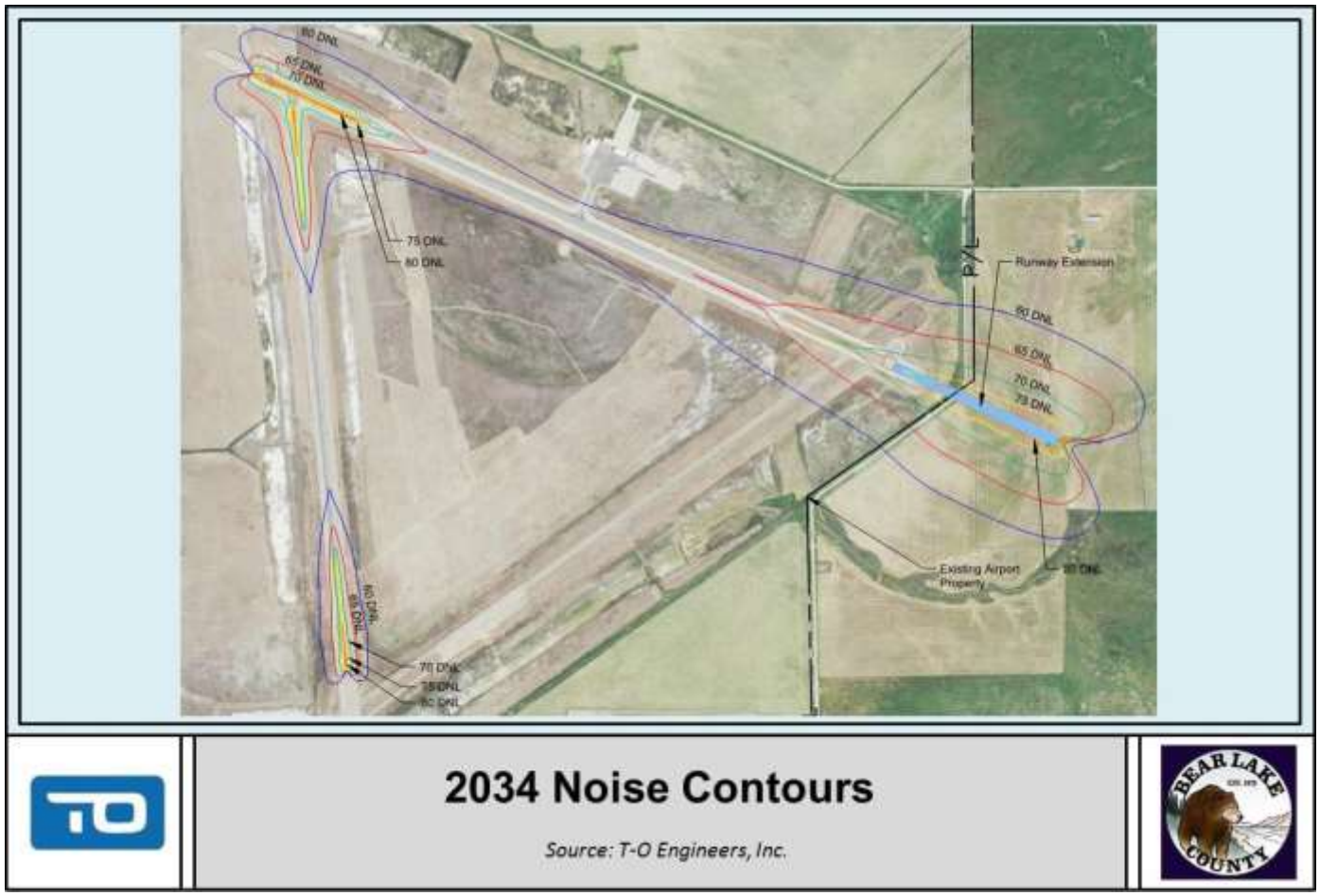


FIGURE 7-3: 2034 NOISE CONTOURS



7.6 RECOMMENDED IMPROVEMENTS TO EXISTING LAND USE REGULATIONS

Following are some recommended strategies and tools Bear Lake County should consider to assist in effectively maintaining and operating the airport and ensuring compliance with the sponsor obligations.

- Adhere to appropriate state and FAA requirements and guidance regarding airspace protection and prohibit land uses which are incompatible to airport operations.

- Add a specific airport section “q” including specific language about the airport and its unique aviation and land use planning needs in the County’s comprehensive plan to meet the new state law. The comprehensive plan should include a specific reference to the most current airport master plan and ALP. Recommended comprehensive plan language is included as **Appendix H**.

- Revise the County's zoning ordinance to be more detailed regarding land use compatibility around the airport. This includes specific ordinance language that identifies and protects the federally defined Part 77 airspace surfaces and recommended land uses via the establishment of land use compatibility zones around the airport.

Figure 7-4 depicts a recommended draft Off-Airport Land Use Map. The map includes a recommended airport influence area, traffic pattern area, and critical zones. The map also includes a Land Use Compatibility Table with recommended land uses within each zone (**Table 7-1**). A model zoning ordinance, recommended Land Use Compatibility Table, and fair disclosure statement language is included in **Appendix H** of this report.

- Recognize the airport impacts to the community and the community impacts upon the airport and commit to an effective and cooperative airport land use planning process designed to protect and preserve airport operations, economic prosperity, and quality of life in addition to safety provisions for both the community and its airport. This also includes improvements to the comprehensive plan and zoning ordinance language related to land use planning around the airport and meeting the new state law as it relates to the comprehensive plan.

Although multi-jurisdictional issues are less critical around Bear Lake County Airport than around other airports in Idaho, coordination and communication with the surrounding jurisdictions will protect the airport and avoid significant problems in the future.

- Create a formal process for policy development that identifies the airport land use planning process as a critical and continual component of its community and comprehensive planning process.

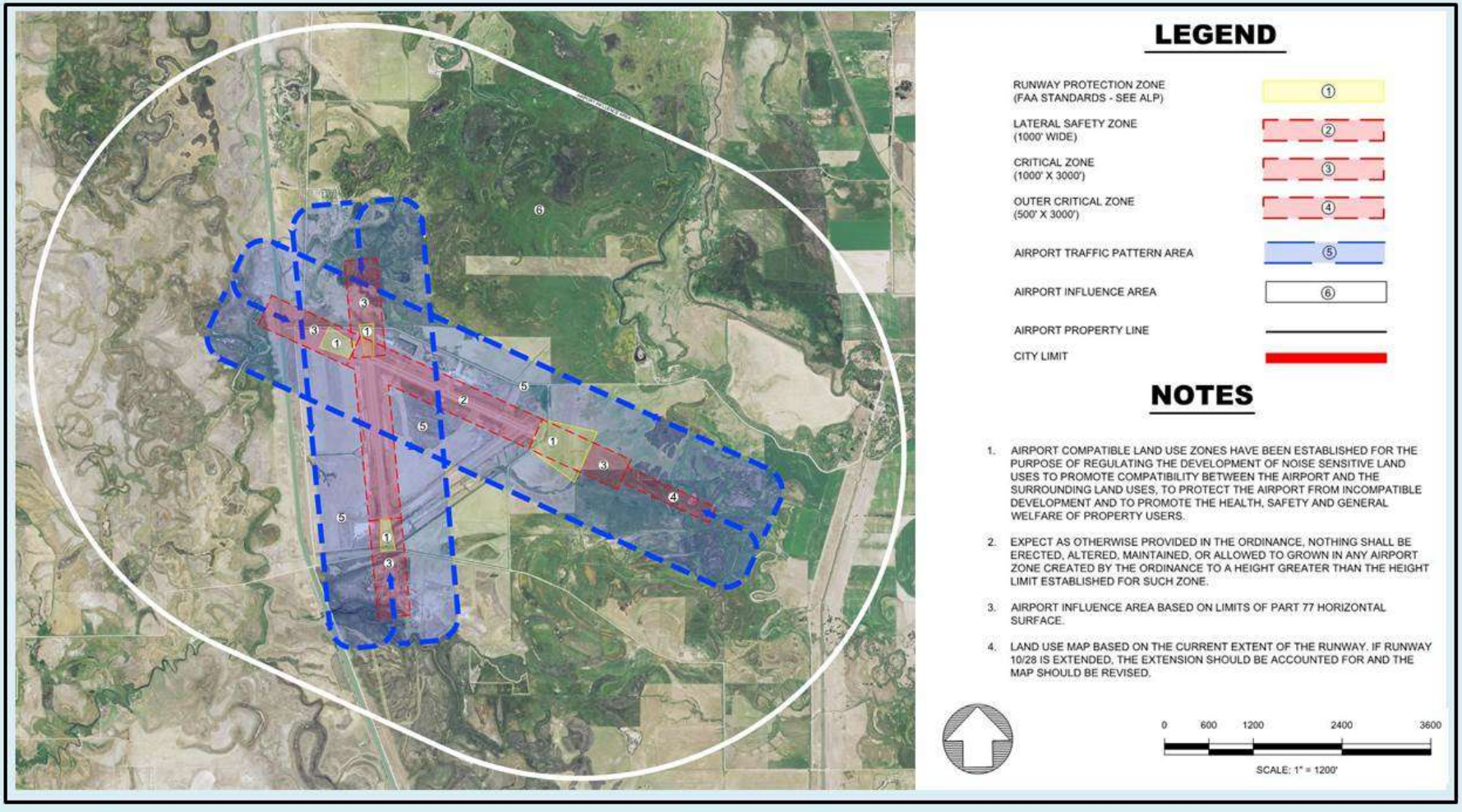
- Implement the recommendations included in the wildlife hazard site visit report, included in **Appendix B** to minimize wildlife hazards.

- Limit the extension of the Bear Lake NWR to the north and under the flight path of aircraft using Runway 10/28.

- Update the Airport Master Plan. It is critical that the County monitors and updates the Airport Master Plan as the airport's Master Plan identifies the specific needs of the airport and provides a foundation around which policy can and should be developed. On average, it is recommended that the airport master plan be updated every 7-10 years or as changing circumstances at the airport warrant.

A primary source for guidance to assist you with the implementation of the compatible land use planning recommendations in this document is the ITD staff and its Idaho Airport Land Use Guidelines.

FIGURE 7-4: OFF AIRPORT LAND USE PLAN



Off Airport Land Use Plan

Source: T-O Engineers, Inc.

TABLE 7-1: LAND USE COMPATIBILITY TABLE

Land Use	1 Runway Protection Zone	2 Lateral Safety Zone	3 Inner Critical Zone	4 Outer Critical Zone	5 Traffic Pattern Area	6 Airport Influence Area	7 Buffer Zone
Residential							
Single-family, nursing homes, multi-family, apartments, condominiums, mobile home parks							
Transient lodging (i.e. hotels and motels)							
Public							
Schools, libraries, churches							
Parking and cemeteries							
Commercial/Industrial							
Offices, retail trades, light industrial, general manufacturing, utilities, extractive industry							
Airport revenue-producing enterprises							
Agricultural and Recreational							
Cropland[1]							
Livestock breeding, zoos, golf courses, riding stables, water recreation							
Outdoor spectator sports, parks, playgrounds							
Amphitheaters							
Open space							
Bird and Wildlife Attractants							
Sanitary Landfills							
Water treatment plants, water impoundments							
Wetlands Mitigation							

	Prohibited		Allowed with conditions		Allowed

Conditions typically include:

- Require Fair disclosure Statement as a condition of development
- Limit residential density to low-density and avoid high-density development
- Limit commercial uses to low-density and avoid high intensity commercial uses such as large retail box stores
- Locate development as far as possible from extended centerline, if no reasonable alternative exists
- Be mindful of bird and wildlife attractant and consider proximity of the airport as well as potential negative impact before development. Refer to FAA AC 150/5200-33B and 150/5200-34A, as amended, for guidance
- [1] Agricultural activity should be conducted in accordance with FAA AC 150/5200-33 and AC 150/5300-13A (as amended) and limited to grass hay. Other crops such as grains are less desirable (wildlife attractants).

Source: T-O Engineers, Inc.

7.7 COMPLIANCE AND COMPATIBLE LAND USE RESOURCES AND REFERENCES

FAA Order 5190.6B, FAA Airport Compliance Manual
http://www.faa.gov/airports/resources/publications/orders/compliance_5190_6/

FAA Advisory Circular (AC) 150/5190-6, Exclusive Rights at Federally Obligated Airports
http://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.information/documentNumber/150_5190-6

FAA AC 150/5190-7, Minimum Standards for Commercial Aeronautical Activities
http://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.information/documentNumber/150_5190-7

FAA AC 150/5200-18C, Airport Safety Self-Inspection
http://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.information/documentNumber/150_5200-18C

State of Idaho, Idaho Division of Aeronautics, Idaho Airport System Plan, Land Use Compatibility Guidelines
http://itd.idaho.gov/aero/Publications/publications.htm

FAA Noise Compatibility Tool Kit
http://www.faa.gov/about/office_org/headquarters_offices/apl/noise_emissions/planning_toolkit/

FAA Land Use Compatibility
http://www.faa.gov/airports/environmental/land_use/

Federal Aviation Regulation (FAR) Part 77
http://www.access.gpo.gov/nara/cfr/waisidx_07/14cfr77_07.html

FAA - Helena Airports District Office
http://www.faa.gov/airports/northwest_mountain/about_airports/contact_information/
(406) 449-5271

Idaho Transportation Department – Division of Aeronautics
http://itd.idaho.gov/aero/
(208) 334-8775

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8.0 AIRPORT LAYOUT PLAN (ALP) DESCRIPTION

This Airport Master Plan for Bear Lake County Airport includes the preparation of a series of drawings depicting the existing airport and the proposed changes to the airport over the next twenty years. This drawing set is commonly referred to as the Airport Layout Plan (ALP). A description of each drawing and its contents is included below.

8.1 AIRPORT LAYOUT PLAN (ALP)

The ALP presents airport features, including the wind rose, topographic data, elevations, runway details, taxiway details, aprons, Runway Protection Zones (RPZ) details, approach details, visual approach aids, airport data table, runway data table, roads, building restriction lines (BRL) buildings, etc. This plan also identifies future development plans for the terminal area including hangars, taxilanes, access roads and auto parking areas.

8.2 AIRSPACE PLAN

The Airspace Plan depicts all areas under the imaginary surfaces as defined in 14 CFR Part 77, “Safe, Efficient Use, and Preservation of the Navigable Airspace”. Included in the Airspace Plan are 50 foot contours on sloping surfaces to meet mandatory requirements.

8.3 INNER APPROACH PLAN

The Inner Approach Plan depicts the plan and profile of the RPZ and inner portion of the approach surface for each runway. In addition, obstructions within the RPZ and approach surfaces are identified and recommended actions are indicated.

8.4 DEPARTURE SURFACE DRAWING

The Departure Surface Drawing depicts the plan and profile views of future instrument departure surfaces for each runway end with a planned future departure procedure. In addition, obstructions within the departure surfaces are identified and recommended actions are indicated.

8.5 TERMINAL AREA PLAN

The Terminal Area Plan presents airport features specific to the terminal area including hangars, taxilanes, access roads and auto parking areas.

8.6 ON-AIRPORT LAND USE DRAWING

The On-Airport Land Use Drawing depicts the existing and recommended uses of land located within and in the vicinity of the airport property.

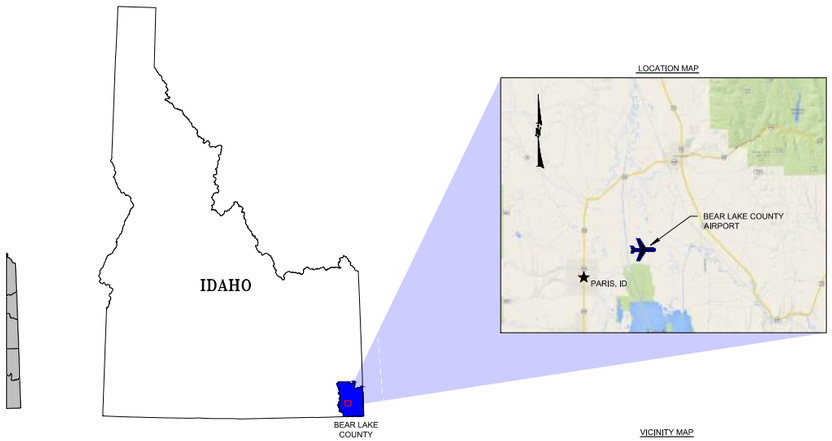
8.7 AIRPORT PROPERTY MAP

The Airport Property Map is a drawing depicting current and future airport boundaries compiled from deed research, available mapping surveys, and field verification as required. A data table and/or notes represent an inventory of all parcels by number, including grantor, grantee, type of interest, acreage, book and page, and date of recording. Appendix I shows the existing deeds and claims defining the airport's property.

BEAR LAKE COUNTY AIRPORT

PARIS, IDAHO

AIRPORT LAYOUT PLAN



LOCATION MAP

VICINITY MAP

FAA - AIP PROJECT No. 3-16-0027-011-2014

MARCH 2017

AIRPORT CONSULTANT

T-O ENGINEERS
2471 S TITANIUM PLACE
MERIDIAN, ID 83642

AIRPORT SPONSOR

BEAR LAKE COUNTY
PARIS, ID 83261

APPROVALS	
MANAGER, AIRPORTS DISTRICT OFFICE FEDERAL AVIATION ADMINISTRATION	APPROVAL LETTER DATED
CHAIRMAN BEAR LAKE COUNTY BOARD OF COUNTY COMMISSSIONERS	DATE

SHEET INDEX

NUMBER	TITLE
SHEET 1	COVER SHEET
SHEET 2	AIRPORT LAYOUT PLAN
SHEET 3	AIRPORT AIRSPACE PLAN
SHEET 4	INNER APPROACH - RUNWAY PROFILES
SHEET 5	INNER APPROACH - RWY 10
SHEET 6	INNER APPROACH - RWY 28
SHEET 7	INNER APPROACH - RWY 16
SHEET 8	INNER APPROACH - RWY 34
SHEET 9	DEPARTURE SURFACE
SHEET 10	TERMINAL AREA PLAN
SHEET 11	AIRPORT LAND USE
SHEET 12	AIRPORT PROPERTY MAP

THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (PROJECT NUMBER 3-16-0027-011-2014) AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN any WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

FOR FAA APPROVAL LETTER

REVISIONS

NO.	ITEM	DATE

E-FILE NAME: C-01-COVR
DESIGNED
DRAWN: MJV
CHECKED
APPROVED
NSC

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
2471 S. TITANIUM PLACE
MERIDIAN, ID 83642-6703
PHONE: (208) 323-2288 FAX: (208) 323-2399
OFFICES ALSO IN: COEUR d' ALENE, IDAHO NAMPA, IDAHO SPOKANE, WASHINGTON

BEAR LAKE COUNTY AIRPORT
PARIS, IDAHO
AIRPORT LAYOUT PLAN SET
COVER

DATE: MARCH 2017
PROJECT: 140052

SHEET 1 OF 12

I:\140052\Acad\dwg\Sheets\ALP - NARCH 2017 - FINAL-140052-C-01-COVR.dwg, 4/6/2017 4:57:49 PM, Valerie.M, Marine, DWG To PDF.pc3

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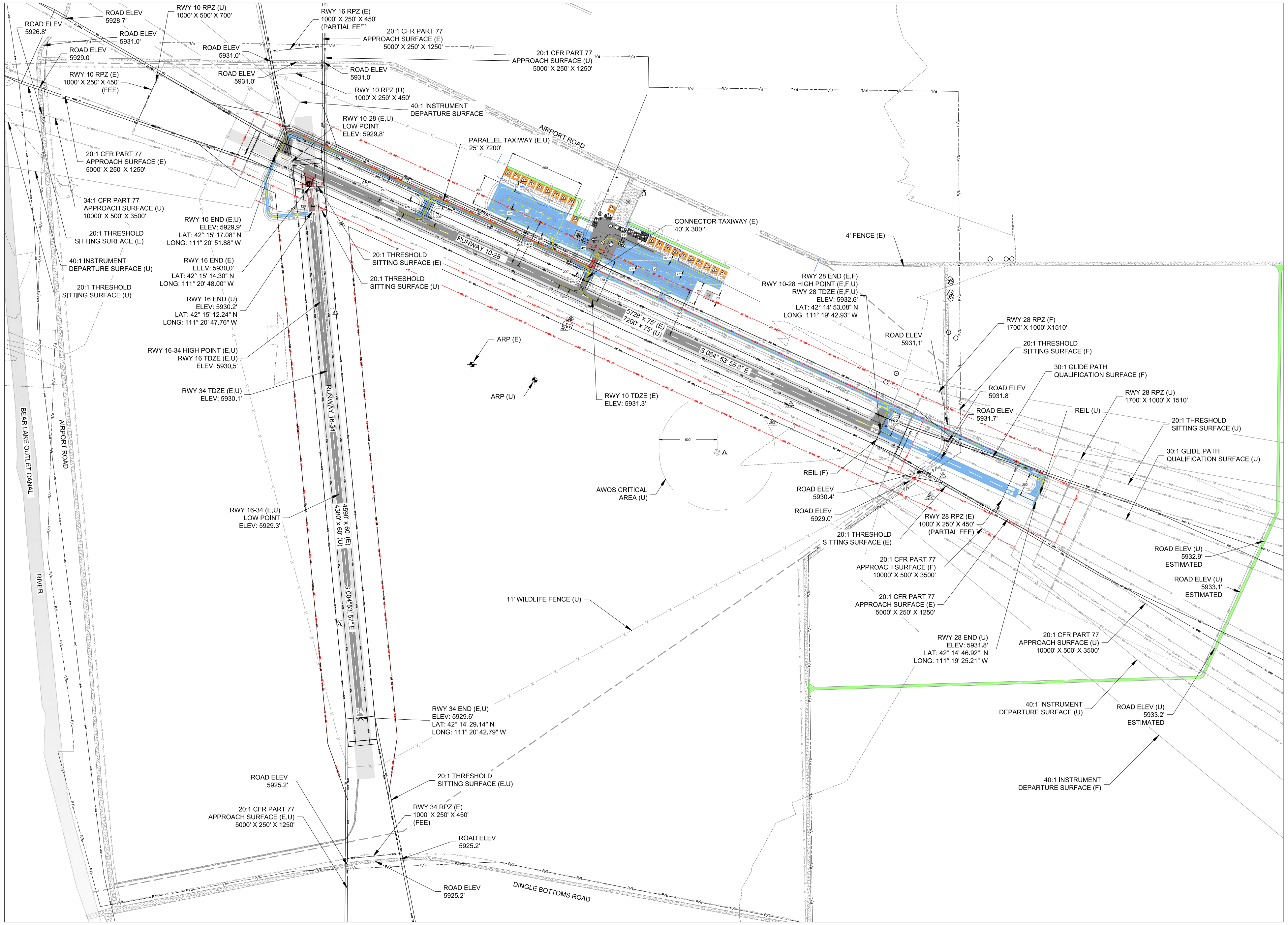


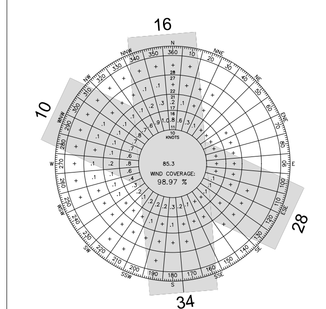
LEGEND

EXISTING	FUTURE/ULTIMATE	DESCRIPTION
		AIRPORT PAVEMENT
		AIRPORT PAVEMENT TO BE REMOVED
P/L	P/L	AIRPORT PROPERTY LINE
		ROADWAY
		SECURITY FENCE
		AIRPORT REFERENCE POINT
		BUILDING
25' BRL	U-BRL 25'	BUILDING RESTRICTION LINE (BRL) AT 25' HIGH
RSA	F/U-RSA	RUNWAY SAFETY AREA (RSA)
OFA	F/U-OFA	RUNWAY OBJECT FREE AREA (OFA)
RPZ	F/U-RPZ	RUNWAY PROTECTION ZONE (RPZ)
OFZ	U-OFZ	RUNWAY OBJECT FREE ZONE (OFZ)
TSA	U-TSA	TAXIWAY SAFETY AREA (TSA)
TOFA	U-TOFA	TAXIWAY OBJECT FREE AREA (TOFA)
PART 77	F/U-PART77	CFR PART 77 APPROACH SURFACE
TSS	F/U-TSS	THRESHOLD SITING SURFACE - APPROACH
GQS	F/U-GQS	GLIDE PATH QUALIFICATION SURFACE
		RUNWAY END IDENTIFIER LIGHTS (REIL)
		RUNWAY LIGHTS
	5930	TOPOGRAPHIC CONTOURS
OHP		OVERHEAD POWER LINE
		WETLAND LIMITS
		DITCH

FAA APPROVAL

EXISITNG WIND COVERAGE

ALL WEATHER

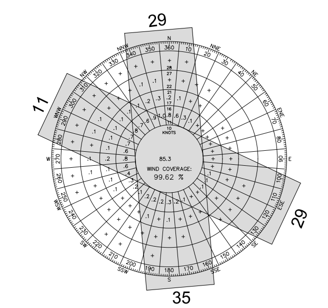


COMBINED RUNWAYS
CROSSWIND COMPONENT 10.5kts

WIND COVERAGE - ALL WEATHER	
RUNWAY	CROSSWIND COMPONENT: 10.5kts
10-28	93.99%
16-34	94.13%
Combined	98.97%

FUTURE/ULTIMATE WIND COVERAGE

ALL WEATHER



COMBINED RUNWAYS
CROSSWIND COMPONENT 13kts

WIND COVERAGE - ALL WEATHER		
RUNWAY	CROSSWIND COMPONENT: 10.5kts	CROSSWIND COMPONENT: 13kts
11-29	93.99%	96.75%
17-35	94.13%	96.52%
Combined	98.97%	99.62%

The absence of meteorological data for instrument conditions does not provide data to compute a windrose for IFR.

Wind data were retrieved for NWS Station K1U7 on MesoWest and range from DEC 2008 to JUL 2014. Station K1U7 is located on the Airport.

This station does not meet the siting criteria in FAA Order 7460.2 for wind sensors. A new AWOS is to be installed in accordance with FAA recommendation.

THE PREPARATION OF THIS DOCUMENT MAY HAVE BEEN SUPPORTED, IN PART, THROUGH THE AIRPORT IMPROVEMENT PROGRAM FINANCIAL ASSISTANCE FROM THE FEDERAL AVIATION ADMINISTRATION (PROJECT NUMBER 3-16-0027-011-2014) AS PROVIDED UNDER TITLE 49, UNITED STATES CODE, SECTION 47104. THE CONTENTS DO NOT NECESSARILY REFLECT THE OFFICIAL VIEWS OR POLICY OF THE FAA. ACCEPTANCE OF THIS REPORT BY THE FAA DOES NOT IN ANY WAY CONSTITUTE A COMMITMENT ON THE PART OF THE UNITED STATES TO PARTICIPATE IN ANY DEVELOPMENT DEPICTED THEREIN NOR DOES IT INDICATE THAT THE PROPOSED DEVELOPMENT IS ENVIRONMENTALLY ACCEPTABLE IN ACCORDANCE WITH APPROPRIATE PUBLIC LAWS.

AIRPORT DATA

ITEM	CURRENT	ULTIMATE
AIRPORT REFERENCE CODE	B-I SMALL	B-II*
MEAN MAXIMUM TEMPERATURE	85.5°F	SAME
AIRPORT ELEVATION	5932.6' MSL	SAME
AIRPORT NAVAIDS (OWNED BY BEAR LAKE COUNTY)	ROTATING BEACON, LIGHTED WIND CONE, SEGMENTED CIRCLE	ROTATING BEACON, LIGHTED WIND CONE SEGMENTED CIRCLE, AWOS, PAPI, REIL
ARP COORDINATES	42° 14' 59.10"N 111° 20' 29.60"W	42° 14' 57.72"N 111° 20' 22.43"W
DESIGN AIRCRAFT	PIPER MALIBU PA-46	SAME*
NPIAS SERVICE LEVEL	BASIC GA AIRPORT	SAME
STATE EQUIVALENT SERVICE ROLE	COMMUNITY SERVICE	SAME
MAGNETIC DECLINATION	11° 43' 48" EAST WITH VARIATION OF 6.6' WEST / YEAR	

*B-II ARC APPROVED BY FAA ON 1/08/2015 FOR PROACTIVE PLANNING
NOTE: ALL LATITUDE AND LONGITUDE COORDINATES ARE BASED ON NAD 83. ALL ELEVATION LISTED ARE BASED ON NAVD 88.

PAC AND SAC MONUMENTATION

MONUMENT	LATITUDE (NAD83)	LONGITUDE (NAD83)	ELEVATION (NAVD88)
PAC	*	*	*
SAC	*	*	*

SOURCE: NGS *DOES NOT CURRENTLY EXIST

TSS OBSTRUCTION RWY 10-28

ITEM	DESCRIPTION	SURVEY TYPE (DATE)	OBJECT ELEVATION	TSS ELEVATION	TSS PENETRATION	DISPOSITION	DATE
16B	PUBLIC ROAD	WAAS (2015)	5,932.6'	5,944.5'	3.1'	CLOSE	2020
17B	PUBLIC ROAD	WAAS (2015)	5,932.3'	5,939.9'	7.4'	CLOSE	2020

NOTE: SEE SHEET 5 FOR ITEM LOCATION

TSS OBSTRUCTION RWY 16-34

NO TSS PENETRATIONS

MODIFICATION OF FAA AIRPORT DESIGN STANDARDS

NONE

RUNWAY DATA

ITEM		RUNWAY 10-28 EXISTING		RUNWAY 10-28 FUTURE		RUNWAY 10-28 ULTIMATE		RUNWAY 16-34 EXISTING		RUNWAY 16-34 ULTIMATE	
RUNWAY IDENTIFICATION		10 - UTILITY	28 - UTILITY	10	28	11[1]	29[1]	16 - UTILITY	34 - UTILITY	17 - UTILITY[1]	35 - UTILITY[1]
RUNWAY DESIGN CODE		B-I SMALL / VIS		B-II / 5000	B-II / 4000	B-II / 5000	B-II / 4000	B-I SMALL / VIS		B-I SMALL / VIS	
APRC - DPRC		B/II/VIS - B/II		B/II/5000 - B/II	B/II/4000 - B/II	B/II/5000 - B/II	B/II/4000 - B/II	B-I SMALL / VIS		B-I SMALL / VIS	
PAVEMENT SURFACE TYPE		ASPHALT		SAME		SAME		ASPHALT		SAME	
PAVEMENT STRENGTH											
	POUNDS	12,500 LBS (SW)		34.5 (SW) / 46 (DW)[2]		34.5 (SW) / 46 (DW)[2]		50 (SW) / 60 (DW) / 102 (DWT)[2]		21.5 (SW)[2]	
	PCN	13/F/D/X/T		13/F/D/X/T		13/F/D/X/T		8/F/D/X/T		8/F/D/X/T	
EFFECTIVE RUNWAY GRADIENT (%)		0.04%[3]		SAME[3]		0.03%[3]		0.01%[4]		SAME[4]	
PERCENT (%) WIND COVERAGE		93.99%		96.75%		96.75%		94.13%		SAME	
RUNWAY LENGTH/WIDTH		5728' X 75'		SAME		7200' X 75'		4590' X 60'		4380' X 60'	
DISPLACED THRESHOLD		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
RUNWAY SAFETY AREA											
	WIDTH	120'		150'		SAME		120'		SAME	
	LENGTH BEYOND RW END	240'		300'		SAME		240'		SAME	
RUNWAY PROTECTION ZONE											
	LENGTH	1000'		1000'	1700'	1000'	1700'	1000'		SAME	
	INNER WIDTH	250'		500'	1000'	500'	1000'	250'		SAME	
	OUTER WIDTH	450'		700'	1510'	700'	1510'	450'		SAME	
	INTEREST	PARTIAL OWNERSHIP (FEE)		SAME		SAME		PARTIAL OWNERSHIP (FEE)		SAME	
RUNWAY OBJECT FREE AREA											
	WIDTH	250'		500'		SAME		250'		SAME	
	LENGTH BEYOND RW END	240'		300'		SAME		240'		SAME	
RUNWAY OBSTACLE FREE ZONE											
	WIDTH	250'		400'		SAME		250'		SAME	
	LENGTH BEYOND RW END	200'		SAME		SAME		200'		SAME	
VISIBILITY MINIMUMS		VISUAL		5000	4000	5000	4000	VISUAL		SAME	
APPROACH TYPE		VISUAL		NON-PRECISION		SAME		VISUAL		SAME	
PART 77 APPROACH SURFACE SLOPE		20:1		34:1		SAME		20:1		SAME	
THRESHOLD SITING SURFACE		20:1		20:1		SAME		20:1		SAME	
DEPARTURE SURFACE		NO		YES		SAME		NO		SAME	
GLIDE PATH QUALIFICATION SURFACE		NO		30:1		SAME		NO		SAME	
RUNWAY MARKING TYPE		VISUAL		NON-PRECISION		SAME		VISUAL W/ SIDE STRIPES		SAME	
RUNWAY LIGHTING TYPE		MIRL		SAME		SAME		NONE		SAME	
NAVIGATION AIDS		N/A		REIL, PAPI		SAME		N/A		REIL, PAPI	

[1] CHANGE EFFECTIVE IN 2030.
[2] PAVEMENT STRENGTH LISTED IN THOUSANDS OF POUNDS.
[3] MAXIMUM GRADE WITHIN RUNWAY LENGTH IS 1%. MEETS LINE OF SIGHT REQUIREMENTS.
[4] MAXIMUM GRADE WITHIN RUNWAY LENGTH IS 2%. MEETS LINE OF SIGHT REQUIREMENTS.

RUNWAY END DATA TABLE

RUNWAY END		EXISTING/FUTURE	ULTIMATE
10	LATITUDE (NAD83)	42° 15' 17.08"N	SAME
	LONGITUDE (NAD83)	111° 20' 51.88"W	SAME
	TDZ ELEVATION	5931.3'	SAME
	END ELEVATION	5929.9'	SAME
28	LATITUDE (NAD83)	42° 14' 53.08"N	42° 14' 46.92"N
	LONGITUDE (NAD83)	111° 19' 42.93"W	111° 19' 25.21"N
	TDZ ELEVATION	5932.6'	SAME
	END ELEVATION	5932.6'	5931.8'
16	LATITUDE (NAD83)	42° 15' 14.30"N	42° 15' 12.24"N
	LONGITUDE (NAD83)	111° 20' 48.00"W	111° 20' 47.76"W
	TDZ ELEVATION	5930.5'	SAME
	END ELEVATION	5930.0'	5930.2'
34	LATITUDE (NAD83)	42° 14' 29.14"N	SAME
	LONGITUDE (NAD83)	111° 20' 42.79"W	SAME
	TDZ ELEVATION	5930.1'	SAME
	END ELEVATION	5929.6'	SAME

NOTE: ALL LATITUDE AND LONGITUDE COORDINATES ARE BASED ON NAD 83. ALL ELEVATION LISTED ARE BASED ON NAVD 88.

TAXIWAY/TAXILANE DATA

ITEM	PARALLEL TAXIWAY EXISTING	PARALLEL TAXIWAY ULTIMATE	CONNECTOR TAXIWAY EXISTING	CONNECTOR TAXIWAY ULTIMATE
TAXIWAY DESIGN GROUP	N/A*	2	N/A*	2
TAXIWAY WIDTH	25'	35'	40'	SAME
TAXIWAY SAFETY AREA	49'	79'	49'	79'
TAXIWAY OBJECT FREE AREA	89'	131'	89'	131'
TAXIWAY LIGHTING	REFLECTOR	SAME	REFLECTOR	SAME
TAXIWAY EDGE SAFETY MARGIN	N/A	7.5'	N/A	7.5'
TAXIWAY SHOULDER WIDTH	N/A	10'	N/A	10'

*NOT DESIGNED FOR A SPECIFIC TDG (NEW DESIGN STANDARDS IN AC 150/5300-13A Change 1)
NOTE: THERE IS NO PENETRATION OF THE TSA AND TOFA.

BUILDINGS AND FACILITIES

CURRENT	ULTIMATE	DESCRIPTION
1		PILOT LOUNGE
2		AIRPORT MANAGER'S RESIDENCE
3	3	HANGAR
4		FUEL FACILITY/FUEL TRUCK PARKING
5		AIRCRAFT RAMP / TIE DOWN AREA
6	6	SEGMENTED CIRCLE AND WINDCONES
7		VEHICLE ACCESS GATE
8		AUTOMOBILE PARKING AND ACCESS ROAD
9		STORAGE FACILITY
10		ROTATING BEACON
	11	PAPI
	12	AUTOMATIC WEATHER OBSERVATION STATION
	13	SNOW REMOVAL EQUIPMENT BUILDING
	14	FIXED BASE OPERATOR
	15	HELIPAD

APRON DATA TABLE

CURRENT	ULTIMATE	DIMESIONS / SQUARE FOOTAGE
1		90' X 140' / 12,600 SF
2		60' X 125' / 7,500 SF
	1	225' X 620' /139,500 SF
	2	205' X 710' / 145,550 SF

EXISTING DECLARED DISTANCES

DISTANCES	TORA	TODA	ASDA	LDA
RUNWAY 10	5,728'	5,728'	5,728'	5,728'
RUNWAY 28	5,728'	5,728'	5,728'	5,728'
RUNWAY 16	4,590'	4,590'	4,590'	4,590'
RUNWAY 34	4,590'	4,590'	4,590'	4,590'

FUTURE DECLARED DISTANCES

DISTANCES	TORA	TODA	ASDA	LDA
RUNWAY 10	5,728'	5,728'	5,728'	5,728'
RUNWAY 28	5,728'	5,728'	5,728'	5,728'

ULTIMATE DECLARED DISTANCES

DISTANCES	TORA	TODA	ASDA	LDA
RUNWAY 10	7,200'	7,200'	7,200'	7,200'
RUNWAY 28	7,200'	7,200'	7,200'	7,200'
RUNWAY 16	4,380'	4,380'	4,380'	4,380'
RUNWAY 34	4,380'	4,380'	4,380'	4,380'

MAGNETIC DECLINATION 11° 43' 48" EAST
RATE OF CHANGE 0° 6.6' WEST/YEAR
AS OF 4/14/2015
SOURCE: NOAA ONLINE CALCULATOR

TRUE
MAGNETIC

0 250 500 1000 1500
SCALE: 1" = 500'

T-O ENGINEERS
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2471 S. TITANIUM PLACE
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OFFICES ALSO IN: COEUR d' ALENE, IDAHO NAMPA, IDAHO

E-FILE NAME | DESIGNED | DRAWN MJV | CHECKED | APPROVED NSC | DATE

REVISIONS: NO. | ITEM

BEAR LAKE COUNTY AIRPORT
PARIS, IDAHO
AIRPORT LAYOUT PLAN SET
AIRPORT LAYOUT PLAN

DATE: MARCH 2017
PROJECT: 140052

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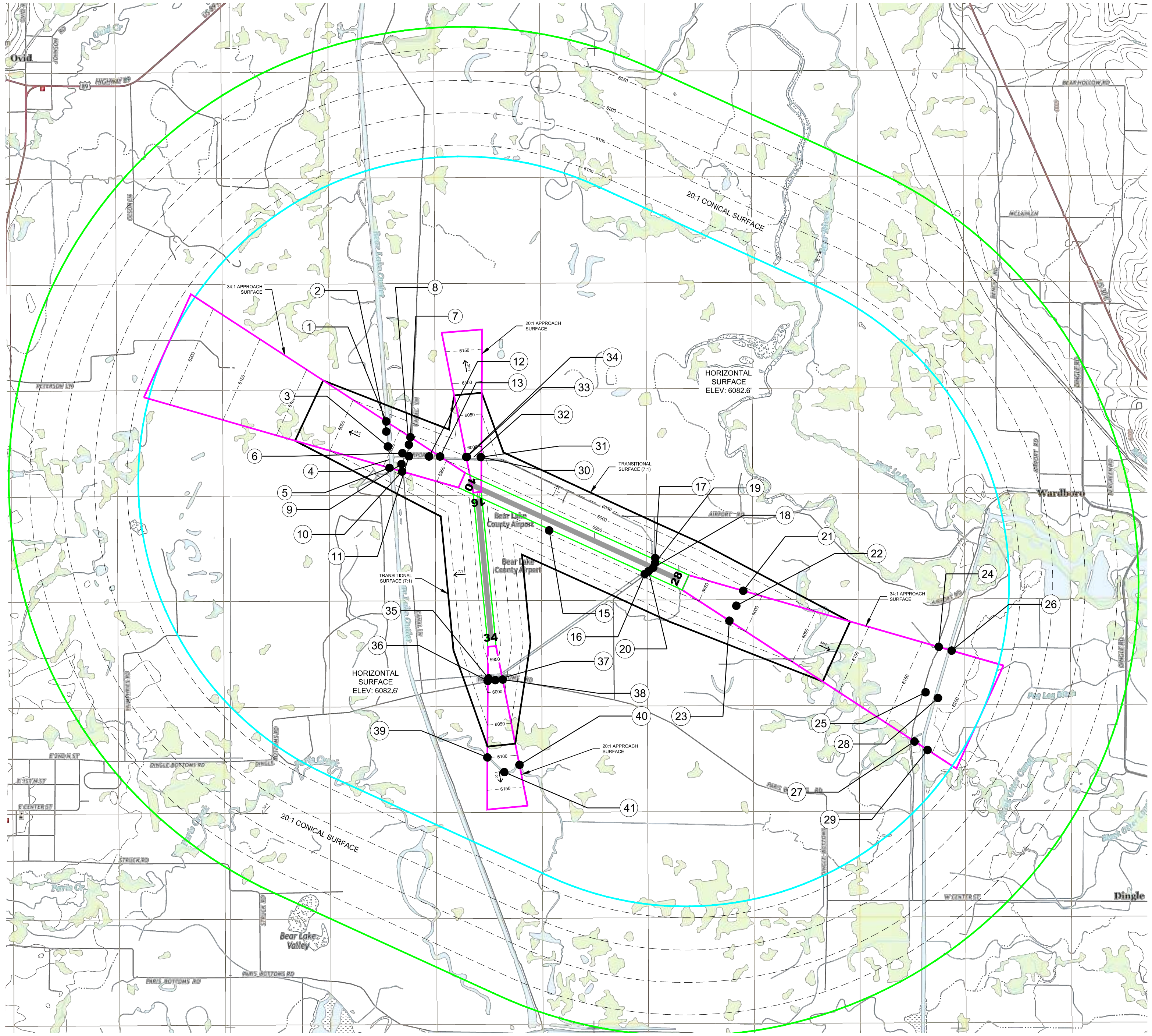
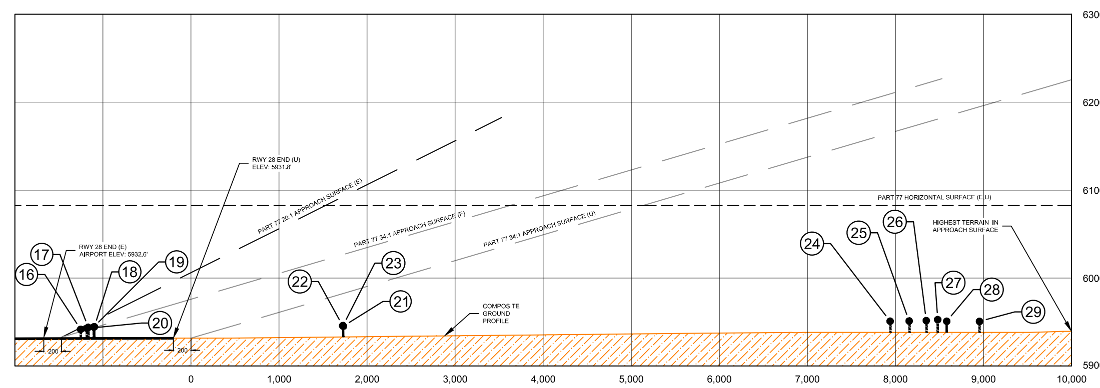
I:\140052\ACADDWG\SHEETS\ALP - MARCH 2017 - FINAL\140052-C-03-AIRSPACE.DWG, 3/27/2017



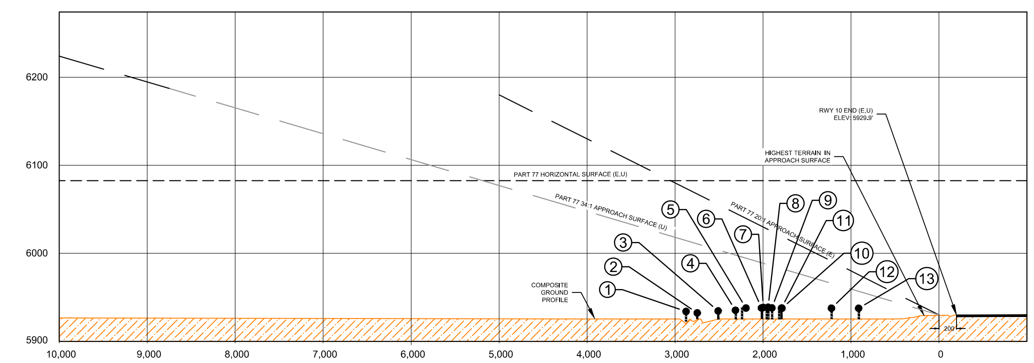
AIRPORT APPROACH PROFILES

HORIZ SCALE: 1" = 1000'
VERT. SCALE: 1" = 100'

RUNWAY 28 - VISUAL APPROACH (E) - LPV APPROACH (U)



RUNWAY 10 - VISUAL APPROACH (E) - NON PRECISION APPROACH (U)



NOTES

1. CONTOUR AND OBSTRUCTION SOURCE DATA - USGS, FAA FORM 5010, FAA OE/AAA, AND NGS.

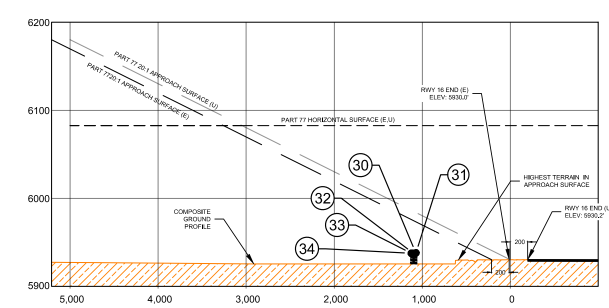
2. SEE INNER PORTION OF THE APPROACH PLAN (SHEET 6-9) FOR CLOSE-IN OBSTRUCTIONS.

3. MISCELLANEOUS PENETRATIONS EXIST AS SHOWN. A DETAILED BREAKDOWN OF OBJECT PENETRATIONS NEAR THE AIRPORT IS SHOWN IN THE RPZ AND APPROACH SURFACE PLAN AND PROFILE.

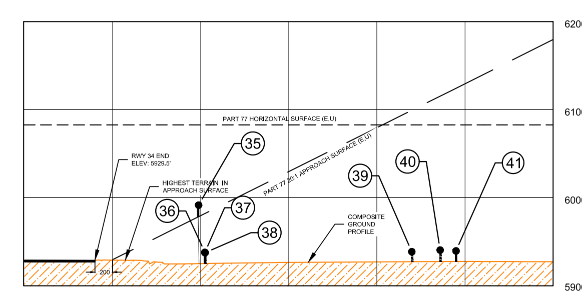
4. THERE ARE ORDINANCES IN PLACE IN BEAR LAKE COUNTY TO ZONE LAND AND LIMIT HEIGHT OF STRUCTURES. HOWEVER, THE CURRENT ORDINANCES DO NOT EFFECTIVELY REFERENCE AND ADDRESS CFR PART 77 AIRSPACE PROTECTION AND COMPATIBLE LAND USE PLANNING IN THE VICINITY OF THE AIRPORT. RECOMMENDATIONS HAVE BEEN MADE IN THE NARRATIVE REPORT TO IMPROVE ZONING.

5. TRAVERSEWAY ELEVATIONS INCLUDE THE TRAVERSEWAY ADJUSTEMENT (15' FOR PUBLIC ROAD AND 15' FOR WATERWAY).

RUNWAY 16 - VISUAL APPROACH



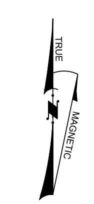
RUNWAY 34 - VISUAL APPROACH



CFR PART 77 GROUND PENETRATION
NO GROUND PENETRATIONS

OBSTRUCTION LEGEND

PLAN VIEW	PROFILE VIEW
① OBSTRUCTION NUMBER	② OBSTRUCTION NUMBER
● OBSTRUCTION LOCATION	OBSTRUCTING PART OF THE OBJECT
	NON-OBSTRUCTING PART OF THE OBJECT
	TRAVERSEWAY LOCATED ON SURFACE EDGE
	TRAVERSEWAY LOCATED ON RUNWAY EXTENDED CENTERLINE



MAGNETIC DECLINATION 11° 43' 48" EAST
RATE OF CHANGE 0° 6.6' WEST/YEAR
AS OF 4/14/2015
SOURCE: NOAA ONLINE CALCULATOR

0 1000 2000 4000 6000
SCALE: 1" = 2000'

CFR PART 77 OBSTRUCTIONS

ITEM NO.	DESCRIPTION	SURVEY TYPE (DATE)	GROUND ELEVATION	OBJECT ELEVATION / HEIGHT: ELEV. (MSL)	OBJECT ELEVATION / HEIGHT: HEIGHT (AGL)	SURFACE PENETRATED	SURFACE ELEVATION	PENETRATION	EXISTING/PROPOSED DISPOSITION	DATE OF MITIGATION
1	CANAL	WAAS (2015)	5,927.5	5,942.5	15.0	NONE	N/A	NONE	NONE	NONE
2	CANAL	WAAS (2015)	5,927.3	5,942.3	15.0	NONE	N/A	NONE	NONE	NONE
3	CANAL	WAAS (2015)	5,926.8	5,941.8	15.0	NONE	N/A	NONE	NONE	NONE
4	CANAL	WAAS (2015)	5,926.2	5,941.2	15.0	NONE	N/A	NONE	NONE	NONE
5	CANAL	WAAS (2015)	5,926.0	5,941.0	15.0	NONE	N/A	NONE	NONE	NONE
6	PUBLIC ROAD	WAAS (2015)	5928.7	5,943.7	15.0	NONE	N/A	NONE	NONE	NONE
7	PUBLIC ROAD	WAAS (2015)	5,930.0	5,945.0	15.0	NONE	N/A	NONE	NONE	NONE
8	PUBLIC ROAD	WAAS (2015)	5,929.9	5,944.9	15.0	NONE	N/A	NONE	NONE	NONE
9	PUBLIC ROAD	WAAS (2015)	5,927.4	5,942.4	15.0	NONE	N/A	NONE	NONE	NONE
10	PUBLIC ROAD	WAAS (2015)	5,926.9	5,941.9	15.0	NONE	N/A	NONE	NONE	NONE
11	PUBLIC ROAD	WAAS (2015)	5,930.3	5,945.3	15.0	NONE	N/A	NONE	NONE	NONE
12	PUBLIC ROAD	WAAS (2015)	5,931.3	5,946.3	15.0	NONE	N/A	NONE	NONE	NONE
13	PUBLIC ROAD	WAAS (2015)	5,930.8	5,945.8	15.0	NONE	N/A	NONE	NONE	NONE
14	WINDCONE (E)	WAAS (2012)	5,927.5	5,949.0	21.6	TRANSITIONAL (E,F)	5931.2	17.8	LIGHT	CURRENT
15	WINDCONE (F)	ESTIMATED	5,927.5	5,949.0	21.6	TRANSITIONAL (F)	5935.6	13.4	LIGHT	2020
16	PUBLIC ROAD	WAAS (2015)	5,932.5	5,947.5	15.0	34:1 APPROACH (F)	5939.3	8.2	CLOSE/RELOCATE	2020/2035
17	PUBLIC ROAD	WAAS (2015)	5,932.3	5,947.3	15.0	34:1 APPROACH (F)	5941.6	5.7	CLOSE/RELOCATE	2020/2035
18	PUBLIC ROAD	WAAS (2015)	5,932.7	5,947.7	15.0	34:1 APPROACH (F)	5943.8	3.9	CLOSE/RELOCATE	2020/2035
19	PUBLIC ROAD	WAAS (2015)	5,932.3	5,947.3	15.0	NONE	N/A	NONE	NONE	NONE
20	PUBLIC ROAD	WAAS (2015)	5,932.5	5,947.5	15.0	NONE	N/A	NONE	NONE	NONE
21	PUBLIC ROAD (U)	WAAS (2015)	5,933.0	5,948.0	15.0	NONE	N/A	NONE	NONE	NONE
22	PUBLIC ROAD (U)	ESTIMATED	5,933.0	5,948.0	15.0	NONE	N/A	NONE	NONE	NONE
23	PUBLIC ROAD (U)	ESTIMATED	5,933.0	5,948.0	15.0	NONE	N/A	NONE	NONE	NONE
24	DIRT ROAD	ESTIMATED	5,940.4	5,955.4	15.0	NONE	N/A	NONE	NONE	NONE
25	DIRT ROAD	WAAS (2015)	5,941.5	5,956.5	15.0	NONE	N/A	NONE	NONE	NONE
26	CANAL	WAAS (2015)	5,936.8	5,951.8	15.0	NONE	N/A	NONE	NONE	NONE
27	DIRT ROAD	WAAS (2015)	5,938.2	5,953.2	15.0	NONE	N/A	NONE	NONE	NONE
28	CANAL	WAAS (2015)	5,935.2	5,950.2	15.0	NONE	N/A	NONE	NONE	NONE
29	CANAL	WAAS (2015)	5,933.6	5,948.6	15.0	NONE	N/A	NONE	NONE	NONE
30	PUBLIC ROAD	WAAS (2015)	5932.1	5,947.1	15.0	NONE	N/A	NONE	NONE	NONE
31	PUBLIC ROAD	WAAS (2015)	5,932.1	5,947.1	15.0	NONE	N/A	NONE	NONE	NONE
32	PUBLIC ROAD	WAAS (2015)	5,931.9	5,946.9	15.0	NONE	N/A	NONE	NONE	NONE
33	PUBLIC ROAD	WAAS (2015)	5,932.5	5,947.5	15.0	NONE	N/A	NONE	NONE	NONE
34	PUBLIC ROAD	WAAS (2015)	5,932.5	5,947.5	15.0	NONE	N/A	NONE	NONE	NONE
35	TREE	WAAS (2012)	5925.2	5,994.0	68.8	20:1 APPROACH (E/U)	15.8'	NONE	REMOVAL	2020
36	PUBLIC ROAD	WAAS (2015)	5,930.0	5,945.0	15.0	NONE	N/A	NONE	NONE	NONE
37	PUBLIC ROAD	WAAS (2015)	5,930.6	5,945.6	15.0	NONE	N/A	NONE	NONE	NONE
38	PUBLIC ROAD	WAAS (2015)	5,930.6	5,945.6	15.0	NONE	N/A	NONE	dl	NONE
39	RIVER	WAAS (2015)	5,926.4	5,941.4	15.0	NONE	N/A	NONE	NONE	NONE
40	RIVER	WAAS (2015)	5,926.4	5,941.4	15.0	NONE	N/A	NONE	NONE	NONE
41	RIVER	WAAS (2015)	5,926.4	5,941.4	15.0	NONE	N/A	NONE	NONE	NONE

REVISIONS					
E-FILE NAME		DESIGNED	DRAWN	CHECKED	APPROVED
			MJV		NSC
NO.	DATE				

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BEAR LAKE COUNTY AIRPORT
PARIS, IDAHO
AIRPORT LAYOUT PLAN SET
AIRPORT AIRSPACE DRAWING

DATE: MARCH 2017
PROJECT: 140052

SHEET 3 OF 12

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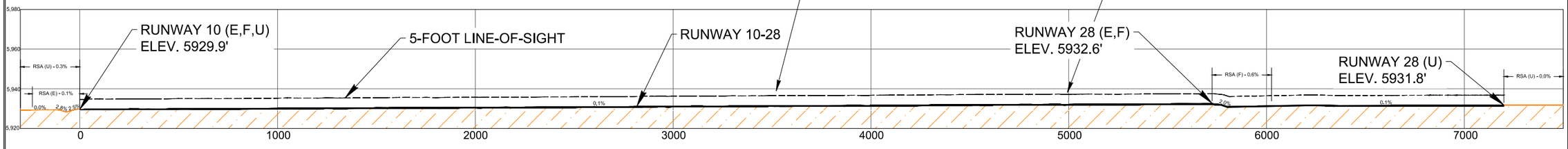
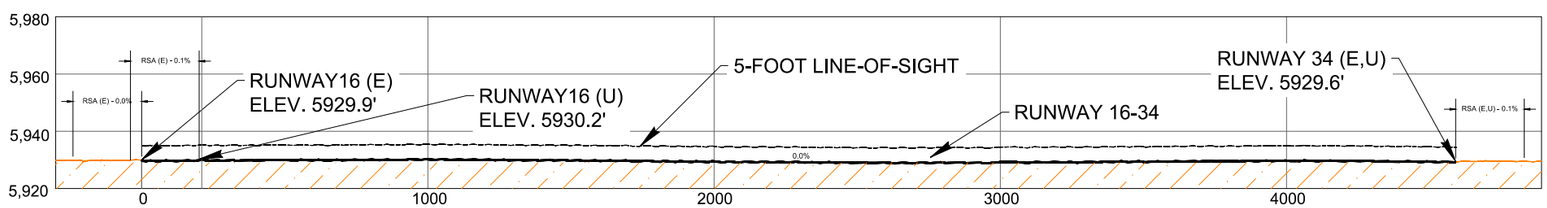
RUNWAY 10-28 PROFILE

HORIZ. SCALE: 1" = 250'
VERT. SCALE: 1" = 25'



RUNWAY 16-34 PROFILE

HORIZ. SCALE: 1" = 250'
VERT. SCALE: 1" = 25'



REVISIONS		
NO.	DATE	

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DESIGNED
DRAWN MJV
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APPROVED NSC

T-O ENGINEERS
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NAMPA, IDAHO
SPOKANE, WA

BEAR LAKE COUNTY AIRPORT
PARIS, IDAHO
AIRPORT LAYOUT PLAN SET
INNER APPROACH - RUNWAY PROFILES

DATE: MARCH 2017
PROJECT: 140052

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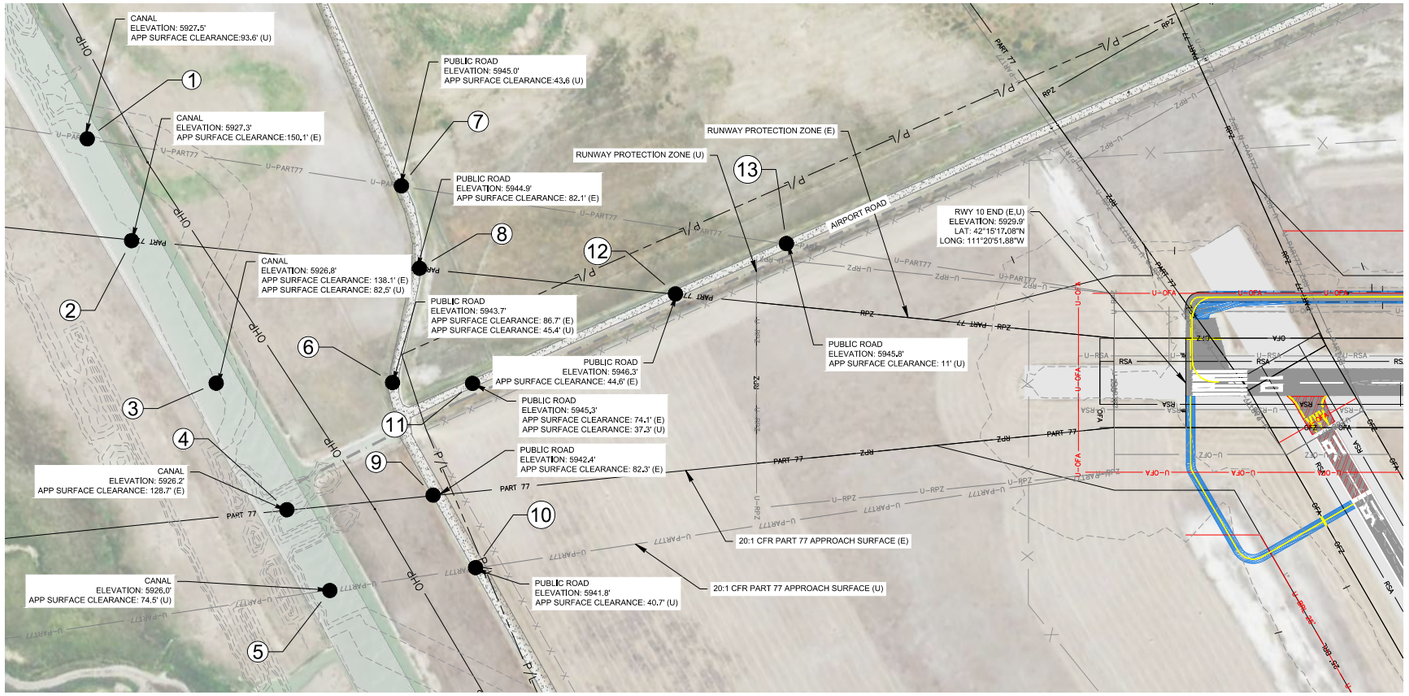
RUNWAY 10 INNER APPROACH PLAN



MAGNETIC DECLINATION 11° 43' 48" EAST
RATE OF CHANGE 0° 6.8' WEST/YEAR
AS OF 4/14/2015
SOURCE: NOAA ONLINE CALCULATOR

TRUE
MAGNETIC

0 100 200 400 600

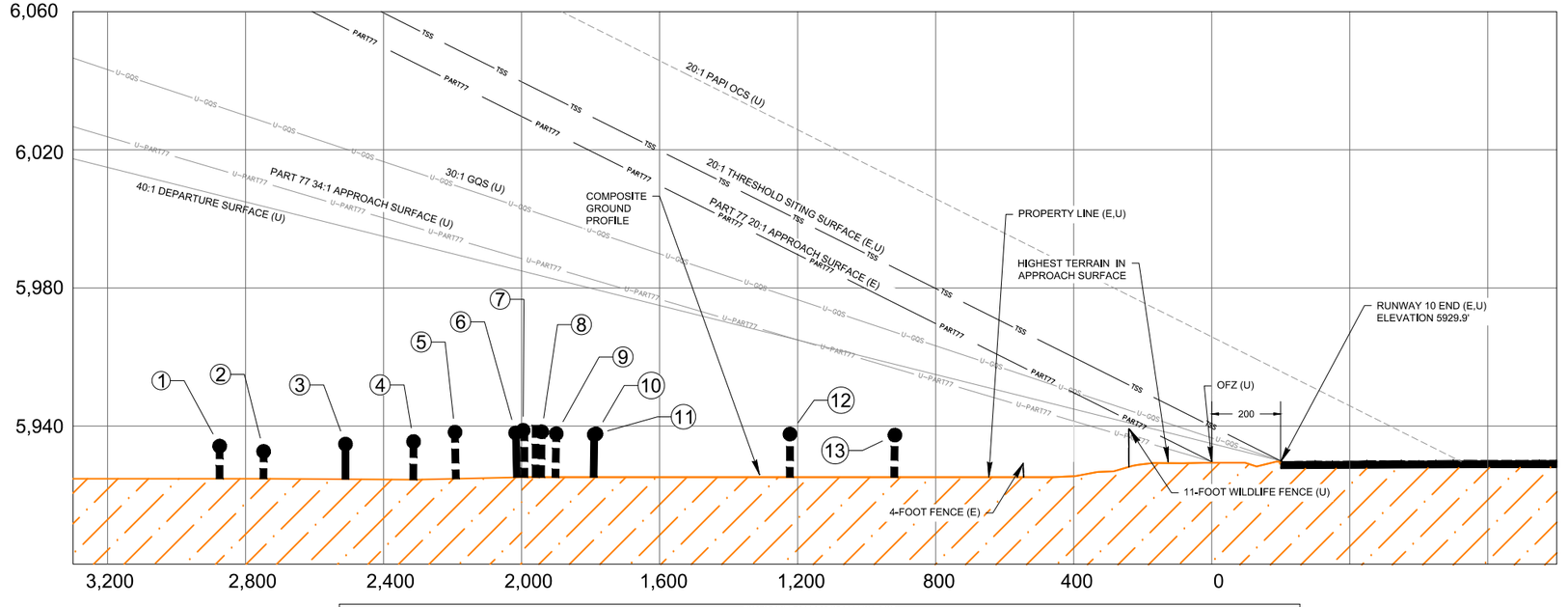
SCALE: 1" = 200'

LEGEND

EXISTING	FUTURE/ ULTIMATE	DESCRIPTION
		AIRPORT PAVEMENT
		AIRPORT PAVEMENT TO BE REMOVED
		PAVED SHOULDER
P/L	P/L	AIRPORT PROPERTY LINE
		ROADWAY
X	X	SECURITY FENCE
		AIRPORT REFERENCE POINT
		BUILDING
25' BRL	U-BRL 25'	BUILDING RESTRICTION LINE (BRL) AT 25' HIGH
RSA	F/U-RSA	RUNWAY SAFETY AREA (RSA)
OFA	F/U-OFA	RUNWAY OBJECT FREE AREA (OFA)
RPZ	F/U-RPZ	RUNWAY PROTECTION ZONE (RPZ)
OFZ	F/U-OFZ	RUNWAY OBJECT FREE ZONE (OFZ)
TSA	U-TSA	TAXIWAY SAFETY AREA (TSA)
TOFA	U-TOFA	TAXIWAY OBJECT FREE AREA (TOFA)
PART 77	F/U-PART77	CFR PART 77 APPROACH SURFACE
TSS	F/U-TSS	THRESHOLD SITING SURFACE - APPROACH
GQS	F/U-GQS	GLIDE PATH QUALIFICATION SURFACE
		RUNWAY END IDENTIFIER LIGHTS (REIL)
		RUNWAY LIGHTS
5930		TOPOGRAPHIC CONTOURS
OHP		OVERHEAD POWER LINE
		WETLAND LIMITS
		DITCH

RUNWAY 10 INNER APPROACH PROFILE

HORIZ. SCALE: 1" = 200'
VERT. SCALE: 1" = 20'



NOTES

1. TRAVERSEWAY ELEVATIONS INCLUDE THE TRAVERSEWAY ADJUSTMENT (15' FOR PUBLIC ROADS AND 10' FOR WATERWAY)

RWY 10 INNER APPROACH OBSTRUCTIONS

ITEM NO.	DESCRIPTION	SURVEY TYPE (DATE)	GROUND ELEVATION	OBJECT ELEVATION / HEIGHT		SURFACE PENETRATED	SURFACE ELEVATION	PENETRATION	EXISTING/PROPOSED DISPOSITION	DATE OF MITIGATION
				ELEV. (MSL)	HEIGHT (AGL)					
1	CANAL	WAAS (2015)	5927.5	5937.5	10	NONE	N/A	NONE	NONE	NONE
2	CANAL	WAAS (2015)	5927.3	5937.3	10	NONE	N/A	NONE	NONE	NONE
3	CANAL	WAAS (2015)	5926.8	5936.8	10	NONE	N/A	NONE	NONE	NONE
4	CANAL	WAAS (2015)	5926.2	5936.2	10	NONE	N/A	NONE	NONE	NONE
5	CANAL	WAAS (2015)	5926	5936	10	NONE	N/A	NONE	NONE	NONE
6	PUBLIC ROAD	WAAS (2015)	5928.7	5,943.7	15.0	NONE	N/A	NONE	NONE	NONE
7	PUBLIC ROAD	WAAS (2015)	5,929.7	5,944.7	15,0	NONE	N/A	NONE	NONE	NONE
8	PUBLIC ROAD	WAAS (2015)	5,929,9	5,944,9	15,0	NONE	N/A	NONE	NONE	NONE
9	PUBLIC ROAD	WAAS (2015)	5,927.4	5,942.4	15.0	NONE	N/A	NONE	NONE	NONE
10	PUBLIC ROAD	WAAS (2015)	5,927.1	5,942.1	15.0	NONE	N/A	NONE	NONE	NONE
11	PUBLIC ROAD	WAAS (2015)	5,930.3	5,945.3	15,0	NONE	N/A	NONE	NONE	NONE
12	PUBLIC ROAD	WAAS (2015)	5,931,3	5,946,3	15,0	NONE	N/A	NONE	NONE	NONE
13	PUBLIC ROAD	WAAS (2015)	5,930,9	5,945,9	15.0	NONE	N/A	NONE	NONE	NONE

REVISIONS	NO.	DATE

E-FILE NAME
DESIGNED
DRAWN MJV
CHECKED
APPROVED NSC

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NAMPA, IDAHO
SPOKANE, WA

BEAR LAKE COUNTY AIRPORT
PARIS, IDAHO
AIRPORT LAYOUT PLAN SET
INNER APPROACH - RWY 10

DATE: MARCH 2017
PROJECT: 140052

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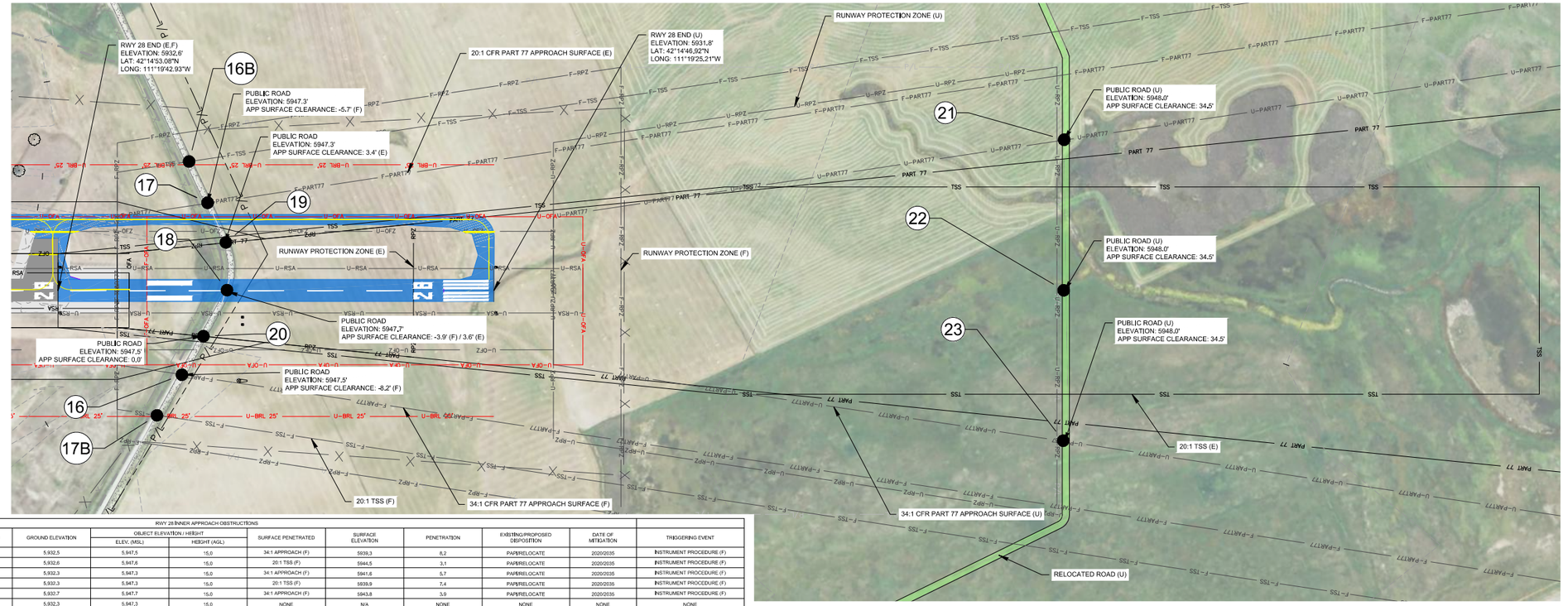
RUNWAY 28 INNER APPROACH PROFILE

HORIZ. SCALE: 1" = 200'
VERT. SCALE: 1" = 20'



NOTES

1. TRAVERSEWAY ELEVATIONS INCLUDE THE TRAVERSEWAY ADJUSTMENT (15' FOR PUBLIC ROADS)

RWY 28 INNER APPROACH OBSTRUCTIONS											
ITEM NO.	DESCRIPTION	SURVEY TYPE (DATE)	GROUND ELEVATION	OBJECT ELEVATION / HEIGHT		SURFACE PENETRATED	SURFACE ELEVATION	PENETRATION	EXISTING/PROPOSED DISPOSITION	DATE OF MITIGATION	TRIGGERING EVENT
				ELEV. (MSL)	HEIGHT (AGL)						
16	PUBLIC ROAD	WAAS (2015)	5,932.5	5,947.5	15.0	34:1 APPROACH (F)	5939.3	8.2	PAP/RELOCATE	2020/2035	INSTRUMENT PROCEDURE (F)
16b	PUBLIC ROAD	WAAS (2015)	5,932.6	5,947.6	15.0	20:1 TSS (F)	5944.5	3.1	PAP/RELOCATE	2020/2035	INSTRUMENT PROCEDURE (F)
17	PUBLIC ROAD	WAAS (2015)	5,932.3	5,947.3	15.0	34:1 APPROACH (F)	5941.8	5.7	PAP/RELOCATE	2020/2035	INSTRUMENT PROCEDURE (F)
17b	PUBLIC ROAD	WAAS (2015)	5,932.3	5,947.3	15.0	20:1 TSS (F)	5939.9	7.4	PAP/RELOCATE	2020/2035	INSTRUMENT PROCEDURE (F)
18	PUBLIC ROAD	WAAS (2015)	5,932.7	5,947.7	15.0	34:1 APPROACH (F)	5943.8	3.9	PAP/RELOCATE	2020/2035	INSTRUMENT PROCEDURE (F)
19	PUBLIC ROAD	WAAS (2015)	5,932.3	5,947.3	15.0	NONE	N/A	NONE	NONE	NONE	NONE
20	PUBLIC ROAD	WAAS (2015)	5,932.5	5,947.5	15.0	NONE	N/A	NONE	NONE	NONE	NONE
21	PUBLIC ROAD	WAAS (2015)	5,933.0	5,948.0	15.0	NONE	N/A	NONE	NONE	NONE	NONE
22	PUBLIC ROAD (U)	ESTIMATED	5,933.0	5,948.0	15.0	NONE	N/A	NONE	NONE	NONE	NONE
23	PUBLIC ROAD (U)	ESTIMATED	5,933.0	5,948.0	15.0	NONE	N/A	NONE	NONE	NONE	NONE

OBSTRUCTION LEGEND

PLAN VIEW

1 OBSTRUCTION NUMBER

OBSTRUCTION LOCATION

PROFILE VIEW

2 OBSTRUCTION NUMBER

OBSTRUCTING PART OF THE OBJECT

NON-OBSTRUCTING PART OF THE OBJECT

TRAVERSEWAY LOCATED ON SURFACE EDGE

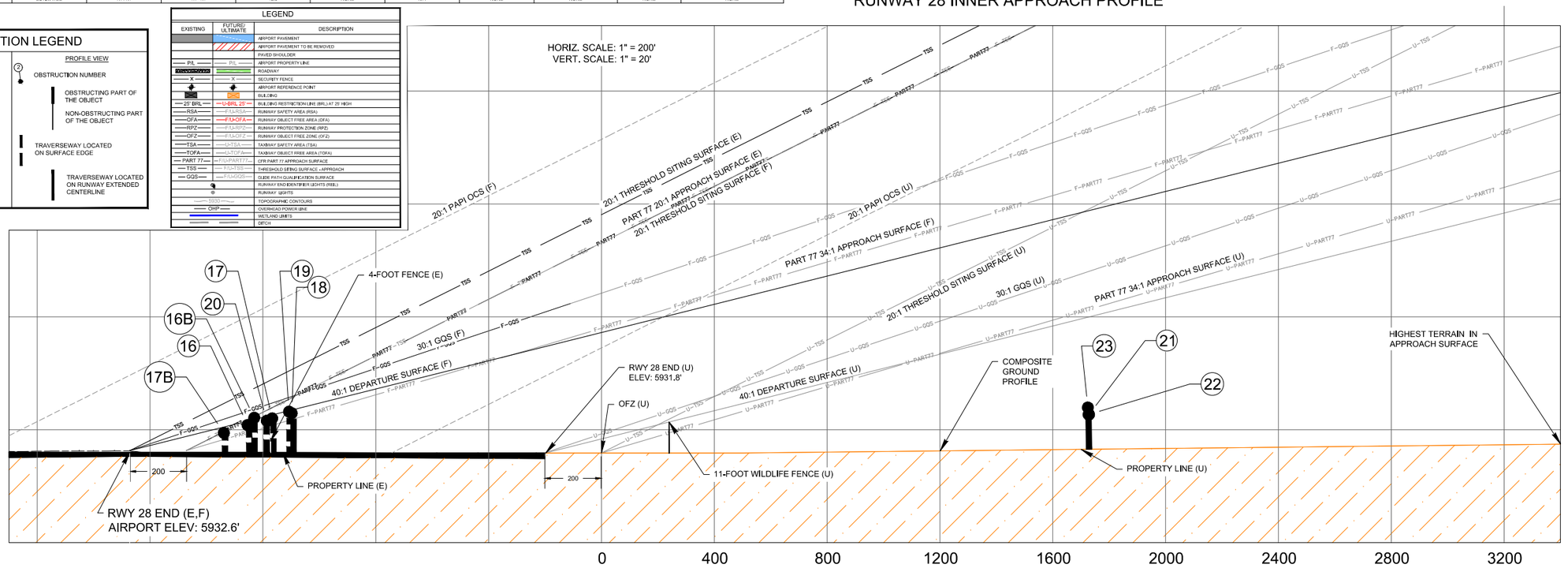
TRAVERSEWAY LOCATED ON RUNWAY EXTENDED CENTERLINE

LEGEND

EXISTING	FUTURE/ ULTIMATE	DESCRIPTION
		AIRPORT PAVEMENT
		AIRPORT PAVEMENT TO BE REMOVED
		PAVED SHOULDER
P/L	P/L	AIRPORT PROPERTY LINE
		ROADWAY
X	X	SECURITY FENCE
		AIRPORT REFERENCE POINT
		BUILDING
25' BRL	U-BRL 25'	BUILDING RESTRICTION LINE (BRL) AT 25' HIGH
RSA	F/U-RSA	RUNWAY SAFETY AREA (RSA)
OFA	F/U-OFA	RUNWAY OBJECT FREE AREA (OFA)
RPZ	F/U-RPZ	RUNWAY PROTECTION ZONE (RPZ)
OFZ	F/U-OFZ	RUNWAY OBJECT FREE ZONE (OFZ)
TSA	F/U-TSA	TAXIWAY SAFETY AREA (TSA)
TOFA	F/U-TOFA	TAXIWAY OBJECT FREE AREA (TOFA)
PART 77	F/U-PART77	CFR PART 77 APPROACH SURFACE
TSS	F/U-TSS	THRESHOLD SITING SURFACE - APPROACH
GQS	F/U-GQS	GLIDE PATH QUALIFICATION SURFACE
		RUNWAY END IDENTIFIER LIGHTS (REIL)
		RUNWAY LIGHTS
5920	5920	TOPOGRAPHIC CONTOURS
OHP	OHP	OVERHEAD POWER LINE
		WETLAND LIMITS
		DITCH

RUNWAY 28 INNER APPROACH PROFILE

HORIZ. SCALE: 1" = 200'
VERT. SCALE: 1" = 20'



REVISIONS		
NO.	DATE	

E-FILE NAME
DESIGNED
DRAWN MJV
CHECKED
APPROVED
NSC

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NAMPA, IDAHO
SPOKANE, WA

BEAR LAKE COUNTY AIRPORT
PARIS, IDAHO
AIRPORT LAYOUT PLAN SET
INNER APPROACH - RWY 28

DATE: MARCH 2017
PROJECT: 140052

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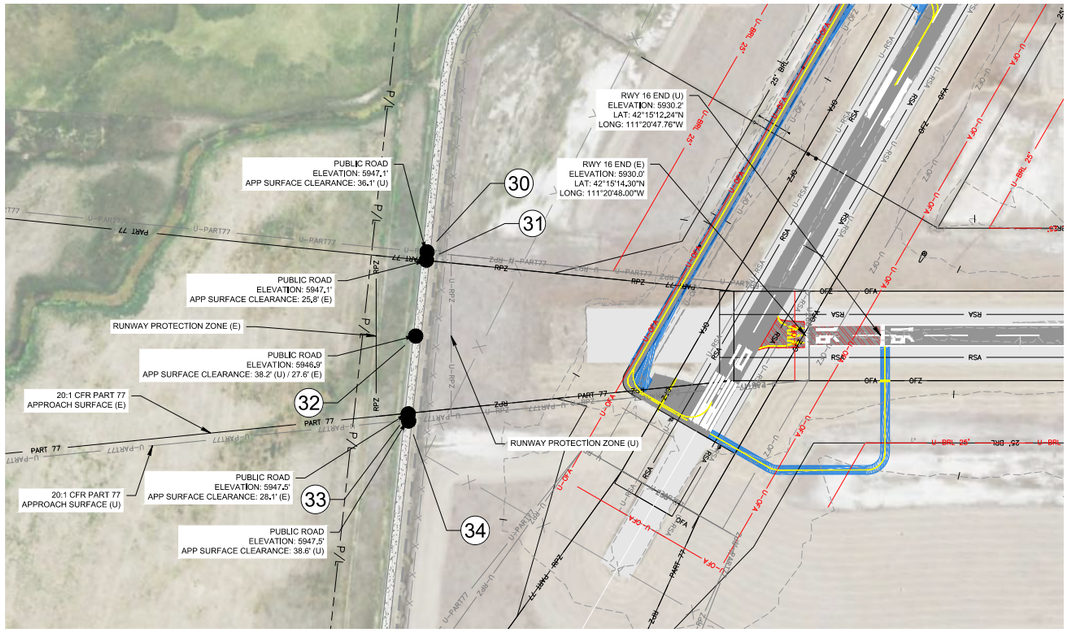
I:\140052\ACAD\DWG\SHEETS\ALP - APRIL 2017 - FINAL\140052-OVERAPP.DWG, 5/16/2017

RUNWAY 16 INNER APPROACH PLAN



MAGNETIC DECLINATION 11° 43' 48" EAST
RATE OF CHANGE 0° 6.6' WEST/YEAR
AS OF 4/14/2015
SOURCE: NOAA ONLINE CALCULATOR

0 100 200 400 600

SCALE: 1" = 200'

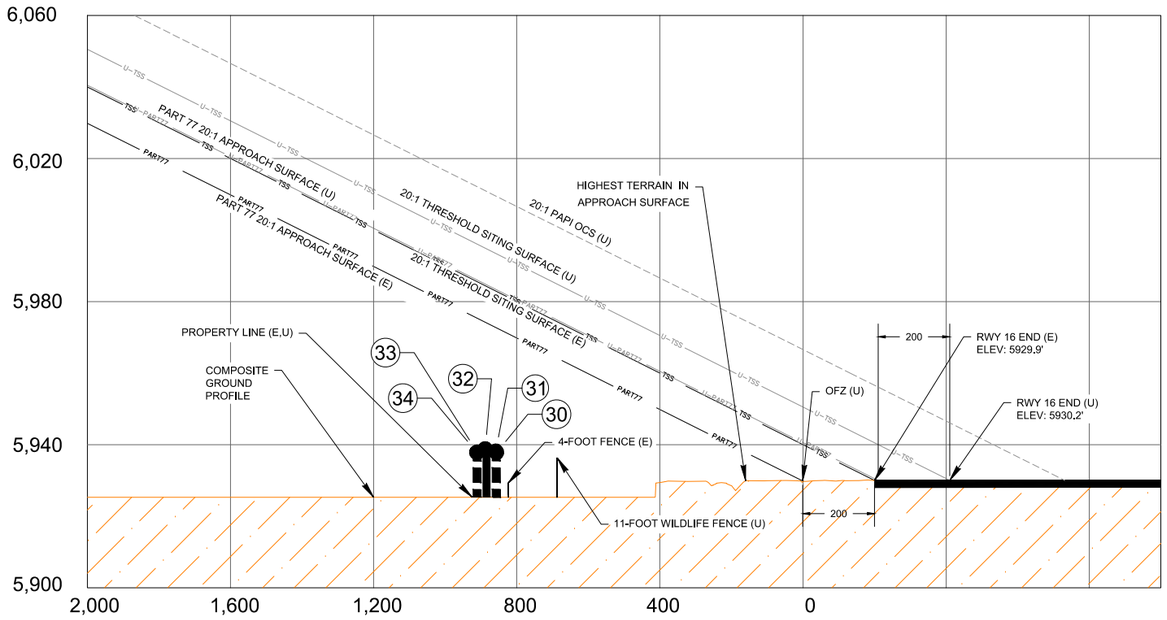
NOTES

1. TRAVERSEWAY ELEVATIONS INCLUDE THE TRAVERSEWAY ADJUSTMENT (15' FOR PUBLIC ROADS)

LEGEND		
EXISTING	FUTURE/ ULTIMATE	DESCRIPTION
		AIRPORT PAVEMENT
		AIRPORT PAVEMENT TO BE REMOVED
		PAVED SHOULDER
P/L	P/L	AIRPORT PROPERTY LINE
		ROADWAY
x	x	SECURITY FENCE
		AIRPORT REFERENCE POINT
		BUILDING
25' BRL	U-BRL 25'	BUILDING RESTRICTION LINE (BRL) AT 25' HIGH
RSA	RSA	RUNWAY SAFETY AREA (RSA)
OFA	U-OFA	RUNWAY OBJECT FREE AREA (OFA)
RPZ	F/U-RPZ	RUNWAY PROTECTION ZONE (RPZ)
OFZ	U-OFZ	RUNWAY OBJECT FREE ZONE (OFZ)
TSA	U-TSA	TAXIWAY SAFETY AREA (TSA)
TOFA	U-TOFA	TAXIWAY OBJECT FREE AREA (TOFA)
PART 77	F/U-PART77	CFR PART 77 APPROACH SURFACE
TSS	F/U-TSS	THRESHOLD SITING SURFACE - APPROACH
GQS	F/U-GQS	GLIDE PATH QUALIFICATION SURFACE
		RUNWAY END IDENTIFIER LIGHTS (REIL)
		RUNWAY LIGHTS
5930		TOPOGRAPHIC CONTOURS
OHP		OVERHEAD POWER LINE
		WETLAND LIMITS
		DITCH

RUNWAY 16 INNER APPROACH PROFILE

HORIZ. SCALE: 1" = 200'
VERT. SCALE: 1" = 20'



RWY 16 INNER APPROACH OBSTRUCTIONS										
ITEM NO.	DESCRIPTION	SURVEY TYPE (DATE)	GROUND ELEVATION	OBJECT ELEVATION / HEIGHT		SURFACE PENETRATED	SURFACE ELEVATION	PENETRATION	EXISTING/PROPOSED DISPOSITION	DATE OF MITIGATION
				ELEV. (MSL)	HEIGHT (AGL)					
30	PUBLIC ROAD	WAAS (2015)	5932.1	5,947.1	15.0	NONE	N/A	NONE	NONE	NONE
31	PUBLIC ROAD	WAAS (2015)	5,932.1	5,947.1	15.0	NONE	N/A	NONE	NONE	NONE
32	PUBLIC ROAD	WAAS (2015)	5,931.9	5,946.9	15.0	NONE	N/A	NONE	NONE	NONE
33	PUBLIC ROAD	WAAS (2015)	5,932.5	5,947.5	15.0	NONE	N/A	NONE	NONE	NONE
34	PUBLIC ROAD	WAAS (2015)	5,932.5	5,947.5	15.0	NONE	N/A	NONE	NONE	NONE

OBSTRUCTION LEGEND

PLAN VIEW	PROFILE VIEW
1 OBSTRUCTION NUMBER	2 OBSTRUCTION NUMBER
OBSTRUCTION LOCATION	OBSTRUCTING PART OF THE OBJECT
	NON-OBSTRUCTING PART OF THE OBJECT
	TRAVERSEWAY LOCATED ON SURFACE EDGE
	TRAVERSEWAY LOCATED ON RUNWAY EXTENDED CENTERLINE

REVISIONS

NO.	DATE

E-FILE NAME

DESIGNED

DRAWN MJV

CHECKED

APPROVED NSG

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
2471 S. TITANIUM PLACE
MERIDIAN, IDAHO 83642-6703
PHONE: (208) 323-2288 FAX: (208) 323-2399
OFFICES ALSO IN: COEUR d' ALENE, IDAHO
NAMPA, IDAHO
SPOKANE, WA

BEAR LAKE COUNTY AIRPORT
PARIS, IDAHO
AIRPORT LAYOUT PLAN SET
INNER APPROACH - RWY 16

DATE: MARCH 2017
PROJECT: 140052

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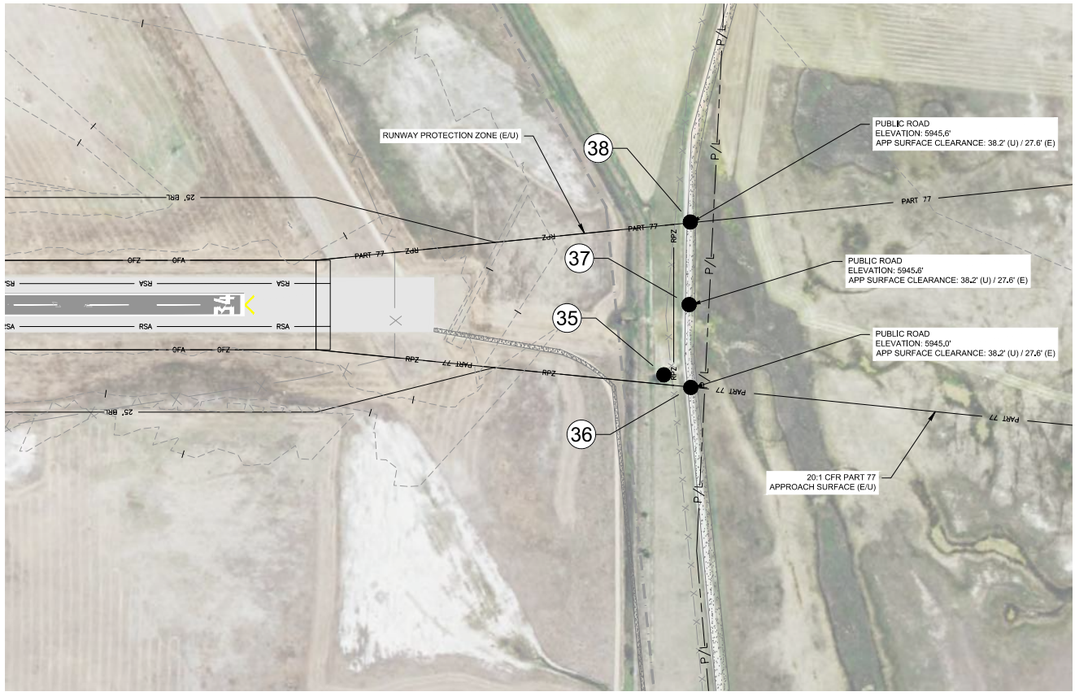
RUNWAY 34 INNER APPROACH PLAN



MAGNETIC DECLINATION 11° 43' 48" EAST
RATE OF CHANGE 0° 6.6' WEST/YEAR
AS OF 4/14/2015
SOURCE: NOAA ONLINE CALCULATOR

0 100 200 400 600

SCALE: 1" = 200'

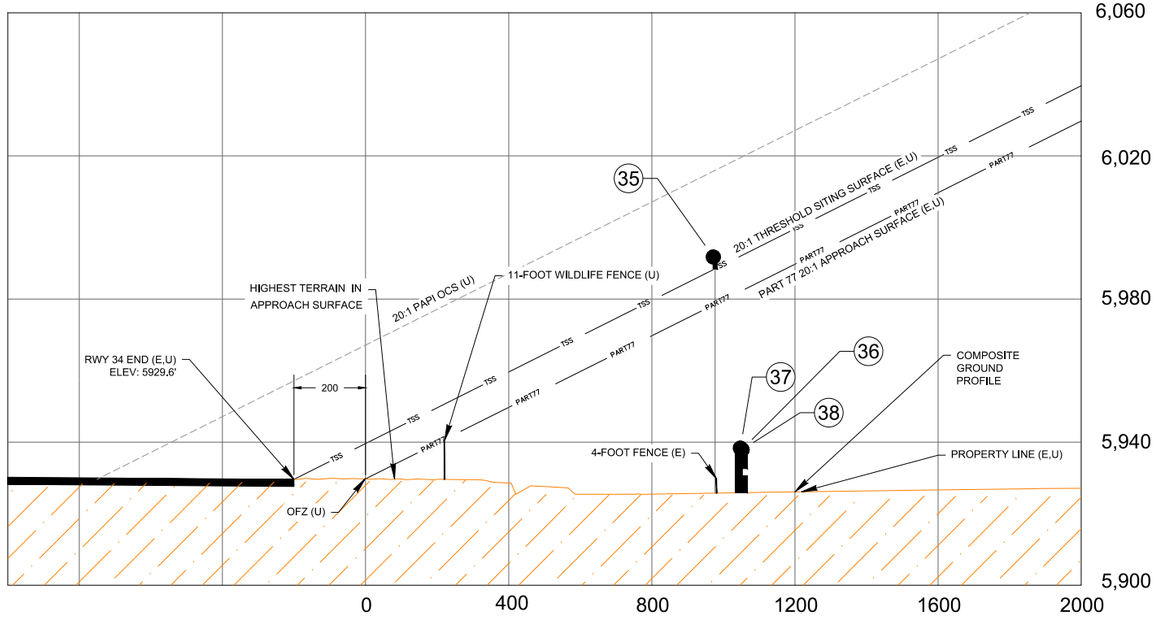
LEGEND		
EXISTING	FUTURE/ ULTIMATE	DESCRIPTION
		AIRPORT PAVEMENT
		AIRPORT PAVEMENT TO BE REMOVED
		PAVED SHOULDER
P/L	P/L	AIRPORT PROPERTY LINE
		ROADWAY
X	X	SECURITY FENCE
		AIRPORT REFERENCE POINT
		BUILDING
25' BRL	U-BRL 25'	BUILDING RESTRICTION LINE (BRL) AT 25' HIGH
RSA	RSA	RUNWAY SAFETY AREA (RSA)
OFA	U-OFA	RUNWAY OBJECT FREE AREA (OFA)
RPZ	F/U-RPZ	RUNWAY PROTECTION ZONE (RPZ)
OFZ	U-OFZ	RUNWAY OBJECT FREE ZONE (OFZ)
TSA	U-TSA	TAXIWAY SAFETY AREA (TSA)
TOFA	U-TOFA	TAXIWAY OBJECT FREE AREA (TOFA)
PART 77	F/U-PART77	CFR PART 77 APPROACH SURFACE
TSS	F/U-TSS	THRESHOLD SITING SURFACE + APPROACH
GQS	F/U-GQS	GLIDE PATH QUALIFICATION SURFACE
		RUNWAY END IDENTIFIER LIGHTS (REIL)
		RUNWAY LIGHTS
5930		TOPOGRAPHIC CONTOURS
OHP		OVERHEAD POWER LINE
		WETLAND LIMITS
		DITCH

NOTES

1. TRAVERSEWAY ELEVATIONS INCLUDE THE TRAVERSEWAY ADJUSTMENT (15' FOR PUBLIC ROADS)

RUNWAY 28 INNER APPROACH PROFILE

HORIZ. SCALE: 1" = 200'
VERT. SCALE: 1" = 20'



RWY 34 INNER APPROACH OBSTRUCTIONS

ITEM NO.	DESCRIPTION	SURVEY TYPE (DATE)	GROUND ELEVATION	OBJECT ELEVATION / HEIGHT		SURFACE PENETRATED	SURFACE ELEVATION	PENETRATION	EXISTING/PROPOSED DISPOSITION	DATE OF MITIGATION
				ELEV. (MSL)	HEIGHT (AGL)					
35	TREE	WAAS (2012)	5925.2	5,994.0	68.8	20:1 APPROACH (E/U) 20:1 TSS (E/U)	5,978.2' 5988'	15.8' 6'	REMOVAL	2020
36	PUBLIC ROAD	WAAS (2015)	5,930.0	5,945.0	15.0	NONE	N/A	NONE	NONE	NONE
37	PUBLIC ROAD	WAAS (2015)	5,930.6	5,945.6	15.0	NONE	N/A	NONE	NONE	NONE
38	PUBLIC ROAD	WAAS (2015)	5,930.6	5,945.6	15.0	NONE	N/A	NONE	NONE	NONE

OBSTRUCTION LEGEND

PLAN VIEW

① OBSTRUCTION NUMBER

OBSTRUCTION LOCATION

PROFILE VIEW

② OBSTRUCTION NUMBER

OBSTRUCTING PART OF THE OBJECT

NON-OBSTRUCTING PART OF THE OBJECT

TRAVERSEWAY LOCATED ON SURFACE EDGE

TRAVERSEWAY LOCATED ON RUNWAY EXTENDED CENTERLINE

REVISIONS

NO.	DATE

E-FILE NAME

DESIGNED

DRAWN MJV

CHECKED

APPROVED NSC

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
2471 S. TITANIUM PLACE
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PHONE: (208) 323-2288 FAX: (208) 323-2399
OFFICES ALSO IN: COEUR d' ALENE, IDAHO; NAMPA, IDAHO; SPOKANE, WA

BEAR LAKE COUNTY AIRPORT
PARIS, IDAHO
AIRPORT LAYOUT PLAN SET
INNER APPROACH - RWY 34

DATE: MARCH 2017
PROJECT: 140052

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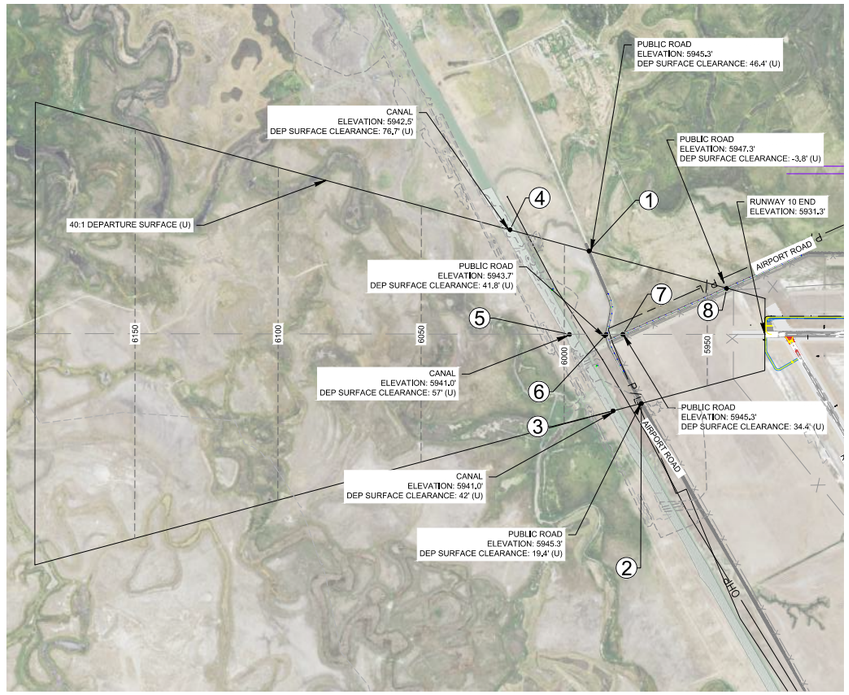
RUNWAY 10 DEPARTURE SURFACE



MAGNETIC DECLINATION 11° 43' 46" EAST
RATE OF CHANGE 0° 6.6' WEST/YEAR
AS OF 4/14/2015
SOURCE: NOAA ONLINE CALCULATOR

TRUE
MAGNETIC

0 500 1000 2000 3000

SCALE: 1" = 1000'

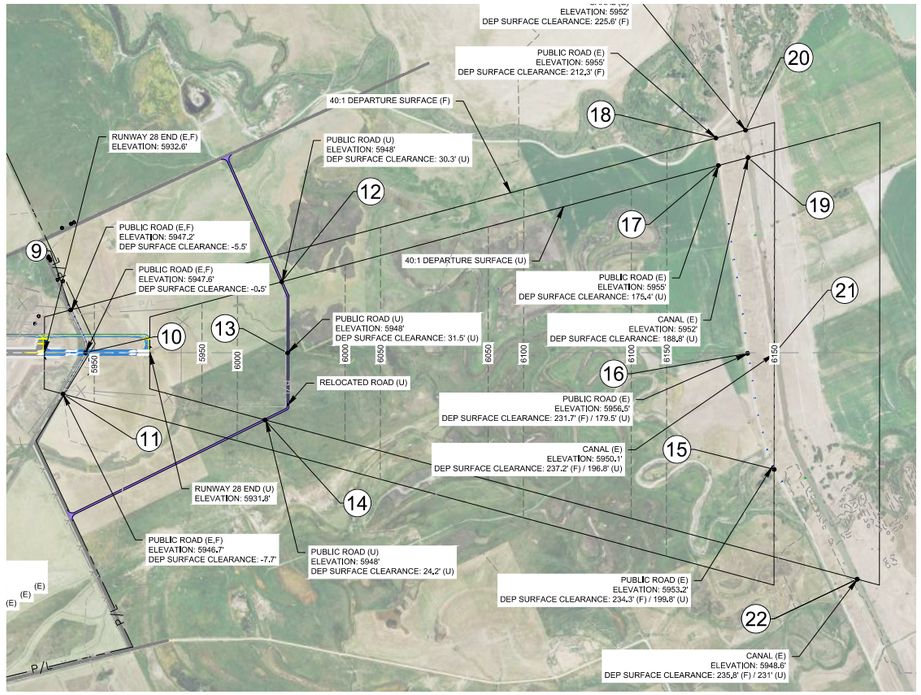
LEGEND

EXISTING	FUTURE/ ULTIMATE	DESCRIPTION
		AIRPORT PAVEMENT
		AIRPORT PAVEMENT TO BE REMOVED
P/L	P/L	AIRPORT PROPERTY LINE
		ROADWAY
X	X	SECURITY FENCE
		AIRPORT REFERENCE POINT
		BUILDING
25' BRL	U-BRL 25'	BUILDING RESTRICTION LINE (BRL) AT 25' HIGH
RSA	RSA	RUNWAY SAFETY AREA (RSA)
OFA	U-OFA	RUNWAY OBJECT FREE AREA (OFA)
RPZ	F/U-RPZ	RUNWAY PROTECTION ZONE (RPZ)
OFZ	U-OFZ	RUNWAY OBJECT FREE ZONE (OFZ)
TSA	U-TSA	TAXIWAY SAFETY AREA (TSA)
TOFA	U-TOFA	TAXIWAY OBJECT FREE AREA (TOFA)
PART 77	F/U-PART77	CFR PART 77 APPROACH SURFACE
TSS	F/U-TSS	THRESHOLD SITING SURFACE - APPROACH
GQS	F/U-GQS	GLIDE PATH QUALIFICATION SURFACE
		RUNWAY END IDENTIFIER LIGHTS (REIL)
		RUNWAY LIGHTS
5930		TOPOGRAPHIC CONTOURS
OHP		OVERHEAD POWER LINE
		WETLAND LIMITS
		DITCH

NOTES

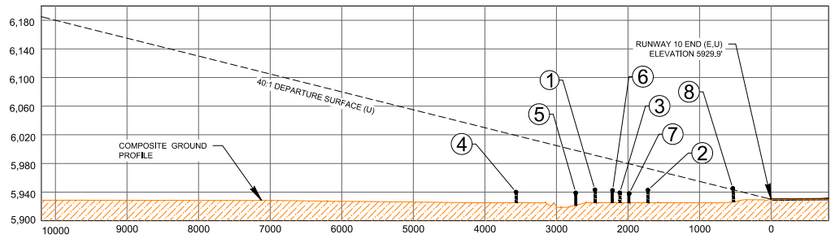
1. TRAVERSEWAY ELEVATIONS INCLUDE THE TRAVERSEWAY ADJUSTMENT (15' FOR PUBLIC ROADS AND CANAL)

RUNWAY 28 DEPARTURE SURFACE



RUNWAY 10 DEPARTURE SURFACE PROFILE

HORIZ. SCALE: 1" = 1000'
VERT. SCALE: 1" = 100'



OBSTRUCTION LEGEND

PLAN VIEW

① OBSTRUCTION NUMBER

OBSTRUCTION LOCATION

PROFILE VIEW

② OBSTRUCTION NUMBER

OBSTRUCTING PART OF THE OBJECT

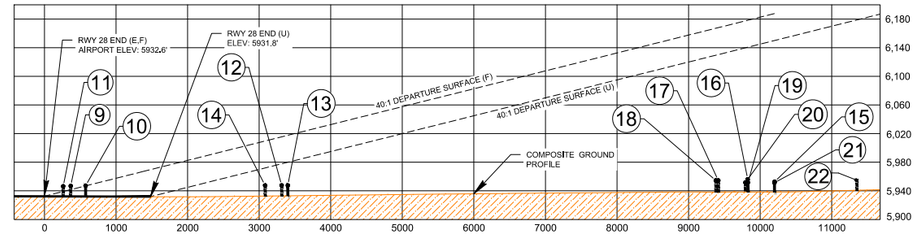
NON-OBSTRUCTING PART OF THE OBJECT

TRAVERSEWAY LOCATED ON SURFACE EDGE

TRAVERSEWAY LOCATED ON RUNWAY EXTENDED CENTERLINE

RUNWAY 28 DEPARTURE SURFACE PROFILE

HORIZ. SCALE: 1" = 1000'
VERT. SCALE: 1" = 100'



RWY 10 DEPARTURE OBSTRUCTIONS

ITEM NO.	DESCRIPTION	SURVEY TYPE (DATE)	GROUND ELEVATION	OBJECT ELEVATION / HEIGHT		SURFACE PENETRATED	SURFACE ELEVATION	PENETRATION	EXISTING/PROPOSED DISPOSITION	DATE OF MITIGATION
				ELEV. (MSL)	HEIGHT (AGL)					
1	PUBLIC ROAD	WAAS (2012)	5,930.3	5,945.3	15.0	NONE	N/A	NONE	NONE	NONE
2	PUBLIC ROAD	WAAS (2015)	5,930.3	5,945.3	15.0	NONE	N/A	NONE	NONE	NONE
3	CANAL	WAAS (2015)	5,926.0	5,941.0	15.0	NONE	N/A	NONE	NONE	NONE
4	CANAL	WAAS (2015)	5,927.5	5,942.5	15.0	NONE	N/A	NONE	NONE	NONE
5	CANAL	WAAS (2015)	5,926.0	5,941.0	15.0	NONE	N/A	NONE	NONE	NONE
6	PUBLIC ROAD	WAAS (2015)	5,928.7	5,943.7	15.0	NONE	N/A	NONE	NONE	NONE
7	PUBLIC ROAD	WAAS (2015)	5,930.3	5,945.3	15.0	NONE	N/A	NONE	NONE	NONE
8	PUBLIC ROAD	WAAS (2015)	5,932.3	5,947.3	15.0	40:1 DEPARTURE SURFACE	5943.5	3.8		

RWY 28 DEPARTURE OBSTRUCTIONS

ITEM NO.	DESCRIPTION	SURVEY TYPE (DATE)	GROUND ELEVATION	OBJECT ELEVATION / HEIGHT		SURFACE PENETRATED	SURFACE ELEVATION	PENETRATION	EXISTING/PROPOSED DISPOSITION	DATE OF MITIGATION
				ELEV. (MSL)	HEIGHT (AGL)					
9	PUBLIC ROAD	WAAS (2015)	5,932.2	5,947.2	15.0	40:1 DEPARTURE SURFACE	5,941.7	5.5	CLOSE/RELOCATE	2020/2035
10	PUBLIC ROAD	WAAS (2015)	5,932.6	5,947.6	15.0	40:1 DEPARTURE SURFACE	5,947.1	0.5	CLOSE/RELOCATE	2020/2035
11	PUBLIC ROAD	WAAS (2015)	5,931.7	5,946.7	15.0	40:1 DEPARTURE SURFACE	5,939.0	7.7	CLOSE/RELOCATE	2020/2035
12	PUBLIC ROAD	WAAS (2015)	5,933.0	5,948.0	15.0	NONE	N/A	NONE	NONE	NONE
13	PUBLIC ROAD	WAAS (2015)	5,933.0	5,948.0	15.0	NONE	N/A	NONE	NONE	NONE
14	PUBLIC ROAD	WAAS (2015)	5,933.0	5,948.0	15.0	NONE	N/A	NONE	NONE	NONE
15	PUBLIC ROAD	WAAS (2015)	5,938.2	5,953.2	15.0	NONE	N/A	NONE	NONE	NONE
16	PUBLIC ROAD	WAAS (2015)	5,941.5	5,956.5	15.0	NONE	N/A	NONE	NONE	NONE
17	PUBLIC ROAD	WAAS (2015)	5,940.0	5,955.0	15.0	NONE	N/A	NONE	NONE	NONE
18	PUBLIC ROAD	WAAS (2015)	5,940.0	5,955.0	15.0	NONE	N/A	NONE	NONE	NONE
19	CANAL	WAAS (2015)	5,937.0	5,952.0	15.0	NONE	N/A	NONE	NONE	NONE
20	CANAL	WAAS (2015)	5,937.0	5,952.0	15.0	NONE	N/A	NONE	NONE	NONE
21	CANAL	WAAS (2015)	5,935.1	5,950.1	15.0	NONE	N/A	NONE	NONE	NONE
22	CANAL	WAAS (2015)	5,933.6	5,948.6	15.0	NONE	N/A	NONE	NONE	NONE

REVISIONS

NO.	##
DATE	AUGUST 2016
DESIGNED	
DRAWN	MJV
CHECKED	
APPROVED	
E-FILE NAME	NSC

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
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LEWISTON, IDAHO
SPOKANE, WA

BEAR LAKE COUNTY AIRPORT
PARIS, IDAHO
AIRPORT LAYOUT PLAN SET
DEPARTURE SURFACE

DATE: MARCH 2017
PROJECT: 140052

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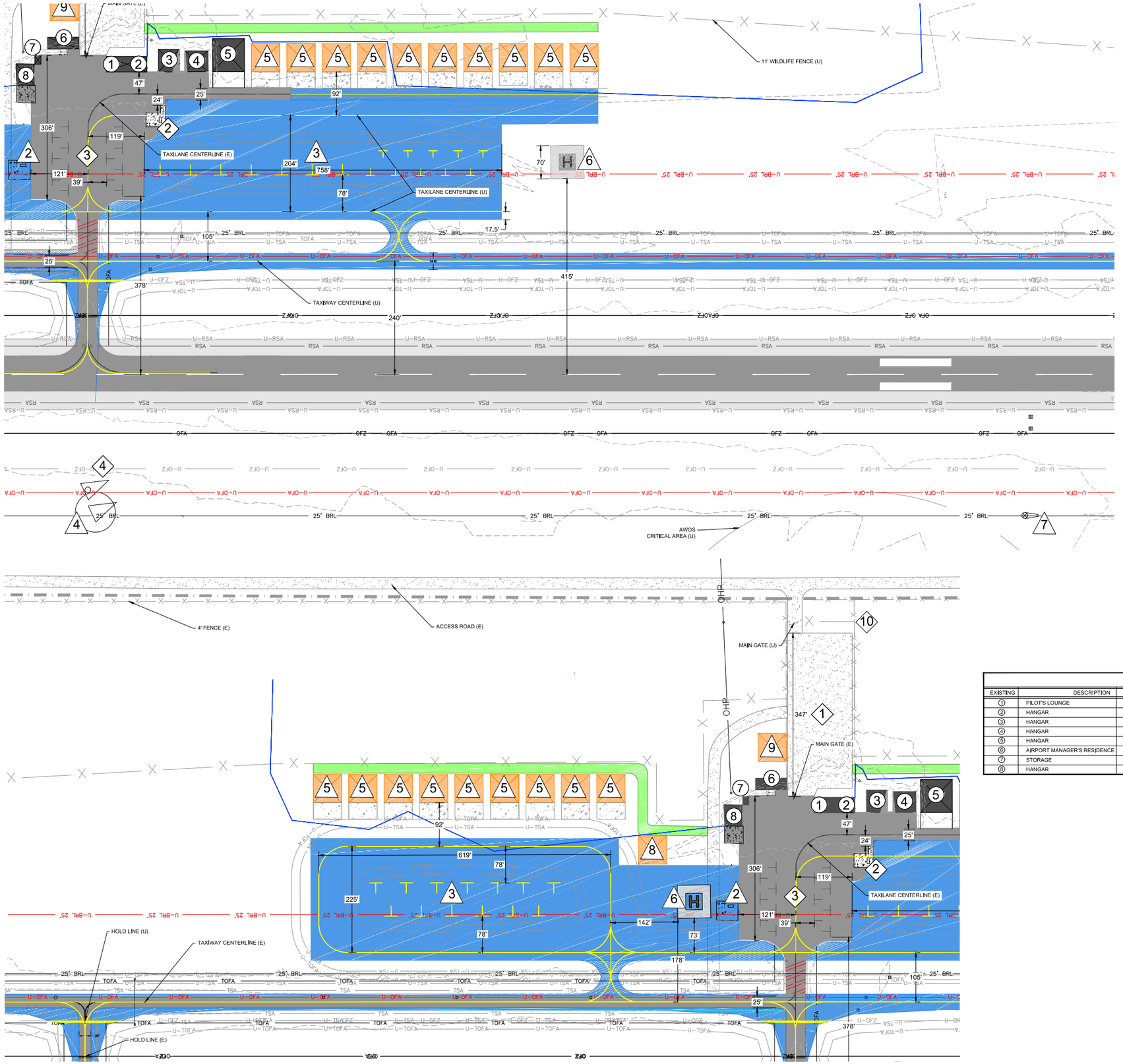

TRUE

MAGNETIC

MAGNETIC DECLINATION 11° 43' 48" EAST
RATE OF CHANGE 0° 6.6' WEST/YEAR
AS OF 4/14/2015
SOURCE: NOAA ONLINE CALCULATOR

0 50 100 200 300

SCALE: 1" = 100'

LEGEND

EXISTING	FUTURE/ ULTIMATE	DESCRIPTION
		AIRPORT PAVEMENT
		AIRPORT PAVEMENT TO BE REMOVED
		PAVED SHOULDER
P/L	P/L	AIRPORT PROPERTY LINE
		ROADWAY
X	X	SECURITY FENCE
		AIRPORT REFERENCE POINT
		BUILDING
25' BRL	U-BRL 25'	BUILDING RESTRICTION LINE (BRL) AT 25' HIGH
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PART 77	F/U-PART77	CFR PART 77 APPROACH SURFACE
TSS	F/U-TSS	THRESHOLD SITING SURFACE - APPROACH
GQS	F/U-GQS	GLIDE PATH QUALIFICATION SURFACE
		RUNWAY END IDENTIFIER LIGHTS (REIL)
		RUNWAY LIGHTS
5930		TOPOGRAPHIC CONTOURS
OHP		OVERHEAD POWER LINE
		WETLAND LIMITS
		DRAINAGE
		DITCH

EXISTING AND FUTURE FACILITIES

EXISTING	FUTURE	DESCRIPTION
1		AUTOMOBILE PARKING
2	2	FUEL FACILITIES
3	3	AIRCRAFT TIEDOWN RAMP
4	4	WIND CONE AND SEGMENTED CIRCLE
	5	60' x 60' HANGAR
	6	HELIPAD
	7	ADDITIONAL WIND CONE
	8	FBO
	9	SNOW REMOVAL EQUIPMENT BUILDING
10		ROTATING BEACON

NOTE: ALL NEW BUILDINGS WILL BE BUILT NOT TO BE OBSTRUCTIONS TO AIR NAVIGATION, BUILDING TOP ELEVATIONS WILL BE LIMITED BY THE APPROPRIATE PART 77 IMAGINARY SURFACE.

EXISTING BUILDINGS

EXISTING	DESCRIPTION	OWNER	TOP ELEVATION	OBSTRUCTION	RECOMMENDED ACTION	DATE OF ACTION
1	PILOT'S LOUNGE	BEAR LAKE COUNTY	5,950.4'	NO	NONE	NONE
2	HANGAR	BEAR LAKE COUNTY	5,950.4'	NO	NONE	NONE
3	HANGAR	JOHN TAYLOR	5,950.9'	NO	NONE	NONE
4	HANGAR	DAN KUREK	5,950.6'	NO	NONE	NONE
5	HANGAR	SCOTT NAEGLE	5,945.3'	NO	NONE	NONE
6	AIRPORT MANAGER'S RESIDENCE	BEAR LAKE COUNTY	5,939.5'	NO	NONE	NONE
7	STORAGE	BEAR LAKE COUNTY	5,950.8'	NO	NONE	NONE
8	HANGAR	BEAR LAKE COUNTY	5951.7'	NO	NONE	NONE

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E-FILE NAME
DESIGNED
DRAWN MJV
CHECKED
APPROVED NSC

REVISIONS
NO. | ITEM | DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
2471 S. TITANIUM PLACE
MERIDIAN, IDAHO 83642-6703
PHONE: (208) 323-2288 FAX: (208) 323-2399
OFFICES ALSO IN: COEUR d' ALENE, IDAHO
NAMPA, IDAHO

BEAR LAKE COUNTY AIRPORT
PARIS, IDAHO
AIRPORT LAYOUT PLAN SET
TERMINAL AREA PLAN

DATE: MARCH 2017
PROJECT: 140052

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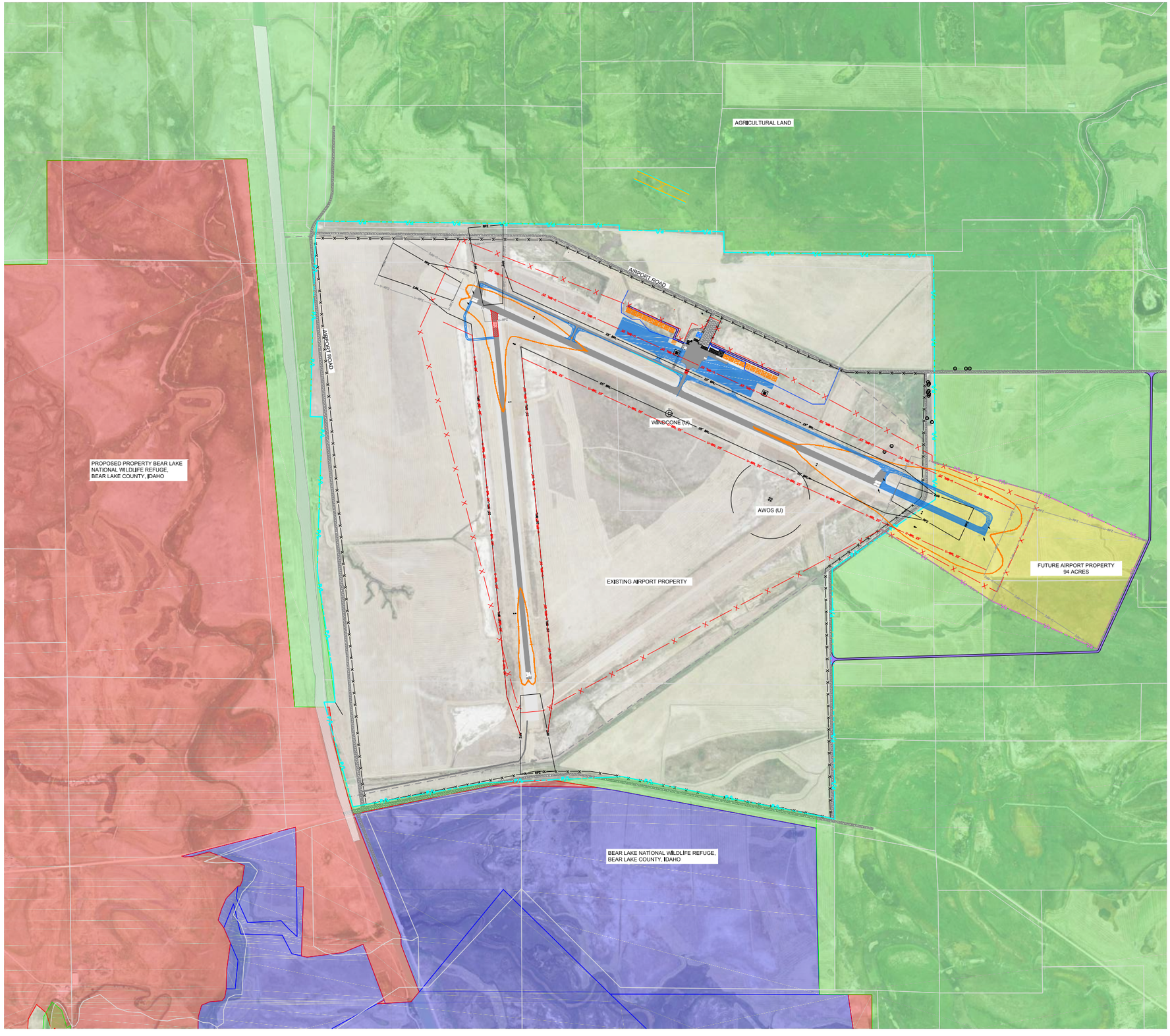

MAGNETIC DECLINATION 11° 43' 48" EAST
RATE OF CHANGE 0° 6.6' WEST/YEAR
AS OF 4/14/2015
SOURCE: NOAA ONLINE CALCULATOR

TRUE NORTH
MAGNETIC

0 300 600 1200 1800

SCALE: 1" = 600'

LEGEND		
EXISTING	FUTURE/ ULTIMATE	DESCRIPTION
		AIRPORT PAVEMENT
		AIRPORT PAVEMENT TO BE REMOVED
P/L	P/L	AIRPORT PROPERTY LINE
		ROADWAY
X X X	X X X	SECURITY FENCE
		BUILDING
25' BRL	U-BRL 25'	BUILDING RESTRICTION LINE (BRL) AT 20' HIGH
RPZ	FU-RPZ	RUNWAY PROTECTION ZONE (RPZ)
		RUNWAY END IDENTIFIER LIGHTS (REIL)
		RUNWAY LIGHTS
5930		TOPOGRAPHIC CONTOURS
		WETLAND LIMITS
		65 DNL NOISE CONTOUR
		DITCH

LAND USE LEGEND	
	AIRPORT PROPERTY [LIGHT INDUSTRY AND MANUFACTURING]
	FUTURE AERONAUTICAL
	AGRICULTURAL
	BEAR LAKE NATIONAL WILDLIFE REFUGE (ACQUIRED LAND)
	U.S. FISH & WILDLIFE SERVICE HAS AUTHORITY TO ACQUIRE[1]

[1] FURTHER EXTENSION OF THE WILDLIFE REFUGE IN CLOSE PROXIMITY TO THE AIRPORT IS NOT RECOMMENDED. THIS EXTENSION PRESENTS SIGNIFICANT HAZARDS TO THE USERS OF THE AIRPORT AND TO PEOPLE ON THE GROUND. THE FUTURE BOUNDARY OF THE REFUGE LIES DIRECTLY UNDER THE FLIGHT PATHS OF AIRCRAFT, WHERE POTENTIALLY NEGATIVE IMPACTS OF THE AIRPORT, SUCH AS NOISE, DUST, OR FUME, ARE MORE IMPORTANT.

FAA RECOMMENDS AT LEAST 5,000 FEET BETWEEN THE AIRPORT AND ANY WILDLIFE ATTRACTANTS.

BEAR LAKE COUNTY SHOULD COORDINATE WITH THE U.S FISH AND WILDLIFE SERVICE AND ADVISE AGAINST THE EXTENSION OF THE REFUGE TO THE NORTH.

NOTES:

1. THERE ARE LIMITED ORDINANCES IN PLACE IN BEAR LAKE COUNTY TO ZONE LAND AND LIMIT HEIGHT OF STRUCTURES. THE CURRENT ORDINANCES DO NOT EFFECTIVELY REFERENCE AND ADDRESS CFR PART 77, AIRSPACE PROTECTION AND COMPATIBLE LAND USE PLANNING, IN THE VICINITY OF THE AIRPORT. RECOMMENDATIONS HAVE BEEN MADE IN THE NARRATIVE REPORT TO IMPROVE ZONING.

2. ALL HAYING ACTIVITIES OCCUR OUT OF THE RUNWAY SAFETY AREA. THERE IS NO WILDLIFE ATTRACTANT (INCLUDING CROPS) ON AIRPORT PROPERTY.

E-FILE NAME:
DESIGNED:
DRAWN: MJV
CHECKED:
APPROVED: NSC

REVISIONS

NO.	ITEM	DATE

T-O ENGINEERS
CONSULTING ENGINEERS, SURVEYORS & PLANNERS
2471 S. TITANIUM PLACE
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BEAR LAKE COUNTY AIRPORT
PARIS, IDAHO
AIRPORT LAYOUT PLAN SET
LAND USE DRAWING

DATE: MARCH 2017
PROJECT: 140052

SHEET 11 OF 12

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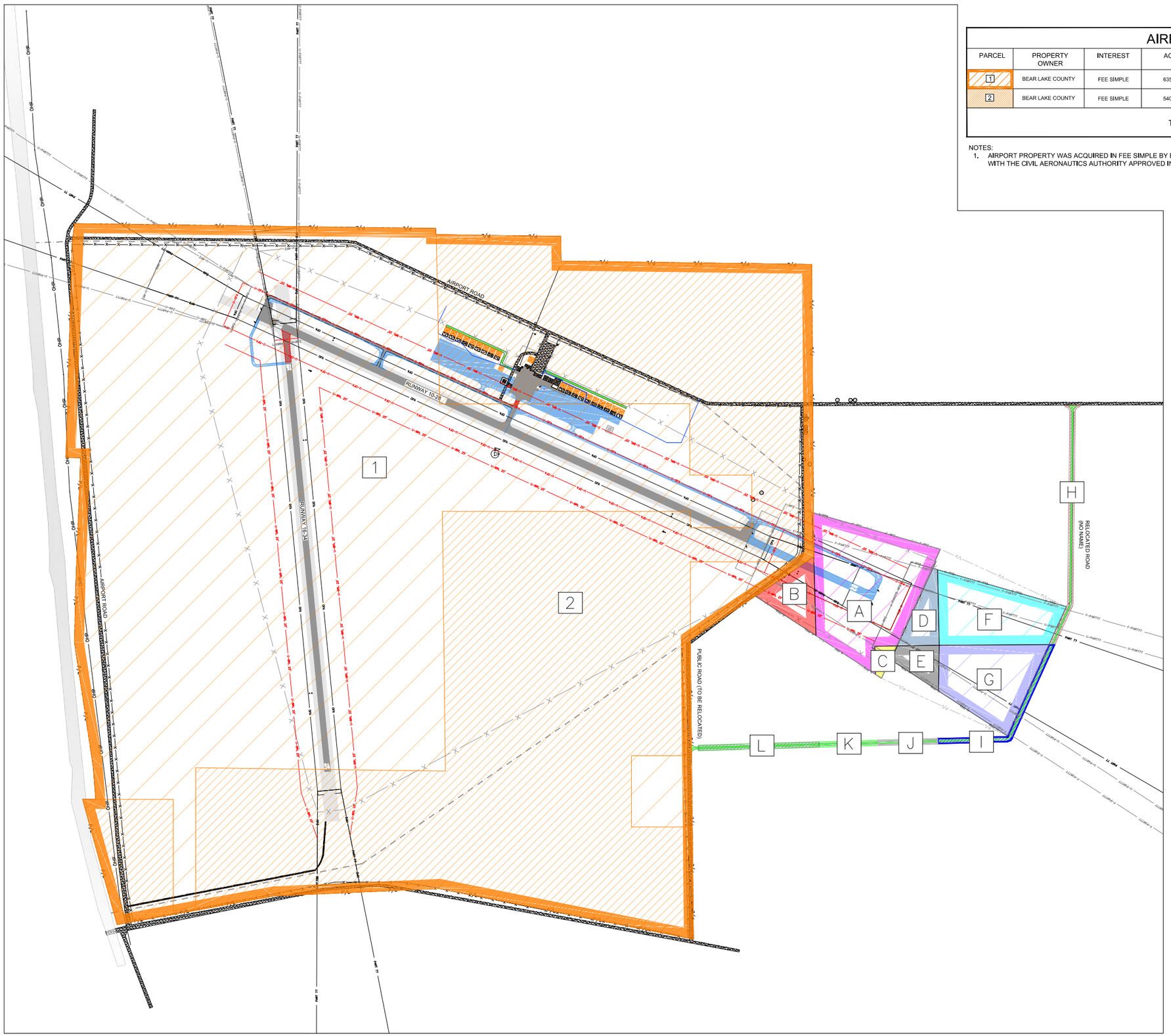

AIRPORT PROPERTY DATA

PARCEL	PROPERTY OWNER	INTEREST	AC	PREVIOUS OWNER	FEDERAL AGREEMENT	DATE	PURPOSE
1	BEAR LAKE COUNTY	FEE SIMPLE	635.7	UNKOWN SEE CASE #3474 DECREE QUIETING TITLE	SEE NOTE 1	7/3/1958	AERONAUTICAL DEVELOPMENT
2	BEAR LAKE COUNTY	FEE SIMPLE	540.6	J.R. PUGMIRE	SEE NOTE 1	6/6/1942	AERONAUTICAL DEVELOPMENT
TOTAL ACREAGE = 1176.3 ACRES							

NOTES:
1. AIRPORT PROPERTY WAS ACQUIRED IN FEE SIMPLE BY BEAR LAKE COUNTY. THE AIRPORT HAS CONSTRUCTED UNDER AGREEMENT 5-904-10-11 WITH THE CIVIL AERONAUTICS AUTHORITY APPROVED IN JUNE OF 1942.

PROPOSED PROPERTY ACQUISITION DATA

PARCEL	PROPERTY OWNER	INTEREST	ACRES	PURPOSE
A	WYNN C WALLENTINE	FEE	33.7	AIRSPACE/RPZ PROTECTION (F) AERONAUTICAL DEVELOPMENT (U)
B	NATE-DINGLE RANCH, LLC	FEE	6.1	AIRSPACE/RPZ PROTECTION (F) AERONAUTICAL DEVELOPMENT (U)
C	P THOMAS BLOTTER FARM PART	FEE	1.2	AIRSPACE/RPZ PROTECTION
D	WYNN C WALLENTINE	FEE/AVIGATION EASMENT	4.7	AIRSPACE/RPZ PROTECTION
E	P THOMAS BLOTTER FARM PART	FEE/AVIGATION EASMENT	3.6	AIRSPACE/RPZ PROTECTION
F	JEFFREY T KEETCH	FEE/AVIGATION EASMENT	18	AIRSPACE/RPZ PROTECTION
G	P THOMAS BLOTTER FARM PART	FEE/AVIGATION EASMENT	17.1	AIRSPACE/RPZ PROTECTION
H	JEFFREY T KEETCH	FEE/EASMENT	3.6	ROAD RELOCATION
I	P THOMAS BLOTTER FARM PART	FEE/EASMENT	2.6	ROAD RELOCATION
J	P THOMAS BLOTTER FARM PART	FEE/EASMENT	0.9	ROAD RELOCATION
K	P THOMAS BLOTTER FARM PART	FEE/EASMENT	0.9	ROAD RELOCATION
L	NATE-DINGLE RANCH, LLC	FEE/EASMENT	1.8	ROAD RELOCATION
TOTAL = 94.2 ACRES				

LEGEND

EXISTING	FUTURE/ ULTIMATE	DESCRIPTION
		AIRPORT PAVEMENT
		AIRPORT PAVEMENT TO BE REMOVED
P/L	P/L	AIRPORT PROPERTY LINE
		ROADWAY
X X X	X X X	SECURITY FENCE
		BUILDING
25' BRL	U-BRL 25'	BUILDING RESTRICTION LINE (BRL) AT 25' HIGH
OFA	U-OFA	RUNWAY OBJECT FREE AREA (OFA)
RPZ	F/U-RPZ	RUNWAY PROTECTION ZONE (RPZ)
PART 77	F/U-PART77	CFR PART 77 APPROACH SURFACE
		RUNWAY END IDENTIFIER LIGHTS (REIL)
		RUNWAY LIGHTS
		WETLAND LIMITS
OHP		OVER HEAD POWERLINE
		DITCH

MAGNETIC DECLINATION 11° 45' 48" EAST
RATE OF CHANGE 0° 6.6' WEST/YEAR
AS OF 4/14/2015
SOURCE: NOAA ONLINE CALCULATOR

TRUE
MAGNETIC

0 250 500 1000 1500
SCALE: 1" = 500'

E-FILE NAME
DESIGNED
DRAWN
CHECKED MJV
APPROVED NSC

REVISIONS
NO. ITEM DATE

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BEAR LAKE COUNTY AIRPORT
PARIS, IDAHO
AIRPORT LAYOUT SET
AIRPORT PROPERTY MAP

DATE: MARCH 2017
PROJECT: 140052

SHEET 12 OF 12

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APPENDIX A: GLOSSARY OF AVIATION TERMS

Abandoned runway: A runway permanently closed to all aircraft operations, which may be marked in accordance with current FAA standards for marking and lighting of deceptive, closed and hazardous areas on airports.

Access taxiway: A taxiway that provides access to a particular location or area.

Active aircraft: Aircraft registered with the FAA and reported or estimated to have been flown at least one hour during the preceding year.

Active runway: The runway at an airport that is being used for landing, taxiing or takeoff operations.

Actual runway length: The length of a full-width usable runway from end to end of full strength pavement where those runways are paved.

Advisory Circular (AC): A series of external FAA publications consisting of all non-regulatory material of a policy, guidance and informational nature.

AGL: Above Ground Level

Aircraft: A device that is used or intended to be used for flight in the air (FAR Part 1).

Aircraft approach category: A grouping of aircraft based on 1.3 times their stall speed in their landing configuration at their maximum certificated landing weight. The categories are as follows:

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

Aircraft mix: The type of aircraft which are to be accommodated at the airport.

Aircraft operations: The airborne movement (landing or take-off) of aircraft in controlled or uncontrolled airport terminal areas and about given en route fixes or at other points where counts can be made. There are two types of operations - local and itinerant.

Local operations are performed by aircraft which: Operate in the local traffic pattern or within sight of the airport (if: training). Are known to be departing for or arriving from flight in local

practice area within a 20-mile radius of the airport. Execute simulated instrument approaches or low passes at the airport.

Itinerant operations are all aircraft operations other than local operations.

Aircraft tiedowns: Positions on the ground surface that are available for securing aircraft.

Airplane Design Group (ADG): A grouping of planes based on their wingspan. The groups are as follows:

Group I: Up to but not including 49 feet.
Group II: 49 feet up to but not including 79 feet.
Group III: 79 feet up to but not including 118 feet.
Group IV: 118 feet up to but not including 171 feet.
Group V: 171 feet up to but not including 214 feet.
Group VI:214 feet up to but not including 262 feet.

Airport: An area of land or water that is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any.

Airport beacon: A visual navigation aid displaying alternating white and green Rashes to indicate a lighted airport or white flashes only for an unlighted airport.

Airport elevation: The highest point of an airport's usable runways measured in feet above mean sea level.

Airport imaginary surfaces: Imaginary surfaces established at an airport for obstruction determination purposes and consisting of primary, approach/departure, horizontal, vertical, conical, and transitional surfaces.

Airport Improvement Program (AIP): The Airport Improvement Program of the Airport and Airways Improvement Act of 1982 as amended by the Airport and Airway Safety and Capacity Expansion Act of 1987. Under this program, the FAA provides funding assistance for the planning, design and development of airports and airport facilities.

Airport Layout Plan (ALP): A graphic presentation, to scale, of existing and proposed airport facilities, their location on the airport, and the pertinent clearance and dimensional information required to show conformance with applicable standards. To be eligible for AIP funding assistance, an airport must have an FAA approved airport layout plan.

Airport Master Plan: Presents the planner's conception of the ultimate development of a specific airport. It presents the research and logic from which the plan was evolved and displays the plan in a graphic and written report.

Airport Reference Code (ARC): The ARC combines two separate factors of aircraft design (aircraft approach category and wingspan) into one code. The first designator, represented by letters A through E, is the "aircraft approach category" and relates to an aircraft's speed as it approaches an airport for landing. The second designator, represented by Roman numerals I through VI, is the airplane "design group", and relates to an aircraft's wingspan.

Airport Reference Point (ARP): The latitude and longitude of the approximate center of the airport.

Airport sponsor: A public agency or tax-supported organization such as an airport authority, that is authorized to own and operate the airport, to obtain property interests, to obtain funds, and to be legally, financially, and otherwise able to meet all applicable requirements of current laws and regulations.

Airspace: Space in the air above the surface of the earth or a particular portion of such space, usually defined by the boundaries of an area on the surface projected upward.

Approach and runway protection zone layout: A graphic presentation to scale of the imaginary surfaces defined in FAR Part 77.

Approach area: The defined area the dimensions of which are measured horizontally beyond the threshold over which the landing and takeoff operations are made.

Approach slope ratio: The ration of horizontal to vertical distance indicating the degree of inclination of the approach surface.

Approach surface: An imaginary surface longitudinally centered on the extended centerline of the runway, beginning at the end of the primary surface and rising outward and upward to a specified height above the established airport elevation.

Apron: A defined area, on a land airport, intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance.

Automated Weather Observation System (AWOS):
This equipment automatically gathers weather data from various locations on an airport and transmits the information directly to pilots by means of computer generated voice messages over a discrete frequency.

Avigation easement: A land use easement permitting the unlimited operation of aircraft in the airspace above the land area involved.

Based aircraft: The total number of active general aviation aircraft which use or may be expected to use an airport as a "home base."

Building area: An area on an airport to be used, considered, or intended to be used, for airport buildings or other airport facilities or rights-of-way, together with all airport buildings and facilities located thereon.

Building restriction line (BRL): A line shown on the airport layout plan beyond which airport buildings must not be positioned in order to limit their proximity to aircraft movement areas.

Commercial service: Commercial service airports are public use airports which receive scheduled passenger service aircraft, and which annually enplane 2,500 or more passengers.

Conical surface: A surface extending from the periphery of the horizontal surface outward and upward at a slope of 20 to 1 for the horizontal distances and the elevations above the airport elevation as prescribed by FAR Part 77.

Controlled airspace: Airspace in which some or all aircraft may be subject to air traffic control to promote safe and expeditious flow of air traffic.

Crosswind: A wind blowing across the line of flight of an aircraft.

Crosswind component: A wind component that is at a right angle to the longitudinal axis of the runway or the flight path of the aircraft.

Crosswind runway: A runway additional to the primary runway to provide for wind coverage not adequately provided by the primary runway.

Downwind leg: A flight path in the traffic pattern parallel to the landing runway in the direction opposite to landing. It extends to the intersection of the base leg.

Executive aircraft operator: A corporation, company, or individual which operates owned or leased aircraft, flown by pilot(s) whose primary duties involve pilotage of aircraft, as a means of transportation or personnel or cargo in the conduct of company business.

Exit taxiway: A taxiway used as an exit from a runway to the apron or other aircraft operating area.

FAR Part 77: Contains obstruction requirements at or near airports.

Federal Aviation Administration (FAA): Created by the act that established the Department of Transportation. Assumed all of the responsibilities of the former Federal Aviation Agency.

Fixed base operator (FBO): An individual or company located at an airport, and providing commercial general aviation services.

Flight plan: Specified information relating to the intended flight of an aircraft, which is filed orally or in writing with air traffic control.

Fuel flowage fees: Fees levied by the airport operator per gallon of aviation gasoline and jet fuel sold at the airport.

General aviation: That portion of civil aviation which encompasses all facets of aviation except air carriers holding a certificate of convenience and necessity from the Civil Aeronautics Board, and large aircraft commercial operators.

General aviation airports: Those airports with fewer than 2,500 annual enplaned passengers and those used exclusively by private and business aircraft not providing common-carrier passenger service.

General aviation itinerant operations: Takeoffs and landings of civil aircraft (exclusive of air carrier) operating on other than local fights.

Hangar: A building used to store one or more aircraft, and/or conduct aircraft maintenance.

Horizontal surface: A specified portion of a horizontal plane located 150 feet above the established airport elevation which establishes the height above which an object is determined to be an obstruction to air navigation.

IFR airport: An airport with an authorized instrument approach procedure.

IFR conditions: Weather conditions below the minimum for flight under visual fight rules.

ILS Category I: An ILS which provides acceptable guidance information from the coverage limits of the ILS to the point at which the localizer course line intersects the glide path at a height of 100 feet above the horizontal plane containing the runway threshold. A Category I ILS supports landing minima as low as 200 ft. HAT and 1800 ft. RVR.

Instrument approach: An approach to an airport, with intent to land, by an aircraft flying in accordance with an IFR flight plan, when the visibility is less than 3 miles and/or when the ceiling is at or below the minimum initial altitude.

Instrument approach runway: A runway served by an electronic aid providing at least directional guidance adequate for a straight-in approach.

Instrument Flight Rules (IFR): Rules governing the procedures for conducting instrument flight. Pilots are required to follow these rules when operating in controlled airspace with a visibility of less than three miles and/or a ceiling lower than 1,000 feet.

Instrument Landing System (ILS): A system which provides in the aircraft, the lateral, longitudinal, and vertical guidance necessary for a landing.

Itinerant operations: All aircraft arrivals and departures other than local operations.

Jet noise: The noise generated externally to a jet engine in the turbulent jet exhaust.

Landing gear: That part of an aircraft which is required for landing. Gear may be configured as Single Wheel Gear (SWG), Dual Wheel Gear (DWG), or Dual Tandem Wheel Gear (DTWG).

Landing roll: The distance from the point of touchdown to the point where the aircraft can be brought to a stop, or exit the runway.

Landside operations: Those parts of the airport designed to serve passengers including the terminal buildings, vehicular circular drive, and parking facilities.

Land use plan: Shows on-airport land uses as developed by the airport sponsor under the master plan effort and off-airport land uses as developed by surrounding communities.

Large aircraft: Aircraft of more than 12,500 pounds maximum certificated takeoff weight.

Ldn: A quantity indicating a day-night noise exposure level calculated using the Ldn noise-forecasting methodology. This quantity can be used to predict community response to projected levels of aircraft activity.

Local traffic: Aircraft operating in the local traffic pattern or within sight of the tower, or aircraft known to be departing for or arriving from flight in local practice areas, or aircraft executing simulated instrument approaches at the airport.

Location map: Shown on the airport layout plan drawing, it depicts the airport, cities, railroads, major highways, and roads within 20 to 50 miles of the airport.

Marking: On airports, a pattern of contrasting colors placed on the pavement, turf, or other usable surface by paint or other means to provide specific information to aircraft pilots and sometimes to operators of ground vehicles, on the movement areas.

Minimums: Minimum altitude a pilot can descend to when conducting an instrument approach. Also refers to the minimum visibility a pilot must have to initiate an instrument approach.

MIRL: Medium Intensity Runway Lighting.

Multi-engine aircraft: Reciprocating, turbo-prop or jet powered fixed wing aircraft having more than one engine.

Municipally operated airport: An airport owned by a city and run as a department of the city, with policy direction by the city council and, in some cases, by a separate airport commission or advisory board.

National Plan of Integrated Airport Systems (NPIAS): A plan prepared by the FAA which identifies, for the Congress and the public, the composition of a national system of airports together with the airport development necessary to anticipate and meet the present and future needs of civil aeronautics, to meet requirements in support of the national defense, and to meet the special needs of the postal service. The plan includes both new facilities and qualitative improvements to existing airports to increase their capacity, safety, technological capability, etc.

NAVAID: Any facility used as, available for use as, or designed for use as an aid to air navigation, including landing areas, lights, any apparatus or equipment for disseminating weather information, for signaling, for radio direction-finding, or for radio 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.

Navigable airspace: Airspace at and above the minimum flight altitudes prescribed in the FARs, including airspace needed for safe takeoff and landing.

Non-precision instrument runway: A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance for which straight-in non-precision instrument approach procedure has been approved.

Non-precision approach procedure: A standard instrument approach procedure in which no electronic glide slope is provided.

Non-precision instrument approach aid: An electronic aid designed to provide an approach path for aligning an aircraft on its final approach to a runway. It lacks the high accuracy of the precision approach equipment and does not provide descent guidance. The VHF Omnirange (VOR) and the non-directional beacon (NDB) are two examples of non-precision instrument equipment.

Notice to Airmen (NOTAM): A notice containing information (not known sufficiently in advance to publicize by other means) concerning the establishment, condition, or change in any component (facility, service, or procedure) of, or hazard in the National Airspace System, the timely knowledge of which is essential to personnel concerned with flight operations.

Obstruction: An object which penetrates an imaginary surface described in the FAA's Federal Aviation Regulation (FAR) Part 77.

Parking apron: An apron intended to accommodate parked aircraft.

Pavement structure: The combination of runway base and subbase courses and surface course which transmits the traffic load to the subgrade.

Pavement subgrade: The upper part of the soil, natural or constructed, which supports the loads transmitted by the runway pavement structure.

Pavement surface course: The top course of a pavement, usually Portland cement concrete or bituminous concrete, which supports the traffic load.

Precision approach: A standard instrument approach using a precision approach procedure. See precision approach procedure.

Precision Approach Path Indicator (PAPI): A system of lights on an airport that provides visual descent guidance to the pilot of an aircraft approaching a runway.

Precision approach procedure: A standard instrument approach procedure in which an electronic glide slope is provided, such as ILS and PAR.

Primary Surface: A rectangular surface longitudinally centered about a runway. Its width is a variable dimension and it usually extends 200 feet beyond each end of the runway. The elevation of any point on this surface coincided with the elevation of its nearest point on the runway centerline or extended runway centerline.

Public airport: An airport for public use, publicly owned and under control of a public agency.

Ramp: A defined area, on a land airport, intended to accommodate aircraft for purposes of loading or unloading passengers or cargo, refueling, parking, or maintenance.

Rotating lighted beacon: An airport aid allowing pilots the ability to locate an airport while flying under VFR conditions at night.

Runway: A defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length.

Runway bearing: The magnetic or true bearing of the runway centerline as measured from magnetic or true north.

Runway configuration: Layout or design of a runway or runways, where operations on the particular runway or runways being used at a given time are mutually dependent. A large airport can have two or more runway configurations operating simultaneously.

Runway direction number: A whole number to the nearest tenth of the magnetic bearing of the runway and measured in degrees clockwise from magnetic north.

Runway end identification lights (REIL): An airport lighting facility in the terminal area navigation system consisting of one flashing white high intensity light installed at each approach end corner of a runway and directed toward the approach zone, which enables the pilot to identify the threshold of a usable runway.

Runway environment: The runway threshold or approach lighting aids or other markings identifiable with the runway.

Runway gradient (effective): The average gradient consisting of the difference in elevation of the two ends of the runway divided by the runway length may be used provided that no intervening point on the runway profile lies more than 5 feet above or below a straight line joining the two ends of the runway. In excess of 5 feet, the runway profile will be segmented and aircraft data will be applied for each segment separately.

Runway lights: Lights having a prescribed angle of emission used to define the lateral limits of a runway. Runway light intensity may be controllable or preset, and are uniformly spaced at intervals of approximately 200 feet.

Runway markings: (1) Basic marking-markings on runways used for operations under visual flight rules, consisting of centerline marking and runway direction numbers, and if required, letters. (2) Instrument marking-markings on runways served by nonvisual navigation aids and intended for landings under instrument weather conditions, consisting of basic marking plus threshold marking. (3) All-weather marking- markings on runways served by nonvisual precision approach aids and on runways having special operational requirements, consisting of instrument markings plus landing zone marking and side strips.

Runway orientation: The magnetic bearing of the centerline of the runway.

Runway protection zone (formerly called the "clear zone"): A runway protection zone is a trapezoidal area at ground level, under the control of the airport authorities, for the purpose of protecting the safety of approaches and keeping the area clear of the congregation of people. The runway protection zone begins at the end of each primary surface and is centered upon the extended runway centerline.

Runway safety area: A runway safety area is a rectangular area, centered on the runway centerline, which includes the runway (and stopway, if present) and the runway shoulders. The portion abutting the edge of the runway shoulders, runway ends, and stopways is cleared, drained, graded, and usually turfed. Under normal conditions, the runway safety area is capable of supporting snow removal, firefighting, and rescue equipment and accommodating the occasional passage of aircraft without causing major damage to the aircraft.

Runway strength: The assumed ability of a runway to support aircraft of a designated gross weight for each of single-wheel, dual-wheel, and dual-tandem-wheel gear types.

Segmented circle: A system of visual indicators designed to provide traffic pattern information at an airport without an operating control tower.

Shoulder: As pertaining to airports, an area adjacent to the edge of a paved surface so prepared to provide a transition between the pavement and the adjacent surface for aircraft running off the pavement, for drainage and sometimes for blast protection.

Single runway: An airport having one runway.

Small aircraft: Aircraft of 12,500 pounds or less maximum certificated takeoff weight.

Straight-in approach (IFR): An instrument approach wherein final approach is commenced without first having executed a procedure turn (not necessarily completed with a straight-in landing).

Straight-in approach (VFR): Entry into the traffic pattern by interception of the extended runway centerline without executing any other portion of the traffic pattern.

Taxiway: A defined path, usually paved, over which aircraft can taxi from one part of an airport to another.

Taxiway safety area: A cleared, drained and graded area, symmetrically located about the extended taxiway centerline and adjacent to the end of the taxiway safety area.

Terminal area: The area used or intended to be used for such facilities as terminal and cargo buildings, gates, hangars, shops and other service buildings; automobile parking, airport motels and restaurants, and garages and vehicle service facilities used in connection with the airport; and entrance and service roads used by the public within the boundaries of the airport.

T-hangar: An aircraft hangar in which aircraft are parked alternately tail to tail, each in the T-shaped space left by the other row of aircraft or aircraft compartments.

Threshold: The designated beginning of the runway that is available and suitable for the landing of airplanes.

Threshold crossing height (TCH): The height of the straight-line extension of the visual or electronic glide slope above the runway threshold.

Threshold lights: Lighting arranged symmetrically about the extended centerline of the runway identifying the runway threshold. They emit a fixed green light.

Total operations: All arrivals and departures performed by military, general aviation and air carrier aircraft.

Touchdown: (1) The point at which an aircraft first makes contact with the landing surface. (2) In a precision radar approach, the point on the landing surface toward which the controller issues guidance instructions.

Touchdown zone: The area of a runway near the approach end where airplanes normally align.

Traffic pattern: The traffic flow that is prescribed for aircraft landing at, taxiing on, and taking off from an airport. The usual components of a traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

Transient: Operations or other activity performed by aircraft not based at the airport.

Transitional surface: A surface which extends outward and upward from the sides of the primary and approach surfaces normal to the runway centerline which identifies the height limitations on an object before it becomes an obstruction to air navigation.

Turning radius: The radius of the arc described by an aircraft in making a self-powered turn, usually given as a minimum.

UNICOM: Frequencies authorized for aeronautical advisory services to private aircraft. Only one such station is authorized at any landing area. The frequency 123.0 MHz is used at airports served by airport traffic control towers, and 122.8 MHz is used for other landing areas. Services available are advisory in nature, primarily concerning the airport services and airport utilization.

Utility airport (or runway): An airport (or runway) which accommodates small aircraft excluding turbojet powered aircraft.

VFR airport: An airport without an authorized or planned instrument approach procedure.

VHF Omnidirectional Range (VOR): A radio transmitter facility in the navigation system radiating a VHF radio wave modulated by two signals, the relative phases of which are compared, resolved and displayed by a compatible airborne receiver to give the pilot a direct indicating of bearing relative to the facility.

Vicinity map: Shown on the airport layout plan drawing, it depicts the relationship of the airport to the city or cities, nearby airports, roads, railroads, and built-up areas.

Visual approach: An approach wherein an aircraft on an IFR flight plan, operating in VFR conditions under the control of a radar facility and having an air traffic control authorization, may deviate from the prescribed instrument approach procedure and proceed to the airport of destination, served by an operational control tower, by visual reference to the surface.

Visual approach aid: Any device, light, or marker used to provide visual alignment and/or descent guidance on final approach to a runway. Also see REIL, VASI.

Visual Flight Rules (VFR): Rules that govern the procedures for conducting flight under visual conditions (FAR Part 91).

Visual runway: A runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved airport layout plan, a military service approved military airport layout plan, or by a planning document submitted to the FAA by competent authority (FAR Part 77).

VORTAC: Very High Frequency Omni Range Facility (VOR co-located with a Tactical Air Navigation (TACAN) facility.

Wind cone: A free-rotating fabric truncated cone which when subjected to air movement indicates wind direction and wind force.

Windrose: A diagram for a given location showing relative frequency and velocity of wind from all compass directions.

Zulu time (Z): Time at the prime meridian in Greenwich, England.

APPENDIX B: ENVIRONMENTAL

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ENVIRONMENTAL OVERVIEW

1.1 INTRODUCTION

Airport improvement projects that are considered to be Federal actions or receive Federal funding must be assessed from an environmental standpoint in order to comply with the National Environmental Protection Act of 1969, the Airport and Airport and Airway Improvement Act of 1982, the 40 Code of Federal Regulations parts 1500-1508, the Department of Transportation Order DOT 5610.1C as well as other pertinent laws, statutes and directives.

The National Environmental Protection Act (NEPA) ensures that environmental considerations are accounted for. For airport projects, the FAA Order 1050.1E Change 1, Environmental Impacts: Policies and Procedures, the FAA Order 5050.4b, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects, and the Environmental Desk Reference for Airport Actions provide guidance for compliance with NEPA regulations.

For any proposed airport action, the FAA performs an initial environmental review, which considers the type of action as well as its potential effect on the environment. Then, typically one of the three following methods of analysis is conducted:

- Categorical Exclusion (CATEX), for the actions which do not result in significant environmental impacts and for which no Environmental Assessment or Impact Statement is required,
- Environmental Assessment (EA), for proposed actions with minor or uncertain environmental impact,
- Environmental Impact Statement (EIS): for major federal actions and actions known to have the potential for significant environmental impact.

The Environmental Overview section of this Airport Master Plan describes the environmental setting of Bear Lake County Airport, as well as areas that may potentially be impacted by proposed development at the airport necessitating further environmental study before the project implementation. The overview of the impact categories summarized below is based on the Order 1050.1E, including the new climate change category.

1.2 AIR QUALITY

Detailed air quality analysis is needed, under the guidance of the NEPA and the Clean Air Act, for airport development projects that, due to their size, scope or location, have the potential to affect the attainment and maintenance of established air quality standards.

Air Quality standards are known as the “National Ambient Air Quality Standards” (NAAQS) and are present for six criteria air pollutants, which include: carbon monoxide (CO), lead (Pb), nitrogen

dioxide (NO_2), ozone (O_3), particulate matter (PM) for both PM_{10} and $PM_{2.5}$, and sulfur dioxide (SO_2). For each of these pollutants, the NAAQS include a maximum concentration above which adverse effects on human health and the environment may occur.

States are responsible for designating areas that are attainment, nonattainment or maintenance for each of the criteria pollutants. An attainment area is an area where the levels of all criteria air pollutants meet the NAAQS; and thus is safe for human health, public welfare, and the environment. A nonattainment area is an area where the concentration of one or more of the criteria is higher than the NAAQS; while a maintenance area is an area previously designated nonattainment, but where the air pollution levels have improved.

The state of Idaho has a network of air monitoring stations to evaluate selected air pollutants. The closest stations to Bear Lake County Airport are located in Franklin and Soda Springs, approximately 30 miles from the airport. In addition, the Idaho Air Quality Planning Areas Map published by the Idaho Department of Environmental Quality shows nonattainment areas, areas of concern and Class I areas (which include all national parks greater than 6,000 acres, wilderness areas and national memorial park greater than 5,000 acres). **Figure X-1** depicts the Idaho Air Quality Planning Areas Map.

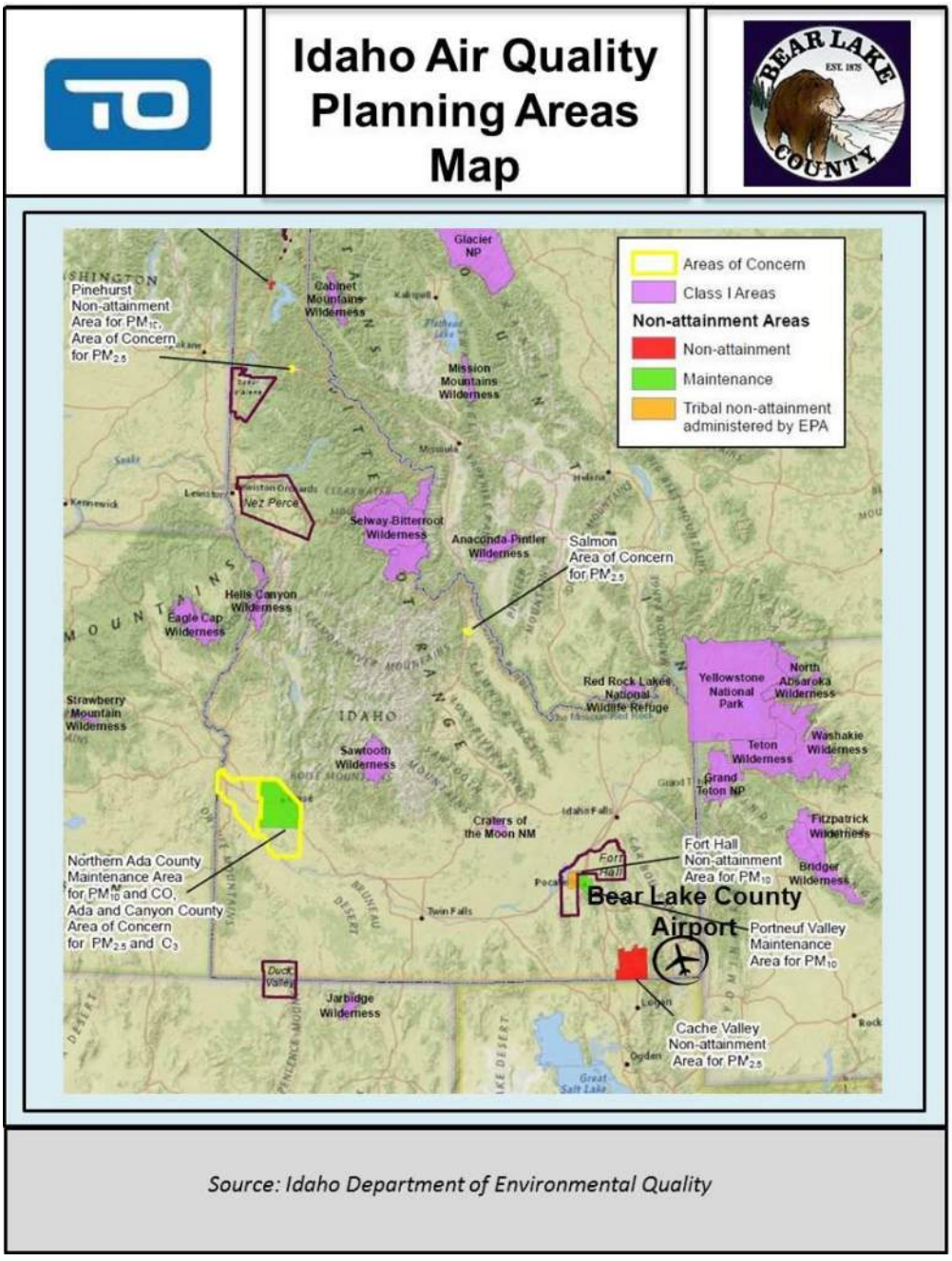
This map was reviewed and shows that Bear Lake County Airport is located in an attainment area. The closest nonattainment area is located in the Cache Valley and is a nonattainment area for the criteria air pollutant $PM_{2.5}$. The closest Class I areas include Bridger and Fitzpatrick Wilderness areas, located in Wyoming approximately 100 miles northeast of the airport, as well as Craters of the Moon National Monument, located in Idaho approximately 150 miles to the northwest of the airport.

For NEPA purpose, an air quality analysis must be conducted when the airport has a proposed action that will cause a reasonably foreseeable emission increase. As Bear Lake County Airport is not located in a nonattainment or maintenance area, an Emissions Inventory will need to be prepared and the results of this emission inventory will need to be disclosed if an action is expected to cause an emission increase. Dispersion modeling might also be necessary if it has been called for in agency scoping and or public involvement. If the proposed action is not expected to cause a reasonably foreseeable emission increase, only a Qualitative Air Quality Assessment will be necessary.

Sources of Emissions includes Aircraft, Auxiliary Power Units (APUs), Ground Support Equipment (GSE), Ground Access Vehicles, Stationary and Area Sources and Construction. At Bear Lake County Airport, only Aircraft, Ground Access Vehicles and Construction have been identified as potential sources of Emissions. The types of emissions include Criteria Pollutants (and their precursors, Hazardous Air Pollutants (HAPs) and Greenhouse Gases (GHGs).

Construction can degrade air quality, mainly due to dust or burning debris. Therefore, when needed, the air quality analysis undertaken to comply with requirements of the NEPA and the Clean Air Act must include construction impacts on air quality.

FIGURE X-1 – AIR QUALITY PLANNING AREAS MAP



Source: Idaho Department of Environmental Quality

1.3 COASTAL RESOURCES

Bear Lake County Airport is located in Idaho, which does not border a coastline. The airport is situated approximately 650 miles inland from the nearest point on the west coast. This impact category is not applicable at the airport.

1.4 CLIMATE CHANGE

According to the FAA Order 1050.1E, Change 1, Guidance Memo #3, climate change and evaluation of Green House Gases (GHGs) should be explicitly identified and included as an impact category in the FAA environmental documentations, such as Environmental Assessments (EA) and Environmental Impact Statements (EIS).

Green House Gases (GHGs) include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF_6). GHGs result primarily from fuel combustion and there is a direct relationship between the fuel combustion and the metric tons of CO_2 equivalent. To convert fuel quantities to CO_2 the following equation factors can be used:

- 1 gallon of jet fuel = 9.7438 kg of CO_2
- 1 gallon of avGas = 8.3182 kg of CO_2

There are currently no federal standards or significance thresholds for GHGs emissions applicable to aviation. Therefore, the consideration of the environmental impacts of a proposed action regarding GHGs can be either qualitative or quantitative.

It is recommended the County monitor potential new standards and/or thresholds and address them as necessary when appropriate.

1.5 COMPATIBLE LAND USE

The compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of the airport's noise impacts. Activities that may alter aviation-related noise impacts and affect land uses subjected to those impacts typically involve: airport development actions to accommodate fleet mix changes or changes in the number of aircraft operations, air traffic changes or new approaches to the airport made possible by new navigational aids. If a noise analysis concludes that there is no significant noise impact, a similar conclusion may usually be made about compatible land uses.

An assessment of the compatibility of land uses in the vicinity of the airport must also be conducted to ensure that the land uses do not adversely affect safe aircraft operations. Examples of uses that may adversely affect aircraft operations include municipal landfills or wetland mitigation that attracts wildlife species hazardous to aviation.

As previously mentioned in the Inventory Chapter, Bear Lake County Comprehensive Plan and Zoning Ordinance, the airport and surrounding areas are outlined in the Bear Lake County Comprehensive Plan as Light Industry & Manufacturing land use. In addition, with the exception of the airport manager office, there appeared to be no residential buildings in the immediate vicinity of the airport. With respect to noise, there is no incompatible land use.

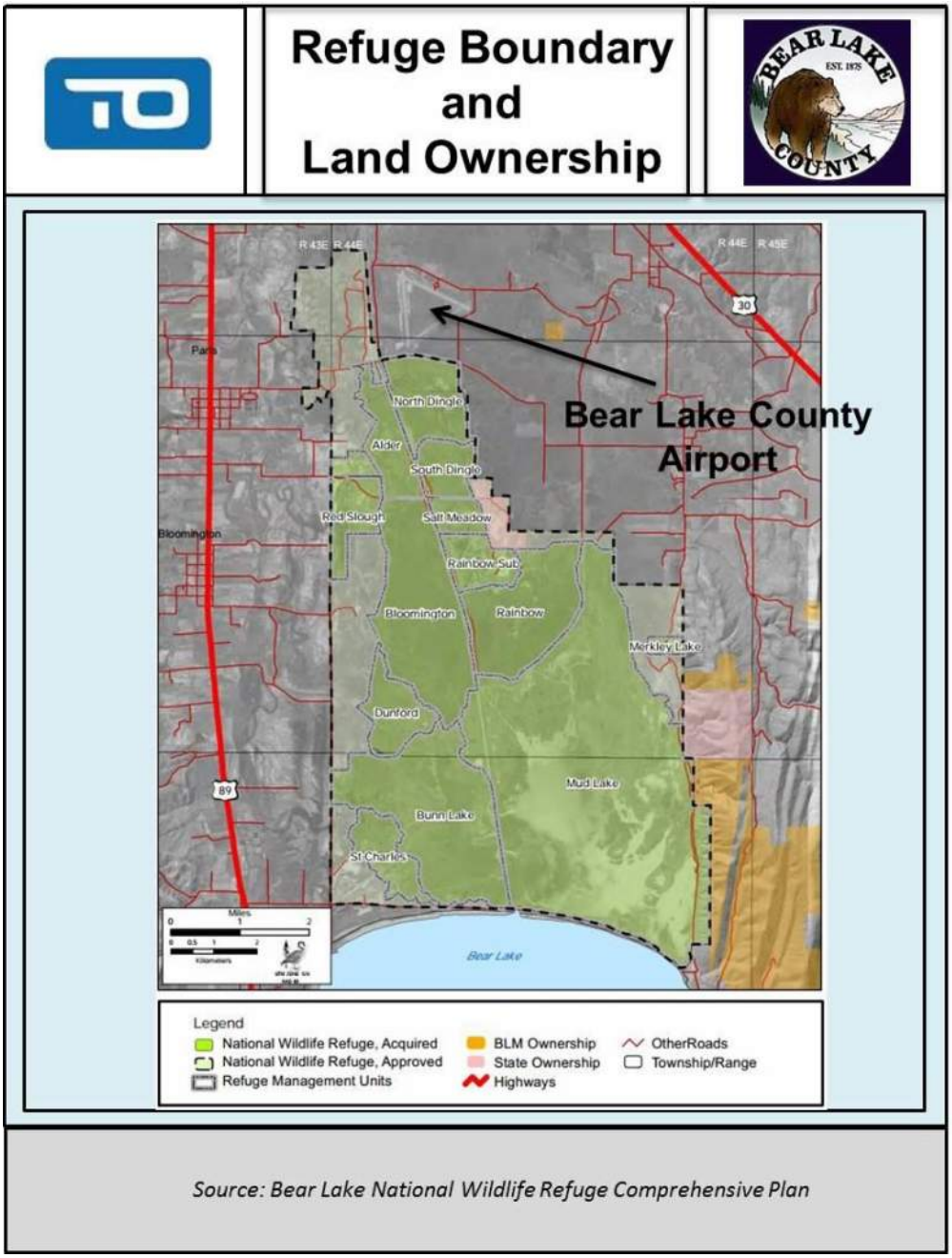
The surrounding land uses include agricultural, rangeland, forests and wetlands. Most of the land is privately owned while the remaining parcels are federally or state-owned by the U.S Forest Service, Bureau of Land Management, U.S Fish and Wildlife Service (USFWS) and the state of Idaho.

The northernmost limit of the Bear Lake National Wildlife Refuge (NWR) is located approximately 1,400 feet south of the Runway 34 threshold. **Figure X-2** depicts the refuge boundary limits as well as land ownership in the vicinity of Bear Lake County Airport.

The land within the limits of Bear Lake NWR close to the airport is currently used for haying, which keeps the areas open and not overgrown with emergent vegetation. Small grains and legume crops are cultivated within the refuge for waterfowls and other key wildlife species on Bear Lake NWR. However, since 2003, the refuge management has begun to retire hay units and is planning to continue retiring more hay units in the future. Previously hayed habitats will be restored or rehabilitated. Incremental reductions will occur every five years, over three five-year cycles: 2013-2017; 2018-2022; 2023-2027, as depicted in **Figure X-3**. The aim is to provide more natural wet meadow adjacent to short stature vegetation, dense nesting cover, and open pools. This change in the use of the land is likely to change the waterfowls' patterns and it might attract more birds and wildlife in the vicinity of the airport.

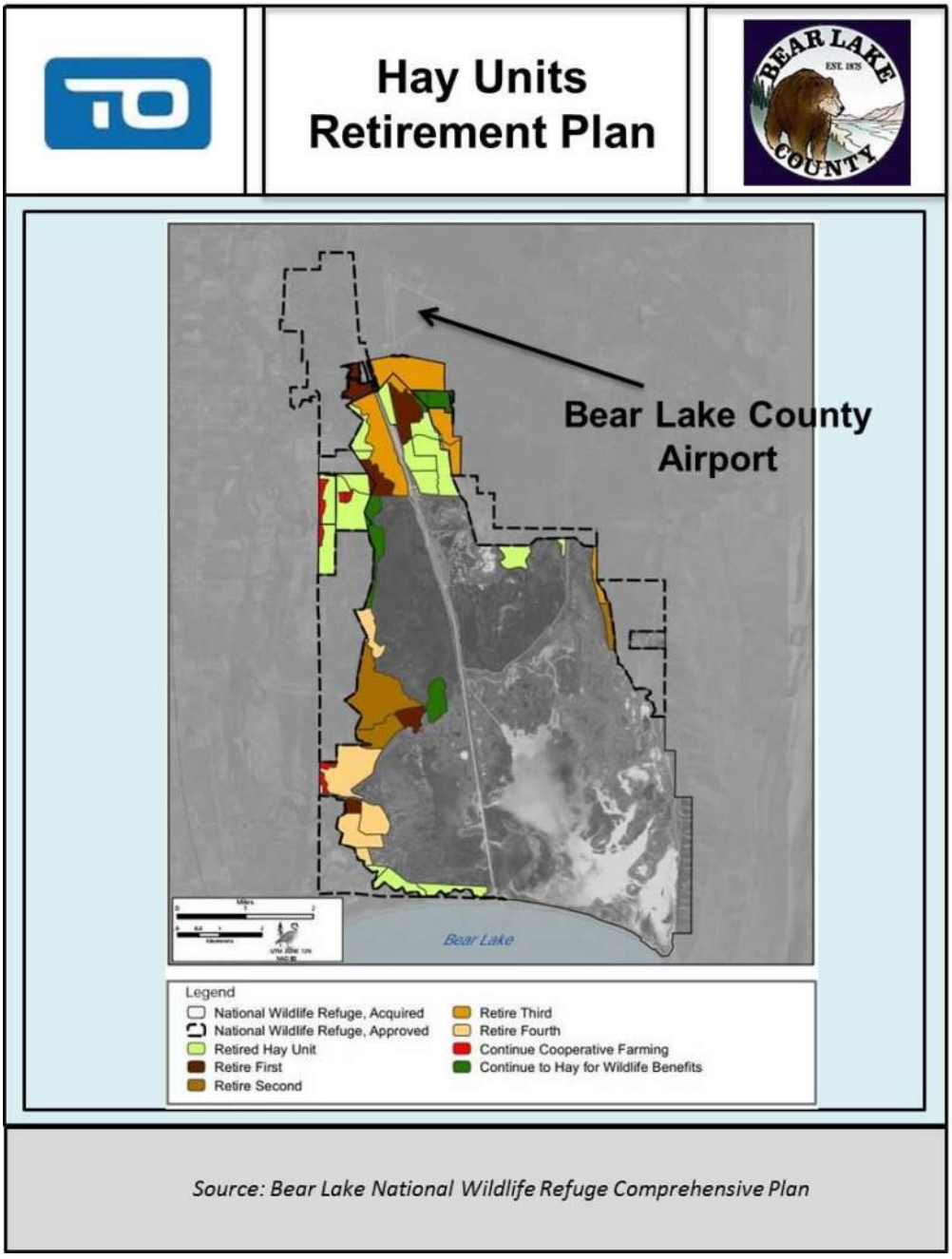
From a compatible land use standpoint, there are few residential developments in the vicinity of the airport. Noise impacts resulting from reasonably foreseeable development are not anticipated. Additional information on the Bear Lake NWR and migratory birds species is provided in Section 1.9.3, Migratory Birds Species.

FIGURE X-2 – REFUGE BOUNDARY AND LAND OWNERSHIP



Source: Bear Lake National Wildlife Refuge Comprehensive Plan

FIGURE X-3 – HAY UNITS RETIREMENT PLAN



1.6 CONSTRUCTION IMPACTS

Construction impacts are temporary in nature. However, airport construction may cause various environmental effects primarily due to dust, aircraft and heavy equipment emissions, storm water runoff, spilled or leaking petroleum products and noise.

In order to minimize and mitigate for potential temporary impacts, future construction activities will comply with FAA Advisory Circular 150/5370-10A, Standards for Specifying Construction of Airports and National Pollutant Discharge Elimination System (NPDES).

1.7 DEPARTMENT OF TRANSPORTATION ACT – SECTION 4F COMPLIANCE

Section 4(f) of the Department of Transportation Act (section 303 (c) of 49 U.S.C.) states that if a project requires the use of a publicly owned park, recreation area, wildlife or waterfowl refuge, or historic site of national, state, or local significance, the project will not be approved unless:

- It has a *de minimis* impact exception,
- Or there is no prudent and feasible alternative,
- Or the project includes all possible planning to minimize harm.

As previously mentioned, the nearest wildlife refuge is the Bear Lake NWR, located approximately 1,400 feet south of the Runway 34 threshold. The Bear Lake NWR is an 18,000-acre refuge used by multiple species of waterfowl and which provides nesting habitats.

Other parks include the Allinger Park located in Montpelier, approximately 6 miles north of the airport, equipped with restrooms, playground, picnic areas, baseball fields, concessions stands and skateboard/rollerblade area. The Minnetonka Cave, a limestone rock cave, is situated approximately 15 miles to the southwest of the airport. This Cave harbors five different species of bats, including Townsend's Big-eared Bat which is listed by the Forest Service as a species of concern and has an Idaho State ranking of S3, rare or uncommon.

Furthermore, Bear Lake State Park is located approximately 10 miles to the south of the airport. Lastly, the Caribou-Targhee National Forest, which encompasses 18 trail heads located within Bear Lake County and many points of interest such as Meade Peak, Montpelier Reservoir, Paris Ice Caves, Bloomington Lake, Shoshone Indian Trail, and Crow Creek Road, surrounds Bear Lake Valley, as depicted with **Figure X-4**.

FIGURE X-4 – NATIONAL FOREST

As there are no parks, recreation areas or refuges within the existing airport property limits, this impact category is not applicable for projects remaining within the airport property limits.

1.8 FARMLANDS

According to the FAA Environmental Desk Reference for Airport Actions, important farmlands include all pasturelands, croplands, and forests considered to be prime, unique, statewide or locally important lands. Prime farmland has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops; while unique farmland is a land other than prime farmland that has a special combination of unique characteristics needed to economically produce sustained high yields of a specific crop.

According to the Farmland Protection Policy Act, lands already committed to “urban development or water storage”, such as airport developed areas, do not meet the definition of prime or unique farmlands, regardless of their importance as defined in the Natural Resource Conservation Service (NRCS).

Soils in the vicinity of the airport are depicted in **Figure X-5**, based on the USDA Web Soil Survey.

FIGURE X-5 – SOIL MAP

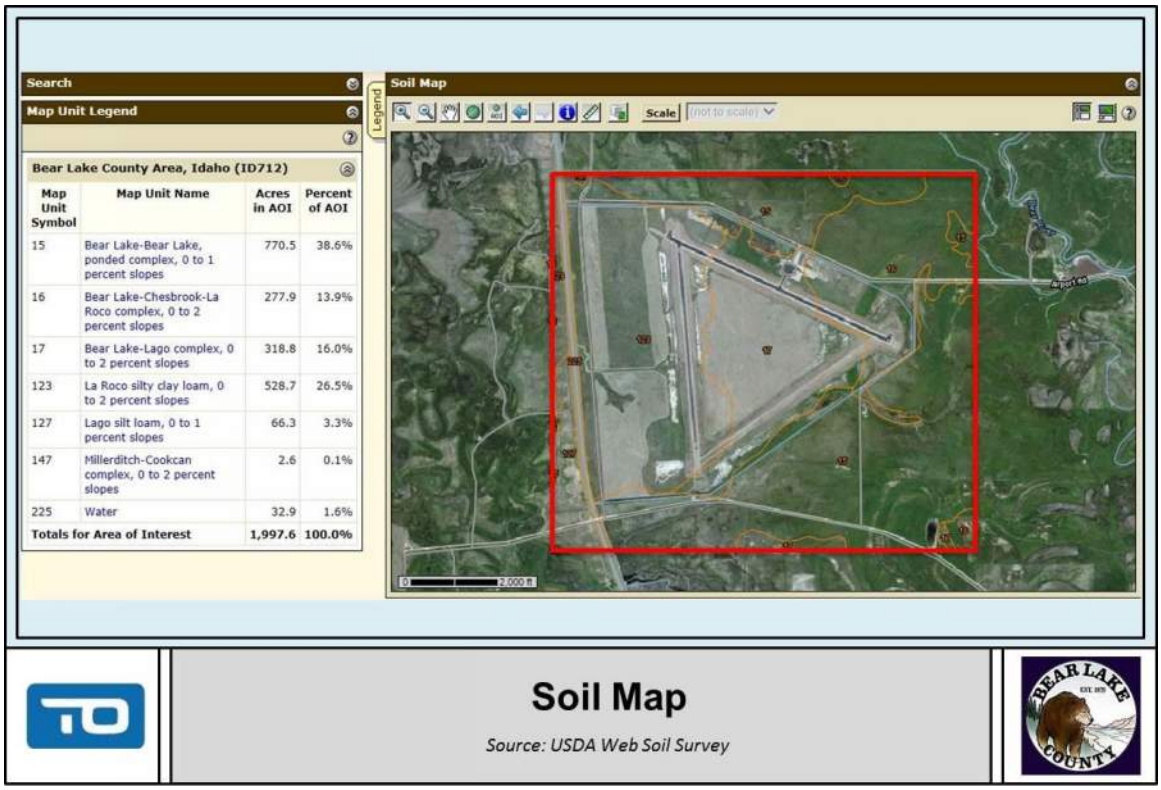


Table X-1 lists the soils in the vicinity of the airport.

TABLE X-1: SOIL TYPES IN THE VICINITY OF BEAR LAKE COUNTY AIRPORT

Soil	Type	Approximate Acreage	Farmland Classification
15	Bear Lake – Bear Lake ponded complex, 0 to 1% slopes	770.5	Prime farmland if irrigated and drained
16	Bear Lake – Chesbrook – -La Roco complex, 0 to 2% slopes	277.9	Prime farmland if irrigated and drained
17	Bear Lake – Lago complex, 0 to 2% slopes	318.8	Prime farmland if irrigated and drained
123	La Roco silty clay loam, 0 to 2% slopes	528.7	Prime farmland if irrigated
127	Lago silt loam, 0 to 1% slopes	66.3	Prime farmland if irrigated and drained
147	Millerditch – Cookcan complex, 0 to 2% slopes	2.6	Prime farmland if irrigated and drained
225	Water	32.9	-

Source: USDA Web Soil Survey, T-O Engineers

Some soils in the immediate vicinity of the airport are classified as prime farmland if irrigated and drained. Soils within the airport property limits are already disturbed and do not meet the definition of prime or unique farmlands. Airport development projects that would convert important farmlands must be coordinated with the local NRCS field office and additional analysis must be conducted.

1.9 FISH, WILDLIFE, AND PLANTS

This section provides an overview of fish, wildlife, and plants on or near Bear Lake County Airport.

1.9.1 FEDERALLY-LISTED ENDANGERED AND THREATENED SPECIES

To satisfy the Endangered Species Act of 1973, the Federal Aviation Administration (FAA) must determine if a proposed action would affect a Federally-listed species or habitat critical to that species.

Prior to an airport action that may affect Federally-listed endangered or threatened species or their critical habitats, the U.S Fish and Wildlife Service (USFWS) should be contacted to determine the depth of analysis required to assess potential impacts of the airport project. Additional analysis and research, including field surveys, are often necessary prior to future development activities, to determine the presence of Federally-listed endangered and threatened species.

The USFWS lists one species that have a Threatened species designation and may be found in Bear Lake County: the Canada Lynx (*Lynx Canadensis*). In addition, the USFWS lists one candidate species that may be found in Bear Lake County: the Greater Sage-Grouse (*Centrocercus urophasianus*). In August 2014, the USFWS has withdrawn the proposal to list the North American Wolverine (*Gulo gulo luscus*) as a threatened species.

Bear Lake County Airport is surrounded by wetlands and cultivated field, therefore the Canada Lynx is not likely to be found within the vicinity of the airport. According to the Bear Lake NWR Comprehensive Plan of 2013, there are no known threatened or endangered species occurring on Bear Lake NWR, located in the vicinity of Bear Lake County Airport.

In addition, the FWS Critical Habitat Portal was consulted. This mapping tool indicates no designated critical habitat in the immediate vicinity of the airport.

1.9.2 STATE-LISTED RARE OR UNIQUE SPECIES

State status of plants, animals, and plant communities are ranked with the state rank indicator on a scale of 1 to 5. This indicator denotes the rank based on the status within the State of Idaho. S1 is the most critical, it indicates critically imperiled species, at very high risk of extinction due to extreme rarity, often 5 or few populations; S2 indicates imperiled species, at high risk of extinction or elimination due to very restricted range, or very few populations; while S5 indicates secure specie, common, widespread and abundant. According to the Idaho Fish and Wildlife Information System (IFWIS), there are 109 sensitive species observed in Bear Lake County. Among these 109 sensitive species: 16 are ranked S1, 30 are ranked S2, 16 are ranked S3, 12 are ranked S4 and 29 are ranked S5.

1.9.3 MIGRATORY BIRD SPECIES

The Migratory Bird Treaty Act, as amended, prohibits actions that may take a migratory bird species or affect its breeding habitat. The Bear Lake NWR is located approximately 1,400 feet south of the runway 34 threshold, as previously depicted in Section 1.5, Compatible Land Use, **Figure X-2**. Bear Lake NWR is an 18,000-acre refuge, which has historically always provided goose nesting habitats. Currently, priorities of the refuge management have shifted towards the preservation of redhead and canvasback duck, trumpeter swans, and white-faced ibis.

Aerial surveys and ground-based surveys are made to monitor bird populations within the Bear Lake NWR. According to the Bear Lake NWR Comprehensive Plan of 2013, numerous species of migratory waterfowls use the Refuge during spring, summer and fall months. The most abundant species include Great Basin Canada geese, Mallard, green-winged teal, canvasback, redhead, and ruddy ducks. Gadwall, northern pintail, cinnamon teal, and lesser scaup also occur in lower numbers. Some snow geese, trumpeter swans, and tundra swans also migrate through the refuge.

Several species of ducks nest on the refuge; the most common nesting species include mallard, canvasback, redhead, and ruddy duck. Trumpeter swans, lesser scaup, northern shoveler, cinnamon teal, green-winged teal, northern pintail, gadwall, and American wigeon also nest in lesser numbers. In addition, Peregrine Falcon, as well as various hawk species, are known to breed in the area.

A wildlife hazard site visit was completed during two days at Bear Lake County Airport in August 2014. The Wildlife Hazard Site Visit Report reports that the refuge provides shelter for at least 214 bird species; a typical breeding season on the refuge will produce 4500 ducks and 1800 geese. In the spring up to 5,000 adult, White Faced Ibis may be present; in late September, flocks of 200-500 Sandhill Cranes feed in refuge grain fields, and in the fall, American White Pelicans are present in the area. During the survey conducted at the airport, sixty species of birds were observed. However, it should be noted that many more species and much larger numbers of birds would be expected to be present during the spring and fall migrations.

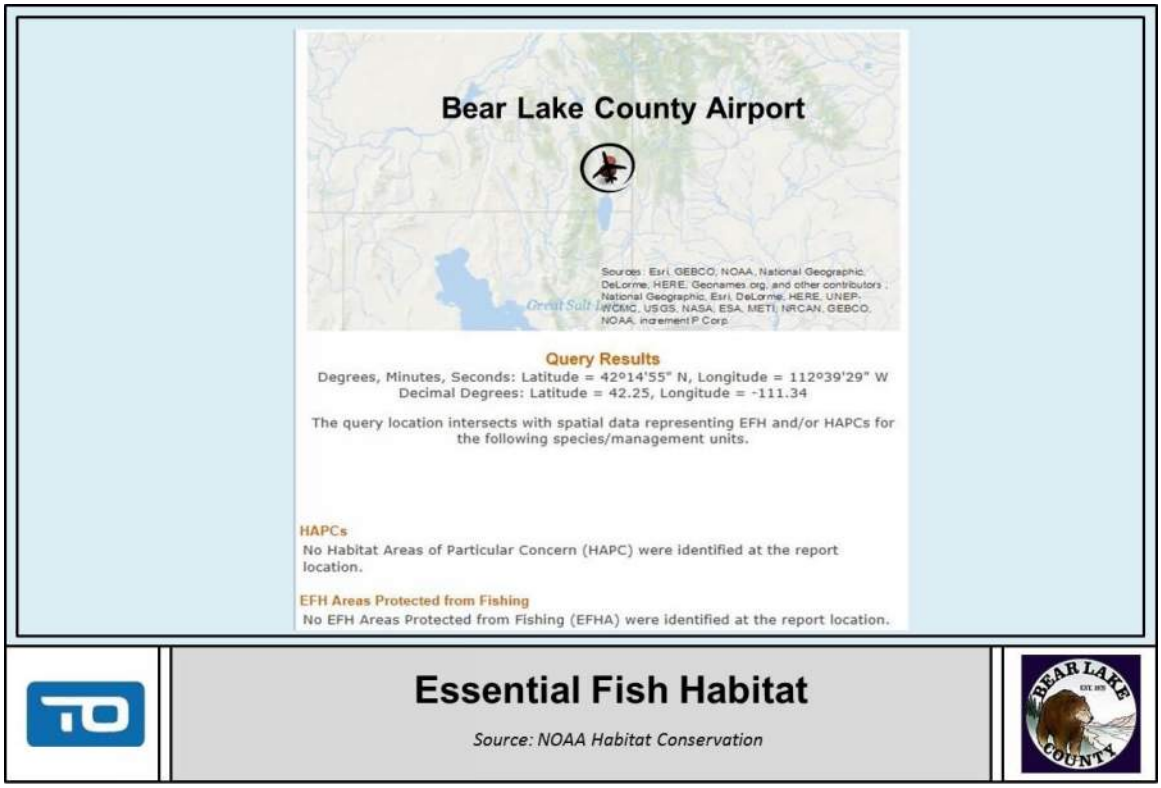
Further bald eagles, protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act are present in the Bear Lake NWR and in the vicinity of the airport. The wildlife hazard site visit reported that Bald Eagles and Rough-Legged hawks are known to winter in the area and an active Bald Eagle Nest is situated in the vicinity of Bear Lake County Airport.

A summary of the consequences of the Migratory Bird Treaty Act and the presence of migratory birds in the vicinity of the airport is provided in Section 1.9.5, Summary.

1.9.4 ESSENTIAL FISH HABITAT

The National Oceanic and Atmospheric Administration (NOAA) Essential Fish Habitat (EFH) mapper tool indicates that No Habitat Areas of Particular Concern (HAPC) are identified in the vicinity of Bear Lake County Airport. In addition, no Essential Fish Habitat Areas Protected from Fishing (EFHA) are identified near the airport, as depicted in **Figure X-6**.

FIGURE X-6 – ESSENTIAL FISH HABITAT



1.9.5 SUMMARY

Actions that have the potential to affect migratory birds, fish, Federally-listed endangered and threatened species or state-listed rare and unique species may require special permits. Impacts on undisturbed wildlife habitats require more analyses than that needed for already disturbed areas, such as previously disturbed airport property, populated areas or farmland.

Additional analysis and research, including field surveys, is often necessary prior to future airport development activities, to evaluate the presence of state-listed rare and unique species as well as migratory birds or their habitats. In general, coordination with USFWS and the Idaho Department of Fish and Game (IFG) is also often necessary prior to airport development projects to determine if any areas at the airport, or in the vicinity, could be considered significant biotic resources.

The wildlife hazard site visit completed at Bear Lake County Airport in August 2014 reported sixty different species of birds as well as direct observations of moose, mule deer, striped skunk badger and coyotes in the immediate vicinity of the airport. During this survey, no Federally-Listed

Endangered and Threatened Species were observed at the airport. However, the Greater Sage-Grouse, a candidate species, is known to use the Bear Lake NWR.

The close proximity of the Bear Lake NWR attracts migratory birds and various mammals. These migratory birds and mammals can be found in the vicinity of the airport. Bear Lake County Airport and the airport property have been previously disturbed. However, if projects were to impact areas not previously disturbed it is anticipated that additional environmental analysis, such as an environmental assessment, might be necessary to assess the impact on wildlife and wildlife habitat.

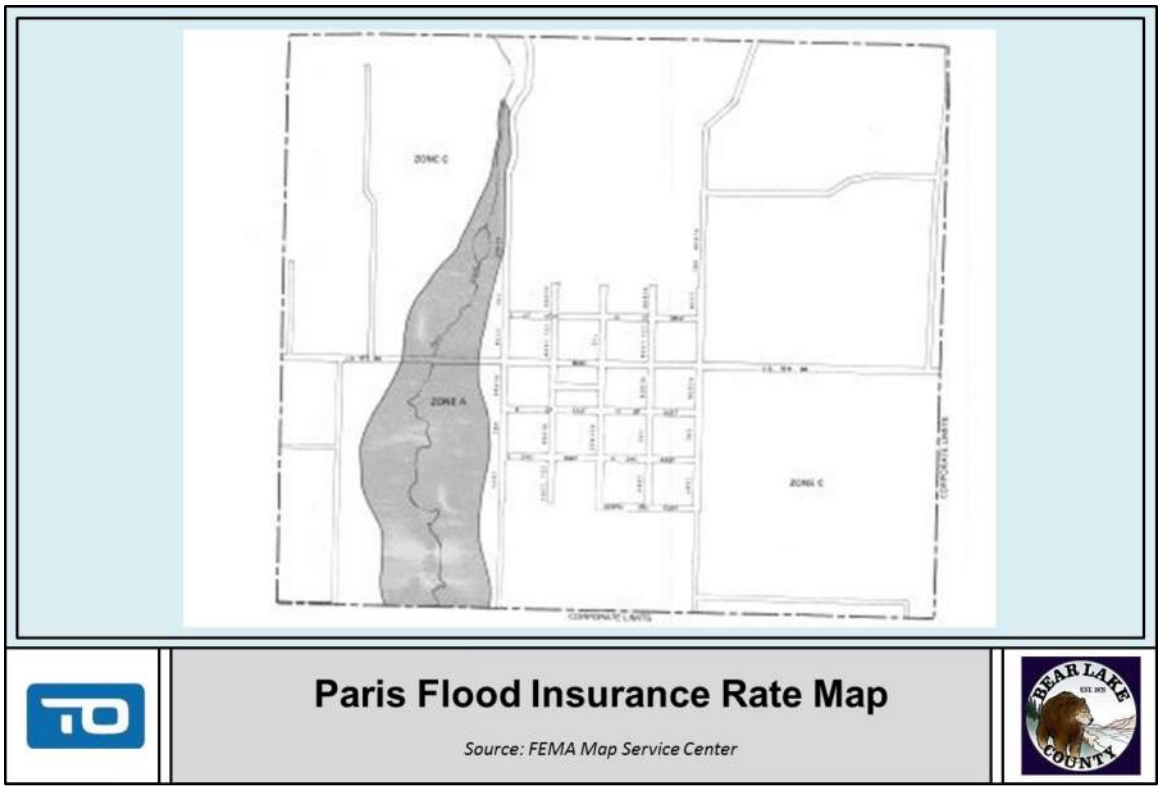
1.10 FLOODPLAINS

Executive Order 11988, Floodplains and U.S Department of Transportation (DOT) Order 5650.2, Floodplain Management and Protection, requires all airport development actions to avoid floodplain if a practical alternative exists. If no practical alternative exists, actions in a floodplain must be designed to minimize adverse impact to the floodplain's natural and beneficial values. In addition, the design must also minimize the potential risks for flood-related property loss and impacts on human safety, health, and welfare.

An examination of the Flood Insurance Rate Maps (FIRM) shows that Bear Lake County Airport is in an unmapped area and that there is no FEMA Floods Maps for this area. The only flowing water in close proximity to the airport is the Bear Lake Outlet Canal, which is a controlled channel.

The closest mapped area is the city of Paris, Idaho, located approximately three miles east of the airport and depicted in **Figure X-7**. An examination of the map of Paris shows that there is a Zone A flood zone, associated with the Paris Creek, within the city center. A Zone A flood zone is a zone that has the potential to flood in a 100-year storm or a zone where a flood has 1 percent chance of occurring in any given year. The remaining parts of the city are Zone C, which are areas of minimal flooding.

FIGURE X-7 – PARIS, IDAHO, FLOOD INSURANCE MAP



Actions within a base floodplain may require authorization for the U.S. Army Corps of Engineers, Federal Emergency Management Agency (FEMA) and state or local agencies. In addition, consultation with these agencies may be needed.

1.11 HAZARDOUS MATERIALS, POLLUTION PREVENTION, AND SOLID WASTE

1.11.1 HAZARDOUS MATERIALS AND POLLUTION PREVENTION

The terms hazardous materials, hazardous waste and hazardous substances are associated with industrial wastes, petroleum products, dangerous goods or other contaminates. Hazardous wastes are solid wastes that are ignitable, corrosive, reactive or toxic. Hazardous substances are substances that pose substantial harm to human health and environment resources but do not include any petroleum or natural gas substances and materials. Hazardous materials are any substances or materials commercially transported that pose an unreasonable risk to public health, safety, and property. They include hazardous waste and hazardous substances as well as petroleum, natural gas substances and materials.

The predominant laws related to hazardous materials in Federal Aviation Administration (FAA) actions, projects, and decisions are mainly contained in the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), and the Community Environmental Response Facilitation Act (CERFA).

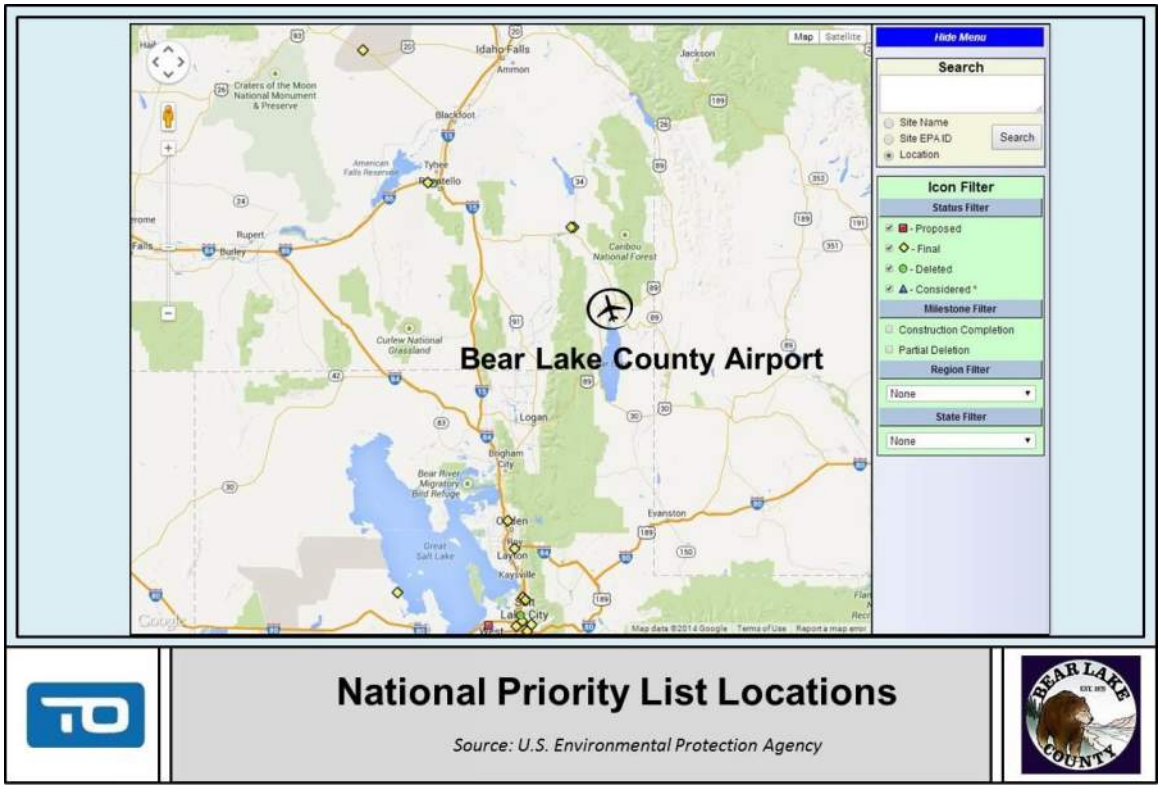
In order to evaluate the impact significance of the project, the following guidelines must be taken into consideration:

- The action involves a property on or eligible for the National Priority List (NPL),
- The sponsor would have difficulty meeting applicable locate, state or Federal laws and regulations on hazardous materials,
- Or there is an unresolved issue regarding hazardous materials (for instance the action would affect a site known or suspected to be contaminated).

National Priority List (NPL)

The National Priority List (NPL) is used to identify properties at risk of releases of hazardous substances, pollutants or contaminants. Its primary intent is to guide the U.S. Environmental Protection Agency (EPA) in determining which sites warrant further investigation. The NPL was consulted and properties listed were evaluated in relation to the airport's location. There are no properties listed on the NPL in the immediate vicinity of the airport, as depicted in **Figure X-8**. The closest one is in Soda Springs, ID, approximately 30 miles northwest of the airport.

FIGURE X-8 – NATIONAL PRIORITY LIST



Underground Storage Tanks

Storage tanks are used to store petroleum or certain other hazardous liquids. Leaking underground storage tanks can pose a serious environmental threat to soil and ground water. The

Idaho Department of Environmental Quality maintains a database, the Idaho Underground Storage Tank Database, of active and closed Underground Storage Tank sites across the state.

Bear Lake County Airport is identified in the Idaho Underground Storage Tank Database as facility number 5-040036. In the past, the airport had 4 underground storage tanks, which are now permanently out of use. These tanks and associated pipes are no longer used and may have been extracted from the ground. In addition, an underground tank is currently in use at the airport to store Aviation Gas. This tank has a capacity of 4,000 gallons and is made of Fiberglass Reinforced Plastic. It was installed on September 29, 1997.

In 1993, a leaking underground storage tank (LUST) was identified and the site cleanup was initiated. The cleanup was completed in 2005. The site was last inspected on June 21, 2012, and records indicate that no leaking events have occurred.

Summary
There are no National Priority List properties in the vicinity of the airport and no unresolved issues regarding hazardous materials at the airport. There is no reason to believe nor is there any evidence to suggest that foreseeable future improvement projects at Bear Lake County Airport will be developed in the area(s) that contains hazardous materials. Should unexpected encounters occur during project construction, all applicable local, State and Federal regulations and standards for the handling and disposal of hazardous materials will be followed.

1.11.2 SOLID WASTE

Development and construction on airports typically produces construction debris. In addition, solid waste also occurs because of on-airport activities. Refuse can result from construction workers, but also from passengers and airport workers using the terminal building. Activities needed to maintain airside and landside facilities produce other sources of solid waste.

Additional analyses have to be conducted when a proposed airport project would cause or change a solid waste stream. This should include a discussion on how the potential solid waste would be handled and disposed properly to minimize environmental effects. In addition, the analysis should also determine whether local disposal facilities have the capacities to handle the solid waste volumes the proposed airport facilities would produce during their construction or operations. State and local agencies should be consulted as they are often responsible and have the most knowledge about solid waste issues in an airport area.

A significant impact occurs when the potential generated solid waste would exceed available landfill or incineration capacities, or require extraordinary effort to meet applicable solid waste permit conditions and regulations or when Local, State or Federal agencies determine that substantial unresolved waste disposal issues exist and may require more analyses.

Bear Lake County operates a solid waste landfill located two miles east of Montpelier, in Montpelier Canyon, which accepts construction debris, household waste, as well as metal, household appliances, oil disposal, old battery disposal and tire disposal with a fee.

1.12 HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

A historic property is defined as "any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion on the National Register of Historic Places (NRHP)." Typical actions that could affect historic, architectural, archeological and cultural resources include building or expanding terminal and hangar facilities, runways, taxiways, installing NAVAIDS, building or moving access roadways, parking facilities, or other types of activities requiring any other construction.

1.12.1 NATIONAL REGISTER OF HISTORIC PLACES (NRHP)

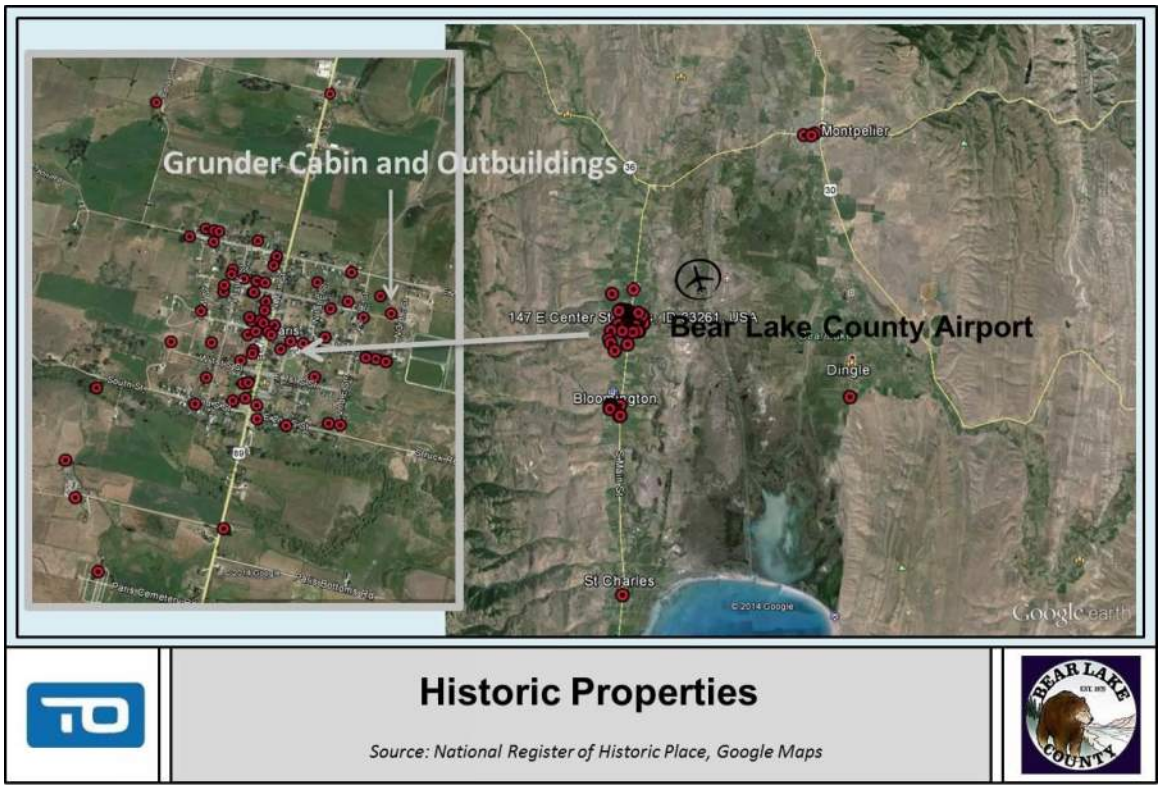
The National Register of Historic Places (NRHP) lists 92 properties in Bear Lake County. Among these 92 properties:

- 1 is located in the city of Dingle,
- 1 is located in the city of Fish Haven,
- 1 is located in the city of Georgetown,
- 1 is located in the city of St. Charles,
- 3 are located in the city of Montpelier,
- And 85 are located in the city of Paris.

Two historic districts are listed: Montpelier Historic District located approximately 5 miles to the north of the airport and the Wives of Charles C. Rich Historic District located in Paris, approximately 3 miles southwest of the airport. Further, the National Register of Historic Places lists 1 site, the Paris Cemetery, and 89 individual buildings.

The closest individual building is the Grunder Cabin and Outbuildings, located approximately 3 miles west of the airport. The cabin is estimated to have been built in the 1880s in the Southern mountain cabins style of architecture and is recognized as an example of a rare, previously undocumented house type in Idaho. **Figure X-9** depicts the historic properties in the vicinity of Bear Lake County Airport.

FIGURE X-9 – HISTORIC PROPERTIES



1.12.2 OREGON-CALIFORNIA TRAIL

In addition, the Oregon-California Trail is routed parallel to U.S Route 30. Several trail sites are located in the vicinity of the airport; the closest one, known as Pegleg Smith's Trading Post Site, is approximately 4 miles northeast of the airport. The Oregon Trail is a 2,200 miles wagon route connecting Missouri to Oregon, traveled by emigrants and pioneers in search of new homes in the west. The California Trail follows the first half of the Oregon Trail, before turning off to reach California. The Oregon Trail was designated a National Historic Trail in 1978 and the National Oregon-California Trail Center is located in Montpelier, Idaho. The trail center was built to preserve and promote the pioneer history and the heritage of the Oregon-California Trail and Bear Lake Valley. **Figure X-10** depicts the location of the trail as well as trail sites in relation to the airport location.

FIGURE X-10 – OREGON TRAIL SITES

1.12.3 SHOSHONE-BANNOCK TRIBES

Artifacts found in the Bear Lake National Refuge, along creek channels and within the marsh, tell us that the Shoshone Indians used Bear Lake Valley for grazing horses and hunting and that the Bannock Indians may have visited the valley. Buffalo bones and skulls have also been found in the marsh. Today, the tribal government offices and most tribal business enterprises are located eight miles north of Pocatello in Fort Hall.

As part of the construction of the partial parallel taxiway, a cultural resource field survey was completed at Bear Lake County Airport in August 2012 to examine the proposed taxiway site. It was concluded that the project did not have the potential to affect historic properties.

1.12.4 SUMMARY

Section 106 of the National Historic Preservation Act (NHPA) requires that Federal agencies consider the effects of their undertakings on historic properties. Coordination and consultation with the State Historic Preservation Officer (SHPO) or the Tribal Historic Preservation Officer (THPO) if one exists, is necessary before any airport actions. It may also be necessary to identify

historic sites recorded by the Idaho SHPO, but not currently included in the National Register of Historic Places. Section 106 does not require formal permits, certification or approval. However, demonstration of appropriate consultation and coordination with the various parties having critical roles in the Section 106 process must be made.

A cultural resource survey was conducted at Bear Lake County Airport as part of the Airport Master Plan. Due to the substantial cost of completing an intensive survey of all the 1,180 acres of the airport property, only those areas most likely to be impacted by future potential development were surveyed via an intensive ground survey. The entire airport was evaluated by an Architectural Historian as a single site per the Idaho State Historic Preservation Office Guidelines.

During the intensive ground survey, four areas were assessed. These areas are located at each runway end as well as north of Runway 10-28, along the runway from the apron area to the airport property limit. The extents of the areas assessed are depicted in the Archaeological and Historical Survey Report included at the end of this Appendix.

According to the survey report, two sites recommended eligible for the NRHP under Criterion A, are within one mile of the project areas: the Bear Lake Outlet Canal and the William H. Smith Homestead. The William H. Smith Homestead is a building while the Bear Lake Outlet Canal consists of one historical canal built in 1915, which diverts water out of Bear Lake for irrigation. The canal is located approximately 2,200 feet west of the airport runways. These sites were previously known.

Per the report, one newly recorded historic property, the Bear Lake County Airport, was recorded during the architectural history survey. The Bear Lake County Airport consists of 17 resources (buildings, structures, and one object). The airport property is recommended as not eligible for listing in the NRHP; however, two resources—a wooden beacon tower and an earthen drainage ditch—are recommended individually eligible for listing in the NRHP.

Any planned development should avoid these new resources. If these resources cannot be avoided, appropriate documentation should be performed to resolve adverse effects to these properties.

1.13 LIGHT EMISSIONS AND VISUAL IMPACTS

According to the FAA Airports Desk Reference, lighting facilities on airports can visually affect surrounding residents and other nearby light-sensitive areas such as homes, parks, or recreational areas. There are not Federal statutory or regulatory requirements for adverse effects. However, the FAA considers potential effects to properties and people's use of properties.

Impacts due to light emissions effects may include: an annoyance to people in the vicinity of the airport, interference with normal activities, or proposed development that contrasts with the existing environment to an objectionable level.

Bear Lake County Airport primary sources of lightning include runway lights (Medium Intensity Runway Lights (MIRL) on Runway 10/28) and the airport beacon, which is a rotating light used to locate the airport. Additional sources consist of the pilot/passengers vehicles and aircraft lights. The runway lights are activated by the pilot when required and the runway is not lit in permanence, which reduces light pollution.

The level of light intensity at Bear Lake County Airport is not great enough to have the adverse impacts listed above. Should future projects have significant light emissions or visual effects, additional environmental analysis, including the purpose of the lighting, description of potential impacts, the location of light-sensitive sites, as well as any proposed mitigation measures, will be needed.

Per the size and environment of Bear Lake County Airport, no reasonably foreseeable development project is expected to have adverse effects due to light emissions or visual impacts.

1.14 NATURAL RESOURCES AND ENERGY SUPPLY

Certain airport improvement projects may have the potential to impact energy requirements or use consumable resources. For future projects, the County should be considerate of projects and construction methods that conserve resources, use pollution prevention, minimize aesthetic effects, and address public sensitivity.

1.15 NOISE

Airport noise is among the most controversial environmental impact at airports. The FAA examines airport development actions that would change airport runway configurations, aircraft operations and/or movements, aircraft types using the airport or aircraft flight characteristics. The noise analysis conducted by the FAA primarily focuses on how proposed airports actions would change the cumulative noise exposure of individuals to aircraft noise in areas surrounding the airport.

According to the FAA Order 1050.1E, Appendix A, section 14.6a, the FAA must conduct a noise analysis for the general aviation-related projects that would involve more than 90,000 annual operations piston-powered operations in Approach Categories A through D or 700 annual jet-powered aircraft operations during the period the environmental document covers. In addition, a noise analysis is needed at the existing heliports or airports when forecasted helicopter operations would exceed 10 operations per day on an annual basis and hover times exceed 2 minutes.

Bear Lake County Airport is not expected to meet these levels of operations over the planning period and is, therefore, exempt from the noise analysis requirement.

1.16 SECONDARY (INDUCED) IMPACTS

Induced socioeconomic impacts are linked to impacts to other resource categories through cause-and-effect relationship.

Factors to address when considering induced, or secondary, socioeconomic impacts includes:

- Shifts in patterns of population movement and growth,
- Public service demands,
- Changes in business and economic activities,
- Or other factors identified by the public.

The FAA does not require any formal Federal permits, certifications or approvals. However, an environmental analysis should identify the direct social impacts as well as the induced, secondary, impacts and contain evidence that the airport sponsor has coordinated with the appropriate parties and the jurisdiction potentially affected by the airport action.

The area surrounding the Bear Lake County Airport is largely agricultural and sparsely populated, as previously mentioned in the Inventory section. No reasonably foreseeable actions at the airport will lead to shifts in patterns of population movement and growth, negative changes in business and economic activities or affect public service demand.

1.17 SOCIOECONOMIC IMPACTS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

1.17.1 SOCIOECONOMIC IMPACTS AND CHILDREN'S HEALTH AND SAFETY RISKS

Social impacts must be evaluated by the FAA and include the effects on health and safety risks to children and socioeconomic impacts. Social impacts encompass:

- Moving home or businesses,
- Dividing or disrupting established communities,
- Disrupting orderly, planned development,
- Or creating a notable change in employment.

The area surrounding the Bear Lake County Airport is sparsely populated, as previously mentioned in the Inventory Section. No reasonably foreseeable actions at the airport will require moving home or business, dividing established communities, disrupting orderly or planned development or will create a notable negative change in employment.

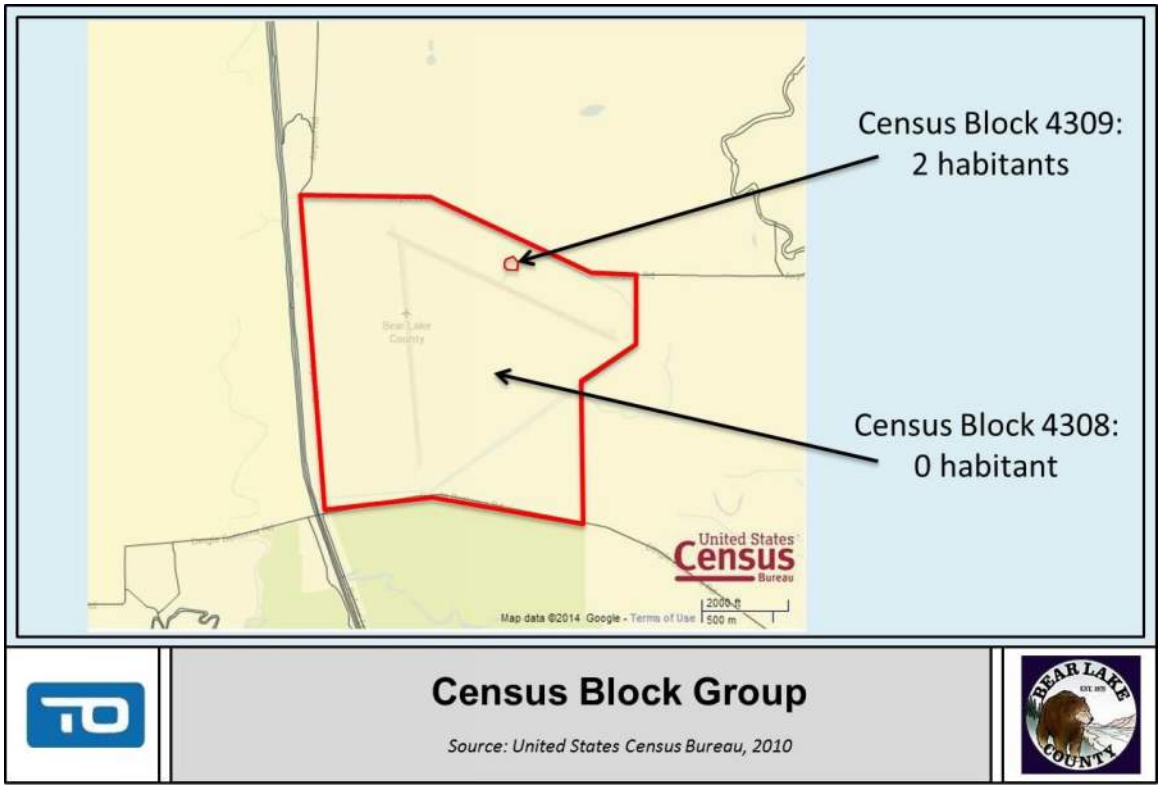
1.17.2 ENVIRONMENTAL JUSTICE

Environmental justice considers the potential to cause disproportionate and adverse effects on low-income or minority populations. Environmental justice is described by the U.S Environmental Protection Agency (EPA) Office of Environmental Justice as "the fair treatment and meaningful involvement of all people, regardless of race, color, national origin or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means that no group of people including racial ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental effects resulting from industrial, municipal and commercial operations or the execution of Federal, State, local, and tribal programs and policies."

Timely consultation with human resources agencies regarding locations of low-income or minority populations is crucial to ensure identification of resources the airport action would adversely affect, to help determine if low-income or minority populations sustain adverse effects and if mitigation or offsetting benefits would avoid or reduce disproportionate effects. The FAA typically does not need any formal Federal permits, certifications or approvals. However, environmental justice must be carefully considered in an environmental analysis.

According to the U.S. Census Bureau (2010), Bear Lake County airport is within census tract 9501, census block 4308 and 4309, as depicted in **Figure X-11**. Census data from 2010 for census block 4309 indicated 2 inhabitants, the airport's manager and his wife, and census data for census block 4308 indicated 0 inhabitants. According to data from the U.S Census Bureau (2010), the census blocks in the immediate vicinity of the airport were not inhabited. Further, according to Indicators Idaho, the overall poverty rate of Bear Lake County was 14.0 percent in 2012, compared to the 16.0 percent of Idaho and of the United States. The minority population in Bear Lake County Airport is 2.3 percent, compared to the 6.2 percent in Idaho and 22.3 percent in the United States.

FIGURE X-11 – CENSUS BLOCK GROUP



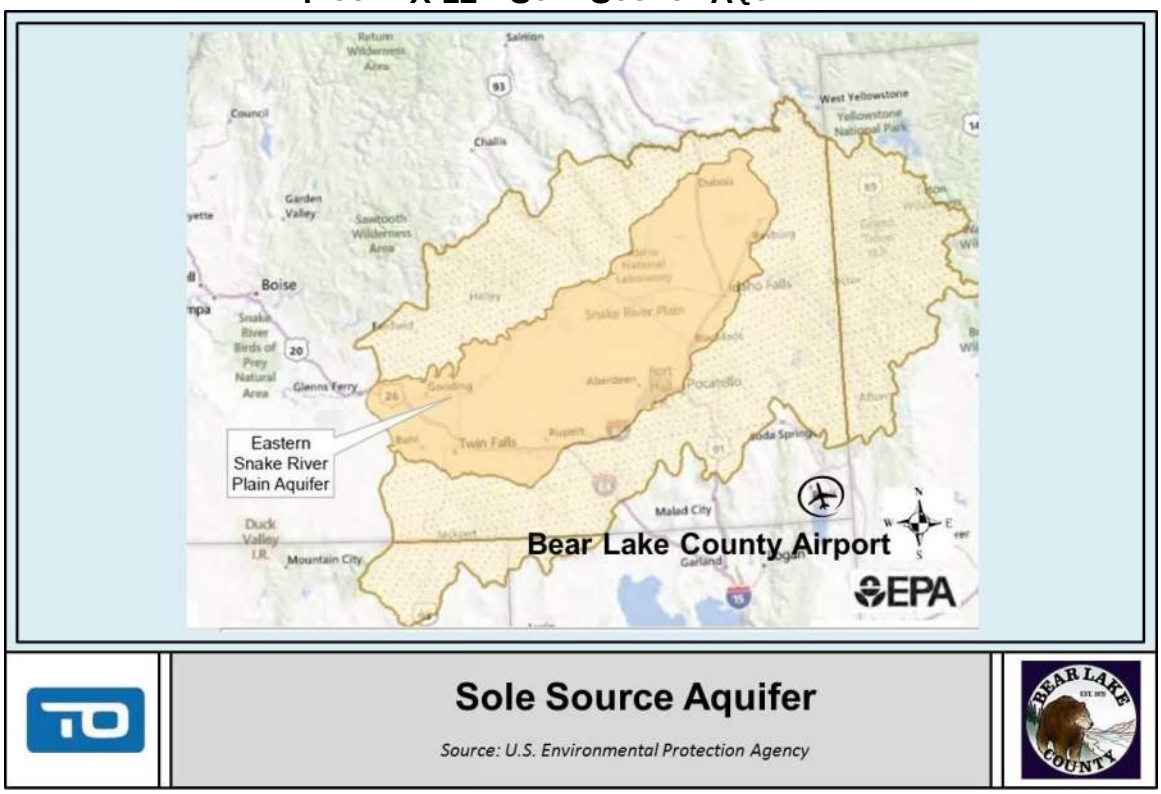
No reasonably foreseeable actions at the airport will cause disproportionate and adverse effects on low-income or minority populations.

1.18 WATER QUALITY

Airports' activities, especially construction activities, seasonal airport anti-icing/deicing, airport operations or maintenance may cause water quality impact due to their proximity to waterways. When an airport sponsor requests FAA action to support an airport development project, the FAA must evaluate the proposed project's potential water quality impacts. Construction activities that disturb one acre or more of land (including clearing, grading, and excavating) or airport actions that have a point source discharge to a navigable waterway require coverage by a National Pollutant Discharge Elimination System (NPDES) stormwater permit. In addition, an airport action may not be funded by the FAA if it has the potential to affect a public drinking water supply, a sole source aquifer or a Comprehensive State Groundwater Protection Program (CSGWPP).

Sole source aquifers is a tool of the U.S. Environmental Protection Agency to protect drinking water supplies in areas with few or no alternative sources to the ground water resource, and where if contamination occurred using an alternative source would be extremely expensive. There is no sole source aquifer in the immediate vicinity of Bear Lake County airport, as the closest sole source aquifer is the Eastern Snake River Plain Aquifer located to the north of the airport, as depicted in **Figure X-12**.

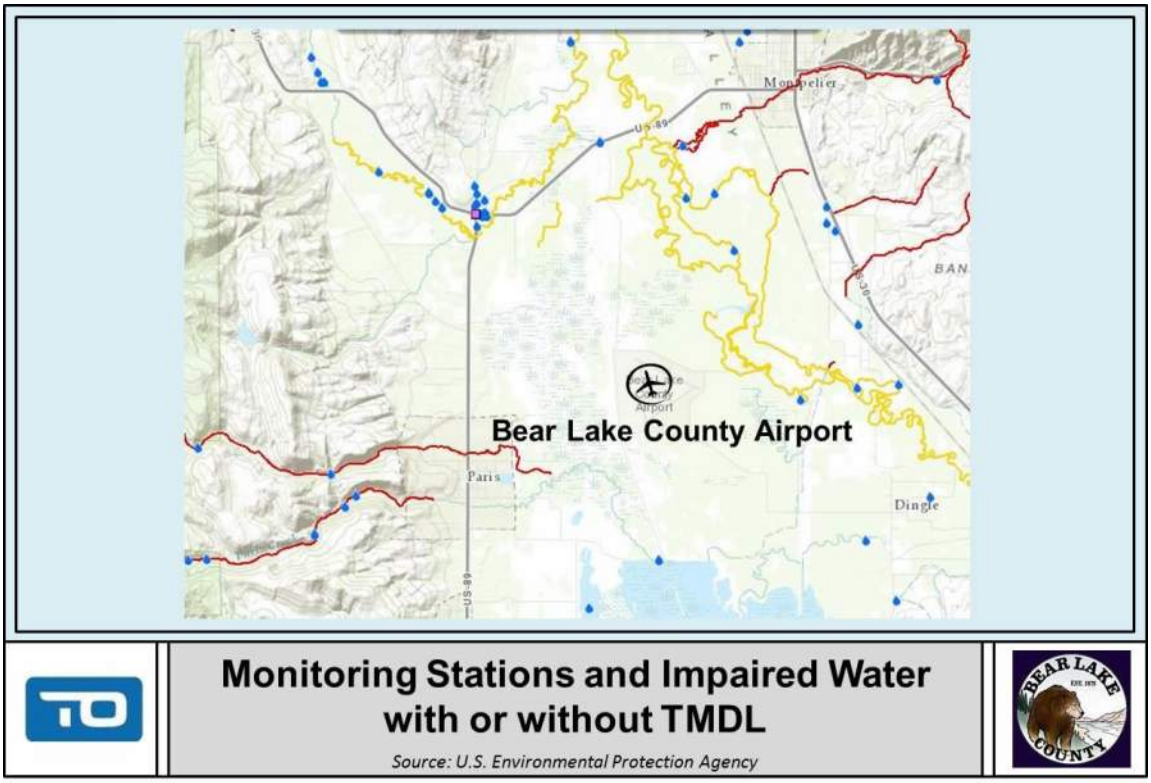
FIGURE X-12 – SOLE SOURCE AQUIFER



Section 305(b) of the Clear Water Act requires States to use monitoring data and other information to report bi-annually the status of their waters. In addition, section 303(d) of the Clean Water Act requires States to use monitoring data and other information to develop a list of waters that will not meet water quality standards for a particular pollutant. States must submit this list every two years and must then develop Total Maximum Daily Loads to restore these waters.

Figure X-13 depicts the water monitoring stations as well as the impaired waters with or without a Total Maximum Daily Loads (TMDL), in the vicinity of Bear Lake County Airport.

FIGURE X-13 – MONITORING STATIONS AND IMPAIRED WATER WITH OR WITHOUT TMDL



Should future projects at Bear Lake County Airport impacts more than 1 acre or land or involve a point source discharge or a point source stormwater discharge, a NPDES permit will have to be obtained. In addition, a Storm Water Pollution Prevention Plan (SWPPP) will be required by the Idaho Panhandle Health Department to describe the site controls.

1.19 WETLANDS

The U.S. Department of Transportation (DOT) Order 5660.1A, Preservation of the Nation's Wetlands, provides guidance regarding actions in wetlands. This order defines wetlands as "lowlands covered with shallow and sometimes temporary or intermittent water. (…) Areas covered with water for such a short time there is no effect on moist-soil vegetation are not included in the definition, nor are the permanent waters of streams, reservoirs, and deep lakes. (…) An activity may affect the wetlands indirectly by impacting regions up or downstream from the wetland or by disturbing the water table of the area in which the wetland lies."

Federal agencies are required to avoid wetlands when a practical alternative avoiding the wetlands exists. The National Wetlands Inventory online mapper tool indicates that several wetlands exist in the vicinity of Bear Lake County Airport, as depicted in **Figure X-14**. The types

of wetlands present are Freshwater Emergent wetlands, Freshwater pond, and Riverine. Freshwater Emergent wetlands are described as wetlands dominated by erected, rooted, herbaceous fen, marsh, swale and wet meadow, and excluding mosses and lichens. Riverine are river or stream channel while Freshwater ponds are simply local ponds of standing water.

FIGURE X-14 – WETLANDS

A distinction is made between non-jurisdictional wetlands and jurisdictional wetlands. Nonjurisdictional wetlands are wetlands which do not involve navigable waters and do not require U.S. Army Corps of Engineers approvals but do require assessment by the FAA as natural resources. Section 404 of the Clean Water Act (CWA) governs the dredging and filling of wetlands connected or adjacent to the navigable waters of the United States. The U.S. Army Corps of Engineers must issue a permit authorizing dredge or fill in the waters under their jurisdiction.

In addition, wetlands under the jurisdiction of the U.S. Army Corps of Engineers are: “areas that surface or groundwater inundate or saturate at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include swamps, marshes, bogs and similar areas.” Specific conditions of hydrology, vegetation and soil type must be met for the area to be considered a wetland. Thus, a qualified wetland delineation specialist should evaluate the proposed site’s characteristics to determine if an airport development action affects an area meeting either of the above definitions, in accordance with the U.S Corps of Engineers Wetland Delineation Manual.

Wetlands areas depicted in **Figure X-14** are not necessarily confirmed to meet all three wetland conditions of hydrology, vegetation, and soil type. Should future projects be considered in areas identified as wetlands, an additional environmental analysis will be needed, a Section 404 permit might need to be obtained through the U.S. Army Corps of Engineers and mitigation measures might be necessary. For new construction projects, which do not include routine repairs and maintenance of existing facilities, affecting wetlands, the FAA should provide the public and agencies with a special interest in wetlands appropriate opportunity for early review of the proposal.

A wetland assessment and delineation was conducted at Bear Lake County Airport as part of the Airport Master Plan to assess the potential presence and size of wetlands on site as well as their function, value and whether the future potential development would require mitigation. Due to the substantial cost of completing the survey on all the 1,180 acres of the airport property, only those areas most likely to be impacted by future potential development were assessed.

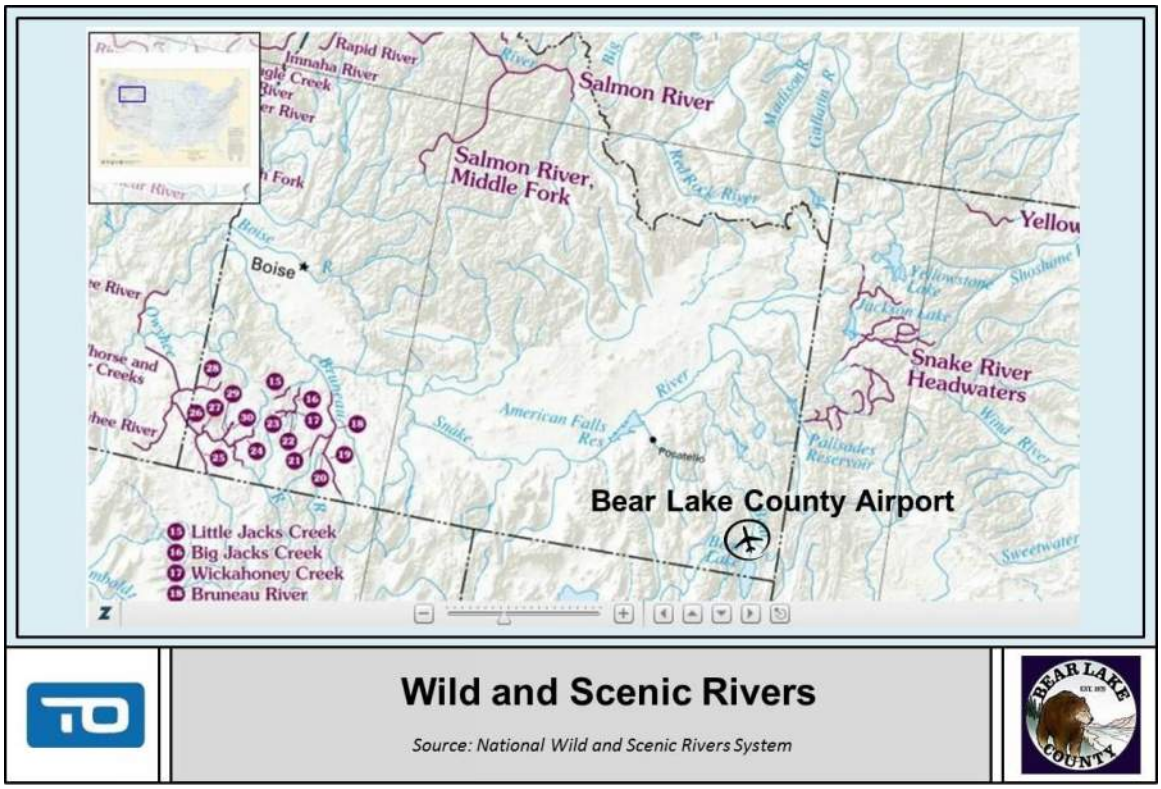
During the wetlands survey, four areas were assessed for potential wetlands. These areas are located at each runway end as well as north of Runway 10-28, along the runway from the apron area to the airport property limit, and are depicted in the Wetland Determination Report included at the end of this Appendix. Two depressions and three wet meadows, as well as the banks of the ditch surrounding the airport property, contain the necessary wetland characteristics. The wetlands delineated encompass an area of 0.48 acres and are depicted in the Wetland Determination Report. In addition, according to the Wetland Determination Report, these wetlands are presumed jurisdictional under Section 404 of the Clean Water Act. Further, the ditch is connected to the Bear Lake Outlet and Bear Lake, considered Waters of the U.S. Therefore, any disturbance to these wetland areas will require a Section 404 permit.

1.20 WILD AND SCENIC RIVERS

The Federal Wild and Scenic Rivers Act of 1968, as amended, describes areas eligible to be included in the National Wild and Scenic Rivers System (WSRS). The WSRS was created to preserve certain rivers with outstanding natural, cultural and recreational values and to protect the river's free-flowing characteristics. Federal agencies, such as the FAA, may not assist actions that would have a direct or adverse effect on the values for which the river was designed.

According to the National Wild and Scenic Rivers System and the National Rivers Inventory websites, there are no designated or eligible Wild and Scenic River in the immediate vicinity of Bear Lake County Airport. The closest Wild and Scenic River is located near the Palisades Reservoir in Wyoming, approximately 70 miles northeast of Bear Lake County Airport.

FIGURE X-15 – WILD AND SCENIC RIVERS



This impact category is not applicable at Bear Lake County Airport.

1.21 CUMULATIVE IMPACTS

Cumulative impacts are impacts the proposed action would have on a particular resource when added to impacts on that resource due to the past, present and reasonably foreseeable actions within a defined time and geographical area. An individually minor impact due to actions occurring

over time may cause significant impacts when those impacts are collectively evaluated and both FAA and non-FAA actions should be considered.

Table X-2 lists the past, present and foreseeable actions, as described in the FAA Grant History and Airport Capital Improvement Program (CIP). In addition to these projects partially funded by the FAA, one hangar was funded with private funds and built during the fall of 2013.

TABLE X-2: BEAR LAKE COUNTY AIRPORT PROJECTS

Year	Projects
1984	Rehabilitate the Apron, Taxiway, and Runway Acquire Land for Approaches
2003	Rehabilitate Taxiway and Runway
2004	-
2005	Construction Taxiway
2006	Construction Building
2007	Construction Building
2008	Improve Fuel Farm
2009	Rehabilitate the Apron, Taxiway, and Runway Install Miscellaneous NAVAIDS
2010	-
2011	-
2012	Construction Taxiway
2013	Construction Taxiway Rehabilitation of Runway
2014	Update the Airport Master Plan
2015	RSA Grading and Taxiway Improvement (Phase 2)
2016	Rehabilitate the Apron, Taxiway, and Runway New Runway Lights (MIRLs)
2017	Install Automated Weather Observation System
2018	Carry-Over Funds
2019	Carry-Over Funds
2020	Snow Removal Equipment

Source: T-O Engineers, Inc.

The area surrounding the Bear Lake County Airport is largely agricultural and sparsely populated. Structural development and infrastructure development in Bear Lake County are not expected to be affected by the reasonably foreseeable actions.

Most of the past projects were rehabilitation projects, to renovate existing runways, taxiways, and aprons. None of these past projects had a significant impact on the environmental categories previously discussed. In addition, none of the reasonably foreseeable actions are predicted to affect any of the environmental impact categories discussed above. Lastly, there are no projects that are connected, cumulative, or similar.

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WETLAND REPORT

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Wetland Determination Report

Airport Master Plan

Bear Lake County Airport

Bear Lake County Airport near Paris, Idaho

October 2014

Prepared for:
Bear Lake County
P.O. Box 190
Paris, Idaho 83261

Prepared by:
North Wind Resource Consulting, LLC
1425 Higham Street
Idaho Falls, Idaho 83402

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INTRODUCTION

Bear Lake County (County) in southeastern Idaho contracted T-O Engineers to update a Master Plan for the Bear Lake County Airport (Airport) to accommodate potential future growth. T-O requested North Wind Resource Consulting, LLC (NWRC) to complete a field assessment of approximately 150 acres of airport property to identify waters of the United States, including wetlands, at the existing airport facilities. The on-going airport master plan will identify future aeronautical development needs at the airport for a 20 year planning horizon (2014 as the base year). Findings in this report will be used to assist in the master plan analysis and the determination of potential impacts of future planned aeronautical development on identified wetlands.

The project area is located in the Bear Lake Valley, 5.1 miles south of Montpelier, Idaho and 9.3 miles north of Bear Lake (Figure 1). The northern extent of the Wasatch Mountain Range bounds the valley to the west and the Pruess Mountain Range to the east. Bear Lake, which is 20 miles long, dominates the landscape. A few farms and ranches are located near the area.

Bear Lake Valley is at nearly 6,000 feet elevation. Summers are typically short and winters long and cold. Soils in the area are partially hydric, moderately well to very poorly drained, very deep silt loam and silty clay loam formed in mixed alluvium. Vegetation within the survey area is made up of a variety of shrubs, grasses, and herb species.

A search for wetlands in the vicinity of the Airport was conducted using the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Wetlands Mapper in conjunction with a field survey completed on July 31, 2014 and August 1, 2014. The NWI revealed the Airport is surrounded by wetlands yet noted no wetlands within the Airport property (USFWS NWI 2014).

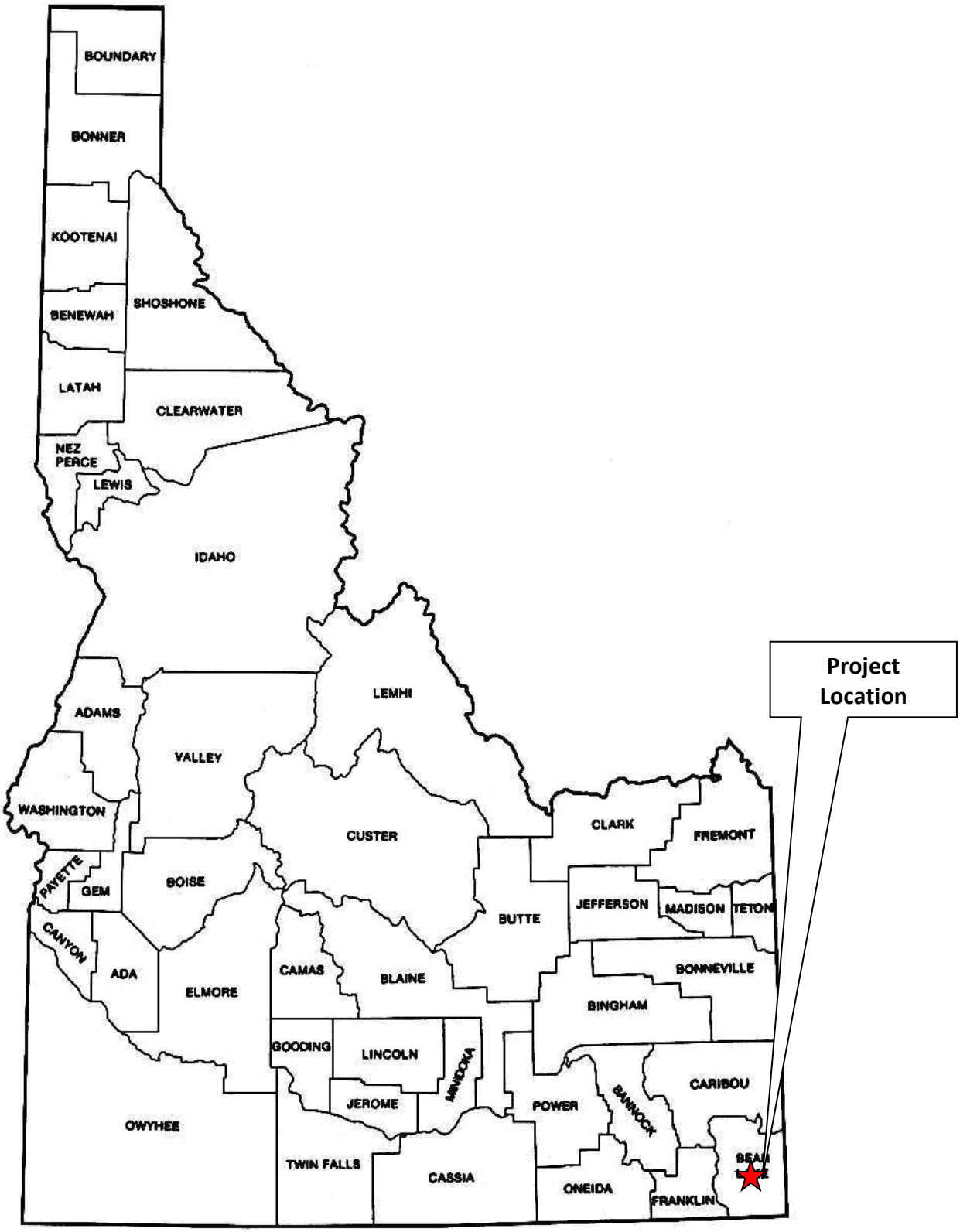

Figure 1. Map of Idaho showing the general location of the project area.

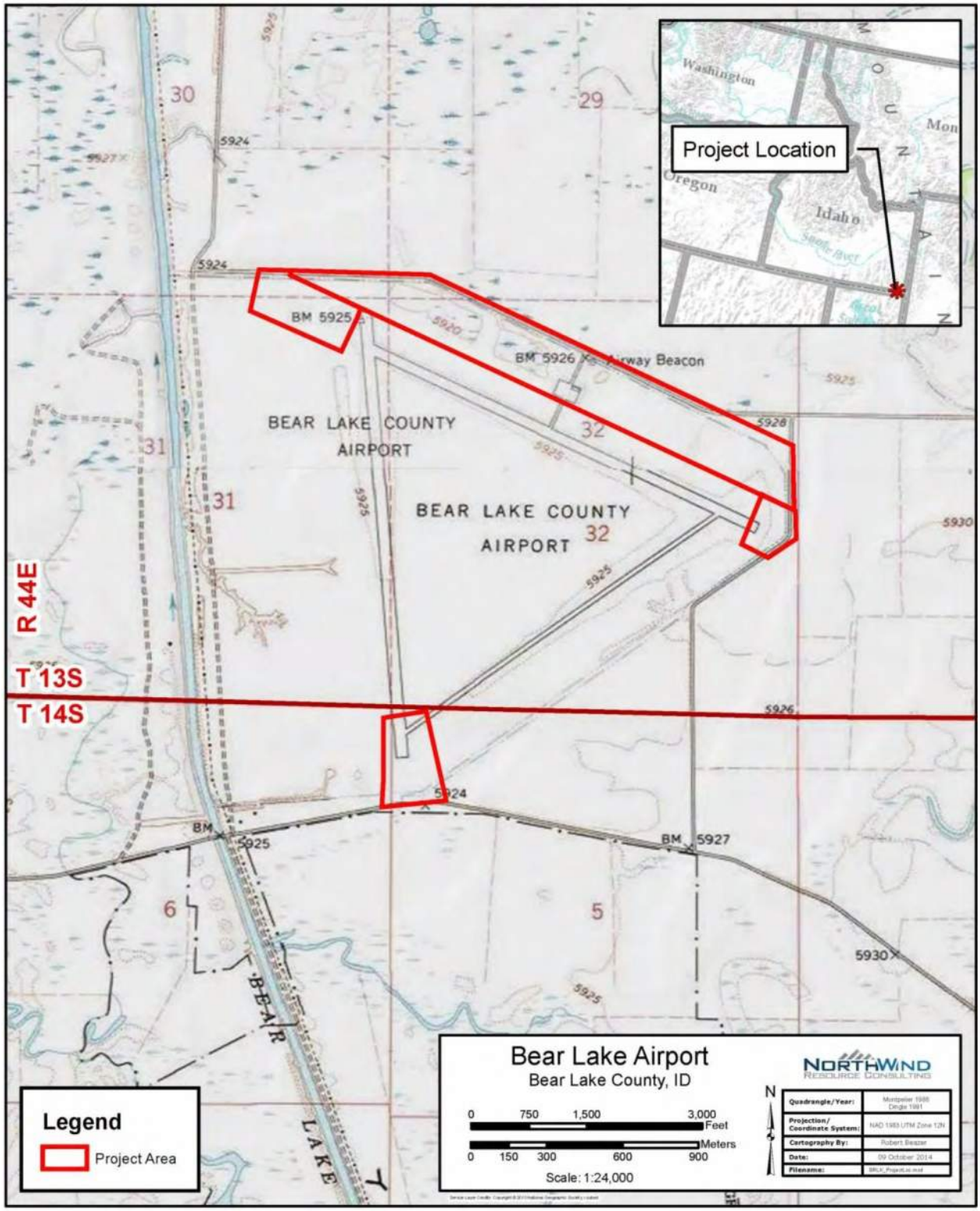

Figure 2. Map showing location of the project area taken from the Montpelier (1967) and Dingle (1967) quadrangles, USGS 7.5' series (1:24,000 scale).

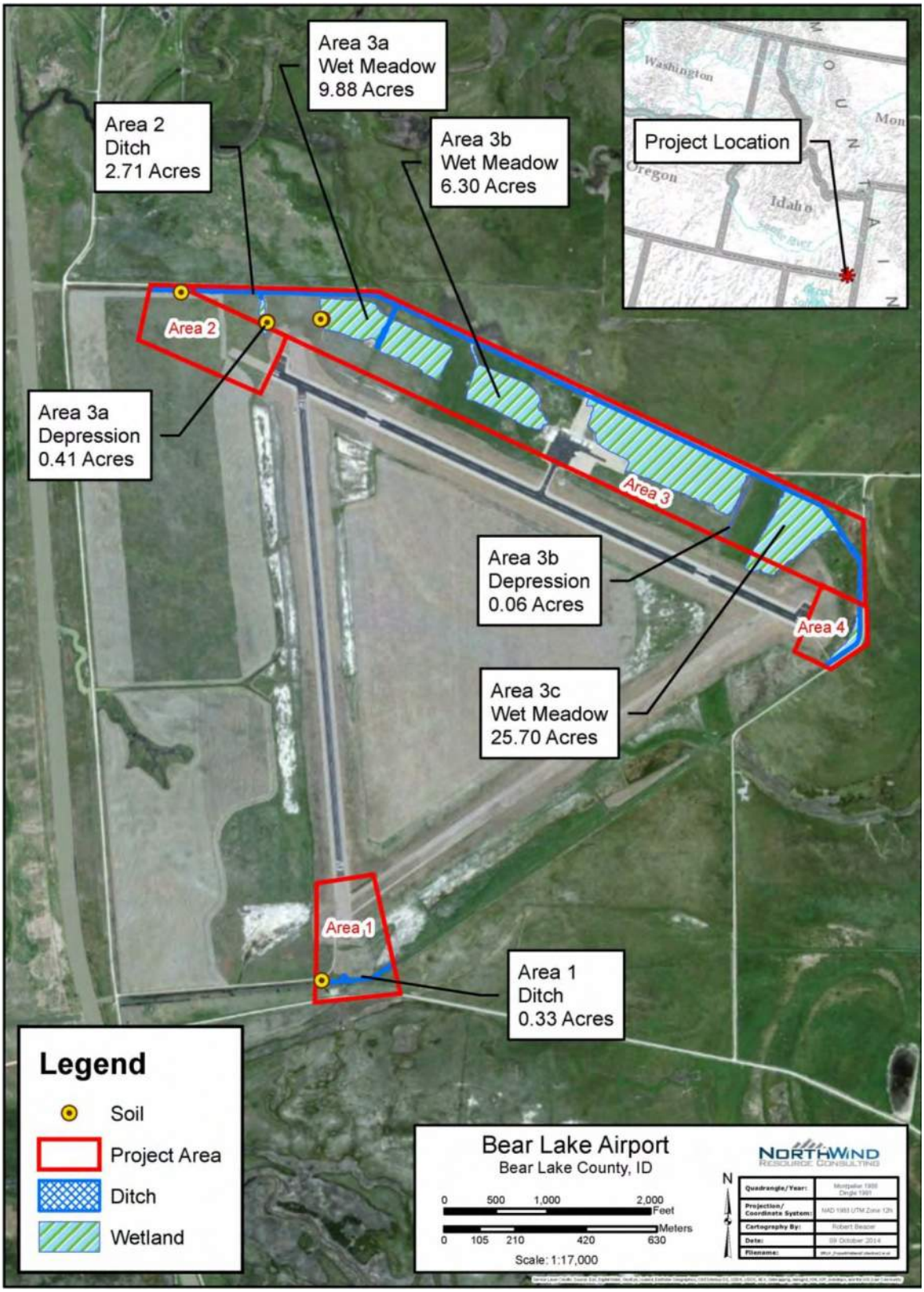

Figure 3. Map showing locations and acreages of the wetlands.

METHODS

The wetland delineations were performed using the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) Routine Method for five acres or less with onsite inspection and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, Version 2.0 (USACE 2008). Prior to field visits, the USFWS NWI Digital Data site was accessed to preview wetlands in the project area (USFWS NWI 2014) and the Natural Resources Conservation Service (NRCS) website was reviewed for soil information (USDA NRCS 2014).

The survey area is shown on Figures 2 and 3. This APE was surveyed for the presence of normal circumstances, atypical situations, or problem areas (Environmental Laboratory 1987).

The scientific name of plants used in this report follows the USFWS NWI 2012 Arid West Final Draft Ratings (Lichvar and Kartesz 2009) and are noted in the table in Appendix A. Wetland determination data forms are located in Appendix B and maps showing the NWI and soils information are provided in Appendix C.

Additional sources of existing information used for this delineation include:

- Classification of Wetlands and Deep Water Habitat of the United States (Cowardin et al. 1979)
- Munsell Soil Color Charts (Munsell 2000)
- Plants of the Rocky Mountains (Kershaw et al. 1998)
- Weeds of the West, 9th Ed. (Burrill et al. 2000)

RESULTS AND DISCUSSION

The following sections provide information concerning observations made in the field during the wetland delineation as well as information gathered during the preliminary work. The sampling locations within the survey area contain the necessary wetland characteristics required to be classified as a wetland, as outlined in the wetland delineation manuals (Environmental Laboratory 1987; USACE 2008). Two of these areas are located along the banks of the ditch in Areas 1 and 2, there are two depressions in Area 3, and there are three wet meadows in Area 3 (Figure 3).

Plant species in the project area include common cattail (*Typha latifolia*), Baltic rush (*Juncus balticus*), reed canarygrass (*Phalaris arundinacea*), and hardstem bulrush (*Schoenoplectus acutus*) in the wetlands with yellow rabbitbrush (*Chrysothamnus viscidiflorus*), tall yellow sweet clover (*Melilotus altissimus*), crested wheatgrass (*Agropyron cristatum*), and slender hawkweed (*Hieracium gracile*) in the uplands. The FWS NWI website did not identify the survey area as containing wetlands (USFWS NWI 2012).

The soils in the project area have been officially mapped by the (USDA 2014). Bear Lake-Bear Lake, ponded complex, 0 to 1 percent slopes (Soil Map Unit 15), Bear Lake-Chesbrook-La Roco complex, 0 to 2 percent slopes (Soil Map Unit 16), and La Roco silty clay loam, 0 to 2 percent slopes (soil Map Unit 123) were the three soil map units identified within the project area. The

Bear Lake-Bear Lake soils are poorly drained soil derived from mixed silty and clayey alluvium, rarely flooding with no frequency of ponding, and predominately hydric. The Bear Lake-Chesbrook-La Roco soils are poorly drained soil derived from mixed silty and clayey alluvium, rarely flooding with no frequency of ponding, and predominately hydric. The La Roco soils are somewhat poorly drained soils derived from mixed alluvium over sandy and gravelly alluvium, rarely flooding with no frequency of ponding, and predominately nonhydric.

The hydrology within the project area is derived from a high water table and directed draining of the airport property into the ditch that flows the perimeter of the airport. The ditch drains from and into the Bear Lake Canal Outlet (Figure 2) which flows into Bear Lake, a waters of the United States. Maps showing the NWI, and soils information are provided in Appendix C.

FINDINGS

There were four sample locations within the bounds of the surveyed project area. Three of the four sample locations are associated with the ditch that follows the perimeter of the airport and the fourth is the wet meadow on the northeast side of the airport. All four of the sample locations were found to contain wetland characteristics (i.e., vegetation, soils, and hydrology). Wetland characteristics observed within the ditch and depression areas and the wet meadow area are discussed independently. The locations and boundaries of the delineated wetlands are located in Figure 3. Photos are located in Appendix A. Figure 4 in Appendix A details the photo locations.

Area 1 Ditch

Two sampling points were situated along the ditch in Areas 1 and 2. The ditch in Areas 3 and 4 is the same ditch that runs the perimeter of the airport so is discussed in Area 2 Ditch. Vegetation, soils, and hydrology are the similar in all four areas.

The sampling point discussed in this section is in the southwest corner of the runway triangle (Area 1 Ditch) and encompasses the bed and banks of the ditch (Figure 3; Photos 1 and 2). Upland vegetation adjacent to the wetland vegetation is dominated by grasses and upland shrubs.

Vegetation

Table 1 documents the dominant vegetation observed at Area 1 Ditch. Other species present were Baltic rush (*Juncus balticus* Willd.) and reed canarygrass (*Phalaris arundinacea*). The upland area contained smooth brome (*Bromus inermis*) and yellow rabbitbrush (*Chrysothamnus viscidiflorus*). Because the dominant plants in this area are OBL, the vegetation in the sampling area passed the dominance test for hydrophytic vegetation. See Appendix B for definitions of indicators.

Table 1. Dominant vegetation associated with sampling points on ditch in Area 1

Common Name	Scientific Name	Indicator
Cattail	*Typha latifolia*	OBL
Hardstem bulrush	*Schoenoplectus acutus*	OBL

Soils

Due to the steepness of the banks and rapid transition from wetland to upland vegetation at this sampling point associated with the ditch, soil test holes were not completed during the field survey. Following the protocol for Difficult Wetland Situation in Arid West-Problematic hydric soils, Step 4(e), the soils along the banks of the irrigation structures are considered hydric if they contain water for more than 14 consecutive days during the growing season and have done so for more than 5 years.

Hydrology

The hydrology at this sampling point is derived from a high water table and directed draining of the airport property. The ditch drains from and into the Bear Lake Canal Outlet (Figure 2) which flows into Bear Lake, a waters of the United States.

Area 2 Ditch

Two sampling points were situated along the ditch in Areas 1 and 2. The ditch in Areas 3 and 4 is the same ditch that runs the perimeter of the airport so is included in this discussion. Vegetation, soils, and hydrology are the similar in all four areas.

The sampling point discussed in this section is in the northeast side of the runway triangle (Area 2 Ditch) and encompasses the bed and banks of the ditch (Figure 3). See Table 5 for photo information. Upland vegetation adjacent to the wetland vegetation is dominated by grasses forbs, both native and nonnative.

Vegetation

Table 2 documents the dominant vegetation observed at Area 2 Ditch. Since the dominant plants in this area are OBL, the vegetation in the sampling area passed the dominance test for hydrophytic vegetation. See Appendix B for definitions of indicators.

Table 2. Dominant vegetation associated with sampling points on ditch in Area 2

Common Name	Scientific Name	Indicator
Hardstem bulrush	*Schoenoplectus acutus*	OBL
Water speedwell	*Veronica anagallis-aquatica*	OBL

Soils

Due to the steepness of the banks and rapid transition from wetland to upland vegetation at this sampling point associated with the ditch, soil test holes were not completed during the field survey. Following the protocol for Difficult Wetland Situation in Arid West-Problematic hydric soils, Step 4(e), the soils along the banks of the irrigation structures are considered hydric if they contain water for more than 14 consecutive days during the growing season and have done so for more than 5 years.

Hydrology

The hydrology at this sampling point is derived from a high water table and directed draining of the airport property. The ditch drains from and into the Bear Lake Canal Outlet (Figure 2) which flows into Bear Lake, a waters of the United States.

Area 3 Depression

Matched sampling points (in and out) were situated along the depression in Area 2. There is a second depression in Area 3 with similar vegetation, soils, and hydrology so a sampling point was not documented. Both depressions connect to the ditch on the northeast side of the runway triangle (Figure 3; Photos 5 and 6).

Vegetation

Table 3 documents the dominant vegetation observed at this sampling point, in order of dominance. The area is sparsely vegetated. Because the dominant species are FACW and FAC species, the vegetation in the sampling locations passed the dominance test for hydrophytic vegetation. The non-wetland sampling point (Data Form Area 3 Depression - out) was vegetated with grasses and forbs, both native and nonnative. See Appendix B for definitions of indicators.

Table 3. Dominant vegetation associated with sampling points in Area 3 Depressions

Common Name	Scientific Name	Indicator
Saltgrass	*Distichlis spicata*	FAC
Alkali cordgrass	*Spartina gracilis*	FACW

Soils

This sampling point is located in the Soil Map Unit 123 Bear Lake-Lago complex, 0 to 2 percent slopes that is predominately hydric (USDA NRCS 2014). The texture of the soil was silty clay from 0-10 inches below ground surface (bgs). The soil changed at 4 inches but all layers had depletion redox features in the matrix and the hydric soil indicator is listed as stripped matrix (S6).

Hydrology

The hydrology at this sampling point is derived from a high water table and directed draining of the airport property. The depression gains water from the ditch and runoff from the airport.

Area 3 Wet Meadow

This sampling point is a wet meadow that runs east to west along the north edge of the airport near Airport Road. The acreage is broken into three areas (Figure 3; Photos 7-9) but all have similar vegetation, soils, and hydrology.

Vegetation

Table 4 documents the dominant vegetation observed within each area associated with the sampling point, in order of dominance. Because the dominant species are FACW and FAC

species, the vegetation in the sampling locations passed the dominance test for hydrophytic vegetation.

Table 4. Dominant vegetation associated with sampling points in Area 3 Wet Meadows

Common Name	Scientific Name	Indicator
Quackgrass	*Elymus repens*	FAC
Reed canarygrass	*Phalaris arundinacea*	FACW

Soils

This sampling point is located in Soil Map Unit 15 Bear Lake-Bear Lake, ponded complex, 0 to 1 percent slopes and Soil Map Unit 16 Bear Lake-Chesbrook-La Roco complex, 0 to 2 percent slopes that are predominately hydric (USDA NRCS 2014). The texture of the soil was silty clay from 0-10 inches (bgs). The soil changed at 2 inches but all layers had depletion redox features in the matrix and the hydric soil indicator is listed as stripped matrix (S6).

Hydrology

The hydrology at this sampling point is derived from a high water table and directed draining of the airport property. The wet meadow gains water from runoff from the airport.

CONCLUSIONS

Within the survey, all four sampling points were found to contain greater than fifty percent hydrophytic vegetation which is a positive wetland indicator. The soils along the ditch, depression, and wet meadow were determined to be hydric using the hydric soils indicators in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008). Wetland hydrology indicators are present for all four areas, and the connectivity of the ditch to the Bear Lake Outlet makes the waters within the project Waters of the U.S.

All four sampling points delineated within the survey area are determined to be wetlands based on the above findings for hydrophytic vegetation, hydric soil, and wetland hydrology. The wetlands delineated within the project area encompass 0.48 acres and are presumed jurisdictional under Section 404 of the Clean Water Act (See Table 5).

Table 5. Delineated acreage and photo reference for each area assessed.

Delineated Area	Delineated Wetland (Acres)	Photo (Page)
Area 1 Ditch	0.33	Photos 1 and 2 (A-3)
Area 2 Ditch	2.71	Photos3, 4, 10, and 11 (A-4, A-7, and A-8)
Area 3a Depression	0.41	Photos 5 and 6 (A-5)
Area 3b Depression	0.06	No photo available
Area 3a Wet Meadow	9.88	Photo 7 (A-6)
Area 3b Wet Meadow	6.30	Photo 8 (A-6)
Area 3c Wet Meadow	25.70	Photo 9 (A-7)
TOTAL	45.39	

The connectivity of the areas to Waters of the U.S. provides the Corps jurisdiction over these areas. Any potential disturbance to these areas will require a 404 permit prior to the initiation of any activities.

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Appendix A
Photos

Figure 4. Map showing locations and directions of photos.

Photo 1 Overview Area 1 Ditch; facing west.

Photo 2 Overview Area 1 Ditch; facing east.

Photo 3 Overview Area 2 Ditch; facing east.

Photo 4 Overview Area 2 Banks; facing west.

Photo 5 Overview Area 3a Depression confluence with Area 2 Ditch; facing northeast.

Photo 6 Overview Area 3a Depression; facing north.

Photo 7 Overview Area 3a Wet Meadow; facing north.

Photo 8 Overview Area 3b Wet Meadow; facing east.

Photo 9 Area 3c Wet Meadow north of hangars; facing northwest.

Photo 10 Area 2 Ditch at east end of airport in Area 4; facing northeast.

Photo 11 Area 2 Ditch at east end of airport in Area 4; facing southwest toward Area 1.

Appendix B
Plant List

Scientific Name	Common Name	Indicator Status*
Achillea millefolium	Common yarrow	FACU
Agropyron cristatum	Crested wheatgrass	UPL
Bromus inermis	Smooth brome	FACU
Chrysothamnus viscidiflorus	Yellow rabbitbrush	UPL
Distichlis spicata	Saltgrass	FAC
Cirsium arvense	Canada thistle	FACU
Elymus glaucus	Blue wildrye	FACU
Elymus repens	Quackgrass	FAC
Elymus trachycaulus	Slender wheatgrass	FACU
Eurybia conspicua	Western showy aster	UPL
Grindelia squarrosa	Curlycup gumweed	FACU
Hieracium gracile	Slender hawkweed	UPL
Hordeum jubatum	Foxtail barley	FAC
Juncus balticus Willd.	Baltic rush, wirerush	FACW
Melilotus altissimus	Tall yellow sweetclover	UPL
Phalaris arundinacea	Reed canarygrass	FACW
Potentilla glandulosa	Varileaf cinquefoil	FACU
Schoenoplectus acutus	Hardstem bulrush	OBL
Spartina gracilis	Alkali cordgrass	FACW
Tragopogon dubius	Yellow salsify	UPL
Typha latifolia	Common cattail	OBL
Veronica anagallis-aquatica	Water speedwell	OBL

*Categories were originally developed and defined by the USFWS NWI and subsequently modified by the National Plant List Panel.

OBL - Obligate Wetland Plants: Plants that occur almost always (estimated probability >99 percent) in wetlands under natural conditions, but which may also occur rarely (estimated probability<1 percent) in nonwetlands.

FACW - Facultative Wetland Plants: Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur (estimated probability 1 percent to 33 percent) in nonwetlands.

FAC - Facultative Plants: Plants with a similar likelihood (estimated probability 33 percent to 67 percent) of occurring in both wetlands and nonwetlands. This includes FAC+ and FAC- plants.

FACU - Facultative Upland Plants: Plants that occur sometimes (estimated probability 1 percent to <33 percent) in wetlands, but occur more often (estimated probability >67 percent to 99 percent) in nonwetlands.

UPL – Obligate Upland Plants: Plants that occur rarely (estimated probability <1 percent) in wetlands, but occur almost always (estimated probability 99 percent) in nonwetlands under natural conditions.

Appendix C
Data Forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Bear Lake County Airport City/County: Bear Lake County Sampling Date: 7/31/14

Applicant/Owner: Bear Lake County State: Idaho Sampling Point: Area 1

Investigator(s): D. Stark Section, Township, Range: Sec. 5 & 6, T. 14S, R. 44E

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR): LRR B Lat: 42.238449 Long: -111.345929 Datum: NAD 83

Soil Map Unit Name: Bear Lake-Bear Lake, ponded complex, 0 to 1 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: This sampling point is located in the ditch at the south west side of the airport near the south end of the north-south runway. The ditch runs the perimeter of the airport and carries runoff from the airport. No upland sampling point was completed since the ditch bank is abrupt and the vegetation change is apparent.

Field defined NWI: PEM1Fx; Palustrine, emergent, persistent, semipermanently flooded, excavated.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 10 x 10)			
1. *Typha latifolia*	40	X	OBL
2. *Schoenoplectus acutus*	20	X	OBL
3. *Juncus balticus Willd.*	5		FACW
4. *Phalaris arundinacea*	2		FACW
5.			
6.			
7.			
8.			
	67	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: Vegetation above this sampling point includes smooth brome, rabbit brush, and thistle.

SOIL

Sampling Point: Area 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Unknown

Depth (inches): NA

Hydric Soil Present? Yes ☒ No ☐

Remarks: Due to the steepness of the banks of the drainage ditch no soil test hole was done. Following the protocol for Difficult Wetland Situation in Arid West-Problematic hydric soils, Step 4(e) the soils along the banks of the canal are considered hydric if the canal contains water for more than 14 days during the growing season and has done so for more than 5 years.

Soil Map Unit 15: Bear Lake-Bear Lake, ponded complex, 0 to 1 percent slopes; Predominately hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Non riverine**)
- ☐ Sediment Deposits (B2) (**Non riverine**)
- ☐ Drift Deposits (B3) (**Non riverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 24

Water Table Present? Yes ☒ No ☐ Depth (inches): surface

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 4

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This sampling point is located in a ditch used to drain runoff from the Bear Lake County airport. The ditch is connected to the Bear Lake Outlet Canal west of the project.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Bear Lake County Airport City/County: Bear Lake County Sampling Date: 7/31/14

Applicant/Owner: Bear Lake County State: Idaho Sampling Point: Area 2 ditch

Investigator(s): D. Stark Section, Township, Range: Sec. 30, T. 13S, R. 43E

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): 0-2

Subregion (LRR): LRR B Lat: 42.256797 Long: -111.351264 Datum: NAD 83

Soil Map Unit Name: La Roco silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: This sampling point is located in the east-west ditch at the northwest side of the airport near Airport Road. The ditch runs the perimeter of the airport and carries runoff from the airport. The ditch is approximately 15 feet wide with 3-5 foot banks on either side (see Area 2 Banks data sheet). The ditch runs the perimeter of the airport (See Area 1 data sheet) and contains similar vegetation throughout the entire project area. There were carp and ducks in the ditch.

Field defined NWI: PEM1Fx; Palustrine, emergent, persistent, semipermanently flooded, excavated.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 10 x 10)			
1. *Schoenoplectus tabernaemontani*	5	X	OBL
2. *Veronica anagallis-aquatica*	2	X	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	7	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: The ditch was full of moss.

SOIL

Sampling Point: Area 2 ditch

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Unknown

Depth (inches): NA

Hydric Soil Present? Yes ☒ No ☐

Remarks: Due to the steepness of the banks of the drainage ditch no soil test hole was done. Following the protocol for Difficult Wetland Situation in Arid West-Problematic hydric soils, Step 4(e) the soils along the banks of the canal are considered hydric if the canal contains water for more than 14 days during the growing season and has done so for more than 5 years.

Soil Map Unit 123: La Roco slilty clay loam, 0 to 2 percent slopes; Predominatly nonhydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Non riverine**)
- ☐ Sediment Deposits (B2) (**Non riverine**)
- ☐ Drift Deposits (B3) (**Non riverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 12

Water Table Present? Yes ☒ No ☐ Depth (inches): surface

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 4

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This sampling point is located in a ditch used to drain runoff from the Bear Lake County airport. The ditch is connected to the Bear Lake Outlet Canal west of the project.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Bear Lake County Airport City/County: Bear Lake County Sampling Date: 7/30/14

Applicant/Owner: Bear Lake County State: Idaho Sampling Point: Area 3 Depression - in

Investigator(s): D. Stark Section, Township, Range: Sec. 30, T. 13S, R. 43E

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): 0-4

Subregion (LRR): LRR B Lat: 42.256154 Long: -111.348036 Datum: NAD 83

Soil Map Unit Name: La Roco silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: This sampling point is a depressional area located perpendicular to the east-west ditch at the northwest side of the airport near Airport Road. It runs south of the ditch and is more vegetated closer to the ditch.

Field defined NWI: PUB3Ex; Palustrine, unconsolidated bottom, mud, seasonally flooded/saturated, excavated.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 10 x 10)			
1. *Distichlis spicata*	20	X	FAC
2. *Spartina gracilis*	20	X	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	40	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust 2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: This sampling point is sparsely vegetated.

SOIL

Sampling Point: Area 3 Depression - in

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/2	80	5YR 6/6	20	D	M	silty clay	
4-10	10YR 8/2	60	5YR 6/6	40	D	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☒ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None present

Depth (inches): NA

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: This soil test hole exposed two distinct layers. The top 4 inches were darker and faded into a stripped layer that contained a splotchy patter. The site had a playa-like quality.

Soil Map Unit 123: Bear Lake-Lago complex, complex, 0 to 2 percent slopes; Predominatly nonhydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Non riverine**)
- ☒ Sediment Deposits (B2) (**Non riverine**)
- ☐ Drift Deposits (B3) (**Non riverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This sampling point is located in a depression that is fed from the ditch running the north edge of the airport.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Bear Lake County Airport City/County: Bear Lake County Sampling Date: 7/31/14

Applicant/Owner: Bear Lake County State: Idaho Sampling Point: Area 3 Depression - out

Investigator(s): D. Stark Section, Township, Range: Sec. 30, T. 13S, R. 43E

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): 0-4

Subregion (LRR): LRR B Lat: 42.256154 Long: -111.348036 Datum: NAD 83

Soil Map Unit Name: La Roco silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☐ No ☒ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: This sampling point is located on the bank above the depressional area (Area 3 Depression - in).

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 10 x 10)			
1. *Elymus trachycaulus*	30	X	FACU
2. *Grindelia squarrosa*	5		FACU
3. *Bromus inermis*	5		FACU
4. *Hieracium gracile*	2		UPL
5.			
6.			
7.			
8.			
	42	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 60 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	40	x 4 =	160
UPL species	2	x 5 =	10
Column Totals:	42 (A)		170 (B)

Prevalence Index = B/A = 4.0

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☐ No ☒**

Remarks: This sampling point is sparsely vegetated and very dry. There were no hydrophytic vegetation indicators.

SOIL

Sampling Point: Area 3 Depression - out

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-5	7.5YR 4/1	100					clay loam	
5-7	10YR 8/2	100					silty clay	
7-10	7.5YR 4/1	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☒ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None present

Depth (inches): NA

Hydric Soil Present? Yes ☐ No ☒

Remarks: . There were no redox features or other hydric soil indicators at this sampling point.

Soil Map Unit 123: Bear Lake-Lago complex, complex, 0 to 2 percent slopes; Predominatly nonhydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Non riverine**)
- ☒ Sediment Deposits (B2) (**Non riverine**)
- ☐ Drift Deposits (B3) (**Non riverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This sampling point had no wetland hydrology indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Bear Lake County Airport City/County: Bear Lake County Sampling Date: 7/30/14

Applicant/Owner: Bear Lake County State: Idaho Sampling Point: Area 3 Wet meadow - in

Investigator(s): D. Stark Section, Township, Range: Sec. 30, T. 13S, R. 43E

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): 2-4

Subregion (LRR): LRR B Lat: 42.256111 Long: -111.3485914 Datum: NAD 83

Soil Map Unit Name: La Roco silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☒ No ☐ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☒ No ☐	**Is the Sampled Area within a Wetland?** Yes ☒ No ☐

Remarks: This sampling point is a wet meadow that runs east to west along the north edge of the airport near Airport Road.
Field defined NWI: PEM1Ed; Palustrine, emergent, persistent, seasonally flooded/saturated, partially drained/ditched.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 10 x 10)			
1. *Elymus repens*	15	X	FAC
2. *Phalaris arundinacea*	10	X	FACW
3. *Hordeum jubatum*	5		FAC
4.			
5.			
6.			
7.			
8.			
	30	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks: This sampling point is a heavily vegetated wet meadow with cattails and bulrushes interspersed.

SOIL

Sampling Point: Area 3 Wet meadow - in

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 5/2	80	5YR 6/6	20	D	M	silty clay	
2-10	10YR 8/2	60	5YR 6/6	40	D	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☒ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None present

Depth (inches): NA

Hydric Soil Present? Yes ☒ No ☐

Remarks: This soil test hole exposed two distinct layers. The top 2 inches were darker and faded into a stripped layer that contained a splotchy pattern.

Soil Map Unit 123: Bear Lake-Lago complex, complex, 0 to 2 percent slopes; Predominatly nonhydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Non riverine**)
- ☒ Sediment Deposits (B2) (**Non riverine**)
- ☐ Drift Deposits (B3) (**Non riverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 2

Water Table Present? Yes ☒ No ☒ Depth (inches): surface

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): surface

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This sampling point is located in a wet meadow that is fed from the ditch running the north edge of the airport.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Bear Lake County Airport City/County: Bear Lake County Sampling Date: 7/31/17

Applicant/Owner: Bear Lake County State: Idaho Sampling Point: Area 3 Wet meadow - out

Investigator(s): D. Stark Section, Township, Range: Sec. 30, T. 13S, R. 43E

Landform (hillslope, terrace, etc.): valley Local relief (concave, convex, none): concave Slope (%): 2-4

Subregion (LRR): LRR B Lat: 42.256111 Long: -111.3485914 Datum: NAD 83

Soil Map Unit Name: La Roco silty clay loam, 0 to 2 percent slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒ Hydric Soil Present? Yes ☒ No ☐ Wetland Hydrology Present? Yes ☐ No ☒	**Is the Sampled Area within a Wetland?** Yes ☐ No ☒

Remarks: This sampling point is the upland adjacent to the wet meadow detailed in the Area 3 Wet Meadow - in data sheet.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 10 x 10)			
1. *Eurybia conspicua*	20	X	UPL
2. *Agropyron cristatum*	20	X	UPL
3. *Grindelia squarrosa*	5		FACU
4.			
5.			
6.			
7.			
8.			
	45	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust 2

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks: This sampling point is sparsely vegetated and very dry. There were no hydrophytic vegetation indicators.

SOIL

Sampling Point: Area 3 Wet meadow - out

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 5/2	80	5YR 6/6	20	D	M	silty clay	
4-10	10YR 8/2	60	5YR 6/6	40	D	M	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☒ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: None present

Depth (inches): NA

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks: This soil test hole exposed two distinct layers. The top 2 inches were darker and faded into a stripped layer that contained a splotchy pattern.

Soil Map Unit 123: Bear Lake-Lago complex, complex, 0 to 2 percent slopes; Predominatly nonhydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Non riverine**)
- ☐ Sediment Deposits (B2) (**Non riverine**)
- ☐ Drift Deposits (B3) (**Non riverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) **(Riverine)**
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: This sampling point is located of a wet meadow at a little higher elevation. This sampling point had no wetland hydrology indicators.

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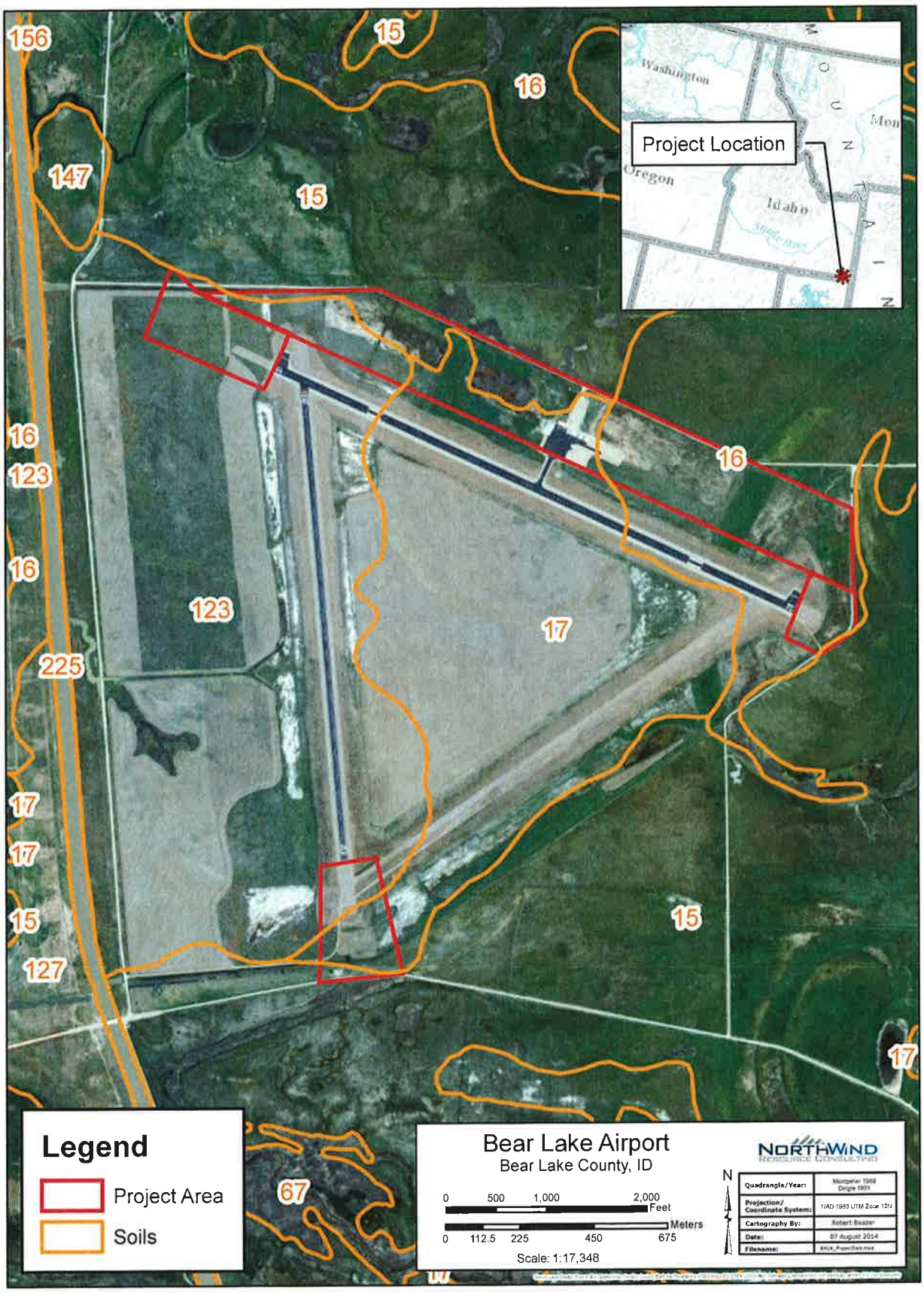
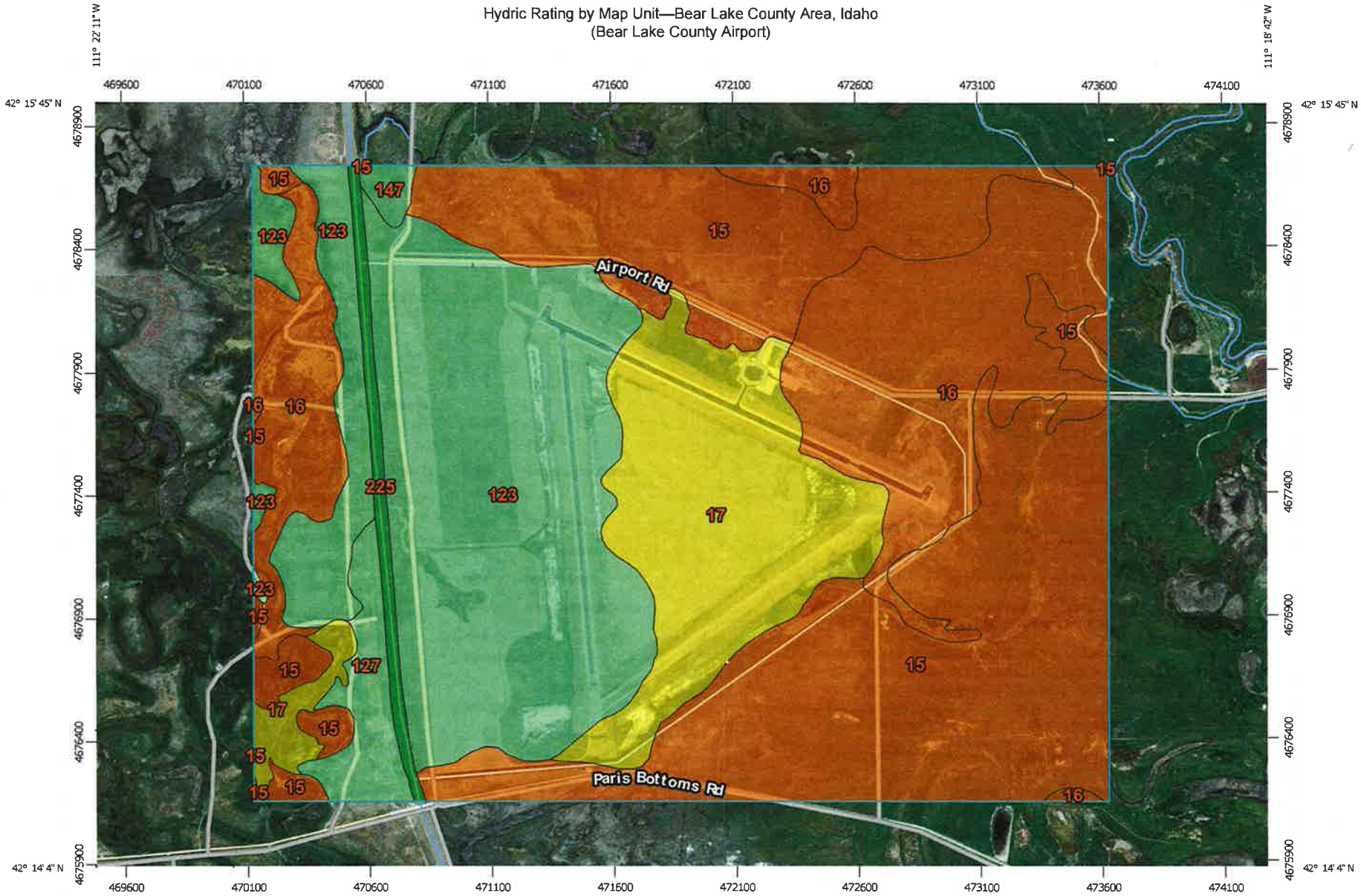
Appendix D
Maps


156
15
16
147
15
16
123
16
123
17
225
17
17
15
127
15
17
67
Project Location
Washington
Oregon
Idaho
Mon
Legend
Project Area
Soils
Bear Lake Airport
Bear Lake County, ID
0 500 1,000 2,000 Feet
0 112.5 225 450 675 Meters
Scale: 1:17,348
NORTHWIND
RESOURCE CONSULTING
N
Quadrangle/Year: Montpelier 1968 Dingle 1991
Projection/ Coordinate System: NAD 1983 UTM Zone 12N
Cartography By: Robert Beazer
Date: 07 August 2014
Filename: BNLA_ProjectSite.mxd

Hydric Rating by Map Unit—Bear Lake County Area, Idaho
(Bear Lake County Airport)



Map Scale: 1:21,900 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 300 600 1200 1800

Feet
0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

USDA **Natural Resources Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

8/7/2014

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- Hydric (100%)
- Predominantly Hydric (66 to 99%)
- Partially hydric (33 to 65%)
- Predominatly nonhydric (1 to 32%)
- Nonhydric (0%)
- Not rated or not available

Soil Rating Lines
- Hydric (100%)
- Predominantly Hydric (66 to 99%)
- Partially hydric (33 to 65%)
- Predominatly nonhydric (1 to 32%)
- Nonhydric (0%)
- Not rated or not available

Soil Rating Points
- Hydric (100%)
- Predominantly Hydric (66 to 99%)
- Partially hydric (33 to 65%)
- Predominatly nonhydric (1 to 32%)
- Nonhydric (0%)
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Bear Lake County Area, Idaho
Survey Area Data: Version 3, Dec 10, 2013

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 7, 2010—Aug 15, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydric Rating by Map Unit

Hydric Rating by Map Unit— Summary by Map Unit — Bear Lake County Area, Idaho (ID712)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
15	Bear Lake-Bear Lake, ponded complex, 0 to 1 percent slopes	80	814.8	36.3%
16	Bear Lake-Chesbrook-La Roco complex, 0 to 2 percent slopes	70	422.9	18.8%
17	Bear Lake-Lago complex, 0 to 2 percent slopes	55	320.1	14.2%
123	La Roco silty clay loam, 0 to 2 percent slopes	10	594.3	26.4%
127	Lago silt loam, 0 to 1 percent slopes	15	53.2	2.4%
147	Millerditch-Cookcan complex, 0 to 2 percent slopes	30	10.1	0.5%
225	Water	0	31.6	1.4%
Totals for Area of Interest			**2,246.9**	**100.0%**

U.S. Fish and Wildlife Service
National Wetlands Inventory

Bear Lake County Airport

Dec 3, 2012

Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

Riparian

- Herbaceous
- Forested/Shrub

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

User Remarks:

FWS NWI Map

CULTURAL REPORT

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CLASS III CULTURAL RESOURCE INVENTORY AND ARCHITECURAL HISTORY SURVEY OF BEAR LAKE COUNTY AIRPORT, BEAR LAKE COUNTY, MONTPELIER, IDAHO

Prepared for
Federal Aviation Administration and Bear Lake County, Idaho

By
Rusty Smith, Trinity Schlegel, and Greta Rayle
North Wind Resource Consulting, LLC

March 14, 2016

Privileged Information-Do Not Release

ABSTRACT

North Wind Resource Consulting of Idaho Falls, Idaho was contracted by T-O Engineers to conduct a Class III cultural resource inventory of 150 acres and an architectural survey at the Bear Lake County Airport, Bear Lake County, near the town of Montpelier, Idaho. The cultural resource inventory and architectural survey were conducted in support of Section 106 of the National Historic Preservation Act (NHPA). Bear Lake County Airport is located at 1013 Airport Road, Montpelier, Idaho.

The survey was completed as part of an environmental review for an airport master plan update. The on-going airport master plan will identify future aeronautical development needs at the airport for a 20-year planning horizon (2014 as the base year). Findings in this report will be used to assist in the master plan analysis and the determination of potential impacts of future aeronautical development.

No new archaeological sites or isolated finds were recorded as a result of the Class III cultural resource survey.

The newly recorded historic property—the Bear Lake County Airport—was evaluated for listing in the NRHP and is recommended not eligible for inclusion in the NRHP under any criteria. However, two resources located within the airport property—a wooden beacon tower (FN-10) and a drainage ditch (FN-16)—are recommended individually eligible for inclusion in the NRHP under Criterion A (event) for their association with the original construction of the airport and military activities occurring in southeastern Idaho during the WWII era (1940-1945). The wooden beacon tower (FN-10) is also recommended individually eligible for listing in the NRHP under Criterion C (architecture) as a rare and unique example of WWII era airport tower design.

One linear site and two historical sites are located within one mile of the project area. The three previously recorded sites are located outside of the study area and were previously recommended as eligible to the NRHP.

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1.0 INTRODUCTION

This report details the results of a Class III cultural resource inventory (CRI) of 150 acres and Architectural History survey of the Bear Lake County Airport near the town of Montpelier in Bear Lake County, Idaho (Figure 1 and Figure 2). Both the Class III CRI and architectural survey were conducted by North Wind Resource Consulting, LLC (NWRC) for Bear Lake County, Idaho and the Federal Aviation Administration (FAA) in association with master planning efforts for the airport.

Prior to fieldwork, a file and literature search was requested from the Idaho State Historic Preservation Office (SHPO). Results from the file search were used to request site forms and reports from SHPO. The Class III CRI was conducted on July 1, 2014 and August 26, 2014 by NWRC Archaeologists Rusty Smith and Denise Stark. All 150 acres were systematically surveyed. The architectural history survey was conducted on February 24, 2016 by Architectural Historian Greta Rayle, also of NWRC. All buildings and structures located at the airport were recorded and assessed for National Register of Historic Places (NRHP) eligibility.

1.1 PROJECT LOCATION

The Bear Lake County Airport is located approximately 5.1 miles south of the town of Montpelier, in Bear Lake County, Idaho. The airport is located within the Bear Lake Valley, a basin or graben with normal faults on the east and west sides. The valley is bounded by the northern extent of the Wasatch Mountain Range to the west and the Pruess Mountain Range to the east. The landscape is dominated by Bear Lake, which is located approximately 9.3 miles north of the project area. The natural freshwater lake spans the Idaho-Utah border and covers 109 square miles. The eastern shore of lake has a prominent fault scarp. Several farms and ranches are located near the project area. Table 1 provides the legal location of the project area.

Table 1. Legal location of project area.

Township (N/S)	Range (E/W)	Section	Quarter Section(s)
13S	44E	29	SWSW
13S	44E	30	SESE
13S	44E	31	NENE
13S	44E	32	NWNW, NENW, NE/4
14S	44E	5	NWNW
14S	44E	6	NENE

Elevation in the project area averages 5,925 feet (1,805 meters). Vegetation in the project area includes hydrophytic vegetation consisting of sandbar willow, timothy grass, foxtail barley, sweet clover, mayweed chamomile, and halophytic plants consisting of greasewood.

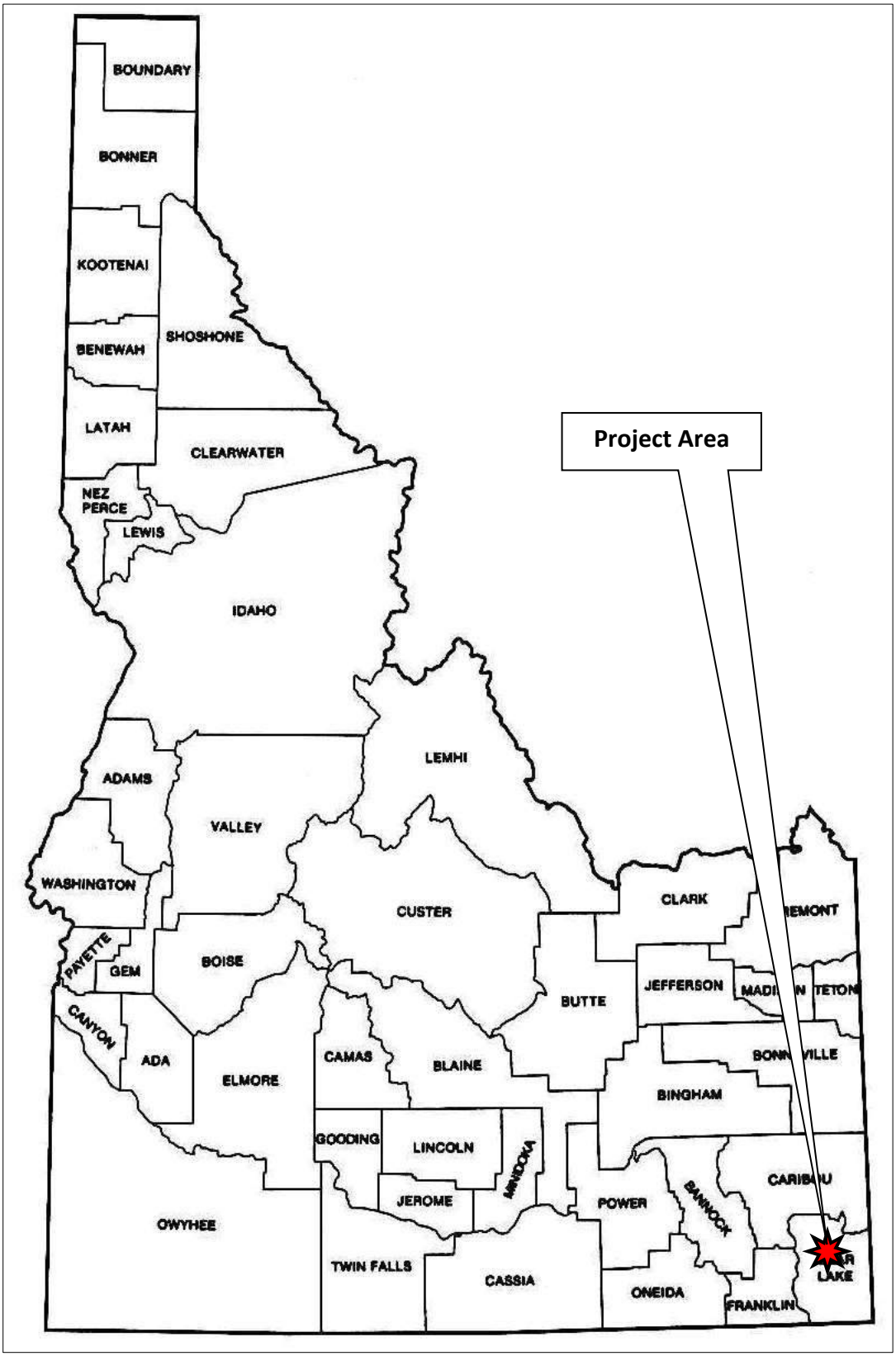

Figure 1. Map of Idaho showing the general location of the project area.

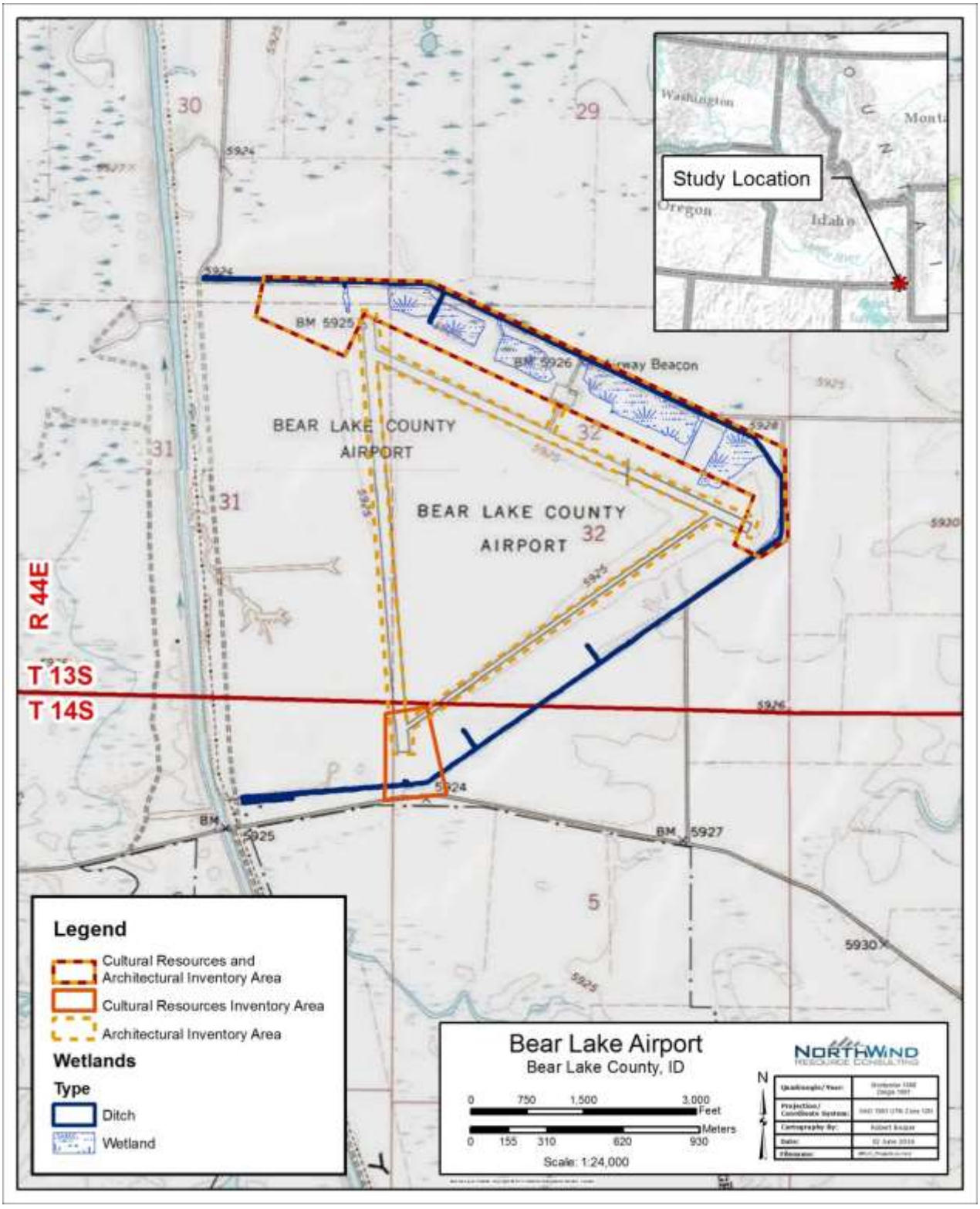

Figure 2. Topographic map showing the location of Bear Lake County Airport and study areas. All structures and buildings located at the airport, including the runway system, were documented during the architectural survey. Taken from the Montpelier (1967) and Dingle (1967), quadrangles, USGS 7.5' Series (1:24,000 Scale).

1.2 PROJECT DESCRIPTION

At the request of T-O Engineers, NWRC conducted a Class III CRI and Architectural History survey (architectural survey) of the Bear Lake County Airport property located near Montpelier, Bear Lake County, Idaho. The objective of the Class III CRI and architectural survey is to identify potential cultural resource concerns, including the existence of National Register of Historic Places (NRHP)-eligible historic properties, to assist with future planning activities for development at the airport. Construction will be implemented in three phases, with Phase I occurring between 0 and 5 years, Phase II occurring between 6 and 10 years, and Phase III occurring between 11 and 20 years.

The study area for the Class III CRI and architectural survey was identified by T-O Engineers to include two areas where future ground disturbance is likely to occur as a result of Phase I improvements. At the time of the Class III CRI and architectural survey, proposed Phase I improvements included the construction of a storage building, an Automated Weather Observation System, and a Precision Approach Path Indicator, as well as the installation of Runway End Identifier Lights (Figure 3).

The study area consists of two discontinuous and irregularly shaped parcels, both of which are centered on the airport's existing runway and taxiway systems (see Figure 2). The northernmost parcel encompasses 90 acres and is located to the north of the parallel/connector taxiway, and encompassing the distal ends of the airport's primary runway (Runway 10/28). The second parcel is approximately 60 acres and is located at the southern terminus of Runway 16/34, where it intersects with an abandoned unnamed runway. This area is slightly lower than the runway due to grading and consists predominantly of wetlands. As portions of the runway system are within both of the study areas, the architectural survey included the entirety of the runways in the evaluation.

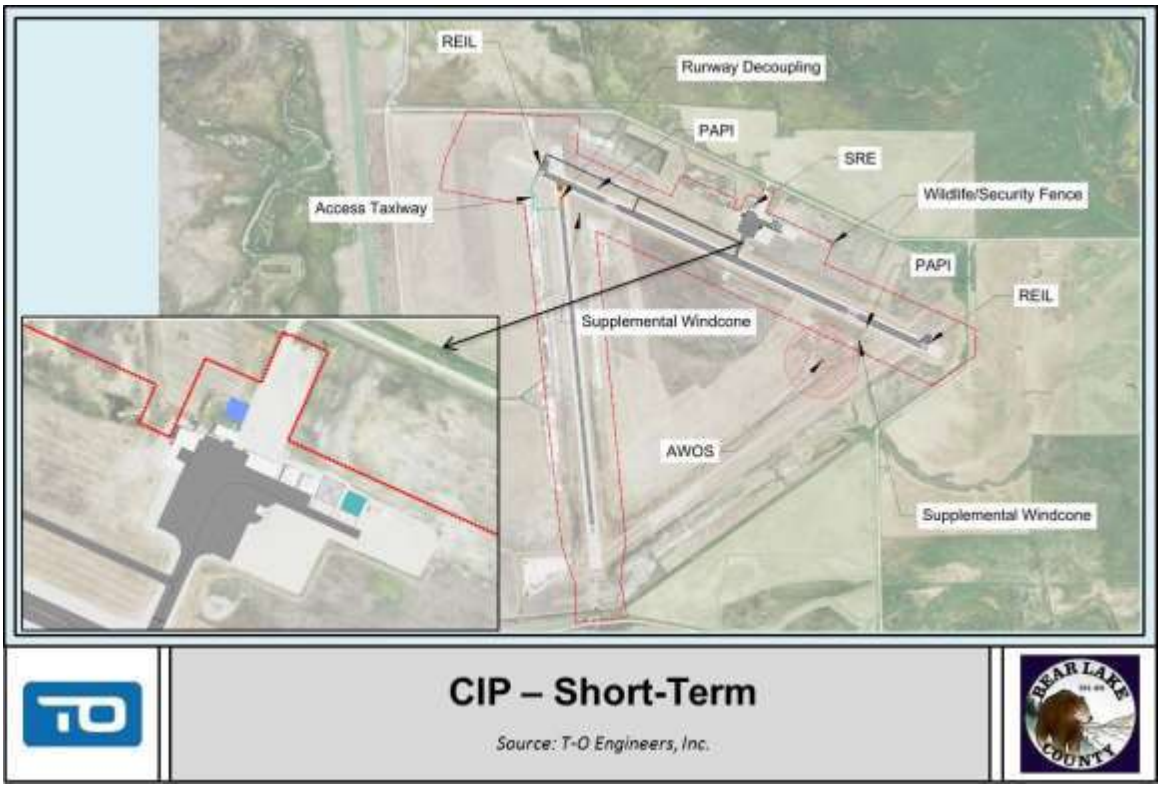

Figure 3. Figure of Short-Term Development Projects, courtesy of T-O Engineers.

2.0 BACKGROUND INFORMATION

This section presents the environmental setting of the project and a summary of the prehistory and history.

2.1 ENVIRONMENTAL SETTING

Vegetation in the project area consists of sandbar willow (*Salix exigua*), timothy grass (*Phleum pretense*), foxtail barley (*Hordeum jubatum*), sweet clover (*Melilotus*), mayweed chamomile (*Matricaria chamomilla*), reed canary grass, (*Phalaris arundinacea*), slender wheatgrass (*Elymus trachycaulus*) and greasewood (*Sarcobatus*) (Figure 9-Figure 15).

Fauna in and near the project include white-tailed deer (*Odocoileus virginianus*), mule deer (*Odocoileus hemionus*), and elk (*Cervus elaphus*). Moderate- and small-sized mammals include badger (*Taxeidea taxeus*), red fox (*Vulpes vulpes*), coyote (*Canis latrans*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and mountain cottontail (*Sylvilagus nuttalli*). Reptiles within or near the project include the western rattlesnake (*Crotalus viridis*) and western terrestrial garter snake (*Thamnophis elegans*). The creeks and rivers in the area support a variety of different fish species including rainbow trout (*Oncorhynchus mykiss*). Waterfowl that utilize the riverine resources include a number of duck and geese (Order *Anseriformes*) and cranes (*Grus* sp.). Other birds that occupy the area include a variety of hawks (*Buteo* spp.), falcons (*Falco* spp.), golden eagles (*Aquila* chrysaeto) and bald eagles (*Haliaeetus leucocephalus*).

The average annual temperature in Montpelier, Idaho (climate station 1036053) is 56°F with an annual average high temperature of 85°F in July. The average annual low is 26.6°F. The coldest month is January with an average minimum temperature of 6.3°F. Montpelier receives an average of 14.09 inches of precipitation per year with the highest amount of precipitation occurring in June with 1.48 inches. The average amount of snowfall in Montpelier is 61.6 inches with the highest amount occurring in January with 13.4 inches (Western Climate Summary 2015).

The Bear Lake County Airport project area is located within the Great Basin physiographic region as defined by Fenneman (1931). The Great Basin is bound by the Sierra Nevada Mountains in the west and the Rocky Mountains in the east. The Great Basin covers all of Nevada and Utah, most of Western Colorado, southern Oregon and Idaho and a western portion of Wyoming (D'Azevedo 1986).

The most prominent geographical landmark in the project area consists of Bear Lake, located 9 miles to the south of the project area. Bear Lake Outlet is located 0.5 mile to the west and Ovid Creek is located 3 miles to the northwest. The Sheep Creek Mountains are located approximately 7.8 miles to the northeast and Pine Creek Ridge is located approximately 9.4 miles to the southeast of the project area. The Wasatch Mountain Range is located approximately 10 miles to the west of the project area. Other prominent landscape features include the Bear River Mountain Range, located 12 miles to the west of the Bear Lake County Airport, the Aspen Mountain Range, located approximately 22 miles to the north of the airport, Sublette Mountain, located 17 miles to the east, and Pine Spring Ridge, located nine miles to the southeast. Paris Peak is located 11 miles to the southwest and Midnight Mountain is located 12 miles to the west.

Soils located within the northernmost study area consist of Bear Lake-Bear Lake Ponded Complex, Bear Lake-Chesbrook-La Roco Complex, Bear Lake-Lago Complex, and La Roco silty clay loam. Soils are described in Table 2. Soils located within the southern study area consist of Bear Lake-Lago Complex and La Roco silty clay loam and described in Table 2 (Web Soil 2015).

Table 2. Soils located within the two study areas (Web Soil Survey 2015).

Township / Range / Section	Complex	Landform	Down-slope Shape	Across-slope Shape	Soil Profile	Parent Material
T13S R44E Section 32 (Study Area 1)	Bear Lake-Bear Lake, Ponded Complex	Flood plains	Linear	Linear	Silty clay loam and slightly decomposed plant material	Mixed silty and clayey alluvium
T13S R44E Section 32 (Study Area 1)	Bear Lake-Chesbrook-La Roco Complex	Flood plains	Linear	Linear	Silty clay loam and slightly decomposed plant material	Mixed silty and clayey alluvium
T13S R44E Section 32 (Study Area 1), T14S R44E Section 5 (Study Area 2)	Bear Lake-Lago Complex	Flood plains	Linear	Linear	Silty clay loam and slightly decomposed plant material	Mixed silty and clayey alluvium
T13S R44E Sections 29-31 (Study Area 1); T14S R44E Section 6 (Study Area 2)	La Roco silty clay loam	Flood plains	Linear	Linear	Fine sandy loam, silt loam, and silty clay loam	Mixed alluvium over sandy and gravelly alluvium

2.2 CULTURAL HISTORIC CONTEXT OF THE PROJECT AREA

The Bear Lake County Airport project area is located in an area identified as the Snake River Plain. The Snake River Plain serves as a natural corridor between the northwestern Plains and the Intermountain regions. Butler (1986) proposes three broad periods for the purpose of synthesizing a regional sequence. The three periods are identified from earliest to latest as: Early Big Game Hunting, Archaic Period, and Late Period. The project area is located in an area traditionally used by the Northern Shoshone and Bannock.

2.2.1 EARLY BIG GAME HUNTING PERIOD (14,500-7800 BP)

This period was marked by big game hunting of animals that became extinct during the Late Pleistocene and early Holocene. During this time elephants (*Mammuthus* sp.), bison (*B. antiquus*), camel (*Camelops* sp.), horse (*Equus* sp.), mountain sheep (*Ovis* sp.), elk (*Cervus* sp.), and deer (*Odocoileus* sp.) were hunted (Butler 1986). The Early Big Game Hunting Period consists of three sub-periods: Clovis, Folsom, and Plano.

Clovis Sub-period (12,000-10,000 BP)

The biotic regime in Southern Idaho during this period was similar to modern conditions, but the climactic regime was somewhat mesic. These conditions allowed a more available water supply in large, shallow ephemeral lakes. The archaeological record indicates the earliest inhabitants of southern Idaho

hunted now extinct species of mammoth, camel, horse and bison and extant species of bison and bighorn sheep (Miller 1972).

Around 10,000 BP, projectile point styles in the region changed from fluted types to unfluted lanceolate and large stemmed points. Socketed base projectile points such as the Haskett and stemmed styles such as the Alberta characterize the Early Prehistoric II sub-period. The change in projectile point types is concurrent with the decline of Pleistocene megafauna, though big game hunting persists through the period. Archaeologists find sites containing Early Prehistoric II sub-period projectile points in southern Idaho in association with bighorn sheep and bison and Haskett points in association with bison remains dating between 9,800 and 10,000 BP.

Evidence of the Clovis Sub-period comes in two forms – cave deposits and chipped stone bifaces. Cave deposits were found at Jaguar Cave east of Birch Creek and just south of the Montana and Idaho border. Butchered remains of 268 individual sheep which are larger than modern day sheep were recovered from deposits with a date range of 11,580 and 10,320 BP (Butler 1986; Sadek-Kooros 1972; Wright and Miller 1976). No diagnostic artifacts were located at Jaguar Cave. The most remarkable Clovis Sub-period find consists of 26-30 chipped stone bifaces that were accidentally uncovered at the Simon Site. The Simon Site is located near Fairfield, Idaho at the foot of the Rocky Mountains northwest of Wilson Butte Cave (Butler 1963 and 1986). Located at the Simon Site were a series of finely made Clovis points.

Folsom Sub-period (11,000-10,600 BP)

Evidence of the Folsom Sub-period is represented in the Upper Snake and Salmon River country by a combination of surface finds and the well excavated Owl Cave (Butler 1978, 1986; SJ Miller 1972). Owl Cave is a stratified lava tube located 120 miles northeast of Wilson Butte Cave. An array of bone fragments which included elephant, bison, and camel were located within Owl Cave along with four Folsom points. Radiocarbon dates of the big game fragments ranged from 12,580 to 10,920 BP.

Plano Sub-period (10,600-7,800 BP)

Evidence of the Plano Sub-period has been gathered on the surface and in excavated sites. Late Plano deposits of *Bison antiquus* were located at Owl Cave and occurred at 8000 BP. More than 70 individual bison were studied at Owl Cave. Individuals included complete remains of bulls, cows, and calves. Analysis reveals that two separate kills were involved, one before calving season and one at the onset of calving (Butler 1986). Evidence suggests that 30 or more bison were killed and butchered within the cave (Butler 1986).

2.2.2 ARCHAIC PERIOD (7800 to 1450 BP)

A proliferation of point types marks this period. Large side-notched points decrease in frequency, and by about 4,000 BP, bifurcate-stemmed dart points (e.g., Gatecliff) become the dominant style in this region. Additionally, large corner-notched forms such as the Elko series and smaller lanceolate points similar to the Humboldt series appear at this time (Ringe et al. 1988). At the Wahmuza Site (Holmer 1986), very few of the clearly Plains varieties of projectile points were manufactured from volcanic glass, yet all the Great Basin styles were.

The characteristic projectile technology of this period was the atlatl-and-dart. Archaeologists infer atlatl use from the emergence of bifurcate-stemmed points and large side-notched dart points. These changes may represent two versions of the atlatl, one from the Great Basin represented by bifurcate-stemmed points and one from the Northwestern Plains represented by large side-notched points (Gruhn 1961). On the Snake River Plain, the older of these appears to be the bifurcate-stemmed projectile points.

A wide variety of projectile point styles mark this period; however, large corner-notched dart points, such as the Elko, predominate. At the Wahmuza site (Holmer 1986; Ringe and Harding 1986), ceramics appear during this period. Rosegate points appear toward the end of this sub-period, as well as several small side-notched points similar to the Avonlea style from the Great Plains.

Lanceolate spears that were characteristic of the Plano period are replaced with new Archaic points shortly after 8000 BP. The new Archaic points were generally side-notched. By this time the horse, elephant, and camel had become extinct and the modern forms of bison and mountain sheep have emerged. During this time hunting tools moved from the spear to the atlatl and dart. The stemmed indented base form of projectile points are noted at Owl Cave and Wilson Butte Cave.

A new burial pattern emerged at this time as well and has been identified at the Western Idaho Burial Complex (Pavesic 1983; Butler 1986). The Braden Burial Site is the best known site. The Braden Burial Site is located near Weiser, Idaho (Butler 1980 and 1986; Harten 1980). Offerings at the burial included large bifacially worked blades, large corner notched points, large side-notched points along with obsidian preforms and red ocher. The Western Idaho Burial Complex dates from 4000 to 6000 BP (Butler 1986).
Evidence of large semi-subterranean houses is present at Givens Hot Springs on the north bank of the Snake River and south of Boise, Idaho. The pit houses appear to have been built by 4300 BP (TJ Green 1982; Butler 1986). The pit houses measure approximately eight meters in diameter with multiple roof supports. Located on the house floors were large side-notched and Humboldt concave base projectile points.

Late Archaic houses date to circa 2400 BP and have Elko series projectile points located in association with hopper mortars. The house pits do not provide any evidence that they are the remains of large semi-permanent villages. A pattern of groups consisting of two or three houses are scattered up and down the Snake River Valley in western Idaho (Butler 1986).

Butler (1986) suggests that there are two distinct Archaic patterns in southern Idaho. One derived from the Plains and one from the Basin. The Plains Archaic pattern was dominant through most of southern Idaho (Butler 1986).

2.2.3 LATE PREHISTORIC PERIOD (1450 to 145 BP)

The Late Period is divided into two sub-periods. Late Prehistoric I sub-period extends from approximately 1,200 to 700 BP, and the Late Prehistoric II sub-period extends from about 700 to 150 BP (Ringe et al. 1988). A reduction in size of corner-notched projectile points, characterized by varieties such as the Rosegate marks the Late Prehistoric I sub-period (Ringe et al. 1988). These projectile points are associated with bow and arrow technology. Additionally, ceramics occur sporadically during this sub-period.

The Late Prehistoric I sub-period includes Occupations III and IV at the Wahmuza site (Holmer 1986). During these occupations, diet appears similar to the preceding Middle Prehistoric III sub-period; though no bison remains occurred at this site. Small and large corner-notched points were coeval and equal in frequency, although the Desert Side-notched constitute a quarter of the assemblage. Both the Wahmuza lanceolate and the notched cobbles persist into this period. Near Kemmerer, Wyoming, use of cylindrical basin features, utilization of a wider spectrum of animal species, and distinctive ornamental artifact types such as bone tubes and disk beads characterize this sub-period (McNees et al. 1993). Many of these cultural elements occur as part of the material culture of the historic Numic people (Steward and Wheller-Voeglin 1941; Jimenez 1985; Reed 1986; Holmer 1994).

The Late Prehistoric II sub-period occurs from approximately 700 to 150 BP (Ringe et al. 1988). Small side- and tri-notched projectile points such as the Desert Side-notched characterize this sub-period. Horses and European trade goods may have reached the area by 300 BP. Prehistoric pottery is also common. At the Wahmuza site (Holmer 1986); Occupations V and VI date to this sub-period. Occupation V contained the majority of a flat-bottomed Intermountain ware pot in association with Desert Side-notched points. A subsistence strategy heavily focused on the procurement of large animals also typifies this sub-period. Conversely, evidence of plant processing during this period is rare. It is unknown whether this pattern reflects a genuine lack of emphasis on the exploitation of plant resources, exploitation of different plant resources, different spatial organization of camp and procurement/processing areas, season of occupation, or sampling error.

Two distinct sets of cultural manifestations are present during this time: the Northern Fremont and the Shoshonean. The two manifestations follow each other in time. Little evidence of Northern Fremont has been documented in southern Idaho. Butler (1986) puts forth several theories as the reason for this. Those theories include lower population levels and Fremont materials being misidentified and/or unrecognized. The reason for a smaller population is unclear as similar food resources are found in both areas. Evidence does show that Fremont material has been misidentified as Shoshonean. This was evident at Wilson Butte Cave. Initially material consisting of pottery located in Stratum A was identified as Dietrich phase (Gruhn 1961; Butler 1986). The pottery was originally identified as Wilson Butte plain ware however it in fact was Great Salt Lake gray ware (Butler 1981 and 1986). The Wilson Butte Cave has been dated to 425 BP.

If dating of the Dietrich phase component at Wilson Butte Cave is accurate, it appears that the Great Salt Lake Fremont survived in southern Idaho far longer than they did in northern Utah. In northern Utah the Fremont culture was replaced by the culture of Numic speaking peoples in the fourteenth century (Madsen 1975; Butler 1986). As to why the Numic speaking people did not expand into southern Idaho is still a mystery as there is no solid evidence of their presence. No evidence of the Fremont culture has been located beyond the northern fringes of the Snake River Plain, which brings into question what was happening in the region prior to the occupation by the Shoshone in historic times (Butler 1986).

The earliest evidence of the Shoshone in eastern Idaho consists of the Lemhi phase in Birch Creek Valley (Swanson 1972; Butler 1986) which dates from the Early Historic period circa 145-110 BP. Butler (1986 and 1982) suggests that it is likely that the Shoshone were expanding their food collecting activities into southern Idaho south of the Snake River Plain as early as mid-fifteenth century with the main surge of Shoshone occupation in southern Idaho occurring during the late eighteenth century after being pushed from the Plains by the horse mounted Blackfoot.

2.3 NORTHERN SHOSHONE AND BANNOCK

Following Lamb's (1958) linguistic model, the Shoshone are believed to have occupied the region for approximately 600 years. The Shoshone belong to the Numic-speaking branch of the Uto-Aztecan language family (Miller 1986). However, utilizing the direct historical approach, Holmer (1994) has demonstrated a continuity of cultural elements that extends back approximately 4000 years, and Swanson (1972), utilizing the same approach, indicates that the Shoshone may have inhabited the regions for approximately 8000 years. Historically, the Shoshone have been reported as far east as the Black Hills of South Dakota in 1743 (Verendrye 1925). Lewis and Clark encountered the Shoshone in 1805 in the Three Forks region of present-day Montana (Trenholm and Carley 1964). Ethnographically, both Steward (1938) and Shimkin (1947) have placed the Shoshone as the historical inhabitants of the region. Regardless, the Shoshone were the group inhabiting the region at the time of historic contact.

The earliest ethnography for the Shoshonean lifeway at the time of contact is Lowie (1909). Lowie's investigations of the Shoshone occurred at the Lemhi Reservation in east-central Idaho, and many of his informants lived prior to the formation of reservations. This group of Shoshone, the Lemhi, annually journeyed to the plains to hunt bison; thus, they exhibited many traits of the Plains lifeway. Steward (1938) somewhat revised Lowie's investigation by shifting the focus of apparent affiliations with the Great Basin instead of the Plains. At the time of Steward's (1938) investigations, the Lemhi Reservation had been terminated and the inhabitants were moved to Fort Hall in southeastern Idaho (Murphy and Murphy 1960). Overall, varying degrees of Plains, Columbia Plateau, and Great Basin cultural traits were assimilated by the Shoshone in response to various economic conditions encountered in different areas.

The groups that utilized the area around the Big Lost River were the Northern Shoshone, which inhabited primarily southern Idaho and the area west of the continental divide. The term Northern Shoshone is an anthropological term that has been applied to distinguish the Shoshones of the upper Columbia River drainage from the Western Shoshone located in Nevada and Utah and the Eastern Shoshone of western Wyoming. The Western Shoshone are distinguished from the Eastern and Northern Shoshone due to their lack of horses and access to the buffalo hunting areas on the Plains. The Northern and Eastern Shoshone are harder to distinguish from each other. The division of the two is based upon their separate locales and the importance of salmon fishing to the Northern Shoshone (Murphy and Murphy 1986).

Sometime after acquisition of the horse by the Northern Shoshone, another group of Numic speakers, the Northern Paiute, joined the Northern Shoshone. The Northern Paiute are identified as the "Bannock" in ethnographic and ethnohistoric literature (Steward 1938). Aside from linguistic differences, this group was assimilated by the Northern Shoshone insofar as the manifestations of culture and technology.

Both the Northern Shoshone and Bannock speak a language that is a member of the Numic division of the Uto-Aztecan family. Whereas the Bannock speak a dialect of Northern Paiute that is a part of the Western Numic division, the Northern Shoshone speak a Central Numic dialect. The spread of the Numic language through the Great Basin, however, was recent enough that Bannock and Northern Shoshone dialects remain similar (Murphy and Murphy 1986).

The Northern Shoshone and Bannock social life was loose and lacked clear definition of groups. Typically the Bannock relied heavily on a chief especially during buffalo hunts. During hunts the chief was responsible for organizing the hunt, maintaining order during the hunts, and defense of the people as hunts often took place in areas where hostile Blackfeet and Crows were located. The Shoshone communities were often loose and more individualistic with few barriers when it came to interaction and communication. The Northern Shoshone social life was exhibited through a broad network of social ties. The broad network was a result of shifting residence, intermarriage, visiting, feasting, and extensive migration (Murphy 1970, Murphy and Murphy 1986). The Shoshone were bilateral and bilocal. Marriages were generally monogamous but polygyny and polyandry were also known to be practiced. Sororal polygyny was practiced throughout the area but not universally. Levirate and sororate practices were common but not required forms of union (Murphy and Murphy 1986). Divorce was simple and common in the Northern Shoshone. Relations between sexes were mostly egalitarian (Murphy and Murphy 1986).

Prior to the acquisition of the horse (ca. AD 1700), the Shoshone lifeway appears to have consisted of groups composed of highly mobile nuclear families or family clusters, egalitarian in nature, which practiced adventitious, wide-spectrum, subsistence. The general subsistence pattern consisted of seasonal rounds to areas of resources. Subsistence for the Northern Shoshone and Bannock consisted of buffalo, antelope, elk, mountain sheep, deer, and fish in particular salmon. Buffalo were hunted in groups using horses and bow and arrow. Antelope were taken by stalking by individual hunters wearing antelope skins or by running the animals with horses. Elk, mountain sheep, and deer were often taken by individual

hunters or by small hunting parties (Murphy and Murphy 1986). Salmon were taken by harpoon by individuals standing on a platform or wading into the water. Weirs, seines, hand nets, and basket traps were also known to be used (Wyeth 1851, Murphy and Murphy 1986). Other fish included sturgeon, suckers, perch, and trout. Camas, Yampa, tobacco-root, and bitterroot were harvested with digging sticks by the women. Pine nuts, seeds, and various berries were utilized as well (Murphy and Murphy 1960, 1986). After acquisition of the horse, resources were more efficiently exploited, and loosely cohesive bands were formed (Steward 1955).

After the acquisition of the horse, the Northern Shoshone traveled onto the Plains and expanded their territory to the Plains of Saskatchewan and east to the upper Missouri River (Secoy 1953). Although many investigators state that after the acquisition of the horse, the Shoshone developed many of the Plains traits based on equestrian mobility and mounted bison procurement (e.g., Malouf 1974), the diffusion of these traits was more likely west to east as the Shoshone acquired horses a generation earlier that the "classic" Plains tribes (Haines 1938; Ewers 1955). Therefore, it seems more likely that the Shoshone developed the aforementioned classic traits and that they were assimilated by the tribes indigenous to the Plains.

Nathaniel Wyeth organized an expedition from Boston to Oregon with the intent to establish a trading post. The trading post became known as Fort Hall in 1834. Fort Hall became a primary stop for fur trappers and travelers heading west on the Oregon and California Trails. After the demise of the fur trade, the Shoshone experienced increasing pressure from Euro-Americans threatening their traditional subsistence strategies. Captain J.C. Fremont's explorations into the South Pass, Upper Green River, and Bear River regions of Shoshone territory in 1842-1843 precipitated the building of the Oregon Trail across southwestern Wyoming and southern Idaho (Trenholm and Carley 1964).

The westward migration of settlers through traditional Shoshone territory increased throughout the 1840s and 1850s. Fort Hall was closed in 1856. The Oregon Trail was the major overland, transcontinental route for emigrants. The initial use of the trail by emigrants was in 1841 by the Bidwell-Bartleson party (Franzwa 1990). In 1841, 32 persons utilized the trail, but this figure swelled to 55,000 people in 1850 due to the California gold rush (Franzwa 1990). The Mormon migration began in 1847 and by 1869 (the date of the inception of the transcontinental railroad) an estimated 42,800 emigrants reached the Mormon settlements in Utah by means of overland travel (Franzwa 1990). Facilitated by the railroad, settlement of Idaho and Wyoming began in the 1870s.

As use of the trails increased and subsistence resources diminished there was an increase in tensions between Native Americans and Euro-Americans. By the 1860s the buffalo herds had mostly disappeared. In 1860, Mormon pioneers settled the Bear River valley (Murphy and Murphy 1986). These tensions led to the Bear River Massacre in 1863 near modern day Preston, Idaho. The massacre prompted the United States government to enter treaty negotiations with the Shoshone and Bannock tribes.

An Executive Order in 1867 set aside 1.8 million acres for the Shoshone and Bannock people. In 1868, the Fort Bridger Treaty was affirmed and the Fort Hall Indian Reservation was established. Congress ratified the treaty on February 26, 1869. Due to government acts and encroachment, the Fort Hall Indian reservation now consists of 544,000 acres (805 sq. mi.), less than half its original size. In 1889, 239,837 acres were ceded and in 1900 another 418,560 acres were ceded, south and east of the current Reservation (History of the Shoshone-Bannock Tribes 2013).

2.4 HISTORIC PERIOD

Fur trappers entered Bear Lake Valley in 1818. One of the earliest trappers was Donald "Fats" McKenzie who attended the Native American gathering on the south end of Bear Lake in 1819. McKenzie named the lake Black Bear Lake due to the abundance of black bears in the area. Two rendezvous were held in 1827 and 1828 where trappers and Native Americans gathered to trade goods. Two notable mountain men were present at the two rendezvous; Jebediah Smith and Jim Bridger (Bear Lake County 2016).

The Whitman-Spalding party entered Bear Lake Valley in 1836 for the purpose of establishing a mission. Due to their exploration of the area word was sent out concerning opportunities for settlement in the Oregon Territory (Bear Lake County 2016). This led to thousands of people traveling west on the Oregon Trail.

The Oregon Trail entered Bear Lake Valley near the present town of Border. Oregon Trail campsites were established along Clover Creek (Montpelier Creek). The trail traveled northwest through Montpelier and onto Soda Springs. In 1863, the first Mormon settlers entered Bear Lake Valley under the leadership of Charles Rich and the community of Paris was established (Bear Lake County 2016).

April 14, 1881 saw the incorporation of the Oregon Short Line Railway by Union Pacific in Wyoming. The purpose was to build a line by the shortest route from Wyoming to Oregon (Utah Rails 2016). In May of 1882 construction of the rail line began in Granger, Wyoming at a connection with the Union Pacific main line. In August of 1882, the Oregon Short Line Railway reached Montpelier, Idaho. The tracks continued onto Pocatello, Idaho. The track between McCammon and Pocatello was used jointly with the Utah and Northern Railroad narrow-gauge line (Utah Rails 2016). The Oregon Short Line shared the Utah and Northern Railroad grade and laid a third rail set to standard-gauge. In February 1884, Oregon Short Line began operating between Granger, Wyoming and Huntington, Oregon (Utah Rails 2016). The arrival of the rail road brought an influx of people into Montpelier and Idaho.

Montpelier was home to the first bank in southeastern Idaho. On August 13, 1896, Butch Cassidy, Elzy Lay, and Bob Meeks robbed the bank in Montpelier in order to gain enough money to bail Matt Warner out of jail. This portion of the story has never been verified. After the robbery a posse was formed and chased the gang for a week before giving up near Snyder Basin. Still to this day it is unclear what happened to the money or where the men went after the robbery. Bob Meeks was later arrested and claimed he never received a penny from the robbery. The teller A. N. Mackintosh stated that "The 13th was the cause of it all. He noted it was the 13th day of the month; it occurred after the 13th deposit had been made that day at a sum of $13.00 and occurred at 13 minutes after the hour of 3:00 pm" (Bear Lake 2016).

2.4.1 BEAR LAKE COUNTY AIRPORT (1942-PRESENT)

Construction of an airport to service the Bear Lake Valley was first envisioned by the Federal government in 1943, following three crashes of military aircraft near Montpelier. All of the crashes occurred between November 1942 and June 1943 within 20 miles of the current airport and resulted in several military and civilian casualties. Given the close proximity of Bear Lake Valley to the Wasatch Mountains-which presented threats to air navigation- and a lack of other military airports in the area, the Federal government lobbied for the construction of a military airport 6 miles southwest of Town of Montpelier that would not only accommodate the largest of the American planes at the time, but would also serve as an emergency landing strip for both civilian and military aircraft.

Under guidance from the Federal government, in 1943 Bear Lake County acquired 1,200 acres of land on which to construct the airport. The County paid $35,000 for the land—a small amount given the initial appropriation amount of $405,950 for the airfield's construction (*The Bear Laker*, 25 June 2005). Morrison-Knudsen Corporation, an engineering and construction company responsible for the

construction of numerous air fields, storage depots, and military bases throughout the Pacific during the WWII era (1940-1945), was commissioned to build the airport, with construction commencing in July 1943. The original plans for the airport called for the construction of two runways, both of which measured 5,700 feet long and had 150-foot-wide center landing strips within a 500-foot-wide graded area (*Montpelier News-Examiner*, 8 November 1945). One of the runways ran north to south, and the second runway was oriented northwest to southeast. A third hard-surfaced runway, measuring 50 feet wide and running northeast to southwest, was also constructed. The resulting triangular configuration of the runways was a typical design element of WWII era airports as it allowed pilots to avoid crosswind problems by selecting the most ideal runway for the wind conditions. Construction of the airport took approximately four months, with the facility ready for use in October 1943 (*Montpelier News-Examiner*, 8 November 1945).

In the summer of 1944, a lighting system consisting of 93 contact lights marking the runways and a beacon on a 50-foot-high wooden tower, were installed (*Montpelier News-Examiner*, 15 November 1945). In order to power the system, the County entered into a 5-year contract with the Utah Power and Light Company in which they paid $23.33/month for the construction of a transmission line from Camp Stewart (location unknown) to the airport (*The News-Examiner*, 15 November 1945). According to an article in *The Paris Post* (31 August 1944), the lights were automatically controlled to turn on at dusk and go off at dawn. The article further noted that when the lights were turned on they gave the airport the appearance of a little city (*The Paris Post*, 31 August 1944).

A dedication ceremony was held on the property on June 28, 1945. Residents from many of the surrounding communities attended the ceremony, which was hosted by A. L. Thiel and included a performance by the Montpelier High School band, demonstrations of aerial acrobatics, and a variety of exhibits brought from the Hill Air Force Base in Salt Lake City, Utah (*The Bear Laker*, 29 June 2005). Additionally, at least 31 different airplanes and various types of aviation equipment were on display for attendees. Local resident and current President of the Bear Lake County Historical Society Jo Ann Farnsworth provides the following description of her experience at the dedication ceremony in her unpublished manuscript entitled "Life Stories of Olean Parker, Montpelier, Idaho:"

> When the airport opened, they had a public viewing and everyone was invited out to see it. They had a large display of military airplanes. They had fighters, bombers and troop transports. The people and children were allowed to climb up inside the cockpits and look at all the instruments that the pilots used. They also flew and landed some of these planes for a demonstration. I remember one called a Spitfire fighter plane. I had asked what that name of it was. However this plane is never listed in the records, but there was paint on the nose that looked like a fire. I also walked into the back of a big transport plane where the back end opened up so vehicles could drive in. I went out there with my grandparents Conover and Lenore Wright and they allowed me to tour the planes. I was about eight or nine years old (Farnsworth 2007:21).

In 1947, the airport was turned over to Bear Lake County for public operation. In the years that followed, the County made numerous improvements to the property, including the construction of a hangar, which they rented to the Bear Lake Flying Cooperative Association in January 1957. They also allowed private pilots and businesses to construct hangars on the property, as is evidenced by newspaper articles printed in *The Paris Post* and *The News-Examiner* in 1949 and 1957. In 1949, pilot Duncan L. King erected hangar equipment at his own expense (*The Paris Post*, 19 May 1949), and a second cinderblock hangar was built by the San Francisco Chemical Company in 1957. That same year, both the Bear Lake Flying Cooperative Association and the San Francisco Chemical Company provided financial assistance to the County for replacement of the contact lights along the northwest-to-southeast trending runway and the installation of gasoline pumps for servicing planes (*The News-Examiner*, 24 January 1957). These improvements were hailed as "commendable" by *The News-Examiner*, who also noted that more

improvements were to be expected given the "growing interest in flying" and the "increased use [of the airport] by planes landing on planned flight or for some other reason while passing over the area" (*The News-Examiner*, 5 July 1957). The County helped pay for these improvements by renting the property's unused acreage to farmers and stockmen on a yearly basis. In 1957 alone, the County received $2,672 in rental income for the production of hay both inside and outside the fenced portion of the airport (*The News-Examiner*, 24 January 1957).

During the early 1960s, the airport was used as testing site by two Utah-based corporations—the Thiokol Chemical Corporation of Brigham City and Hercules Powder Company of Bacchus. Both companies leased the north-south runway to conduct tests of the Minuteman first- and third-stage motors for the U. S. Air Force (*The News-Examiner*, 29 May 1969). By 1969, only the northwest-to-southeast trending runway was being maintained by the County. In May of that year, the airport received state funds to make improvements to its existing infrastructure. Three months later, more than $32,000 had been spent on modifications to the in-use runway, apron, approaches, lights, fence, and parking area (*The News-Examiner*, 29 May 1969). All of the work was completed by the Idaho Department of Aeronautics, with assistance from the County.

The following year, the Idaho Department of Aeronautics, Bear Lake County Commissioners, and Bear Lake County Advisory Commission established a Resident Administration program at the airport and appointed pilot and student Dwight Mudd as the first manager of the facility. As part of the program, the County received a $6,000 grant from the Aeronautics Board in Boise which they used to construct a prefabricated single family residence on the property (*The News-Examiner*, 6 May 1971). Although the exact build date for the residence is not known, it is thought to have been completed that same year. The airport was also provided a courtesy vehicle by the Idaho Department of Aeronautics, although a 5-cent per mile fee was charged for its use (*The News-Examiner*, 6 May 1971).

By 1975, the airport had become a major transportation center for the Bear Lake Valley. The *News-Examiner* reported that use of the airport had increased nearly 40 percent from the preceding years with "many businesses" and a "growing number of private users" using the facility for both business and recreational purposes (*The News-Examiner*, 11 September 1975). Passenger flights, operated by Key Transportation, were also being offered twice weekly to Salt Lake City from the airport (The News-Examiner, 11 September 1975). To accommodate expanded use of the facility, the County replaced the existing 1,000 gallon fuel tank with a 4,000 gallon tank in September 1975. They also sought funds for numerous landscape and beautification projects, including the removal of willows on the road leading to the airport; the removal of weeds on the runways; painting and repairing the wooden beacon tower; the planting of trees; and installation of an irrigation system to water the lawn around the manager's residence (*The News-Examiner*, 11 September 1975). Equipment, including a sweeper and snowplow for the runways and parking area, were also requested by the Airport Committee (*The News-Examiner*, 11 September 1975).

In March of 1984, the County received a grant for $439,530 to resurface the "east-west" runway (Runway 10/28) and apron "where the airplanes park" (*The News-Examiner*, 15 March 1984). Prior to the resurfacing, the width of the runway was narrowed from 150 feet to 75 feet as it was no longer deemed necessary for the landing of "private jets and good-sized airplanes" (*The News-Examiner*, 15 March 1984). Painting and the installation of a new lighting system was also completed during this time, with all project work completed by September.

In 2003, a project was completed to overlay Runway 16-34, Runway 10-28, and the aircraft parking apron. During the project, Runway 16-34 was shortened and narrowed to its existing configuration. In 2005, the apron taxilane was extended and additional fill was placed for future hangar and apron

development. At this time, the existing fuel dispenser was relocated south to its existing location. No modifications to the existing fuel tanks were made as part of this project.

In 2007, the airport demolished two existing county owned hangars and constructed new hangars in their place. As part of this project, a section of one of the hangars was designated as a pilots lounge. In 2009, the existing vault building was remediated to remove several transformers leaking PCBs and upgrade to bring the electrical system up to code. During this project, the existing rotating beacon was replaced and new primary windcone was installed. In 2013, a partial parallel taxiway was constructed from the apron west to the Runway 10 end.

The Bear Lake County Airport remains in use today and continues to serve a variety of aircraft, including single- and multi-engine airplanes, turboprops, and small jets (T-O Engineers 2014:2-5). It remains owned and operated by Bear Lake County, with a full-time airport manager residing on the property and overseeing its day-to-day operations. Administrative functions of the facility are overseen by a six-member board, which is also responsible for formulating recommendations regarding the airport's policies and directions and transmitting those recommendations to the County Commissioners for final action (T-O Engineers 2014:2-5). As the property continues to support a variety of aviation uses and activities, it has undergone numerous renovations in recent years. While these projects have improved the overall condition and safety of the airport, they have resulted in the demolition, replacement, and alteration of many of the property's original WWII era (1940-1945) buildings and structures. Of the 17 buildings, structures, and objects that currently comprise the facility, only three date to the original construction of the airport. The remaining resources were constructed on the property between 1957 and 2014.

3.0 RESEARCH DESIGN AND METHODS

The objective of the Class III CRI and architectural history survey was to identify potential cultural resource concerns, including the existence of NRHP-eligible historic properties, in order to assist with future planning activities at the airport. Cultural resources recorded within the project area will add to the knowledge base of pre-historic and historic activities on a local, regional, and state level. Any information collected and combined with previous knowledge allows for a more precise understanding of prehistorical and historical development and aids in providing background information for future investigations in or near the project area. The Class III CRI was conducted on July 1, 2014 and August 26, 2014 by NWRC archaeologists Rusty Smith and Denise Stark. The architectural survey was conducted on February 24, 2016 by NWRC architectural historian, Greta Rayle.

Prior to fieldwork, a file search was conducted at the Idaho State Historic Preservation Office (SHPO) in Boise, Idaho to identify previously recorded archaeological sites located within the project area and within one mile of the project area vicinity. The literature review suggested the primary type of cultural resource that would be encountered during the pedestrian inventory would be prehistoric lithic scatters and historic debris scatters as well as historic sites related to homesteading activities. A review of the literature did not indicate the presence of properties of religious, traditional or cultural significance in the project area or project area vicinity. Ethnographic interviews in support of the identification of Traditional Cultural Places were not conducted.

During the Class III CRI, the study areas were surveyed in parallel transects spaced at no more than 30 meters apart. Rodent burrows were examined for evidence of subsurface archaeological deposits. If a crewmember observed an artifact or feature, the crewmember pin flagged the find and the area surrounding the find was intensively examined for additional artifacts or features.

Per Idaho SHPO a site is defined as an area consisting of any feature alone or in association with other features (cairns, stone rings) or five or more artifacts situated in a discrete location within 50 meters of each other and/or artifacts or features located more than 100 meters from each other but in obvious association. An isolate is defined as fewer than five artifacts in a 10 meter by 10 meter area, or re-deposited materials that lack significant context, with no other associated artifacts or features within a 30 meter radius of the location. The distinction between a site and an isolated find was made based on the Principal Investigator's judgment; if it was determined that an area consisting of less than five artifacts represented a significant event or if unusual artifacts, materials or features were identified, then the area was defined as a site. For example, the identification of lithic material not generally found in the project area or vicinity would be classified as a site. In the event a site is recorded, a permanent datum (consisting of a 12 inch rebar stake with an aluminum tag bearing the site number, date, project name, and recorders initials) would be established.

The study areas were recorded using a Trimble Geo-XT Global Positioning System (GPS) set to NAD 83, Zone 11 and installed with NWRC's cultural resources data dictionary which is tied to a GIS legends file. Approximately 49 acres (33 percent) of the ground surface are covered with wetlands and standing water and were not surveyed as the ground surface was not visible.

All cultural resources identified in the project area were evaluated for their eligibility for listing in the NRHP in accordance with 36 CFR 60.4. Criteria of eligibility for inclusion on the NRHP:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

A) that are associated with events that have made a significant contribution to the broad patterns of our history; or

B) that are associated with lives of persons significant in our past; or

C) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D) that has yielded, or may be likely to yield, information important in prehistory or history.

NRHP-eligible historic properties must be deemed significant under one or more of the above criteria and possess sufficient integrity of location, design, setting, materials, workmanship, feeling, and association.

NRHP-eligible historic properties are classified into one of five different property types: object, site, structure and building. The fifth property type, historic district is defined as: "a geographically definable area, urban or rural, possessing a significant concentration, linkage, or continuity of sites, building, structures, or objects united by past events or aesthetically by plan or physical development". Historic districts may consist of contributing and non-contributing objects, sites, structures and buildings. The properties within a district are linked thematically by either architecture style, designer, date of development, distinctive urban plan, and/or historic associations.

The Bear Lake County Airport was built under the supervision of the Civil Aeronautics Authority in 1943 for use as an emergency landing strip and is associated with military activities occurring in southeast Idaho during the WWII era (1940-1945). In order for the Bear Lake County Airport to be recommended eligible for listing in the NRHP as a historic district, a significant concentration, linkage, or continuity of sites, buildings, structures, or objects needs to be present on the landscape. A total of 17 resources, constructed at various times between 1942 and 2006, remain at the airport. All of the resources are associated with the property's current use as a County-owned and operated airfield for small aircraft. At the request of the SHPO and FAA, the Bear Lake County Airport is treated in this report under the general category of "historic property," and not a historic district.

A reconnaissance-level architectural survey of the Bear Lake County Airport was conducted on February 24, 2016 by NWRC's architectural historian Greta Rayle, M.A., RPA, who meets the Secretary of Interior's Standards for Architectural History, History, and Archaeology, and has 11 years of experience in the western United States. The purpose of the survey was to identify and document all standing buildings and structures in order to evaluate the airport for listing in the NRHP pursuant to Idaho SHPO standards. Built elements identified at the airport were assigned a field identification number (FN), point-provenienced using a Garmin GPSMAP 76 unit (allowing for 3-m to 5-m accuracy), photographed, and recorded on field forms.

The information collected during the architectural survey was used to complete an Idaho State Historic Inventory (IHSI) form for the entire airport property which included individual descriptions of the airport's 17 documented resources. Separate forms were also prepared for two historic-age structures—a wooden beacon tower (FN-10) and a drainage ditch (FN-16)—both of which are associated with the WWII era construction of the airport and are recommended individually eligible for inclusion in the NRHP under Criteria A and C and Criterion A, respectively.

4.0 FILE SEARCH RESULTS

A file search was conducted on July 30, 2014 by the Idaho SHPO in Boise, Idaho (SHPO Record Search #14319). Parameters for the file search encompassed previous projects and sites located within a one-mile radius of the project area. The file search revealed that three previous CRIs had been conducted in the project area vicinity, one of which (Shelton 2012) is located within the project area (Table 3). The previous studies are listed starting with the most recent. Three NRHP-eligible structures, consisting of a bridge, a canal and associated features, and historic homestead have been previously recorded within the one mile radius of the project area (Figure 4; Table 4).

Table 3. Previous studies conducted within one mile of Bear Lake County Airport.

SHPO Report No.	Report Title	Author	Date	Acres
2013/208	Bear Lake County Airport New Taxiway by North Wind, Inc., Idaho Falls, ID.	Shelton, J.	2012	152
2003/544	Bear Lake Outlet Bridge. Prepared for Toothman Orton Engineering, Boise, ID by Frontier Historical Consultants, Grand View, ID.	Gray, D.	2002	10
1996/854	Cultural Resources Investigation Bear Lake NWR Negative Results. US Fish and Wildlife Service, Princeton, Oregon.	Harvey, P. K. & C.D. Burnside	1995	275

Table 4. Previously recorded historic sites within one mile of the study areas.

Site No.	Type of Property	Artifacts/Features	NRHP Eligibility	NRHP Criterion
07-5183	Bear Lake Outlet Canal Bridge	Bridge	Eligible	A and C
07-17895	Bear Lake Outlet Canal	Channel, headgates, check dams	Eligible	A
07-17896	William H. Smith Homestead	Buildings	Eligible	A

Site 07-5183 (Bear Lake Outlet Canal Bridge) was constructed circa 1920. The bridge was built out of Lackawanna steel beams, a type of steel that was manufactured between 1903 and 1922. The bridge is 151 feet long by 20 feet wide and is rated at 10-tons. The floor system of the bridge consists of timber deck, timber and steel stringers and steel I-beam floor beams. In 1982, the wood deck on the bridge was noted as not appearing to be original and the 2.5 inch angle iron railing appeared to be a recent addition at that time. The SHPO lists the bridge as eligible for inclusion in the NRHP under Criteria A and C; however, it was replaced in 2009, and the eligibility determination on record is most likely for the pre-2009 bridge. As Site 07-5183 is located approximately 2,272 feet to the west of the study areas, the bridge was not reevaluated.

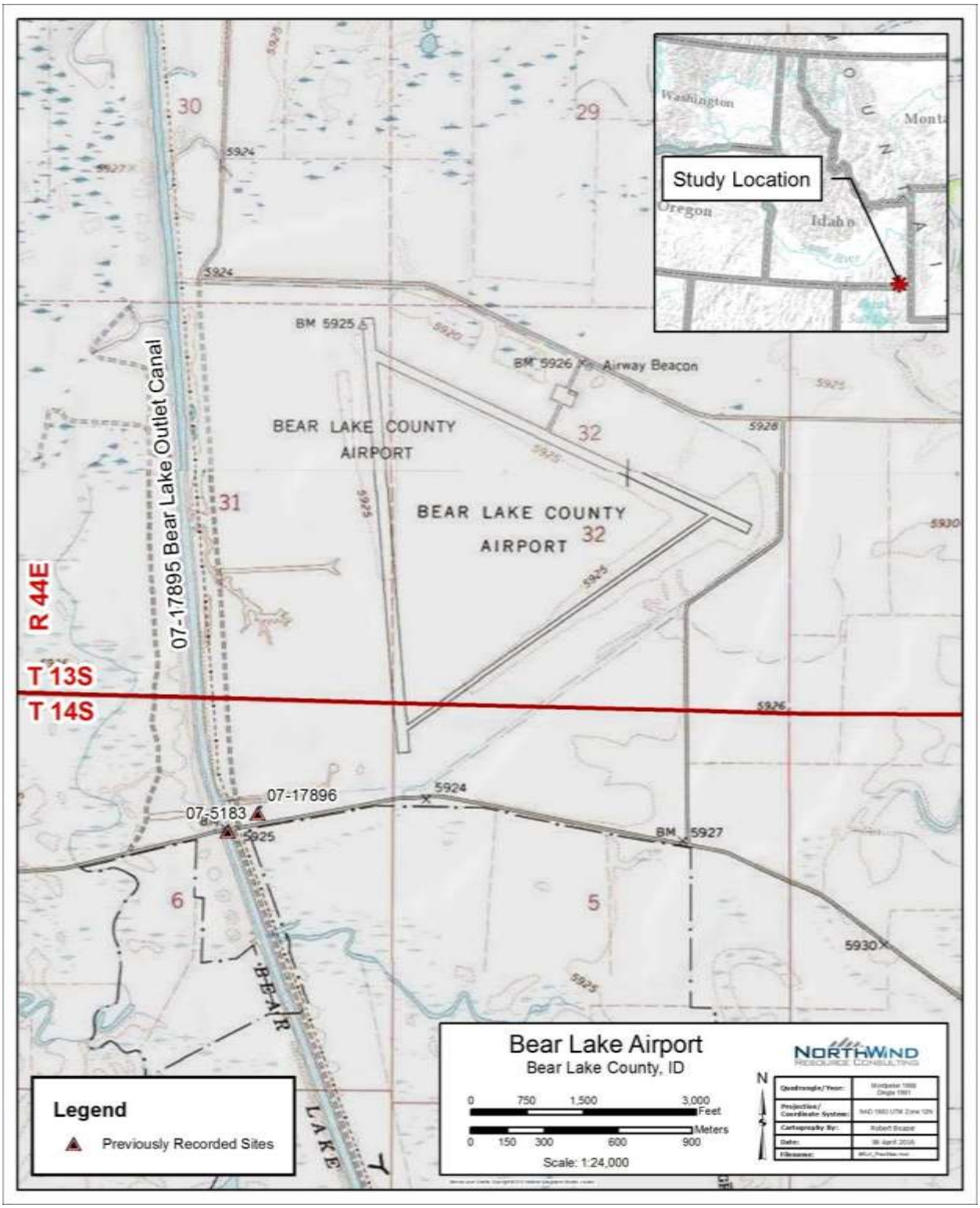

Figure 4. Topographic map showing the location of previously identified cultural resources. Taken from the Montpelier (1967) and Dingle (1967), quadrangles, USGS 7.5' Series (1:24,000 Scale).

Site 47-17895 (Bear Lake Outlet Canal) was built in 1915. The canal diverts water out of Bear Lake for irrigation. This site is eligible for inclusion on the NRHP under Criterion A. Under Criterion A, it is associated with early irrigation of the Bear Lake area. Site 47-17895 is located approximately 1,791 feet to the west of Bear Lake County Airport. As the structure falls outside of the study areas, NWRC did not re-evaluate the canal.

Site 47-17896 (the William H. Smith Homestead) represents the 1920 patented homestead of William Smith. The site consists of a one-and-a-half story rectangular frame cabin set on stone piers and a one-story rectangular frame barn. The site has previously been recommended eligible for inclusion in the NRHP under Criterion A. SHPO concurred with the recommendation. Site 47-17896 is located approximately 2,007 feet to the west of Bear Lake County Airport. As the homestead falls outside of the two study areas, it was not re-evaluated.

5.0 RESULTS

Three previously recorded historic period resources have been recorded within one mile of the two study areas (see Figure 4). All three of the previously recorded resources have been recommended eligible for listing in the NRHP.

Per SHPO guidance, one newly recorded historic property, the Bear Lake County Airport, was recorded during the architectural history survey. The Bear Lake County Airport consists of 17 resources (buildings, structures, and one object). The airport property is recommended as not eligible for listing in the NRHP (Figure 5); however, two resources—a wooden beacon tower and an earthen drainage ditch—are recommended individually eligible for listing in the NRHP.

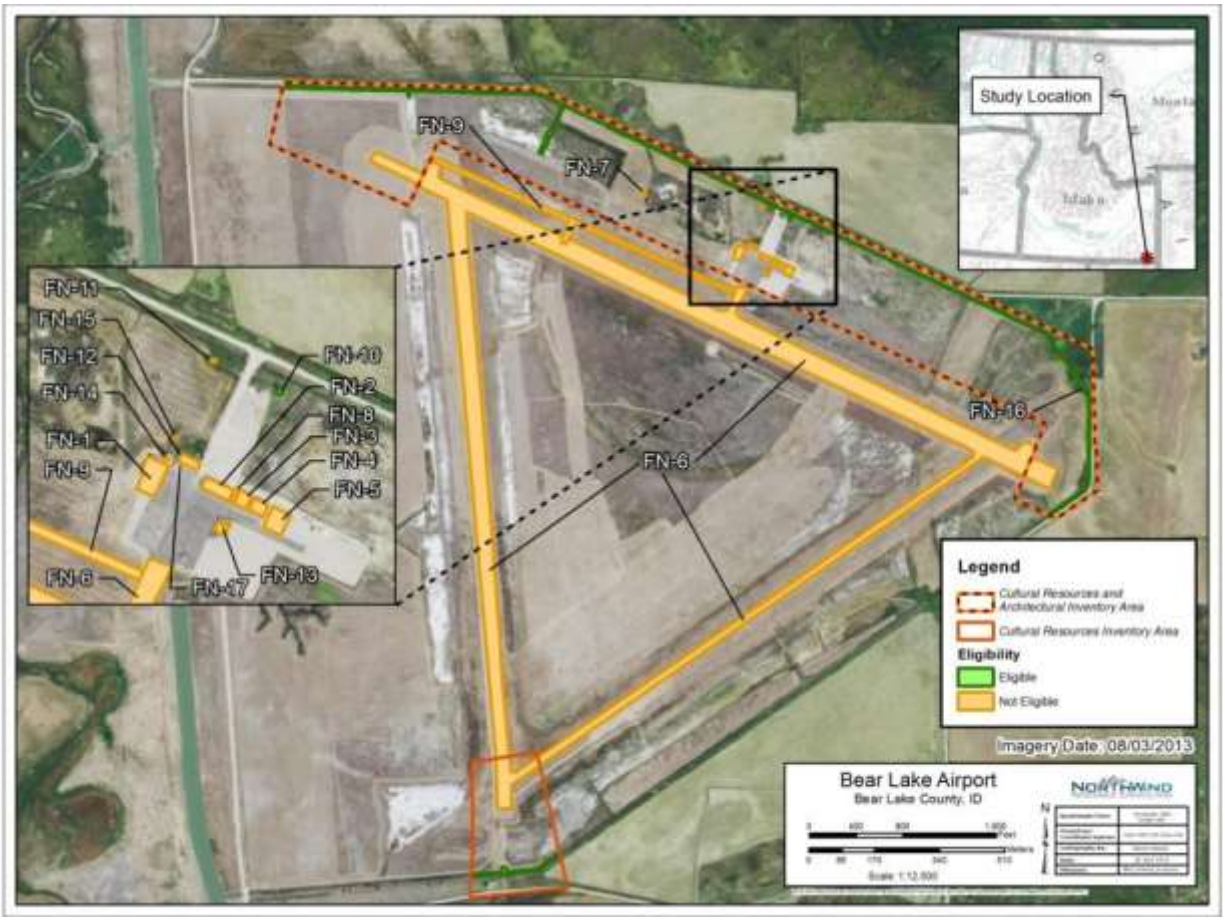

Figure 5. Documented resources within the Bear Lake County Airport property.

5.1 DESCRIPTION OF NEWLY RECORDED RESOURCES

The architectural inventory of the project area resulted in the identification of one newly-recorded historic property, the Bear Lake County Airport. The property contains a grouping of 17 historic and modern-era buildings and structures, of which only five date to the original 1943 construction of the airfield (see Figure 5; Table 5). The remaining resources were built after control and maintenance of the property was transferred to Bear Lake County. Although the airport is associated with military activities in southeast Idaho during the WWII era (1940–1945), it is recommended not eligible for inclusion in the NRHP as it no longer retains sufficient integrity to convey its historical significance. A description of the historic property is included below. Photographs of the resources are included in Appendix A.

Table 5. Newly recorded historic property.

Property	Type of Property	Artifacts/Features	NRHP Eligibility	NRHP Criteria
Bear Lake County Airport	Historic Property	Buildings and structures	Not Eligible	N/A

Bear Lake County Airport

Type: Historic Property
Legal Location: Within Sections 29, 30, and 31 of T13S, R44E, and Sections 5 and 6 of T14S, R44E
Cultural Period: Pre-Modern (1940–1958); Modern (1958–present)
Landform: Flood Plain

The Bear Lake County Airport is located 5.3 miles southwest of the City of Montpelier in Bear Lake County, Idaho. The property is situated on the level floor of Bear Lake Valley approximately 9.3 miles north of Bear Lake; it is bounded by Airport Road to the west and north, Dingle Bottoms Road to the south, and an unnamed road to the east. The property is currently classified by the FAA as a Basic Airport, a type of General Aviation Airport, characterized as "serving critical aeronautical functions within local and regional markets" (T-O Engineers 2014). It predominantly serves single-engine aircraft, although the property also accommodates multi-engine airplanes and small jets on an occasional basis for business purposes (T-O Engineers 2014). All of the buildings located within the boundaries of the airport are either utilized by Bear Lake County, private pilots, or commercial enterprises for recreational, corporate/business, and medical related transport purposes. Federal and state agencies such as the Idaho Department of Lands, Bureau of Land Management, U. S. Forest Service, U. S. Fish and Wildlife Service, and Idaho Fish and Game also use the airport for firefighting and various wildlife-related purposes (T-O Engineers 2014). It also serves as a refueling stop for cross-country flights (T-O Engineers 2014).

The Bear Lake County Airport property includes 17 historic age and modern resources (see Figure 5; Table 6). These include five hangars (FN-1 through FN–5); a runway system consisting of three runways (FN-6); two concrete foundations (FN-7 and FN–8); a taxiway system (FN-9); a beacon tower (FN-10); a transformer building (FN-11); a single family residence (FN-12); a fueling area (FN-13); a garage/storage shed (FN-14); a small outbuilding (FN-15); a drainage ditch (FN-16); and a flagpole (FN-17).

Table 6. Bear Lake County Airport property resources and construction dates.

Field #	Description	Date of construction	Comments
FN-1	Hangar	2006	Replaced another hangar that was constructed on the property in the early 1970s.
FN-2	Hangar/Pilot Lounge	2006–2009	Replaced another hangar that was constructed on the property in the early 1970s.
FN-3	Hangar	1999–2001	Built at the same time as FN-4.
FN-4	Hangar	1999–2001	Built at the same time as FN-3.
FN-5	Hangar	2014	Most recent building constructed on the property
FN-6	Runway system	1943	
FN-7	Circular concrete foundation	Unknown	May have been the base of a windmill
FN-8	Concrete foundation	Unknown	May have been the foundation for a hangar or covered service area
FN-9	Taxiway system	2013–2014	Most recent structure built at the airport
FN-10	Wooden beacon tower	1943	One of only three structures dating to the original construction of the airport
FN-11	Transformer building	1957	Houses transformers associated with the airport's current lighting system
FN-12	Single family residence	1971–1972	Serves as on-site housing for the County's airport manager
FN-13	Fueling area	1975	
FN-14	Garage/storage shed	Sometime between 2006 and 2012	Prefabricated wooden storage building of modern construction
FN-15	Small outbuilding	Unknown	Building currently serves as a storage shed for the airport manager
FN-16	Drainage ditch	1944	Presumably constructed by the Reynolds Construction Company of Springville, Utah in September 1944
FN-17	Flagpole	1971–1972	Installed in association with the single family residence

The property is laid out in a triangular configuration and is accessed by a northeast to southwest trending gravel road that extends from Airport Road. The access road crosses over a drainage ditch (FN-16) via two concrete headwalls with corrugated metal pipe culverts, and past a transformer building (FN-11) and wooden beacon tower (FN-10) where it widens to accommodate automobile parking to the east. The road continues past the parking area and through a gate, located between a single family residence for the airport manager (FN-12) and a combination hangar and pilot lounge (FN-2); to the south of the gate, the road terminates into a paved apron and tie-down area.

Other buildings and structures, including four additional hangars (FN-1, FN-3 through FN–5), a garage/storage building (FN-14), a fueling area (FN-13), and a flagpole (FN-17) are located within the apron and tie-down area to the east, west, and south of the residence and hangar/pilot lounge. The runways are located to the southwest of the buildings and form a triangular configuration. The airport's primary Runway 10/28 (FN-6) runs northwest to southeast; the secondary runway, Runway 16/34, is oriented north to south. West of the buildings, a partial parallel and connector taxiway (FN-9) parallels Runway 10/28 to the north. The drainage ditch (FN-16) that flows beneath the access road continues to the southwest along the edge of the property and south side of Airport Road. Approximately 1,055 feet

(0.2 mile) east of the road's intersection with an unnamed dirt road, the ditch veers to south and turns to the southwest, where it parallels the airport's third runway (FN-6) identified runway which has been abandoned.

Documented Resources

A total of 17 resources were identified during the architectural survey of the project area. The majority of these resources, or 13, post-date the original construction of the airport. The remaining four resources were constructed by the Federal government in 1943 during the initial development of the airport. Detailed descriptions of the 17 resources, grouped by type, are presented below.

Hangars (FN-1 through FN–5)

Of the nine buildings located within the Bear Lake County Airport property, five are single-story, prefabricated steel box-style hangars. All of the hangars have concrete foundations and front-gabled metal roofs, and are situated in the northern half of the property, along the northeastern edge of the apron. Four of the hangars (FN-2 through FN-5) are located adjacent to one another to the southeast of the access road. Hangar FN-1 is located to the southwest of the road, approximately 40 feet southwest of the airport manager's residence (FN-14).

The largest of the hangars (FN-2) (Figure 18 and Figure 19), measures approximately 108 feet long by 40 feet wide and consists of a combination hangar and pilot/passenger lounge. The building has three entrances on its southern (main) façade; two of the entrances are located in a larger hanger door that spans the eastern two-thirds of the building. A series of three vinyl sliding windows provide light for the pilot/passenger lounge, which is located at the western end of the building. A three-foot-wide concrete sidewalk runs the length of the building between the foundation and apron.

The westernmost hangar (FN-1) (Figure 16 and Figure 17) on the property is rectangular in plan and measures 60 feet long by 65 feet wide. A hangar door is present on the southern façade of the building. Located on the eastern façade are an additional entryway and a single garage door. The entryway, located at the southern end of the facade, is covered by a small gablet porch, and a narrow shed-roofed porch is located above the garage door. The building does not have windows. A metal sign, embossed with the manufacturer name "Metallic" is present beneath the southern gable end of the building.

The remaining hangars (FN-3 through FN-5) (Figure 20, Figure 21, and Figure 22) are located to the east of FN-2 (see Figure 18). Similar to FN-1 and FN-2, all of the buildings have large, centrally-located hangar doors on their southern facades. The buildings vary in size and plan with FN-3 measuring 48 feet long by 48 feet wide, FN-4 measuring 50 feet long by 48 feet wide, and FN-5 measuring 65 feet long and 55 feet wide. Both FN-3 and FN-5 have secondary entries. The secondary entry on FN-3 is located at the southern end of the eastern façade and is covered with an arched, corrugated metal porch. In comparison, the entrance on F-5 is located on the southern (main) façade of the building, just west of the hangar door. To the south of FN-5, a 65-foot-long by 35-foot-wide concrete slab, installed at the same time FN-5 was constructed and serves as an eastern extension of the apron.

A series of photographs of the airport, taken by local pilot Olean Parker and in the possession of airport manager Hank Medford, suggest that all of the airport's hangars were built on the property after 1994. The most recent hangar to be constructed on the property is FN-5, which aerial imagery confirms was built on the property in the fall of 2014. Parker's photographs confirm that FN-3 and FN-4 were built simultaneously sometime between 1999 and 2001. The remaining hangars (FN-1 and FN-2) were erected in 2006, and sometime between 2006 and 2009, respectively.

Two of the buildings (FN-1 and FN-2) replaced existing steel box hangars that newspaper articles suggest were built on the property sometime during the 1970s. The original hangars appear in a number of Parker's photographs dating to the mid-1990s and early 2000s, as well as aerial photographs taken in 1992, 1999, 2003, and 2004, and available on Google Earth. An aerial view of the airport property as it appeared in 2003 is shown in Figure 6. Both of the 1970s hangars and FN-3 and FN-4 are visible in the image along the northeastern edge of the apron. Although all five of the hangars are in good condition, they are less than 50 years old and do not possess qualifying characteristics that would render them eligible for listing in the NRHP. Therefore, North Wind recommends that the hangars are not individually eligible for inclusion in the NRHP.

Figure 6. Aerial view of the Bear Lake County Airport as it appeared in 2003, facing north. Note the absence of the fifth hangar (FN-5) and the 1970s hangars where FN-1 and FN-2 are currently located (Source: Google Earth).

Runway System (FN-6)

The Bear Lake County Airport property has three runways, of which only two are currently active. The runways form an equilateral triangle, with the airport's primary runway, or Runway 10/28, oriented northwest to southeast, and secondary Runway 16/34 running north-south. The third runway, identified as FN-8 during the architectural survey, runs northeast to southwest and is no longer in use.

Runway 10/28 (Figure 23) accommodates 90 percent of the airport's current traffic and measures 5,728 feet long by 75 feet wide (T-O Engineers 2014:2-10). In comparison, Runway 16/34 is 4,590 feet long by 60 feet wide. Both of the runways are paved with asphalt and have only basic markings. The abandoned runway measures 5,730 feet long by 150 feet wide and is surfaced with gravel. All three of the runways were part of the initial development of the airport and were built between June and October 1943.

Articles printed in *The Paris Post* and *News-Examiner* newspapers suggest that the runways have undergone numerous modifications since their original construction in 1943. One article appearing in a November 8, 1945 edition of the *News-Examiner* describes two of the runways as being 150-foot-wide surfaced landing strips and the third runway as having a 50-foot-wide "hard" surface (*The News-Examiner*, 8 November 1945). A similar description of the three runways is provided in a July 5, 1956 edition of the newspaper (*The News-Examiner*, 5 July 1956). In 1984, as part of a larger reconstruction project at the airport, Runway 10/28 was resurfaced and narrowed from its original width of 150 feet to its current 75 foot width. Lights were installed along the edges of Runways 10/28 and Runway 16/34 as part of the project (*The News-Examiner*, 20 September 1984). In 2003, Runway 16/34 was overlaid, shortened, and narrowed. The third runway was converted to and used as a taxiway until the late 1970s or early 1980s, when it was subsequently abandoned (T-O Engineers 2014:2-6). The date of its conversion to a taxiway is not known.

Both of the in-use runways are in good condition and are required by the FAA to be regularly maintained. Due to its abandonment, the third runway is no longer maintained, and as a result, is in fair to poor condition. While the runway system consisted of the first structures to be built at the site in 1943, all three of the runways have been modernized by rehabilitation projects occurring during the late twentieth and early twenty-first centuries. Modifications have included resurfacing, as well as the narrowing of the airport's primary runway—Runway 10/28—and the addition of a new taxiway system (FN-9) that abuts its eastern end. The secondary runway—Runway 16/34—has similarly been resurfaced, narrowed, and also shortened. Additionally, the abandonment of the third runway has altered the original triangular configuration of the system—one of the principal characteristics of WWII era airport design. While the triangular runway system remains evident in aerial photography, the degradation of the abandoned runway has impacted its integrity of materials. Similarly, while other WWII era structures at the property such as the wooden beacon tower (FN-10) and drainage ditch (FN-16) remain intact the structures as a whole no longer retain association with military activities occurring in southeast Idaho during the WWII era (1940-1945). As modifications have also impacted the structures' integrity of design, materials, workmanship, feeling, and association, NWRC recommends that the runway system be considered not individually eligible for inclusion in the NRHP.

Circular Concrete Foundation (FN-7)

FN-7 (Figure 27) consists of a 40-foot-diameter concrete foundation located approximately 880 feet (0.2 mile) northwest of the apron and tie-down area. The foundation has a raised portion in the center that measures 5 feet long by 5 feet wide by 6 inches thick. The function of the concrete foundation is unknown, although it may represent the remains of a well and windmill, as a flanged cast iron pipe and 13 threaded 5/8-inch diameter bolts extend from the corners of the raised portion of the structure. According to *The News-Examiner*, a well was "sunk, opened, and tested" on the property sometime prior to 1971 (*The News Examiner*, 6 May 1971). The structure is no longer in use and is currently in poor condition. As the age and function of the concrete foundation is not known, North Wind recommends it be considered not individually eligible for listing in the NRHP due to its lack of association.

Concrete Foundation (FN-8)

This structure consists of a 5-foot-long by 5-foot-wide concrete pad located to the north of the apron and tie-down area between Hangar Nos. 2 and 3 (FN-2 and FN-3) (Figure 28). Historic photographs taken by local pilot Olean Parker and on file at the airport suggest that the foundation may have been associated with the 1957 hangar building formerly in the location of FN-2. Two of the pictures dating to February 15, 1995 and December 9, 1995 show a secondary structure, possibly a service area or adjacent hanger under construction. A similar open air structure, consisting of a series of evenly-spaced steel poles with a

steel beam across the top is visible in a photograph of Hangars No. 3 and 4 (FN-3 and FN-4) taken by Parker on June 9, 2001 (Figure 7). As the use and function of the concrete foundation are not known, the structure lacks association and is therefore not individually eligible for listing in the NRHP.

Figure 7. Photograph of the hangar area taken as it appeared on June 9, 2001. Note the poles with horizontal beam in the current location of FN-8 (Source: Hank Medford).

Taxiway System (FN-9)

FN-9 (see Figure 5) is the airport's current taxiway system, consisting of a partial parallel taxiway and a connector taxiway. The taxiway system currently provides access to the runway system from the apron and tie-down area, while allowing aircrafts to move onto and off of the runways safely and efficiently.

The partial taxiway parallels Runway 10/28 (FN-6) and measures approximately 2,850 feet long by 25 feet wide. At its western end, the partial taxiway turns to the southwest, where it joins the northwestern end of Runway 10/28 (FN-6). The connector taxiway is approximately 450 feet long by 40 feet wide and extends southwest from the center of the partial taxiway to Runway 10/28. Both taxiways are surfaced with asphalt and equipped with reflective markers. A draft Master Plan produced for the Bear Lake County Airport produced by T-O Engineers in 2014 indicates that the taxiway system was under construction in 2013 and completed during the summer of 2014 (TO Engineers 2014:2-6). This is confirmed by aerial imagery available on Google Earth, which shows the taxiway as being built sometime between August 2013 and October 2014. As the taxiway system is modern construction and does not possess qualifying characteristics that would render it eligible for listing in the NRHP, the system is recommended by North Wind to be not individually eligible.

Wooden Beacon Tower (FN-10)

FN-10 (Figure 29) consists of a 50-foot-high wooden beacon tower. It is situated on flat land approximately 85 feet to the south of Airport Road. The closest building to the structure is the transformer

building (FN-11), which is located 225 feet to the northwest. According to airport manager Hank Medford, the beacon is used for both aviation purposes, as well as by local residents as a navigation source at night and during times of heavy cloud cover (Hank Medford, personal communication, 24 February 2016).

The beacon tower is constructed of wooden poles and 2-inch by 6-inch dimensional lumber. The base of the tower is square and consists of four wooden poles that are set in concrete approximately 12 feet apart (Figure 30). The poles extend upward forming a triangular top section. Dimensional lumber is affixed to the poles in four locations, giving the tower a segmented appearance. Wooden cross bracing has been applied between the lumber in two areas near the top of the tower for added support. A fixed ladder with a metal cage is present on the western side of the tower and provides access to a wooden platform at the top of the structure on which the beacon is installed. Both the ladder and the beacon were replaced in 2009 (Hank Medford, personal communication, 26 August 2014). The new beacon was replaced with one that has updated components, but otherwise is the same as the original. The tower was most recently repainted to reflect its original red and white color in 2015 (Hank Medford, personal communication, 24 February 2016).

The tower is one of only a few structures remaining at the airport that dates to its original 1943 construction. Archival research suggests that wooden beacon towers dating to the 1940s are rare, with most towers either razed or constructed of more durable materials such as steel. Although the tower has been repainted, and its beacon and ladder have been replaced, such routine maintenance is expected given the date of the tower, and does not adversely affect its integrity of design, workmanship, or materials. Additionally, the tower retains its integrity of setting, association, and feeling. For these reasons, the wooden beacon tower is recommended individually eligible for inclusion in the NRHP under Criteria A, for its association with military activities occurring in southeastern Idaho during the WWII era (1940-1945), and also under Criteria C as a well-preserved and rare example of WWII era airport tower design.

Transformer Building (FN-11)

The transformer building (FN-11) (Figure 31 and Figure 32) was constructed in 1957 to house components of the airport's lighting system. It currently consists of a 12-foot-long by 10-foot-wide, flat-roofed concrete block building with smooth concrete walls. The building is situated in the northern half of the property, approximately 150 feet southwest of where the access road and Airport Road intersect. The building is constructed on a concrete foundation. A steel door on its western (main) façade serves as the building's only entry. The building lacks windows, although louvered vents are present near the base of the foundation on the building's southern and eastern facades. A fuse box is mounted to the southern façade, and a small antenna extends from the roof on the northwest corner of the building.

Although the building's equipment has been modified, personal communication with the current airport manager suggests that the building has remained unchanged since its original construction. Modifications noted by Medford include conversion of the power system from its original PCB system and installation of a new constant current regulator, as well as the replacement of the system's wires and lights in the 1980s. While the transformer building is over 50 years in age, it is associated with mid-20th century operations of the airport and is not recommended eligible for individual listing in the NRHP under the established context of military activities occurring in southeast Idaho during the WWII era (1940-1945). Additionally, the building cannot singularly convey the significance of post-WWII era municipal airport development (Criterion A); it is not associated with an important person (Criterion B); it does not possess unique or exceptional architectural characteristics (Criterion C); and does not have the potential to yield additional information on post-WWII era municipal airport development (Criterion D).

Single Family Residence (FN-12)

FN-12 is a one-story, wood frame building with a side-gabled roof and two-bay garage at its eastern end. The building, which currently serves as a residence for the airport manager, is located to the west of the access road nearly equidistant from Hangar Nos. 1 and 2. The 1,920-square foot building is constructed in the Ranch architectural style, which was common in the late 1940s and early 1950s when construction of domestic architecture resumed following the end of WWII (McAlester 2003:477). The building is built on a concrete foundation. The low-pitched roof is covered with standing seam metal roofing and the exterior of the building is sheathed in horizontal vinyl siding. The gable ends of the building are covered with vertical vinyl siding and a pair of louvered wooden attic vents are present on the building's eastern façade above the garage doors. A single louvered attic vent is also present beneath the gable end of the western elevation. Metal gutters are affixed to the eaves of the roof. The area to the north and west of the residence is encircled by a chain link fence.

The main elevation, or southern façade of the building, has three entries, all of which are covered by a narrow overhang of the roof (Figure 33). The two westernmost entries are accessed by raised concrete stoops and the third entry is located to the east and provides access to the garage. This entryway is flush with a rectangular concrete slab that abuts adjacent concrete slabs to the west and east. The westernmost slab is the largest of three slabs and measures 23 feet long by 10 feet wide. The slab connects the two stoops of the westernmost entries and also serves as the foundation for a flagpole (FN-17), which is located 6 feet south of the residence. An additional entryway is present on the northern façade of the building (Figure 34). This entryway is partially enclosed by a small, shed-roofed porch, which opens to the east. A concrete sidewalk extends east from the entryway towards the access road.

Windows are present on northern and southern facades of the building. On the southern façade, windows consist predominantly of insulated double-hung vinyl windows and on the northern façade, vinyl sliding windows are present. The windows vary in size and their placement is largely asymmetrical. All are surrounded by wooden frames.

Archival research indicates that FN-12 was constructed by Bear Lake County Commissioners between 1971 and 1972 as part of a Resident Administration program established by the Idaho Department of Aeronautics in December 1970 (*The News-Examiner*, 6 May 1971). The residence was to be constructed using a $6,000 grant approved by the Aeronautics Board in Boise and matching County funds, not to exceed between $10,000 and $20,000. Plans called for a prefabricated home to be made available to the resident manager "without a rental charge," as the position at the time the program was enacted was unsalaried (*The News-Examiner*, 6 May 1971). A photograph showing the southern façade of the home taken by Olean Parker on August 15, 1993 indicates that a number of modifications have been made to the building in the last 20 years (Figure 8). These include window and door replacement and removal and replacement of the building's exterior siding. It also had a small grass lawn between the southern façade and the apron, which has since been replaced with concrete. The building continues to serve as on-site housing for the airport manager.

The property is in good condition and is regularly maintained; however, its construction post-dates the initial construction of the airport, and it is associated with activities occurring on the site after ownership of the property was transferred to Bear Lake County. As the property was constructed outside the period of significance, it lacks integrity of association with the WWII era thematic context that would render it NRHP eligible under Criterion A. Additionally, the building does not have an association with an important person (Criterion B), is not a unique example of a building type (Criterion C), and does not have the potential to yield additional information on airport construction and/or operation (Criterion D). For these reasons, the building is recommended ineligible for listing in the NRHP.

Fueling Area (FN-13)

FN-13 is located along the eastern edge of the apron and tie-down area, approximately 90 feet to the southwest of Hangar Nos. 2 through 5 (FN-2 through FN-5). The area consists of a raised rectangular concrete pad with four steel posts at each corner (Figure 35). The posts are painted yellow and act as barriers for the pad, which contains a self-service fuel pump, regulator, and flag pole. The pump is fed by an underground fuel tank located beneath the pad and accessible via a manhole-covered opening to the east. A steel pole with an overhead light fixture and video surveillance equipment is present at the southern end of the pad.

Figure 8. Photograph of the single family residence (FN-12) as it appeared on August 15, 1993. Note the presence of the lawn and vertical wooden paneling beneath the windows (Source: Hank Medford).

It is not clear if a fueling area was originally part of the airport's design. An article in *The News-Examiner* describes the installation of a new fuel storage tank in September 1975, stating that additional fuel storage was necessary due to expanded use of the airport by businesses and private users (*The News-Examiner*, 11 September 1975). The article went on to state that the new 4,000-gallon tank was designed to replace an existing 1,000-gallon tank which was used by the airport to store 80 octane fuel (The News-Examiner, 11 September 1975). Background research and photographs on file at the airport indicate that additional improvements were made to the fueling area in 2001 and 2003.

The fueling area is in good condition and continues to function as originally intended; however, due to modifications, it no longer retains its integrity of materials, design, or workmanship. Additionally, it is not known if the fueling area was part of the original design of the airport, or if it was added by Bear Lake County at a later date, making its association unclear. For these reasons, the fueling station is considered ineligible for listing in the NRHP.

Garage/Storage Shed (FN-14)

FN-14 consists of a prefabricated wooden garage/storage shed with a front-gabled roof (Figure 36). The building is located immediately north of Hangar No. 1 (FN-1), approximately 32 feet west of the manager's residence (FN-12). The building measures 20 feet long by 10 feet wide and is rectangular in plan. The building has a concrete foundation. The eastern façade, or main elevation of the building, has a single garage door that opens toward the apron and tie-down area. A single double hung aluminum window is present on the southern façade. Wooden trim has been applied around the door and window, as well as beneath the gable ends. The moderate-pitched roof is covered with asphalt shingles and a louvered vent is present beneath the gable end on the western (rear) façade. Aerial imagery suggests that the building was moved to the property sometime between 2006 and 2012. It is currently used by the County to store lawn mowers, snow plows/shovels, and other equipment necessary for maintaining the property.

The building is in good condition; however, it is of modern construction and does not possess qualifying characteristics that would render it eligible for inclusion in the NRHP. As such, the building is recommended by North Wind to be ineligible for listing.

Small Outbuilding (FN-15)

FN-15 is located approximately 57 feet northwest of the airport manager's residence (FN-12) along the western edge of the fenced enclosure. The small, front-gabled wood frame building measures 10 feet long by 10 feet wide and rests on a concrete foundation (Figure 37). The roof is covered with corrugated metal and the gable ends are sheathed in plywood. An attic vent is located on the eastern (main) façade, above the building's only entryway. The building does not have windows.

The construction date for the building is unknown. The current airport manager has no knowledge of its construction date, nor does the Bear Lake County Assessor's Office as the land on which the building is located is owned by the County, and therefore, its buildings and structures are not routinely accessed for tax purposes. The building is currently in fair condition and is used by the airport manager for storage purposes. FN-15 is recommended not eligible for inclusion in the NRHP as it lacks association and does not possess qualifying characteristics that would render it eligible for listing.

Drainage Ditch (FN-16)

FN-16 consists of an unlined drainage ditch that is used to channel excess water from the airport property to the Bear Lake Outlet Canal, which is located to the west. The ditch parallels the southern shoulder of Airport Road to the north of the airport (Figure 38). Approximately 1,915 feet (0.4 mile) east of apron and tie-down area, the ditch turns to the southeast and continues on a south-southwest trajectory along the eastern edge of the property.

The earthen ditch varies from 10 to 12 feet in width and is approximately 2.5 feet deep. The ditch flows beneath the current access road for the airport via two corrugated metal pipe culverts with parallel concrete headwalls (Figure 39). The headwalls are oriented perpendicular to the ditch and measure approximately 8 feet long by 1 foot wide by 6 feet high; 3-foot-long wingwalls extend from the headwalls to the north and south. Pipe railing has been installed on the tops of the headwalls, presumably for visibility. Both headwalls are in good condition and appear to be of recent construction.

An article printed in *The Deseret News* indicates that a contract for the construction of the ditch was awarded to the Reynolds Construction Company of Springville, Utah in September 1944 (*Deseret News*, 15 September 1944). Announcement of the award, which totaled $11,827, was made by Sacramento District Army Engineer, Colonel Robert C. Hunter.

Although the exact age of the ditch is not known, it is presumed to be associated with the military's use of the airport in the WWII era as its construction was solicited less than one year after the airport's completion. Additionally, the ditch appears to follow its original alignment and continues to drain water away from the runways and other airport facilities as originally intended. As the ditch retains its integrity of location, materials, setting, association, workmanship, feeling, and design, it is recommended eligible for listing in the NRHP under Criterion A for its association with military activities occurring in southeast Idaho during the WWII era (1940–1945).

Flagpole (FN-17)

FN-17 consists of an 18-foot-high flagpole set into a concrete pad (see Figure 33). It is located approximately 6 feet south of the airport manager's residence (FN-12). The age of the flagpole is not known, although it was likely installed at the same time the house was constructed. The object is not historic in age or associated with the original construction of the airport and is not individually eligible for listing in the NRHP.

Discussion

As a historic property, the Bear Lake County Airport, which consists of 17 resources, retains its integrity of location, setting, and feeling, but has suffered critical loss of integrity of materials, design, workmanship, and association. The airport remains in its original location within Bear Lake Valley, and continues to be accessed by a network of graded gravel roads. Additionally, the open, agricultural lands surrounding the facility and the nearby Bear Lake Outlet Canal and bridge further contribute to the retention of integrity of setting, and foster the same overall feeling of remoteness, which originally existed when the facility was first constructed. The resources documented within the project area continue to support the property's function as an airport retaining its integrity of association.

NWRC notes that the airport is historically significant under Criterion A (event) in the area of "Military" for its association with military activities occurring in southeast Idaho during the WWII era (1940-1945). However, because many of the property's original buildings and structures have been demolished and those that remain have undergone substantial modifications since their initial construction, the historic-age airport can no longer convey significance under this criterion and is recommended not eligible for inclusion in the NRHP. As there is no known person of historical significance associated with the airport, the historic-age property is not recommended eligible under Criterion B (person). It is also not recommended eligible under Criterion C (architecture) as its buildings and structures are either of modern construction and do not meet the 50-year threshold for NRHP eligibility or have been substantially modified and no longer retain sufficient integrity to convey their significance. Similarly, the airport is recommended not eligible under Criterion D (informational potential) as there is no further research potential.

While the Bear Lake County Airport property as a whole is considered to be not eligible, two resources located within the property are recommended by NWRC to be individually eligible for listing in the NRHP. The earliest of these resources—FN-10 or a wooden beacon tower—was erected during the initial construction of the airport in 1943. The second resource consists of a drainage ditch (FN-16), which was constructed by Reynolds Construction Company of Springville, Utah, shortly after the airport's construction in 1944. Although both resources remain in use and are subject to general upkeep and maintenance, they continue to retain their integrity of materials, workmanship, design, feeling, and association. Additionally, both resources remain in their original locations and retain their integrity of setting. As both of the resources are associated with military activities occurring in southeastern Idaho during the WWII era (1940-1945), they are recommended individually eligible for listing in the NRHP

under Criterion A. Additionally, the wooden beacon tower is recommended individually eligible under Criterion C (architecture) as a rare and unique example of WWII era airport technology and military design.

6.0 EVALUATIONS AND RECOMMENDATIONS

This section summarizes the NRHP eligibility and management recommendations of the one identified historic property (Bear Lake County Airport) identified through CRI and architectural survey of the project area. Seventeen associated resources were also evaluated for their individual NRHP eligibility (Table 7). Three previously recorded NRHP-eligible historic properties have previously been recorded within a one mile radius of the two study areas. Although these properties were not reevaluated during this inventory, indirect effects of future airport projects are assessed.

Table 7. Previously recorded historic sites and newly recorded historic property.

Site #	Type of Property	Artifacts/Features	NRHP Eligibility	NRHP Criteria
07-5183	Historic	Bridge	Eligible	A and C
07-17895	Historic	Canal channel, headgates, check dams	Eligible	A
07-17896	Historic Homestead	Buildings	Eligible	A
Bear Lake County Airport	WWII era emergency landing strip/County-owned and operated airport	Property	Not Eligible	—
FN-1	Hangar	Building	Not Eligible	—
FN-2	Hangar/pilot lounge	Building	Not Eligible	—
FN-3	Hangar	Building	Not Eligible	—
FN-4	Hangar	Building	Not Eligible	—
FN-5	Hangar	Building	Not Eligible	—
FN-6	Runway system	Structure	Not Eligible	—
FN-7	Circular concrete foundation	Structure	Not Eligible	—
FN-8	Concrete foundation	Structure	Not Eligible	—
FN-9	Taxiway system	Structure	Not Eligible	—
FN-10	Wooden beacon tower	Structure	Eligible	A and C
FN-11	Transformer building	Building	Not Eligible	—
FN-12	Single family residence	Building	Not Eligible	—
FN-13	Fueling area	Structure	Not Eligible	—
FN-14	Garage/storage shed	Building	Not Eligible	—
FN-15	Small outbuilding	Building	Not Eligible	—
FN-16	Drainage ditch	Structure	Eligible	A
FN-17	Flagpole	Object	Not Eligible	—

Site 07-5183 (Bear Lake Outlet Canal Bridge) has been determined by SHPO to be eligible for listing in the NRHP under Criteria A and C; however, this eligibility determination likely reflects the original structure and not its 2009 replacement. The bridge's distance, approximately 2,272 feet west of the study areas, ensures that it will not be directly affected by future projects located at the Bear Lake County Airport. As the bridge has been replaced and no longer retains characteristics that render it eligible for listing, it would not be affected by visual or auditory intrusions. No further management actions are recommended.

Site 07-17895 (Bear Lake Outlet Canal) has been determined by SHPO to be eligible for listing in the NRHP under Criterion A. The site is located approximately 1,791 feet to the west of the study areas. The canal's distance from the project area ensures it will not be directly affected by future projects located at the Bear Lake County Airport. Future projects planned for the airport will also not have an indirect effect

to the canal, as none of the characteristics that render the canal eligible for listing would be affected by visual or auditory intrusions. No further management actions are recommended as necessary.

Site 07-17896 (William H. Smith Homestead) has previously been determined by SHPO as eligible for listing in the NRHP under Criterion A. The homestead's distance 2,007 feet to the west of the study areas ensures it will not be directly affected by future projects located at the Bear Lake County Airport. Future projects planned for the airport will also not have an indirect effect to the homestead, as none of the characteristics that render the homestead eligible for listing would be affected by visual or auditory intrusions. No further management actions are recommended as necessary.

Newly Recorded Cultural Resources

The newly recorded historic property—the Bear Lake County Airport—was evaluated for listing in the NRHP and is recommended not eligible for inclusion in the NRHP under any criteria. However, two resources located within the airport property—a wooden beacon tower (FN-10) and a drainage ditch (FN-16)—are recommended individually eligible for inclusion in the NRHP under Criterion A (event) for their association with the original construction of the airport and military activities occurring in southeastern Idaho during the WWII era (1940-1945). The wooden beacon tower (FN-10) is also recommended individually eligible for listing in the NRHP under Criterion C (architecture) as a rare and unique example of WWII era airport tower design. Both of these resources should be avoided by future project activities. If the resources cannot be avoided, they should be subject to intensive-level historic documentation consisting of additional archival research and detailed field recordation.

At this time cultural resource clearance is recommended for the Bear Lake County Airport historic property pursuant to the following stipulations:

1) All disturbances should be restricted to the inventoried areas.
2) If evidence of prehistoric or historic archaeological sites is discovered during ground disturbing activities, all activities within a 100 feet (30 m) radius of the site(s) should cease immediately and appropriate personnel with the Bear Lake County Airport should be contacted to assure proper handling of the discovery by qualified archaeological personnel.
3) Planned airport activities should avoid the two NRHP-eligible structures identified—the wooden beacon tower (FN-10) and the drainage ditch (FN-16). If these structures cannot be avoided by planned activities, appropriate documentation should be performed to resolve adverse effects to these properties.

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APPENDIX A

Additional Images

Figure 9. IMG_0612. Looking west at Bear Lake County Airport.

Figure 10. IMG_0614. Looking southwest at Bear Lake County Airport.

Figure 11. IMG_0628. Looking south southeast at Bear Lake County Airport.

Figure 12. IMG_0624. Looking east at the northernmost study area and FN-16.

Figure 13. IMG_0625. Looking west at the northernmost study area.

Figure 14. IMG_0626. Looking southwest at the northernmost study area.

Figure 15. IMG_0631. Looking west at northernmost study area.

Figure 16. IMG_P1010014. Looking northwest at FN-1.

Figure 17. IMG_0637. Looking east at FN-1 and the northernmost study area.

Figure 18. IMG_0638. Looking east at FN-2 through FN-5.

Figure 19. IMG_P1010023. Looking northwest at FN-2.

Figure 20. IMG_P1010026. Looking northwest at FN-3.

Figure 21. IMG_P1010025. Looking northwest at FN-4.

Figure 22. IMG_P1010027. Looking northwest at FN-5.

Figure 23. IMG_P1010010. Looking south toward the runway system (FN-6).

Figure 24. IMG_P1010031. Looking west at the taxiway (FN-9).

Figure 25. IMG_P1010036. Looking southeast from taxiway toward Runway 10/28 (FN-6).

Figure 26. IMG_P1010037. Looking west at Runway 10/28 (FN-6).

Figure 27. IMG_P1010019. Looking east at raised portion of FN-7.

Figure 28. IMG_P1010043. Looking north at FN-8.

Figure 29. IMG_P1010005. Looking north at FN-10.

Figure 30. IMG_P1000999. Looking at the base of FN-10.

Figure 31. IMG_0622. Looking east at FN-11.

Figure 32. IMG_0621. Looking north at FN-11.

Figure 33. IMG_P1010020. Looking north at FN-12.

Figure 34. IMG_P1010007. Looking south at FN-12.

Figure 35. IMG_P1010029. Looking east at FN-13.

Figure 36. IMG_P1010011. Looking west at FN-14.

Figure 37. IMG_P1010008. Looking west at FN-15.

Figure 38. IMG_P1000991. Looking west at FN-16.

Figure 39. IMG_P1000993. Looking southwest at FN-16.

RECYCLING PLAN

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1. RECYCLING PLAN

1.1 INTRODUCTION

Public Law 112-95, also known as the Federal Aviation Administration (FAA) Modernization and Reform Act of 2012, requires airport planning projects to include the development of a plan for recycling and minimizing the generation of airport solid waste. This recycling plan at airports must be consistent with applicable State and local recycling laws. In addition, it must include the following elements:

- A waste audit,
- The feasibility of solid waste recycling at the airport,
- Minimizing the generation of solid waste at the airport,
- Operation and maintenance requirements,
- The review of waste management contracts, and
- The potential for cost savings or the generation of revenue.

The following sections describe the current solid waste management process of Bear Lake County Airport. It also contains suggestions to improve the current conditions at the airport.

1.2 WASTE AUDIT

To fulfill the requirements of the waste audit, an interview and walkthrough were conducted with the airport manager on July 30, 2014. During this interview and walkthrough with the airport manager the following topics were mentioned:

- Sources of waste and waste streams,
- Fate of waste,
- Collection of waste and waste pickup practices,
- Feasibility of recycling at the airport,
- Operation and maintenance requirements, and
- Existing waste management contracts and services.

1.2.1 SOURCES OF AIRPORT WASTE

According to the FAA Recycling, Reuse and Waste Reduction at Airports: A Synthesis Document (FAA Synthesis), the types of waste generally encountered at airports are:

- Municipal Solid Waste,
- Construction and Demolition Waste,
- Green Waste,
- Food Waste,
- Deplaned Waste,
- Lavatory Waste,
- Spill cleanup and remediation waste, and
- Hazardous waste.

In addition, the potential sources of waste, as described in the FAA Synthesis, are included hereafter. The type of waste generated at each of these facilities is slightly different and implementing a recycling program requires considering all of the activities and waste streams.

- Terminals,
- Airfields,
- Aircraft Maintenance Hangars,
- Cargo Hangars,
- Flight Kitchens,
- Administrative offices, and
- Airport construction projects.

Bear Lake County Airport does not accommodate air cargo operations and therefore does not have cargo hangars. In addition, the aircraft using the airport are not large enough to have in-flight food service or lavatories; thus there is no waste from flight kitchens and Bear Lake County is not equipped to empty aircraft lavatory tanks.

Further, the airport's only staff is the airport manager and Bear Lake County Airport does not have formal administrative offices. The most recent construction project is the construction of a parallel taxiway in 2014. The solid waste generated during this project was appropriately disposed and a Storm Water Pollution Prevention Plan was enforced.

Bear Lake County Airport does have an airfield, a small pilot's lounge, storage hangars for based aircraft and an airport manager's residence. Each of these waste sources is described in additional details, based on information obtained during the waste audit, in the subsequent sections.

Aircraft
The airport is typically used by single-engine and small multi-engine aircraft. Those aircraft do not have substantial in-flight services such as food services or lavatories. The airport is not equipped to provide flight kitchen services or to empty lavatories. Waste deplaned from transient or based aircraft is sometimes disposed of at Bear Lake County Airport, into on-site trash receptacles. The most common waste deplaned from single-engine aircraft or small multi-engine is plastic bottles and food wrappers.

Pilot's Lounge
The pilot's lounge consists of restrooms, a general meeting/rest area as well as a small kitchenette equipped with a fridge and a microwave. It does not have gift shops, security checkpoints or restaurants commonly found at larger airports. Bottled water is available in the pilot's lounge as well as a soft drink machine. Trash receptacles in the pilot's lounge receive municipal solid waste.

Airfield
According to the FAA Synthesis, the airfield portion of airports generally accommodates limited and transient activities. Therefore, the waste produced at the airfield is limited and consists mostly of rubber from aircraft tires and green waste.

At Bear Lake County Airport, the waste generated on the airfield consists mainly of green waste, when the grounds are maintained and mowed, as well as plowed snow during the winter months. When necessary, the airport manager plows runway 10/28 and piles up the snow. However, no sand, gravel or deicer is available or used at Bear Lake County Airport.

Storage Hangars
There are 6 hangars on site, used for based aircraft storage. As there is no maintenance service at the airport, the amount of waste generated in the hangars is limited. At general aviation airports, waste from the hangars usually includes batteries, fluids, tires, aluminum or metal scrap, as well as municipal solid waste. However, the only kind of waste received at Bear Lake County Airport at the moment is municipal solid waste. There are small individual trash receptacles in the storage hangars and hangars' owners dispose of this waste into two large waste bins located near the airport entrance.

Airport Manager's residence
The airport manager's residence, which is located near the entrance of the airport, adjacent to the apron, also generates municipal solid waste. The waste generated in the airport manager's residence is disposed of in a similar manner as the waste of the pilot's lounge.

1.2.2 FATE OF AIRPORT WASTE

The municipal solid waste generated at Bear Lake County Airport, and described in Section 1.2.1 Sources of Airport Waste, is disposed of in two large waste bins located outside the airport manager's residence, near the airport entrance. The municipal solid waste pickup service is owned and operated by Bear Lake County. Waste is picked up weekly and hauled into a landfill located near Montpelier. The only type of waste that is picked up is household trash; hazardous waste or construction debris is not picked up and have to be brought to the landfill.

If other types of waste were generated at the airport, such as batteries, tire or paint, they would be appropriately disposed of by the airport manager at the Bear Lake County landfill, which accepts oil, old battery, and tire.

1.3 FEASIBILITY OF SOLID WASTE RECYCLING

According to the FAA Synthesis, the feasibility and effectiveness of an airport recycling and waste minimization plan are influenced by the airport's unique set of factors, such as the region, geography or society. While some general practices are applicable to all airports, some solutions may only apply to a particular airport or region.

Opportunities to recycle solid waste at Bear Lake County Airport are limited by the types of materials that can be recycled at the Bear Lake County landfill, as well as by the logistics for transporting materials to recycling facilities.

The Bear Lake County landfill in Montpelier only accepts the following items:

- Construction debris,
- Household waste,
- Household appliances,
- Oil disposal,
- Old battery disposal, and
- Tire disposal.

Local recycling curbside pick-up services are not currently offered in Bear Lake County. In addition, materials such as plastic bottles and milk jugs, aluminum cans, newspaper, magazines, and cardboard are not currently recycled at the Bear Lake County landfill.

The closest landfills offering recycling services are located in Lincoln County, Wyoming, and Franklin County, Idaho. Recycled materials including cardboard, glass and plastics are accepted at the Cokeville landfill, approximately 33 miles from the airport with an estimated driving time of 40 minutes. In addition, recycle and cardboards bins are available throughout Franklin County and

at the Franklin County Landfill, which is situated in Preston, approximately 50 miles from Bear Lake County Airport with an estimated driving time over 1 hour.

The airport manager is the only staff member at Bear Lake County Airport and the logistics necessary to haul recyclable materials to a recycling center in the vicinity of the airport may limit the success of implementing separate stream recycling and separate bins for various recyclable materials.

1.4 MINIMIZING THE GENERATION OF SOLID WASTE

An airport recycling program should not only focus on maximizing the amount of recyclable materials removed from the waste stream, but also on overall waste reduction strategies. According to the FAA Synthesis, reduction of waste can come in different forms including waste redirection, repurposing, reuse, separation or other means to lessen the volume of the waste stream.

Options to minimize the amount of solid waste generated at Bear Lake County Airport are described hereafter.

Municipal Solid Waste
Per the waste audit, the ultimate fate of the solid waste originating from Bear Lake County Airport is currently a landfill located two miles east of Montpelier. Although the logistics to implement a separate stream recycling program seems complex, based on the items currently accepted at the local landfill, recycling cardboard, glass or plastic used at Bear Lake County Airport could reduce the amount of waste generated at the airport that goes to a landfill.

Green Waste
Reducing the amount of green waste generated on airports depends on various local conditions such as local climate and physical environment. Per the FAA Synthesis, options to minimize the amount of green waste produced at airports are described below.

- Appropriate planning for plant selection: based on the amount of rainfall, soil type, temperature range, sunlight, etc.
- Xeriscaping: using slow-growing, drought-tolerant plants.
- Grasscycling: leaving the grass clippings on the lawn.
- Mulching: breaking up the landscaping trimming, or
- Using green waste as daily cover at municipal solid waste landfills.

At Bear Lake County Airport, the only identified source of green waste occurs when the grass is mowed on the airport property. The grass clippings are let on the ground after mowing. Therefore, no green waste is carried off site. It is recommended that any additional sources of green waste at Bear Lake County Airport be identified and minimized in the future.

Deplaned Waste

As previously mentioned, Bear Lake County Airport accommodates only single-engine or small multi-engine aircraft. Therefore, the airport receives only a limited amount of deplaned waste. Based pilots do not routinely clean their aircraft and do not regularly dispose of waste at the airport. In addition, due to the relatively small size of the transient aircraft typically using the airport, the amount of waste deplaned by transient pilots is relatively small and mostly consist of plastic bottles and food wrappers. The deplaned waste is collected either in the pilot's lounge or in the two waste bins located near the airport entrance, outside the airport manager's residence.

The constraints to recycle deplaned waste are the same as for the municipal solid waste. However, recycling signage could be placed in the pilot's lounge and hangars to encourage visiting and based pilots to use recyclable and compostable cups or utensils or to take recyclables to a recycling facility.

1.5 OPERATION AND MAINTENANCE REQUIREMENTS

Implementing a recycling program at Bear Lake County Airport and installing various recycling bins separating recyclables from the waste stream would require an increased maintenance effort by the airport manager. The bins would need to be installed, routinely emptied, and generally maintained. In addition, as there is no recyclable curb pickup in the County, recyclable materials would need to be sorted and periodically transferred to recycling facilities.

The limited volume of waste currently generated on site and the simple airport layout would lead to a fairly straightforward operation with a minimum number of recycling bins. However, as previously mentioned, the closest landfill accepting recyclable materials is located in Cokeville, Wyoming, approximately 33 miles from the airport, which would require a driving time of approximately 40 minutes.

1.6 WASTE MANAGEMENT CONTRACT REVIEW

The solid waste pick up service is owned and operated by Bear Lake County. Bear Lake County Airport is not billed for the waste pickup service or the use of Bear Lake County Landfill for general municipal solid waste. Oils, old batteries, and tires can be disposed at Bear Lake County landfill.

1.7 POTENTIAL FOR COST SAVINGS OR GENERATION OF REVENUE

As curbside recycling is not offered in the County at the moment, recycling at Bear Lake County Airport would probably lead to additional expenses to transfer materials to recycling facilities. Further, the solid waste pickup service occurs once a week, which is the minimal frequency offered by the County. There are currently no financial incentives to recycle at Bear Lake County Airport.

In addition, given the limited amount of waste produced at the airport, the potential for revenue generation seems limited. No conclusive elements indicate that the airport could achieve a substantial reduction in solid waste with a separate streams waste recycling program.

1.8 APPLICABLE STATE OF IDAHO WASTE AND RECYCLING LAWS

This recycling plan must be consistent with applicable State and local recycling laws. The Idaho State laws regarding waste disposal and mandatory recycling include:

- The Sale and Disposal of Batteries (Chapter 70, Title 39, Idaho Code),
- The Idaho Waste Tire Disposal Act (Chapter 65, Title 39, Idaho Code), and
- The Idaho Solid Waste Management Rules (IDAPA 58.01.06).

A summary of waste items either banned or regulated in these laws, which may apply to Bear Lake County Airport, is as follows:

- Regulated hazardous wastes are banned from non-hazardous waste landfills.
- Lead acid batteries are banned from disposal in landfills and have mandatory recycling, with exemptions.
- Tires may only be disposed of at permitted municipal solid waste landfills with approved operating plans for volume reduction.
- Bulk liquids in containers larger than 5 gallons are banned from landfills.
- Waste oil in containers larger than 5 gallons is banned from landfills.

The waste audit conducted at Bear Lake County Airport indicates that the existing waste disposal process at the airport already follows the Idaho waste disposal and recycling laws mentioned above.

1.9 CONCLUSIONS AND RECOMMENDATIONS

The Bear Lake County Airport produces no more than one 50-gallon bin of solid waste weekly. Based on the items currently recycled at Bear Lake County landfill, implementing separate streams for additional recyclable materials such as plastic or cardboard seems complex and difficult given the logistics necessary. However, it is recommended the County monitor potential evolution of the recycling facilities at Bear Lake County landfill.

If additional materials are recycled at the landfill in the future, the feasibility of implementing a separate stream recycling program should be evaluated. This recycling program could consist of different recycling bins for various items accepted at the landfill. For proper use by the pilots, the recycling bins should be clearly labeled and identified.

However, before the implementation of a potential recycling program, the overall effectiveness, and feasibility should be examined, taking into consideration the airport one person staff and the efforts required to transport materials to an appropriate recycling facility.

Bear Lake County Airport could also consider signage to encourage pilots of transient and based aircraft to minimize their waste, use recyclable and compostable items and properly dispose of them.

APPENDIX C: RUNWAY CONFIGURATION MEMO

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T-O ENGINEERS

TECHNICAL MEMORANDUM

TO: Bear Lake County Airport Board/Project Advisory Committee

FROM: Chris Pomeroy – T-O Engineers, Planning Services Leader

PROJECT: Bear Lake County Airport Master Plan

SUBJECT: Runway Configuration Analysis

DATE: **June 8, 2015**

Bear Lake County Airport is equipped with two convergent runways, Runways 10/28 and 16/34. Runway 10/28 is considered the primary runway at the airport with Runway 16/34 designated as the secondary. An important consideration of this master planning process will be the future of Runway 16/34. FAA's concerns relate to the justification for future federal and/or state funding to maintain/reconstruct the secondary runway as it reaches the end of its useful life. This Technical Memorandum summarizes several considerations regarding the runway to help Bear Lake County, FAA, ITD Aeronautics, and the planning team, determine the best course of action for the runway in the future. This memo summarizes the following elements:

- Runway Usage
- Fleet Mix
- Wind Coverage
- Runway Length Requirements
- Alternatives
- Cost Estimates

Exhibit 1 depicts the existing Airport Layout.

EXHIBIT 1: AIRPORT LAYOUT

1. Runway Usage

Runway 10/28 is the primary runway and accommodates approximately 90 percent of aircraft operations. Based on airport records and pilots using the airport regularly, predominate winds favor Runway 28 and this runway is used most frequently. (Runway 10 end accommodates 10 percent, while Runway 28 end accommodates 80 percent). Runway 16/34 is the crosswind runway and accommodates the remaining 10 percent (each runway end accommodates approximately 5 percent of aircraft operations).

Table 1 summarizes runway usage at the airport for each runway end.

TABLE 1: BEAR LAKE COUNTY AIRPORT RUNWAY USAGE

Runway	Runway Usage
Runway 10	10 percent of aircraft operations
Runway 28	80 percent of aircraft operations
Runway 16	5 percent of aircraft operations
Runway 34	5 percent of aircraft operations

Source: T-O Engineers, Inc.

2. Fleet Mix

Bear Lake County Airport provides for a variety of aviation uses and activities. The airport predominantly serves single-engine aircraft, with occasional use by small multi-engine aircraft, turboprop as well as some small to medium size jet traffic. Airport records and users' surveys indicate the following representative aircraft that use the airport:

Single Engine Recip Aircraft

- Cessna 172/182 (C172/C182)
- Cessna C205
- Piper PA-46 Malibu (design aircraft)

Multiengine/Turboprop/Jet

- Citation CJ3
- Citation CJ4
- King Air B100 and B200
- Pilatus PC-12
- Piper Meridian
- TBM

There are six based aircraft at the airport, all single-engine: one Cessna 150, two C172, one Cessna C182, one Piper PA-46, and one Cessna 205 (C205). The design aircraft is the Piper Malibu PA-46. This aircraft is based at the airport and is regularly flown. In addition, its characteristics are representative to the overall fleet using the airport.

3. 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 based on the airport's Runway Design Code (RDC). Allowable crosswind components per RDC are summarized in **Table 2**. Currently, the runways at Bear Lake Airport have an RDC of B-I Small.

TABLE 2: ALLOWABLE CROSSWIND COMPONENT

Runway Design Code	Allowable Crosswind Component
A-I Small, A-I, B-I Small and B-I	10.5 knots
A-II and B-II	13 knots
A-III, B-III, C-I through C-III, D-I through D-III	16 knots
A-IV, B-IV, C-IV through C-VI, D-IV through D-VI	20 knots
E-I through E-VI	20 knots

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

Wind data from the weather station K1U7, located at the airport, was reviewed and used to evaluate the wind coverage at Bear Lake County Airport. This weather station has only five full years of data available and a wind sensor located in the immediate vicinity of hangars, which could potentially lead to flawed information. In the absence of FAA certified weather station on the airport, this was deemed to be the best data available.

Based on this available wind data, the annual average wind coverage of the airport is summarized in **Table 3** for allowable crosswind components of 10.5 knots for RDC B-I Small and 13 knots for RDC B-II. Based on estimated coverage for 10.5 knots (RDC B-1 Small), both runways are necessary to meet the FAA recommended minimum wind coverage of 95%.

TABLE 3: RUNWAY WIND COVERAGE

Runway Identification	Wind Coverage
Crosswind Component 10.5kts (RDC B-I)	
16/34	94.13%
10/28	93.99%
Combined Runway Coverage	98.97%
Crosswind Component 13kts (RDC B-II)	
16/34	96.56%
10/28	96.76%
Combined Runway Coverage	99.62%

Source: T-O Engineers, Inc.

Although Runway 10/28 does not achieve the desired 95 percent wind coverage for a maximum allowable crosswind component of 10.5 knots as the primary runway based on current B-I Small

RDC, the runway meets the wind coverage requirements for larger aircraft with a maximum allowable crosswind component of 13 knots. This is important to point out because it is recommended that the airport protect the runway for RDC B-II for the future.

As shown in **Table 3**, combined, the current availability of both Runways 10/28 and 16/34 provides the recommended wind coverage for smaller aircraft, including the general aviation fleet currently using the airport. However, Runway 16/34 is not necessary to meet the wind coverage required by larger aircraft.

4. Runway Length Requirements

The runway length required for aircraft operations at an airport will vary based on the aircraft performance, the airport elevation, and air temperature.

Table 4 lists the runway length requirements for Bear Lake County Airport, as recommended by FAA AC 150/5325-4C, Runway Length Requirements for Airport Design.

TABLE 4: RUNWAY LENGTHS RECOMMENDED FOR AIRPORT DESIGN

Airport and Runway Data	Inputs
Airport Elevation	5,932.6 MSL
Mean Maximum Temperature of the hottest month	85.5° F
Small propeller-driven airplanes with approach speeds of more than 50 knots	
Small airplanes with less than 10 passenger seats	
95 percent of these small airplanes	7,100’
100 percent of these small airplanes	7,200’
Small airplanes with 10 or more passengers	7,200’

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

In addition, T-O Engineers computed the runway lengths requirements for typical aircraft using the airport, based on flight planning/operating handbooks. Some aircraft can operate at Bear Lake County Airport with weight restrictions and specific approach configurations. The results are shown in **Table 5**.

TABLE 5: RUNWAY LENGTHS RECOMMENDED FOR COMMON AIRCRAFT USING THE AIRPORT

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

* Unless otherwise specified, all distances are Takeoff Field Length
**Temperature above Climb Weight Temperature Limit and requires reduction in MTOW
Per the FAA AC 150/5325-4C, Lengths of 30 feet and over are rounded to the next 100-foot interval.
Source: T-O Engineers Inc., FAA AC 150/5325-4C, Beechcraft B200 Pilot's Operating Handbook, Cessna Flight Planning Guide, PC-12 Digital Airplane Flight Manual, Piper Malibu Mirage Pilot's Operating Handbook.

5. Runway Configuration Alternatives

The previous sections introduced runway use, fleet mix, wind coverage, and runway length considerations at Bear Lake County Airport. The following sections describe various alternatives

for future runway configurations in order to minimize airport maintenance expenses while maintaining the operational capabilities of the airport over a 20-year planning period.

Five runway alternatives were analyzed including:

- Alternative 1: No Action - Maintain the two paved runways
- Alternative 2: Maintain only Runway 10/28 at its existing alignment
- Alternative 3: Realign Runway 10/28 and maintain only one runway
- Alternative 4: Convert Runway 16/34 to gravel runway
- Alternative 5: Convert Runway 16/34 to turf runway

Costs include engineering and contingency costs. **Estimates were based on 2015 dollars.**

Runway Pavement Condition

The last pavement evaluation conducted at Bear Lake Airport in 2011 (Idaho Aviation system Pavement Maintenance Management Program – Final Report – Mars 2012) indicates a Pavement Condition Index (PCI) between 70 and 85 (Satisfactory) for both runways. According to this report, it is predicted that the pavement of Runway 16-34 will deteriorate faster than the pavement of Runway 10-28.

However, based on the actual condition of the Runway 16-34 pavement, it is estimated that Runway 16-34 has a remaining service life of approximately 10 years before major pavement maintenance/rehabilitation. Thus, the following alternatives can be implemented at the end of this service life.

Alternative 1: No Action – Maintain Two Paved Runways

Alternative 1 maintains the two existing paved runways. **Table 6** summarizes the estimated costs of Alternative 1. This alternative includes the rehabilitation of Runway 16/34 as well as regular pavement maintenance and overlay for the two runways. Pavement maintenance is recommended every three to five years and an overlay of the entire runway is recommended every 15 to 20 years, including pavement marking.

TABLE 6: ESTIMATED COSTS FOR ALTERNATIVE 1 – MAINTAIN TWO PAVED RUNWAYS

Items	Description	Estimated Costs (FY2015)
Initial Costs	Maintenance of 10-28 and 16-34	$200,000
Primary Runway 10/28 Maintenance (20-year period)		
Overlay	One (1) occurrence estimated	$1,750,000 / occurrence
Regular Maintenance (Crack Seal & Seal Coat)	Three (3) occurrences estimated (not during overlay)	$125,000 / occurrence
Average Annual Costs	Maintenance Only	$106,250
Runway 16/34 Maintenance (20-year period)		
Overlay	One (1) occurrence estimated	$1,100,000 / occurrence
Regular Maintenance (Crack Seal & Seal Coat)	Three (3) occurrences estimated (not during overlay)	$80,000 / occurrence
Average Annual Costs	Maintenance Only	$67,000
Alternative TOTAL COSTS *(over 20-year period)*		**$3,665,000**
Alternative AVERAGE ANNUAL COSTS		**$183,250**

Source: T-O Engineers, Inc.

Alternative 2: Maintain Only Runway 10/28 at its Existing Alignment

Alternative 2 consists of maintaining Runway 10/28 with its existing alignment but removing Runway 16/34.

As presented in **Section 3 – Wind coverage**, a one-runway configuration with one of the existing runway orientations does not meet the minimum wind coverage of 95 percent for a crosswind component of 10.5 knots for current RDC of B-I Small. Current wind coverage for Runway 10/28 based on the 10.5-knot crosswind component is 93.99 percent, slightly less than the recommended 95 percent coverage. Conversely, wind coverage for runway 10/28 is 96.76 percent based on a 13-knot crosswind component. As previously discussed, it is recommended that the airport be upgraded, or at least protected for, ARC B-II standards during the 20-year planning period. Operationally, experience and input of the Board as it relates to actual crosswind impacts on aircraft operations at the airport will be critical in determining if the current 93.99 percent coverage is acceptable based on costs of all alternatives presented in this document.

This alternative includes the removal of Runway 16/34 pavement, as well as regular maintenance and overlay for Runway 10/28. **Table 7** summarizes the estimated costs of Alternative 2.

TABLE 7: ESTIMATED COSTS FOR ALTERNATIVE 2 – MAINTAIN RUNWAY 10/28

Items	Description	Estimated Costs (FY2015)
Initial Costs	Remove pavement of Runway 16/34	$225,000
Primary Runway Maintenance (20-year period)		
Overlay	One (1) occurrence estimated	$1,750,000 / occurrence
Regular Maintenance (Crack Seal & Seal Coat)	Three (3) occurrences estimated (not during overlay)	$125,000 / occurrence
Average Annual Costs	Maintenance Only	$106,250
Alternative TOTAL COSTS *(over 20-year period)*		**$2,350,000**
Alternative AVERAGE ANNUAL COSTS		**$117,500**

Source: T-O Engineers, Inc.

Alternative 3: Realign Runway 10/28

In order to meet the FAA criterion of a minimum of 95 percent of wind coverage with a maximum crosswind component of 10.5 knots for current RDC of B-I Small, the true orientation of a one runway configuration at Bear Lake County Airport should be 133º52.2'. This orientation is based on wind data from the K1U7 weather station. As previously mentioned these data are not complete and could be inaccurate.

Alternative 3 includes the removal of Runway 16/34 and the realignment of Runway 10/28 to achieve the desired wind coverage. This alternative includes regular pavement maintenance and overlay for the realigned runway. **Table 8** summarizes the estimated costs of Alternative 3.

TABLE 8: ESTIMATED COSTS FOR ALTERNATIVE 3 – REALIGN RUNWAY 10/28

Items	Description	Estimated Costs (FY2015)
Initial Costs	Remove both existing runways	$525,000
	Construction of one new primary runway (5728'x75')	$6,575,000
New Primary Runway Maintenance (20-year period)		
Overlay	One (1) occurrence estimated	$1,750,000 / occurrence
Regular Maintenance (Crack Seal & Seal Coat)	Three (3) occurrences estimated (not during overlay)	$125,000 / occurrence

Average Annual Costs	Maintenance Only	$106,250
Alternative TOTAL COSTS *(over 20-year period)*		**$7,475,000**
Alternative AVERAGE ANNUAL COSTS		**$373,750**

Source: T-O Engineers, Inc.

Alternative 4: Convert Runway 16/34 to Gravel

Alternative 4 consists in pulverizing the Runway 16/34 pavement and converting the runway surface to gravel. Regular maintenance of a gravel runway includes routine grading and spot gravel replacement annually. In addition, full rehabilitation by reclaiming and adding material is necessary as needed or every ten years.

Table 9 summarizes the estimated costs of Alternative 4.

TABLE 9: ESTIMATED COSTS FOR ALTERNATIVE 4 – CONVERT RUNWAY 16/34 TO GRAVEL

Items	Description	Estimated Costs (FY2015)
Initial Costs	Reclaim Runway 16/34 Pavement and Convert to Gravel Runway	$350,000.00
Primary Runway Maintenance (20-year period)		
Overlay	One (1) occurrence estimated	$1,750,000 / occurrence
Regular Maintenance (Crack Seal & Seal Coat)	Three (3) occurrences estimated (not during overlay)	$125,000 / occurrence
Average Annual Costs	Maintenance Only	$106,250
Gravel Runway 16/34 Maintenance (20-year period)		
Patrolling/Blading	20 occurrences estimated	$3,500 / occurrence
Spot Reparation	20 occurrences estimated	$27,000 / occurrence
Rehabilitation	One (1) occurrence estimated	$250,000 / occurrence
Average Annual Costs	Maintenance Only	$17,075
Alternative TOTAL COSTS *(over 20-year period)*		**$2,816,500**
Alternative AVERAGE ANNUAL COSTS		**$140,825**

Source: T-O Engineers, Inc.

Alternative 5: Convert Runway 16/34 to Turf

Alternative 5 consists of the removal of Runway 16/34 pavement and converting the runway surface to turf. Regular maintenance of a turf/grass runway includes annual mowing, fertilizing, watering, general maintenance and obstruction clearing. In addition, leveling the surface is necessary as needed every five years. **Table 10** summarizes the estimated costs of Alternative 5.

TABLE 10: ESTIMATED COSTS FOR ALTERNATIVE 5 – CONVERT RUNWAY 16/34 TO TURF

Items	Description	Estimated Costs (FY2015)
Initial Costs	Remove Pavement Runway 16/34	$250,000
	New Turf Runway 16/34 (width >100ft)	$150,000
Primary Runway 10/28 Maintenance (20-year period)		
Overlay	One (1) occurrence estimated	$1,750,000 / occurrence
Regular Maintenance (Crack Seal & Seal Coat)	Three (3) occurrences estimated (not during overlay)	$125,000 / occurrence
Average Annual Costs	Maintenance Only	$106,250
Turf Runway 16/34 Maintenance (20-year period)		
Mowing, Fertilizing, Watering, General Maintenance, and Obstruction Clearance	20 occurrences estimated	$3,200 / occurrence
Leveling Surface	Four (4) occurrences estimated	$7,100 / occurrence
Average Annual Costs	Maintenance Only	$4,620
Alternative TOTAL COSTS *(over 20-year period)*		**$2,617,400**
Alternative AVERAGE ANNUAL COSTS		**$130,870**

Source: T-O Engineers, Inc.

Alternative Comparison

Table 11 compares the cumulative costs of each alternative over a 20-year planning period. Alternative 2 and Alternative 5 are the least costly while the most costly is Alternative 3. Alternative 1 and Alternative 4 fall between the other alternatives. Alternative 4 proves to be more costly than Alternative 1. The maintenance of a gravel runway is very costly in comparison to a paved runway. A gravel runway is also typically more sensitive to weather conditions (moisture and frost) and to aircraft operations, which can lead to loss of material and cracks. These elements are costly to repair and require frequent maintenance.

Alternative 2 and Alternative 5 have very similar costs over during the 20-year planning period. Alternative 5 is slightly more costly than Alternative 2 because of the construction/maintenance of a grass/turf Runway 16/34. However, the extra costs of maintaining such a runway are not significant and could allow the airport to maintain the appropriate wind coverage for smaller aircraft (B-I Small) willing to use a grass/turf runway.

Furthermore, removing Runway 16/34 and realigning the primary runway to maintain only one paved runway with the appropriate wind coverage for B-I Small aircraft (Alternative 3) does not

appear to be cost effective. The initial costs of this alternative are equivalent to the costs of maintaining two paved runways over a 45-year period.

TABLE 11: MAINTENANCE COSTS COMPARISON

	Initial Costs	Average Annual Maintenance Costs	Total Cost
Alternative 1	**$200,000**	**$173,250**	**$3,665,000**
Alternative 2	**$225,000**	**$106,250**	**$2,350,000**
Alternative 3	**$7,100,000**	**$18,750**	**$7,475,000**
Alternative 4	**$350,000**	**$123,325**	**$2,816,500**
Alternative 5	**$400,000**	**$110,870**	**$2,617,400**

Source: T-O Engineers, Inc.

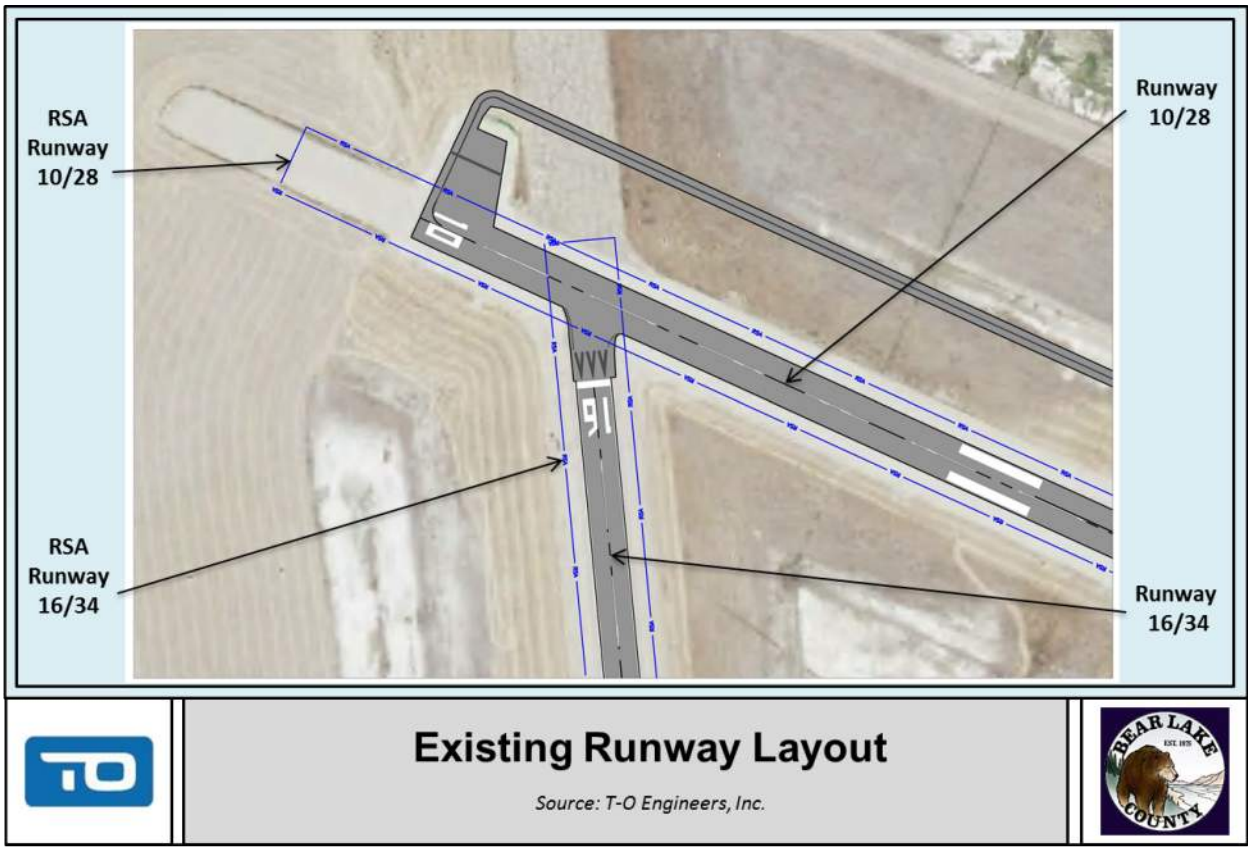
6. Runway Decoupling

The previous sections presented three future configurations with two runways at the airport:

Alternative 1 – Maintain Two Paved Runways,
Alternative 4 – Convert Runway16/34 to Gravel
Alternative 5 – Convert Runway 16/34 to Turf

Regardless of the surface type of Runway 16/34 in the future, a decoupling of the Runway 10 and 16 runway ends will be required to meet current FAA design standards regarding overlapping Runway Safety Area (RSA). **Such actions will modify the costs estimated for the two-runway configurations previously mentioned. Impact on costs is discussed for each decoupling alternative proposed.**

EXHIBIT 3: EXISTING LAYOUT OF EXISTING RUNWAY 10 AND 16 ENDS



Three alternatives were analyzed to address the decoupling of the Runway 10 and 16 ends:

- Alternative 1: Lengthen Runway 16/34 towards the north
- Alternative 2: Shorten Runway 16 End / Lengthen Runway 34 towards the south
- Alternative 3: Shorten Runway 16/34

Alternative 1: Lengthen Runway 16/34 Towards the North

This alternative consists of the extension of paved Runway 16/34 by 610 feet towards the North. Given the runway/taxiway layout, this is the minimal distance to address the overlapping RSAs while maintaining an appropriate taxiway configuration. **Exhibit 4** depicts this alternative.

EXHIBIT 4: RUNWAY DECOUPLING ALT. 1 – LENGTHEN RUNWAY 16/34 TO THE NORTH

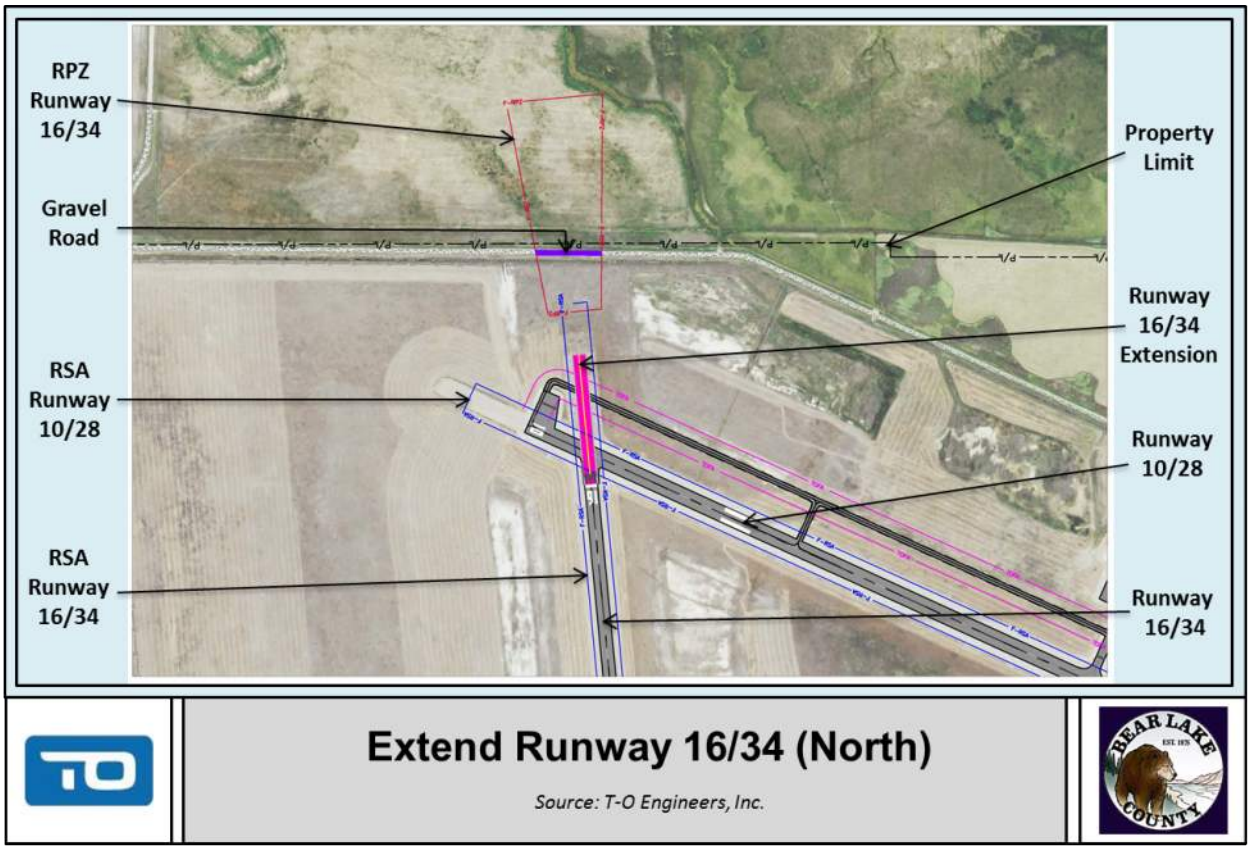


Table 12 lists the advantages and drawbacks of Alternative 1 based on safety, operational, environmental, land use, and cost criteria.

TABLE 12: CRITERIA EVALUATION FOR ALTERNATIVE 1

Safety	
Advantages	Solve the overlap between both RSAs
	Clear the RSA prior to Runway 16 Threshold
	Increase the separation between Runway 16 and Runway 10 Ends
Drawbacks	The new Runway 16/34 crosses the parallel taxiway to Runway 10/28
	The parallel taxiway does not intersect the new Runway 16/34 at a right angle
	Aircraft at holding line for Runway 10 may interfere with the new Runway 16/34 RSA
	Potential for runway incursions
Operational Capabilities and Disruptions	
Advantages	Increase the Runway 16/34 length available
	Improve access to Runway 16 End
Drawbacks	Disruptions are to be expected for both runways during construction
	Having to cross the new Runway 16/34 could delay the taxi time to Runway 10 Threshold
	No simultaneous operations
Environmental Impacts	
Drawbacks	Presence of wetlands very likely to the north of the airport
	Wetland delineation will be necessary before Runway 16/34 extension
	Additional environmental studies will be necessary before Runway 16/34 extension
Compatible Land Use and Land Acquisition	
Advantages	No land use zoning issues
	No additional noise issues due to the low usage rate of Runway 16/34 and agricultural land use to the north of the Airport
Drawbacks	Land acquisition will be necessary to the north of the airport for the new RPZ
	The gravel road located north of Runway 16 End will have to be relocated out of the new RPZ
Costs	
Items Required to Implement the Decoupling	- Paved Runway Extension (610' X 60'): $380,000 - Rehabilitate Remaining Paved Runway 16-34 (Overlay & Marking): $997,587

Impact on Costs of Two-Runway Configurations	This decoupling alternative only applies to Alternative 1 – Maintain Two Paved Runways*:* - Initial costs will increase by the costs of the runway extension - Maintenance costs will increase due to the new length of Runway 16-34

Source: T-O Engineers, Inc.

Table 13 lists the impact of Runway Decoupling Alternative 1 on the estimated costs of the two-runway configurations.

TABLE 13: IMPACT OF DECOUPLING ALT. 1 ON COSTS OF TWO-RUNWAY CONFIGURATIONS

Two-Runway Configuration	Initial Costs		Average Annual Maintenance Costs		Total Costs (20-year period)		Impact
	Without Decoupling	With Decoupling	Without Decoupling	With Decoupling	Without Decoupling	With Decoupling	
Alternative 1 Maintain Two Paved Runways	$997,587	$1,377,587	$158,714	$166,985	$4,171,875	$4,717,288	**$545,413 (+13%)**

Source: T-O Engineers, Inc.

Alternative 2: Shorten Runway 16 End/Lengthen Runway 34 End to the South

As depicted on **Exhibit 5**, shortening Runway 16/34 north end by 210 feet will enable to solve the RSA overlapping and penetration issues. A 210-foot extension to the south will maintain the same overall runway length.

EXHIBIT 5:
Runway Decoupling Alt. 2 – Shorten Runway 16 End / Lengthen Runway 34 End to the South

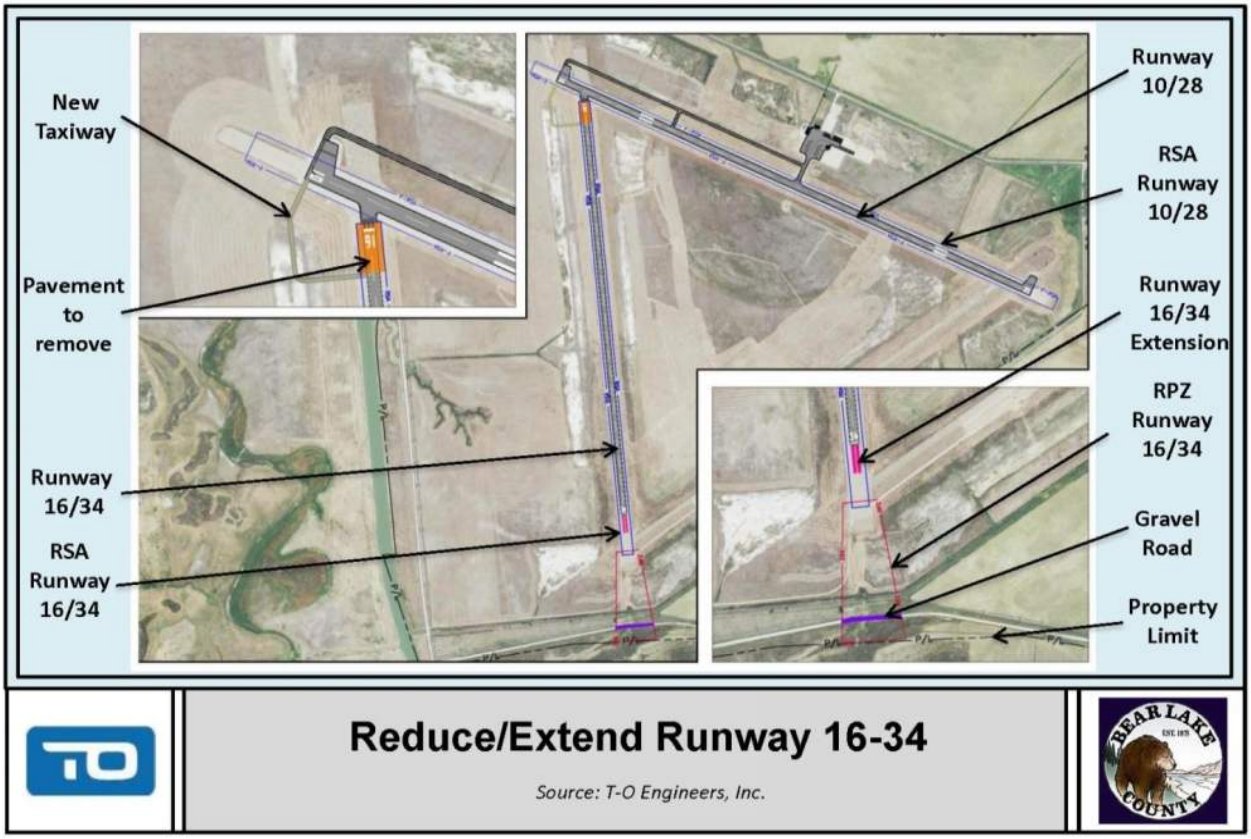


Table 14 lists the advantages and drawbacks of *Alternative 2* based on safety, operational, environmental, land use, and cost criteria.

TABLE 14: CRITERIA EVALUATION FOR ALTERNATIVE 2

SAFETY	
Advantages	Solve the overlap between the RSAs
	Clear the RSA prior to Runway 16 Threshold
	Accentuate the separation between Runway 16 and Runway 10 Ends
Drawbacks	Require new taxiway access to Runway 16 threshold
	Require crossing of Runway 10/28 to access Runway 16 threshold
Operational Capabilities and Disruptions	
Advantages	Maintain Runway 16/34 at its current length
	Improve the access to Runway 16 End, allow simultaneous departures on runway 10 and Runway 16 (diverging directions), and increase the overall capacity of the runway system
Drawbacks	Disruptions are to be expected for both runways during construction, but mainly for Runway 16/34.
Environmental Impacts	
Drawbacks	Presence of wetlands likely to the south of the airport
	Wetland delineation will be necessary to prepare Runway 16/34 extension
	Additional environmental studies will be necessary
Compatible Land Use and Land Acquisition	
Advantages	No land use concerns or zoning issues
	No additional noise issues due to the low usage rate of Runway 16/34 and sparsely populated area
	Extension remains entirely on airport property
Drawbacks	New Runway 34 End is closer to the wildlife refuge located south of the airport
	The gravel road located south of Runway 34 End will have to be relocated out of the new RPZ
Costs	
Items Required to Implement the Decoupling	- Paved Runway Extension (210' X 60'): $130,000 - Paved Runway Reduction (210' X 60'): $9,500 - Rehabilitate Remaining Paved Runway 16-34 (Overlay & Marking): $950,000 - New Taxiway Access Runway16 End: $154,000 (Paved) or $1,000 (Grass)

Impact on Costs of Two-Runway Configurations	Alternative 1 – Maintain Two Paved Runways*:* - Initial costs will increase due to the costs of the runway extension/reduction and rehabilitation, and a newly paved taxiway access - Maintenance costs will be the same - Overall costs will increase Alternative 4 – Convert Runway 16/34 to Gravel and Alternative 5 - Convert Runway 16/34 to Turf: - Initial costs will increase by the costs of a new turf taxiway to Runway 16 end - Maintenance costs will be the same - Overall costs will increase

Source: T-O Engineers, Inc

Table 15 lists the impact of Runway Decoupling Alternative 2 on the estimated costs of the two-runway configurations.

TABLE 15: IMPACT OF DECOUPLING ALT. 2 ON COSTS OF TWO-RUNWAY CONFIGURATIONS

Two-Runway Configuration	Initial Costs		Average Annual Maintenance Costs		Total Costs (20-year period)		Impact
	Without Decoupling	With Decoupling	Without Decoupling	With Decoupling	Without Decoupling	With Decoupling	
Alternative 1 Maintain Two Paved Runways	$997,587	$1,243,500	$158,714	$158,714	$4,171,875	$4,717,788	**$245,913 (+6%)**
Alternative 4 Convert Runway 16/34 to Gravel	$394,553	$395,553	$264,464	$264,464	$5,683,837	$5,684,837	**$1,000 (+0.02%)**
Alternative 5 Convert Runway 16/34 to Turf	$220,987	$221,987	$101,039	$101,039	$2,241,760	$2,242,760	**$1,000 (+0.04%)**

Source: T-O Engineers, Inc.

Alternative 3: Runway Decoupling Alt. 3 – Reduce Length of Runway 16/34

The reduction of Runway 16/34 north end by 210 feet will solve the RSA overlapping and penetration issues. **Exhibit 6** depicts this alternative.

EXHIBIT 6: RUNWAY DECOUPLING ALT. 3 – REDUCE LENGTH OF RUNWAY 16/34

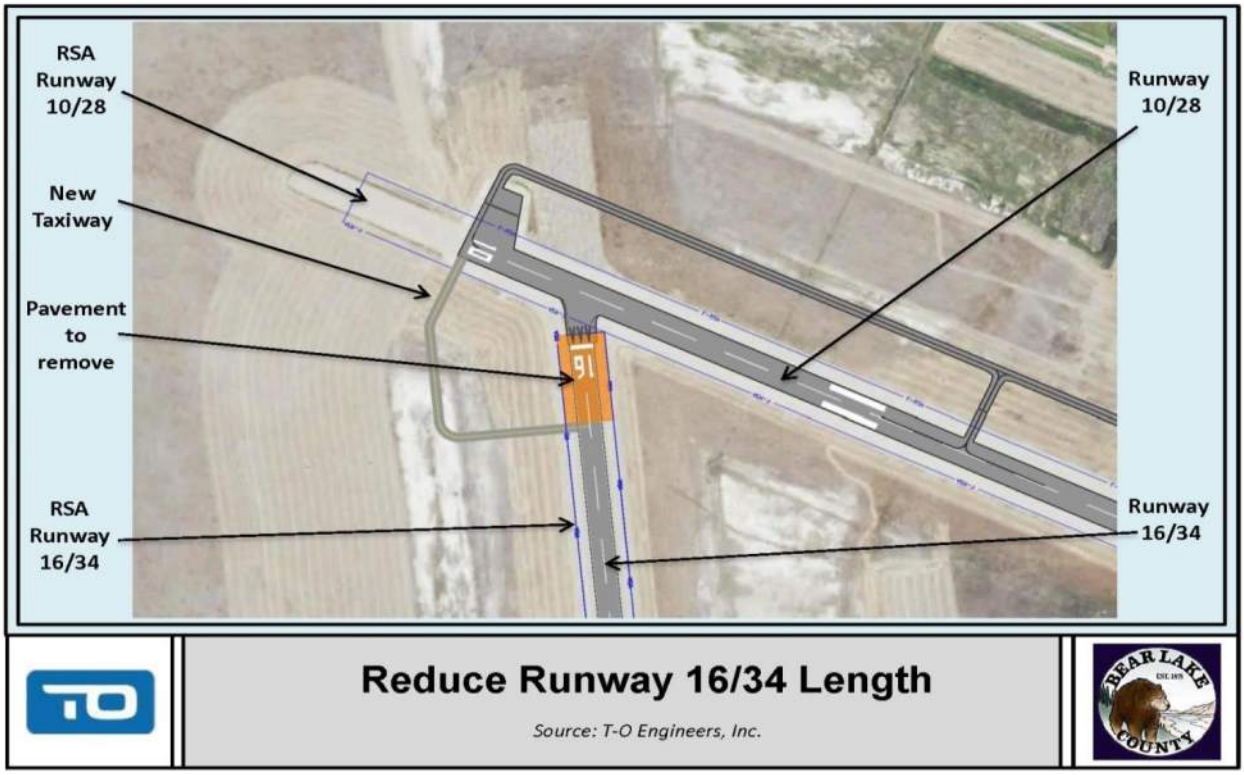


Table 16 lists the advantages and drawbacks of *Alternative 3* based on safety, operational, environmental, land use, and cost criteria.

TABLE 16: CRITERIA EVALUATION FOR ALTERNATIVE 3

Safety	
Advantages	Solve the overlap between the RSAs
	Clear the RSA beyond Runway 16 End
	Increase the separation between Runway 16 and Runway 10 Ends
	Reduce the risk of runway incursion
Drawbacks	Require new taxiway access to Runway 16 Threshold
	Reduce the runway length available
Operational Capabilities and Disruptions	
Advantages	Independent taxiway access to both runway ends improves the global runway system capacity
	Simultaneous departures on Runway 10 and Runway 16 possible (diverging directions)
Drawbacks	Disruptions are to be expected for both runways during construction, but mainly for Runway 16/34
Environmental Impacts	
Advantages	No environmental impact

	This modification is eligible for a CATEX
Compatible Land Use and Land Acquisition	
Advantages	No land use concerns or zoning issues
	No additional noise issues
Costs	
Items Required to Implement the Decoupling	- Paved Runway Reduction (210' X 60'): $9,500 - Rehabilitate Remaining Paved Runway 16-34 (Overlay & Marking): $950,000 - New Taxiway Access Runway 16 End: $154,000 (Paved) or $1,000 (Grass)
Impact on Costs of Two-Runway Configurations	Alternative 1 – Maintain Two Paved Runways: - Initial costs will increase due to the runway extension/reduction and rehabilitation, and a newly paved taxiway access - Maintenance costs will be reduced due to a shorter Runway 16/34 - Overall costs will increase Alternative 4 – Convert RWY 16/34 to Gravel and Alternative 5 - Convert RWY 16/34 to Turf: - Initial costs will increase due to a new grass taxiway access to Runway 16 End - Maintenance costs will be lower due to a shorter Runway 16/34 - Overall costs will decrease

Source: T-O Engineers, Inc.

Table 17 lists the impact of Runway Decoupling Alternative 3 on the estimated costs of the two-runway configurations.

TABLE 17: IMPACT OF DECOUPLING ALT. 3 ON COSTS OF TWO-RUNWAY CONFIGURATIONS

Two-Runway Configuration	Initial Costs		Average Annual Maintenance Costs		Total Costs (20-year period)		Impact
	Without Decoupling	With Decoupling	Without Decoupling	With Decoupling	Without Decoupling	With Decoupling	
Alternative 1 Maintain Two Paved Runways	$997,587	$1,113,500	$158,714	$155,867	$4,171,875	$4,230,843	**$58,968 (+1%)**
Alternative 4 Convert Runway 16/34 to Gravel	$394,553	$391,661	$264,464	$256,779	$5,683,837	$5,527,236	**-$156,602 (-3%)**
Alternative 5 Convert Runway 16/34 to Turf	$220,987	$221,352	$101,039	$100,830	$2,241,760	$2,237,955	**-$3,805 (-0.2%)**

Source: T-O Engineers, Inc.

Alternative comparison

Alternative 3 is the least costly while *Alternative 1* is the most expensive. *Alternative 3* is also the alternative with fewer drawbacks and would be the easiest to implement regardless of the runway configuration chosen.

The main disadvantage is a reduction of the overall runway length but it would not significantly impact the use by aircraft intended to use the crosswind runway (B-I or smaller).

7. Conclusion and Recommendations

This technical memorandum described several alternatives to improve the safety of aircraft operations at Bear Lake County Airport while minimizing the impact on the airport operability and optimizing the costs of runway maintenance.

Maintaining Runway 10/28 only, at its existing alignment, is the cheapest option. However, this alternative does not maintain the FAA recommended wind coverage of 95 percent for smaller aircraft (B-I Small). Operationally, experience and input of the Board as it relates to actual crosswind impacts on aircraft operations at the airport will be critical in determining if the current 93.99 percent coverage is acceptable based on costs of all alternatives presented in this document.

Converting Runway 16/34 to a grass/turf runway is a slightly more expensive option ($106,500 more expensive over a 20-year planning period, or $5,325 per year), but this alternative maintains the operational capacity of the airport and provides appropriate wind coverage for

smaller aircraft (B-I Small) willing to use a grass/turf runway. This alternative also greatly minimizes the maintenance costs of the airport, in comparison to the existing configuration.

Lastly, if the County decides to maintain two runways at the airport, whether paved, gravel or grass/turf runways, the runways will have to be decoupled. The least expensive alternative is to reduce Runway 16/34 by 210 feet to the north end. This alternative is easy to implement, minimize the costs and does not significantly impact the airport environment and the aircraft operations.

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APPENDIX D: RPZ MEMO

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T-O ENGINEERS

TECHNICAL MEMORANDUM

TO: Bear Lake County Airport

FROM: Nathan Cuvala – T-O Engineers

PROJECT: Bear Lake County Airport Master Plan

SUBJECT: RPZ Analysis

DATE: **December 31, 2015**

1- Airport Description

1.1- Location

Bear Lake County Airport is located in Bear Lake County, in southeastern Idaho, approximately three miles east of the city of Paris and six miles southwest of the town of Montpelier. The airport is located in the Bear River Valley, north of Bear Lake, and covers an area of approximately 1,180 acres. It serves the Bear Lake County region and adjacent areas.

The airport is situated halfway between U.S Route 89 and U.S Route 30. U.S Route 89 is a north-south highway, which extends from Arizona to the Canadian border. U.S Route 30 is an east-west highway, which crosses the United States from Astoria, Oregon to Atlantic City, New Jersey. The airport reference point coordinates are 42° 14' 59.10" north latitude and 111° 20' 29.90" west longitude and its elevation is 5,932.6 feet. **Figure 1-1** depicts a vicinity map for reference

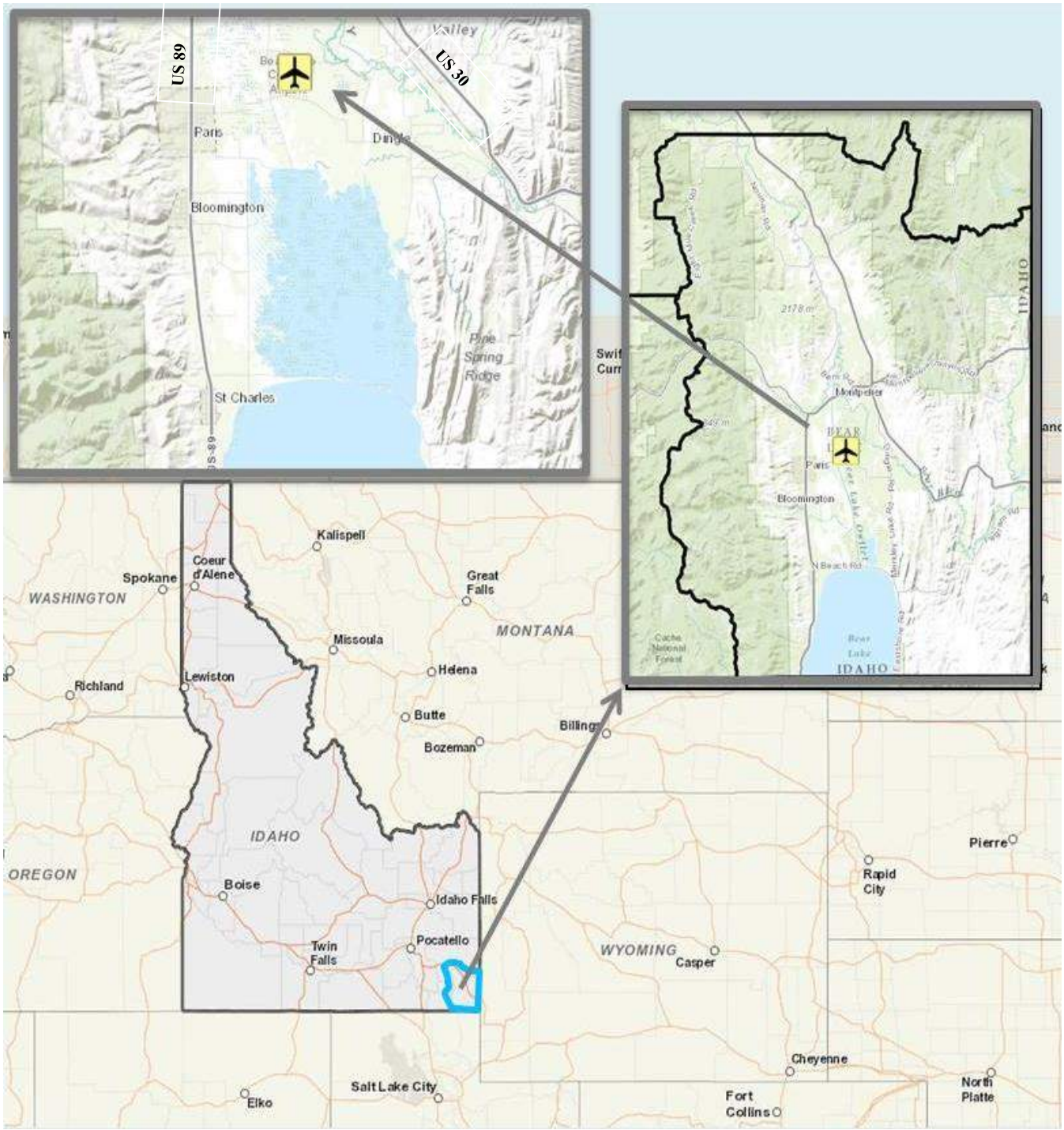
1.2- Airport Classification

Bear Lake County Airport is part of the FAA's National Plan of Integrated Airport Systems (NPIAS) and is recognized as a General Aviation airport. In addition, in the FAA study, *General Aviation Airports: A National Asset*, Bear Lake County Airport is classified as a Basic Airport, which are the airports often serving critical aeronautical functions within local and regional markets.

The Idaho State Aviation System Plan identifies the role for Bear Lake County Airport to be Community Business. Community Business airports serve a limited role in regional economies, primarily supporting community economies. They accommodate a variety of general aviation

activities such as business, recreational, and personal flying. (Idaho Airport System Plan, 2010).

Figure 1-1: Location Map



Source: T-O Engineers. Inc., ESRI ArcGIS Online

1.3- Airside Facilities

The existing airfield configuration at Bear Lake County Airport consists of two active runways. These runways are identified as Runway 10/28 and Runway 16/34 with a true orientation of respectively 115°06'04.20" and 175°06'02.98".

Runway 10/28 is the primary runway with a length of 5,728 feet and a width of 75 feet. Runway 16/34 is 4,590 feet long and 60 feet wide. Both runways have basic marking in good condition. Runway 10/28 is equipped with a non-standard Medium Intensity Runway Lighting (MIRL) system.

A partial parallel taxiway, parallel to Runway 10/28, allows access from the apron to the thresholds of Runway 10 and 16.

1.4- Runway Approach Procedures

Currently, both Runway 10/28 and Runway 16/34 are visual only with no specific associated NAVAIDS. A future non-precision approach is planned for Runway 10 and 28.

1.5- Aviation Activity and Critical Aircraft

Based on current records, an estimated 2,400 operations occur annually at the airport from which 85% are itinerant and 15% are local. There are six based aircraft, all single-engine, including one Cessna 150, one Cessna 182, two Cessna 172, one Piper PA-46, and one Cessna 205. Forecasts conducted as part of the Airport Master Plan (AMP) predict an increase in airport operations of approximately 4.8 percent per year over the next 20 years.

Bear Lake County Airport provides for a variety of aviation uses and activities. The airport predominantly serves single-engine aircraft, with occasional use by small multi-engine aircraft, turboprop and small jet traffic. The current Airport Reference Code (ARC) is B-I-Small with the Piper Malibu PA46 being the design aircraft. However, as the airport is not constrained at the moment and has the space to protect for larger standards, long-term proactive planning recommends to plan for B-II standards.

1.6- Airport Improvements

The on-going airport master plan update shows the future use of Runway 10-28 by large aircraft and proposed improvements to include a full parallel taxiway, a PAPI, and an instrument approach procedure serving Runways 10 and 28.

A study conducted by the FAA Flight Procedures Office (FPO) in 2013 concluded that Runway 10 could support a non-precision instrument approach procedure without vertical guidance. The same study also concluded that Runway 28, equipped with a full-length parallel taxiway, could support a non-precision instrument procedure with vertical guidance (LPV-Localizer Performance with Vertical Guidance), and with Height Above Touchdown (HAT)/Minima as low as 220'/¾ mile. In addition, the runway could also support a future departure procedure. In the meantime, with no full parallel taxiway, the HAT/minima would be limited to 220'/1 mile.

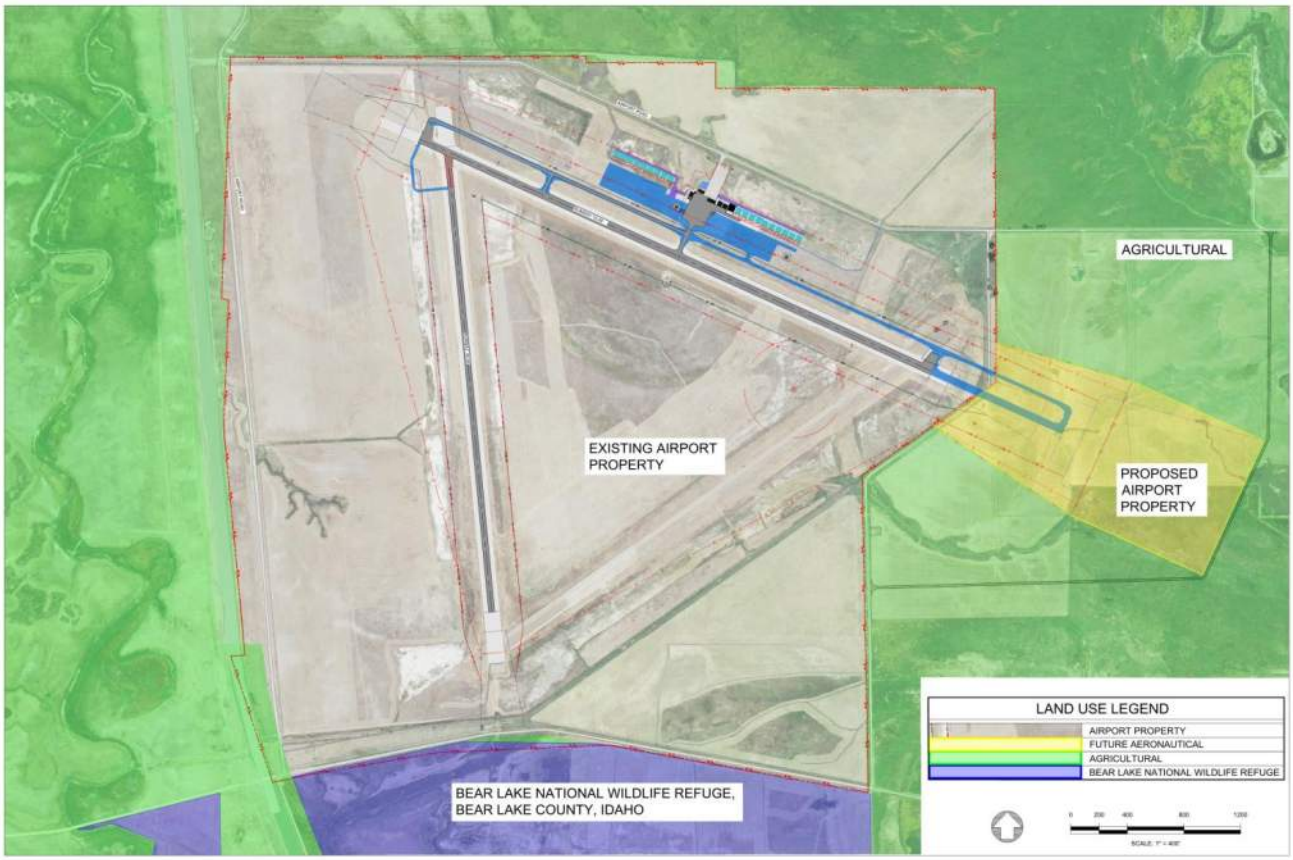
Ultimately, the Runway 28 end will be extended. However, the future instrument procedure will be developed before the extension and will serve the current configuration of Runway 28.

1.7- Surrounding Land Use

Bear Lake County Airport is surrounded by private lands used for agricultural purposes and the Bear Lake National Wildlife Refuge to the south. A network of unpaved public roads circles the airfield.

Figure 1-2 depicts the existing and future land use around the airport.

Figure 1-2: Land Use



Source: T-O Engineers. Inc

2- RPZ Land Use Review

2.1- FAA Policy

A FAA memorandum dated September 27, 2012 defines the FAA interim guidance on land uses within a Runway Protection Zone (RPZ). This document states that a RPZ land use review can be triggered for the following reasons:

- An airfield project
- A change in the critical aircraft that increases the RPZ dimensions
- A new or revised instrument approach procedure that increases the RPZ dimensions
- A local development proposal in the RPZ

In case of a review, coordination with the Airport District Office (ADO), the Regional Office (RO), and the National Airport Planning and Environmental Division (NAPED) will be required if any of the following land uses penetrate the new RPZ:

- Building and Structures
- Recreational land use
- Transportation facilities (public road, parking…)
- Fuel storage facilities
- Hazardous material storage
- Wastewater treatment facilities
- Above-ground utility infrastructure

The goal of an RPZ is to protect people and property on the ground. In order to achieve this goal, the FAA recommends that airport owners control the land within an RPZ. The FAA understands that land ownership can be an issue and that an Airport may not have full control of the land in the RPZ boundaries. However, it still expects the sponsors to take all possible measures to remove or mitigate incompatible land uses in an RPZ.

In the case of existing incompatible land use, the FAA policy states that the ADO shall continue to work with airport sponsors to resolve the issue.

2.2- RPZ Review at Bear Lake County Airport

Approach RPZ dimensions are dictated by the type of approach serving a runway end and by the ARC. Departure RPZ dimensions are only based on the ARC.

The public road located southeast of the Runway 28 end crosses the existing RPZ for Runway 10-28 (departure and approach).The existing RPZs are dimensioned for visual minima and an ARC of B-I –Small, and have the same size (250'x1000'x450'). As discussed previously, a future instrument approach is planned for Runway 10-28 and the future ARC of Runway 10-28 will also increase to B-II.

A summary of the RPZ Dimensions for both B-I Small and B-II are presented below in **Table 2-1**.

Table 2-1: B-I Small and B-II Approach RPZ Dimensions

ARC	Visibility Minimums	Approach RPZ Dimensions			
		Length	Inner Width	Outer Width	Acres
B-I Small	Visual	1,000	250	450	8.04
	1 Mile	1,000	250	450	8.04
	Not Lower than 3/4	1,700	1,000	1,510	48.98
B-II	Visual	1,000	500	700	13.77
	1 Mile	1,000	500	700	13.77
	Not Lower than 3/4	1,700	1,000	1,510	48.98

As you can see from Table 2-1 above, either an instrument approach with visibility minima lower than 1 mile or an increase in the ARC will trigger an increase in the size of the RPZ. Based on the existing ARC of B-I–Small and the anticipated visibility minima, initially the new instrument approach procedure will not increase the dimensions of the RPZ.

After the construction of a full-parallel taxiway, the approach minima to Runway 28 could go down to ¾ miles, increasing the dimensions of the approach RPZ, independently of the ARC, to a total area of 48.978 acres (1000'x1700'x1510').

An increase in the dimensions of the RPZ increase will trigger an RPZ land use review by the FAA. The public road would be considered an incompatible land use. For long-term proactive planning purposes, the future approach RPZ considered for Runway 28 will be for an ARC of B-II with approach minima at ¾ mile.

In addition, the departure RPZ of Runway 10 will increase in size for a change of ARC from B-I-Small to B-II. However, it will always be included within the limits of the approach RPZ of Runway 28, which is more restrictive.

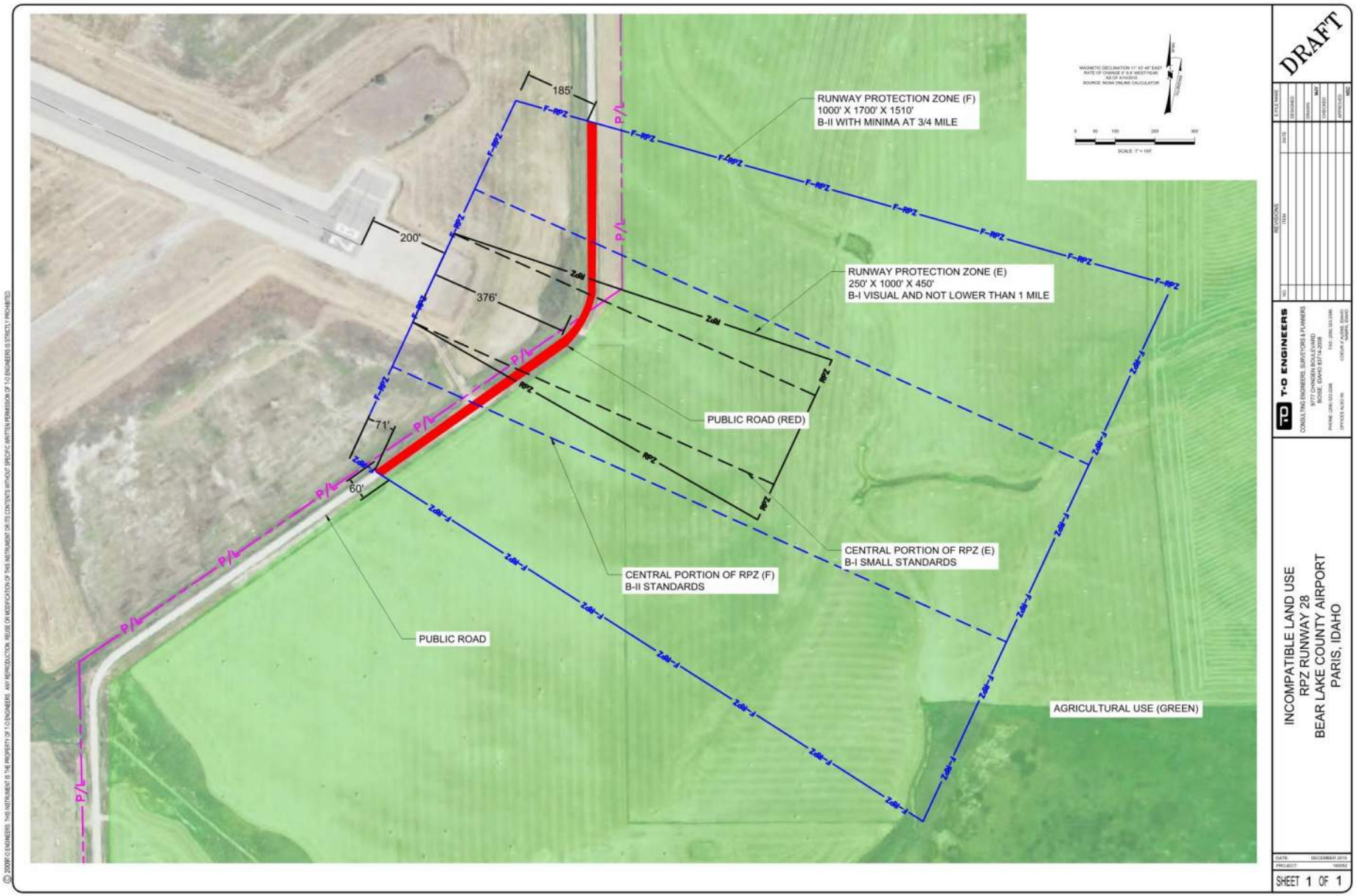
Figure 2-1 depicts the incompatible land use within the existing (ARC B-I Small, Visual and Not Lower than 1 Mile) and future (ARC B-II and non-precision instrument procedure with ¾ mile minima) approach RPZ of Runway 28. The airport and county own a portion of the RPZ as summarized in **Table 2-2**. The remaining land in the RPZ is privately owned and used for agricultural purposes.

Table 2-2: Land Use in Existing and Future Runway 28 RPZ

Sections	Total Area (Acres)	Owned by Sponsor		Encompassed by Incompatible Land Use	
		Acres	% of Area	Acres	% of Area
Central Portion (E)	5.74	2.28	40	0.38	7
Controlled Activity Area (E)	2.30	0.35	15	0.10	4
RPZ (E)	**8.04**	**2.63**	**36**	**0.48**	**6**
Central Portion (F)	19.51	4.43	23	0.77	4
Controlled Activity Area (F)	29.47	3.29	11	0.84	3
RPZ (F)	**48.98**	**7.72**	**16**	**1.61**	**3**

Source: T-O Engineers, Inc.

Figure 2-1: Incompatible Land Use in RPZ Runway 28



3- Alternative Development and Analysis

This section intends to describe and analyze the different alternatives available to mitigate the incompatible land use in the future RPZ of Runway 10-28. It should be noted that mitigation of the incompatible land use is not required until the RDC is upgraded to B-II or the proposed Instrument Approach Procedure has minima as low as ¾ mile. Practical assessment for each alternative will be evaluated based on the following criteria:

- Safety
- Costs
- Environmental Impact
- Feasibility
- Compatibility with Future Development

*3.2- **Alternative 1**: Relocate the Road*

Narrative Description: This alternative consists of relocating the public road that penetrates the future RPZ of Runway 10-28 outside the limits of the RPZ, and far enough to accommodate future airport development as presented in the Airport Master Plan update. The relocation would prevent incompatible land use in the ultimate RPZ of Runway 10-28 after runway extension.

This solution would allow to remove the incompatible land use within the RPZ while maintaining the same road configuration and level of service around the airport.

Alternative 1 encompasses:

- Relocate the road beyond the ultimate RPZ dimensions after a 1,472-foot extension of Runway 10-28 to the southeast, as planned in the Airport Master Plan update.

Figure 3-1 depicts Alternative 1.

Cost Estimate: Alternative 1 would require the construction of a new road to replace the section of public road closed. The existing canal would need to be piped and existing wetlands filled. This alternative also requires acquiring or controlling lands for future airport development (runway extension) and the right of way for the relocated road. A portion of the ultimate RPZ could be controlled with an avigation easement. Land parcels would be purchased as described in the updated Airport Layout Plan.

The costs have been estimated as detailed in **Table 3-6**, and are summarized as follow:

- Relocate the Road with Land Acquisition (Right-of-Way): $2,698,000
- Additional Land Acquisition for RPZ and Future Development: $212,500

Total Estimated Costs Alternative 1: $2,910,500

Federal, State, and Local Transportation Agencies Involved: The following agencies would be involved for Alternative 1:

- FAA Helena ADO
- Bear Lake County

Figure 3-1: Alternative 1

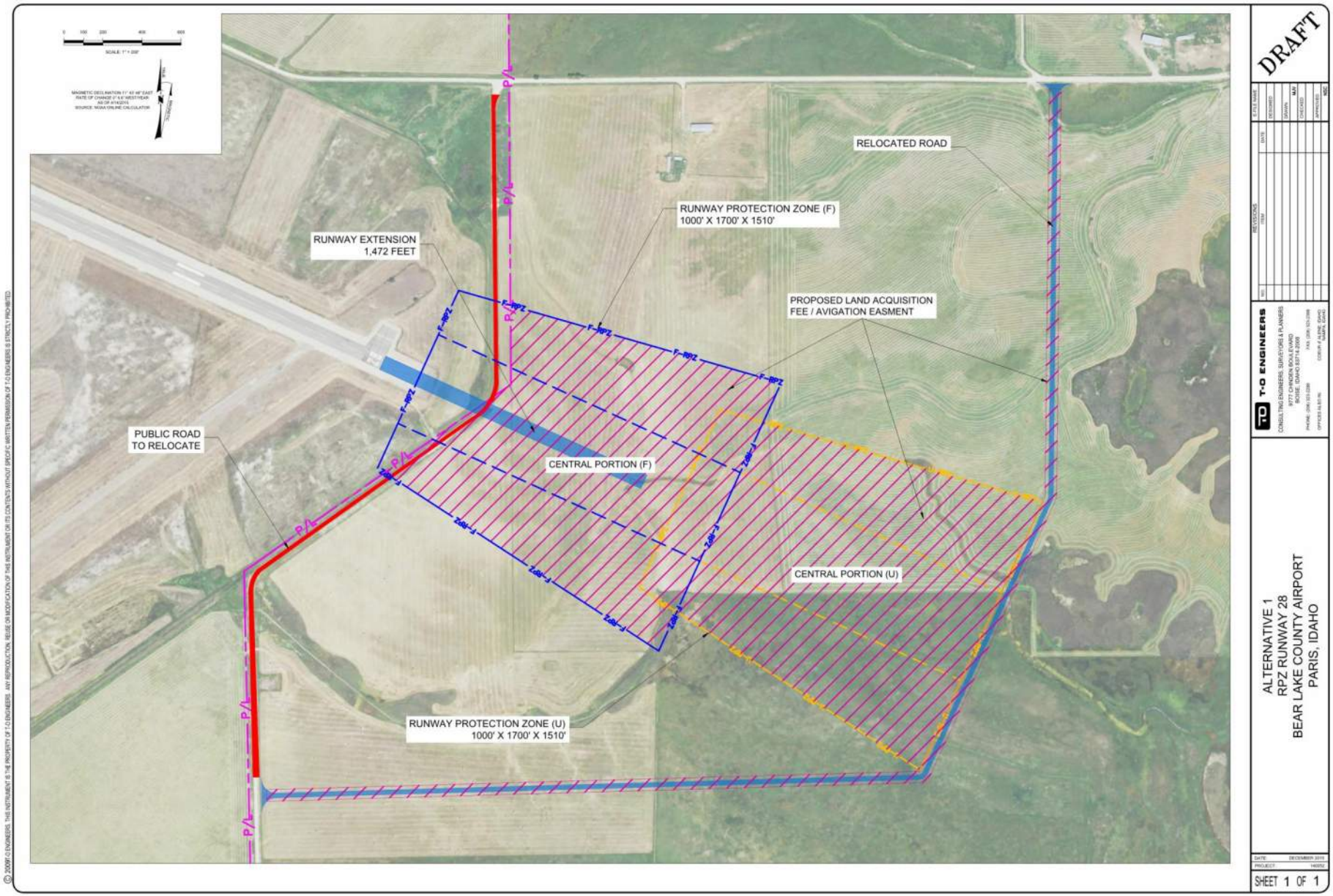


Table 3-1: Detailed Costs of Alternative 1

LAND ACQUISITION					
Item	Item Description	Measure	Quantity	Unit Price	Total Price
1.	Land (Fee or Avigation Easment)	Acre	85	$2,500.00	**212,500**
ROAD RELOCATION					
1.	Mobilization (15%)	L.S.	1	$237,828.15	$237,828.15
2.	Clearing and Grubbing	S.Y.	9,413	$1.00	$9,413.00
3.	Excavation	C.Y.	17,454	$12.00	$209,448.00
4.	Structural Fill	C.Y.	21,616	$40.00	$864,640.00
5.	Base	C.Y.	8,367	$60.00	$502,020.00
6.	Land Purchase	Acre	10	$2,500.00	$24,311.46
7.	Canal Stabilization/Seeding/Reestablishment	S.Y.	15,908	$5.00	$79,540.00
	Subtotal Direct Cost				$1,927,200.61
	Contingency (20%)				$385,440.12
	Engineering and Construction Administration (20%)				$385,440.12
	Total Cost				**$2,698,081**
Assumptions					
Road					
	Road Length (ft)		7060		
	Road Width (ft)		24		
	Shoulder Width (ft-total)		8		
	Road Area (SF)		169440		
	Road Structural Fill (in)		31		
	Road Base (in)		12		
	Shoulder Structural Fill (in)		31		
	Shoulder Base (in)		12		
	Wetland Impacted (Acre)		2		
	Land Purchase (Acre)		10		
Channel					
	Top (ft)		15		
	Bottom (ft)		4		
	Depth (ft)		6		
	Cross-Sectional Area (SF)		57		
	Length (ft)		7060		
	Volume (CF)		402420		
	Surface Area (SF)		143168		

Source: T-O Engineers, Inc

Specific Portion of RPZ: Alternative 1 would remove all incompatible land use in the future and ultimate RPZ of Runway 10-28. After appropriate land purchase/control, the property/control of each RPZ section would be as presented in **Table 3-2**.

Table 3-2: Impact on RPZ - Alternative 1

Sections	Total Area (Acres)	Owned/Controlled by County/Airport		Incompatible Land Use	
		Acres	% Total	Acres	% Total
Future RPZ					
Central Portion	19.51	19.51	100	0	0
Controlled Activity Area	29.47	29.47	100	0	0
RPZ	48.98	48.98	100	0	0
Ultimate RPZ					
Central Portion	19.51	19.51	100	0	0
Controlled Activity Area	29.47	29.47	100	0	0
RPZ	48.98	48.98	100	0	0

Source: T-O Engineers, Inc

Practical Assessment: Relocating the public road outside the future RPZ of Runway 10-28 would be costly and require significant land acquisition/control among private agricultural properties.

However, Alternative 1 is a good solution to completely remove the incompatible land use within the RPZ, while accounting for future airport development. Evaluation criteria for Alternative 1 are summarized in **Table 3-3**.

Table 3-3: Alternative 1 – Evaluation Criteria

ALTERNATIVE 1 – EVALUATION CRITERIA	
Safety	High - Remove incompatible land use within RPZ
Costs	High - $2,910,500
Environmental	Impact wetlands. Will trigger environmental studies
Feasibility	Feasible - Needs for land acquisition. Wetland mitigation. The road to be closed is county property.
Compatibility with Future Needs	Encompasses future airport development

Source: T-O Engineers, Inc.

*3.2- **Alternative 2**: Close the Road and Improve Airport Road*

Narrative Description: This alternative would require closing the portion of the public road located in the future RPZ of Runway 10-28. This would have direct consequences on the road system around the airport.

As previously mentioned, the public road crossing the RPZ is mainly used by farm vehicles. It is also used as a bypass of "Airport Road" located north of the airport, which is not wide enough to allow two vehicles to pass each other. Closing the public road would then trigger the need to improve "Airport Road" in order to provide an appropriate access around the airport.

Airport Road is also the main access to the airport. It is surrounded by wetlands and is built up significantly from the surrounding terrain. The improvement to the road would consist of widening the road from 19 feet to 24 feet with 4-foot shoulders. The canal next to the road was identified as a historic resource. Any impacts to the canal will require coordination with the Idaho State Historic Preservation Office (SHPO). The wetlands surrounding the road would require mitigation to accommodate the road widening. **Figure 3-2** depicts the existing conditions around Airport Road.

Alternative 2 encompasses:

- Closing a portion of the public road, located east of Runway 28 end, which is within the RPZ limits
- Improving "Airport Road" by making it wider to accommodate two-way traffic
- Acquiring control of Runway 10-28 RPZ

The road would be closed by installing gates at the limits of the RPZ. Turn arounds would be added near the gates to allow vehicles accessing the surrounding farmland to perform U-turns. **Figure 3-3** depicts Alternative 2.

Cost Estimate: Alternative 2 would require the construction of two turn arounds with gates for closing the road through the RPZ, and the improvement of "Airport Road". The estimated costs are as detailed in **Table 3-4**, and are summarized as follow:

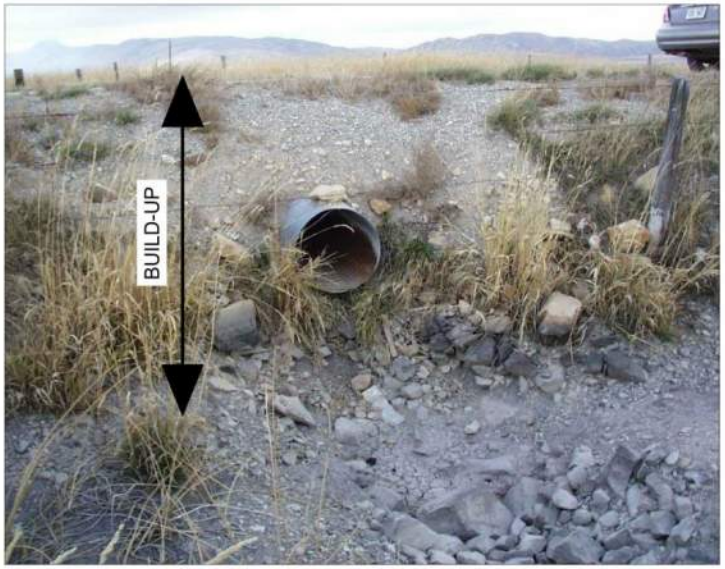
- Gates and Turn Arounds Construction for Public Road Closure: $137,000
- Improve "Airport Road": $2,124,000
- Acquire Control of Runway 10-28 RPZ (41.2 Acres) $103,000

Total Estimated Costs Alternative 2: $2,364,000

Federal, State, and Local Transportation Agencies Involved: The following agencies would be involved for Alternative 2:

- FAA Helena ADO
- Bear Lake County

Figure 3-2: Airport Road – Existing Conditions



Source: U.S. Fish and Wildlife Services

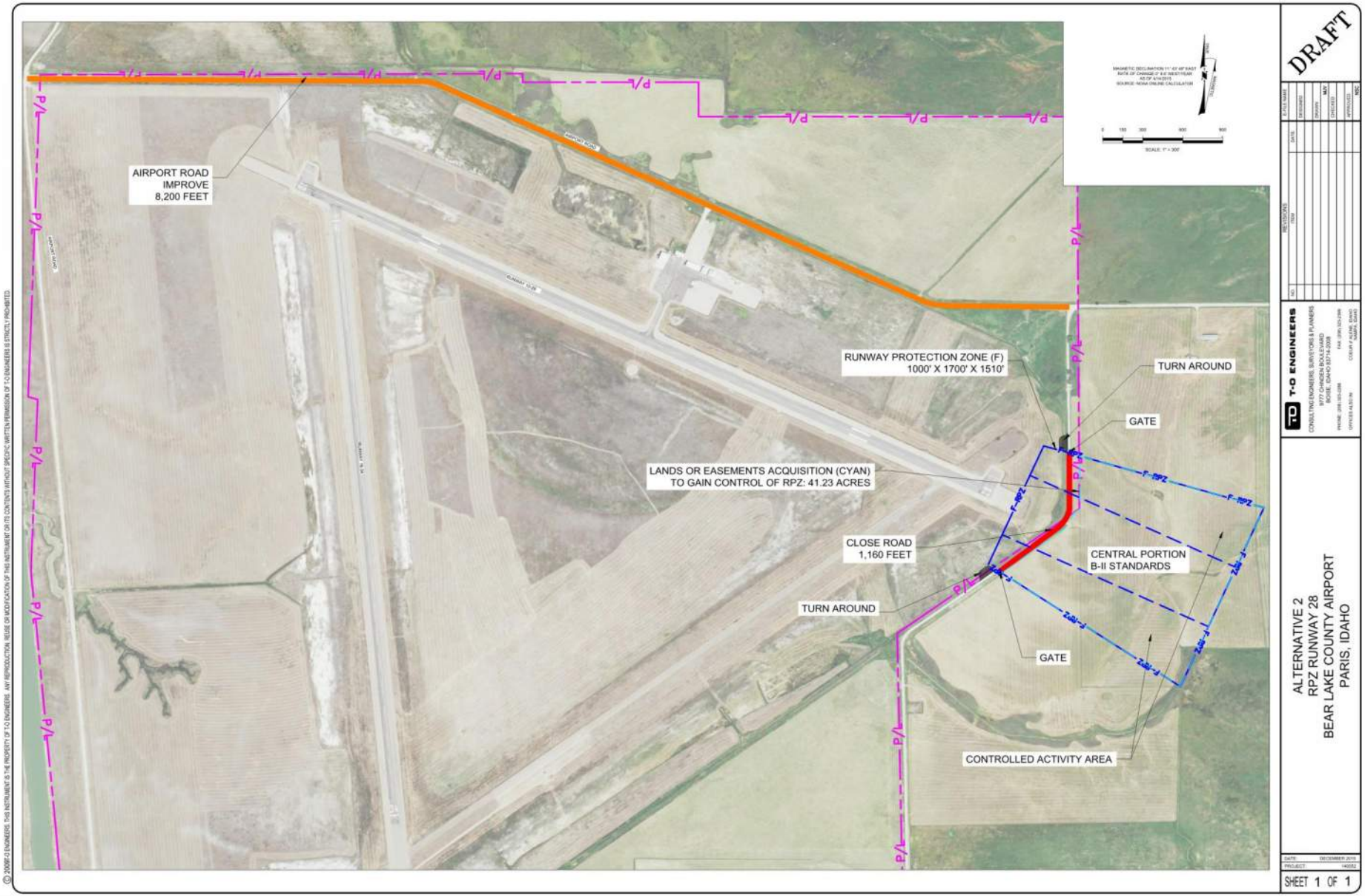
DRAFT

T-O ENGINEERS

AIRPORT ROAD
EXISTING CONDITIONS
BEAR LAKE COUNTY AIRPORT
PARIS, IDAHO

SHEET 1 OF 1

Figure 3-3: Alternative 2



Specific Portion of RPZ: Alternative 2 would remove all incompatible land use in the RPZ. The impact on each RPZ section would be as described in **Table 3-5**.

Table 3-5: Impact on RPZ - Alternative 2

Sections	Total Area (Acres)	Owned by County/Airport		Incompatible Land Use	
		Acres	% Total	Acres	% Total
Central Portion	19.51	4.43	23	0	0
Controlled Activity Area	29.47	3.29	11	0	0
RPZ	48.98	7.72	16	0	0

Source: T-O Engineers, Inc.

Practical Assessment: On its own, closing the public road inside the RPZ of Runway 10-28 is feasible and does not generate excessive costs. However, it would require improvements to "Airport Road" in order to maintain an appropriate level of service around the airport, which increase costs significantly.

In addition to serving as a bypass, "Airport Road" is also the main access road to the airport. Improving this road would also provide better access to the airport. However, due to the presence of wetlands alongside the road, mitigation (new channel or offsite wetland mitigation) and environmental studies would be necessary.

Alternative 2 provides a solution to completely remove the incompatible land use within the RPZ. Evaluation criteria for Alternative 2 are summarized in **Table 3-6**

Table 3-6: Alternative 2 – Evaluation Criteria

ALTERNATIVE 2 – EVALUATION CRITERIA	
Safety	Removes incompatible land use within RPZ
Costs	High - $2,364,000
Environmental	Impact wetlands-Will require environmental review
Feasibility	Feasible - May require land acquisition for "Airport Road" improvements and gaining control of RPZ. Wetland impacts. The road to be closed is county property.
Compatibility with Future Needs	Favors airport development

Source: T-O Engineers, Inc.

Table 3-4: Detailed Costs of Alternative 2

Item	Item Description	Measure	Quantity	Unit Price	Total Price
CLOSURE OF PUBLIC ROAD					
1.	Mobilization (15%)	L.S.	1	$12,755.62	$12,755.62
2.	Gate Construction	EA.	2	$2,000.00	$4,000.00
3.	Clearing and Grubbing	S.Y.	1,711	$1.00	$1,711.00
4.	Excavation	C.Y.	856	$12.00	$10,272.00
5.	Geotextile Fabric	S.Y.	1,711	$4.00	$6,844.44
6.	Structural Fill	C.Y.	856	$35.00	$29,960.00
7.	Gravel	C.Y.	285	$50.00	$14,250.00
8.	36' CMP Culvert	L.F.	300	$60.00	$18,000.00
	Subtotal Direct Cost				$97,793.06
	Contingency (20%)				$19,558.61
	Engineering and Construction Administration (20%)				$19,558.61
	Total Cost				**$136,910**
	Assumptions				
	Turn-Around Area (SF)		15400		
	Structural Fill (in)		18		
	Gravel (in)		6		
	CMP Culvert (ft)		300		
IMPROVE AIRPORT ROAD					
1.	Mobilization (15%)	L.S.	1	$182,090.55	$182,090.55
2.	Clearing and Grubbing	S.Y.	10,933	$1.00	$10,933.00
3.	Excavation	C.Y.	20,272	$12.00	$243,264.00
4.	Structural Fill	C.Y.	9,415	$40.00	$376,600.00
5.	Base	C.Y.	9,719	$60.00	$583,140.00
6.	Land Purchase	Acre	11	$2,500.00	$28,237.11
7.	Canal Stabilization/Seeding	S.Y.	18,476	$5.00	$92,380.00
	Subtotal Direct Cost				$1,516,644.66
	Contingency (20%)				$303,328.93
	Engineering and Construction Administration (20%)				$303,328.93
	Total Cost				**$2,123,303**
	Assumptions				
	Road				
	Road Length (ft)		8200		
	Road Width (ft)		24		
	Shoulder Width (ft-total)		8		
	Road Area (SF)		196800		
	Road Structural Fill (in)		31		
	Road Base (in)		12		
	Shoulder Structural Fill (in)		31		
	Shoulder Base (in)		12		
	Wetland Impacted (Acre)		2		
	Land Purchase (Acre)		11		
	Channel				
	Top (ft)		15		
	Bottom (ft)		4		
	Depth (ft)		6		
	Cross-Sectional Area (SF)		57		
	Length (ft)		8200		
	Volume (CF)		467400		
	Surface Area (SF)		166286		
ACQUIRE CONTROL OF RPZ					
1.	Land or Easement Acquisition	Acre	41	$2,500.00	$103,000.00
	Total Cost				**$103,000**

*3.1- **Alternative 3**: Acquire Land or Easements and Allow Road to Remain for Short/Mid Term*

Narrative Description: This alternative consists of acquiring lands or easements in order to gain control of Runway 10-28 RPZ. The public road would be maintained at its existing location for the short/mid-term (5-10 years) range. Although not part of this alternative, the road would ultimately be relocated prior to the runway extension shown in the updated ALP. **Figure 3-4** depicts Alternative 3.

Cost Estimate: The bulk of the costs for this alternative would include acquisition of lands or easements to control the Runway 10-28 RPZ. The cost of acquiring land or easements is evaluated at $2,500 per acre around the airport. Costs for Alternative 3 can be summarized as follow:

- Acquire Control of Runway 10-28 RPZ (41.2 Acres): $103,000

Total Estimated Costs Alternative 3: **$103,000**

Federal, state, and Local Transportation Agencies Involved: This alternative would involve approval from the Federal Aviation Administration through the following entities:

- Helena Airport District Office (ADO)
- Northwest Mountain Regional Office (RO)
- Headquarters in Washington D.C.

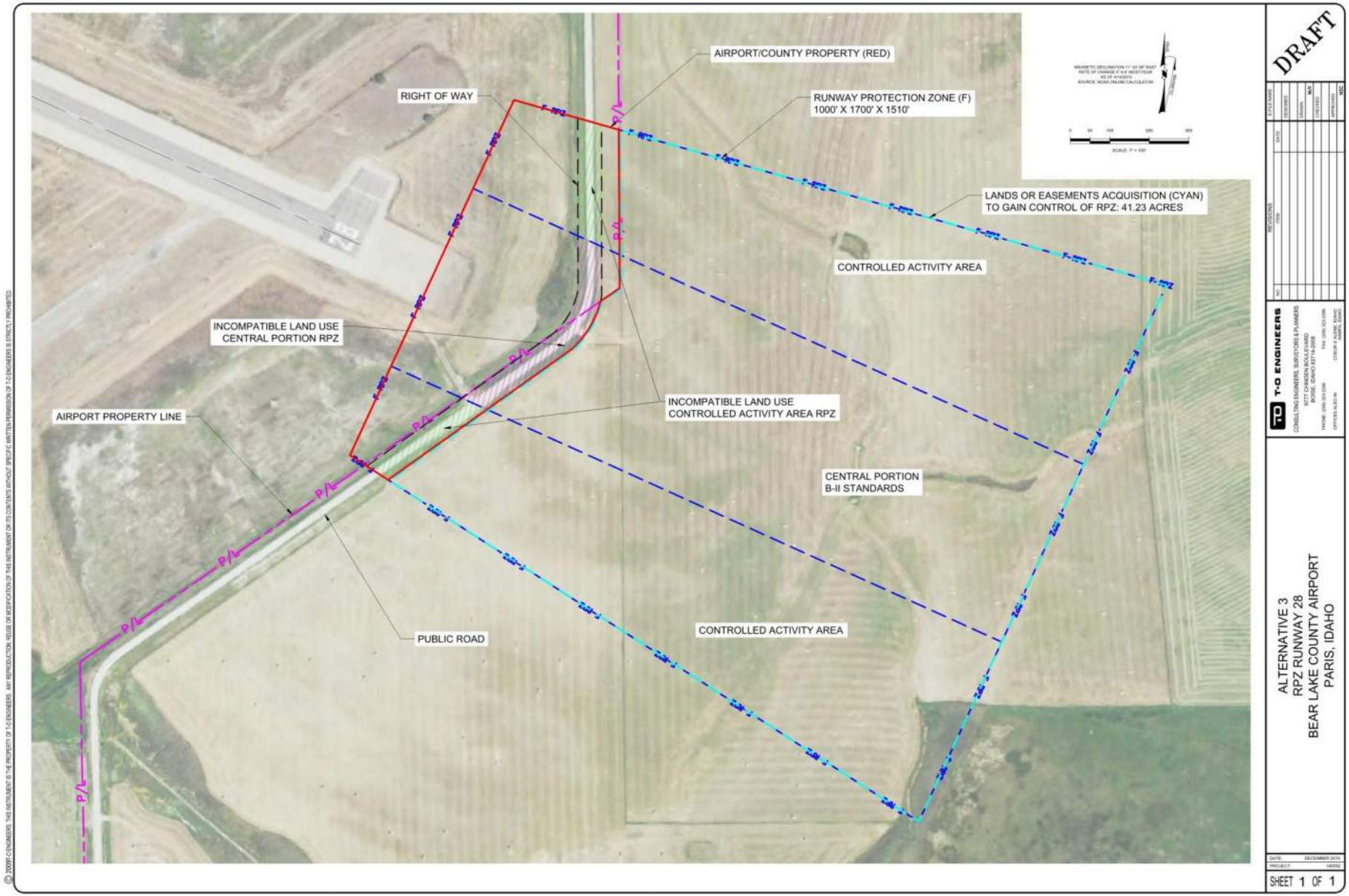
Specific Portion of RPZ: Maintaining the road open will affect the RPZ as presented in **Table 3-7**.

Table 3-7: Impact on RPZ – Alternative 3

Sections	Total Area (Acres)	Owned by County/Airport		Incompatible Land Use		
		Acres	% Total	Acres	% Total	% Owned
Central Portion	19.51	4.43	23	0.77	4	100
Controlled Activity Area	29.47	3.29	11	0.84	3	100
RPZ	48.98	7.72	16	1.61	3	100

Source: T-O Engineers, Inc.

Figure 3-4: Alternative 3



Practical Assessment: The land located within the existing and future RPZ of Runway 10-28 (Departure and Approach RPZ) are county property and private farmlands with no infrastructure other than a fence, ditch, and road. Therefore, the main hazard of keeping the road open is the presence of a vehicle in the RPZ while an aircraft is approaching or departing the airport. In extreme circumstances, this could lead to a collision between the vehicle and the aircraft (low approach, runway excursion …).

The road is mainly used by farm vehicles moving equipment or livestock. It is used as a bypass of Airport Road which is too narrow to allow the passing of two vehicles. The number of vehicles using the road is estimated at 12 per day at its peak seasonal use.

Bear Lake County Airport has averaged 2,463 annual operations over the last 5 years. Runway 10-28 accommodates approximately 90% percent of the airport traffic, which represents an average of 2,217 annual operations or approximately 6 daily operations. Runway 28 alone accommodates 80 percent of the airport operations, so an average of approximately 5 operations per day.

Given the road and airport usage rate, Alternative 3 is practical and can easily be implemented. Evaluation criteria are presented in **Table 3-8**

Table 3-8: Alternative 3 – Evaluation Criteria

ALTERNATIVE 3 – EVALUATION CRITERIA	
Safety	Requires risk analysis
Costs	Low – $103,000
Environmental	No impact (existing conditions)
Feasibility	Requires coordination with FAA, and land or easement acquisition
Compatibility with Future Development	Limits future runway extension

Source: T-O Engineers, Inc.

4- Recommendations

The three alternatives presented in the previous section intend to solve the land use incompatibility in the future RPZ of Runway 10-28. Each could be implemented at different times in the airport development timeline to match the airport needs and funds available.

Table 4-1 summarizes the advantages and disadvantages of each alternative.

Table 4-1: Alternatives Comparison

Alternatives	Advantages	Disadvantages
1- Relocate the Road	• Does not impact the usable length of Runway 10-28 • Addresses incompatible land use	• High Costs • Requires land/easement acquisition • Environmental impacts • Slow implementation
2- Close the Road and Improve Airport Road	• Does not impact the usable length of Runway 10-28 • Addresses incompatible land use	• Affects vehicle circulation around the airport • Requires land/easement acquisition • Environmental impacts • Requires improvements to Airport Road
3- Acquire Land or Easements and Allow Road to Remain for Short/Mid Term	• Does not impact the usable length of Runway 10-28 • Maintains vehicle circulation around the airport. • Low costs • Fast to implement	• Requires FAA approval • Requires land/easement acquisition

Source: T-O Engineers, Inc.

Given the current activity level of the Bear Lake County Airport and the low traffic on the public road penetrating the RPZ, Alternative 3 is the recommended until the runway is extended. It is affordable while maintaining an acceptable level of safety for the airport and public due to the limited usage of the road. Alternative 3 offers an appropriate way to address the incompatible land use in the RPZ of Runway 10-28 until the runway is extended.

Ultimately, either Alternative 1 or Alternative 2 is the best option for airport development beyond 10 years. They both solve the RPZ land use incompatibility while preserving compatible land use for the ultimate runway configuration as presented in the AMP.

- Alternative 1: This alternative considers more initial land acquisition encompassing future airport development and relocation of the public road. It does not include any improvement to “Airport Road”, the main access to the airport.

- Alternative 2: By closing the public road and improving “Airport Road”, Alternative 2 solves the RPZ incompatible land use while allowing for airport development and providing for better access to the airport. It does not include additional land acquisition for future airport development.

The choice between these two alternatives should be based on the future vision of the County for the airport development at 10 to 20 years. If a runway extension is justified within this time frame, Alternative 1 becomes the preferred solution. If such development remains uncertain, Alternative 2 becomes favorable by improving safety and airport access, allowing for the safe growth of aircraft activity, while considering potential infrastructure development beyond 20 years.

APPENDIX E: IDAHO AIRPORT SYSTEM PLAN BROCHURE

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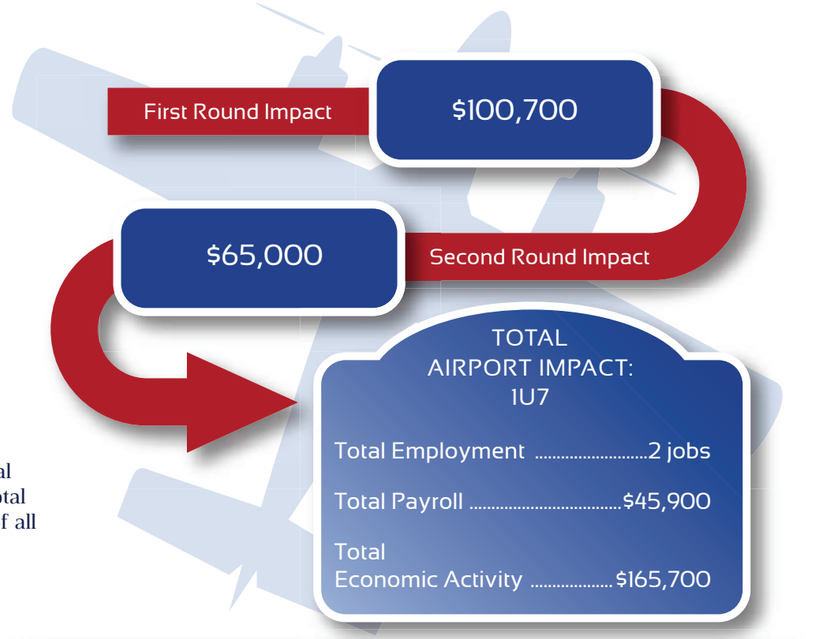
Economic Benefit to Idaho

The system plan quantifies the total economic activity of each airport in the Idaho system. Through a comprehensive survey process, the direct economic benefits related to on-airport business tenants and the indirect benefits associated with visitor related expenditures were determined for each system airport. The multiplier effect of these benefits was then calculated to ascertain the total airport-related impacts. The total economic activity is the sum of all direct (on-airport), indirect (off-airport visitor industry), and multiplier impacts. The study finds that aviation-related businesses located on airports support thousands of jobs and produce billions of dollars of economic impact.



STATEWIDE AVIATION IMPACT		
Total Employment 23,000 jobs	Total Payroll $718.5 million	Total Economic Activity $2.1 billion

Compatible Land Use

The development of land uses that are not compatible with airports and aircraft noise is a growing concern across the country. In addition to aircraft noise, there are other issues, such as safety and environmental impacts to land uses around airports which need to be considered when addressing the overall issue of land use compatibility. Although several federal programs include noise standards or guidelines as part of their funding-eligibility and performance criteria, the primary responsibility for integrating airport considerations into the local land use planning process rests with local governments. ITD Division of Aeronautics has long been an advocate for compatible land use planning around airports. Through the IASP, an Airport Land Use Guidebook was developed for use by the airports, local governments, and the Division of Aeronautics. The Idaho Airport Land Use Guidebook not only informs and educates airports, communities, and local governments but it also provides the necessary tools for implementing compatible land use planning.

For more information contact:

IDAHO TRANSPORTATION DEPARTMENT | DIVISION OF AERONAUTICS
3483 RICKENBACKER STREET, BOISE, ID 83705 | P.O. BOX 7129, BOISE, ID 83707-1129
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HTTP://ITD.IDAHO.GOV/AERO/

Prepared by: Wilbur Smith Associates and T-O Engineers

Idaho Airport System Plan

Bear Lake County Airport

1U7

INDIVIDUAL AIRPORT SUMMARY | 2009

Understanding the Airport

Bear Lake County Airport is a general aviation airport that serves air travel demand in Bear Lake County. It is located approximately 3 miles east of Paris. It serves recreational users, as well as some business activity. Nearby attractions include Bear Lake, the National Oregon-California Trail Museum, and the Bear Lake Wildlife Refuge.

With two paved runways measuring of 5,730 and 4,590 feet, the airport can handle small general aviation aircraft as well as small jet traffic and helicopter operations.

While there are no businesses directly located on airport property, several businesses operating in the area frequently use the airport, including construction companies doing business in the area, notably W.W. Clyde.

The airport provides other benefits and opportunities to the surrounding area, including recreational flights into the backcountry for hunting, fishing, backpacking, and site-seeing. The airport is also used for mosquito control operations around Bear Lake. Touch and go's are practiced here by student pilots, and the airport also plays host to the Bureau of Land Management during the fire season. Medical evacuation and supplies are transported to and from larger urban areas in the region by Life Flight, which uses both fixed wing and helicopter operations at the airport.

The airport plays a large role in the surrounding area, bringing in business activity and recreational users alike. With continued support and investments like recent hangar additions, the airport will continue to provide a significant economic benefit to the residents of the area, to the city of Paris, and the county.

Airport Roles

The Idaho Airport System Plan (IASP) has identified five functional roles for the 75 public-use airports included in the study. These roles expand on the Federal Aviation Administration's (FAA) role categories of commercial service and general aviation airports. Airports that are included in the FAA's National Plan of Integrated Airport Systems (NPIAS) are eligible for federal funding.

Role Summary	
IASP Role →	Community Business
Federal Role →	General Aviation
NPIAS →	Yes

Forecasts

When planning for new or additional airport facilities, projections in the form of based aircraft and annual operations can be helpful in determining the type and size of necessary improvements. Historical demand and local socioeconomic indicators, as well as state and national trends and the airport's master plan were reviewed in the developing the airport's forecast.

The table below highlights the forecast activity for Bear Lake County Airport.

Activity Forecast Summary		
ACTIVITY	2007	2027
Based Aircraft	9	9
Annual Operations	2,400	2,400

Facilities & Services and Recommended Development Costs

Facility and service objectives were developed for each of the five role categories of the IASP. These objectives provide guidance on the minimum level of facilities and services needed for the airport to fulfill its identified role in the system.

In order to continue to serve the aviation needs of surrounding communities and the State of Idaho, the IASP has identified several important projects for the airport. Many of these projects are eligible for federal and/or state funding. Recommended development costs include projects needed to meet each of the recommendations of the Idaho Airport System Plan as well as projects from the airport's capital improvement plan (CIP). While these projects are included as part of the IASP, it is recognized that execution of these projects is dependent on the local economic environment. Further, if the minimum system objective is exceeded, then maintenance of that objective is recommended.

The following table summarizes current facilities and services, the airport's facility and service objectives, projects recommended to meet the objectives within the context of the system plan, and the estimated development costs to implement the projects. Planning and environmental recommendations serve as guidance related to the development needed for the airport to fulfill its role in the overall statewide system.

Bear Lake County Airport is an integral component to the State's system of airports. It provides access to our nation's air transportation network, provides community benefits, and generates economic activity. The proposed development improvements will ensure that Bear Lake County Airport continues to provide area residents and businesses with the aviation infrastructure necessary for the 21st century.

	EXISTING	SYSTEM OBJECTIVE	RECOMMENDATION	DEVELOPMENT COST
AIRSIDE FACILITIES				
Primary Runway Length	5,730 feet	5,690	None	$0
Runway Width	75 feet	75 feet	None	$0
Runway Strength	12,500 Lbs SW	12,500 Lbs SW	None	$0
Taxiway Type	None	Partial/Connector/ Turnaround	Upgrade to Partial	$791,800
Instrument Approach	Visual	Non-Precision	Upgrade to Non-Precision	$54,000**
Visual Aids	Rotating Beacon	Rotating Beacon	None	$0
	Lighted Wind Cone	Lighted Wind Cone	None	$0
	None	REILS	Install REILS	$62,000**
	None	PAPI/VASI	Install PAPI/VASI	$70,000**
Runway Lighting/Reflectors	MIRL	MIRL	None	$0
Weather Reporting Facilities	None	AWOS/ASOS	Install AWOS/ASOS	$185,000**
LANDSIDE FACILITIES				
Terminal with Public Restroom	Yes	Yes	None	$0
Hangar Storage	15 Spaces	10 Spaces	None	$0
Apron Spaces	16 Spaces	6 Spaces	None	$0
Auto Parking	None	Parking Spaces	Add 10 Spaces	$22,000**
SERVICES				
Phone	Yes	Yes	None	$0
Restroom	Yes	Yes	None	$0
FBO	None	None	None	$0
Maintenance Facilities	None	None	None	$0
Fuel	AvGas Only	AvGas and Jet A	None	$0
Ground Transportation	Courtesy/Loaner Car	Courtesy/Loaner Car	None	$0
PAVEMENT MAINTENANCE, PLANNING/ENVIRONMENTAL AND MISCELLANEOUS				
Pavement Maintenance				$744,000**
Master Plan/ALP/Environmental				$80,000**
Airside Development				$0
Segmented Circle				$0
Other CIP Projects				$957,900*
TOTAL				$2,966,700

**Airport Capital Improvement Plan (CIP) Project | **Idaho Airport System Plan (IASP) Project*

APPENDIX F: GRANT HISTORY

FAA GRANT HISTORY

Grant History Report

FAA - Office Of Airports **Report Date:** 07/22/2014

Region: NM

ADO: HLN

Worksite: Paris, ID **Locid:** 1U7 **Worksite Name:** Bear Lake County **Current Service Level:** GA **Current Hub Type:** -

Grant Nbr	FY	Project Code	Descr	Entitlement	Discretionary	Economic Recovery	Total
011-2014	2014	PL PL MA	Update Airport Master Plan Study	$150,000.00	$0.00	$0.00	$150,000.00
Grant Total				**$150,000.00**	**$0.00**	**$0.00**	**$150,000.00**
Worksite Total				**$150,000.00**	**$0.00**	**$0.00**	

Region: NM

ADO: SEA

Worksite: Paris, ID **Locid:** 1U7 **Worksite Name:** Bear Lake County **Current Service Level:** GA **Current Hub Type:** -

Grant Nbr	FY	Project Code	Descr	Entitlement	Discretionary	Economic Recovery	Total
001-1984	1984	RE AP IM	Rehabilitate Apron	$20,000.00	$0.00	$0.00	$20,000.00
		RE TW IM	Rehabilitate Taxiway	$12,000.00	$0.00	$0.00	$12,000.00
		ST LA SZ	Acquire Land For Approaches	$4,000.00	$0.00	$0.00	$4,000.00
		RE RW IM	Rehabilitate Runway	$528,981.00	$0.00	$0.00	$528,981.00
Grant Total				**$564,981.00**	**$0.00**	**$0.00**	**$564,981.00**
002-2003	2003	RE TW IM	Rehabilitate Taxiway	$87,840.00	$0.00	$0.00	$87,840.00
		RE RW IM	Rehabilitate Runway	$922,223.00	$0.00	$0.00	$922,223.00
Grant Total				**$1,010,063.00**	**$0.00**	**$0.00**	**$1,010,063.00**
003-2005	2005	ST TW CO	Construct Taxiway	$375,000.00	$0.00	$0.00	$375,000.00
Grant Total				**$375,000.00**	**$0.00**	**$0.00**	**$375,000.00**
004-2006	2006	ST BD MS	Construct Building	$140,000.00	$0.00	$0.00	$140,000.00
Grant Total				**$140,000.00**	**$0.00**	**$0.00**	**$140,000.00**
005-2007	2007	ST BD MS	Construct Building	$160,000.00	$0.00	$0.00	$160,000.00

Grant History Report

FAA - Office Of Airports **Report Date:** 07/22/2014

Region: NM

ADO: SEA

Worksite: Paris, ID **Locid:** 1U7 **Worksite Name:** Bear Lake County **Current Service Level:** GA **Current Hub Type:** -

Grant Nbr	FY	Project Code	Descr	Entitlement	Discretionary	Economic Recovery	Total
Grant Total				**$160,000.00**	**$0.00**	**$0.00**	**$160,000.00**
006-2008	2008	OT OT FF	Improve Fuel Farm	$21,597.00	$0.00	$0.00	$21,597.00
Grant Total				**$21,597.00**	**$0.00**	**$0.00**	**$21,597.00**
007-2009	2009	RE TW IM	Rehabilitate Taxiway	$20,380.00	$0.00	$0.00	$20,380.00
		RE RW IM	Rehabilitate Runway	$40,760.00	$0.00	$0.00	$40,760.00
		RE AP IM	Rehabilitate Apron	$20,380.00	$0.00	$0.00	$20,380.00
		ST OT IN	Install Miscellaneous NAVAIDS	$27,173.00	$0.00	$0.00	$27,173.00
Grant Total				**$108,693.00**	**$0.00**	**$0.00**	**$108,693.00**
008-2009	2009	RE TW IM	Rehabilitate Taxiway	$16,000.00	$0.00	$0.00	$16,000.00
		RE RW IM	Rehabilitate Runway	$90,683.00	$0.00	$0.00	$90,683.00
		RE AP IM	Rehabilitate Apron	$16,000.00	$0.00	$0.00	$16,000.00
		ST OT IN	Install Miscellaneous NAVAIDS	$20,307.00	$0.00	$0.00	$20,307.00
Grant Total				**$142,990.00**	**$0.00**	**$0.00**	**$142,990.00**
009-2012	2012	ST TW CO	Construct Taxiway	$84,834.00	$0.00	$0.00	$84,834.00
Grant Total				**$84,834.00**	**$0.00**	**$0.00**	**$84,834.00**
010-2013	2013	ST TW CO	Construct Taxiway	$733,591.00	$0.00	$0.00	$733,591.00
		RE RW IM	Rehabilitate Runway	$88,700.00	$0.00	$0.00	$88,700.00
Grant Total				**$822,291.00**	**$0.00**	**$0.00**	**$822,291.00**
Worksite Total				**$3,430,449.00**	**$0.00**	**$0.00**	
Report Total				**$3,580,449.00**	**$0.00**	**$0.00**	**$3,580,449.00**

Selection Criteria: LOCID: 1U7 ,Grant Step:REL

ITD GRANT HISTORY

FAA PROJECTS

AIRPORT: NAME: BEAR LAKE COUNTY

OWNER: BEAR LAKE COUNTY

NUMBER: 3 -16- 0027 — SEQ. NO.

SEQ. NO.	PROJECT DESCRIPTION	GRANT F.Y.	FINAL COSTS TOTAL	FAA	STATE	
01	ACQUIRE LAND; RECONSTRUCT R/W 10/28, T/W, & APRON; ALP & REPORT	1984	627,756.72	564,981.04	SEE ST. PROJ'S, -01 & -03	*
02	Carry Over - Non Primary Entitlement	2001 ENTITLEMENT	152,911	137,620	5199.00	
NPE02	Carry Over - Non Primary Entitlement	2002 NPE	152,911	137,620	7646.00	
02a	Pavement Rehabilitation - RW 12-30 RW 16-34, PTW and Apron.	2003	816,470	734,823	40,823	
003	Carry Over NPE FY04	2004	157,894	150,000	3,947	
NPE5	Carry Over NPE FY05	2005	157,894	150,000	3,947	
NPE6	Construct Hangars with NPE Funds	2006			3,684	*
-007 -008	Rehab Pavements and Beacon	2010			6,579	*
-009	Partial Parallel Taxiway	2013	98,920		3,116	
-010	Rehab RW, Construct TW	2014	913,657		41,115	

STATE PROJECTS

AIRPORT: NAME: BEAR LAKE COUNTY (PARIS)

OWNER: BEAR LAKE COUNTY

NUMBER: -SP-0027 (SEQ. NO.)

SEQ. NO.	PROJECT DESCRIPTION	GRANT F.Y.	FINAL COSTS TOTAL	FINAL COSTS STATE	
SB1399	UPGRADE APT.	1971	32,000	16,000.00	*
	CONST. RESIDENCE & ADMIN. BUILDING	1972	12,000	6,000.00	*
2-72	UNICOM RADIO	1972	573.70	286.85	*
1-74	SEAL R/W & T/W, CONST. CARPORT, LAND ACQUISITION, WELL & PUMP, FENCE, STERILIZE R/W	1974	11,512.54	4,850.00	*
01	PLANNING	1980	18,833.33	12,433.33	*
02	NDB	1980	N.A.	12,000 (EST)	*
03	ADVANCE DESIGN	1981	28,680.00	10,000.00	*
04	CRACK SEALING	1982	29,740.00	14,870.00	*
05	MIRL	1983			*
06	CRACK SEAL & SEAL COAT R/W, SEG. CIRCLE, R/W MARKING, FENCE, IMP. PARKING, REMOVE UST'S, PAINT NDB POLES	1995	31,740.44	15,870.22	*
07	OVERLAY RWY 16-34	2001	75,485.60	56,517.00	*

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APPENDIX G: GRANT ASSURANCES

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FAA GRANT ASSURANCES

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FAA
Airports

ASSURANCES

Airport Sponsors

A. General.

1. These assurances shall be complied with in the performance of grant agreements for airport development, airport planning, and noise compatibility program grants for airport sponsors.
2. These assurances are required to be submitted as part of the project application by sponsors requesting funds under the provisions of Title 49, U.S.C., subtitle VII, as amended. As used herein, the term "public agency sponsor" means a public agency with control of a public-use airport; the term "private sponsor" means a private owner of a public-use airport; and the term "sponsor" includes both public agency sponsors and private sponsors.
3. Upon acceptance of this grant offer by the sponsor, these assurances are incorporated in and become part of this grant agreement.

B. Duration and Applicability.

1. **Airport development or Noise Compatibility Program Projects Undertaken by a Public Agency Sponsor.**

   The terms, conditions and assurances of this grant agreement shall remain in full force and effect throughout the useful life of the facilities developed or equipment acquired for an airport development or noise compatibility program project, or throughout the useful life of the project items installed within a facility under a noise compatibility program project, but in any event not to exceed twenty (20) years from the date of acceptance of a grant offer of Federal funds for the project. However, there shall be no limit on the duration of the assurances regarding Exclusive Rights and Airport Revenue so long as the airport is used as an airport. There shall be no limit on the duration of the terms, conditions, and assurances with respect to real property acquired with federal funds. Furthermore, the duration of the Civil Rights assurance shall be specified in the assurances.

2. **Airport Development or Noise Compatibility Projects Undertaken by a Private Sponsor.**

   The preceding paragraph 1 also applies to a private sponsor except that the useful life of project items installed within a facility or the useful life of the facilities developed or equipment acquired under an airport development or noise compatibility program project shall be no less than ten (10) years from the date of acceptance of Federal aid for the project.

3. **Airport Planning Undertaken by a Sponsor.**

Unless otherwise specified in this grant agreement, only Assurances 1, 2, 3, 5, 6, 13, 18, 25, 30, 32, 33, and 34 in Section C apply to planning projects. The terms, conditions, and assurances of this grant agreement shall remain in full force and effect during the life of the project; there shall be no limit on the duration of the assurances regarding Airport Revenue so long as the airport is used as an airport.

C. Sponsor Certification.

The sponsor hereby assures and certifies, with respect to this grant that:

1. **General Federal Requirements.**

It will comply with all applicable Federal laws, regulations, executive orders, policies, guidelines, and requirements as they relate to the application, acceptance and use of Federal funds for this project including but not limited to the following:

Federal Legislation

a. Title 49, U.S.C., subtitle VII, as amended.
b. Davis-Bacon Act - 40 U.S.C. 276(a), et seq.[1]
c. Federal Fair Labor Standards Act - 29 U.S.C. 201, et seq.
d. Hatch Act – 5 U.S.C. 1501, et seq.[2]
e. Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 Title 42 U.S.C. 4601, et seq.[1 2]
f. National Historic Preservation Act of 1966 - Section 106 - 16 U.S.C. 470(f).[1]
g. Archeological and Historic Preservation Act of 1974 - 16 U.S.C. 469 through 469c.[1]
h. Native Americans Grave Repatriation Act - 25 U.S.C. Section 3001, et seq.
i. Clean Air Act, P.L. 90-148, as amended.
j. Coastal Zone Management Act, P.L. 93-205, as amended.
k. Flood Disaster Protection Act of 1973 - Section 102(a) - 42 U.S.C. 4012a.[1]
l. Title 49, U.S.C., Section 303, (formerly known as Section 4(f))
m. Rehabilitation Act of 1973 - 29 U.S.C. 794.
n. Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d et seq., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
o. Americans with Disabilities Act of 1990, as amended, (42 U.S.C. § 12101 et seq.), prohibits discrimination on the basis of disability).
p. Age Discrimination Act of 1975 - 42 U.S.C. 6101, et seq.
q. American Indian Religious Freedom Act, P.L. 95-341, as amended.
r. Architectural Barriers Act of 1968 -42 U.S.C. 4151, et seq.[1]
s. Power plant and Industrial Fuel Use Act of 1978 - Section 403- 2 U.S.C. 8373.[1]
t. Contract Work Hours and Safety Standards Act - 40 U.S.C. 327, et seq.[1]
u. Copeland Anti-kickback Act - 18 U.S.C. 874.1
v. National Environmental Policy Act of 1969 - 42 U.S.C. 4321, et seq.[1]
w. Wild and Scenic Rivers Act, P.L. 90-542, as amended.
x. Single Audit Act of 1984 - 31 U.S.C. 7501, et seq.[2]
y. Drug-Free Workplace Act of 1988 - 41 U.S.C. 702 through 706.

z. The Federal Funding Accountability and Transparency Act of 2006, as amended (Pub. L. 109-282, as amended by section 6202 of Pub. L. 110-252).

Executive Orders

a. Executive Order 11246 - Equal Employment Opportunity[1]
b. Executive Order 11990 - Protection of Wetlands
c. Executive Order 11998 – Flood Plain Management
d. Executive Order 12372 - Intergovernmental Review of Federal Programs
e. Executive Order 12699 - Seismic Safety of Federal and Federally Assisted New Building Construction[1]
f. Executive Order 12898 - Environmental Justice

Federal Regulations

a. 2 CFR Part 180 - OMB Guidelines to Agencies on Governmentwide Debarment and Suspension (Nonprocurement).
b. 2 CFR Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards. [OMB Circular A-87 Cost Principles Applicable to Grants and Contracts with State and Local Governments, and OMB Circular A-133 - Audits of States, Local Governments, and Non-Profit Organizations].[4, 5, 6]
c. 2 CFR Part 1200 – Nonprocurement Suspension and Debarment
d. 14 CFR Part 13 - Investigative and Enforcement Procedures14 CFR Part 16 - Rules of Practice For Federally Assisted Airport Enforcement Proceedings.
e. 14 CFR Part 150 - Airport noise compatibility planning.
f. 28 CFR Part 35- Discrimination on the Basis of Disability in State and Local Government Services.
g. 28 CFR § 50.3 - U.S. Department of Justice Guidelines for Enforcement of Title VI of the Civil Rights Act of 1964.
h. 29 CFR Part 1 - Procedures for predetermination of wage rates.[1]
i. 29 CFR Part 3 - Contractors and subcontractors on public building or public work financed in whole or part by loans or grants from the United States.[1]
j. 29 CFR Part 5 - Labor standards provisions applicable to contracts covering federally financed and assisted construction (also labor standards provisions applicable to non-construction contracts subject to the Contract Work Hours and Safety Standards Act).[1]
k. 41 CFR Part 60 - Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor (Federal and federally assisted contracting requirements).[1]
l. 49 CFR Part 18 - Uniform administrative requirements for grants and cooperative agreements to state and local governments.[3]
m. 49 CFR Part 20 - New restrictions on lobbying.
n. 49 CFR Part 21 – Nondiscrimination in federally-assisted programs of the Department of Transportation - effectuation of Title VI of the Civil Rights Act of 1964.
o. 49 CFR Part 23 - Participation by Disadvantage Business Enterprise in Airport Concessions.

p. 49 CFR Part 24 – Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs.[1] [2]
q. 49 CFR Part 26 – Participation by Disadvantaged Business Enterprises in Department of Transportation Programs.
r. 49 CFR Part 27 – Nondiscrimination on the Basis of Handicap in Programs and Activities Receiving or Benefiting from Federal Financial Assistance.[1]
s. 49 CFR Part 28 – Enforcement of Nondiscrimination on the Basis of Handicap in Programs or Activities conducted by the Department of Transportation.
t. 49 CFR Part 30 - Denial of public works contracts to suppliers of goods and services of countries that deny procurement market access to U.S. contractors.
u. 49 CFR Part 32 – Governmentwide Requirements for Drug-Free Workplace (Financial Assistance)
v. 49 CFR Part 37 – Transportation Services for Individuals with Disabilities (ADA).
w. 49 CFR Part 41 - Seismic safety of Federal and federally assisted or regulated new building construction.

Specific Assurances

Specific assurances required to be included in grant agreements by any of the above laws, regulations or circulars are incorporated by reference in this grant agreement.

Footnotes to Assurance C.1.

[1] These laws do not apply to airport planning sponsors.

[2] These laws do not apply to private sponsors.

[3] 49 CFR Part 18 and 2 CFR Part 200 contain requirements for State and Local Governments receiving Federal assistance. Any requirement levied upon State and Local Governments by this regulation and circular shall also be applicable to private sponsors receiving Federal assistance under Title 49, United States Code.

[4] On December 26, 2013 at 78 FR 78590, the Office of Management and Budget (OMB) issued the Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards in 2 CFR Part 200. 2 CFR Part 200 replaces and combines the former Uniform Administrative Requirements for Grants (OMB Circular A-102 and Circular A-110 or 2 CFR Part 215 or Circular) as well as the Cost Principles (Circulars A-21 or 2 CFR part 220; Circular A-87 or 2 CFR part 225; and A-122, 2 CFR part 230). Additionally it replaces Circular A-133 guidance on the Single Annual Audit. In accordance with 2 CFR section 200.110, the standards set forth in Part 200 which affect administration of Federal awards issued by Federal agencies become effective once implemented by Federal agencies or when any future amendment to this Part becomes final. Federal agencies, including the Department of Transportation, must implement the policies and procedures applicable to Federal awards by promulgating a regulation to be effective by December 26, 2014 unless different provisions are required by statute or approved by OMB.

[5] Cost principles established in 2 CFR part 200 subpart E must be used as guidelines for determining the eligibility of specific types of expenses.

[6] Audit requirements established in 2 CFR part 200 subpart F are the guidelines for audits.

2. **Responsibility and Authority of the Sponsor.**

   a. Public Agency Sponsor:

   It has legal authority to apply for this grant, and to finance and carry out the proposed project; that a resolution, motion or similar action has been duly adopted or passed as an official act of the applicant's governing body authorizing the filing of the application, including all understandings and assurances contained therein, and directing and authorizing the person identified as the official representative of the applicant to act in connection with the application and to provide such additional information as may be required.

   b. Private Sponsor:

   It has legal authority to apply for this grant and to finance and carry out the proposed project and comply with all terms, conditions, and assurances of this grant agreement. It shall designate an official representative and shall in writing direct and authorize that person to file this application, including all understandings and assurances contained therein; to act in connection with this application; and to provide such additional information as may be required.

3. **Sponsor Fund Availability.**

   It has sufficient funds available for that portion of the project costs which are not to be paid by the United States. It has sufficient funds available to assure operation and maintenance of items funded under this grant agreement which it will own or control.

4. **Good Title.**

   a. It, a public agency or the Federal government, holds good title, satisfactory to the Secretary, to the landing area of the airport or site thereof, or will give assurance satisfactory to the Secretary that good title will be acquired.

   b. For noise compatibility program projects to be carried out on the property of the sponsor, it holds good title satisfactory to the Secretary to that portion of the property upon which Federal funds will be expended or will give assurance to the Secretary that good title will be obtained.

5. **Preserving Rights and Powers.**

   a. It will not take or permit any action which would operate to deprive it of any of the rights and powers necessary to perform any or all of the terms, conditions, and assurances in this grant agreement without the written approval of the Secretary, and will act promptly to acquire, extinguish or modify any outstanding rights or claims of right of others which would interfere with such performance by the sponsor. This shall be done in a manner acceptable to the Secretary.

b. It will not sell, lease, encumber, or otherwise transfer or dispose of any part of its title or other interests in the property shown on Exhibit A to this application or, for a noise compatibility program project, that portion of the property upon which Federal funds have been expended, for the duration of the terms, conditions, and assurances in this grant agreement without approval by the Secretary. If the transferee is found by the Secretary to be eligible under Title 49, United States Code, to assume the obligations of this grant agreement and to have the power, authority, and financial resources to carry out all such obligations, the sponsor shall insert in the contract or document transferring or disposing of the sponsor's interest, and make binding upon the transferee all of the terms, conditions, and assurances contained in this grant agreement.

c. For all noise compatibility program projects which are to be carried out by another unit of local government or are on property owned by a unit of local government other than the sponsor, it will enter into an agreement with that government. Except as otherwise specified by the Secretary, that agreement shall obligate that government to the same terms, conditions, and assurances that would be applicable to it if it applied directly to the FAA for a grant to undertake the noise compatibility program project. That agreement and changes thereto must be satisfactory to the Secretary. It will take steps to enforce this agreement against the local government if there is substantial non-compliance with the terms of the agreement.

d. For noise compatibility program projects to be carried out on privately owned property, it will enter into an agreement with the owner of that property which includes provisions specified by the Secretary. It will take steps to enforce this agreement against the property owner whenever there is substantial non-compliance with the terms of the agreement.

e. If the sponsor is a private sponsor, it will take steps satisfactory to the Secretary to ensure that the airport will continue to function as a public-use airport in accordance with these assurances for the duration of these assurances.

f. If an arrangement is made for management and operation of the airport by any agency or person other than the sponsor or an employee of the sponsor, the sponsor will reserve sufficient rights and authority to insure that the airport will be operated and maintained in accordance Title 49, United States Code, the regulations and the terms, conditions and assurances in this grant agreement and shall insure that such arrangement also requires compliance therewith.

g. Sponsors of commercial service airports will not permit or enter into any arrangement that results in permission for the owner or tenant of a property used as a residence, or zoned for residential use, to taxi an aircraft between that property and any location on airport. Sponsors of general aviation airports entering into any arrangement that results in permission for the owner of residential real property adjacent to or near the airport must comply with the requirements of Sec. 136 of Public Law 112-95 and the sponsor assurances.

6. **Consistency with Local Plans.**

   The project is reasonably consistent with plans (existing at the time of submission of this application) of public agencies that are authorized by the State in which the project is located to plan for the development of the area surrounding the airport.

7. **Consideration of Local Interest.**

   It has given fair consideration to the interest of communities in or near where the project may be located.

8. **Consultation with Users.**

   In making a decision to undertake any airport development project under Title 49, United States Code, it has undertaken reasonable consultations with affected parties using the airport at which project is proposed.

9. **Public Hearings.**

   In projects involving the location of an airport, an airport runway, or a major runway extension, it has afforded the opportunity for public hearings for the purpose of considering the economic, social, and environmental effects of the airport or runway location and its consistency with goals and objectives of such planning as has been carried out by the community and it shall, when requested by the Secretary, submit a copy of the transcript of such hearings to the Secretary. Further, for such projects, it has on its management board either voting representation from the communities where the project is located or has advised the communities that they have the right to petition the Secretary concerning a proposed project.

10. **Metropolitan Planning Organization.**

    In projects involving the location of an airport, an airport runway, or a major runway extension at a medium or large hub airport, the sponsor has made available to and has provided upon request to the metropolitan planning organization in the area in which the airport is located, if any, a copy of the proposed amendment to the airport layout plan to depict the project and a copy of any airport master plan in which the project is described or depicted.

11. **Pavement Preventive Maintenance.**

    With respect to a project approved after January 1, 1995, for the replacement or reconstruction of pavement at the airport, it assures or certifies that it has implemented an effective airport pavement maintenance-management program and it assures that it will use such program for the useful life of any pavement constructed, reconstructed or repaired with Federal financial assistance at the airport. It will provide such reports on pavement condition and pavement management programs as the Secretary determines may be useful.

12. **Terminal Development Prerequisites.**

    For projects which include terminal development at a public use airport, as defined in Title 49, it has, on the date of submittal of the project grant application, all the safety equipment required for certification of such airport under section 44706 of Title 49, United States Code, and all the security equipment required by rule or regulation, and

has provided for access to the passenger enplaning and deplaning area of such airport to passengers enplaning and deplaning from aircraft other than air carrier aircraft.

13. **Accounting System, Audit, and Record Keeping Requirements.**

    a. It shall keep all project accounts and records which fully disclose the amount and disposition by the recipient of the proceeds of this grant, the total cost of the project in connection with which this grant is given or used, and the amount or nature of that portion of the cost of the project supplied by other sources, and such other financial records pertinent to the project. The accounts and records shall be kept in accordance with an accounting system that will facilitate an effective audit in accordance with the Single Audit Act of 1984.

    b. It shall make available to the Secretary and the Comptroller General of the United States, or any of their duly authorized representatives, for the purpose of audit and examination, any books, documents, papers, and records of the recipient that are pertinent to this grant. The Secretary may require that an appropriate audit be conducted by a recipient. In any case in which an independent audit is made of the accounts of a sponsor relating to the disposition of the proceeds of a grant or relating to the project in connection with which this grant was given or used, it shall file a certified copy of such audit with the Comptroller General of the United States not later than six (6) months following the close of the fiscal year for which the audit was made.

14. **Minimum Wage Rates.**

    It shall include, in all contracts in excess of $2,000 for work on any projects funded under this grant agreement which involve labor, provisions establishing minimum rates of wages, to be predetermined by the Secretary of Labor, in accordance with the Davis-Bacon Act, as amended (40 U.S.C. 276a-276a-5), which contractors shall pay to skilled and unskilled labor, and such minimum rates shall be stated in the invitation for bids and shall be included in proposals or bids for the work.

15. **Veteran's Preference.**

    It shall include in all contracts for work on any project funded under this grant agreement which involve labor, such provisions as are necessary to insure that, in the employment of labor (except in executive, administrative, and supervisory positions), preference shall be given to Vietnam era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns owned and controlled by disabled veterans as defined in Section 47112 of Title 49, United States Code. However, this preference shall apply only where the individuals are available and qualified to perform the work to which the employment relates.

16. **Conformity to Plans and Specifications.**

    It will execute the project subject to plans, specifications, and schedules approved by the Secretary. Such plans, specifications, and schedules shall be submitted to the Secretary prior to commencement of site preparation, construction, or other performance under this grant agreement, and, upon approval of the Secretary, shall be incorporated into this grant agreement. Any modification to the approved plans,

specifications, and schedules shall also be subject to approval of the Secretary, and incorporated into this grant agreement.

17. **Construction Inspection and Approval.**

    It will provide and maintain competent technical supervision at the construction site throughout the project to assure that the work conforms to the plans, specifications, and schedules approved by the Secretary for the project. It shall subject the construction work on any project contained in an approved project application to inspection and approval by the Secretary and such work shall be in accordance with regulations and procedures prescribed by the Secretary. Such regulations and procedures shall require such cost and progress reporting by the sponsor or sponsors of such project as the Secretary shall deem necessary.

18. **Planning Projects.**

    In carrying out planning projects:

    a. It will execute the project in accordance with the approved program narrative contained in the project application or with the modifications similarly approved.

    b. It will furnish the Secretary with such periodic reports as required pertaining to the planning project and planning work activities.

    c. It will include in all published material prepared in connection with the planning project a notice that the material was prepared under a grant provided by the United States.

    d. It will make such material available for examination by the public, and agrees that no material prepared with funds under this project shall be subject to copyright in the United States or any other country.

    e. It will give the Secretary unrestricted authority to publish, disclose, distribute, and otherwise use any of the material prepared in connection with this grant.

    f. It will grant the Secretary the right to disapprove the sponsor's employment of specific consultants and their subcontractors to do all or any part of this project as well as the right to disapprove the proposed scope and cost of professional services.

    g. It will grant the Secretary the right to disapprove the use of the sponsor's employees to do all or any part of the project.

    h. It understands and agrees that the Secretary's approval of this project grant or the Secretary's approval of any planning material developed as part of this grant does not constitute or imply any assurance or commitment on the part of the Secretary to approve any pending or future application for a Federal airport grant.

19. **Operation and Maintenance.**

    a. The airport and all facilities which are necessary to serve the aeronautical users of the airport, other than facilities owned or controlled by the United States, shall be operated at all times in a safe and serviceable condition and in accordance with the minimum standards as may be required or prescribed by applicable Federal,

state and local agencies for maintenance and operation. It will not cause or permit any activity or action thereon which would interfere with its use for airport purposes. It will suitably operate and maintain the airport and all facilities thereon or connected therewith, with due regard to climatic and flood conditions. Any proposal to temporarily close the airport for non-aeronautical purposes must first be approved by the Secretary. In furtherance of this assurance, the sponsor will have in effect arrangements for-

1) Operating the airport's aeronautical facilities whenever required;

2) Promptly marking and lighting hazards resulting from airport conditions, including temporary conditions; and

3) Promptly notifying airmen of any condition affecting aeronautical use of the airport. Nothing contained herein shall be construed to require that the airport be operated for aeronautical use during temporary periods when snow, flood or other climatic conditions interfere with such operation and maintenance. Further, nothing herein shall be construed as requiring the maintenance, repair, restoration, or replacement of any structure or facility which is substantially damaged or destroyed due to an act of God or other condition or circumstance beyond the control of the sponsor.

b. It will suitably operate and maintain noise compatibility program items that it owns or controls upon which Federal funds have been expended.

20. **Hazard Removal and Mitigation.**

It will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards.

21. **Compatible Land Use.**

It will take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility program measures upon which Federal funds have been expended.

22. **Economic Nondiscrimination.**

a. It will make the airport available as an airport for public use on reasonable terms and without unjust discrimination to all types, kinds and classes of aeronautical activities, including commercial aeronautical activities offering services to the public at the airport.

b. In any agreement, contract, lease, or other arrangement under which a right or privilege at the airport is granted to any person, firm, or corporation to conduct or

to engage in any aeronautical activity for furnishing services to the public at the airport, the sponsor will insert and enforce provisions requiring the contractor to-

1) furnish said services on a reasonable, and not unjustly discriminatory, basis to all users thereof, and

2) charge reasonable, and not unjustly discriminatory, prices for each unit or service, provided that the contractor may be allowed to make reasonable and nondiscriminatory discounts, rebates, or other similar types of price reductions to volume purchasers.

c. Each fixed-based operator at the airport shall be subject to the same rates, fees, rentals, and other charges as are uniformly applicable to all other fixed-based operators making the same or similar uses of such airport and utilizing the same or similar facilities.

d. Each air carrier using such airport shall have the right to service itself or to use any fixed-based operator that is authorized or permitted by the airport to serve any air carrier at such airport.

e. Each air carrier using such airport (whether as a tenant, non-tenant, or subtenant of another air carrier tenant) shall be subject to such nondiscriminatory and substantially comparable rules, regulations, conditions, rates, fees, rentals, and other charges with respect to facilities directly and substantially related to providing air transportation as are applicable to all such air carriers which make similar use of such airport and utilize similar facilities, subject to reasonable classifications such as tenants or non-tenants and signatory carriers and non-signatory carriers. Classification or status as tenant or signatory shall not be unreasonably withheld by any airport provided an air carrier assumes obligations substantially similar to those already imposed on air carriers in such classification or status.

f. It will not exercise or grant any right or privilege which operates to prevent any person, firm, or corporation operating aircraft on the airport from performing any services on its own aircraft with its own employees [including, but not limited to maintenance, repair, and fueling] that it may choose to perform.

g. In the event the sponsor itself exercises any of the rights and privileges referred to in this assurance, the services involved will be provided on the same conditions as would apply to the furnishing of such services by commercial aeronautical service providers authorized by the sponsor under these provisions.

h. The sponsor may establish such reasonable, and not unjustly discriminatory, conditions to be met by all users of the airport as may be necessary for the safe and efficient operation of the airport.

i. The sponsor may prohibit or limit any given type, kind or class of aeronautical use of the airport if such action is necessary for the safe operation of the airport or necessary to serve the civil aviation needs of the public.

23. **Exclusive Rights.**

It will permit no exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public. For purposes of this paragraph, the providing of the services at an airport by a single fixed-based operator shall not be construed as an exclusive right if both of the following apply:

a. It would be unreasonably costly, burdensome, or impractical for more than one fixed-based operator to provide such services, and

b. If allowing more than one fixed-based operator to provide such services would require the reduction of space leased pursuant to an existing agreement between such single fixed-based operator and such airport. It further agrees that it will not, either directly or indirectly, grant or permit any person, firm, or corporation, the exclusive right at the airport to conduct any aeronautical activities, including, but not limited to charter flights, pilot training, aircraft rental and sightseeing, aerial photography, crop dusting, aerial advertising and surveying, air carrier operations, aircraft sales and services, sale of aviation petroleum products whether or not conducted in conjunction with other aeronautical activity, repair and maintenance of aircraft, sale of aircraft parts, and any other activities which because of their direct relationship to the operation of aircraft can be regarded as an aeronautical activity, and that it will terminate any exclusive right to conduct an aeronautical activity now existing at such an airport before the grant of any assistance under Title 49, United States Code.

24. **Fee and Rental Structure.**

It will maintain a fee and rental structure for the facilities and services at the airport which will make the airport as self-sustaining as possible under the circumstances existing at the particular airport, taking into account such factors as the volume of traffic and economy of collection. No part of the Federal share of an airport development, airport planning or noise compatibility project for which a grant is made under Title 49, United States Code, the Airport and Airway Improvement Act of 1982, the Federal Airport Act or the Airport and Airway Development Act of 1970 shall be included in the rate basis in establishing fees, rates, and charges for users of that airport.

25. **Airport Revenues.**

a. All revenues generated by the airport and any local taxes on aviation fuel established after December 30, 1987, will be expended by it for the capital or operating costs of the airport; the local airport system; or other local facilities which are owned or operated by the owner or operator of the airport and which are directly and substantially related to the actual air transportation of passengers or property; or for noise mitigation purposes on or off the airport. The following exceptions apply to this paragraph:

1) If covenants or assurances in debt obligations issued before September 3, 1982, by the owner or operator of the airport, or provisions enacted before September 3, 1982, in governing statutes controlling the owner or operator's financing, provide for the use of the revenues from any of the airport owner or

operator's facilities, including the airport, to support not only the airport but also the airport owner or operator's general debt obligations or other facilities, then this limitation on the use of all revenues generated by the airport (and, in the case of a public airport, local taxes on aviation fuel) shall not apply.

2) If the Secretary approves the sale of a privately owned airport to a public sponsor and provides funding for any portion of the public sponsor's acquisition of land, this limitation on the use of all revenues generated by the sale shall not apply to certain proceeds from the sale. This is conditioned on repayment to the Secretary by the private owner of an amount equal to the remaining unamortized portion (amortized over a 20-year period) of any airport improvement grant made to the private owner for any purpose other than land acquisition on or after October 1, 1996, plus an amount equal to the federal share of the current fair market value of any land acquired with an airport improvement grant made to that airport on or after October 1, 1996.

3) Certain revenue derived from or generated by mineral extraction, production, lease, or other means at a general aviation airport (as defined at Section 47102 of title 49 United States Code), if the FAA determines the airport sponsor meets the requirements set forth in Sec. 813 of Public Law 112-95.

b. As part of the annual audit required under the Single Audit Act of 1984, the sponsor will direct that the audit will review, and the resulting audit report will provide an opinion concerning, the use of airport revenue and taxes in paragraph (a), and indicating whether funds paid or transferred to the owner or operator are paid or transferred in a manner consistent with Title 49, United States Code and any other applicable provision of law, including any regulation promulgated by the Secretary or Administrator.

c. Any civil penalties or other sanctions will be imposed for violation of this assurance in accordance with the provisions of Section 47107 of Title 49, United States Code.

26. **Reports and Inspections.**

It will:

a. submit to the Secretary such annual or special financial and operations reports as the Secretary may reasonably request and make such reports available to the public; make available to the public at reasonable times and places a report of the airport budget in a format prescribed by the Secretary;

b. for airport development projects, make the airport and all airport records and documents affecting the airport, including deeds, leases, operation and use agreements, regulations and other instruments, available for inspection by any duly authorized agent of the Secretary upon reasonable request;

c. for noise compatibility program projects, make records and documents relating to the project and continued compliance with the terms, conditions, and assurances of this grant agreement including deeds, leases, agreements, regulations, and other instruments, available for inspection by any duly authorized agent of the Secretary upon reasonable request; and

d. in a format and time prescribed by the Secretary, provide to the Secretary and make available to the public following each of its fiscal years, an annual report listing in detail:

1) all amounts paid by the airport to any other unit of government and the purposes for which each such payment was made; and

2) all services and property provided by the airport to other units of government and the amount of compensation received for provision of each such service and property.

27. **Use by Government Aircraft.**

It will make available all of the facilities of the airport developed with Federal financial assistance and all those usable for landing and takeoff of aircraft to the United States for use by Government aircraft in common with other aircraft at all times without charge, except, if the use by Government aircraft is substantial, charge may be made for a reasonable share, proportional to such use, for the cost of operating and maintaining the facilities used. Unless otherwise determined by the Secretary, or otherwise agreed to by the sponsor and the using agency, substantial use of an airport by Government aircraft will be considered to exist when operations of such aircraft are in excess of those which, in the opinion of the Secretary, would unduly interfere with use of the landing areas by other authorized aircraft, or during any calendar month that –

a. Five (5) or more Government aircraft are regularly based at the airport or on land adjacent thereto; or

b. The total number of movements (counting each landing as a movement) of Government aircraft is 300 or more, or the gross accumulative weight of Government aircraft using the airport (the total movement of Government aircraft multiplied by gross weights of such aircraft) is in excess of five million pounds.

28. **Land for Federal Facilities.**

It will furnish without cost to the Federal Government for use in connection with any air traffic control or air navigation activities, or weather-reporting and communication activities related to air traffic control, any areas of land or water, or estate therein, or rights in buildings of the sponsor as the Secretary considers necessary or desirable for construction, operation, and maintenance at Federal expense of space or facilities for such purposes. Such areas or any portion thereof will be made available as provided herein within four months after receipt of a written request from the Secretary.

29. **Airport Layout Plan.**

a. It will keep up to date at all times an airport layout plan of the airport showing

1) boundaries of the airport and all proposed additions thereto, together with the boundaries of all offsite areas owned or controlled by the sponsor for airport purposes and proposed additions thereto;

2) the location and nature of all existing and proposed airport facilities and structures (such as runways, taxiways, aprons, terminal buildings, hangars and

roads), including all proposed extensions and reductions of existing airport facilities;

3) the location of all existing and proposed nonaviation areas and of all existing improvements thereon; and

4) all proposed and existing access points used to taxi aircraft across the airport's property boundary. Such airport layout plans and each amendment, revision, or modification thereof, shall be subject to the approval of the Secretary which approval shall be evidenced by the signature of a duly authorized representative of the Secretary on the face of the airport layout plan. The sponsor will not make or permit any changes or alterations in the airport or any of its facilities which are not in conformity with the airport layout plan as approved by the Secretary and which might, in the opinion of the Secretary, adversely affect the safety, utility or efficiency of the airport.

b. If a change or alteration in the airport or the facilities is made which the Secretary determines adversely affects the safety, utility, or efficiency of any federally owned, leased, or funded property on or off the airport and which is not in conformity with the airport layout plan as approved by the Secretary, the owner or operator will, if requested, by the Secretary (1) eliminate such adverse effect in a manner approved by the Secretary; or (2) bear all costs of relocating such property (or replacement thereof) to a site acceptable to the Secretary and all costs of restoring such property (or replacement thereof) to the level of safety, utility, efficiency, and cost of operation existing before the unapproved change in the airport or its facilities except in the case of a relocation or replacement of an existing airport facility due to a change in the Secretary's design standards beyond the control of the airport sponsor.

30. **Civil Rights.**

It will promptly take any measures necessary to ensure that no person in the United States shall, on the grounds of race, creed, color, national origin, sex, age, or disability be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination in any activity conducted with, or benefiting from, funds received from this grant.

a. Using the definitions of activity, facility and program as found and defined in §§ 21.23 (b) and 21.23 (e) of 49 CFR § 21, the sponsor will facilitate all programs, operate all facilities, or conduct all programs in compliance with all non-discrimination requirements imposed by, or pursuant to these assurances.

b. Applicability

1) Programs and Activities. If the sponsor has received a grant (or other federal assistance) for any of the sponsor's program or activities, these requirements extend to all of the sponsor's programs and activities.

2) Facilities. Where it receives a grant or other federal financial assistance to construct, expand, renovate, remodel, alter or acquire a facility, or part of a facility, the assurance extends to the entire facility and facilities operated in connection therewith.

3) Real Property. Where the sponsor receives a grant or other Federal financial assistance in the form of, or for the acquisition of real property or an interest in real property, the assurance will extend to rights to space on, over, or under such property.

c. Duration.

The sponsor agrees that it is obligated to this assurance for the period during which Federal financial assistance is extended to the program, except where the Federal financial assistance is to provide, or is in the form of, personal property, or real property, or interest therein, or structures or improvements thereon, in which case the assurance obligates the sponsor, or any transferee for the longer of the following periods:

1) So long as the airport is used as an airport, or for another purpose involving the provision of similar services or benefits; or

2) So long as the sponsor retains ownership or possession of the property.

d. Required Solicitation Language. It will include the following notification in all solicitations for bids, Requests For Proposals for work, or material under this grant agreement and in all proposals for agreements, including airport concessions, regardless of funding source:

"The **(Name of Sponsor)**, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that any contract entered into pursuant to this advertisement, disadvantaged business enterprises and airport concession disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award."

e. Required Contract Provisions.

1) It will insert the non-discrimination contract clauses requiring compliance with the acts and regulations relative to non-discrimination in Federally-assisted programs of the DOT, and incorporating the acts and regulations into the contracts by reference in every contract or agreement subject to the non-discrimination in Federally-assisted programs of the DOT acts and regulations.

2) It will include a list of the pertinent non-discrimination authorities in every contract that is subject to the non-discrimination acts and regulations.

3) It will insert non-discrimination contract clauses as a covenant running with the land, in any deed from the United States effecting or recording a transfer of real property, structures, use, or improvements thereon or interest therein to a sponsor.

4) It will insert non-discrimination contract clauses prohibiting discrimination on the basis of race, color, national origin, creed, sex, age, or handicap as a

covenant running with the land, in any future deeds, leases, license, permits, or similar instruments entered into by the sponsor with other parties:

a) For the subsequent transfer of real property acquired or improved under the applicable activity, project, or program; and

b) For the construction or use of, or access to, space on, over, or under real property acquired or improved under the applicable activity, project, or program.

f. It will provide for such methods of administration for the program as are found by the Secretary to give reasonable guarantee that it, other recipients, sub-recipients, sub-grantees, contractors, subcontractors, consultants, transferees, successors in interest, and other participants of Federal financial assistance under such program will comply with all requirements imposed or pursuant to the acts, the regulations, and this assurance.

g. It agrees that the United States has a right to seek judicial enforcement with regard to any matter arising under the acts, the regulations, and this assurance.

31. **Disposal of Land.**

a. For land purchased under a grant for airport noise compatibility purposes, including land serving as a noise buffer, it will dispose of the land, when the land is no longer needed for such purposes, at fair market value, at the earliest practicable time. That portion of the proceeds of such disposition which is proportionate to the United States' share of acquisition of such land will be, at the discretion of the Secretary, (1) reinvested in another project at the airport, or (2) transferred to another eligible airport as prescribed by the Secretary. The Secretary shall give preference to the following, in descending order, (1) reinvestment in an approved noise compatibility project, (2) reinvestment in an approved project that is eligible for grant funding under Section 47117(e) of title 49 United States Code, (3) reinvestment in an approved airport development project that is eligible for grant funding under Sections 47114, 47115, or 47117 of title 49 United States Code, (4) transferred to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport, and (5) paid to the Secretary for deposit in the Airport and Airway Trust Fund. If land acquired under a grant for noise compatibility purposes is leased at fair market value and consistent with noise buffering purposes, the lease will not be considered a disposal of the land. Revenues derived from such a lease may be used for an approved airport development project that would otherwise be eligible for grant funding or any permitted use of airport revenue.

b. For land purchased under a grant for airport development purposes (other than noise compatibility), it will, when the land is no longer needed for airport purposes, dispose of such land at fair market value or make available to the Secretary an amount equal to the United States' proportionate share of the fair market value of the land. That portion of the proceeds of such disposition which is proportionate to the United States' share of the cost of acquisition of such land will, (1) upon application to the Secretary, be reinvested or transferred to another

eligible airport as prescribed by the Secretary. The Secretary shall give preference to the following, in descending order: (1) reinvestment in an approved noise compatibility project, (2) reinvestment in an approved project that is eligible for grant funding under Section 47117(e) of title 49 United States Code, (3) reinvestment in an approved airport development project that is eligible for grant funding under Sections 47114, 47115, or 47117 of title 49 United States Code, (4) transferred to an eligible sponsor of another public airport to be reinvested in an approved noise compatibility project at that airport, and (5) paid to the Secretary for deposit in the Airport and Airway Trust Fund.

c. Land shall be considered to be needed for airport purposes under this assurance if (1) it may be needed for aeronautical purposes (including runway protection zones) or serve as noise buffer land, and (2) the revenue from interim uses of such land contributes to the financial self-sufficiency of the airport. Further, land purchased with a grant received by an airport operator or owner before December 31, 1987, will be considered to be needed for airport purposes if the Secretary or Federal agency making such grant before December 31, 1987, was notified by the operator or owner of the uses of such land, did not object to such use, and the land continues to be used for that purpose, such use having commenced no later than December 15, 1989.

d. Disposition of such land under (a) (b) or (c) will be subject to the retention or reservation of any interest or right therein necessary to ensure that such land will only be used for purposes which are compatible with noise levels associated with operation of the airport.

32. **Engineering and Design Services.**

It will award each contract, or sub-contract for program management, construction management, planning studies, feasibility studies, architectural services, preliminary engineering, design, engineering, surveying, mapping or related services with respect to the project in the same manner as a contract for architectural and engineering services is negotiated under Title IX of the Federal Property and Administrative Services Act of 1949 or an equivalent qualifications-based requirement prescribed for or by the sponsor of the airport.

33. **Foreign Market Restrictions.**

It will not allow funds provided under this grant to be used to fund any project which uses any product or service of a foreign country during the period in which such foreign country is listed by the United States Trade Representative as denying fair and equitable market opportunities for products and suppliers of the United States in procurement and construction.

34. **Policies, Standards, and Specifications.**

It will carry out the project in accordance with policies, standards, and specifications approved by the Secretary including but not limited to the advisory circulars listed in the Current FAA Advisory Circulars for AIP projects, dated _____ (the latest approved version as of this grant offer) and included in this grant, and in accordance

with applicable state policies, standards, and specifications approved by the Secretary.

35. **Relocation and Real Property Acquisition.**

    a. It will be guided in acquiring real property, to the greatest extent practicable under State law, by the land acquisition policies in Subpart B of 49 CFR Part 24 and will pay or reimburse property owners for necessary expenses as specified in Subpart B.
    b. It will provide a relocation assistance program offering the services described in Subpart C and fair and reasonable relocation payments and assistance to displaced persons as required in Subpart D and E of 49 CFR Part 24.
    c. It will make available within a reasonable period of time prior to displacement, comparable replacement dwellings to displaced persons in accordance with Subpart E of 49 CFR Part 24.

36. **Access By Intercity Buses.**

    The airport owner or operator will permit, to the maximum extent practicable, intercity buses or other modes of transportation to have access to the airport; however, it has no obligation to fund special facilities for intercity buses or for other modes of transportation.

37. **Disadvantaged Business Enterprises.**

    The sponsor shall not discriminate on the basis of race, color, national origin or sex in the award and performance of any DOT-assisted contract covered by 49 CFR Part 26, or in the award and performance of any concession activity contract covered by 49 CFR Part 23. In addition, the sponsor shall not discriminate on the basis of race, color, national origin or sex in the administration of its DBE and ACDBE programs or the requirements of 49 CFR Parts 23 and 26. The sponsor shall take all necessary and reasonable steps under 49 CFR Parts 23 and 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts, and/or concession contracts. The sponsor's DBE and ACDBE programs, as required by 49 CFR Parts 26 and 23, and as approved by DOT, are incorporated by reference in this agreement. Implementation of these programs is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the sponsor of its failure to carry out its approved program, the Department may impose sanctions as provided for under Parts 26 and 23 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1936 (31 U.S.C. 3801).

38. **Hangar Construction.**

    If the airport owner or operator and a person who owns an aircraft agree that a hangar is to be constructed at the airport for the aircraft at the aircraft owner's expense, the airport owner or operator will grant to the aircraft owner for the hangar a long term lease that is subject to such terms and conditions on the hangar as the airport owner or operator may impose.

39. **Competitive Access.**

a. If the airport owner or operator of a medium or large hub airport (as defined in section 47102 of title 49, U.S.C.) has been unable to accommodate one or more requests by an air carrier for access to gates or other facilities at that airport in order to allow the air carrier to provide service to the airport or to expand service at the airport, the airport owner or operator shall transmit a report to the Secretary that-

   1) Describes the requests;

   2) Provides an explanation as to why the requests could not be accommodated; and

   3) Provides a time frame within which, if any, the airport will be able to accommodate the requests.

b. Such report shall be due on either February 1 or August 1 of each year if the airport has been unable to accommodate the request(s) in the six month period prior to the applicable due date.

ITD GRANT ASSURANCES

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IDAHO AIRPORT AID PROGRAM

GRANT ASSURANCES

The following Grant Assurances are a standard part of all IAAP Grant Agreements and must be followed. These requirements are effective for the life of the facilities developed (not to exceed 20 years from the date of grant acceptance).

1. The Airport Sponsor agrees to comply with the regulations relative to non-discrimination in State assisted programs of the Idaho Transportation Department.

The Sponsor shall:

2. Diligently and expeditiously complete this project and likewise pursue appropriate measures as may be agreed upon by the SPONSOR and AERONAUTICS to remedy project delays, including but not limited to litigation or condemnation.

3. Carry out and complete the project in accordance with the plans and specifications, as they may be revised or modified, with approval of AERONAUTICS.

4. All contracts for construction involved in this project shall be bid competitively in accordance with bidding procedures otherwise authorized for public entities.

5. In connection with the acquisition of real property for the project, the SPONSOR shall secure at least two written appraisals by licensed appraisers. The SPONSOR shall not pay in excess of the highest appraisal without the written consent of AERONAUTICS or except as directed by a court of competent jurisdiction after a contested trial and a judgment not resulting from agreement between the parties.

6. No State funds will be paid to the SPONSOR in any case until it certifies in writing that it has funds available and will spend at least the amount designated for this project in the Grant Agreement, solely for the project in question.

7. The SPONSOR agrees to hold said airport open to the flying public for the useful life of the facilities developed under this project.

8. The SPONSOR shall grant no exclusive use or operating agreements, to any person, company, or corporation; that failure to abide by such agreement shall automatically obligate the immediate and full return of all State of Idaho money expended in behalf of the project to the State of Idaho.

9. The allowable costs of the project shall not include any costs determined by AERONAUTICS to be ineligible.

10. SPONSOR shall report project commencement date.

11. SPONSOR shall make periodic progress reports as appropriate.

IDAHO AIRPORT AID PROGRAM

GRANT ASSURANCES

12. SPONSOR shall receive approval prior to any change in the scope of the project

13. SPONSOR shall report project completion date and request final inspection and payment.

14. Such allocation agreement shall become effective upon the SPONSOR acceptance of this offer and shall remain in full force and effect throughout the useful life of the facilities developed under the project but in any event not to exceed twenty (20) years from the date of acceptance.

15. Said offer and acceptance shall comprise allocation agreement, constituting the obligation and rights of the State of Idaho and the SPONSOR with respect to the accomplishment of the project and the operation and the maintenance of the airport.

16. SPONSOR must develop the airport in accordance with current Idaho Division of Aeronautics design and construction standards.

17. SPONSOR cannot allow any activity or action on the airport that would interfere with its use for airport purposes

18. SPONSOR must allow all types, kinds, and classes of aeronautical activities use the airport. This includes such activities as parachute jumping and ultralight vehicles. One possible reason for **not** allowing an aeronautical activity on the airport is if it cannot be conducted safely. The final safety determination is the responsibility of the Idaho Division of Aeronautics.

19. SPONSOR must allow people to service their own aircraft according to all applicable Federal Aviation Regulations (FARs).

20. The Idaho Division of Aeronautics prefers that all revenue generated on the airport by the Sponsor be used for airport purposes only.

21. SPONSOR should have a master plan or an airport or heliport layout plan to be eligible for participation in the allocation program. The plan must be approved by the Division of Aeronautics.

22. SPONSOR should have proof of ownership or lease of all land upon which any project is proposed in order to protect the investment of public funds.

23. SPONSOR should have compatible land use and height zoning for the airport to prevent incompatible land uses and the creation or establishment of structures or objects of natural growth which would constitute hazards or obstructions to aircraft operating to, from, on, or in the vicinity of the subject airport.

Revised: 25 August 2014

APPENDIX H: LAND USE

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MODEL ZONING ORDINANCE

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NO. _____

AIRPORT HAZARD OVERLAY ZONE

An ordinance of Bear Lake County, Idaho, enacting a new Airport Hazard Overlay Zone in the Bear Lake County Zoning Ordinance.

DEFINITIONS

AIRPORT. Any runway, any area, or other facility designed or used either publicly or privately for the landing and taking-off of aircraft, including all accessory taxiways, aircraft storage and tie down areas, hangars, and other necessary buildings. For purposes of this Ordinance, Airport includes Bear Lake County Airport.

AIRPORT ELEVATION. The highest point of an airport's usable landing area measured in feet from mean sea level.

AIRPORT INFLUENCE AREA. An area which establishes boundaries used to define the airport environs for land use planning purposes. Factors to be considered in defining the boundary of the Airport Influence Area include airport noise contours (when applicable), airport traffic patterns, departure, arrival and instrument approach corridors, safety zones and height restriction areas.

APPROACH SURFACE. A surface longitudinally centered on the extended runway centerline, extending outward and upward from the end of the primary surface and at the same slope as the approach zone height limitation slope set forth in Section XX-5 of this Ordinance. The outer width of an approach/departure surface will be that width prescribed in this subsection for the most precise approach existing or planned for that runway end as identified on the airport's approved Airport Layout Plan.

APPROACH, TRANSITIONAL, HORIZONTAL, AND CONICAL ZONES. These zones are set forth in Section XX-4 of this Ordinance.

AVIATION HAZARD. An obstruction or hazard to air navigation that includes any new or existing structure, object of natural growth, use of land, or modification thereto, which endangers the lives and property of users of an airport, or of occupants of land in its vicinity, and that reduces the size of the area available for landing, taking off and maneuvering of aircraft, or penetrates an imaginary surface, and has an adverse effect on the safe and efficient utilization of the navigable airspace.

AVIGATION EASEMENT. A non-possessing property interest in airspace over a land parcel or portion of land. It is a legally developed document obtained by the owner of an airport to permit activities including the right of flight and the right to remove obstructions, but not necessarily to the extent of prohibiting the use of the land within the limits of the rights obtained.

BOARD. Board of County Commissioners of Bear Lake County.

COMMERCIAL USES. Commercial uses include community retail, wholesale, service, office and limited manufacturing businesses. For purposes of this Ordinance, High Intensity commercial uses such as large retail box stores (i.e. Walmart, Home Depot, Costco, etc.) are not acceptable commercial uses in all airport land use zones. Refer to the Airport Land Use Overlay Zone Map.

CONICAL SURFACE. A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

CRITICAL ZONES. An extended area off the runway end used to enhance the protection of people and property on the ground.

LIGHT INDUSTRIAL USES. Light industrial uses include a wide range of manufacturing and related establishments, research, supplies and sales businesses. For purposes of this Ordinance, light industrial uses shall be free of hazardous or objectionable elements such as obstructions, dust, smoke or glare that result in an Aviation Hazard.

INNER CRITICAL ZONE. Rectangular in shape and centered about the extended runway centerline. The width of the Inner Critical Zone is 1,000 feet and extends a horizontal distance of 3,000 feet from each end of the primary surface.

OUTER CRITICAL ZONE. Rectangular in shape and centered about the extended runway centerline. The width of the Outer Critical Zone is 500 feet and extends a horizontal distance of 3,000 feet, from each end of the Inner Critical Zone.

FAA. The Federal Aviation Administration.

14 CFR PART 77. Code of Federal Regulations referred to as Federal Aviation Regulation (FAR) Part 77. 14 CFR Part 77 defines the regulations applicable to objects which may affect navigable airspace.

FAIR DISCLOSURE STATEMENT. A notification to prospective buyers of property near airports that they may be exposed to potentially impactive levels of aircraft overflight. These statements in no way abrogate an individual's right to take later action against the airport, but rather give buyers a fair warning.

HEIGHT. For the purpose of determining the height limits in all zones set forth in this Ordinance and shown on the zoning map, the datum shall be mean sea level elevation unless otherwise specified.

HORIZONTAL SURFACE. A horizontal plane 150 feet above the established airport elevation, established by swinging arcs of 5,000 or 10,000 feet radii from the center of each end of the primary surface and connecting the adjacent arcs by drawing lines tangent to those arcs.

LARGER THAN UTILITY RUNWAY. A runway that is constructed for and intended to be used by propeller driven aircraft of greater than 12,500 pounds maximum gross weight and jet powered aircraft.

LATERAL SAFETY ZONE. An area extending 1,000 feet either side of runway centerline and including the area between the ends of the primary surface(s) used to enhance the protection of people and property on the ground.

NAVD 88. North American Vertical Datum 1988. All elevations in this Ordinance are referenced to the 1988 North American Vertical Datum.

NAVIGABLE AIRSPACE. Per Federal Aviation Regulations (FAR), navigable airspace includes airspace at and above the minimum safe flight level, including airspace needed for safe takeoff and landing.

NONCONFORMING USE. A use of premise which does not conform to the regulations of this Ordinance, but which was in existence at the time of the effective date of this Ordinance.

NONPRECISION INSTRUMENT RUNWAY. A runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in nonprecision instrument approach procedure has been approved or planned. It also means a runway for which a nonprecision approach system is planned and is so indicated on an approved Airport Layout Plan.

OBSTRUCTION. Any structure, growth, or other object, including a mobile object, which exceeds a limiting height set forth in Section XX-5 of this Ordinance.

PERSON. An individual, corporation, joint venture, limited partnership, partnership, firm, syndicate, association, trustee, or other similar entity or organization

PRIMARY SURFACE. A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway; for military runways or when the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The width of the primary surface is set forth in Section XX-4 of this Ordinance. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.

RUNWAY. A defined area on an airport prepared for landing and takeoff of aircraft along its length.

RUNWAY PROTECTION ZONE (RPZ). An area off the runway end used to enhance the protection of people and property on the ground. The RPZ is trapezoidal in shape and centered about the extended runway centerline. The inner width of the RPZ is the same as the width of the primary surface. The outer width of the RPZ is a function of the type of aircraft and specified approach visibility minimum associated with the runway end. The applicable RPZ dimensions are depicted on the Airport Layout Plan.

STRUCTURE. Anything constructed or erected and which is attached, directly or indirectly, to a fixed location on the ground. Structures include, but are not limited to, buildings, modular homes, mobile homes, walls, fences, signs and billboards. For purposes of this Ordinance, the term “structure” shall be expanded to include, in addition to the foregoing, overhead electrical transmission lines or power poles, and their appurtenances, towers, cranes, and smokestacks.

TRANSITIONAL SURFACES. These surfaces extend outward perpendicular to the runway centerline and the extended runway centerline at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces (as defined in FAR Part 77) to a point where they intersect the horizontal and conical surfaces.

TRAFFIC PATTERN AREA. An area comprised of a rectangle based on a determined distance from the runway centerline and end. The Traffic Pattern Area represents an area

where aircraft are commonly operating for the purposes of landing and take-off as depicted in the Airport Land Use Overlay Zone Map. A Traffic Pattern Area is commonly based on the predominant usage of the category of aircraft forecast to use the airport and the specific traffic patterns established at the airport.

TREE. A perennial woody plant having at least one main trunk and produces a more or less distinct and more or less elevated crown with many branches.

UTILITY RUNWAY. A runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.

VISUAL RUNWAY. A runway intended solely for the operation of aircraft using visual approach procedures.

CHAPTER XX
BEAR LAKE COUNTY AIRPORT HAZARD ZONING

Section XX-1. Purpose.
Section XX-2. Authority.
Section XX-3. Short Title.
Section XX-4. Airport Height Restriction Zones (Height Zones).
Section XX-5. Airport Height Zone Limitations.
Section XX-6. Compatible Land Use Regulations.
Section XX-7. Non-Conforming Uses.
Section XX-8. Permits.
Section XX-9. Enforcement.
Section XX-10. Appeals.
Section XX-11. Judicial Review.
Section XX-12. Penalties.
Section XX-13. Conflicting Regulations.
Section XX-14. Severability
Section XX-15. Effective Date.

XX-1. PURPOSE.

XX-1.01 It is the purpose of the Bear Lake County Airport Hazard Zoning (herein referenced in this chapter as "this Ordinance") to restrict the height of structures and objects of natural growth, and otherwise regulate the use of property, in the vicinity of the Bear Lake County Airport (the Airport) by: creating the appropriate zones and establishing the boundaries thereof; providing for changes in the restrictions and boundaries of such zones; define certain terms used herein; reference the Airports' FAR Part 77 Airspace Drawing and Airport Land Use Zone Map, which are incorporated in and made a part of this Ordinance; provide for enforcement; and impose penalties.

It is hereby found that an aviation hazard endangers the lives and the property of users of the Airport, as well as the property and the occupants of land in the vicinity of the Airport. An aviation hazard reduces the size of the area available for landing, takeoff and maneuvering of aircraft, and thus diminishes or impairs the utility of the Airport and the public investment therein.

Accordingly, it is declared that:

1. The Airport fulfill an essential community purpose; and

2. The creation or establishment of an aviation hazard is a public nuisance and will injure the region served by the Airport; and

3. The encroachment of noise sensitive or otherwise incompatible land uses within certain areas as set forth herein endangers the health, safety, and welfare of the owners, occupants, or users of the land; and

4. It is necessary in the interest of the public health, safety, and general welfare that the creation of aviation hazards be prevented; and

5. Joint cooperation between all governing boards having jurisdiction within or adjoining the airports' hazard areas is encouraged as a mechanism to prevent aviation hazards; and

6. The prevention of these aviation hazards should be accomplished, to the extent legally possible, by the exercise of the police power without compensation.

XX-2. **AUTHORITY.** The Board adopts this Ordinance pursuant to the provisions and authority conferred by Article 12, Section 2, of the Idaho State Constitution, and Title 21, Chapter 5, Airport Zoning Act, and Title 67, Chapter 65, Local Land Use Planning, of the Idaho Code.

XX-3. **SHORT TITLE.** This Ordinance shall be known as the "Bear Lake County Airport Hazard Zoning Ordinance."

XX-4. **AIRPORT HEIGHT RESTRICTION ZONES (HEIGHT ZONES).**

XX-4.01 In order to carry out the provisions of this Ordinance, there are hereby created and established certain zones which include all of the land lying beneath the approach surfaces, transitional surfaces, horizontal surfaces, and conical surfaces as they apply to the Airports. Such zones are shown on the Airport's Federal Aviation Regulation (FAR) Part 77 Airspace Drawings. Three (3) original, official, and identical copies of the FAR Part 77 Airspace Drawings reflecting the boundaries of the airport Height Zones of Bear Lake County, Idaho are hereby adopted, and the Board is hereby authorized to sign and attest each map as the official Bear Lake County Airport FAR Part 77 Airspace Drawings of Bear Lake County, Idaho, and such maps adopted as reference shall be filed and maintained as follows:

1. One (1) copy each shall be filed in the office of the Administrator and shall be designated as Exhibit 1. The Administrator shall maintain this copy by posting thereon all subsequent changes and amendments.

2. One (1) copy each shall be filed in the office of the County Clerk and Recorder and shall be designated as Exhibit 2. The Administrator shall maintain this copy by posting thereon all subsequent changes and amendments.
3. One (1) copy each shall be filed in the office of the Airport Manager and shall be designated as Exhibit 3. The Administrator shall maintain this copy by posting thereon all subsequent changes and amendments.

XX-4.02 Each portion of an area located in more than one (1) of the following zones shall be evaluated independently according to the zone in which it is located. The various zones are hereby established and defined below. Not all Approach Zones may apply. Refer to the Federal Aviation Administration (FAA) Part 77 Airspace Drawing to determine the applicable Approach Zone(s).

1. NONPRECISION INSTRUMENT RUNWAY APPROACH ZONE (LARGER THAN UTILITY RUNWAY). The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 3,500 feet at a horizontal distance 10,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.

2. NONPRECISION INSTRUMENT RUNWAY APPROACH ZONE (UTILITY AIRCRAFT). The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 2,000 feet at a horizontal distance 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.

3. VISUAL RUNWAY APPROACH ZONE (LARGER THAN UTILITY RUNWAY). The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach surface expands uniformly to a width of 1,500 feet at a horizontal distance 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.

4. VISUAL RUNWAY APPROACH ZONE (UTILITY AIRCRAFT). The inner edge of this approach zone coincides with the width of the primary surface and is 250 feet wide. The approach surface expands uniformly to a width of 1,250 feet at a horizontal distance of 5,000 feet from the primary surface. The centerline of the approach zone is a continuation of the centerline of the runway.

5. TRANSITIONAL ZONE. The transitional zones are the areas beneath the transitional surfaces.

6. HORIZONTAL ZONE. The horizontal zone is established by swinging arcs of 5,000 or 10,000 feet radii from the center of each end of the primary surface of the primary runway and connecting the adjacent arcs by drawing lines tangent to those arcs. The horizontal zone does not include the approach and transitional zones.

7. CONICAL ZONE. The conical zone is established as the area that commences at the periphery of the horizontal zone and extends outward there from a horizontal distance of 4,000 feet.

XX.5. **AIRPORT HEIGHT ZONE LIMITATIONS.**

XX-5.01 Pursuant to Section XX.4 and except as otherwise provided in this Ordinance, no structure shall be erected, altered, or maintained, and no tree shall be allowed to grow in any Height Zone created by this Ordinance to a height in excess of the applicable height limit herein established for such zone. Such applicable height limitations are hereby established for each of the Height Zones in question as follows:

1. NONPRECISION INSTRUMENT RUNWAY APPROACH ZONE (LARGER THAN UTILITY RUNWAY). Slopes thirty-four (34) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 10,000 feet along the extended runway centerline.

2. NONPRECISION INSTRUMENT RUNWAY APPROACH ZONE (UTILITY AIRCRAFT). Slopes twenty (20) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.

3. VISUAL RUNWAY APPROACH ZONE. Slopes twenty (20) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.

4. TRANSITIONAL ZONE. Slopes seven (7) feet outward for each foot upward beginning at the sides of and at the same elevation as the primary surface and the approach surface, and extending to a height of 150 feet above the airport elevation. In addition to the foregoing, there are established height limits sloping seven (7) feet outward for each foot upward beginning at the sides of and at the same elevation as the approach surface, and extending to where they intersect the conical surface.

5. HORIZONTAL ZONE. Established at 150 feet above the airport elevation.

6. CONICAL ZONE. Slopes twenty (20) feet outward for each foot upward beginning at the periphery of the horizontal zone and at 150 feet above the airport elevation and extending to a height of 350 feet above the airport elevation.

XX-5.02 EXCEPTED HEIGHT LIMITATIONS. In the area lying within the limits of the Horizontal and Conical Zones, nothing in this Ordinance shall be construed as prohibiting the construction, maintenance, or growth of anything to a height that is less than fifty (50) feet above the surface of the land, except when, because of terrain, land contour or topographic features, such structure or growth would extend above the height limits prescribed herein.

XX-6. **COMPATIBLE LAND USE REGULATIONS.**

XX-6.01 AIRPORT COMPATIBLE LAND USE OVERLAY ZONES (LAND USE ZONES). The controlled area of the Airport is divided into Airport Compatible Land Use Overlay Zones (Land Use Zones). The purpose of such zones shall be to regulate the development of noise sensitive land uses; promote compatibility between the Airport and the surrounding land uses; protect the Airport from incompatible development; and promote the health, safety and general welfare of property users. The Airport Land Use Zones established herein shall be known as:

- Runway Protection Zone (RPZ)
- Lateral Safety Zone (LSZ)
- Inner Critical Zone (ICZ)
- Outer Critical Zone (OCZ)
- Traffic Pattern Area (TPA)
- Airport Influence Area (AIA)

XX-6.02 AIRPORT LAND USE ZONE MAP. The boundaries of the Airport Land Use Zones set out herein shall be delineated upon the Airport's Airport Land Use Zone Maps, with said maps being adopted by reference and made a part of this Ordinance as fully as if the same were set forth herein in detail.

Three (3) original, official, and identical copies of the Airport Land Use Zone Maps that reflect the boundaries of the Airport Land Use Zones are hereby adopted, and the Board is hereby authorized to sign and attest each map as the official Airport Land Use Zone Maps of Bear Lake County, Idaho, and such maps shall be filed and maintained as follows:

1. One (1) copy shall be filed in the office of the Administrator and shall be designated as Exhibit 1. The Administrator shall maintain this copy by posting thereon all subsequent changes and amendments.

2. One (1) copy shall be filed in the office of the County Clerk and Recorder and shall be designated as Exhibit 2. The Administrator shall maintain this copy by posting thereon all subsequent changes and amendments.

3. One (1) copy shall be filed in the office of the Airport Manager and shall be designated as Exhibit 3. The Administrator shall maintain this copy by posting thereon all subsequent changes and amendments.

XX-6.03 AIRPORT COMPATIBLE LAND USE OVERLAY ZONE BOUNDARIES. The Airport Land Use Zone boundary lines shown on the official Airport Land Use Zone Map shall be located and delineated along contour lines established for the Airport. Where uncertainty exists as to the boundaries of the Airport Land Use Zones as shown on the official Map, the following rules shall apply:

1. Boundaries shall be scaled from the nearest runway end shown on the map.

2. Boundaries shall be scaled from the nearest physical feature shown on the map.

3. Distances not specifically indicated on the original Airport Land Use Zone Map shall be determined by a scaled measurement on the map.

XX-6.04 Where physical features on the ground differ from the information shown on the official Airport Land Use Zone Map or when there arises a question as to how or where a parcel of property is zoned and such questions cannot be resolved by the application of Section XX-6.03, the property shall be considered to be classified as the most restrictive Airport Land Use Zone.

XX-6.05 Where a parcel of land lies within more than one (1) Airport Land Use Zone, the zone within which each portion of the property is located shall apply individually to each portion of the development.

XX-6.05 USE OF LAND AND BUILDINGS.

1. Within the Airport Land Use Zones as defined herein, no land shall hereafter be used and no structure or other object shall hereafter be erected, altered, converted, or modified other than for those compatible land uses permitted by the underlying comprehensive zoning districts, as specified in the Bear Lake County Zoning Ordinance. Additional land uses are prohibited in the Airport Land Use Zones, regardless of underlying zoning, as set forth in the Airport Compatible Land Use Table included in Attachment A.

2. Where any use of prohibited land and buildings set forth in Section XX-6.06(1) conflicts with any use of land and buildings set forth in the Bear Lake County Zoning Ordinance and/or Zoning Map, this chapter shall apply.

3. Section XX.6.06 does not apply to property within the official boundaries of the Airport Zone as defined in Title 9, Subdivision Regulations.

XX-6.06 ADDITIONAL LAND USE REGULATIONS.

1. Except as provided in Section XX-6.06(1) and Section XX-9 of this Ordinance, all development within the jurisdiction of Bear Lake County, Idaho and within the Airport Influence Area as depicted on the Airport Land Use Zone Map, shall have a minimum land division size of 40 acres.

2. On property within the Airport Land Use Zone Map jurisdiction, but outside the jurisdictional limits of Bear Lake County, Idaho, Section XX-6.06(1) shall be used to formulate land use recommendations or responses to land use comment requests from other jurisdictions.

3. In the event of conflict between this section and any aviation hazard restriction, the most restrictive provision shall apply.

4. Notwithstanding any other provisions of this Ordinance or sections of the Bear Lake County Airport Hazard Zoning Ordinance, no use may be made of land, water, or structures within any zone established by this Ordinance in such a manner as to create electrical interference with navigational signals or radio communication between the Airport and aircraft; make it difficult for pilots to distinguish between airport lights and others, or result in glare in the eyes of pilots using the Airport; impair visibility in the vicinity of the Airport; create bird strike hazards; or otherwise in any way endanger or interfere with the landing, taking off, or flight operations of aircraft utilizing the Airport.

XX-7. **NON-CONFORMING USE.**

XX-7.01 REGULATIONS NOT RETROACTIVE. The regulations prescribed by this Ordinance shall not require the removal or alteration of any structure or tree not conforming to this Ordinance on its effective date. The regulations of this Ordinance shall not interfere with the continuance of such nonconforming use. Nothing contained herein shall require a change in the construction, alteration, or intended use of any structure whose construction or alteration commenced prior to the effective date of this Ordinance and whose construction is being diligently pursued.

XX-7.02 MARKING AND LIGHTING. Notwithstanding the provisions of XX-7.01, the owner of a non-conforming structure or growth is hereby required to permit the installation, operation, and maintenance of such markers and lights as the Board of County Commissionners deems appropriate as indicators of aviation hazards or obstructions to the operators of aircraft. Such markers and lights shall be installed, operated, and maintained at the expense of Bear Lake County.

XX-8. **PERMITS.**

XX-8.01 FUTURE USES. Except as specifically provided in “1” and “2” hereunder, no material change shall be made in the use of land, no structure shall be erected or established, and no tree shall be planted in any zone hereby created without a properly authorized permit. Each application for a permit

shall indicate the action to be permitted and shall provide enough detail, including a map or drawing showing the heights and location of the permitted action in relation to the Height and Land Use Zones, to allow a determination of whether the resulting use, structure, or tree will conform to the regulations prescribed herein. An FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, shall accompany each application. Receipt of an FAA Determination of No Hazard is required before issuing a permit. No permit for a use inconsistent with the provisions of this Ordinance shall be granted unless a variance has been approved in accordance with Section XX-8.05.

1. No permit shall be required by this Ordinance for any tree or structure less than 200 feet above ground level that is located in the area lying within the limits of the approach, transitional, horizontal, and conical zones, and which is lower than an imaginary surface extending outward and upward at a slope of 100 feet horizontal for each 1 foot vertical within 20,000 feet (3.8 statute miles) beginning at the closest point of the closest runway.

2. Nothing contained in any of the foregoing exceptions shall be construed as permitting or intending to permit any construction, or alteration of any structure, or growth of any tree in excess of any of the height limits established by this Ordinance.

XX-8.02 EASEMENTS AND DISCLOSURE. Where specified in the Airport Compatible Land Use Table, the property owner shall dedicate, in advance of receiving a building permit, an avigation easement to the County. In addition, a Fair Disclosure Statement will be provided to prospective buyers. The avigation easement shall establish a height restriction on the use of the property and hold Bear Lake County harmless from any damages caused by noise, vibration, fumes, dust, fuel, fuel particles, or other effects that may be caused by the operation of aircraft taking off, landing, or operating on or near the Airport. The avigation easement shall be signed and recorded in the deed records of the County. The Fair Disclosure Statements will serve to notify prospective buyers of property near airports that they may be exposed to potentially impactive levels of aircraft overflight.

XX-8.03 EXISTING USES. A permit shall not be granted if it would allow the establishment or creation of an obstruction or would allow a nonconforming use, structure, or tree to become a greater hazard to air navigation than it was prior to the effective date of this Ordinance, the effective date of any amendment to this Ordinance, or the application date of a permit.

XX-8.04 NONCONFORMING USES ABANDONED OR DESTROYED. If the Zoning Commission determines that a nonconforming tree or structure has been abandoned or that more than eighty percent (80%) of it has been demolished, deteriorated, or decayed, then a permit that would allow such structure or tree to exceed the applicable height limit or otherwise deviate from the zoning regulations shall not be granted.

XX-8.05 VARIANCE. A person desiring to erect or increase the height of any structure, or permit the growth of a tree, or use property in a manner which is

not in accordance with the regulations prescribed in this Ordinance, shall apply to the County Planning and Zoning Commission for a variance from such regulations. In addition to these requirements, an application for a variance shall also be accompanied by a determination by the Federal Aviation Administration and the Idaho Division of Aeronautics concerning the effect of the proposal on the operation of air navigation facilities and on the safe, efficient use of the navigable airspace. Such variance shall be viewed favorably if it is determined that: a literal application or enforcement of the regulations would result in unnecessary hardship which could be relieved by the variance, and if it is determined that the variance will not be contrary to the public interest, will not create an aviation hazard, will do no substantial injustice, and will be in accordance with the spirit of this Ordinance. A variance requested pursuant to this section shall only be considered by the Commission after the airport manager, or designated representative, has been given an opportunity to review the application for its aeronautical affects and has submitted written comments to the Commission. If the airport board's opinion has not been submitted within fifteen (15) days after receipt of the application, the Commission shall act upon the application without such advice.

XX-8.06 OBSTRUCTION MARKING AND LIGHTING. In granting a variance permit, the Commission may, if such action is deemed advisable to fulfill the purpose of this Ordinance, place conditions upon the variance which require the owner of the structure or tree in question to install, operate, and maintain at the owner's expense such markings and lights as are considered to be necessary. If deemed proper by the Board of County Commissionners, this condition may be modified to require the owner to allow Bear Lake County, at the county's expense, to install, operate, and maintain the necessary markings and lights.

XX-9. **ENFORCEMENT.**

It shall be the duty of the County to administer and enforce the regulations prescribed herein through the office of the County. Applications for permits and variances shall be made to the County upon a form published for that purpose. Applications required by this Ordinance shall be promptly considered by the County. Each application shall be either: a. Granted without conditions. b. Granted with added conditions, or c. Denied.

XX-10. **APPEALS.**

XX-10.01 Any affected person as defined by Idaho Code Section 67-6521, as it may be amended from time to time, may appeal a requirement or decision of the Commission made in the administration of this Ordinance to the Board of County Commissionners.

XX-10.02 All appeals hereunder must be filed with the Administrator’s Office within twenty-eight (28) days from the date of the requirement or decision appealed from. All issues being appealed must be specifically stated in the appeal. When an appeal is filed, the Administrator shall gather the record of the matter appealed and shall submit it to the Board of County Commissionners.

XX-10.03 The Board of County Commissionners may stay all proceedings in furtherance of the action appealed if it deems such a stay to be necessary. Any such stay that is imposed shall automatically be lifted upon the Board of County Commissionners issuing a written decision on the matter being appealed, unless otherwise stated by the Board.

XX-10.04 The Board of County Commissionners shall fix a reasonable time for hearing appeals, give public notice and due notice to the parties in interest, and decide the same within a reasonable time. Upon hearing, any party may appear in person or by agent or by attorney.

XX-10.05 In conformity with the provisions of this Ordinance, the Board of County Commissionners may reverse or affirm, in whole or in part, or modify the requirement(s) or decision appealed from, and/or may make such requirement(s), decision, or other determinations as may be appropriate under the circumstances.

XX-11. **JUDICIAL REVIEW.** Any affected person as defined by section XX-11.01, may appeal any final decision to the district court as provided by the Local Land Use Planning Act, Title 67, Chapter 65 Idaho Code.

XX-12. **PENALTIES.** Violation of this Ordinance, or of any regulation, order, or ruling promulgated hereunder, shall be subject to the penalties and actions prescribe as provided in Section 1-4-1 of this code; and each day a violation continues to exist shall constitute a separate offence.

XX-13. **CONFLICTING REGULATIONS.** Where there exists a conflict between this Ordinance and other regulations applicable to the same area, whether the conflict be with respect to the height of structures or trees, the use of the land, or any other matter, the more stringent limitation or requirement shall govern and prevail.

XX-14. **SEVERABILITY.** If a provision of this Ordinance or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of this Ordinance, which can be given effect without the invalid provision(s) or application(s); to this end, the provisions of this Ordinance are declared to be severable.

XX-15. **EFFECTIVE DATE.** Whereas the immediate operation of the provisions of this Ordinance is necessary for the preservation of the public health, safety, and general welfare, this Ordinance shall be in force and effect as of the date and time this Ordinance is passed by the Bear Lake County Board of County Commissioners and published as required by law.

RECOMMENDED LAND USE COMPATIBILITY TABLE

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ATTACHMENT A
LAND USE COMPATIBILITY TABLE

Land Use	1 Runway Protection Zone	2 Lateral Safety Zone	3 Inner Critical Zone	4 Outer Critical Zone	5 Traffic Pattern Area	6 Airport Influence Area
Residential						
Single-family, nursing homes, multi-family, apartments, condominiums, mobile home parks						
Transient lodging (i.e. hotels and motels)						
Public						
Schools, libraries, churches						
Parking and cemeteries						
Commercial/Industrial						
Offices, retail trades, light industrial, general manufacturing, utilities, extractive industry						
Airport revenue-producing enterprises						
Agricultural and Recreational						
Cropland						
Livestock breeding, zoos, golf courses, riding stables, water recreation						
Outdoor spectator sports, parks, playgrounds						
Amphitheaters						
Open space						
Bird and Wildlife Attractants						
Sanitary Landfills						
Water treatment plants, water impoundments						
Wetlands Mitigation						

	Prohibited		Allowed with conditions		Allowed

Conditions typically include:

- Require Fair disclosure Statement as a condition of development
- Limit residential density to low-density and avoid high-density development
- Limit commercial uses to low-density and avoid high intensity commercial uses such as large retail box stores
- Locate development as far as possible from extended centerline, if no reasonable alternative exists
- Be mindful of bird and wildlife attractant and consider proximity of the airport as well as potential negative impact before development. Refer to FAA AC 150/5200-33B and 150/5200-34A, as amended, for guidance

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MODEL FAIR DISCLOSURE STATEMENT

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SAMPLE
FAIR DISCLOSURE STATEMENT
DISCLOSURES BY (OWNER) (BUYER)
OF REAL PROPERTY IN BEAR LAKE COUNTY, IDAHO

This is a notification, disclosure, and acknowledgement by (Owner) (Buyer) of real property located in the vicinity of the Bear Lake County Airport in Bear Lake County, Idaho.

(Owner) (Buyer) hereby acknowledges the following:

AIRPORT

1. Proximity to the Airport
The subject parcel, located in Section ___ Township ___ Range ____, is located in one of five height and/or land use zones of the Bear Lake County Airport. Airplanes may fly at low elevations over the parcel as they operate to, from, or at the airport. The airport is operational 24 hours per day. Flights may occur at all hours of the day or night.

2. Disclosure of Noise Impacts
Due to the proximity of the parcel to the Bear Lake County Airport and the airport's area of influence; owner(s) / buyer(s) should expect varying degrees of noise from these aircraft, which some persons may find intrusive.

3. Future Improvements and Aircraft Operations
The airport plans to expand its facilities and operations in the future. The plans include, but are not limited to those shown on the approved Airport Layout Plan. These improvements may result in increased aircraft operations, operations by larger aircraft, and increased nighttime operations, which could increase the noise levels within the vicinity of the airport.

4. Avigation Easement
Where specified on the Airport Compatible Land Use Table, the property owner shall dedicate, in advance of receiving a building permit, an avigation easement to Bear Lake County, Idaho. The purpose of this easement shall be to establish a maximum height restriction on the use of property and to hold the public harmless for any damages caused by noise, vibration, fumes, dust, fuel, fuel particles, or other effects that may be caused by the operation of aircraft landing at, taking off from, or operating on or at public airport facilities.

CERTIFICATION

This undersigned owner(s) / purchaser(s) of said parcel of land certify(ies) that (he/she/they) (has/have) read the above disclosure statement and acknowledge(s) the pre or planned existence of the airport named above and the noise exposure due to the operation of said airport.

_____
(SIGNED) Date

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EXAMPLE COMPREHENSIVE PLAN

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DRAFT

FOR EXAMPLE/TRAINING PURPOSES ONLY

Bonner County Comprehensive Plan

Chapter 17: Public Airport Facilities

Idaho Code §67-6508 (q) requires the following for the Public Airport Facilities component:

Public Airport Facilities -- An analysis prepared with assistance from the Idaho transportation department division of aeronautics, if requested by the planning and zoning commission, and the manager or person in charge of the local public airport identifying, but not limited to, facility locations, the scope and type of airport operations, existing and future planned airport development and infrastructure needs, and the economic impact to the community.

Bonner Planning Department

DRAFT: Bonner County, Idaho

8/28/2014

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INTRODUCTION:

There are currently four (4) public-use airports in Bonner County. According to the Federal Aviation Administration (FAA) and Idaho Transportation Department - Division of Aeronautics (ITD Aero), a public-use airport is open to and for public use without prior permission, and without restrictions within the physical capacities of available facilities.

Two of the four public-use airports in the county are owned and operated by Bonner County; Sandpoint and Priest River. Both airports are also eligible for and receive airport improvement grants from the FAA and ITD Aero. The other airports, Cavanaugh Bay and Priest Lake are owned by ITD Aero and the United States Forest Service (USFS) respectively.

Public Airport Facilities Component Goal:
"Bonner County…

."

Following is a summary of each of the public-use airports in the County. Additional information is included for several private-use airports and heliports in the County.

COUNTY-OWNED, PUBLIC-USE AIRPORTS

There are currently 119 public-use airports in the state of Idaho. Of these 119, 75 are considered core airports by ITD Aero (Idaho Airport System Plan (IASP), 2010). The Sandpoint and Priest River Airports are considered core statewide airports by ITD Aero. ITD Aero's mission for its aviation system is as follows:

The Idaho Transportation Department's Division of Aeronautics serves to provide the highest quality, most effective, efficient, and safest airport system for all users of aviation services. To this end, the Division of Aeronautics plans and implements essential programs, services and projects to develop, encourage, and foster an exemplary system of airports that meet the current and future requirements of a growing and diverse Idaho aviation community. (http://itd.idaho.gov/aero/)

Both airports are categorized in the IASP:

The Sandpoint Airport is categorized as a Regional Business Airport. Regional Business airports support regional economic activities, connecting to state and national economies, and serve all types of general aviation aircraft. They also accommodate local business activities and various types of general aviation users.

The Priest River Airport is categorized as a Local Recreational Airport. Local Recreational Airports serve a supplemental role in local economies, primarily accommodating recreational, personal flying, and limited local business activities.

The impact of the Idaho airport system on the state's economy was also examined by ITD Aero as part of the IASP. The IASP's system of airports generates $2.1 billion of economic activity, supports 23,000 jobs, and generates $781.5 million in annual payroll (IASP 2010). Specific economic impacts for the Sandpoint and Priest River airports are included in the individual airport summaries below.

Both airports are also an important part of the national transportation infrastructure and are included in the FAA National Plan of Integrated Airport Systems (NPIAS). Airports in the NPIAS are considered necessary to provide a safe, efficient, and integrated system of nation-wide public-use airports adequate to anticipate and meet the needs of commercial air service; civil aeronautics; the national defense requirements of the Secretary of Defense; emergency air medical evacuation; BLM and USFS fire response support as well as the United States Postal Service (FAA NPIAS Report 2013-2017). As NPIAS airports, both airports receive federal funding via the FAA Airport Improvement Program and are subject to FAA design standards, regulations, rules, Sponsor responsibilities, and policies.

Following is a summary of facilities, activity, economic impact, and future improvements at the airports.

SANDPOINT AIRPORT

Sandpoint Airport

Source: Bonner County

The Sandpoint Airport, located on approximately 60 acres in northwest Sandpoint, was established in the 1940s. The airport is operated by Bonner County, and has an annual budget of about $50,000 (O'Leary).

FACILITIES

The elevation at the Sandpoint Airport is 2127 feet. The asphalt runway is 5,500 feet long and 75-feet wide and is listed in good shape. The runway single-wheel weight limit is 40,000 pounds. (Airnav web site). The airport offers a restroom, maintenance and repair services, 24-hour refueling, rental cars and private and public hangar rentals, tie-downs and flight school. The airport has an all- weather instrument landing system (LOC/DME), pilot-activated runway lights and a lighted wind indicator.

Air Traffic

Much of the air traffic using the Sandpoint Airport arrives from other destinations, rather than originating in Sandpoint. The airport registers about 18,000 operations (take-offs and landings) annually. About 40 percent of the air traffic is business-related. Another 40 percent use the Sandpoint facility for tourism-related activities, while the remaining 20 percent is attributed to recreational flying or training. The Sandpoint Industrial Park adjoins the airport site and draws traffic to the facility. Overnight delivery and parcel service companies use the airport on a daily basis. The Sandpoint Airport also sees traffic from medical flights and U.S. Forest Service fire- fighting planes and is beginning to see greater traffic from owners of recreational or second homes in Bonner County. Sandpoint does not have an airplane commuter service at this time, although the Bonner County facility has the ability to handle small commuter jets. Schweitzer and local golf course operators desire an air commuter service to the area, but to make the service economical may take an increase in population or some method of subsidy (O'Leary).

State statistics reflect 73 percent of the Sandpoint air traffic is attributed to general transient aviation, 24 percent to local general aviation and the remaining 3 percent to air taxi service. There are 60 aircraft based at Sandpoint's airport, representing 55 single-engine planes, three multi-engine aircraft, one glider and one helicopter (Airnav web site).

Economics

The economic benefits of the Sandpoint Airport to the community include 482 jobs created directly or indirectly by the airport operation, a payroll of $15 million and an estimated output or economic spin-off of approximately $32.9 million (IASP 2010).

Future Development

Bonner County, with the assistance of a consultant, is updating its airport master plan. The plan will look at the present facility, previous master plan and what the Sandpoint facility needs to meet future demands. Better instrument landing equipment, such as a global positioning system (GPS), and runway improvements for greater separation of the runway and taxiway may be on the list of future airport improvements. The future wish list includes development of a commuter air service, perhaps serving the Seattle or Calgary areas (O'Leary). Bonner County also has examined the possibilities of commuter service to Boise.

PRIEST RIVER

Priest River Airport

Source: T-O Engineers

Priest River Municipal Airport, located east of State Highway 57 and north of the City of Priest River, is operated by Bonner County. Established in about 1921, it is the oldest airport in the area. The airport and associated facilities encompass about 39 acres (FAA Form 5010/GCR).

FACILITIES

Elevation at the Priest River Airport is 2187 feet (estimated). The airport's asphalt runway is 2,950 feet long and about 48 feet wide. No instrumental landing systems are available at the airport. A lighted wind indicator and pilot-activated runway lights are provided. There are three private hangars and one County-owned hangar which provide a pilots' lounge and 10 hangar spaces. About 10 tie-downs are available during warmer weather for transient air traffic (Mendive).

AIR TRAFFIC

The Priest River Airport receives its heaviest use during the summer months, when tourists and second-home owners arrive in the area. Priest River's facility is the closest paved airport to Priest Lake, a popular tourist destination. Traffic is also generated by the financial industry, mills, construction work, U.S. Forest Service projects, medical flights and general recreational aviation. The Priest River Airport has seen its greatest growth in the past five years (Mendive).

Economics

The economic benefits of the Priest River Airport to the community include 55 jobs created directly or indirectly by the airport operation, a payroll of $2 million and an estimated output or economic spin-off of approximately $8.4 million (IASP 2010).

Future Development

There are no immediate plans for improvement of the Priest River Airport. With grant money and matching local funds, a runway resurfacing project is tentatively in the works (Mendive).

Non-County-Owned Public-Use Airports

As previously mentioned there are two additional public-use airports located in Bonner County in addition to the Sandpoint and Priest River airports; Cavanaugh Bay and Priest Lake airports. Cavanaugh Bay is owned by ITD Aero and Priest Lake by the USFS.

While these two airports are not part of the core system of 75 airports identified in the ITD Aero IASP, they are recognized in another ITD Aero airport system subset, the Idaho Airstrip Network (IAN).

Per the 2005 IAN, the Idaho Airstrip Network consists of airstrips, the adjacent or nearby lands and facilities, and the portal communities to which they are connected. This network includes airstrips that have turf and dirt surfaces, and limited facilities which vary in their level of development. They are held in public or private ownership, but in all cases public access for general aviation purposes is permitted. Private airstrips without public access are not included in the Network. Predominant uses of these airstrips include: access to recreation opportunities (e.g., rafting, hunting, and fishing), fire protection, the provision for emergency services, natural resource management, recreational aviation, and the servicing of remote ranches and other economic enterprises through pickup and delivery of passengers, mail, food and other supplies (IAN 2005).

Like airports in the IASP, airports in the IAN are categorized.

The Cavanaugh Bay Airport is categorized as a Community Airstrip. Community Airstrips may have additional navigational aids and radio service and other services associated with proximity to communities or other attractions. They are typically located near a community with access to full-service roads and close to some development. Maintenance of these facilities includes: clear vegetation, remove obstacles, blade, mow, treat, fertilize, water, treat invasive and noxious weed, and make spot treatments to maintain an improved airstrip surface (IAN 2005).

The Priest Lake Airport is categorized as a Developed Airstrip. Developed Airstrips have basic navigational aids and some additional services such as restrooms or camping facilities. They may have road access to nearby attractions. They are typically located in areas of high use, often in remote settings, but may be accessed by improved roads. Maintenance of these facilities include: clear hazardous vegetation from approaches, remove obstacles, blade, mow, water, treat invasive and noxious weeds, and make spot improvements regularly to maintain improved airstrip surface (IAN 2005).

Following is summary of facilities, activity, economic impact, and future improvements at the airports.

CAVANAUGH BAY AIRPORT (OWNED BY ITD AERO)

Source: ITD Aero

The Cavanaugh Bay Airport is located about 3 miles north of the Coolin townsite on the east side of Priest Lake.

FACILITIES

The airport is open to the public, but unattended. The grass runway is 3,100-feet long by 120-feet wide. There is no winter maintenance of the airstrip. A wind indicator is provided. There are no services. Elevation at the airstrip is 2484 feet (estimated). Seasonal tie-downs are available (Airnav web site).

Air Traffic

The airport's proximity to Priest Lake and the area's marinas and resorts attracts seasonal air traffic. The facility registers about 86 landings and take-offs per week on the average. The traffic is 100 percent transient general aviation.

Future Development

*****NEED INFORMATION*****

Priest Lake Airport (Owned by USFS)

Source: AirNav.com

The Priest Lake Airport is located about 3 miles south of Nordman, on the west side of Priest Lake, west of State Highway 57. The airstrip is public and operated by the U.S. Forest Service.

Facilities

There are no services other than seasonal tie-downs available at the Priest Lake Airport. The facility is at an estimated elevation of 2611feet. The 4,400-foot long by 175-foot wide grass landing strip is open only on a seasonal basis; there is no winter maintenance. The grass strip is not mowed to its full width. The airstrip is unattended and has a wind indicator (Airnav web site).

Air Traffic

The landing strip receives about 23 operations per week. The air traffic is 100 percent general aviation, transient (Airnav web site).

Future Development

*****NEED INFORMATION*****

Private Aviation Facilities – Landing Fields and Heliports

In addition to the four public-use airports discussed above, there are several private use aviation facilities in Bonner County. Per the FAA and ITD Aero, private use aviation facilities are available for use by the owner only or by the owner and other persons authorized by the owner.

Following is summary of the private aviation facilities in the county.

Private Landing Fields

There are numerous private landing fields and several smaller airstrips that have been developed in Bonner County to serve the outlying areas. Some of the landing fields are marked on the U.S. Forest Service map. At least two subdivisions in Bonner County, Treeport Subdivision in the southern portion of the county, and the River Lake Estates area, south of the Clark Fork River in eastern Bonner County, have developed residential homesites around community airstrips. There are 12 private aviation facilities and six public facilities in Bonner County. Three of the facilities, two at Priest Lake and one at Bottle Bay, provide seaplane bases (g.c.r. & associates inc.).

Heliports

The Federal Aviation Administration lists three private heliports in operation in Bonner County. The facilities are: Bonner General Hospital's emergency medical helipad in the City of Sandpoint; Bird #1 heliport at Glengary Bay on Lake Pend Oreille; and Holiday Shores, west of Hope on Lake Pend Oreille (g.c.r. & associates inc.). A U.S. Forest Service-operated helipad is located 3 miles south of Nordman at the Priest Lake Airport.

Issues

- **Encroachment of incompatible development** - One of the greatest threats to the viability airports today is the encroachment of incompatible land use. More recently, ITD Aero and FAA have been working with Idaho's airports to strengthen airport land use compatibility policies and practices to reverse this trend. Encroaching incompatible land use poses a significant threat to the state and national airport system and the communities they serve.

- **Safety and Quality of Life** – Proactive planning around the airports ensures the safety of both aircraft operators and airport neighbors from potential aircraft accidents. It also protects the quality of life of airport neighbors by ensuring they are not impacted by the noise, dust and fumes that are associated with airport operations.

- **Grant Assurances** – The Sandpoint and Priest River Airports receive FAA and ITD Aero grant funds for capital improvement projects. When accepting these funds, Bonner County agrees to certain conditions known as Grant Assurances. These Grant Assurances include specific requirements that the County should protect the airport's airspace and prevent incompatible land uses through zoning. Failure to do so may result in the FAA and ITD Aero no longer funding the airport if they do not believe Bonner County has taken reasonable steps to protect the airports from incompatible development. Duration of these grant assurances is a period of 20 years from when the County received the last grant.

- **Jurisdiction** - One major challenge airport owners face when promoting compatible land use is lack of jurisdiction. Airport operations and associated potential impacts (i.e. safety, noise, dust, fumes) can and do extend beyond the physical boundary of airport property. The airport owner is liable for adherence to the FAA and ITD Aero grant assurances. In many instances however, surrounding jurisdictions have control of land in the vicinity of the airport, not the owner, thus the owner has no say in land use policies and decisions. If the surrounding jurisdictions do not wish to proactively plan around the airport, they do not have to.

  Further, neither the FAA nor ITD Aero have jurisdiction over local land use nor do they have any enforcement authority to stop incompatible encroachment. As such, local communities are heavily relied upon and responsible for undertaking such efforts.

- **Protection of local, state and federal investment** - Both the Sandpoint and Priest River airports have received substantial financial investment from either the FAA, ITD Aero, or both, for many years. The County itself has invested significant funding into the airports to operate and maintain them. Proactive planning around the airports, including zoning, will help insure the airports are protected and can operate for the long term thus protecting the substantial federal, state, and local investment.

  As the state and FAA consider future investments into the airports, a major consideration is the community's willingness to protect the investment. This begins with effective compatible land use planning.

- **Economic Benefit** - The Sandpoint and Priest River airports provide a substantial economic benefit to the County and its citizens. Users such as corporations, life flight operators use the airports and contribute to economy as a result of their use. These airports need to be protected so that they can continue to provide users access to the community and continue to provide economic benefits for many years to come.

OBJECTIVES & POLICIES

- Bonner County will be proactive in protecting the public health, safety, and general welfare of both airport users and the communities around the airports. Primary consideration will be the public-use airports in the County. The County will be cognizant of potential impacts on private use aviation facilities that may be impacted by future growth and development in the County.

- As the owner of the Sandpoint and Priest River Airports, Bonner County will be proactive in protecting the operation, orderly maintenance, and development of the airports.

- Planning and expansion of the Sandpoint and Priest River airports should account for existing economic activity and transportation infrastructure so as to integrate with, complement, or augment them.

- Compatible land use planning around the airports should be proactive and effective in its purpose while keeping in mind property owner's rights and concerns.

ACTION PLAN

1. Adhere to guidelines provided in the Airport Master Plans and/or the Airport Layout Plans and associated drawings of the airports when evaluating land use compatibility issues associated with new development in areas near or influenced by operations at the airports.

2. Adopt a combination of criteria, standards and zoning techniques that will protect the airports and aviation uses from incompatible development. Include special airport overlay zoning, height restrictions, building restrictions in high noise areas, and development siting criteria for evaluating land uses or activities in key areas adjacent to the airport.

3. Coordinate as required with all surrounding political subdivisions, including the cities of Sandpoint and Priest River, Idaho, USFS (Priest Lake Airport), and ITD Aero (Cavanaugh Bay Airport) to establish consistent development guidelines and regulations that utilize local, state and FAA guidelines, standards, rules, regulations and other best management practices encouraging compatible land uses adjacent to the airports.

4. Notify all political subdivisions providing services within Bonner County, including the cities of Sandpoint, Priest River, the USFS and ITD Aero, of intent to adopt or revise the comprehensive and other land use plans that may impact the airports in the county. This includes the evaluation of future planning activities to ensure they will not result in an increase to incompatible land uses or development adjacent to an airport.

5. Encourage aviation-related economic development opportunities in appropriate locations surrounding the airports.

6. Require avigation easement and/or disclosure notification for new or substantial redevelopment of lots, buildings, structures and activities near the airport. The easement and disclosure should notify that the property is both near an airport and may experience low overhead flights, noise and other aviation impacts.

7. Encourage commercial and industrial uses in the proximity of the airport that benefit from and do not conflict with aircraft operations.

8. Prohibit uses in airport areas which attract birds, create visual hazards, and emit transmissions which may interfere with aviation communications, or otherwise obstruct or conflict with airport operations.

9. Allow uses that promote the efficient mobility of goods and services consistent with regional economic development and transportation goals.

10. Encourage open space and clear areas within key safety areas adjacent to the airport to protect the airport and to reduce safety risk exposure of people on the ground and in the air.

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Review and attach bibliographic info to body of document

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NOISE ANALYSIS

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NOISE STUDY ANALYSIS

1.1 ASSUMPTIONS

Airport noise is among the most controversial environmental impact at airports. To evaluate aircraft noise around Bear Lake County Airport, the Integrated Noise Model (INM) version 7.0d, a computer noise model developed by the Federal Aviation Administration (FAA), in cooperation with the John A. Volpe National Transportation Systems Center and ATAC Corporation was used.

In order to compute and evaluate aircraft noise, INM requires several inputs:

- Airport characteristics
- Fleet Mix and runway use
- Type and number of aircraft operations (including departure, arrivals, daytime and nighttime operations)
- Flight track geometry and percentage of utilization of each track

Further, the noise metric used for this study is the Day Night Average Sound Level (DNL). This metric is used to quantify noise levels at many airports in the United States and represents the 365-day average, in decibels, day-night average sound level.

1.1.1 AIRPORT INFORMATION

Bear Lake County Airport is located in southeastern Idaho, approximately three miles east of the city of Paris and six miles southwest of the town of Montpelier. It serves Bear Lake County and it is part of the FAA's National Plan of Integrated Airport Systems (NPIAS) as a "General Aviation" Airport. Further, it is identified as a "Community Business" Airport in the Idaho Transportation Department Aviation System Plan (IASP).

The airport is equipped with two paved runways Runway 10/28 and Runway 16/34, at an elevation of 5,932.6 feet. Runway 10/28 is the primary runway and is 5,728 feet long by 75 feet wide. Runway 16/34 is 4,590 feet long by 60 feet wide.

It should be noted that in the absence of an Airport Traffic Control Tower (ATCT), or other regular means of counting operations, current usage is an estimate and it is difficult to fully understand and quantify the number of operations at non-towered airports.

1.1.2 AIRPORT OPERATIONS AND FORECASTS

Table 1 summarizes the Aviation Activity Forecasts predicted as part of this airport master plan. In 2034, 6,565 operations are predicted at the airport.

TABLE 1: SUMMARY OF BEAR LAKE COUNTY AIRPORT AVIATION FORECASTS

	Year	Local Operations	Itinerant Operations	Total Operations
Historic	2014	441	2,170	**2,611**
Projected	2019	530	2,738	**3,268**
	2024	669	3,455	**4,123**
	2034	1,065	5,550	**6,565**

Source: T-O Engineers, Inc.

Table 2 summarizes the annual average daily operations in 2014 and 2034. To simplify the computations, the daily averages have been rounded to the nearest integer.

TABLE 2: AVERAGE DAILY OPERATIONS

Year	Type of Operations	Total Year	Daily Average*
2014	**Total Operations**	2,611	7
2034	**Total Operations**	6,565	18

Note: * Daily averages have been rounded to the nearest integer

Source: T-O Engineers, Inc.

1.1.3 NIGHT TIME OPERATIONS

The airport is equipped with non-standard Medium Intensity Runway Lights (MIRL) on Runway 10/28 only and nighttime operations are occasional. This information is important because noise occurring during the night is considered a greater nuisance. Therefore, the DNL metric uses weighting factors (or multipliers) for night time operations and, in this metric, one night-time operation is worth ten day-time operations.

1.1.4 FLEET MIX

Bear Lake County Airport provides for a variety of aviation uses and activities. The airport predominantly serves single-engine aircraft with frequent use by small multi-engine aircraft, turboprop and small jet traffic as well.

Per the ITD Individual Airport Summary, developed in 2009 as part of the IASP and the airport master plan effort in progress, airport activities include recreational, student pilots' training,

corporate/business, medical related transport, search and rescue, and government firefighting (Idaho Department of Lands, Bureau of Land Management and/or U.S. Forest Service) as well as extensive use by U.S. Fish and Wildlife Service and Idaho Fish and Game for various wildlife related purposes between December and February.

The critical aircraft, which can be defined as the most demanding aircraft conducting 500 or more operations per year, is the Piper Malibu PA-46. For the purposes of this study the Piper Malibu PA-46, the critical aircraft, was considered as representative of single-engine aircraft activity at the airport. In addition, the King Air 200 and the Cessna Mustang 510 was included in this study to model multi-engine turboprop and small jet aircraft operations.

It was assumed that 15 percent of the operations were touch-and-go operations and that these operations were conducted exclusively by single-engine aircraft. Lastly, it was assumed that night operations represented only a low percentage of the operations at the airport.

Table 3 summarizes the average daily operations per aircraft.

TABLE 3: AVERAGE DAILY OPERATIONS

Year	Aircraft	Arrival		Departure		Touch and Go		Total
		Day	Night	Day	Night	Day	Night	
2014	PA-46	2.4	0.1	2.4	0.1	1	0	6
	King Air 200	0.25	0	0.25	0	0	0	0.5
	Cessna 510	0.25	0	0.25	0	0	0	0.5
2034	PA-46	6.4	0.1	6.4	0.1	3	0	16
	King Air 200	0.5	0	0.5	0	0	0	1
	Cessna Mustang 510	0.5	0	0.5	0	0	0	1

Source: T-O Engineers, Inc.

1.1.5 RUNWAY UTILIZATION

Runway 10/28 is the primary runway and accommodates approximately 90 percent of the aircraft operations (Runway 10 accommodates 10 percent, while Runway 28 accommodates 80 percent). Runway 16/34 is the crosswind runway and accommodates the remaining 10 percent (each runway end accommodates approximately 5 percent) of aircraft operations. Runway 10/28 is the only runway equipped with MIRL; therefore all the night operations occur on Runway 10/28. In addition, it was assumed that all the touch-and-go operations occurred on Runway 10/28.

1.1.6 FLIGHT TRACKS

Bear Lake County Airport is currently a VFR only airport, with no instrument approach capabilities. Further, the airport is not equipped with an ATCT. Therefore, the flight path followed by the aircraft will be highly dependent on their origin and destination, as well as the type of aircraft.

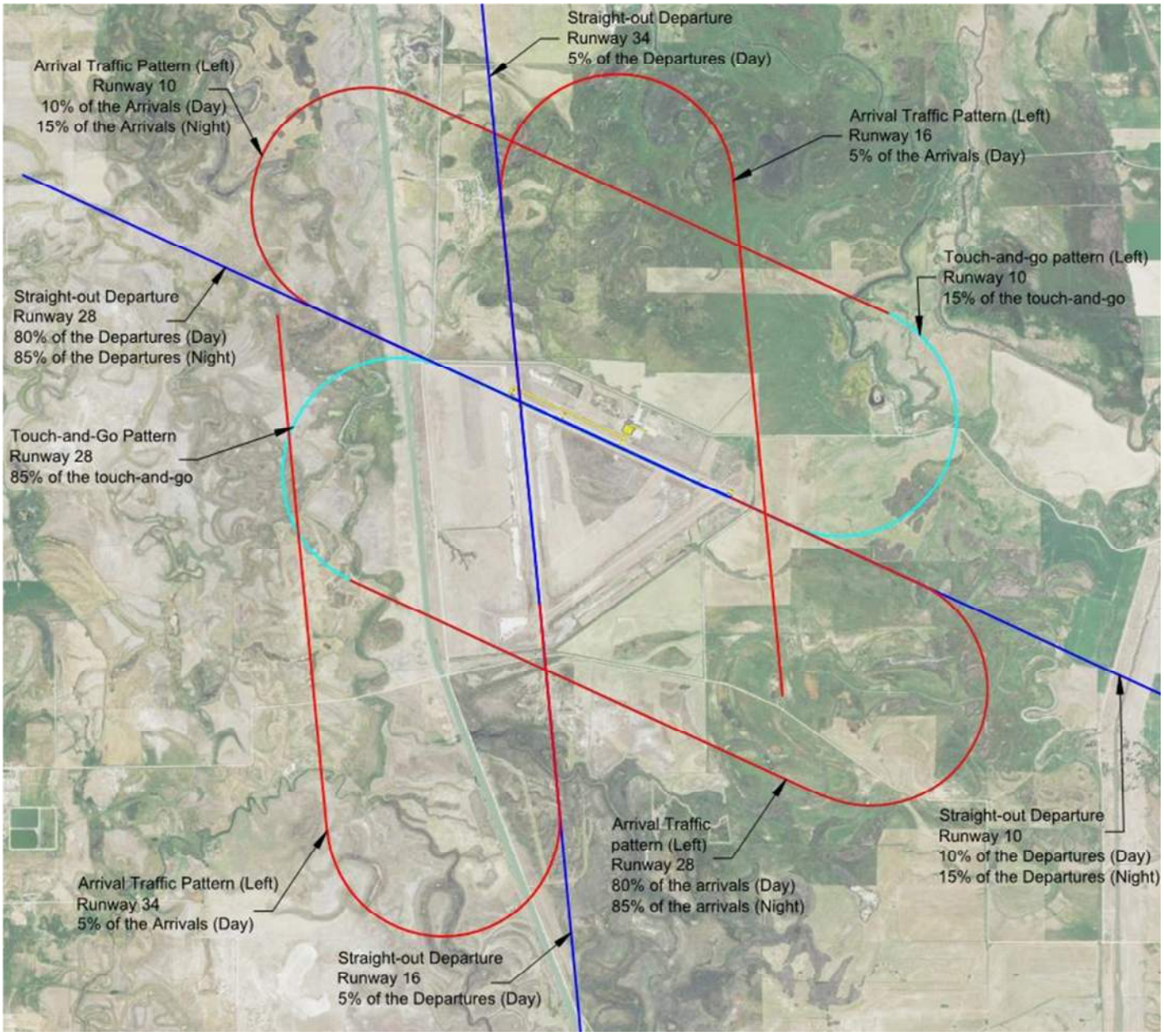
The types of operations considered in this study include:

- Approach
- Departures
- Touch-and-go

Figure 1 depicts the Flight Tracks at Bear Lake County Airport; these flight tracks are based on the airport master planning effort in progress at the airport and discussions with pilots and airport's users. It is important to note that in the absence of an ATCT, current usage and flight tracks are estimate only.

In addition, the shape of the flight track depends on several factors, including weather, type and number of aircraft in the traffic pattern, size of the airport, individual pilot's skills and experience with the airport, and aircraft destination. These tracks have been modeled to represent aircraft patterns as closely as possible; however, it is likely to observe deviations and that not all the aircraft will fly exactly on these tracks.

FIGURE 1: FLIGHT TRACK



Source: T-O Engineers, Inc.

Table 4 summarizes the approximate use of each flight track.

TABLE 4: FLIGHT TRACK UTILIZATION

Runway	Flight Track	Percent of Use
Approaches and Departures (Day)		
Runway 10	Departure (Straight out)	10%
Runway 10	Approach (Circle to land)	10%
Runway 28	Departure (Straight out)	80%
Runway 28	Approach (Circle to land)	80%
Runway 16	Departure (Straight out)	5%
Runway 16	Approach (Circle to land)	5%
Runway 34	Departure (Straight out)	5%
Runway 34	Approach (Circle to land)	5%
Approaches and Departures (Night)		
Runway 10	Departure (Straight out)	15%
Runway 10	Approach (Circle to land)	15%
Runway 28	Departure (Straight out)	85%
Runway 28	Approach (Circle to land)	85%
Touch-and-go		
Runway 10	Touch-and-go (Left circuit)	15%
Runway 28	Touch-and-go (Right circuit)	85%

Source: T-O Engineers, Inc.

1.2 NOISE ANALYSIS

1.2.1 LAND USE COMPATIBILITY

The FAR Part 150 Airport Noise Compatibility Planning Program provides guidance for aviation noise compatibility on and around airports. **Table 5** summarizes the various land uses based on DNL sound levels.

Areas below DNL 65 decibels are considered to be compatible with all land uses. In addition, residential or school uses can be allowed within the DNL 65 to 75 decibels range, if measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25, 30 or 35 dB are achieved.

It should be noted that the DNL is an average noise level; this metric does not take into account the peak noise level that can occasionally be experienced at any one location. In addition, some people can be more sensitive to noise and the level of annoyance can depend on the time of the day, the time of the year, but also the activities of the people.

TABLE 5: LAND USE COMPATIBILITY WITH YEARLY DAY-NIGHT AVERAGE SOUNDS LEVELS

Land use	Yearly day-night average sound level (L_{dn}) in decibels					
	Below 65	65-70	70-75	75-80	80-85	Over 85
RESIDENTIAL						
Residential, other than mobile homes and transient lodgings						
Mobile home parks						
Transient lodgings						
PUBLIC USE						
Schools						
Hospitals and nursing homes						
Churches, auditoriums, and concert halls						
Governmental services						
Transportation						
Parking						
COMMERCIAL USE						
Offices, business and professional						
Wholesale and retail—building materials, hardware and farm equipment						
Retail trade—general						
Utilities						
Communication						
MANUFACTURING AND PRODUCTION						
Manufacturing, general						
Photographic and optical						
Agriculture (except livestock) and forestry						
Livestock farming and breeding						
Mining and fishing, resource production and extraction						
RECREATIONAL						
Outdoor sports arenas and spectator sports						
Outdoor music shells, amphitheaters						
Nature exhibits and zoos						
Amusements, parks, resorts and camps						
Golf courses, riding stables and water recreation						

Prohibited | Allowed with conditions | Allowed

Conditions typically include noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure. **For additional details on the conditions, refer to FAR Part 150, Appendix A.**

Source: FAR Part 150, Appendix A, T-O Engineers, Inc.

1.2.2 NOISE CONTOURS

Noise contours have been prepared for Bear Lake County Airport for the base year (Year 2014) and the long-term forecast (Year 2034). The 65 DNL noise contour is depicted in **Figure 2**.

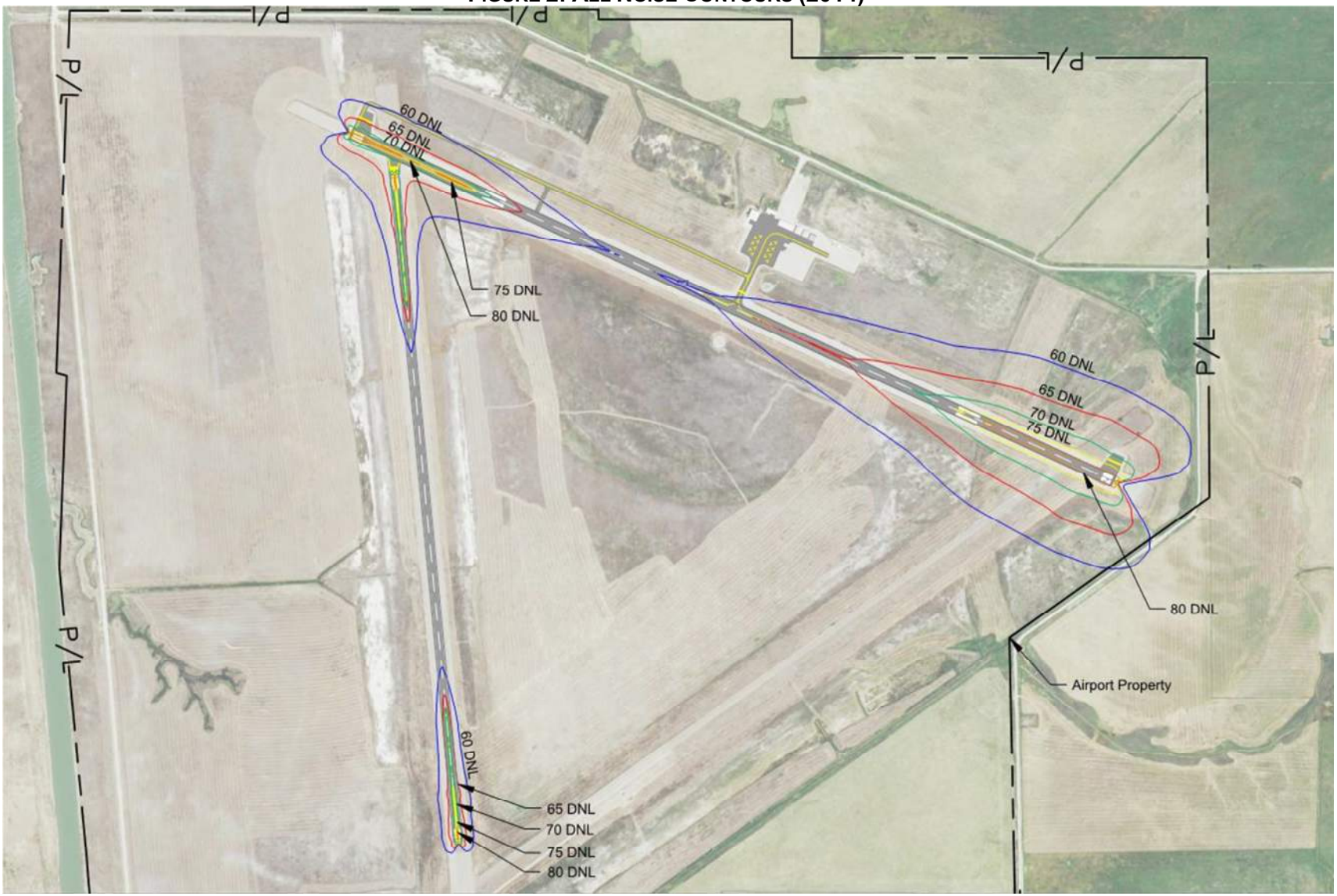
The area encompassed by the long-term noise contour is larger than that of the base year; the total area of the 65 DNL noise contour is 34.7 acres in 2014 and is expected to be 66.4 acres in 2034.

Figures 2 and 3 depict the DNL 60 to DNL 80 (with 5 DNL increments) noise contours for the base year and the long-term forecast (Year 2034).

As depicted in **Figure 2**, Bear Lake County Airport has entire control of the DNL 65, which remains entirely on airport property. This allows for the appropriate mitigation of incompatible land uses and enhances noise control. Further, no buildings are currently in the existing or predicted 65 DNL noise contour.

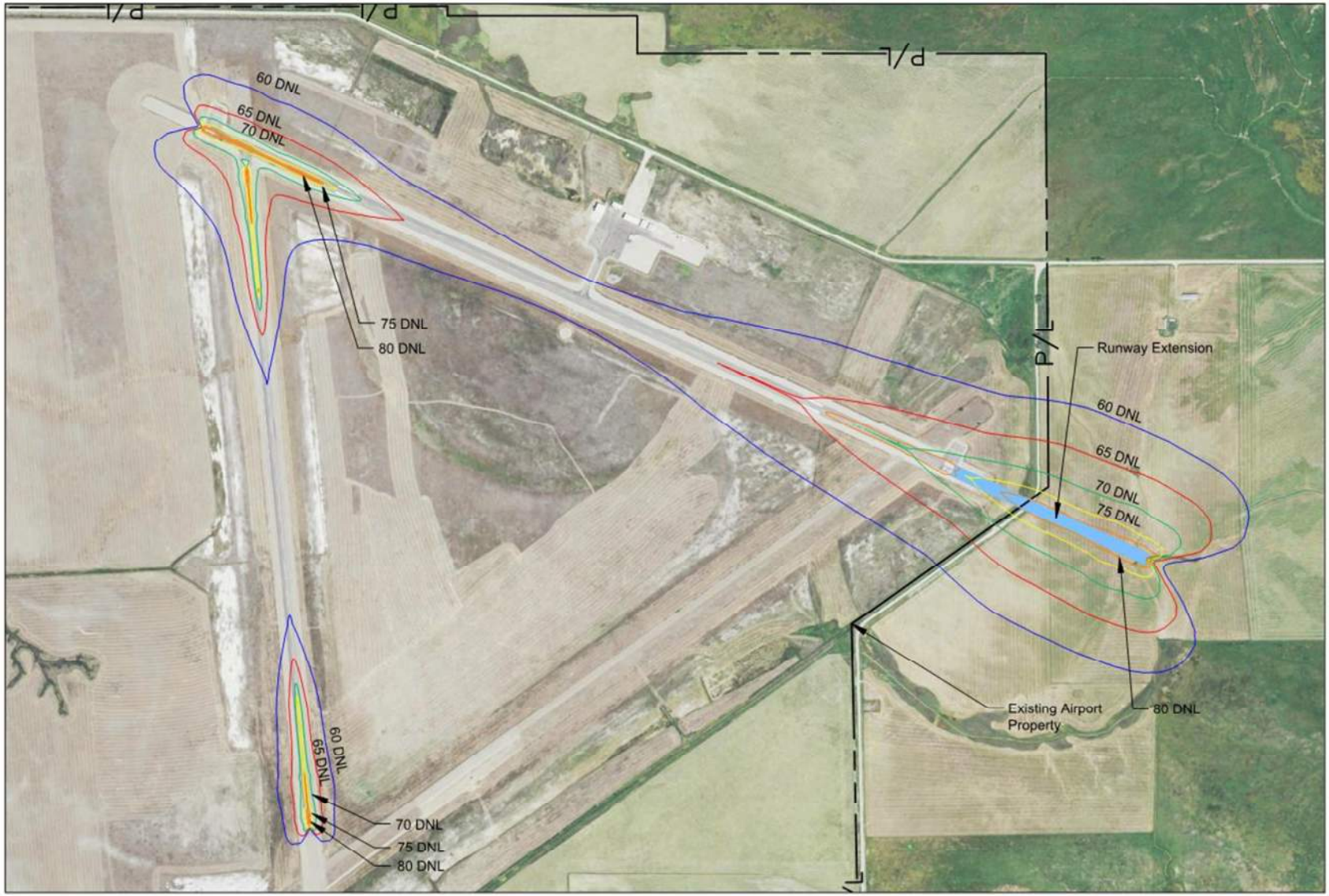
After the runway is extended, it is recommended the airport acquire property up to the 65 DNL, to prevent incompatible land uses in the future and enhance noise control.

FIGURE 2: ALL NOISE CONTOURS (2014)



Source: T-O Engineers, Inc.

FIGURE 3: ALL NOISE CONTOURS (2034)



Source: T-O Engineers, Inc.

Appendix A: INM Scenarios

Base Case 2014

INM 7.0d SCENARIO RUN INPUT REPORT 27-Apr-15 14:57

STUDY: I:\140052\ACADDWG\INM\140052_NOISESTUDY\
  Created : 17-Mar-15 15:06
  Units : English
  Airport : 1U7
  Description :
    Bear Lake County Airport - Noise Study

SCENARIO: 2014 Scenario
  Created : 18-Mar-15 11:30
  Description : 2014 Scenario
  Last Run : 24-Apr-15 09:11
  Run Duration : 000:01:10

STUDY AIRPORT
  Latitude : 42.249750 deg
  Longitude : -111.341639 deg
  Elevation : 5932.6 ft

CASES RUN:

CASENAME: Base Year 2014
  Temperature : 37.8 F
  Pressure : 29.92 in-Hg
  AverageWind : 8.0 kt
  ChangeNPD : No

STUDY RUNWAYS
  10
    Latitude : 42.254745 deg
    Longitude : -111.347744 deg
    Xcoord : -0.2720 nmi
    Ycoord : 0.2996 nmi
    Elevation : 5929.8 ft
    OtherEnd : 28
    Length : 5726 ft
    Gradient : 0.05 %
    TkoThresh : 0 ft
    AppThresh : 0 ft

CASENAME: Base Year 2014
    RwyWind : 8.0 kt
  16
    Latitude : 42.253973 deg
    Longitude : -111.346666 deg
    Xcoord : -0.2240 nmi
    Ycoord : 0.2533 nmi
    Elevation : 5930.0 ft
    OtherEnd : 34

Length : 4588 ft
Gradient : -0.01 %
TkoThresh : 0 ft
AppThresh : 0 ft

CASENAME: Base Year 2014
RwyWind : 8.0 kt
28
Latitude : 42.248079 deg
Longitude : -111.328592 deg
Xcoord : 0.5814 nmi
Ycoord : -0.1002 nmi
Elevation : 5932.5 ft
OtherEnd : 10
Length : 5726 ft
Gradient : -0.05 %
TkoThresh : 0 ft
AppThresh : 0 ft

CASENAME: Base Year 2014
RwyWind : 8.0 kt
34
Latitude : 42.241428 deg
Longitude : -111.345218 deg
Xcoord : -0.1595 nmi
Ycoord : -0.4991 nmi
Elevation : 5929.6 ft
OtherEnd : 16
Length : 4588 ft
Gradient : 0.01 %
TkoThresh : 0 ft
AppThresh : 0 ft

CASENAME: Base Year 2014
RwyWind : 8.0 kt

STUDY TRACKS
RwyId-OpType-TrkId
Sub PctSub TrkType Delta(ft)
10-APP-CRCL-1
0 100.00 Vectors 0.0
10-DEP-STR-1
0 100.00 Vectors 0.0
10-TGO-TGO-1
0 100.00 Vectors 0.0
16-APP-CRCL-1
0 100.00 Vectors 0.0
16-DEP-STG-1
0 100.00 Vectors 0.0
16-TGO-TGO-1
0 100.00 Vectors 0.0
28-APP-CRCL-1
0 100.00 Vectors 0.0
28-DEP-STRG-1

```
    0   100.00   Vectors        0.0
  28-TGO-TGO-1
    0   100.00   Vectors        0.0
  34-APP-CRCL-1
    0   100.00   Vectors        0.0
  34-DEP-DEP-1
    0   100.00   Vectors        0.0
  34-TGO-TGO-1
    0   100.00   Vectors        0.0

STUDY TRACK DETAIL
  RwyId-OpType-TrkId-SubTrk
     #  SegType       Dist/Angle       Radius(nmi)
  10-APP-CRCL-1-0
     1  Straight        2.0000 nmi
     2  Left-Turn     180.0000 deg       0.4500
     3  Straight        0.8000 nmi
  10-DEP-STR-1-0
     1  Straight        3.0000 nmi
  10-TGO-TGO-1-0
     1  Straight        1.2000 nmi
     2  Left-Turn     180.0000 deg       0.4500
     3  Straight        2.0000 nmi
     4  Left-Turn     180.0000 deg       0.4500
     5  Straight        0.8000 nmi
  16-APP-CRCL-1-0
     1  Straight        2.0000 nmi
     2  Left-Turn     180.0000 deg       0.4500
     3  Straight        0.8000 nmi
  16-DEP-STG-1-0
     1  Straight        3.0000 nmi
  16-TGO-TGO-1-0
     1  Straight        1.2000 nmi
     2  Left-Turn     180.0000 deg       0.4500
     3  Straight        2.0000 nmi
     4  Left-Turn     180.0000 deg       0.4500
     5  Straight        0.8000 nmi
  28-APP-CRCL-1-0
     1  Straight        2.0000 nmi
     2  Left-Turn     180.0000 deg       0.4500
     3  Straight        0.8000 nmi
  28-DEP-STRG-1-0
     1  Straight        3.0000 nmi
  28-TGO-TGO-1-0
     1  Straight        1.2000 nmi
     2  Left-Turn     180.0000 deg       0.4500
     3  Straight        2.0000 nmi
     4  Left-Turn     180.0000 deg       0.4500
     5  Straight        0.8000 nmi
  34-APP-CRCL-1-0
     1  Straight        2.0000 nmi
     2  Left-Turn     180.0000 deg       0.4500
     3  Straight        0.8000 nmi
  34-DEP-DEP-1-0
     1  Straight        3.0000 nmi
  34-TGO-TGO-1-0
```

1	Straight	1.2000 nmi	
2	Left-Turn	180.0000 deg	0.4500
3	Straight	2.0000 nmi	
4	Left-Turn	180.0000 deg	0.4500
5	Straight	0.8000 nmi	

AIRCRAFT GROUP ASSIGNMENTS

AcftId	GroupId	AcftType
CNA441	ALL	Civil
CNA510	ALL	Civil
GASEPV	ALL	Civil

STUDY AIRPLANES

CNA441	Standard data
CNA510	Standard data
GASEPV	Standard data

STUDY SUBSTITUTION AIRPLANES

BEC200	Standard data
PA46	Standard data

USER-DEFINED NOISE CURVES

USER-DEFINED METRICS

USER-DEFINED PROFILE IDENTIFIERS

USER-DEFINED PROCEDURAL PROFILES

USER-DEFINED FIXED-POINT PROFILES

USER-DEFINED FLAP COEFFICIENTS

USER-DEFINED JET THRUST COEFFICIENTS

USER-DEFINED PROP THRUST COEFFICIENTS

USER-DEFINED GENERAL THRUST COEFFICIENTS

STUDY MILITARY AIRPLANES

USER-DEFINED MILITARY NOISE CURVES

USER-DEFINED MILITARY PROFILE IDENTIFIERS

USER-DEFINED MILITARY FIXED-POINT PROFILES

STUDY HELICOPTERS

USER-DEFINED HELICOPTER PROFILE IDENTIFIERS

USER-DEFINED HELICOPTER PROCEDURAL PROFILES

USER-DEFINED HELICOPTER NOISE CURVES

USER-DEFINED HELICOPTER DIRECTIVITY

CASE FLIGHT OPERATIONS - [Base Year 2014]

Acft	Op	Profile	Stg	Rwy	Track	Sub Group		Day	Evening	Night
CNA441	APP	STANDARD	1	10	CRCL-1	0	ALL	0.0250	0.0000	0.0000
CNA441	APP	STANDARD	1	16	CRCL-1	0	ALL	0.0125	0.0000	0.0000
CNA441	APP	STANDARD	1	28	CRCL-1	0	ALL	0.2000	0.0000	0.0000
CNA441	APP	STANDARD	1	34	CRCL-1	0	ALL	0.0125	0.0000	0.0000
CNA441	DEP	STANDARD	1	10	STR-1	0	ALL	0.0250	0.0000	0.0000
CNA441	DEP	STANDARD	1	16	STG-1	0	ALL	0.0125	0.0000	0.0000
CNA441	DEP	STANDARD	1	28	STRG-1	0	ALL	0.2000	0.0000	0.0000
CNA441	DEP	STANDARD	1	34	DEP-1	0	ALL	0.0125	0.0000	0.0000
CNA510	APP	STANDARD	1	10	CRCL-1	0	ALL	0.0250	0.0000	0.0000
CNA510	APP	STANDARD	1	16	CRCL-1	0	ALL	0.0125	0.0000	0.0000
CNA510	APP	STANDARD	1	28	CRCL-1	0	ALL	0.2000	0.0000	0.0000
CNA510	APP	STANDARD	1	34	CRCL-1	0	ALL	0.0125	0.0000	0.0000
CNA510	DEP	STANDARD	1	10	STR-1	0	ALL	0.0250	0.0000	0.0000
CNA510	DEP	STANDARD	1	16	STG-1	0	ALL	0.0125	0.0000	0.0000
CNA510	DEP	STANDARD	1	28	STRG-1	0	ALL	0.2000	0.0000	0.0000
CNA510	DEP	STANDARD	1	34	DEP-1	0	ALL	0.0125	0.0000	0.0000
GASEPV	APP	STANDARD	1	10	CRCL-1	0	ALL	0.2400	0.0000	0.0150
GASEPV	APP	STANDARD	1	16	CRCL-1	0	ALL	0.1200	0.0000	0.0000
GASEPV	APP	STANDARD	1	28	CRCL-1	0	ALL	1.9200	0.0000	0.0850
GASEPV	APP	STANDARD	1	34	CRCL-1	0	ALL	0.1200	0.0000	0.0000
GASEPV	DEP	STANDARD	1	10	STR-1	0	ALL	0.2400	0.0000	0.0150
GASEPV	DEP	STANDARD	1	16	STG-1	0	ALL	0.1200	0.0000	0.0000
GASEPV	DEP	STANDARD	1	28	STRG-1	0	ALL	1.9200	0.0000	0.0850
GASEPV	DEP	STANDARD	1	34	DEP-1	0	ALL	0.1200	0.0000	0.0000
GASEPV	TGO	STANDARD	1	10	TGO-1	0	ALL	0.1500	0.0000	0.0000
GASEPV	TGO	STANDARD	1	16	TGO-1	0	ALL	0.0000	0.0000	0.0000
GASEPV	TGO	STANDARD	1	28	TGO-1	0	ALL	0.8500	0.0000	0.0000
GASEPV	TGO	STANDARD	1	34	TGO-1	0	ALL	0.0000	0.0000	0.0000

CASE RUNUP OPERATIONS - [Base Year 2014]

SCENARIO RUN OPTIONS
Run Type : Single-Metric
NoiseMetric : DNL
Do Terrain : No Terrain
Do Contour : Recursive Grid
Refinement : 14
Tolerance : 0.25
Low Cutoff : 55.0
High Cutoff : 85.0
Ground Type : All-Soft-Ground
Do Population : No
Do Locations : No

Do Standard : No
Do Detailed : No
Compute System Metrics:
DNL : No
CNEL : No
LAEQ : No
LAEQD : No
LAEQN : No
SEL : No
LAMAX : No
TALA : No
NEF : No
WECPNL : No
EPNL : No
PNLTM : No
TAPNL : No
CEXP : No
LCMAX : No
TALC : No

SCENARIO GRID DEFINITIONS

Name	Type	X(nmi)	Y(nmi)	Ang(deg)	DisI(nmi)	DisJ(nmi)	NI	NJ	Thrsh	dAmb	(hr)
CONTOUR	Contour	-8.0000	-8.0000	0.0	16.0000	16.0000	2	2	85.0	0.0	0.00

Future Case 2034

INM 7.0d SCENARIO RUN INPUT REPORT 27-Apr-15 14:57

STUDY: I:\140052\ACADDWG\INM\140052_NOISESTUDY\
  Created : 17-Mar-15 15:06
  Units : English
  Airport : 1U7
  Description :
    Bear Lake County Airport - Noise Study

SCENARIO: 2034 Scenario
  Created : 18-Mar-15 13:34
  Description : 2034 Scenario
  Last Run : 24-Apr-15 09:13
  Run Duration : 000:01:11

STUDY AIRPORT
  Latitude : 42.249750 deg
  Longitude : -111.341639 deg
  Elevation : 5932.6 ft

CASES RUN:

CASENAME: Future Year 2034
  Temperature : 37.8 F
  Pressure : 29.92 in-Hg
  AverageWind : 8.0 kt
  ChangeNPD : No

STUDY RUNWAYS
  10
    Latitude : 42.254745 deg
    Longitude : -111.347744 deg
    Xcoord : -0.2720 nmi
    Ycoord : 0.2996 nmi
    Elevation : 5929.8 ft
    OtherEnd : 28
    Length : 5726 ft
    Gradient : 0.05 %
    TkoThresh : 0 ft
    AppThresh : 0 ft

CASENAME: Future Year 2034
    RwyWind : 8.0 kt
  16

Latitude : 42.253973 deg
Longitude : -111.346666 deg
Xcoord : -0.2240 nmi
Ycoord : 0.2533 nmi
Elevation : 5930.0 ft
OtherEnd : 34
Length : 4588 ft
Gradient : -0.01 %
TkoThresh : 0 ft
AppThresh : 0 ft

CASENAME: Future Year 2034
RwyWind : 8.0 kt
28
Latitude : 42.248079 deg
Longitude : -111.328592 deg
Xcoord : 0.5814 nmi
Ycoord : -0.1002 nmi
Elevation : 5932.5 ft
OtherEnd : 10
Length : 5726 ft
Gradient : -0.05 %
TkoThresh : 0 ft
AppThresh : 0 ft

CASENAME: Future Year 2034
RwyWind : 8.0 kt
34
Latitude : 42.241428 deg
Longitude : -111.345218 deg
Xcoord : -0.1595 nmi
Ycoord : -0.4991 nmi
Elevation : 5929.6 ft
OtherEnd : 16
Length : 4588 ft
Gradient : 0.01 %
TkoThresh : 0 ft
AppThresh : 0 ft

CASENAME: Future Year 2034
RwyWind : 8.0 kt

STUDY TRACKS
RwyId-OpType-TrkId
Sub PctSub TrkType Delta(ft)

10-APP-CRCL-1
0 100.00 Vectors 0.0
10-DEP-STR-1
0 100.00 Vectors 0.0
10-TGO-TGO-1
0 100.00 Vectors 0.0
16-APP-CRCL-1
0 100.00 Vectors 0.0
16-DEP-STG-1
0 100.00 Vectors 0.0
16-TGO-TGO-1
0 100.00 Vectors 0.0
28-APP-CRCL-1
0 100.00 Vectors 0.0
28-DEP-STRG-1
0 100.00 Vectors 0.0
28-TGO-TGO-1
0 100.00 Vectors 0.0
34-APP-CRCL-1
0 100.00 Vectors 0.0
34-DEP-DEP-1
0 100.00 Vectors 0.0
34-TGO-TGO-1
0 100.00 Vectors 0.0

STUDY TRACK DETAIL
RwyId-OpType-TrkId-SubTrk
SegType Dist/Angle Radius(nmi)
10-APP-CRCL-1-0
1 Straight 2.0000 nmi
2 Left-Turn 180.0000 deg 0.4500
3 Straight 0.8000 nmi
10-DEP-STR-1-0
1 Straight 3.0000 nmi
10-TGO-TGO-1-0
1 Straight 1.2000 nmi
2 Left-Turn 180.0000 deg 0.4500
3 Straight 2.0000 nmi
4 Left-Turn 180.0000 deg 0.4500
5 Straight 0.8000 nmi
16-APP-CRCL-1-0
1 Straight 2.0000 nmi
2 Left-Turn 180.0000 deg 0.4500
3 Straight 0.8000 nmi
16-DEP-STG-1-0
1 Straight 3.0000 nmi
16-TGO-TGO-1-0

```
    1  Straight        1.2000 nmi
    2  Left-Turn     180.0000 deg      0.4500
    3  Straight        2.0000 nmi
    4  Left-Turn     180.0000 deg      0.4500
    5  Straight        0.8000 nmi
  28-APP-CRCL-1-0
    1  Straight        2.0000 nmi
    2  Left-Turn     180.0000 deg      0.4500
    3  Straight        0.8000 nmi
  28-DEP-STRG-1-0
    1  Straight        3.0000 nmi
  28-TGO-TGO-1-0
    1  Straight        1.2000 nmi
    2  Left-Turn     180.0000 deg      0.4500
    3  Straight        2.0000 nmi
    4  Left-Turn     180.0000 deg      0.4500
    5  Straight        0.8000 nmi
  34-APP-CRCL-1-0
    1  Straight        2.0000 nmi
    2  Left-Turn     180.0000 deg      0.4500
    3  Straight        0.8000 nmi
  34-DEP-DEP-1-0
    1  Straight        3.0000 nmi
  34-TGO-TGO-1-0
    1  Straight        1.2000 nmi
    2  Left-Turn     180.0000 deg      0.4500
    3  Straight        2.0000 nmi
    4  Left-Turn     180.0000 deg      0.4500
    5  Straight        0.8000 nmi

AIRCRAFT GROUP ASSIGNMENTS
  AcftId          GroupId         AcftType
  CNA441            ALL             Civil
  CNA510            ALL             Civil
  GASEPV            ALL             Civil

--------------------------------------------------------------------

STUDY AIRPLANES
  CNA441        Standard data
  CNA510        Standard data
  GASEPV        Standard data

STUDY SUBSTITUTION AIRPLANES
  BEC200        Standard data
  PA46          Standard data
```

USER-DEFINED NOISE CURVES

USER-DEFINED METRICS

USER-DEFINED PROFILE IDENTIFIERS

USER-DEFINED PROCEDURAL PROFILES

USER-DEFINED FIXED-POINT PROFILES

USER-DEFINED FLAP COEFFICIENTS

USER-DEFINED JET THRUST COEFFICIENTS

USER-DEFINED PROP THRUST COEFFICIENTS

USER-DEFINED GENERAL THRUST COEFFICIENTS

STUDY MILITARY AIRPLANES

USER-DEFINED MILITARY NOISE CURVES

USER-DEFINED MILITARY PROFILE IDENTIFIERS

USER-DEFINED MILITARY FIXED-POINT PROFILES

STUDY HELICOPTERS

USER-DEFINED HELICOPTER PROFILE IDENTIFIERS

USER-DEFINED HELICOPTER PROCEDURAL PROFILES

USER-DEFINED HELICOPTER NOISE CURVES

USER-DEFINED HELICOPTER DIRECTIVITY

CASE FLIGHT OPERATIONS - [Future Year 2034]

Acft	Op	Profile	Stg	Rwy	Track	Sub	Group		Day	Evening	Night	
CNA441	APP	STANDARD	1	10		CRCL-1	0	ALL		0.0500	0.0000	0.0000
CNA441	APP	STANDARD	1	16		CRCL-1	0	ALL		0.0250	0.0000	0.0000
CNA441	APP	STANDARD	1	28		CRCL-1	0	ALL		0.4000	0.0000	0.0000

CNA441	APP	STANDARD	1	34	CRCL-1	0 ALL	0.0250	0.0000	0.0000
CNA441	DEP	STANDARD	1	10	STR-1	0 ALL	0.0500	0.0000	0.0000
CNA441	DEP	STANDARD	1	16	STG-1	0 ALL	0.0250	0.0000	0.0000
CNA441	DEP	STANDARD	1	28	STRG-1	0 ALL	0.4000	0.0000	0.0000
CNA441	DEP	STANDARD	1	34	DEP-1	0 ALL	0.0250	0.0000	0.0000
CNA510	APP	STANDARD	1	10	CRCL-1	0 ALL	0.0500	0.0000	0.0000
CNA510	APP	STANDARD	1	16	CRCL-1	0 ALL	0.0250	0.0000	0.0000
CNA510	APP	STANDARD	1	28	CRCL-1	0 ALL	0.4000	0.0000	0.0000
CNA510	APP	STANDARD	1	34	CRCL-1	0 ALL	0.0250	0.0000	0.0000
CNA510	DEP	STANDARD	1	10	STR-1	0 ALL	0.0500	0.0000	0.0000
CNA510	DEP	STANDARD	1	16	STG-1	0 ALL	0.0250	0.0000	0.0000
CNA510	DEP	STANDARD	1	28	STRG-1	0 ALL	0.4000	0.0000	0.0000
CNA510	DEP	STANDARD	1	34	DEP-1	0 ALL	0.0250	0.0000	0.0000
GASEPV	APP	STANDARD	1	10	CRCL-1	0 ALL	0.6400	0.0000	0.0150
GASEPV	APP	STANDARD	1	16	CRCL-1	0 ALL	0.3200	0.0000	0.0000
GASEPV	APP	STANDARD	1	28	CRCL-1	0 ALL	5.1200	0.0000	0.0850
GASEPV	APP	STANDARD	1	34	CRCL-1	0 ALL	0.3200	0.0000	0.0000
GASEPV	DEP	STANDARD	1	10	STR-1	0 ALL	0.6400	0.0000	0.0150
GASEPV	DEP	STANDARD	1	16	STG-1	0 ALL	0.3200	0.0000	0.0000
GASEPV	DEP	STANDARD	1	28	STRG-1	0 ALL	5.1200	0.0000	0.0850
GASEPV	DEP	STANDARD	1	34	DEP-1	0 ALL	0.3200	0.0000	0.0000
GASEPV	TGO	STANDARD	1	10	TGO-1	0 ALL	0.4500	0.0000	0.0000
GASEPV	TGO	STANDARD	1	16	TGO-1	0 ALL	0.0000	0.0000	0.0000
GASEPV	TGO	STANDARD	1	28	TGO-1	0 ALL	2.5500	0.0000	0.0000
GASEPV	TGO	STANDARD	1	34	TGO-1	0 ALL	0.0000	0.0000	0.0000

CASE RUNUP OPERATIONS - [Future Year 2034]

SCENARIO RUN OPTIONS
Run Type : Single-Metric
NoiseMetric : DNL
Do Terrain : No Terrain
Do Contour : Recursive Grid
Refinement : 14
Tolerance : 0.25
Low Cutoff : 55.0
High Cutoff : 85.0
Ground Type : All-Soft-Ground
Do Population : No
Do Locations : No
Do Standard : No
Do Detailed : No
Compute System Metrics:
DNL : No
CNEL : No

LAEQ : No
LAEQD : No
LAEQN : No
SEL : No
LAMAX : No
TALA : No
NEF : No
WECPNL : No
EPNL : No
PNLTM : No
TAPNL : No
CEXP : No
LCMAX : No
TALC : No

SCENARIO GRID DEFINITIONS

Name	Type	X(nmi)	Y(nmi)	Ang(deg)	DisI(nmi)	DisJ(nmi)	NI	NJ	Thrsh	dAmb	(hr)
CONTOUR	Contour	-8.0000	-8.0000	0.0	16.0000	16.0000	2	2	85.0	0.0	0.00

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APPENDIX I: AIRPORT PROPERTY DEEDS

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Heber Kunz was voted $15.00 damage to crops.

Miss Painter, deceased, was dropped from the allowance roll.

Mrs. Chas. Gaskins was appointed Deputy Registrar for Montpelier Precinct No. 3.

Application of Mrs. Ralph Rich for a Beer License at the Red Rooster Cafe was approved.

Adjournment was taken until 1 p.m. Saturday May 16, 1942 at which time final approval of the Airport will be made.

Attest: Lund Tueichs [signature] Signed Henry Teusch [signature] Chairman

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Minutes of meeting of Board of County Commissioners, held June 6, 1942 at 2 P. M.

Upon advice of C. A. A. & Army Engineers the following additional land for Airport was purchased from J. R. Pugmire for consideration of $2050.00.

ALL OF THAT PORTION OF THE FOLLOWING DESCRIBED TRACTS OF LAND WHICH IS LOCATED SOUTH AND EAST OF THE PARIS-WARDBORO COUNTY ROAD: Commencing at the Northeast corner of Section 32, Township 13 South, Range 44 East, Boise Meridian, and running thence South 45.50 chains; thence West 10 chains; thence North 14 chains; thence West 10 chains; thence North 11.50 chains more or less, to the Southeast corner of the northwest quarter of the northeast quarter of said Section 32; thence West 40 chains; thence North 26.50 chains; thence East 20 chains; thence South 4 chains; thence East 40 chains; thence South 2.50 chains to the place of beginning.

Beginning 54½ rods North from the Southwest Corner of NE¼ of SE¼ of Sec. 32, Twp. 13 South, Range 44 E. B. M., run thence North 35 rods; thence West 160 rods; thence South 35 rods; thence East 160 rods to beginning.

Commence 10 chains West from NE corner of SE¼, Sec. 32, Twp. 13 S. R. 44 E.B.M., run thence West 10 chains; thence South 5 chains 50 links; thence East 10 chains; thence North 5 chains 50 links to beginning.

Beginning at the NE corner of SW¼ of SE¼ of Sec. 32, Twp. 13 S. R. 44 E.B.M., run thence South 68 rods; thence West 40 rods; thence South 29 rods; thence West 120 rods; thence North 81 rods, more or less to Bird-slough; thence Easterly along said slough 94 rods, more or less to its intersection with east and west subdivision line; thence East 66 rods, more or less, to beginning.

Also, beginning at SE corner of NW¼ of SE¼ of Sec. 32, same township and range, run thence North 60 rods; thence West 160 rods; thence South 60 rods; thence East 160 rods to beginning.

TRACT-1562, Being a Fraction of Lots 2 and 3, of Section 5, Twp. 14 S. R. 44 E.B.M., further described as, Commencing at a point 17 rods S. of NW Cor. said Lot 3, run thence East 120 rods; South 19 rods; East 40 rods; South 44 rods to SE Cor. Lot 2, said Sec. 5; thence West 160 rods; thence North 63 rods to beginning. Also:

All of that portion of SW¼ NE¼ and S½ NW¼ said Sec. 5, lying North of the Paris-Dingle Highway. Also:

Lot 4 of said Sec. 5, same township and range. Also:

T-3521, being a fraction of Sec. 6, same Twp. and Range; further described as follows, Commencing at a point S. 88° 30' East 205 feet and South 2° 10' West 355.8 feet, and 150 feet East, from the N¼ corner of said Sec. 6, which point is 150 feet east of the E. bank of the Outlet Canal of Utah Power & Light Co., thence in a southeasterly direction 150 feet from east side and parallel to East bank of said Canal approximately feet to north line of Paris -Dingle Highway; thence in an easterly direction along said line to a point where it intersects the eighth section line in NE¼ of said Sec. 6; thence North on said line feet, to the SE Corner of the W. Smith Hoge land; thence West 965 feet to point of beginning, Also:

Begin at NE Corner Lot 1, said Sec. 6; thence West 80 rods; thence South feet to N. line of Paris-Dingle Highway; thence following said line to East line of said Sec. 6, thence North feet to place of beginning. Also:

Beginning at the NE corner of Sec. 32, in Twp. 13 S. R. 44 E.B.M., and run thence South 20 chains; thence West 60 chains; thence North 86.50 chains; thence East 20 chains; thence South 4 chains; thence East 40 chains; thence South 2.50 chains to place of beginning. Also:

Beginning at the SE Corner of the NE¼ of Sec. 32, same township and Range, and running thence South 5.50 chains; thence West 10 chains; thence North 14 chains; thence West 10 chains; thence North 11.50 chains; thence East 20 chains; thence South 20 chains, to place of beginning.

(This Deed is executed for the express reason that when said land was conveyed to C. C. R. Pugmire, the wives of Grantors herein did not join in said conveyance.)

And the following Resolution was passed relative to operation and maintenance of the Bear Lake County Airport:

RESOLUTION CONSTITUTING AGREEMENT WITH THE UNITED
STATES RELATIVE TO OPERATION AND MAINTENANCE OF THE BEAR LAKE COUNTY AIRPORT

WHEREAS, the Administrator of Civil Aeronautics of the United States Department of Commerce (hereinafter referred to as the "Administrator"), with the approval of a Board composed of the Secretary of War, the Secretary of the Navy, and the Secretary of Commerce, has designated as necessary for national defense a project (herein called the "Project") for development of the Bear Lake County Airport (herein called the "Airport"), which Project is identified as S-904-10-11; and

WHEREAS, as a condition precedent to release and operation of the Project, the Administrator requires that the County of Bear Lake, State of Idaho (herein called the "[illegible]") has certain property interests in the landing area of the Airport and the lands to be [illegible] the Project and enter into an agreement with the United States (herein called the "Government"), in the manner and form hereof; and

NOW, THEREFORE, BE IT RESOLVED BY THE BOARD of County Commissioners of the County:

Section 1. That for and in consideration of the development of the Airport by the Government as contemplated by the Project, the County does hereby covenant and agree with the Government as follows, this agreement to become effective upon the award of any construction contract for any portion of the Project or the inauguration of any portion of the Project under force account, and to continue in full force and effect during the useful life of the improvements made under the Project:

(a) The Government shall have the right to determine the exact nature of the improvements to be made under the Project, the manner in which the Project is to be conducted, the amount of Federal funds to be expended, and all other matters relating to the Project. The County will cooperate with the Governement to ensure prosecution of the Project without interference or hindrance, and agrees to permit the agents and employees of the Government, and all persons authorized by the Administrator, to enter upon, use, aand occupy the property to be developed, as the Administrator may deem necessary or desirable in connection with the conduct of the Project.

(b) The County agrees to indemnify and save harmless the Government against and from any and all claims and damages which may arise from or in connection with the carrying out of the Project, excepting claims for injuries or death to persons resulting from willful or negligent acts or omissions of the Government or any of its officrs, employees agents, or agencies, all other claims sounding in tort, and claims for materials furnished or work performed pursuant to authority given by officers, employees, or agents of the Government.

(c) It is understood and agreed that all improvements made under the Project shall be the sole and absolute property of the County except where specifically agreed otherwise, in writing, prior to the undertaking of the improvement or installation in question.

(d) The County agrees that, continuously during the term of this agreement, the Airport will be operated as such, and for no other purpose, and that unless utilized exclusively for military purposes, it will at all times be operated for the use and benefit of the public on reasonable terms and without unjust discrimination, and without grant or exercise of any exclusive right for use of the Airport within the meaning of Section 308 of the Civil Aeronautics Act of 1938.

(e) The County agrees that it will at all times during the term of this agreement maintain in good and serviceable condition and repair the entire landing area of the Airport and all improvements, facilities, and equipment which have been or may be made, constructed, or installed with Federal aid, including all improvements made under the Project, other than facilities and equipment owned by the Government; Provided, that during any period the said landing area or airport improvements, facilities, or equipment so leased or licensed, which their non-military use bears to their total use.

(f) Insofar as is within its powers and reasonably possible, the County will prevent any use of land either within or outside the boundaries of the Airport, including the construction, erection, alteration, or growth, of any structure or other object thereon, which would be a hazard to the landing, taking-off, or maneuvering of aircraft at the Airport, or otherwise limit its usefulness as an airport.

(g) In order to protect the rights and interests of the Government under this resolution, the County agrees that it will not enter into any transaction which would operated to deprive it of any of the rights and powers necessary to perform any or all of the covenants is assumed by another public agency. The County further agrees that it will not execute any deed, lease, operation or management agreement, or other instrument affecting the airport or any portion of facility thereof or interest therein, even though the other part to the transaction is the Government acting through the War Department or Navy Department, unless thirty days' notice of its intention to do so has been given to the Administrator, or unless the Administrator has waived the right to such notice. A copy of the proposed instrument in question shall be attached to said notice, which shall state the date upon which the same is to be executed.

ade herein, nless by uch transac- ion the ob- igation to) erform all) uch cove-) ants)

(h) The County agrees that, during the time of war or national emergency, it will lease to the Government, for military or naval use, the landing area of the Airport, or any part thereof, for a term not to exceed the duration of such war or national emergency and six months thereafter, at a rental which shall be nominal provided that the Government agrees to bear at the expense of amintaining and keeping in good repair such area other than that proportion of the maintenance costs for which the County would be responsible under Section 1 (e) hereof.

Section 2. In order to satisfy the Government that the County is qualified to sponsor the Project under the project eligibility requirements of the Civil Aeronautics Administration and to induce the Government to proceed with the Project in accordance with the offer made by the County in Section 1 hereof, the County does hereby represent and warrant to the Government as follows:

(a) That the County has title in fee simple to all lands comprising the landing area of the Airport and to all lands to be improved under the Project, which lands are shown on the sketch attached hereto as part of Exhibit A, and that said lands are free from any lien, lease, easement, or other encumbrance, other than those described as follows:

All of that portion of the following described tracts of land which is located south and east of the Paris-Wardboro County Road, Commencing at the northeast corner of Section 32, Township 13 South Range 44 East, Boise Meridian, and running thence South 40.50 chains; thence West 10 chains; thence North 14 chains; thence West 10 chains; thence North 11.50 chains, more or less to the southeast corner of the northwest quarter of the northeast quarter of said Section 32; thence West 40 chains; thence North 26.50 chains; thence East 80 chains; thence South 4 chains; thence East 40 chains; thence South 2.50 chains to the place of beginning.

Beginning at a point 20 chains South of NE corner of Sec. 32, Twp. 13 S. R. 44 E. B. M. run thence South 25.5 chains; thence West 10.0 chains; thence North 14.0 chains; thence East 10.0 chains; thence North 11.5 chains more or less, to the SE Corner of the Northwest quarter of the northeast quarter of said section 32, thence East 20.0 chains to place of beginning.

Commence 10 chains West from NE corner of SE¼, Sec. 32, Twp. 13 S. R. 44 E. B.M. run thence West 10 chains; thence South 5 chains 50 links; thence East 10 chains; thence North 5 chains 50 links to beginning.

Beginning at the NE corner of S½ of SE¼ of Sec. 32, Twp. 13 South of Range 44 E. B.M., run thence South 68 rods; thence West 40 rods; thence South 29 rods; thence West 120 rods; thence North 81 rods, more or less to Bird-slough; thence Easterly along said slough 94 rods, more or less to its interwection with east and west subdivision line; thence East 66 rods; more or less to beginning. Also beginning at SE corner of NW¼ of SE¼ of Sec. 32, same township and range, run thence North 60 rods; thence West 160 rods; thence South 60 rods; thence East 160 rods to beginning.

That contracts have been entered into between Bear Lake County and the owners of the above described property for the purchase of same by the County and deeds have been sent to the owners for execution which deeds have not as yet been received.

(b) That the County has the Power and Authority to adopt this resolution through its Board of County Commissioners, and to perform all of the covenants contained in this resolution.

(c) That the County is financially and practically able to perform all of the covenants contained in this resolution;

(d) That there is no pending or threatened litigation or other legal proceeding, and no material and relevant fact which might adversely affect the prosecution of the Project, the operation of the Airport, or the performance of any of the covenants contained in Section 1 hereof, which has not been brought to the attention of the Administrator;

(e) That the Board of County Commissioners of the County is the proper body to adopt this resolution and has complied with all requirements of law in so doing;

(f) That such of the above representations and warranties as involve questions of law are made upon the advise of the County Attorny of the County, whose certificate as to such matters has previously been delivered to the Board of County Commissioners and is annexed hereto and made a part hereof, as Exhibit A.

Section 3. That County Attorney and Clerk of the Board of County Commissioners be and they are authorized and directed to furnish the Administrator copies of all the documents representing or evidencing the encumbrances described in Section 2 (a) hereof, together with such legal and factual information relative to the Airport, the Project, and this resolution as the Administrator may reasonably request.

Section 4. That two certified copies of this resolution be sent forth with to the Administrator, through the Regional Manager of the Civil Aeronautics Administration, Seattle, Washington.

Section 5. That this resolution shall be effective immediately.

We approve of the adoption of the foregoing Resolution.

HENRY TEUSCHER, Chairman
BERT ORR
E. D. HYMAS
BOARD OF COUNTY COMMISSIONERS OF BEAR LAKE COUNTY
STATE OF IDAHO

Adjourned until regular meeting date June 8, 1942.

Attest: Sam C. Franks SIGNED Henry Teuscher CHAIRMAN

Minutes of meeting of Board of County Commissioners held this the 8th day of June 1942. Present all members of the Board, Clerk and others when the following proceedings were had to-wit:

Minutes of previous meeting read and approved.

Application Charles C. Stock for Beer License approved and license ordered issued.

The following Road and Bridge claims were approved and warrants ordered issued.

	DISTRICT NO. 1		
Curtiss Pugmire	$ 8.00	D'Orr Bunderson	$ 4.70
Lorenzo Booth	6.12	Bert Bunderson	19.49
Walter Lewis	15.50	Ariel Thomas	2.50
Renald Parker	5.00	Oscar Booth	3.75
Wm. R. Bee	3.50	Ralph Findlay	2.50
	DISTRICT NO. 2		
S. C. Hall	10.00	A. D. Oakey	1.00
James M. Oakey	3.00	Willis J. Bischoff	1.50
Clinton Case	7.50	R. A. Bischoff	27.00
	DISTRICT NO. 3		
Maylan Lakey	8.00	H. E. Thirkill	10.50
Ed Lyon	4.75		

	GRADER	
Joe Nicholls	Fuel	$.
Irl C. Nye	Repairs	11.6
L. S. Crossley	Fuel & Repairs	13.9
Landes Tractor & Equip. Co.	Reparis	10.9
Clifford E. Price	Oper.	7.5
Delwin Orr.	"	8.3
Irl C. Nye	Plank	15.2
The R. Hardesty Mfg. Co.	Pipe	1.5

The following described land was sold at minimum price to: [illegible] Proc. NW¼ NE¼ Tract No. 2659 (5½ acres); Sale Price $16.50

Harrison Rees-Lot 2 Blk. 4, Hurt's Addition, City of [illegible]

'86 JUL 3 AM 8 58

JOAN P. [illegible] CLERK
Elaine Bolton 3474
DEPUTY CASE NO.

LYNN BROWER
Attorney for Bear Lake County
484 Washington Street
Montpelier, ID 83254
Telephone: 208-847-2499

IN THE DISTRICT COURT OF THE SIXTH JUDICIAL DISTRICT OF THE STATE OF IDAHO, IN AND FOR THE COUNTY OF BEAR LAKE

COUNTY OF BEAR LAKE,

Plaintiff,

vs.

MOSIAH N. BOOTH AND ADELINE BOOTH, HUSBAND AND WIFE, JACOB N. MERKLEY AND THERESA MERKLEY HUSBAND AND WIFE, ADAM WILCOX AND EUNICE J. WILCOX, HUSBAND AND WIFE, SAMUEL SCHWENDIMANN AND MAGDELINA SCHWENDIMANN, HUSBAND AND WIFE, C.C.R. PUGMIRE AND HATTIE PUGMIRE, HUSBAND AND WIFE, SMITH HOGE AND BERTA G. HOGE, HUSBAND AND WIFE, JAMES L. DUNFORD AND ELIZA J. DUNFORD, HUSBAND AND WIFE, OLEAN W. PARKER AND MARION L. PARKER, HUSBAND AND WIFE, AND ALL OTHER PERSONS UNKNOWN CLAIMING ANY RIGHT, TITLE, ESTATE OR INTEREST IN THE FOLLOWING DESCRIBED REAL ESTATE SITUATE SITUATE IN BEAR LAKE COUNTY, STATE OF IDAHO:

Township 13 South, Range 44 East of the Boise Meridian:

Section 29: The South 495 feet of the SW1/4SW1/4; the South 429 feet of the SE1/4SW1/4; and the South 165 feet of the SE1/4.

Section 30: The South 495 feet of the SE1/4.

CASE NO. 3474

DECREE QUIETING TITLE

'86 JUL 7 PM 12 27

BEAR LAKE COUNTY RECORDER
JOAN P. EBORN

Verna Rae Rowell
DEPUTY
FEE

141057

Section 31: E1/2. EXCEPT THEREFROM the following described tracts from Sections 30 and 31, more particularly described as follows:

1. Beginning at the Southwest corner of the SE1/4 of said Section 30, and running thence North 495 feet; thence South 88 degrees 30 minutes East 341 feet; thence South 2 degrees 10 minutes West 1818 feet; thence North 88 degrees 30 minutes West 293 feet; thence North 0 degrees 45 minutes East 1321 feet to the point of beginning.

2. Beginning at a point 1320 feet South 0 degrees 45 minutes West from the Southwest corner of the SE1/4 of said Section 30, and running thence South 0 degrees 45 minutes West 660 feet; thence South 88 degrees 30 minutes East 276 feet; thence North 2 degrees 10 minutes East 658 feet; thence North 88 degrees 30 minutes West 293 feet to the point of beginning.

3. Beginning at a point 1320 feet North 0 degrees 45 minutes East from the Southwest corner of the SE1/4 of said Section 31, and running thence North 0 degrees 45 minutes East 660 feet; thence South 88 degrees 30 minutes East 252 feet; thence South 2 degrees 10 minutes West 660 feet; thence North 88 degrees 30 minutes West 237 feet to the point of beginning.

4. Beginning at the Southwest corner of the SE1/4 of said Section 31, and running thence South 88 degrees 30 minutes East 205 feet; thence North 2 degrees 10 minutes East 1320 feet; thence North 88 degrees 30 minutes West 230 feet; thence North 0 degrees 45 minutes East 2640 feet; thence North 88 degrees 30 minutes West 8 feet; thence South 2 degrees 10 minutes West 3960 feet; thence South 88 degrees 30 minutes East 97 feet to the point of beginning.

5. Beginning at a point 1960 feet North 0 degrees 45 minutes East from the Southwest corner of the SE1/4 of said Section 31, and running thence North 0 degrees 45 minutes East 1320 feet; thence South 88 degrees 30 minutes East 278 feet; thence South 2 degrees 10 minutes West 1320 feet; thence North 88 degrees 30 minutes West 247 feet to the point of beginning.

Section 32: N1/2, SW1/4, W1/2SE1/4, ALSO, Beginning at the Northeast corner of the SE1/4 of said Section 32, and running thence West 1320 feet; thence South 1199 feet; thence North 57 degrees 39 minutes 09 seconds East 1562.46 feet, more or less, to the East line of Section 32; thence North 363 feet to the point of beginning.

Township 14 South, Range 44 East of the Boise Meridian:

Section 5: Lots 2, 3, 4, ALSO, all that portion of the S1/2NW1/4 and SW1/4NE1/4 lying North of the Northerly right of way line of the Paris-Dingle County Road.

Section 6: Lot 1, and all that portion of the SE1/4NE1/4 lying North of the Northerly right of way line of the Paris-Dingle County Road.

ALSO, Beginning at a point South 88 degrees 30 minutes East 456.4 feet from the South Quarter corner of Section 31, Township 13 South, Range 44 East of the Boise Meridian, which point is on the Utah Power & Light Company canal right of way and on the South line of Township 13 South, Range 44 East of the Boise Meridian, and running thence South 4 degrees 28 minutes East 168.7 feet to a point of a curve; thence on a 1 degree 03 minutes curve to the left for a distance of 180 feet to a point 354.75 feet South of said township line; thence East 840 feet; thence North 354.75 feet to the township line; thence North 88 degrees 30 minutes West on said township line 863.6 feet, more or less, to the point of beginning.

ALSO, Beginning at a point South 88 degrees 30 minutes East 205 feet and South 2 degrees 10 minutes West 355.8 feet and 150 feet East from the North Quarter corner of said Section 6, which point is 150 feet East of the East bank of the Outlet Canal of Utah Power & Light Company, and running thence in a Southeasterly direction 150 feet from the East and parallel to the East bank of said canal approximately 1350 feet, to the North line of the Paris-Dingle Highway; thence in

an Easterly direction along said line to a point where it intersects the East line of Lot 2; thence North on said line 1190 feet; thence West 965 feet to the point of beginning. EXCEPT THEREFROM, a tract of land located in the Southwest corner of said land, approximately 196 by 231 feet.

Defendants,

The above-entitled cause came on regularly for hearing on the 3RD day of JULY, 1986, the Plaintiff appearing by LYNN BROWER, its attorney of record, and the Defendants not appearing at all, either in person or by counsel; excepting the Defendants, OLEAN W. PARKER and MARION L. PARKER, husband and wife, through the Stipulation for Entry of Judgment; and it appearing to the Court that the Defendants were duly and regularly served with Summons, personally and/or by publication; that the time allowed by law for answering has expired, and the default of the Defendants has been duly entered according to law; and it further appearing that none of the Defendants are in the military service; and the Court having heard the evidence and having examined the proofs herein, and having fully considered the same, and having found the allegations of Plaintiffs' Complaint to be all true;

NOW THEREFORE, by reason of the foregoing facts and by virtue of the law;

IT IS HEREBY ORDERED, ADJUDGED AND DECREED that the Plaintiffs own and are in possession of and at the commencement of this suit owned and were in possession of the following described property located in Bear Lake County, Idaho, to-wit:

Township 13 South, Range 44 East of the Boise Meridian:

Section 29: The South 495 feet of the SW1/4SW1/4; the South 429 feet of the SE1/4SW1/4; and the South 165 feet of the SE1/4.

Section 30: The South 495 feet of the SE1/4.

Section 31: E1/2. EXCEPT THEREFROM the following described tracts from Sections 30 and 31, more particularly described as follows:

1. Beginning at the Southwest corner of the SE1/4 of said Section 30, and running thence North 495 feet; thence South 88 degrees 30 minutes East 341 feet; thence South 2 degrees 10 minutes West 1818 feet; thence North 88 degrees 30 minutes West 293 feet; thence North 0 degrees 45 minutes East 1321 feet to the point of beginning.

2. Beginning at a point 1320 feet South 0 degrees 45 minutes West from the Southwest corner of the SE1/4 of said Section 30, and running thence South 0 degrees 45 minutes West 660 feet; thence South 88 degrees 30 minutes East 276 feet; thence North 2 degrees 10 minutes East 658 feet; thence North 88 degrees 30 minutes West 293 feet to the point of beginning.

3. Beginning at a point 1320 feet North 0 degrees 45 minutes East from the Southwest corner of the SE1/4 of said Section 31, and running thence North 0 degrees 45 minutes East 660 feet; thence South 88 degrees 30 minutes East 252 feet; thence South 2 degrees 10 minutes West 660 feet; thence North 88 degrees 30 minutes West 237 feet to the point of beginning.

4. Beginning at the Southwest corner of the SE1/4 of said Section 31, and running thence South 88 degrees 30 minutes East 205 feet; thence North 2 degrees 10 minutes East 1320 feet; thence North 88 degrees 30 minutes West 230 feet; thence North 0 degrees 45 minutes East 2640 feet; thence North 88 degrees 30 minutes West 8 feet; thence South 2 degrees 10 minutes West 3960 feet; thence South 88 degrees 30 minutes East 97 feet to the point of beginning.

5. Beginning at a point 1960 feet North 0 degrees 45 minutes East from the Southwest corner of the SE1/4 of said Section 31, and running thence North 0 degrees 45 minutes East 1320 feet; thence South 88 degrees 30 minutes East 278 feet; thence South 2 degrees 10 minutes West 1320 feet; thence North 88 degrees 30 minutes West 247 feet to the point of beginning.

Section 32: N1/2, SW1/4, W1/2SE1/4, ALSO, Beginning at the Northeast corner of the SE1/4 of said Section 32, and running thence West 1320 feet; thence South 1199 feet; thence North 57 degrees 39 minutes 09 seconds East 1562.46 feet, more or less, to the East line of Section 32; thence North 363 feet to the point of beginning.

Township 14 South, Range 44 East of the Boise Meridian:

Section 5: Lots 2, 3, 4, ALSO, all that portion of the S1/2NW1/4 and SW1/4NE1/4 lying North of the Northerly right of way line of the Paris-Dingle County Road.

Section 6: Lot 1, and all that portion of the SE1/4NE1/4 lying North of the Northerly right of way line of the Paris-Dingle County Road.

ALSO, Beginning at a point South 88 degrees 30 minutes East 456.4 feet from the South Quarter corner of Section 31, Township 13 South, Range 44 East of the Boise Meridian, which point is on the Utah Power & Light Company canal right of way and on the South line of Township 13 South, Range 44 East of the Boise Meridian, and running thence South 4 degrees 28 minutes East 168.7 feet to a point of a curve; thence on a 1 degree 03 minutes curve to the left for a distance of 180 feet to a point 354.75 feet South of said township line; thence East 840 feet; thence North 354.75 feet to the township line; thence North 88 degrees 30 minutes West on said township line 863.6 feet, more or less, to the point of beginning.

ALSO, Beginning at a point South 88 degrees 30 minutes East 205 feet and South 2 degrees 10 minutes West 355.8 feet and 150 feet East from the North Quarter corner of said Section 6, which point if 150 feet East of the East bank of the Outlet Canal of Utah Power & Light Compnay, and running thence in a Southeasterly direction 150 feet from the East and parallel to the East bank of said canal approximately 1350 feet, to the North line of the Paris-Dingle Highway; thence in an Easterly direction along said line to a point where it intersects the East line of Lot 2; thence North on said line 1190 feet; thence West 965 feet to the point of beginning. EXCEPT THEREFROM, a tract of land located in the Southwest corner of said land, approximately 196 by 231 feet.

That each and all of the Defendants are found to have no right, title, interest, claim or demand in or to said premises or any part thereof, with the exception of the Defendants, OLEAN W. PARKER and MARION L. PARKER, husband and wife, as set forth below, and that all of the said Defendants, and each of them and any person or persons claiming under them or any of them are hereby barred from asserting any right, title, interest, claim or demand thereto, and title thereto is hereby quieted in the Plaintiff,

BEAR LAKE COUNTY, subject to the Stipulation of the Defendants OLEAN W. PARKER and MARION L. PARKER, husband and wife, on file herein, and attached hereto and incorporated herein by reference.

DATED this 3rd day of July, 1986.

Dell W. Smith

DELL W. SMITH
District Judge

the East bank of the Outlet Canal of Utah Power & Light Company, and running thence in a Southeasterly direction 150 feet from the East and parallel to the East bank of said canal approximately 1350 feet, to the North line of the Paris-Dingle Highway; thence in an Easterly direction along said line to a point where it intersects the East line of Lot 2; thence North on said line 1190 feet; thence West 965 feet to the point of beginning. EXCEPT THEREFROM, a tract of land located in the Southwest corner of said land, approximately 196 by 231 feet.

Defendants.

COMES NOW the Plaintiff, the COUNTY OF BEAR LAKE, by and through its attorney of record, LYNN BROWER, and the Defendants OLEAN W. PARKER and MARION L. PARKER, personally, and by and through their attorney, ARDEE HELM, JR., and stipulate as follows:

1. That the parties hereto are the owners of the following properties:

PARCEL 1 - Bear Lake County
PARCEL 2 - OLEAN W. PARKER and MARION L. PARKER

and more particularly described in Exhibit "A", attached hereto and incorporated herein by reference.

2. That a Lot Book Report was prepared by Bear Lake Title Company, revealing an over-lap on the boundary lines, as follows:

Township 13 South, Range 44 East of the Boise Meridian:
Section 29: Beginning at a point 495 feet North of the Southeast corner of the SW1/4SW1/4, said Section 29, and running thence West 264 feet; thence South 66 feet; thence East 264 feet; thence North 66 feet, to the point of beginning.

3. That the County of Bear Lake has been and still is in continual actual possession of that property described in

EXHIBIT "A"

PARCEL 1:
Commencing at the Northwest corner of the Northeast Quarter of Section 31, Township 13 South, Range 44, East of Boise Meridian, and running thence South 120 rods; thence North 40 rods; thence East 80 rods; thence North 110 rods; thence West 240 rods; thence South 30 rods to place of beginning.

Excepting therefrom the following described tracts: Commencing 1320 feet South 45 minutes West from the Southwest corner of the Southeast Quarter of Section 30, Township 13 South, Range 44 East of Boise Meridian, and running thence South 45 minutes West 660 feet; thence South 88 degrees 30 minutes East 276 feet; thence North 2 degrees 10 minutes East 658 feet; thence North 88 degrees 30 minutes West 293 feet to place of beginning, containing 4.32 acres of land.

Also commencing at the Southwest Corner of the Southeast Quarter of Section 30, Township 13 South, Range 44 East of Boise Meridian, and running thence North 495 feet; thence South 88 degrees 30 minutes East 341 feet; thence South 2 degrees 10 minutes West 1818 feet; thence North 88 degrees 30 minutes West 293 feet; thence North 45 minutes East 1321 feet to place of beginning, containing 13.28 acres of land.

PARCEL 2:
Township 13 South, Range 44 East of the Boise Meridian:
Section 26: NE1/4NW1/4, EXCEPT THEREFROM, Commencing at a point 15.15 chains South and 69 links West from the Northeast corner of the NE1/4NW1/4 of Section 26 and running thence West 2.50 chains; thence South 2.00 chains; thence East 2.50 chains; thence North 2.00 chains to the place of beginning.

Commencing at a point 20.03 chains North and 20.25 chains East from the Southwest corner of the NW1/4 of Section 26, aforesaid; and running thence South 7.58 chains to railway right of way; thence South 42 degrees East along O.S.L. Railway right of way 3.50 chains; thence East 17.90 chains to the center of the County Road; thence North 10.17 chains; thence West 20.06 chains to the place of beginning, embracing 1/2 of adjacent street.

Commencing at a point 30.41 chains north from the Southwest corner of the SE1/4 of Section 26, aforesaid, and running thence North 20.24 chains; thence West 17.90 chains; thence South 40 degrees East along the railroad right of way 27.00 chains to the place of beginning, embracing 1/2 of adjacent street along the East side of tract.

Section 29: Commencing at a point 6 rods South of the Northwest corner of the SE1/4SW1/4 of Section 29, Township and Range aforesaid, and running thence West 4.00 chains, more or less, to the established line (formerly belonging to Walter P. Rich); thence South on said line 12.00 chains; thence East 16.00 chains, more or less, to the local line (formerly belonging to J.W. Linford); thence North 12.00 chains; thence West 12.00 chains, more or less, to the place of beginning.

Commencing at a point 6.71 chains North from the Southeast corner of the SW1/4 of said Section 29, and running thence West 7.75 chains; thence South 12.25 chains to the place of beginning.

Commencing at a point 8.58 chains South from the center of said Section 29, and running thence West 24.31 chains; thence North 4.50 chains; thence East 2.41 chains; thence South 4.50 chains to the place of beginning.

EXCEPT THEREFROM, from the above described land the following, to-wit: Commencing at the center of Section 26, aforesaid, and running thence West 12 rods; thence South 10 rods; thence East 12 rods; thence North 10 rods to the place of beginning.