Cedar City Regional Airport

Master Plan

December 2017

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

CEDAR CITY REGIONAL AIRPORT (CDC)

CEDAR CITY, IRON COUNTY, UTAH

AIRPORT MASTER PLAN
AIP PROJECT #3-49-0005-029-2015

DECEMBER, 2017

SUBMITTED TO:
FEDERAL AVIATION ADMINISTRATION
DENVER AIRPORTS DISTRICT OFFICE

SUBMITTED BY:
GDA ENGINEERS
502 33RD STREET
CODY, WY 82414
307.587.3411
www.gdaengineers.com

The preparation of this document may have been supported, in part, through the Airport Improvement Program financial assistance from the Federal Aviation Administration (AIP project #3-49-0005-029-2015) as provided under Title 49 U.S.C., 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 or would have justification in accordance with appropriate public laws.

PAGE LEFT BLANK INTENTIONALLY

Table of Contents

PAGE LEFT BLANK INTENTIONALLY

Executive Summary

E.S.1 EXECUTIVE SUMMARY

This Airport Master Plan investigated the Cedar City Regional Airport and was completed by GDA Engineers in 2017 on behalf of the Cedar City Corporation. The previous master plan on record was completed in 2003 while the Airport Layout Plan drawing set was last updated in 2011, both by Armstrong Consultants. This document adheres to all pertinent rules, standards, and regulations, most notably the large assortment of Federal Aviation Administration (FAA) Advisory Circulars. This airport provides commercial service, flight instruction, medical evacuations, agricultural spraying, aerial fire fighting, and other services to Iron County and the surrounding communities.

Cedar City Regional Airport is a commercial service airport located northwest of Cedar City, Utah. The airport has scheduled daily air service to Salt Lake City, Utah. There are two runways at the airport. Primary Runway 2/20 is 8,653 feet long and 150 feet wide and accompanied by a full parallel taxiway. Runway 8/26 serves as the crosswind runway and is 4,822 feet long and 60 feet wide. The airport is located on flat ground surrounded by a mixture of different land uses (mainly agricultural, quarries, and industrial).

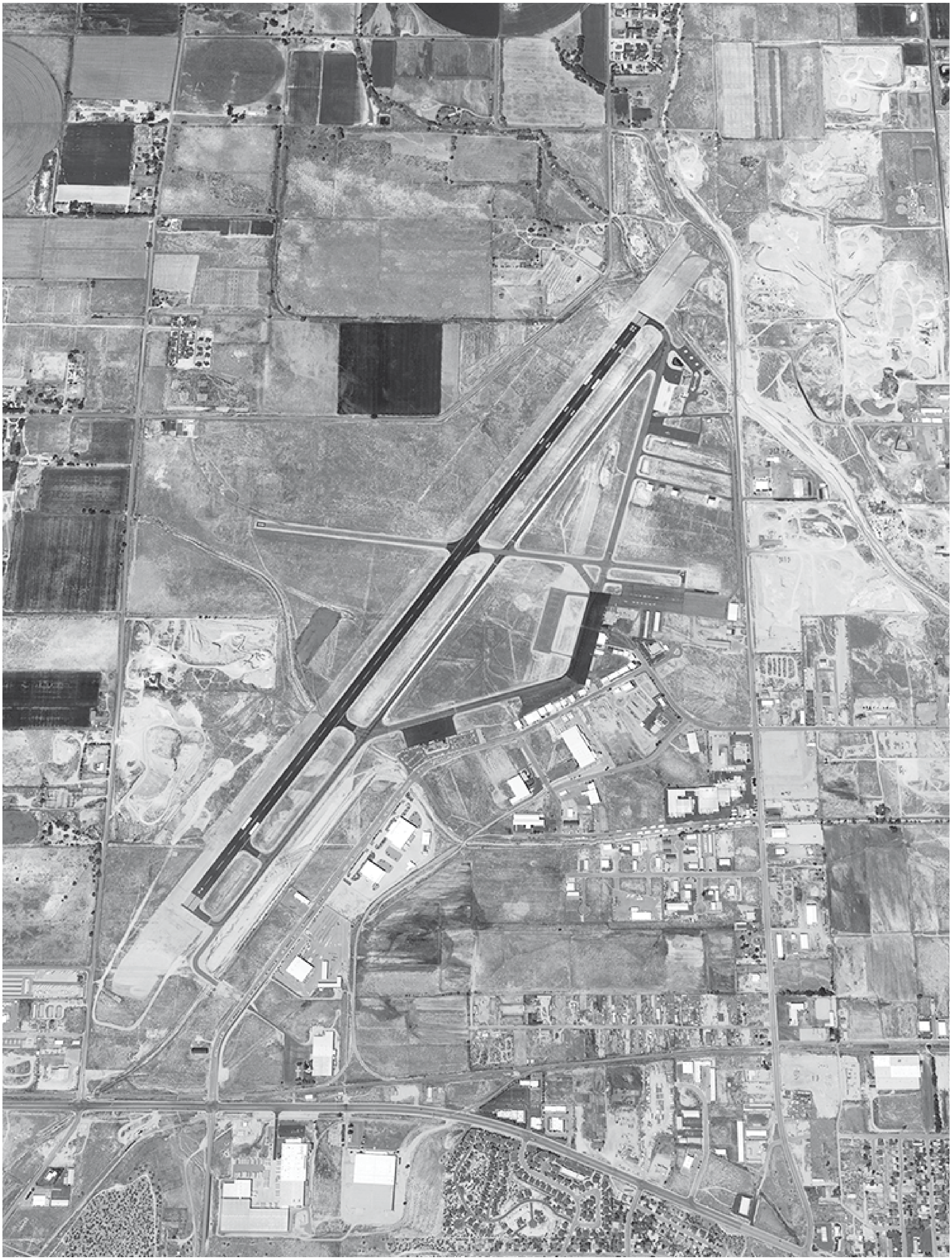
In 2016, a forecast of future aviation activity was created to project air traffic at the airport over the next 20 years. Extensive research was conducted with current airport users, with a focus on those who use larger aircraft. Telephone interviews were conducted with governmental agencies and private contracts who utilize the airport for aerial firefighting. Data from motion-activated cameras provided a baseline number of general aviation operations. Forecasted annual operations ultimately ranged from 70,341 (2015) in the baseline year to 76,505 at the end of the 20-year planning window. The final forecast identified the airport as an Airport Reference Code C-III facility based on a grouping of multiple aircraft.

Extensive public input was gathered during the master plan process. Multiple public meetings and workshops were held. Additionally, numerous briefings and discussions were held during the monthly public airport board meetings. Airport employees, local pilots, Bureau of Land Management (BLM) staff, Cedar City and Iron County government officials, and other local residents all participated in the creation of the document.

Deficiencies and needed improvements identified through the master plan process include the need for runway reconstruction to remedy water ponding and a line of sight deficiency, relocated taxiway connectors to prevent direct runway access, providing additional taxiway pavement strength, addressing taxiway geometry issues, and additional hangar lots for general aviation and corporate user expansion.

This document opens with an introduction to airport master plans and proceeds into a socioeconomic overview of Cedar City. Next, the plan details the entire airport, followed by the process through which the forecast was completed and deficiencies were discovered. The current airport facility and noted deficiencies are also illustrated in a set of drawings. This is followed by an environmental review that provides general outlines regarding national and state environmental regulations and policies applicable to the airport.

A discussion of the financial aspects of the airport and ability to execute large-scale capital improvement projects to correct deficiencies is presented. The closing chapter reviews legal obligations that Cedar City must adhere to and how to maintain compliance with the FAA and Utah Department of Transportation (DOT) Aeronautics.



1. Airports and Master Plans Introduction

SECTION OVERVIEW

Chapter 1. Airports and Master Plans Introduction provides general concepts and topics that are central to the United States' aviation systems. This information provides a basic foundation of knowledge to understand and interpret the remainder of this Master Plan.

1.1 HISTORICAL CONTEXT

Aviation has been embedded in the United States for more than a hundred years, starting with the Wright brothers' famous 1903 flight in Kitty Hawk, North Carolina. It did not take long for businesses and government to realize the opportunities offered by controlled, powered flight. From military applications to air-mail, government requirements pushed the burgeoning technology. Private business also pushed the development of faster, safer aircraft incorporating it into passenger and cargo transport. Through the war effort during World War II, aviation as an industry truly blossomed.

In the years following the war, some aviation officials estimated that half of all households would own private aircraft. Although that level of aircraft ownership never materialized, the historical period from the end of World War II to the early 1980's is considered the high era of personal aviation. During this period, community airports were expanded and new ones built regularly. Often a community airport that started as a simple grass runway, found itself needing to develop paved landing areas to accommodate the more sophisticated and demanding aircraft being developed. Some communities realized the economic benefits of a developed "aviation gateway," and built airport facilities.

Since the 1980's, airport use has slowly shifted from private and recreational pilots to business and commercial services. Today, the aircraft frequenting airport facilities are more demanding than ever, both in size and speed. This translates to ever-changing needs at airports, including increased runway lengths, stronger pavements, and larger safety areas.

The Cedar City Regional Airport (identified CDC) is not an exception to this development. The airport facility serves the local citizenry, through commercial service, recreational flying, aerial firefighting, and medical evacuations, and also as an economic engine serving local businesses through cargo and personnel transportation.

1.2 THE FEDERAL AVIATION ADMINISTRATION

Figure 1.1 FAA Logo

The Federal Aviation Administration, or more commonly FAA, is part of the United States Department of Transportation (USDOT) and serves as the national aviation authority. The Civil Aeronautics Authority was created in 1938, eventually becoming the FAA as it is known today. The FAA is a huge entity, employing more than 45,000 people and consisting of a myriad of divisions and offices across the country.

Pilots most often encounter FAA staff from the Flight Standards District Offices (FSDO). The FSDO group handles topics like low-flying aircraft, accident reporting, air carrier certification and operations, aircraft permits, airmen certification (licensing) for pilots, mechanics, repairmen, dispatchers, and parachute riggers, certification and modification issues, and enforcement of Airmen & Aircraft Regulations.

Another division of the FAA that has direct interaction with airports and pilots is the Air Traffic Organization (ATO). These members write instrument approach procedures. Communication with this group is rare, but very important to the planning and safety of airports.

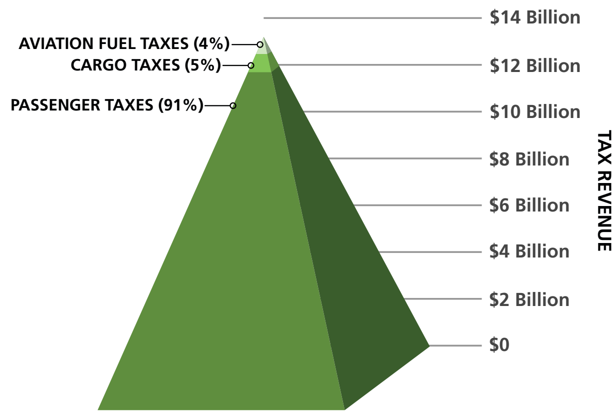
The Airports Division (ARP) is in charge of airport master planning, airport facility design and inspection, and is the group that airport sponsors and airport planning consultants most often interact with for airport development project and grant funding. This Division is split into nine regions, including the Western-Pacific Region, which is headquartered in Los Angeles, CA. The Western-Pacific Region covers all of the airports in the states of Arizona, California, Hawaii, and Nevada, as well as Guam, American Samoa, and the Marshall Islands. The Region office is further split into four Airport District Offices (ADOs): Honolulu, HI (covering Hawaii, Guam, American Samoa, and the Marshall Islands), Los Angeles, CA (covering southern California), San Francisco, CA (covering northern California), and Phoenix, AZ (covering Arizona and Nevada).

Each ADO is primarily made up of civil engineers and planners. These staff serve as project managers and interact daily with airport sponsors, state officials, and consultants to manage and direct projects that further the overall goals of the national and state aviation systems. Generally when speaking about airport planning, in this report and related discussions, the terms "FAA" or "federal" are in reference to the FAA Airports Division.

1.3 FUNDING AIRPORT PROJECTS

The Airport Improvement Program (AIP) was established by the Airport and Airway Improvement Act of 1982 to provide funding to airports on a priority needed basis. The FAA coordinates this program. The AIP is a user-funded program and is not funded by federal income tax dollars. The AIP is primarily funded through the Airport and Airway Trust Fund (AATF). While some of the funds are used for FAA overhead costs, the majority of the money is distributed to community airports through grants. Eligible airports range from small community facilities to the largest commercial airports in the national system. The AATF is funded by three components: passengers (tax on ticket sales), cargo (tax on shipping fees), and fuel (tax on fuels used by aircraft). In 2014, the tax revenue for the AATF was $13.513 billion.

Figure 1.2 Airport and Airway Trust Fund (2014)



Eligible projects include those improvements that enhance airport safety, capacity, security, and address environmental concerns. Aviation demand at the airport must justify the projects. Eligible projects include such things as runway construction, airfield lighting, land acquisition, planning studies, and automated weather observation stations (AWOS). Ineligible projects include such things as landscaping, marketing plans, improvements for commercial enterprises, and maintenance or repairs of buildings.

A non-primary entitlement of up to $150,000 per year is granted to smaller general aviation airports under the current legislation. The non-primary entitlement can be saved for up to four years for larger projects. If a project exceeds that amount, it may be eligible for state apportionment funds (money set aside for the state through the AIP program) for projects. If the project exceeds both the non-primary and state apportionment funds available, or is a high priority, it can compete on a regional level for discretionary funds.

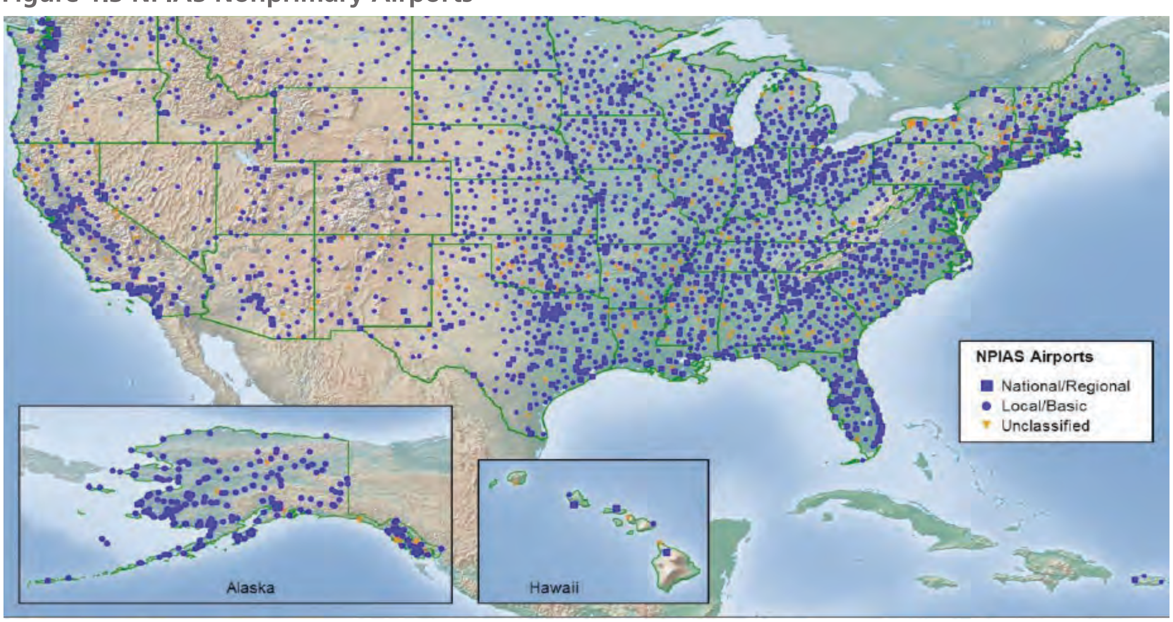
1.4 NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS

Simply, the national infrastructure of public use airports form what the FAA defines as the National Plan of Integrated Airport Systems (NPIAS). The NPIAS was envisioned when civil aviation was in its infancy, and has been developed and nurtured by close cooperation with airport sponsors and other local agencies, as well as federal and state agencies. The national airport system is critical to the national transportation system and helps air transportation contribute to a productive national economy and international competitiveness. To meet the demand for air transportation, the airports and the airport system should have the following attributes:

- Airports should be safe and efficient, located where people will use them, and developed and maintained to appropriate standards.
- Airports should be affordable to both users and government, relying primarily on producing self-sustaining revenue, 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 to 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, the environment, and the requirements of residents.
- Airports should be developed in concert with improvements to the air traffic control system and technological advancements.
- The airport system should support a variety of critical national objectives, such as defense, emergency readiness, law enforcement, and postal delivery.
- The airport system should be extensive, providing as many people as possible with convenient access to air transportation, typically by having most of the population within 20 miles of a NPIAS airport.

As of October, 2016, there were 3,340 airports in the NPIAS: 3,332 existing and 8 proposed airports. The eight proposed airports are expected to open within five years. *Figure 1.3 NPIAS Nonprimary Airports*, shows the distribution of the 2,950 existing nonprimary NPIAS airports across the nation, by the airport role, which includes 2,564 general aviation airports. Each state has many airports in the NPIAS, and to be eligible for AIP funding an airport must be in the NPIAS.

Figure 1.3 NPIAS Nonprimary Airports



1.5 WHY ARE AIRPORTS IMPORTANT?

The aviation system plays a key role in the success, strength, and growth of the US economy. The national airport system is critical to the national transportation system and helps air transportation contribute to a productive national economy and international competitiveness. In 2012, economic activity attributed to civil aviation-related goods and services totalled $1.5 trillion.

By definition, general aviation is the manufacturing and operation of any type of aircraft that has been issued a certificate of airworthiness by the FAA, other than aircraft used for scheduled commercial air service (airlines) or operated by the US military. General aviation includes flights related to business or corporate transportation of people or cargo, personal transportation, air ambulance, flight training and for many unique purposes, such as fire spotting and pipeline patrol. General aviation aircraft enable people, especially those in smaller communities and remote areas, to access the aviation system in order to move quickly and efficiently across the country and around the world for business and pleasure. General aviation is extremely important because it touches so many sectors of the economy – from the helicopters transporting accident victims to hospitals, to corporate jets carrying executives to meetings, to single piston engine aircraft flown by enthusiasts on the weekends.

Airports have a catalytic impact that moves into the wider economic and social area. Local airports enhance business efficiency and productivity by providing easier access to customers, services, and goods. Airports provide access to markets and external and international transport links that are regarded as "absolutely essential" to businesses making location decisions.

The Regional Input-Output Modeling System (RIMS-II), a regional economic model created by the US Bureau of Economic Analysis, is a tool used by investors, planners, and elected officials to objectively assess the potential economic impacts of various projects. This model produces multipliers that are used in economic impact studies to estimate the total impact of a project on a region. Based on RIMS-II, every $1.00 generated on a general aviation airport results in an average of $2.53 generated in the community it serves. This is a cascading effect, creating local jobs and payroll. Many airports with fewer than 10,000 annual operations produce economic impacts exceeding the amount of money necessary to operate and maintain their facilities. The general aviation industry, as whole, generated a total of 1,101,800 jobs, $69.1 billion in payroll, and $218.6 billion in economic output in 2013.

The United States is home to more than 19,000 airports, seaplane bases, heliports, and other landing facilities, of which 3,340 are in the NPIAS. All NPIAS airports are public access and eligible to receive AIP funding. The national system of airports, seaplane bases, and heliports was developed to provide communities with access to a safe and adequate public system of general aviation airports. Together these airports create a transportation infrastructure, providing access, goods, and services, unavailable through other means. AIP funding and involvement permits communities to have services that would be otherwise too costly or impossible to provide.

In addition to the economic benefits outlined above, there are many qualitative benefits that contribute to the overall value of airports. These qualitative benefits include activities for which dollar values cannot be readily assigned, but are nonetheless valuable to the community because they enhance the quality of life, health, welfare, and safety of its citizens. For example, medical evacuation flights typically use general aviation airports because they are faster, easier on the patient, and less expensive. Helicopters are often used for aeromedical flights, however some of these flights, specifically for neo-natal patients, can only be conducted via fixed-wing aircraft (such as a Beechcraft King Air 300) due to the equipment needs. General aviation airports also provide a support network for disaster relief and search and rescue efforts. For example, following the wake of Hurricane Katrina in the southern United States, general aviation airports served as staging areas for the Red Cross, National Guard, and other organizations providing disaster relief.

General aviation airports also serve as diversion locations when large commercial service airports are under poor weather conditions or otherwise inaccessible. For example, the Cheyenne Regional Airport provides a diversion location for Denver International Airport. Diversion airports provide a host of services and benefit economically from the commercial operations, including fuel sales, food sales, access, and advertising to passengers who would otherwise not stop at the airport. In 2009, operators using general aviation airports accounted for an estimated 27 million flights for emergency medical services, aerial fire-fighting, law enforcement and border control, agricultural functions, flight training, time-sensitive air cargo services, business travel, and scheduled services. Overall, airports grant access to greater markets and provide unique and critical support to the local communities, businesses, and citizens.

1.6 AIRPORT MASTER PLANS

An Airport Master Plan is a comprehensive study of an airport that describes short, medium, and long term development plans to meet future aviation demand. Master planning studies that address major revisions are referred to as "Master Plans" while those that only change parts of the existing document and require a relatively low level of effort are referred to as "Master Plan Updates." The purpose of this comprehensive Master Plan is to update the information from the 2011 Airport Layout Plan Update and 2003 Airport Master Plan, both prepared by Armstrong Consultants.

The elements of the master planning process vary in the level of detail and complexity depending upon the size, function, and problems of the individual airport. Airport Master Plans are prepared to support the creation of a new airport or the modernization and expansion of an existing airport. Master Plans present the strategy for the development of the airport by providing a framework to cost-effectively satisfy aviation demand while considering the potential environmental and socioeconomic impacts.

Master plans generally meet the following objectives:

- Document the issues that the proposed development will correct or mitigate;
- Justify the proposed development with technical, economic, and environmental investigation of designs and alternatives;
- Provide an effective graphic representation of the development of the airport and the anticipated land uses in the vicinity of the airport;
- Establish a realistic schedule, especially for the short-term, for the implementation of the development proposed;
- Propose an achievable financial plan to support the implementation schedule;
- Provide sufficient project scope and detail for future environmental evaluations that may be required before the project is approved;
- Provide a plan that adequately addresses the issues and satisfies local, state, and federal regulations;
- Document policies and future aeronautical demand to support municipal or local deliberations on land use controls, spending, debt, and other policies necessary to preserve the integrity of the airport and its surroundings;
- Establish the framework for continued planning; and
- Provide the necessary Airport Layout Plan (ALP) drawing set.

Public involvement is a key portion of any Airport Master Plan, and typically GDA Engineers breaks down the Master Plan process into five chronological phases, each ending with a public meeting. Presented below are the general phases of a Master Plan. Each phase depends on a number of variables and can vary from project to project. Receiving public input and feedback is critical throughout the entire duration of a Master Plan.

Phase 1: Complete pre-planning documents, establish advisory council, meet with Sponsor, Hold 1st public meeting to announce the project.

Phase 2: Conduct physical inventory of airport, analyze socioeconomic and demographic data, research aircraft traffic, interview key users and members of the public, determine proper forecasting methodology, and create aviation forecast and submit to FAA for approval. Hold 2nd public meeting.

Phase 3: Determine airport requirements from forecast, design future airside and landside alternatives. Sponsor selection of final design alternatives. Hold 3rd public meeting.

Phase 4: Incorporate any remaining public comment, finalize design alternatives, create cost estimates, provide draft Airport Layout Plan and Master Plan to Sponsor. Submit draft documents to FAA and State Aeronautics for review. Hold 4th public meeting.

Phase 5: Incorporate final FAA, Aeronautics, and Sponsor review items. Publicly present final documents to Sponsor for signatures. Submit final documents to FAA, Aeronautics, and Sponsor.

More complex Master Plan projects may require additional public meetings. For example, phases may be divided in such a fashion that more than one public meeting is necessary to solicit the desired level of public participation. Some Master Plan projects also include additional elements, such as site selections, thereby prompting the need for subsequent public meetings.

1.7 PUBLIC INVOLVEMENT

Public input is highly encouraged during the Master Plan process. Each Master Plan includes a public involvement program, and the amount of public involvement typically corresponds to the complexity of the airport and project. Effective public involvement includes numerous parties, including but not limited to: aircraft owners, hangar tenants, staff of the airport and businesses on airport property, public officials, governmental agencies, and the general public. The earlier public input is heard the easier it is to incorporate in the planning process.

Public involvement programs are typically facilitated by the planning consultant and include multiple strategies, such as forming an Airport Master Plan Advisory Council (PAC) of key stakeholders, local citizens, and decision makers. This group provides insight and input into issues that arise, as well as provides general information. Two other common public involvement elements are public meetings and public workshops. These are held at public locations to inform the general public about the status of the airport and master plan process, and provide the public access to the airport consultants and other pertinent individuals. Other methods used to engage the public are user surveys and public awareness campaigns that utilize flyers, project websites, and newspaper articles.

1.8 FAA DESIGN STANDARDS

The FAA has established standards for the design and construction of airport facilities. There are design standards for practically every facet of an airport, ranging from runway gradients to master plans and wind cones, presented in a collection of hundreds of documents called Advisory Circulars (AC). Multiple ACs are pertinent to Airport Master Plans, notably *AC 150/5070-6B Airport Master Plans* and *AC 150/5300-13A Airport Design.* The first document details the requirements and provides guidance for Airport Master Plans. The second document contains the FAA standards and recommendations for the geometric layout and engineering design of runways, taxiways, aprons, and other airport facilities. The FAA Design Standards presented in FAA Advisory Circulars guide each Airport Master Plan.

Standards exist for the strength and width of pavements for runways, taxiways, and aprons. Numerous safety areas are defined around these areas, including the Runway Safety Area (RSA), Runway Protection Zone (RPZ), Runway Object Free Area (ROFA), and Taxiway Object Free Area (TOFA). These are discussed later in relation to CDC.

1.9 CRITICAL AIRCRAFT

An important result of the forecasting chapter within each Airport Master Plan is the identification of the airport's critical (or design) aircraft. This is the most demanding aircraft with at least 500 annual local operations that operates, or is expected to operate, at the airport. The critical aircraft of an airport dictates which FAA Design Standards must be applied. An operation is the landing, takeoff or touch-and-go procedure by an aircraft on a runway at an airport.

1.10 AIRPORT LAYOUT PLAN

A key product of an Airport Master Plan is a detailed drawing set called the Airport Layout Plan (ALP). The ALP is intended to provide detailed locations of the major components of an airport; taxiways, aprons, runways and hangar areas, as well as safety areas and other FAA Design Standards. An airport must have an ALP on-record approved by the FAA to receive AIP funding. Each airport is responsible to keep its ALP updated, per the AIP grant assurance requirements. The ALP provides a blueprint for future airport development needs and ensures that development meets airport standards and safety requirements.

1.11 SUMMARY

A successful Airport Master Plan provides answers and knowledge to a wide range of audiences, including pilots, government officials, and the general public. A basic understanding of these concepts will help the reader to successfully interpret this Master Plan. Even small general aviation airports are extremely complex entities. To plan for the future, consideration must be given to all aspects that involve an airport: current facilities and infrastructure; users and pilots; local, state, and federal zoning and regulations; regional socioeconomics; national and state aviation systems; approach procedures; and much more.

PAGE LEFT BLANK INTENTIONALLY

2. Socioeconomic Overview

SECTION OVERVIEW

Chapter 2. Socioeconomic Overview provides a general depiction of Cedar City Regional Airport and the surrounding area, including Cedar City, Iron County, and Utah. This is accompanied by a broad description of the airport's history, location, economic impact, and demographics.

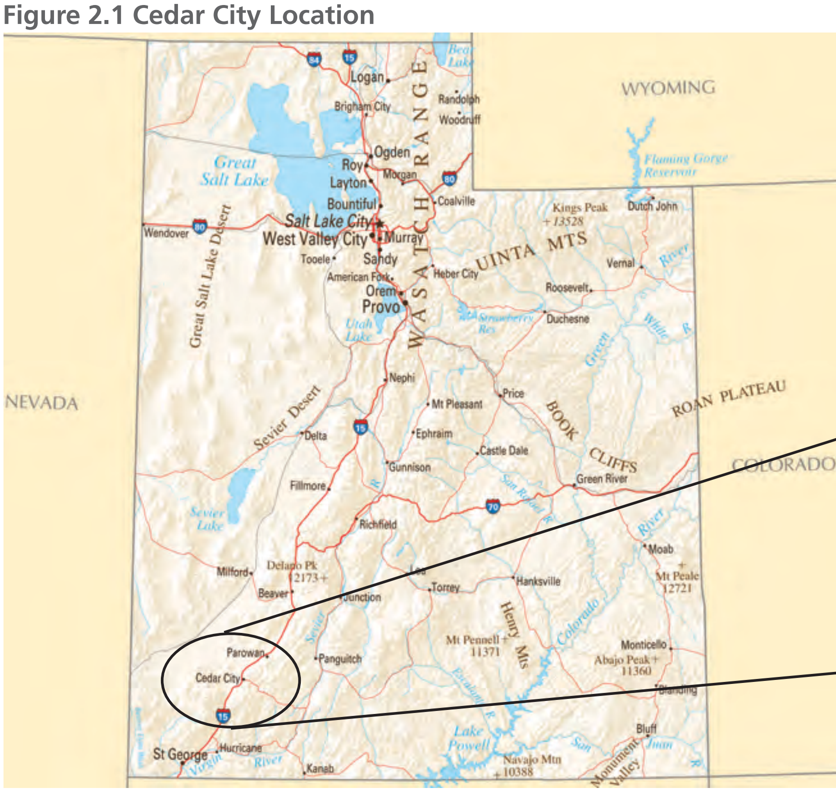
2.1 AREA AND AIRPORT OVERVIEW

CEDAR CITY

Cedar City is located 250 miles south of Salt Lake City and 180 miles north of Las Vegas, Nevada. Petroglyphs discovered in nearby Parowan Gap indicate the presence of prehistoric people in the Cedar City area as early as 1000 to 1300 A.D. In 1776, ancestors of the present-day southern Paiute Indians met the Dominguez-Escalante Expedition in the area. The Dominguez–Escalante Expedition originated to find a route from Santa Fe, New Mexico, to the Spanish missions in California. Fifty years later in 1826, Jedediah Smith, a mountain man and fur trader, traveled through the area while exploring a route from Utah to California.

Settlement of Cedar City began on November 11, 1851 when a group of 35 men arrived from Parowan to establish an iron works (a building or site where iron is smelted and where heavy iron and/or steel products are made). The settlement was given the name of Fort Cedar because of the abundance of trees in the area (although the trees are actually junipers). In 1855, a new site closer to the iron works was established. Present day Cedar City is located on this site (37°40′57″N, 113°4′28″W), which was incorporated on February 18, 1868. The iron works closed in 1858, although iron mining continued in the area until the 1980s. In 1923, the railroad came to Cedar City, opening a gateway to three local national parks and launching Cedar City's tourism industry.

Figure 2.1 Cedar City Location



As of the 2010 Census, Cedar City had a population of 28,857. The city encompasses 36.83 square miles, resulting in a population density of 783.5 people per square mile. Population estimates for 2014 indicate that Cedar City's population has grown to 29,483 residents.[7] The community is home to eight sites on the National Register of Historic Places, listed in *Table 2.1*.[8]

TABLE 2.1 CEDAR CITY HISTORICAL SITES

Location	*Description*
Cedar City Railroad Depot	An old Union Pacific Railroad Depot, built in 1923
Old Main and Science Buildings	The first two buildings constructed on the campus of Southern Utah University, built in 1898 and 1904
Visitor Center	Located at Cedar Breaks National Monument, built in 1937
Caretaker's Cabin	Located at Cedar Breaks National Monument, built in 1937
Old Irontown	Iron works facilities built in 1869
George H. Wood House	A house constructed in 1889 by one of Cedar City's first native-born ranchers
US Post Office - Cedar City Main	A combination post office and federal building constructed in 1933
Cedar City Historic District	4 city blocks of residential buildings constructed between 1880 and 1954

Figure 2.2 Cedar City Logo

Cedar City is home to Southern Utah University (SUU), which was founded in 1897 as the region's first teaching school. The school has had several different names, including Branch Normal School, Branch Agricultural College, College of Southern Utah, and Southern Utah State College. In 1991, the school was given university status and its current name of Southern Utah University. Enrollment in 2014 was 7,656 students (5,301 fulltime and 2,355 part-time).[9] Currently, SUU offers more than 100 degree programs. A main academic practice by all SUU students is Service Learning, a curricular-based educational experience in which students participate in organized service activities that meet community needs. Southern Utah University is also the home of the Utah Shakespeare Festival and the Utah Summer Games. Both of these events bring increasing numbers of tourists to Cedar City every year. When the Utah Shakespeare Festival began in 1962, it attracted 3,276 visitors. Today, the audience is nearly 130,000 people.[10] The Utah Summer Games is a sports festival for athletes of all ages and abilities. It was established in June 1986. In 2015, the event was held from June 5-28 and included over two dozen sporting activities.[11] These events helped coin Cedar City's nickname, "Festival City, USA."

IRON COUNTY

Iron County (2010 population 46,163)[7] is located in the southwestern corner of Utah. It is 3,296.68 square miles, ranking 11th out of 29 counties in terms of size. Iron County was created in 1850 and organized the following year. Adjacent Utah counties include Beaver to the north, Garfield to the east, Kane to the southeast, and Washington to the south. Nevada borders Iron County on the western edge. There are four nationally protected areas in Iron County: Cedar Breaks National Monument, Dixie National Forest, Fishlake National Forest, and Zion National Park.

Figure 2.3 Iron County Logo

Cedar City is the largest community in Iron County, although the county seat is located in Parowan (2010 population 2,790). Cedar City is located 20.6 miles south of Parowan, along US Highway 15. Other communities in Iron County include Brian Head (2010 population 83), Enoch (2010 population 5,803), Kanarraville (2010 population 355), and Paragonah (2010 population 488).[7]

Iron County is comprised of approximately 2,110,720 acres, 77% of which are public land or urban lands.[12] Most Federal Public Land is administered by the United States Forest Service (USFS) and Bureau of Land Management (BLM). Much of the State Land is administered by the School and Institutional Trust Lands Administration (SITLA) and Utah Division of Wildlife Resources (DWR).

Major land uses in the county include range, alfalfa and grass hay, corn and small grain crops, hog production facilities, forest production, and industrial and urban areas. Recreational uses are also common activities both on private and public lands.

AIRPORT OVERVIEW

The Cedar City Regional Airport is a public use facility owned by the Cedar City Corporation. The Rules and Regulations and Minimum Standards for Cedar City Regional Airport state that the airport is a public use facility served by scheduled air carriers for passenger carriage and cargo, air charter and air taxi operators, flight schools, crop dusters, and medical transport operators, and is utilized by aircraft owners, operators, pilots, and passengers for their air transportation needs, businesses, and recreational flying activities. These rules and regulations further state that the airport is a symbol of pride for the City of Cedar City and its citizens because it is representative of the City's desire and commitment to move forward and to progress.

Figure 2.4 Cedar City Regional Airport Location

Cedar City Regional Airport covers 1,040 acres along the northwestern edge of Cedar City. The unique three letter FAA airport identifier for the airport is CDC. The airport's elevation is 5,622 feet above sea level. Runway 2/20, the primary runway, is grooved asphalt in good condition with a strength rating of 75,000 pounds for single wheel gear, 100,000 pounds for double wheel gear, and 150,000 pounds for double tandem gear. The runway is 8,653 feet long and 150 feet wide. Runway 8/26 is asphalt in fair condition with a strength rating of 16,500 for single wheel gear. This runway is 4,822 feet long and 60 feet wide. One Fixed Based Operator (FBO), Sphere One Aviation, operates at the airport. *Figure 2.4* on the previous page displays the general location of the Cedar City Regional Airport and Cedar City in Utah.

AVIATION IN UTAH

The Utah Department of Transportation (UDOT), Division of Aeronautics is responsible for overseeing aviation issues in Utah and works closely with airport sponsors and managers to ensure that each airport functions as an integral part of the statewide system of airports.

The mission and role of UDOT Aeronautics is to:

- Administer all state funding for public-use airport capital project construction and maintenance.
- Disburse aviation fuel tax revenues back to airports where fuel was purchased.
- Operate a small fleet of aircraft to serve state elected officials and employees who travel around the state and to neighboring states for official business.
- Maintain its own agency aircraft and aircraft operated by other state agencies.
- Operate and maintain state-owned air navigation aids.
- Promote the growth and development of aviation at all levels throughout Utah.

The Utah Continuous Airport System Plan (UCASP) was updated in 2007, twenty years after the release of the previous UCASP. The 2007 update assessed the existing needs of Utah's airports, helped justify funding for needed airport improvements, and provided information for governmental and other entities concerning the value, use, and needs of the state's public use airports. Since the release of the last UCASP in 1987 and the 2007 update, both the commercial service and general aviation industries have experienced notable changes.

The purpose of the UCASP is to:

- Determine which system airports are most essential to Utah's transportation needs and economic objectives.
- Identify projects which have the greatest potential to improve the performance of Utah's airport system.
- Demonstrate how investment improves the performance of the Utah airport system relative to established performance measures.

The FAA classifies airports into two types: Commercial and General Aviation. Commercial Service Airports are airports that have 2,500 or more passenger enplanements annually. This category is further broken down into Primary and Non-Primary Airport roles. A Primary Airport is an airport with enplanements of 10,000 passengers or more annually. A Non-Primary Airport is an airport with enplanements between 2,500 and 10,000 passengers annually. When the 2007 UCASP was completed, Cedar City Regional Airport was considered a Non-Primary Commercial Service Airport; however, CDC has since surpassed the 10,000-passenger enplanement threshold. In 2011, CDC reported 8,690 enplanements. In 2012, CDC's enplanements increased to 15,881. CDC's 2013 and 2014 enplanements were 13,214 and 14,362, respectively.[13]

Primary Airports are further broken down into Hub types. Hub type is determined by the amount of annual passenger enplanements.

- Large Hub Airports account for 1% of total US passenger enplanements;
- Medium Hub Airports account for between .25% and 1% of US passenger enplanements;
- Small Hub Airports account for between .05% and .25% of US passenger enplanements; and
- Non-Hub Airports account for less than .05% of US passenger enplanements but more than 10,000 passengers annually.

Presently, CDC is considered a Non-Hub Primary Airport.

Reliever Airports are another category of airports. Reliever Airports are airports designated by the FAA to relieve congestion at Commercial Service Airports and to provide improved general aviation access to the overall community. They must have 100 based aircraft or at least 25,000 annual itinerant operations. The remaining airports, are commonly described as General Aviation Airports. This airport type is the largest single group of airports in the US aviation system.

To better evaluate airports in the context of the needs of the State of Utah, the UCASP developed five airport classifications based on activities served, economic indicators, facilities, accessibility to the public, and demographics. For those airports classified by the FAA as Commercial Airports, the UCASP classified them as International Airports and National Airports. Salt Lake City International Airport is the sole airport in this category and provides essential international and national commercial airline access in the state. National Airports accommodate a high level of commercial service and general aviation activity and serve major population centers or tourism destinations in the state. There are two National Airports, St. George Municipal Airport and Wendover Airport.

For those airports classified by the FAA as General Aviation, the UCASP classified them as follows:

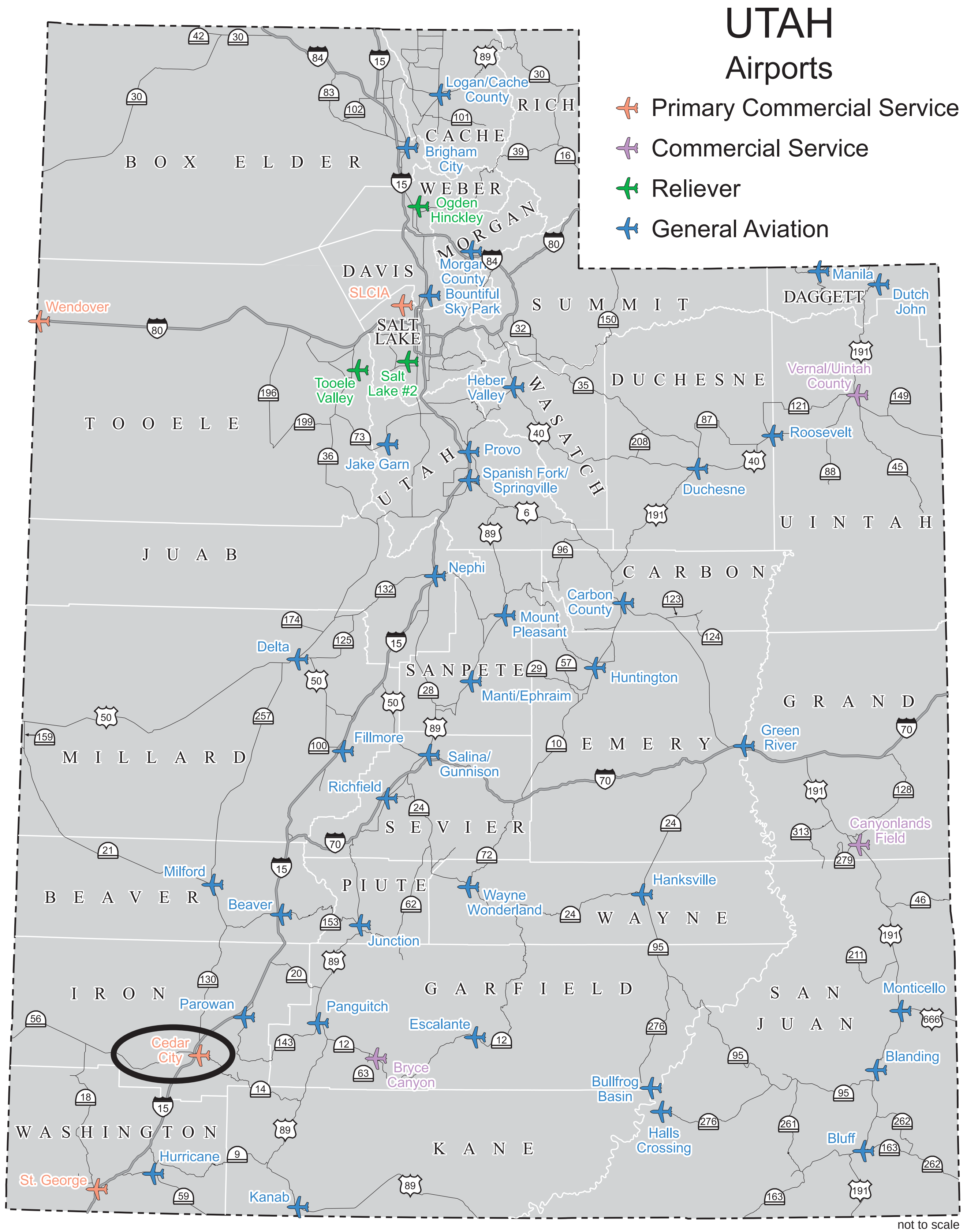
- **General Aviation Regional Airports**: Serve primarily general aviation activity, including jet and multi-engine aircraft and provide access to major population centers. There 18 Regional Airports.
- **General Aviation Community Airports**: Provide aviation access to smaller population centers and are used for emergency air medical operations, business, recreational, and personal flying activities. There are 14 Community Airports.
- **General Aviation Local Airports**: Have local importance, primarily serving recreational and personal flying activities. There are 12 Local Airports.

Combined, Utah's aviation system includes a total of 47 public use airports; 6 commercial service airports and 41 general aviation airports. *Figure 2.5* identifies Utah's public use airports by UCASP classification. Based on the 2007 UCASP, Cedar City Regional Airport is classified as a General Aviation Regional Airport.

ESSENTIAL AIR SERVICES (EAS)

Before the Airline Deregulation Act of 1978, the National Civil Aeronautics Board (CAB) controlled all aspects of aviation from air traffic control to aircraft and airmen certifications and safety standards to pricing of fares and routing of flight services. When the Airline Deregulation Act passed, it dissolved the CAB and gave airlines total freedom in determining which markets to serve and fares to charge. The CAB's responsibilities then went to the FAA and the National Transportation Safety Board (NTSB). The Essential Air Services (EAS) program was created to guarantee commercial service by a carrier for remote communities, if such service was provided before the deregulation. The EAS program receives its funding from the US Treasury general fund, as well as the Airport and Airways Trust Fund.

Figure 2.5 Utah Airports Map



For the first 12 years, the sole criterion for eligibility was whether the community had received scheduled air service on October 24, 1978, the date the Airline Deregulation Act was signed into law. In 1990, Congress made some minor reforms by establishing both mileage and a subsidy-per-passenger standards. In February 2012, the President signed the FAA Modernization and Reform Act of 2012, which contained several additional reforms. First, the law capped the communities in the 48 states plus Puerto Rico that are eligible to participate in the EAS program. Secondly, the law requires that in order to remain in the EAS program, beginning with fiscal year 2013, subsidized communities must maintain an average of ten passenger enplanements per service day. The law provides exceptions for communities in Alaska and Hawaii, and for those that are more than 175 driving miles from the nearest large or medium hub airport. Cedar City is 179 miles from the closest large or medium hub airport, McCarran International Airport (LAS) in Las Vegas, NV. Salt Lake City International Airport (SLC) in Salt Lake City, UT is the next closest large or medium hub airport, located 250 miles away.

When negotiating subsidy rates with carriers to provide EAS, the US Department of Transportation (USDOT) generally establishes two-year contracts. This allows for the competitive bidding process to keep subsidy costs in check and gives communities and USDOT opportunities to switch carriers, if appropriate. For those carriers wishing to participate in the EAS program, USDOT issues a request for proposals (RFP) 90-days prior to the expiration of the current contract. Carriers then submit service and subsidy proposals in response to the RFP. USDOT then selects a carrier based on four criteria: service reliability; contractual and marketing arrangements with a larger carrier at the hub; interline arrangements with a larger carrier at the hub; and community views.

USDOT pays the subsidies in arrears on a per-flight-completed basis. At the end of each month, carriers submit claims for the prior month in accordance with the contract. If the carrier had to change aircraft type due to maintenance issues, they can submit a claim and make adjustments accordingly.

Cedar City meets the criteria for the EAS program, having had commercial services before the deregulation. Additionally, Cedar City is more than 175 miles from the closest large or medium hub airport (LAS).

SkyWest Airlines provided EAS to CDC from 1972 until 2005 when Air Midwest, a subsidiary of Mesa Airlines, was awarded the contract. This change in carriers eliminated daily air service between Cedar City and Salt Lake City in lieu of air service to Las Vegas, NV and Phoenix, AZ.

In October 2007, SkyWest was again selected as the EAS provider for CDC and air service to Salt Lake City resumed, while air service to Las Vegas and Phoenix was discontinued. Most recently, SkyWest was reselected to provide EAS coverage for an annual subsidy of $2,317,439.[14] Under this agreement, which commenced January 1, 2014 and spans two years, SkyWest will provide 12 weekly round trips to Salt Lake City International Airport using 50-passenger Canadair Regional Jet CRJ200 (CRJ200) aircraft.

SkyWest serves as a feeder airline, operating under contract with various major carriers. In Cedar City, SkyWest operates in partnership with Delta Airlines. In 1985, SkyWest began codesharing as Western Express, a feeder service for Western Airlines at its Salt Lake City hub and other mainline Western Express destinations utilizing Embraer EMB-120 Brasilia and Fairchild Swearingen Metroliner turboprop aircraft. A codeshare agreement is an aviation business arrangement where two or more airlines share the same flight. Sharing, in this sense, means that each airline publishes and markets the flight under its own airline designator and flight number as part of its published timetable or schedule. A seat can be purchased on each airline's designator and flight number, but is operated by only one of these cooperating airlines, commonly called the operating carrier. Following the acquisition and merger of Western by Delta Air Lines in 1986, SkyWest then became a Delta Connection air carrier with codeshare service being flown on behalf of Delta to destinations in Arizona, California, Colorado, Montana, Nevada, Utah, and Wyoming.

Given Cedar City's location and size, EAS can be considered a need for the community. In his February 7, 2006 letter to USDOT, Utah State Senator Thomas Hatch noted that "many of the patrons who fly to [Salt Lake City] have a close relationship built upon business, educational institutions, tourism, and religious affiliations."[15] The EAS program supports these relationships by providing federal funds to sustain air service for a community that may otherwise not have commercial services.

GOVERNANCE AND AIRPORT ADMINISTRATION

The Cedar City Regional Airport is governed by an Airport Board comprised of volunteers representing the city, county, and community. The Airport Manager is authorized to take all reasonable actions necessary to protect and safeguard the public while present at the airport and to oversee all airport operations consistent with the Rules and Regulations and Minimum Standards of Cedar City Regional Airport, as well as the rules, regulations, and standards of the FAA and the laws of the State of Utah.

FBO SERVICES

Operating as commercial businesses, Fixed Base Operators (FBOs) offer all types of airport services such as fueling, hangaring, aircraft maintenance, and flight instruction. The number of FBOs per airport varies widely and some small general aviation airports do not have an FBO. The Cedar City Regional Airport is served by one FBO. Sphere One Aviation offers aviation fuel (Jet A and AVGas), aircraft parking, maintenance, inspection flight training, aircraft rental, aerial tours, courtesy vehicles, on-ramp car rentals, and pilot amenities.

AREA AIRPORTS

There are a number of public use airports within 50 nautical miles of the Cedar City Regional Airport: Parowan Airport (1L9), Panguitch Municipal Airport (U55), General Dick Stout Field (1L8), Beaver Municipal Airport (U52), Milford Municipal Airport (MLF), St. George Municipal Airport (SGU), Colorado City Municipal Airport (AZC), and Kanab Municipal Airport (KNB). Detailed information for each airport is presented in *Table 2.2* on the following page. Area airports are listed in ascending order of nautical mile distance from CDC.

Cedar City Regional Airport and St. George Municipal Airport are both commercial service airports located in southwestern Utah. These two facilities are 44.4 nautical miles (51.1 miles) apart. Although these two airports are located within 50 nautical miles of each other and both provide access to commercial services, their primary functions within the state system plan are different. As a General Aviation-Regional Airport, Cedar City Regional Airport's role is to serve a wide range of large general aviation aircraft users, while St. George Municipal Airport, classified as a National Airport, is expected to serve commercial airlines.

General Dick Stout Field in Hurricane, UT and Kanab Municipal Airport are also classified as General Aviation-Regional Airports. They are located 35.1 nautical miles (40.4 miles) and 49.5 nautical miles (57 miles) away from CDC, respectively. The remaining area airports, Parowan Airport, Panguitch Municipal Airport, Beaver Municipal Airport, Milford Municipal Airport and Colorado City Municipal Airport are all classified as General Aviation-Community Airports meaning they are expected to serve smaller general aviation aircraft and local business activities. Colorado City Municipal Airport is located in Arizona, hence, it is part of the Arizona State Airports System Plan, rather than the Utah Continuous Airport System Plan. Both the Arizona and Utah state system plans utilize the term General Aviation-Community Airports for airports designed to serve general aviation aircraft while connecting regional economies to state and national economies. The airports surrounding CDC reflect the diversity of airports within Utah's Continuous Airport System Plan. Not all airports need to provide access to commercial services, but a system of airports is necessary for the state to meet its varied air transportation needs in an effective, efficient, and economical manner.

TABLE 2.2 AREA AIRPORTS

Airport	*City*	*Miles/ Direction from CDC*	*Runway Condition*	*Runway Length x Width*	*Pavement Strength*	*Operations*	*Type of Operations*	*Based Aircraft*	*Instrument Procedures*	*FBO*
Cedar City Regional Airport (CDC)	**Cedar City, UT**	**N/A**	**Asphalt/ grooved - good condition**	**Runway 2/20 8,653' x 150' Runway 8/26 4,822' x 60'**	**Runway 2/20 Single Wheel 75,000 lbs Double Wheel 100,000 lbs Double Tandem 150,000 lbs Runway 8/26 Single Wheel 12,500 lbs**	**57,305/ year ending 01/01/15**	**83% local 10% transient 7% air taxi <1% military <1% commercial**	**91 total aircraft 49 single engines 5 mulit engines 3 jets 34 helicopters**	**ILS or LOC RWY 20 GPS RWY 20 VOR RWY 20**	**Sphere One Aviation**
Parowan Airport (1L9)	Parowan, UT	16.5 nm NE	Asphalt - fair condition	Runway 4/22 5,000' x 75'	Single Wheel 12,500 lbs	4,264/year ending 12/31/11	64% transient 35% local <1% air taxi	15 total aircraft 13 single engines 2 gliders	N/A	Parowan Aero Services
Panguitch Municipal Airport (U55)	Panguitch, UT	34.6 nm NE	Asphalt - good condition	Runway 18/36 5,700' x 75'	Single Wheel 20,000 lbs	1,248/year ending 12/31/11	67% transient 29% local 3% air taxi	3 total aircraft 3 single engines	GPS RWY 18 GPS RWY 36	N/A
General Dick Stout Field (1L8)	Hurricane, UT	35.1 nm S	Asphalt - fair condition	Runway 1/19 3,282' x 40'	Single Wheel 3,000 lbs	8,395/year ending 12/31/11	80% transient 20% local <1% air taxi	57 total aircraft 51 single engines 1 helicopter 1 glider 4 ultralights	N/A	Airport Quick Stop
Beaver Municipal Airport (U52)	Beaver, UT	37.6 nm NE	Asphalt - fair condition Dirt - fair condition	Runway 13/31 4,984' x 75' Runway 7/25 2,150' x 50'	Single Wheel 12,500 lbs	1,924/year ending 12/31/11	68% transient 30% local 3% air taxi	7 total aircraft 4 single engines 3 ultralights	GPS-A	Beaver City
Milford Municipal Airport (MLF)	Milford, UT	43.7 nm N	Asphalt - good condition	Runway 16/34 5,004' x 75'	Single Wheel 26,000 lbs	1,768/year ending 12/31/11	80% transient 18% local 2% air taxi	4 total aircraft 4 single engines	GPS RWY 16 GPS RWY 34 VOR/DME-A	Milford Municipal Airport
St. George Municipal Airport (SGU)	St. George, UT	44.4 nm SW	Asphalt/grooved - good condition	Runway 1/19 9,300' x 150'	Single Wheel 75,000 lbs Double Wheel 150,000 lbs	55,480/year ending 01/01/15	72% local 18% transient 7% commercial 3% air taxi <1% military	185 total aircraft 150 single engines 12 multi engines 4 jets 7 helicopters 10 gliders 2 ultralights	GPS RWY 1 GPS RWY 19 LDA/DME RWY 19 VOR/DME-A HIVKA ONE (RNAV) PHYLI ONE (RNAV) JITKA ONE (Obstacle)	Above View Jet Center
Colorado City Municipal Airport (AZC)	Colorado City, AZ	44.6 nm S	Asphalt - excellent condition Asphalt - good condition	Runway 11/29 6,300' x 75' Runway 2/20 5,099' x 60'	Single Wheel 30,000 lbs Single Wheel 12,500 lbs	4,004/year ending 05/06/13	59% local 38% transient 2% air taxi <1% military	12 total aircraft 12 single engines	NDB or GPS-A	Escalade Air
Kanab Municipal Airport (KNB)	Kanab, UT	49.5 nm SE	Asphalt/porous friction - fair condition	Runway 1/19 6,193' x 75'	Single Wheel 12,500 lbs	3,120/year ending 12/31/11	62% transient 34% local 3% air taxi	20 total aircraft 18 single engines 2 multi engines	GPS RWY 1 KACIR TWO (RNAV)	City of Kanab

2.2 AIRSPACE AND APPROACHES

There are four types of airspace: controlled, uncontrolled, special use, and other airspace. Controlled airspace is a generic term that covers the different classifications of airspace and defined dimensions within which air traffic control (ATC) service is provided. Controlled airspace consists of Classes A, B, C, D, and E. Uncontrolled airspace, or Class G airspace, is the portion of airspace that has not been otherwise designated. (In the US, there is no Class F airspace.) Special use airspace is the designation for airspace in which certain activities must be confined or where limitations may be imposed on aircraft operations that are not part of those activities. Prohibited areas, such as the White House or Camp David, and military operations areas are examples of special use airspace. Other airspace is a general term referring to the majority of the remaining airspace. It is important that pilots be familiar with the operational requirements for each of the various classes of airspace.[16]

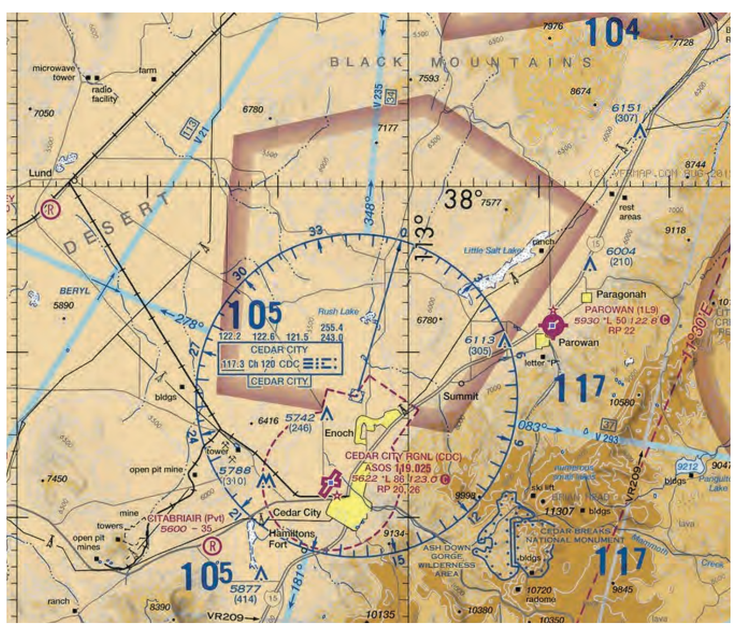
In 2002, the Aircraft Owners and Pilots Association (AOPA) developed a safety advisory entitled *Airspace for Everyone*. According to this publication, all airspace was uncontrolled in the early days of aviation. There were fewer airplanes and none had the instruments necessary to fly in clouds. Traffic density was very low and airplanes flew slowly. There were no standards regarding the specific weather conditions that aircraft could fly in, although it was generally agreed that if a pilot remained clear of clouds and had at least 1 mile of visibility, other airplanes and terrain could be seen in time to avoid a collision. This was called “see and avoid.” It formed the basis for Visual Flight Rules (VFR) flight.[17]

ATC was created when flight instruments made it possible to travel through the clouds. This also led to the creation of Class E, or controlled, airspace. The primary purpose of ATC is to prevent a collision between aircraft and to expedite the flow of air traffic. More stringent weather minimums for VFR operations were established for controlled airspace. In poor weather conditions, pilots and aircraft had to be qualified and equipped for Instrument Flight Rules (IFR) flight, file IFR flight plans, and coordinate their positions with ATC. When weather conditions were good, pilots could still fly on IFR flight plans if they chose, but were responsible to “see and avoid” other aircraft. Controlled airspace does not mean that all flight is controlled; it means that IFR services are available to qualified pilots who choose to use them. Pilots operating under VFR may fly freely in controlled airspace as long as weather conditions meet current regulatory requirements for that airspace.[17]

Airport-based radio navigation facilities made instrument approaches possible, greatly improving the utility of aircraft while also creating some challenges separating VFR and IFR aircraft. Close encounters between IFR airplanes on approach to airports and VFR airplanes flying under the weather led to the creation of transition areas. Transition areas surround airports with instrument approaches and bring Class E airspace to within 700 feet of the surface. This move was intended to protect approaching IFR pilots. Pilots flying under VFR could operate in the transition areas as long as they met VFR weather visibility minimums.[17]

Cedar City Regional Airport is located in Class E airspace starting at the surface of the airport and extending to a transition area 700 feet above

Figure 2.6 Aeronautical Chart



surface to the north. The transition area allows for an instrument approach to the airport. The airspace is depicted in *Figure 2.6 Aeronautical Chart*.

At first, the only approaches were non-precision. That is, they provided no vertical guidance. Pilots would fly to or from a navigational aid (navaid) and, at the appropriate distance or time, would descend to predetermined altitudes. Depending upon the speed of the airplane and the height of obstacles surrounding the airport, a non-precision approach might or might not be sufficient to get below the clouds and onto the runway. To help pave the way for all-weather utility, the instrument landing system (ILS) was invented, providing vertical guidance in the form of an electronic glideslope. It remains the predominant precision approach system today. The ILS systems brought airplanes to within 200 feet of the ground, and that caused some problems with VFR flight around airports with precision approaches. The solution was to bring Class E, or controlled airspace, to the surface and to raise the minimums so that VFR traffic was restricted during poor weather.[17]

For aircraft operating under IFR, an instrument approach procedure (IAP) is a series of predetermined maneuvers for the orderly transfer of an aircraft under instrument meteorological conditions (IMC) from the beginning of the initial approach to a landing, or to a point from which a landing may be made visually. There are two main classifications for IAPs: precision and non-precision. Precision approaches utilize both lateral (localizer) and vertical (glideslope) information. Non-precision approaches provide lateral course information only.[18]

As traffic increased at major airports, the need for control towers became apparent. Controllers in the tower were - and still are - responsible for sequencing arriving and departing airborne traffic and maintaining order on the ground. Class D airspace was established around towered airports, and all pilots operating within it were required to communicate with the tower, regardless of weather conditions. When arriving or departing the primary airport in Class D airspace, communications must be established with the tower. Communications must also be established when operating to or from an outlying field within the Class D airspace. When the tower is not operating but weather information is available, the airspace reverts to surface-based Class E - that is, during periods of below-VFR weather, aircraft must be operating under IFR. If weather information is not available, the airspace reverts to Class G.[17]

Ground-based surveillance radar was introduced to aid ATC in separating aircraft. It is known mainly by two components, air route traffic control centers (or just “center”) and terminal radar approach control (Tracon, or “approach”). With radar surveillance to separate aircraft, ATC can reduce the distance between participating aircraft. Intended mainly to separate IFR traffic, ATC may assist VFR traffic by providing flight following. This service allows VFR pilots to receive safety advisories but does not relieve them of “see and avoid” responsibility.[17]

As air travel continued to expand, the mixture of fast transport-category aircraft and general aviation around major airports was thought to be a safety risk, so the FAA designed new classes of airspace solely to separate IFR and VFR flights in areas of high traffic flow. These classes of airspace include terminal radar service areas (TRSAs), Class C, and Class B. In some Class D airspace, traffic sequencing is handled by radar approach together with the tower. In these areas, radar assists the tower outside its Class D airspace. Some of these areas are depicted on sectional charts and are called TRSAs. TRSA radar only assists the tower in Class D airspace; the two function independently. Radio participation in the TRSA is voluntary, though recommended, and the airspace within the TRSA maintains its original class designation. TRSAs are simply Class D airspace surrounded by airspace in which radar coverage is provided.[17]

Another type of terminal radar service, Class C airspace, has a mandatory communication requirement. Controlled-airspace weather minimums are the same for Class C and Class D airspace. To operate inside or above Class C airspace, all aircraft are required to have a Mode C transponder (up to 10,000 feet mean sea level). In addition, two-way radio communication must be established when operating within Class C. Any aircraft wishing to depart or return to an airport located within Class C airspace must contact ATC approach control prior to entering Class C.[17] Class B airspace provides for control of both VFR and IFR traffic. By enlarging the area of radar coverage, Class B airspace is able to provide separation to all aircraft through a mandatory communication requirement. Due to this increase in radar coverage and mandatory participation by all aircraft, cloud clearances are reduced to clear of clouds with 3 miles visibility.[17]

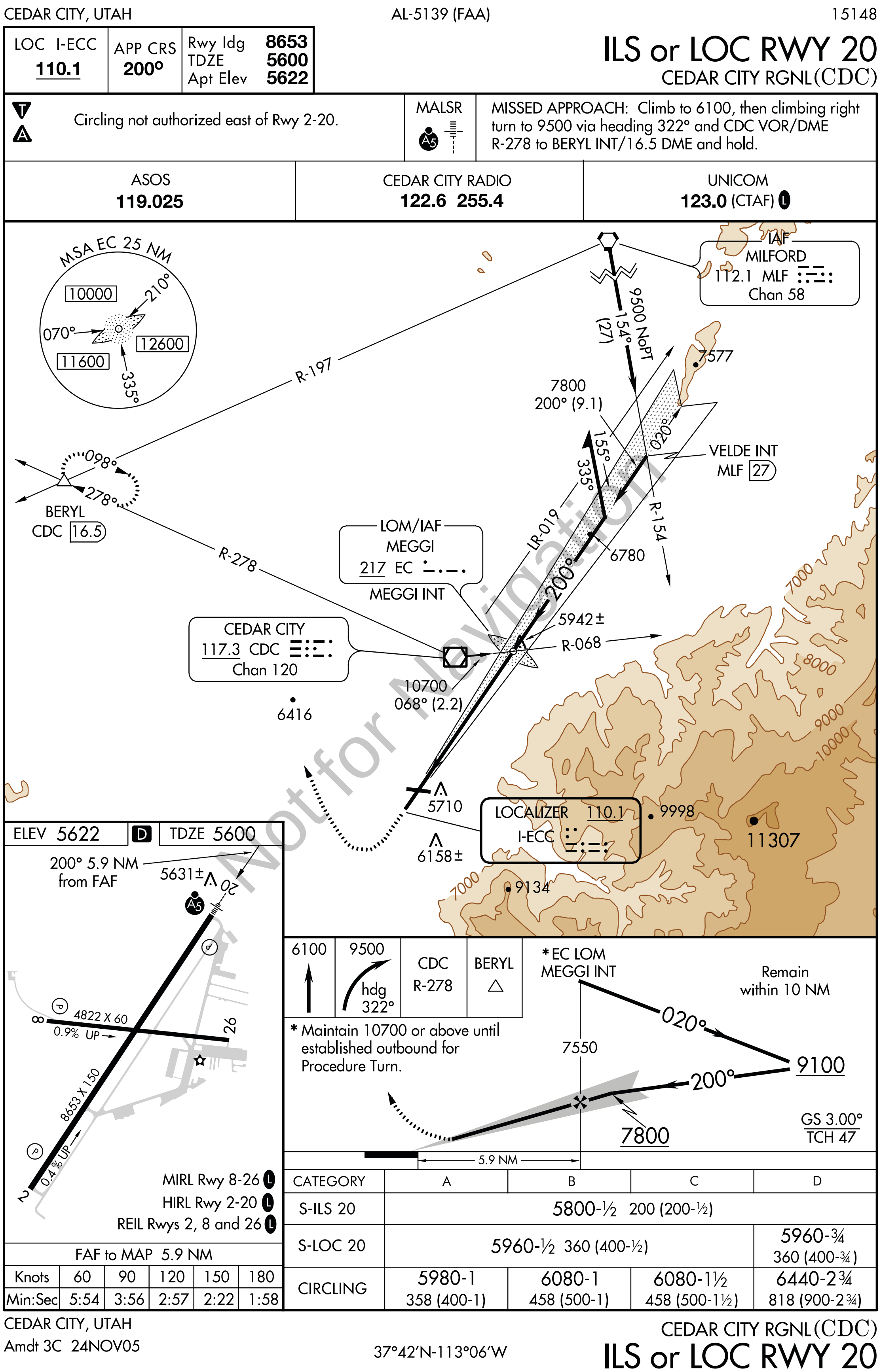
Because most aircraft that fly above 18,000 feet are capable of IFR, Class A airspace was designed to control them. Class A begins at 18,000 feet and goes to 60,000 feet. IFR clearances are required for all aircraft in Class A airspace, so there are no VFR weather minimums.[17]

Publications depicting instrument approach procedures are called Terminal Procedures. These documents depict the specific procedure to be followed by a pilot for a particular type of approach to an airport. They depict prescribed altitudes and courses to be flown, as well as obstacles, terrain, and potentially conflicting airspace. They list missed approach procedures and commonly used radio frequencies.[18]

There is one precision instrument approach and two non-precision instrument approaches published for the Cedar City Regional Airport: one ILS or Localizer (LOC) Approach (refer to *Figure 2.7*), one Area Navigation (RNAV) or Global Positioning System (GPS) Approach (refer to *Figure 2.8*), and one Very High Frequency Omnidirectional Range (VOR) Approach (refer to *Figure 2.9*).

Airspace enroute and in close proximity to a busy airport like Cedar City Regional Airport is complex and structured for the safety of the flying public, as well as citizens on the ground. Although pilots can often fly where they choose, frequently their paths are controlled by other factors, such as weather, other air traffic, and Air Traffic Controllers.

Figure 2.7 ILS Approach for Runway 20



CATEGORY	A	B	C	D
S-ILS 20	5800-½ 200 (200-½)			
S-LOC 20	5960-½ 360 (400-½)			5960-¾ 360 (400-¾)
CIRCLING	5980-1 358 (400-1)	6080-1 458 (500-1)	6080-1½ 458 (500-1½)	6440-2¾ 818 (900-2¾)

FAF to MAP 5.9 NM

Knots	60	90	120	150	180
Min:Sec	5:54	3:56	2:57	2:22	1:58

Figure 2.8 GPS Approach for Runway 20

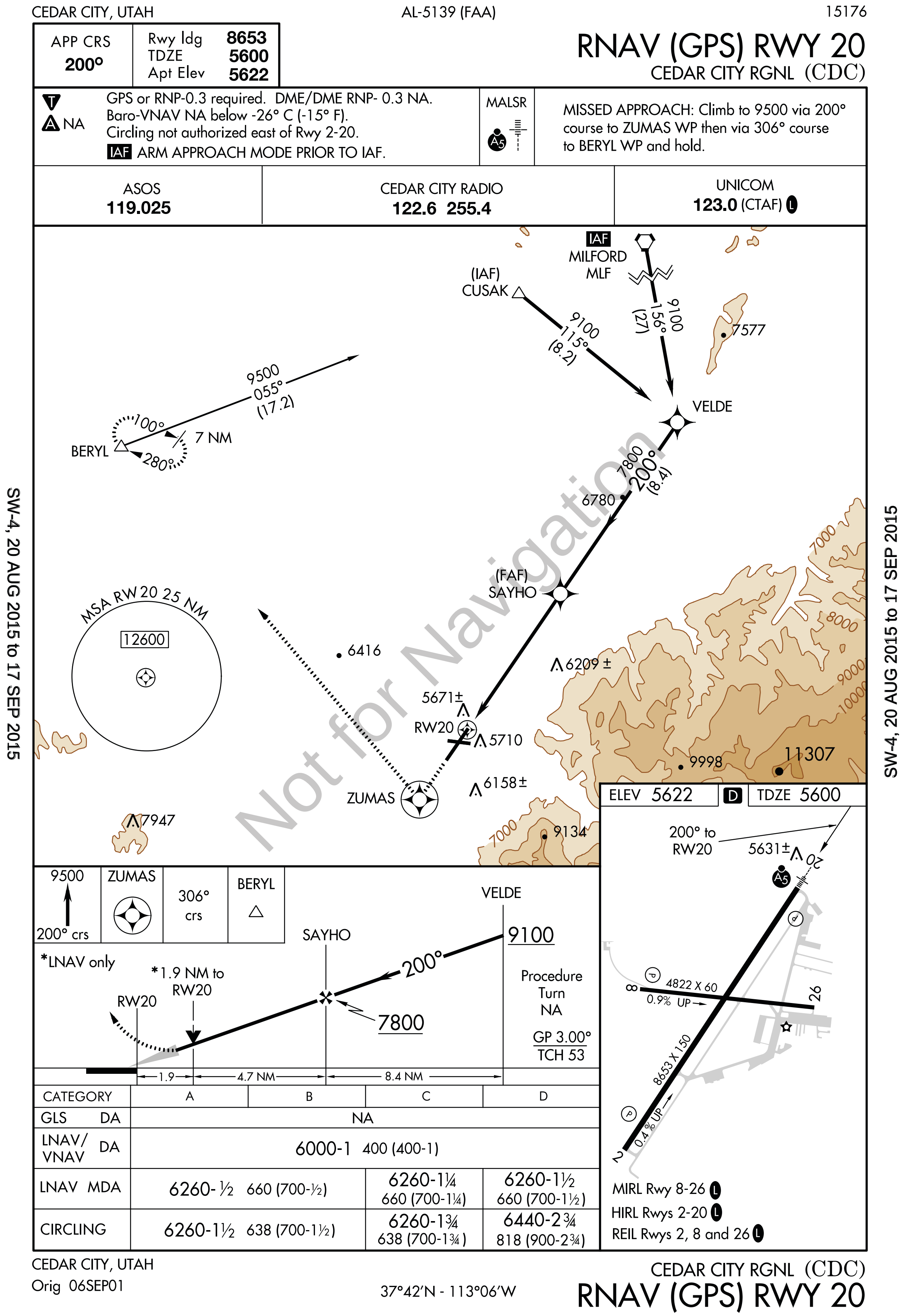
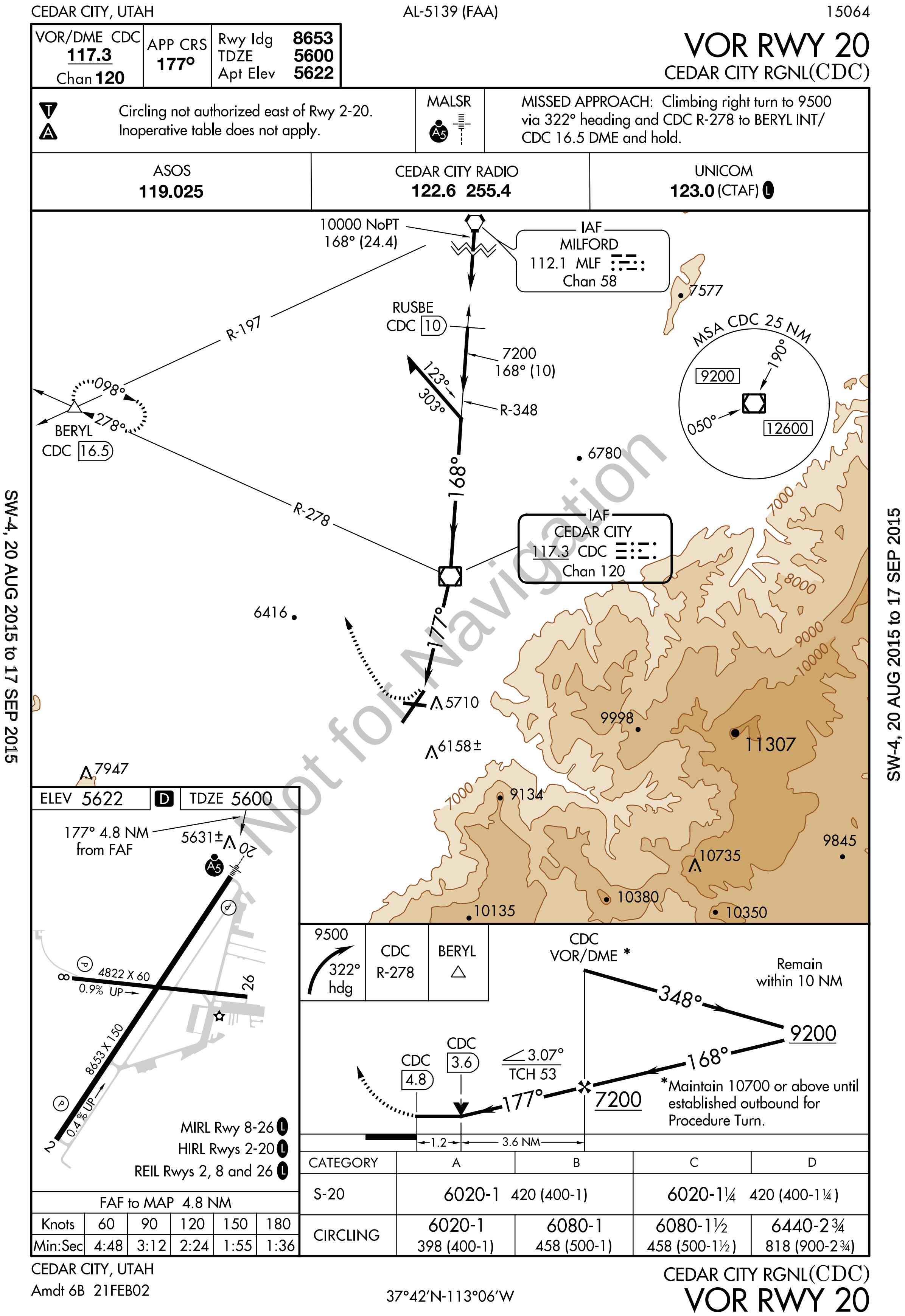


Figure 2.9 VOR Approach for Runway 20

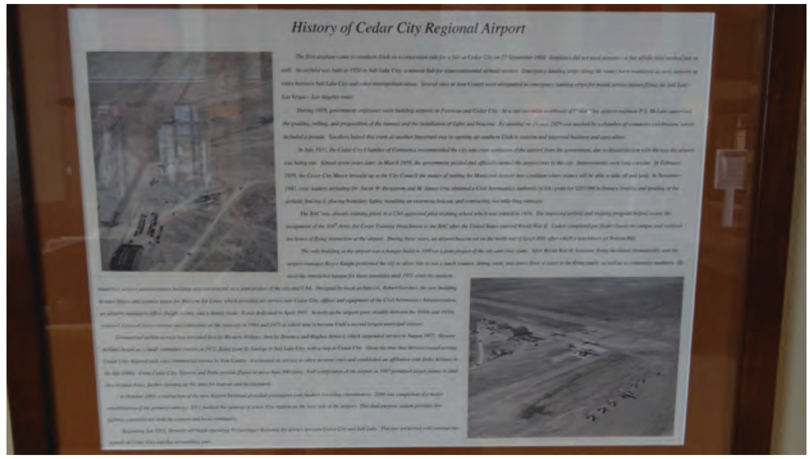


Knots	60	90	120	150	180
Min:Sec	4:48	3:12	2:24	1:55	1:36

CATEGORY	A	B	C	D
S-20	6020-1 420 (400-1)		6020-1¼ 420 (400-1¼)	
CIRCLING	6020-1 398 (400-1)	6080-1 458 (500-1)	6080-1½ 458 (500-1½)	6440-2¾ 818 (900-2¾)

2.3 CDC HISTORY

The following history excerpt is inscribed on a plaque displayed in the CDC terminal building:



> The first airplane came to southern Utah as a concession ride for a fair at Cedar City on September 27, 1920. At that time, airplanes did not need airports - flat alfalfa fields worked just as well. An airfield was built in 1920 in Salt Lake City, a natural hub for transcontinental airmail service. Emergency landing strips along the routes were mandated, as were airports in cities between Salt Lake City and other metropolitan areas. Several sites in Iron County were designated as emergency landing strips for postal service planes flying the Salt Lake City-Los Angeles route.
>
> During 1929, government employees were building airports in Parowan and Cedar City. At a site two miles northwest of Cedar City, airport engineer P.S. McLain supervised the grading, rolling, and preparation of the runway and the installation of lights and beacons. Its opening on May 18, 1929 was marked by a Chamber of Commerce celebration, which included a parade. Speakers hailed this event as another important step in opening up southern Utah to tourism and improved business and agriculture.
>
> In July 1931, the Cedar City Chamber of Commerce recommended that the city take over operation of the airport from the federal government due to dissatisfaction with the way the airport was being run. Almost seven years later, in March 1938, the federal government yielded and officially turned the airport over to the city. Improvements were long overdue. in February 1939, the Cedar City mayor brought up to the city council the matter of putting the municipal airport into a condition in which airplanes would be able to take off and land. In November 1941, civic leaders, including Dr. Jacob W. Bergstrom and M. James Urie, obtained a Civil Aeronautics Authority (CAA) grant for $287,000 to finance leveling and grading the airfield, fencing it, placing boundary lights, installing an enormous beacon, and contracting two mile-long runways.
>
> The Branch Agricultural College (now known as Southern Utah University) was already training pilots in a CAA-approved pilot-training school, which was started in 1939. The improved airfield and training program helped secure the assignment of the 316th Army Air Corps Training Detachment to the Branch Agricultural College after the United States entered World War II. Cadets completed pre-flight classes on campus and received 10 hours of flying instruction at the airport. During these years, an airport beacon sat on the north end of Leigh Hill, after which is was known as Beacon Hill.
>
> The only building at the airport was a hangar built in 1940 as a joint project of the city and civic clubs. After World War II, however, flying increased dramatically, and the airport manager, Royce Knight, petitioned the city to allow him to run a lunch counter, dining room, and dance floor to cater to the flying public, as well as to community members. He used the remodeled hangar for these amenities until 1951 when the modern municipal airport administration building was constructed as a joint project of the city and the CAA. Designed by local architect, L. Robert Gardner, the new building housed offices and counter space for Western Airlines, which

provided air service into Cedar City, office and equipment of the Civil Aeronautics Administration, an airport manager's office, freight rooms, and a dining room. It was dedicated in April 1951. Activity at the airport grew steadily between the 1950's and 1970's, requiring repeated improvements and extensions on the runways in 1964 and 1975, at which time, it became Utah's second largest municipal airport.

Commercial airline service was provided first by Western Airlines, then by Bonanza and Hughes Airwest, which suspended service in August 1977. SkyWest Airlines began as a small commuter service in 1972, flying from St. George to Salt Lake City, with a stop in Cedar City. About the time that Airwest ceased serving Cedar City, SkyWest took over commercial service to Iron County. SkyWest extended its service to other western cities and established an affiliation with Delta Airlines in the late 1980's. From Cedar City, SkyWest and Delta provide flights to more than 300 cities. Full certification of the airport in 1997 permitted larger planes to land on a regular basis, further opening up the area for tourism and development.

In October 2005, construction of the new airport terminal provided passengers with modern traveling conveniences. 2009 saw completion of a major rehabilitation of the primary runway. 2011 marked the opening of a new fire station on the west side of the airport. This dual purpose station provides fire fighting capabilities for both the airport and the local community.

Beginning January 2012. SkyWest will begin operating 50-passenger regional jet service between Cedar City and Salt Lake City. This new jet service will continue the growth of Cedar City and the surrounding area.

2.4 CDC ACCIDENTS

The National Transportation Safety Board (NTSB), an independent federal agency that investigates every civil aviation accident in the United States, maintains the Aviation Accident Database & Synopses. Using this database, the data presented in *Table 2.3 Aircraft Accidents* was compiled. Since 1982, there have been 32 aircraft accidents on record on or near Cedar City Regional Airport.[19] Specifically, 13 accidents occurred at CDC (shown in bold-faced type below). Of the 32 total accidents, 9 resulted in fatalities and 1 had serious injuries. Five accidents occurred in inclement weather conditions.

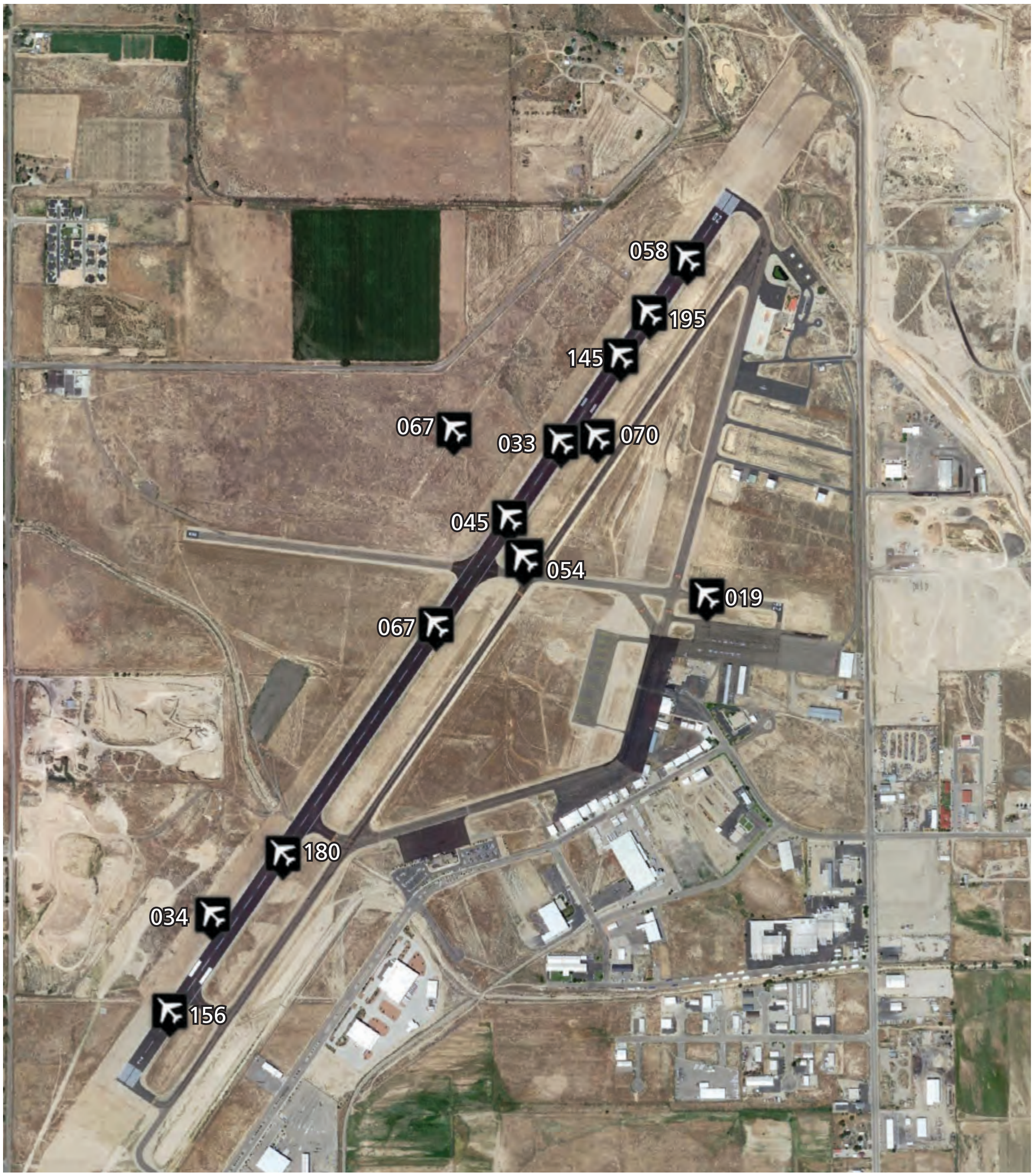
TABLE 2.3 AIRCRAFT ACCIDENTS

Accident Number	Event Date	Aircraft Damage	Purpose of Flight	Total Fatal Injuries	Total Serious Injuries	Total Minor Injuries	Weather Condition	Broad Phase of Flight
WPR11CA321	07/10/2011	Substantial	Personal	0	0	1	VMC	CRUISE
WPR11LA180	04/01/2011	Substantial	Personal	0	0	1	VMC	TAKEOFF
WPR10LA034	**10/21/2009**	**Substantial**	**Positioning**	**0**	**0**	**0**	**VMC**	**APPROACH**
LAX08FA001	10/26/2007	Destroyed	Business	2	0	0	VMC	CRUISE
SEA06CA180	**09/11/2006**	**Substantial**	**Personal**	**0**	**0**	**0**	**VMC**	**TAKEOFF**
DEN05CA145	**09/20/2005**	**Substantial**	**Instructional**	**0**	**0**	**0**	**VMC**	**LANDING**
DEN05LA127	**08/17/2005**	**Substantial**	**Instructional**	**0**	**0**	**0**	**VMC**	**CLIMB**
DEN04FA038	01/12/2004	Destroyed	Flight Test	2	0	0	VMC	MANEUVERING
DEN04LA001	10/01/2003	Substantial	Personal	0	0	0	VMC	DESCENT
DEN03LA156	**09/24/2003**	**Substantial**	**Personal**	**0**	**0**	**0**	**VMC**	**LANDING**
DEN03LA088	05/23/2003	Destroyed	Personal	0	0	1	VMC	DESCENT
DEN03LA083	05/20/2003	Substantial	Personal	0	0	0	VMC	TAKEOFF
DEN03IA054	**03/16/2003**	**Minor**	**Commercial***	**0**	**0**	**0**	**IMC**	**TAKEOFF**
DEN02LA045	**05/22/2002**	**Substantial**	**Personal**	**0**	**0**	**0**	**VMC**	**LANDING**
DEN00LA066	03/22/2000	Substantial	Instructional	0	0	0	VMC	MANEUVERING
DEN00LA033	**07/16/1999**	**Substantial**	**Personal**	**0**	**0**	**0**	**VMC**	**CRUISE**
DEN99FA071	05/03/1999	Destroyed	Personal	3	0	0	IMC	APPROACH
SEA97LA058	**02/05/1997**	**Substantial**	**Business**	**0**	**0**	**0**	**IMC**	**APPROACH**
SEA96LA221	09/30/1996	Substantial	Personal	0	0	0	VMC	TAKEOFF
SEA94FA167	07/04/1994	Substantial	Personal	2	0	0	VMC	CLIMB
SEA93FA025	11/22/1992	Destroyed	Personal	1	0	0	IMC	MANEUVERING
SEA91LA036	12/19/1990	Destroyed	Personal	0	0	0	IMC	CRUISE
DEN90FA100	04/25/1990	Destroyed	Personal	4	0	0	VMC	APPROACH
DEN87FA230	09/04/1987	Destroyed	Personal	1	2	0	VMC	CRUISE
DEN87LA052	02/09/1987	Substantial	Business	0	0	0	VMC	DESCENT
DEN86LA195	**07/12/1986**	**Substantial**	**Personal**	**0**	**0**	**0**	**VMC**	**APPROACH**
DEN86FA103	03/24/1986	Substantial	Personal	2	0	0	VMC	APPROACH
DEN86LA067	**01/19/1986**	**Substantial**	**Personal**	**0**	**0**	**1**	**VMC**	**CRUISE**
DEN85FA222	08/17/1985	Destroyed	Personal	4	0	0	VMC	CLIMB
DEN85LA070	**01/25/1985**	**Substantial**	**Personal**	**0**	**0**	**2**	**VMC**	**LANDING**
DEN84FA194	06/24/1984	Destroyed	Personal	0	0	1	UNK	MANEUVERING
DEN82DA019	**01/17/1982**	**Substantial**	**Personal**	**0**	**0**	**0**	**VMC**	**MANEUVERING**

VMC stands for Visual Meteorological Conditions and represents an aviation flight category in which pilots have sufficient visibility (equal to or greater than three miles) to fly the aircraft maintaining visual separation from terrain and other aircraft. Instrument Meteorological Conditions (IMC) represents an aviation flight category that describes weather conditions that require pilots to fly primarily by reference to instruments, and therefore, under instrument flight rules (IFR), rather than by outside visual references under visual flight rules (VFR). Typically, this means flying in clouds or bad weather.

The approximate location of 13 of the 32 aircraft accidents was determined from the NTSB incident reports. These accidents are mapped below in *Figure 2.10 Aircraft Accidents at CDC*, with the last three digits of the accident number noted. All mapped accidents occurred directly on airport property.

Figure 2.10 Aircraft Accidents at CDC



2.5 AIRPORT GRANT HISTORY

Table 2.4 Cedar City Regional Airport Improvement History lists historic improvement projects at CDC. Data was provided by FAA Denver Airports District Office (DEN-ADO). Descriptions of work are copied verbatim from the provided reports. Detailed funding breakdowns for each project were not available. Typically, funding is a mix of federal, state, and local funds. This Airport Master Plan study is one of multiple such projects funded by the FAA since 1985.

TABLE 2.4 CEDAR CITY REGIONAL AIRPORT IMPROVEMENT HISTORY

Year	Project Number	Funding Source	Description of Work	Cost
1983	001-1983	FAA Discretionary	Groove runway, install apron lighting, and rehabilitate runway lighting	$ 386,417.00
1985	002-1985	FAA Discretionary	Conduct Airport Master Plan Study	$ 49,562.00
1987	003-1987	FAA Discretionary	Extend runway	$ 168,749.00
1988	004-1988	FAA Discretionary	Install apron lighting	$ 47,870.00
1989	005-1989	FAA Discretionary	Acquire handicap passenger lift device, acquire security equipment, and expand apron	$ 244,588.00
1990	006-1990	FAA DIscretionary	Imrpove terminal buidling, acquire security equipment, rehabilitate taxiway, and rehabilitate apron	$ 230,726.00
1991	007-1991	FAA Discretionary	Acquire security equipment, rehabilitate taxiway, and conduct Airport Master Plan Study	$ 466,721.00
1992	008-1992	FAA Discretionary	Install miscellaneous NAVAIDS, install guidance signs, and rehabilitate apron	$ 321,702.00
1993	009-1993	FAA Discretionary	Conduct Airport Master Plan Study	$ 49,379.00
1994	010-1994	FAA Discretionary	Extend taxiway, extend runway, rehabilitate taxiway	$ 78,208.00
1994	011-1994	FAA DIscretionary	Improve Runway Safety Area, extend taxiway, install runway vertical/visual guidance system, extend runway, and rehabilitate taxiway	$1,781,359.00
1998	012-1998	FAA Entitlement	Acquire land for approaches	$ 62,194.00
1999	013-1999	FAA Entitlement	Conduct Airport Master Plan Study, construct taxiway, extend runway, expand apron, and install runway distance-to-go signs	$ 484,941.00
2001	014-2001	FAA Entitlement	Acquire handicap passenger left device, conduct Airport Master Plan Study, and install perimeter fencing	$ 231,884.00
2003	015-2003	FAA Entitlement	Construct terminal building, acquire friction measuring equipment, acquire handicap passenger lift device, and install airport beacons	$ 372,523.00
2004	017-2004	FAA Entitlement	Construct terminal building	$3,627,477.00
2006	018-2006	FAA Entitlement & FAA Discretionary	Acquire Aircraft Rescue & Fire Fighting vehicle	$ 568,723.00
2007	019-2007	FAA Entitlement	Rehabilitate runway lighting and construct taxiway	$ 97,639.00
2008	020-2008	FAA Entitlement	Rehabilitate runway lighting and construct taxiway	$ 778,684.00
2008	021-2008	FAA Entitlement	Construct taxiway	$ 276,626.00
2009	022-2009	FAA Entitlement	Widen taxiway	$ 43,824.00
2009	023-2009	Economic Recovery	Rehabilitate runway	$3,431,770.00
2009	024-2009	FAA Entitlement	Widen taxiway	$ 93,913.00
2010	025-2010	FAA Entitlement	Wildlife Hazard Assessments	$ 94,690.00
2010	026-2010	FAA Entitlement	Environmental Mitigation	$ 308,756.00
2012	027-2012	FAA Entitlement & FAA Discretionary	Construct Snow Removal Equipment building	$ 397,809.00
2014	028-2014	FAA Entitlement	Rehabilitate heliport/helipad	$ 850,000.00
2015	029-2015	FAA Entitlement	Update Airport Master Plan Study	$ 406,667.00
2015	030-2015	FAA Entitlement	Acquire Snow Removal Equipment	$ 575,000.00

2.6 ECONOMIC IMPACT

Section 1.5 Why are Airports Important provides a general description of how airports impact local economies. There are economic benefits, including jobs, payroll, and output, of airports, as well as qualitative benefits that contribute to the overall value of airports. *Section 2.1 Area and Airport Overview, Essential Air Services (EAS)* highlights the EAS program, which is administered by the US Department of Transportation (DOT). The EAS program was initiated to guarantee the availability of scheduled air service to small communities previously served by certificated air carriers prior to 1978 when the Airline Deregulation Act was passed. DOT currently subsidizes commuter airlines to serve approximately 163 rural communities across the country that otherwise would not receive any scheduled air service, including Cedar City.

Additionally, the FAA Modernization and Reform Act of 2012 established a special rule for economically distressed communities permitting the federal government's share of allowable Airport Improvement Program (AIP) project costs to be increased from 90% to 95%. This special rule applies to airports that participate in the EAS program as of October 1 of each year and are located in an area that meets one or more of the criteria established in section 301(a) of the Public Works and Economic Development Act of 1965 (42 U.S.C. § 3161(a)), also known as Economically Distressed Areas (EDAs). The FAA makes this determination, known as the EAS/EDA Determination, annually and publishes a list of all qualifying locations at http://www.faa.gov/airports/aip/eas-eda/.

EDAs are determined through a series of calculations, which include unemployment data obtained from the Bureau of Labor Statistics (BLS) and per capita income data obtained from the Bureau of Economic Analysis (BEA).
According to section 301(a) of the Public Works and Economic Development Act of 1965, projects shall be located in an area that, on the date of submission of the application, meets one or more of the following criteria:

1. Low per capita income – the area has a per capita income of 80% or less of the national average per capita income. In 2013, Cedar City's per capita income was 63% of the national average. (Refer to *Figure 2.16* for details.)
2. Unemployment rate above national average – the area has an unemployment rate that is, for the most recent 24-month period for which data are available, at least 1% greater than the national average unemployment rate.
3. Unemployment or economic adjustment problems – the area is in an area that the Secretary of Commerce determines has experienced or is about to experience a special need arising from actual or threatened severe unemployment or economic adjustment problems resulting from severe short-term or long-term changes in economic conditions.

To quantify the benefits derived from Utah's airport system, the Utah Department of Transportation's Division of Aeronautics commissioned an Airport Economic Impact Study using data from the calendar year 2003. The study followed an FAA approved methodology to assess the relationship between Utah's system of airports and the state's economy. According to the study, airports create economic impacts in many ways. Airports throughout Utah accommodate a long list of aviation related businesses, including flight schools, commercial airlines, aircraft maintenance and repair shops, air cargo companies, ground transportation providers, concessionaires, and others. There are also on-airport employees who are charged with the day-to-day maintenance, operation, and development of system airports.

Additionally, airports throughout Utah support visitor-related travel. Thousands of visitors come to Utah on a daily basis either on commercial airlines or on privately-owned general aviation aircraft. Once in the state, these visitors spend money on hotels, entertainment, shopping, ground transportation, food, and other items. On-airport businesses and aviation related visitor spending are responsible for many annual economic benefits.

Direct economic benefits related to airport tenants and indirect benefits stemming from visitors were measured as part of the economic impact study. As these first-round benefits are produced, additional multiplier benefits are created. For example, when an airport employee spends his salary on groceries, this spending re-circulates, or multiplies, until the benefits ultimately leak outside of the study area. Secondary benefits for this study were calculated using Utah-specific multipliers. In general, for every $100 spent by aviation-related businesses in Utah, an additional multiplier benefit of nearly $68 is created in supporting industries.

Utah's airports not only support essential transportation services but have a very important role in the statewide and local economies. While Salt Lake City International Airport provides the greatest economic benefit, the National, Regional, Community and Local airports need to be recognized as well. The 2004 Utah Airports Economic Impact Study determined that the state's airports (excluding Salt Lake City International) provided 5,098 full-time equivalent jobs with an annual payroll of over $133 million. The total annual economic output of these airports (which includes the goods and services related to aviation) is over $339 million. Excluding Salt Lake City International, in 2004, 27 of the airports had an economic output of $1 million or greater.[20]

For the purpose of this economic value inventory, the economic impact data of several airports similar to the Cedar City Regional Airport were compared. Although each airport is distinct, the Utah airports selected share several similar characteristics, beginning with airport classification. Like CDC, most of following airports are classified as General Aviation-Regional Airports, meaning they serve a wide range of general aviation aircraft users. They also serve and support the local and regional economies and connect them to the state and national economies. Although St. George Municipal Airport and Wendover Airport are classified as National Airports, they were included as comparison airports, as well, because they share other characteristics with Cedar City Regional Airport, namely annual operations. Because each airport is unique, finding comparison airports is not an exact science. In *Table 2.5 Comparison Airports*,

TABLE 2.5 COMPARISON AIRPORTS

Airport	*City*	*UCASP Classification*	*2010 Population*	*2014 Enplanements*	*Annual Operations*	*Primary Runway Length*	*Primary Runway Width*	*Secondary Runway Length*	*Secondary Runway Width*	*Elevation*
Cedar City Regional Airport (CDC)	***Cedar City, UT***	***GA-Regional***	***28,857***	***14,362***	***57,305***	***8,653 feet***	***150 feet***	***4,822 feet***	***60 feet***	***5,622 feet***
St. George Municipal Airport (SGU)	*St. George, UT*	*National*	*72,897*	*59,321*	*55,480*	*9,300 feet*	*150 feet*	*N/A*	*N/A*	*2,884 feet*
Vernal Regional Airport (VEL)	*Vernal, UT*	*GA-Regional*	*9,089*	*4,352*	*9,125*	*6,201 feet 4,108 feet*	*150 feet*	*4,108 feet*	*60 feet*	*5,278 feet*
Wendover Airport (ENV)	*Wendover, UT*	*National*	*1,400*	*N/A*	*5,408*	*10,000 feet*	*150 feet*	*8,001 feet*	*100 feet*	*4,237 feet*
Canyonlands Field Airport (CNY)	*Moab, UT*	*GA-Regional*	*5,046*	*9,259*	*9,855*	*7,100 feet*	*75 feet*	*N/A*	*N/A*	*4,557 feet*
Tooele Valley Airport (TVY)	*Tooele, UT*	*GA-Regional*	*31,605*	*N/A*	*70,445*	*6,100 feet*	*100 feet*	*N/A*	*N/A*	*4,322 feet*
Logan-Cache Airport (LGU)	*Logan, UT*	*GA-Regional*	*48,174*	*N/A*	*72,635*	*9,010 feet*	*100 feet*	*5,005 feet*	*75 feet*	*4,457 feet*
Brigham City Airport (BMC)	*Brigham City, UT*	*GA-Regional*	*17,899*	*N/A*	*19,710*	*8,900 feet*	*100 feet*	*N/A*	*N/A*	*4,230 feet*
Heber City Municipal Airport (36U)	*Heber City, UT*	*GA-Regional*	*11,362*	*N/A*	*19,345*	*6,899 feet*	*75 feet*	*N/A*	*N/A*	*5,637 feet*
Ogden-Hinckley Municipal Airport (OGD)	*Ogden, UT*	*GA-Regional*	*82,825*	*18,843*	*90,155*	*5,195 feet*	*100 feet*	*3,618 feet*	*150 feet*	*4,473 feet*

an assortment of factors were considered, including 2010 population, number of enplanements, lengths and widths of runways, and elevation. Number of based aircraft was not matched, although it is the strongest predictor of annual operations, since annual operations were included. Those categories that were within 25% of the CDC value are highlighted in bright yellow. As evidenced by this table, no one airport in particular is equivalent to Cedar City Regional Airport; however, several airports, specifically St. George Municipal Airport, Vernal Regional Airport, Wendover Airport, Tooele Valley Airport, and Logan-Cache Airport, share several similar characteristics to CDC. As a result, the total economic benefits of these five airports were compared to the total economic benefits of Cedar City Regional Airport in *Table 2.6*.

Based on the information presented in *Table 2.6*, it is clear that CDC contributes more economic benefit than most of the comparison airports. The exception is St. George Municipal Airport, which reports a similar number of annual operations, but substantially more 2014 enplanements. It should be noted that among the select comparison airports, Wendover Airport, Tooele Valley Airport, and Logan-Cache Airport do not provide commercial services. Also of significance is the fact that the economic impact data is approximately 12 years old, therefore, the total output for each airport has been adjusted for inflation. When inflation rates are applied to the total output, these amounts could equate to the 2014 amounts listed in the last column of *Table 2.6*.[21]

TABLE 2.6 TOTAL ECONOMIC IMPACT OF SELECT AIRPORTS

Airport	*City*	*Total Employment*	*Total Payroll*	*Total Output*	*Total Output Adjusted for Inflation*
Cedar City Regional Airport (CDC)	***Cedar City, UT***	*336.5*	*$ 9,711,200*	*$22,848,600*	*$28,634,700*
St. George Municipal Airport (SGU)	*St. George, UT*	*821.0*	*$20,332,900*	*$28,384,700*	*$35,572,700*
Vernal Regional Airport (VEL)	*Vernal, UT*	*111.0*	*$ 2,629,400*	*$ 5,576,200*	*$ 6,988,300*
Wendover Airport (ENV)	*Wendover, UT*	*44.0*	*$ 1,169,200*	*$ 3,293,100*	*$ 4,127,000*
Tooele Valley Airport (TVY)	*Tooele, UT*	*49.0*	*$ 1,169,900*	*$ 4,807,900*	*$ 6,025,400*
Logan-Cache Airport (LGU)	*Logan, UT*	*226.0*	*$ 5,704,900*	*$16,100,800*	*$20,178,100*

2.7 SOCIOECONOMIC AND DEMOGRAPHIC REVIEW

As stated in FAA Advisory Circular 150/5070-6B Airport Master Plans, the economic characteristics of a community affect the demand for air traffic. The types of industries in an airport's service area also affect aviation demand. For example, manufacturing and service industries tend to generate more aviation activity than resource industries, such a mining. Additionally, the demographic characteristics of an area's population affect the demand for aviation services. Demographic characteristics influence the level, composition, and growth of both local traffic and traffic from other areas. An important demographic characteristic is the level of disposable income, usually measured on a per capita basis, which is a good indicator of the propensity to travel, as well as use and purchase of general aviation aircraft.

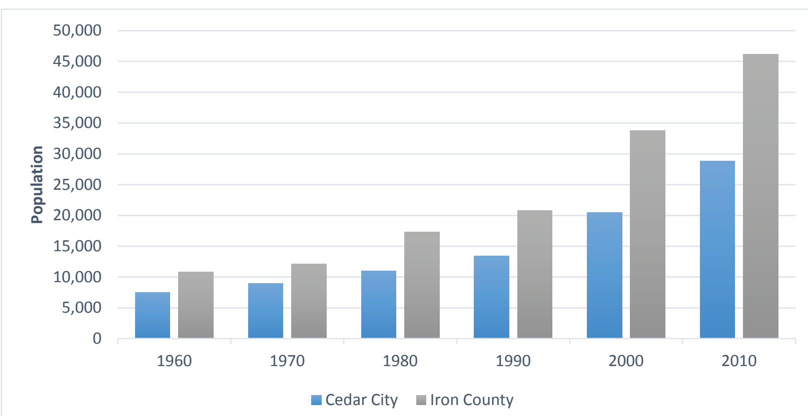
Socioeconomic status is a measure of an individual, family, or group of people, used to draw comparisons between groups. Socioeconomic status is derived from the relative economic and sociological position compared to other groups, such as income, wealth, education, and occupation. Demographic data is similar but distinct, typically describing a population as a whole, including items such as age and population size. Local socioeconomic conditions and demographics play a considerable role in the demand for air transportation services. As a simple example, the demographics of a large urban area, such as Chicago, indicate very large population bases which correlate to a higher demand for commercial air service.

An examination was undertaken to determine whether current trends in social and economic indicators would predict stronger or weaker future aviation demand for the Cedar City Regional Airport. The local geographic area examined as the focus of socioeconomic conditions was either Cedar City or Iron County, depending on the available data.

The key socioeconomic indicators examined include population, education, household income, employment, and per capita income. These indicators provide insight into the financial strength and well-being of the local economy and historically correlate with the local level of aviation activity and aircraft ownership. Population and employment statistics assist in understanding the number of people and their ability to fulfill the employable positions that exist with businesses in the area. Both of these socioeconomic indicators also give an indication of stability with respect to the cost of living, commerce, and industry. Per capita personal income reflects the average annual monetary wage per head of household. High per capita personal income in an area is usually a good indicator for greater aviation demand as higher income populations are more likely to own and fly aircraft.

Aviation demand in a particular market is often strongly correlated with population. As of the 2010 Census, the total population of Iron County was 46,163. Cedar City, which is the largest municipality in the county, had 28,857 residents in 2010. Estimates for 2014 indicate a population of 29,483 for Cedar City and a population of 47,269 for Iron County.

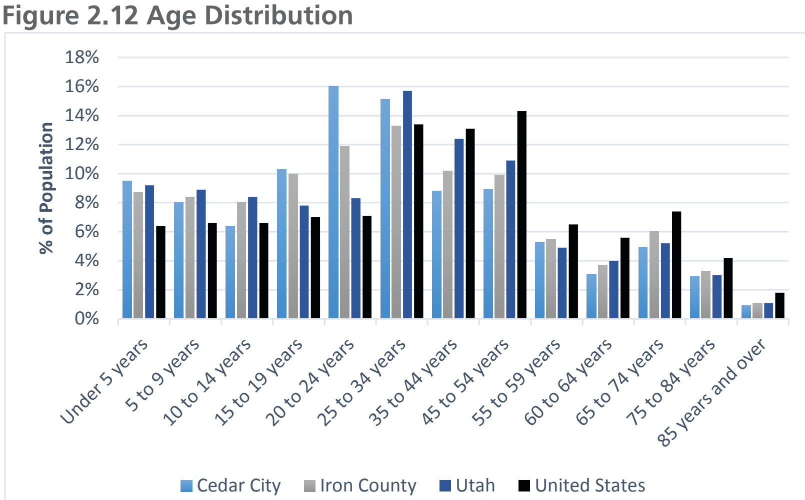
Figure 2.11 Historical Populations for Cedar City and Iron County



As shown in *Figure 2.11 Historical Populations of Cedar City and Iron County*, both Cedar City's population and the population of Iron County increased steadily between 1960 and 2010.[7] Population estimates for 2014 reflect further growth for both Cedar City and Iron County.

The age distributions for Cedar City, Iron County, Utah, and the United States are compared in *Figure 2.12 Age Distribution*. Data is from the 2009-2013 American Community Survey 5-Year Estimates provided by the US Census Bureau.

Figure 2.12 Age Distribution



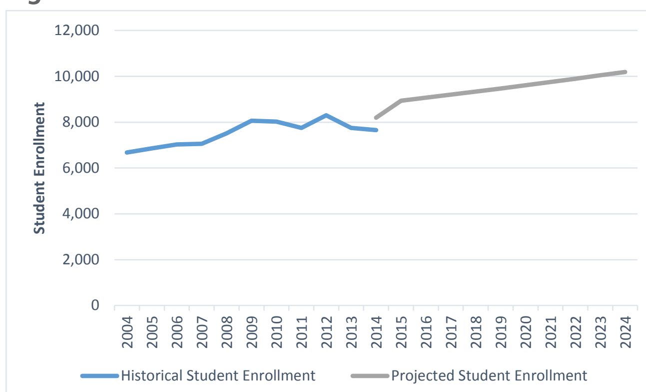
Comparatively, there is a substantial number of residents ages 20-24 in Cedar City and Iron County due, in part, to the presence of Southern Utah University (SUU). The median age of Cedar City residents is 24.9 years and the median age of Iron County residents is 27.1 years, as compared to 29.6 years for the State of Utah and 37.3 years for the United States. As of October 15, 2014, SUU reported that 7,656 students were enrolled in the college. Although 20-24 year-olds do not typically possess the financial resources needed to own an aircraft or participate in activities associated with aviation, such as recreational flying, universities do enhance the economies of their local communities.

According to an article entitled *How Colleges and Universities Can Help Their Local Economies*, authors Jasion R. Abel and Richard Deitz explain that "Colleges and universities are assets to their regional economies, especially because they spend money in their local areas and employ local workers. The higher-education sector also tends to contribute stability to a region since it's less susceptible to downturns than other sectors of the economy.

These institutions also play an important role in their local economies by helping regions build their skilled workforces. This contribution is significant because regions with higher levels of human capital - measured by the share of the working-age population with at least a bachelor's degree - tend to be more innovative, have greater amounts of economic activity, and enjoy faster economic growth, and workers in these regions tend to be more productive and earn higher wages."[22]

Historical enrollment and projected enrollment for SUU is illustrated in *Figure 2.13 SUU Enrollment*. Generally speaking, enrollment has remained steady. Each year, Utah System of Higher Education (USHE) institutions use statistical models to project enrollment growth at their campuses for the next 10 years. Southern Utah University's enrollment is projected to grow at a rate of 2.2% per year.[23]

Figure 2.13 SUU Enrollment



According to a report completed in May 2009 by Dennis Hoffman, Ph.D. and Kent Hill, Ph.D. on the contribution of universities to regional economies, universities contribute to the local community in three distinct ways:

Traditional Economic Impact: Universities as an Economic Base Industry. Universities economically impact their communities through their spending for goods and services and by the expenditures of their employees, students and visitors.

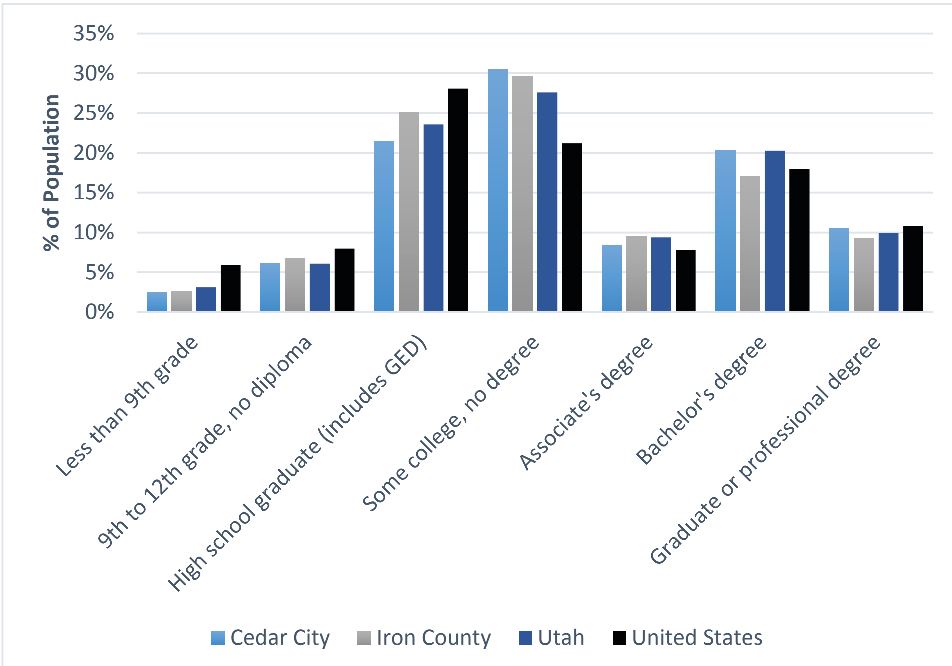
Benefits to Individuals and Society: Universities as Institutions of Higher Education. Universities improve the stock of human capital, which results in higher wages – of those who attended the universities and of other workers in the community. The heightened educational attainment results in other societal benefits, including enhancing the ability of the community to compete for economic development.

Creation of Knowledge: Universities as Research Institutions. The research activities of universities produce knowledge that advances science and technology and results in innovation. New products and processes are created. This too enhances the ability of the community to compete for economic development, particularly related to the knowledge economy. Increased funding from the federal government and other nonlocal sources also benefits the community.[24]

For these reasons, the economic impact of the university on the community as a whole is beneficial to aviation, despite the fact that the typical college student lacks the economic resources to own aircraft or engage in aviation activities, such as recreational flying. Consequently, as enrollment at the university increases, its economic impact on the community will also increase. The healthier the economy of the community, the greater the likelihood of the community supporting and participating in aviation related activities.

A comparison of educational obtainment for Cedar City, Iron County, Utah, and the United States is presented below in *Figure 2.14 Educational Attainment.*[7] Fewer Cedar City and Iron County residents have less than a 9th grade education compared to the United States, although percentages are similar to those of other Utahns. A higher number of Cedar City residents have attended some college, as compared to Iron County, Utah, and the rest of the nation. Additionally, Cedar City ranks similar to Utah in terms of residents who have attained a bachelor's degree or higher, but percentages are higher than those of Iron County, as a whole, and the United States.

Figure 2.14 Educational Attainment



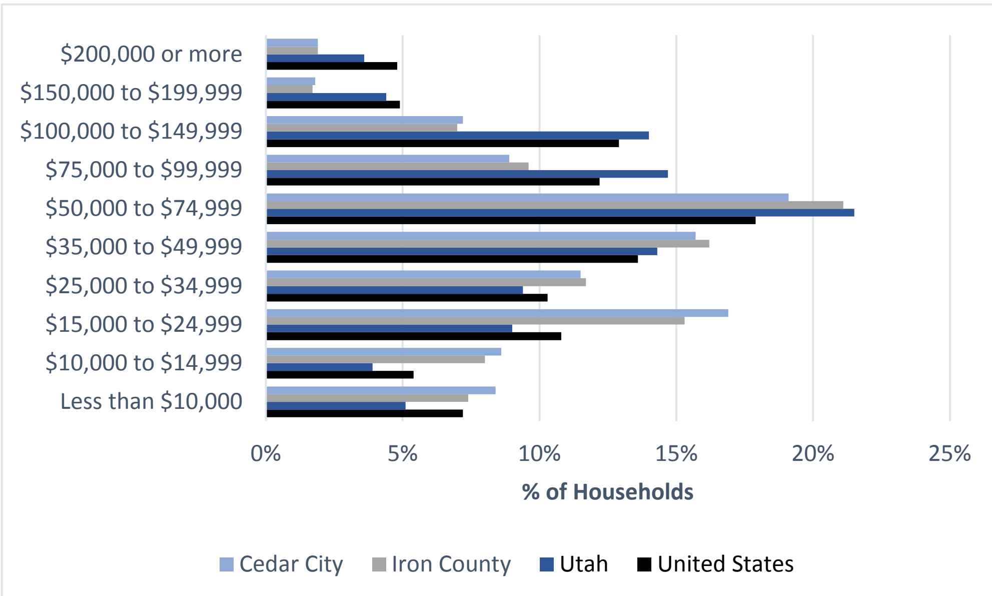
Regarding the percent of youth age 25 and over who have earned a high school diploma or higher, Cedar City reports 91.4% compared to the state average of 90.9% and the national average of 86%.[7] This data is highlighted in *Table 2.7 Educational Attainment* below and includes statistics for Iron County and Utah, as well.

TABLE 2.7 EDUCATIONAL ATTAINMENT

	Cedar City	*Iron County*	*Utah*	*United States*
High School Graduate or Higher	*91.40%*	*90.60%*	*90.90%*	*86.00%*
Bachelor's Degree or Higher	*30.90%*	*26.40%*	*30.30%*	*28.80%*

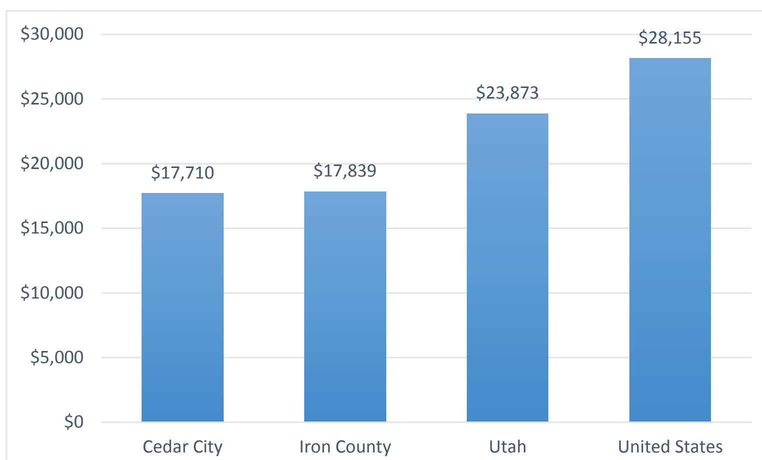
When using 2010 US Census Bureau data to compare household incomes among residents of Cedar City, Iron County, Utah, and the United States, as shown in *Figure 2.15 Household Income*, it is evident that the greatest number of Cedar City residents fall within three categories: the $15,000 to $24,999 bracket (16.9%), the $35,000 to $49,999 bracket (15.7%), and the $50,000 to $74,999 (19.1%) bracket. It is not surprising that there is a large population within the $15,000 to $24,999 bracket given the number of college students in Cedar City. For the most part, Cedar City and Iron County report similar results, including substantially lower numbers in the $150,000 to $199,999 and $200,000 or more brackets. For Utah and the United States, the $50,000 to $74,999 bracket has the highest number of households, 21.5% and 17.9%, respectively.

Figure 2.15 Household Income



Per Capita Income (PCI) is the mean income of the people in an economic unit such as a country or city. It is calculated by taking a measure of all sources of income in the aggregate and dividing it by the total population. PCI is used to gauge the comparative economic well-being of residents in a specified region. Changes over time in per capita growth or decline have economic, social, and political repercussions. Counties with smaller populations are more likely to experience substantial fluctuations for a number of reasons, including bumper crops, natural disaster, and major state or federal projects.

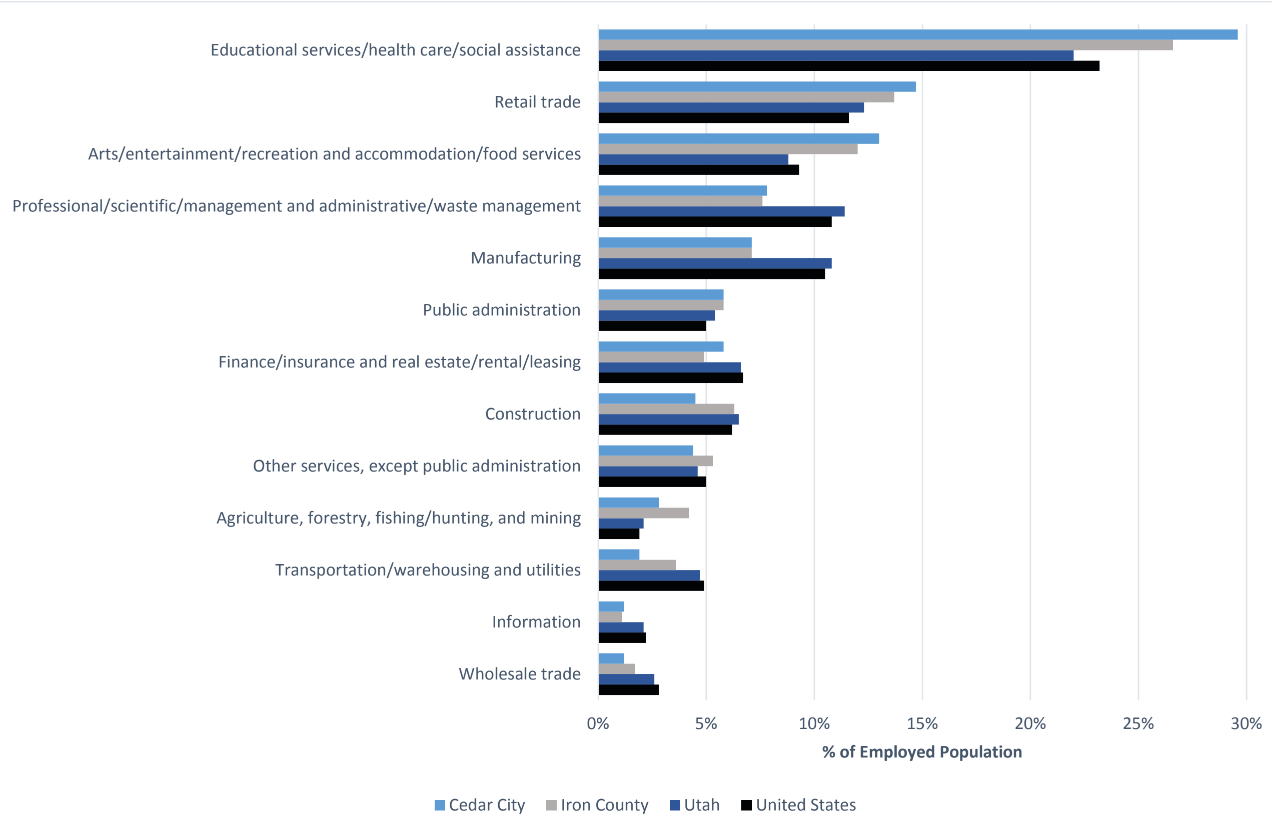
Figure 2.16 Per Capita Income



Per Capita Income is one of the most widely used indicators for gauging the economic performance and changing fortunes of local economies. The 2013 PCI for Cedar City, Iron County, Utah, and the United States is displayed in *Figure 2.16 Per Capita Income*.[7] As evidenced by this chart, Utah's PCI is significantly lower than the PCI for the United States. Cedar City and Iron County's PCI values are similar to each other, but substantially lower than the PCI for Utah.

It is not surprising that 29.6% of employees in Cedar City work in the educational services/health care/social assistance industry, compared to the national average of 23.2%, as illustrated in *Figure 2.17* below.[7] The industry with the next highest percentage (14.7%) of employees in Cedar City is retail trade. Again, this is not surprising given Cedar City's population of college students. The arts/entertainment/recreation and accomodation/food services industry is the third highest ranking at 13%. The industries with the lowest percentages of employees in Cedar City include wholesale trade and information, both at 1.2%.

Figure 2.17 Employment by Industry



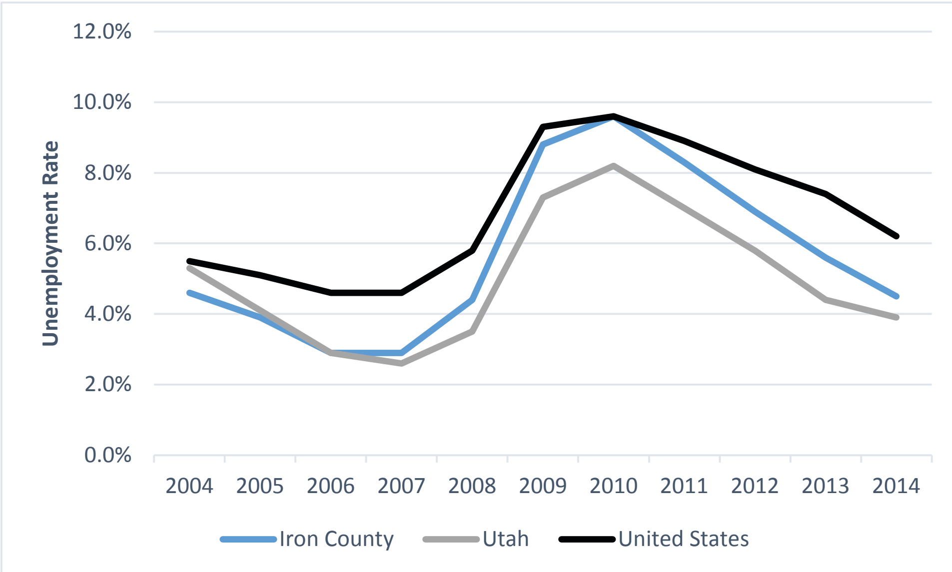
Tourism plays an important role in the economies of Cedar City and Iron County. According to the Cedar City-Brian Head Tourism Bureau's website "In Cedar City you will discover a unique small city complete with world-renowned theatricals, astounding beauty, and unbelievable outdoor recreation." Based on the Utah Travel and Tourism Profile, completed by the Bureau of Economic and Business Research, Iron County ranked 12th out of 29 counties in terms of the share of private leisure and hospitality jobs to total private jobs (18%) for 2011 through 2014.[25] In 2014, the accommodations/food service industry added the most new jobs at 69, followed by retail trade with 10 new jobs. *Table 2.8* lists several tourism statistics for Iron County. The largest contributor of tourism-related tax revenues was the county transient room tax at $939,000. Utah counties may impose a 4.25% transient room tax on the rental of rooms in hotels, motels, inns, trailer courts, campgrounds, tourist homes, and similar accommodations for stays of less than 30 consecutive days. The largest contributor of leisure and hospitality taxable sales was food services and drinking places at $62.2 million.

TABLE 2.8 TOURISM IN IRON COUNTY

	2013	*2014*	*% Change*
Tourism-Related Sales Tax Revenue	*$1,721,000*	*$1,779,000*	*3.4%*
Leisure and Hospitality Taxable Sales	*$80.3 million*	*$88.9 miliion*	*10.7%*
Leisure and Hospitality Jobs	*2,019*	*2,078*	*2.9%*
Leisure and Hospitality Wages	*$24.4 million*	*$26.5 million*	*8.9%*

Source: University of Utah Policy Institute

Figure 2.18 Historical Unemployment Rates



Generally speaking, Utah's unemployment rate has been lower than that of Iron County and the nation, as illustrated in *Figure 2.18 Historical Unemployment Rates*. During July 2015, Iron County's unemployment rate was 4.9%, while the statewide unemployment rate was 3.6%, and the national unemployment rate was 5.3%.[26] Since 2006, Iron County's unemployment rate has been nestled between unemployment rates for Utah and the United States.

Figure 2.19 reflects the unemployment rate for each county in Utah in July 2015. Rich County had the lowest unemployment rate at 3.0%, while San Juan County had the highest unemployment rate at 7.9%. (Data is from the US Bureau of Labor Statistics.)

Figure 2.19 Unemployment Rates by County (July 2015)

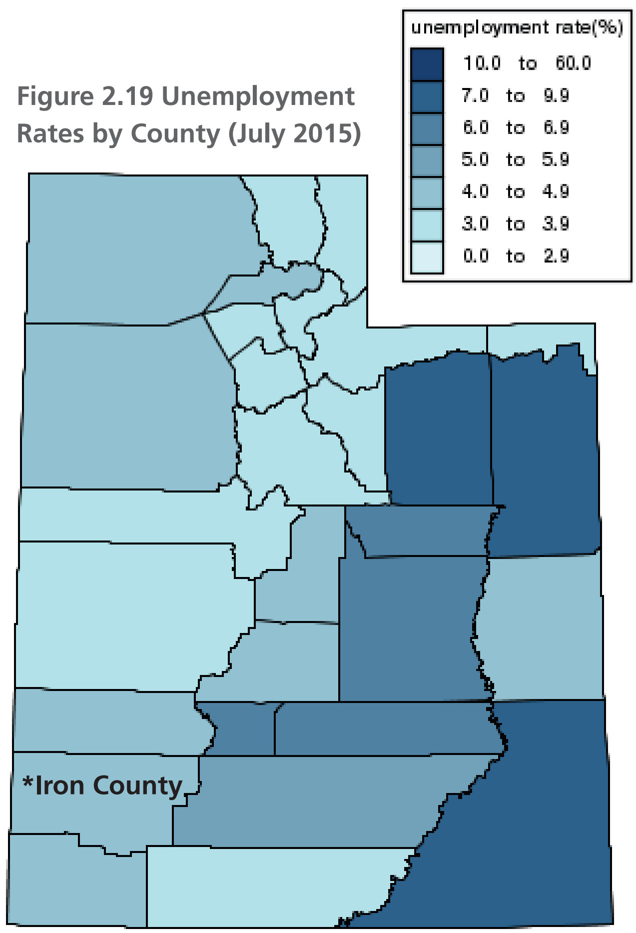


Table 2.9 outlines population projections for Cedar City, Iron County, Utah, and the United States, as well as the percentage of change for each decade. The Utah Governor's Office of Planning and Budget provided the population projections for Cedar City, Iron County, and Utah.[27] Population projections for the US were provided by the US Census Bureau.[7] It should be noted that ANY projection or forecast beyond five years is generally considered less reliable than those for earlier years due to the ever-changing nature of factors that ultimately dictate the forecast results. As evidenced by these projections, the population percent change for Cedar City and Iron County is expected to outpace the population percent change for Utah and particularly, the United States.

TABLE 2.9 POPULATION PROJECTIONS

	2020	% Change	2030	% Change	2040	% Change	2050	% Change	2060
Cedar City	35,666	25.65%	44,812	21.50%	54,448	21.46%	66,135	20.79%	79,886
Iron County	57,055	25.65%	71,687	21.50%	87,102	21.46%	105,797	20.79%	127,795
Utah	3,309,234	18.30%	3,914,984	16.74%	4,570,433	15.03%	5,257,239	13.48%	5,965,658
United States	334,503,000	7.44%	359,402,000	5.79%	380,219,000	4.76%	398,328,000	4.64%	416,795,000

Table 2.10 lists the airmen certification types in Iron County, as well as the number of certificates for each type. In many cases, an individual may have one more than one certificate so the 502 total does not correspond to 502 individuals. The variety and amount of each certificate type indicates the presence of a healthy and active aviation community. Of the 502 airmen certificates in the county, 152 are private pilot certificates and 115 are commercial pilot certificates.

TABLE 2.10 CERTIFICATED AIRMEN IN IRON COUNTY

Certificate Type	Number
Airline Transport Pilot	21
Commercial Pilot	115
Flight Engineer	3
Flight Instructor	64
Ground Instructor	7
Mechanic	33
Private Pilot	152
Student Pilot	94
Parachute Rigger	1
Control Tower Operator	6
Repairman - Experimental Aircraft	3
Dispatcher	3
TOTAL	**502**

2.8 SOCIOECONOMIC AND DEMOGRAPHIC REVIEW CONCLUSION

Cedar City and Iron County have a substantially higher number of 20-24 year-olds than the rest of the state and the nation. Additionally, Cedar City residents tend to be more educated than those living in Iron County, Utah, and the US. This is expected given the presence of Southern Utah University in Cedar City. Iron County residents have a slightly higher unemployment rate than the state unemployment rate, although it is lower than the national rate. Iron County ranks in the middle in regard to unemployment rates by county throughout Utah. On average, Cedar City and Iron County residents earn substantially less income than other Utahns and residents across the United States.

Significant growth is expected throughout the state in the coming years, but even more growth is anticipated for Cedar City and Iron County. Enrollment numbers at SUU are also expected to increase on an annual basis. This is important information for Cedar City's economy because of the economic impact of universities on their local communities.

In conclusion, the socioeconomics and demographics for Cedar City and Iron County reveal a steadily increasing population base with a solid economic foundation. These indices point to a growing need and use for aviation, with aviation demand slowly increasing into the future.

3. Airside and Landside Inventory

SECTION OVERVIEW

Chapter 3. Airside and Landside Inventory details the physical environment, such as soils and terrain, of the Cedar City Regional Airport (CDC). A detailed wind analysis, using data recorded on the airport, is included. All major airport components, structures, and pavements on the airport property are documented.

3.1 NATURAL AND PHYSICAL ENVIRONMENT

GEOLOGY AND SOILS

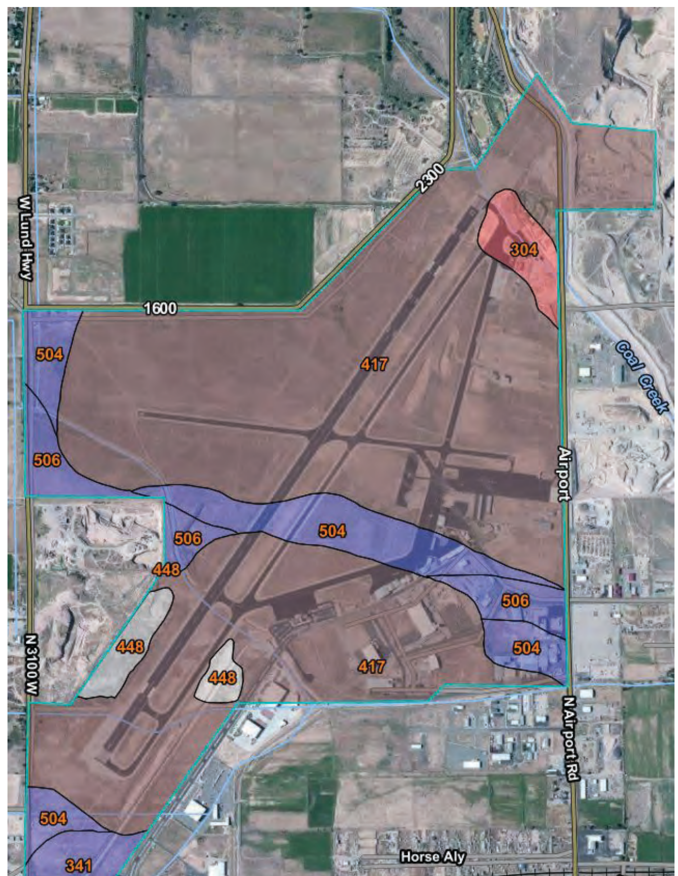
According to the Natural Resources Conservation Service (NRCS) Custom Soil Report, the soil is roughly 79% medburn sandy loam, 10% wales loam, 5% wales loam flooded and 6% as other soils. Of the total soil, 79% of it is farmland of state importance (medburn sandy loam and taylorsflat loam soil), 12% is prime farmland if irrigated (wales loam and calcross loam soil), and 9% is not prime farmland or not classified.

Medburn sandy loam is made up of approximately 85% medburn and similar soils. Lostwells is classified as "well drained," meaning water is removed from the soil readily but not rapidly. The first 17 inches of this soil is sandy loam, 17 to 24 inches is loamy sand, 24 to 29 inches is sandy clay loam, 29 to 42 inches is sandy loam and from 42 to 60 inches is loam. Medburn sandy loam is farmland of statewide importance.

Wales loam is comprised of 85% wales and similar soils. Wales is classified as "well drained." The first 3 inches is loam, 3 to 21 inches is silt loam, from 21 to 53 the soils goes from loam, to sandy loam, to silt loam and from 53 to 60 inches is stratified sand to silt loam. This soil is prime farmland if irrigated.

Wales loam, flooded, is comprises of 85% wales and similar soils. Wales is classified as "well drained." The first 15 inches is loam, 15 to 22 inches is sandy loam, 22 to 30 inches silt loam, 30 to 34 inches is loam and from 34 to 60 inches is silt loam. The soil is not prime farmland.[28]

Figure 3.1 Geology and Soils



Map Unit	Name	Percent of Area
417	Medburn sandy loam	78.7%
504	Wales loam	9.7%
506	Wales loam, flooded	4.5%
341	Calcross loam	2.5%
448	Pits-Dumps complex	2.3%
304	Annabella very gravely loam	2.2%
489	Taylorsflat loam	0.1%

VEGETATION

Iron County spans 3,296.68 square miles and includes diverse elevation and land cover. Elevations range from over 11,000 feet in the Markagunt Plateau found on the eastern side of the county down to 5,000 feet in the Escalante Desert. The county is surrounded by four mountain ranges that drain into the Escalante Desert. Precipitation, land cover, and land uses are also variable because of the fluctuations in elevation.[12]

According to the *Iron County Resource Assessment* completed by the National Resouce Conservation Service, the higher elevations support sub alpine meadows, as well as conifer and aspen forests. Middle elevations support mixed forest communities, mountain shrub lands, and pinion/juniper forests. Lower elevations support semi-desert and salt desert rangelands. It is in this lower elevation where cropland and irrigated pastures are found. Irrigated lands utilize water from mountain stream runoff or from underground aquifers.[12]

The 2012 USDA Plant Hardiness Zone Map is the standard by which gardeners and growers can determine which plants are most likely to thrive at a location. The USDA has given Cedar City a growing zone designation of 6b, meaning average annual extreme minimum temperatures are -5 to 0 degrees Farenheit. This zone is accommodating to both warm- and cold-weather plants. Planting and growing in Zone 6b usually runs from mid-March (after the last frost) through mid-November. The climate in this zone is hospitable to all but the tenderest of plants and those that require hot and dry weather in order to excel. Zone 6 also happens to be a region where the weather can change abruptly. Winter or summer can sometimes come early or last longer than expected and strong seasonal storms can wreak havoc on gardens making the climate unpredictable at times.[30]

The 25-mile area surrounding the Cedar City Regional Airport is covered by shrublands (50%), forests (30%), and grasslands (17%).[31] *Figure 3.2* depicts the typical assortment of vegetation on the airport property.

Figure 3.2 Vegetation on Airport Property

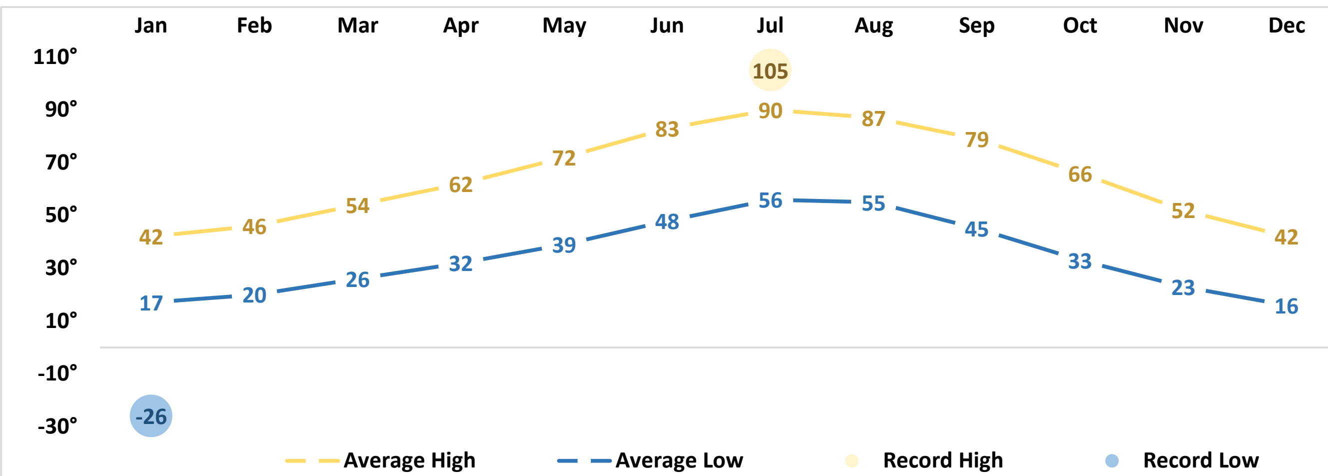
CLIMATE

Cedar City, Utah has a cold semi-arid steppe climate. Semi-arid climates tend to support short or scrubby vegetation, with semi-arid areas usually dominated by either grasses or shrubs.

The average temperature for Cedar City is 49.4°F, approximately five degrees lower than the nationwide average of 54.50°F and the Utah average of 54.8°F. The annual high temperature in Cedar City is 64.6°F while the annual low temperature is 34.2°F. The all-time high temperature for Cedar City was 105°F in July, 1989. The all-time low temperature was -26°F in January, 1951.[32] Monthly averages and extremes are graphed in *Figure 3.3*.

The average annual precipitation for Cedar City is 11.3 inches. The wettest months are March and October with 1.34 inches, followed by August with 1.14 inches and April with 1.06 inches. Cedar City's average annual snowfall is 49 inches. The months that exhibit the most snowfall include January, February, and March with 9 inches each and November and December with 7 inches each.[33]

Figure 3.3 Average Temperature



WIND COVERAGE

Aligning the primary runway of an airport with the predominate wind direction increases the safety of operations. A crosswind is a wind that is perpendicular to the runway. Wind coverage is the percentage of time that crosswinds are below an acceptable speed. Thus, properly aligning runways provides the best wind coverage. Below, three wind roses for the airport are provided for Runways 2/20 and 8/26. The wind coverage percentages listed in the centers of the wind roses reflect the amount of time operations can safely occur with the corresponding crosswind component (10.5, 13, 16, or 20 knots). The FAA recommends 95% coverage of allowable crosswind components.

Wind data was downloaded directly from the Integrated Surface Hourly/Integrated Surface Data inventory from the National Climate Data Center (NCDC), which obtains wind readings from the ASOS on the airport. The downloaded data contained wind direction and speed for every hour of the past ten years, from 2007 through 2016. A total of 95,948 observations were included in the calculations. *Figure 3.4 All Weather Wind Rose* displays all weather data, resulting in 99.62% coverage with 13 knot crosswind component and 99.90% coverage for 16 knots.

Figure 3.4 All Weather Wind Rose

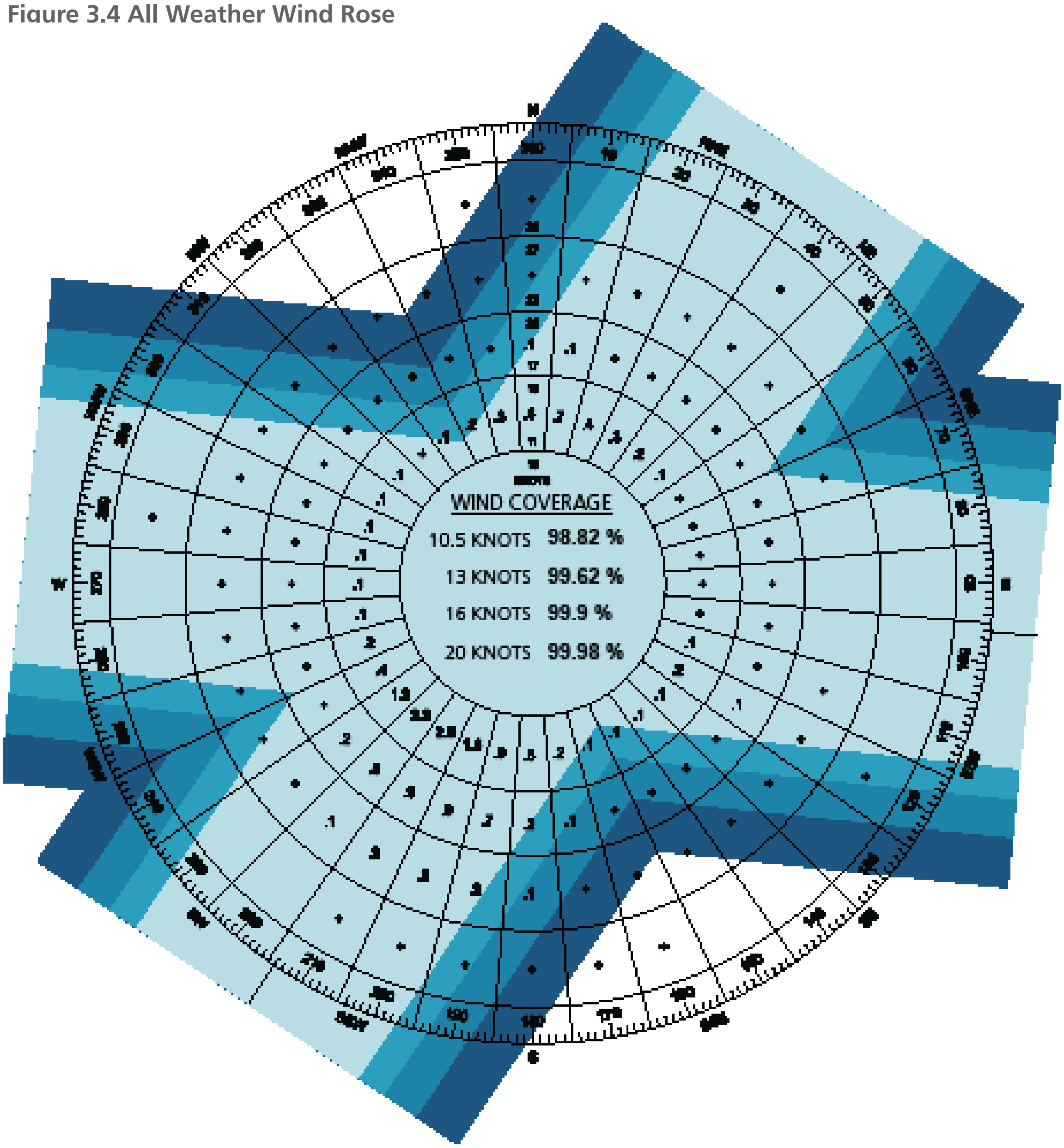


Figure 3.5 Wind Rose - VMC depicts weather data during Visual Meteorological Conditions (VMC) when visibility is at least one mile based on 88,634 observations. *Figure 3.6 Wind Rose - IMC* displays weather data during Instrument Meteorological Conditions (IMC) when visibility is under three miles based on 7,271 observations. The runways at CDC provide more than 95% coverage for all crosswind components under both VMC and IMC. *Table 3.1* below lists all the wind coverage percentages for each runway individually. Runway 2/20 alone provides more than 95% wind coverage under all weather conditions, as well as IMC and VMC.

Figure 3.5 Wind Rose - VMC

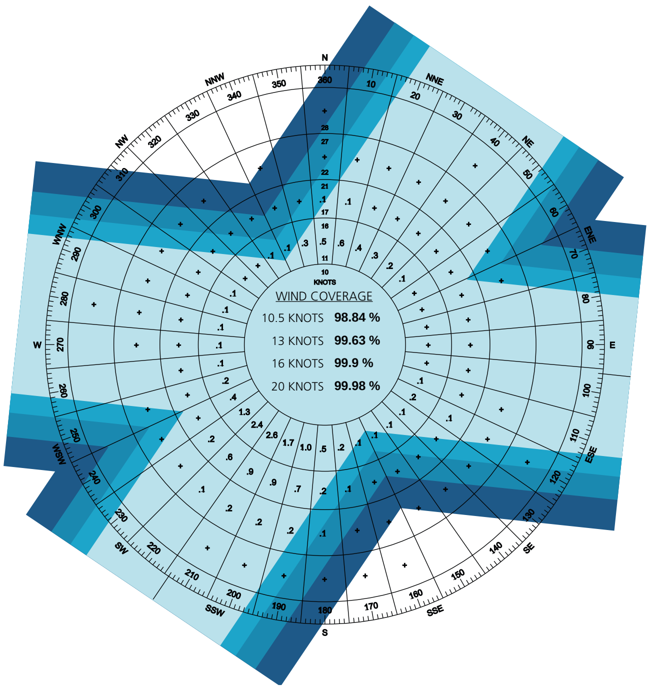


Figure 3.6 Wind Rose - IMC

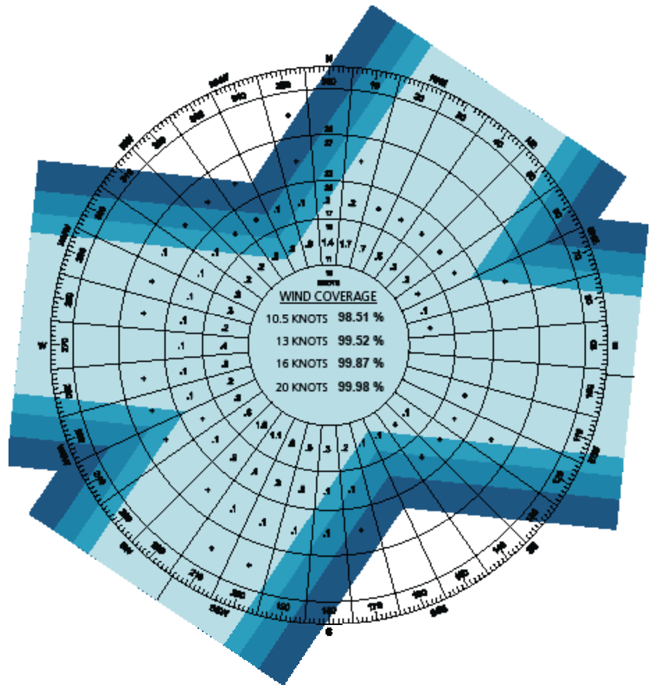


TABLE 3.1 WIND COVERAGE PERCENTAGES						
	Runway 2/20			*Runway 8/26*		
	All Weather	IMC	VMC	All Weather	IMC	VMC
10.5 knots	97.90%	96.30%	97.50%	84.99%	87.74%	84.79%
13 knots	98.82%	97.97%	98.70%	90.43%	92.45%	90.26%
16 knots	99.54%	99.20%	99.52%	95.71%	97.21%	95.59%
20 knots	99.88%	99.73%	99.87%	96.61%	99.14%	96.57%

Wind direction and speed for available data are graphically overlaid on a satellite image of Cedar City Regional Airport. *Figure 3.7 Wind Rose - All Weather Overlay* depicts all weather conditions, with the majority of wind blowing from southwest to northeast. Approximately 81% of the time wind speeds at CDC are less than or equal to 10 knots. Wind speeds at CDC reach 22 knots or more only 0.80% of the time.

Figure 3.7 Wind Rose - All Weather Overlay

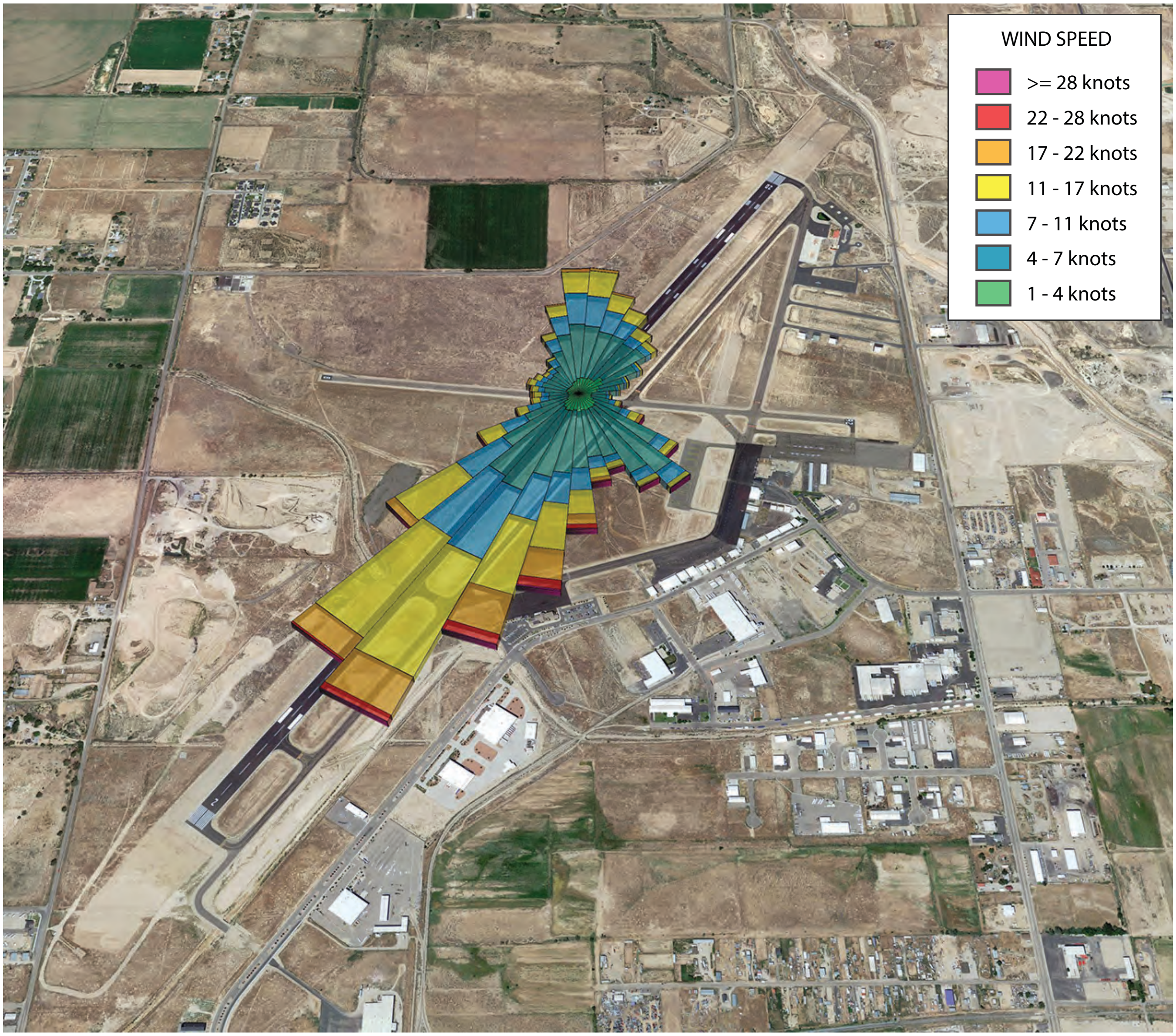


Figure 3.8 Wind Rose - VMC Overlay displays wind direction and speed during VMC (when horizontal visibility is at least three miles). There is relatively little change in the wind between the all weather conditions and the visual meteorological conditions.

Figure 3.8 Wind Rose - VMC Overlay

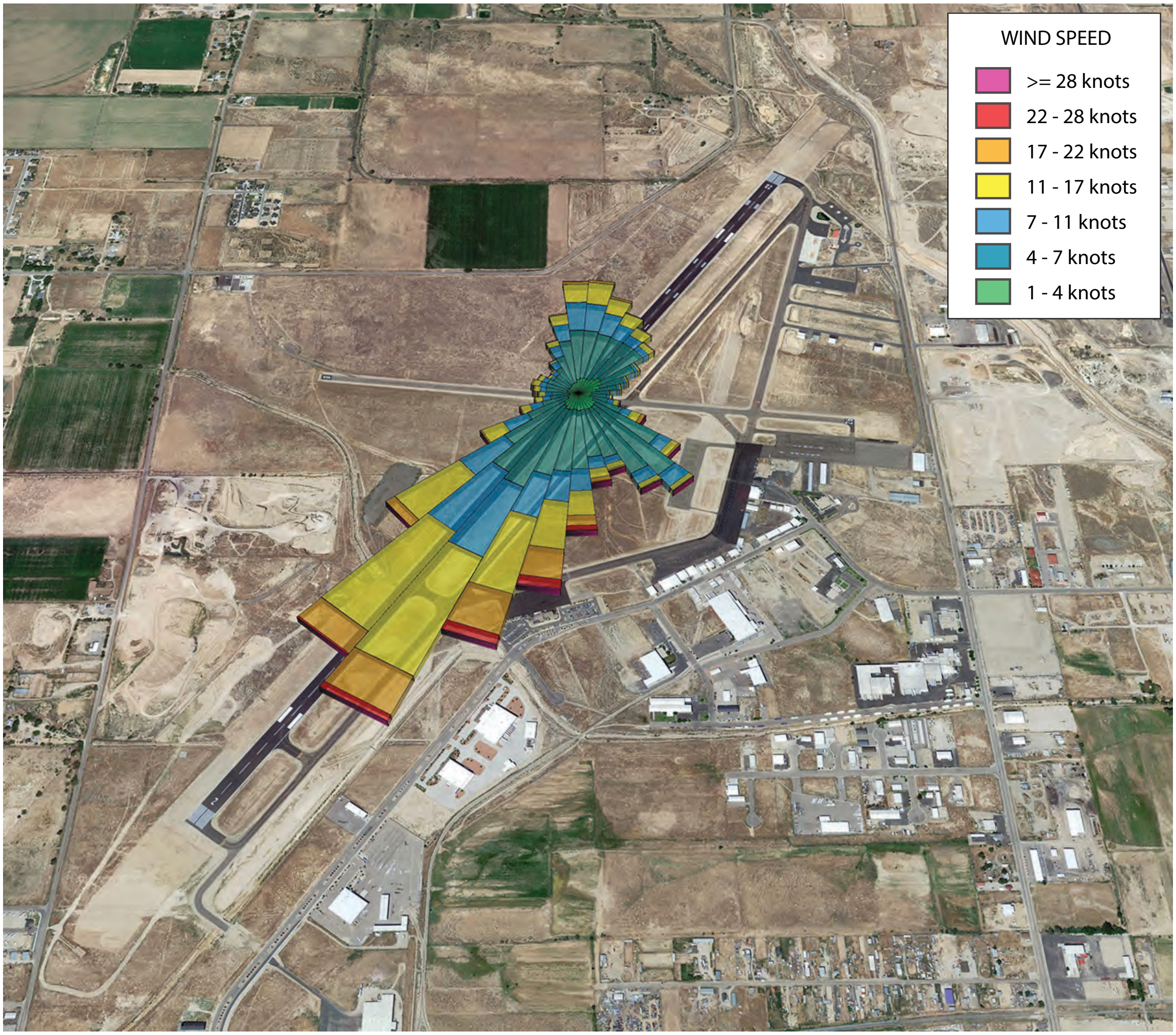
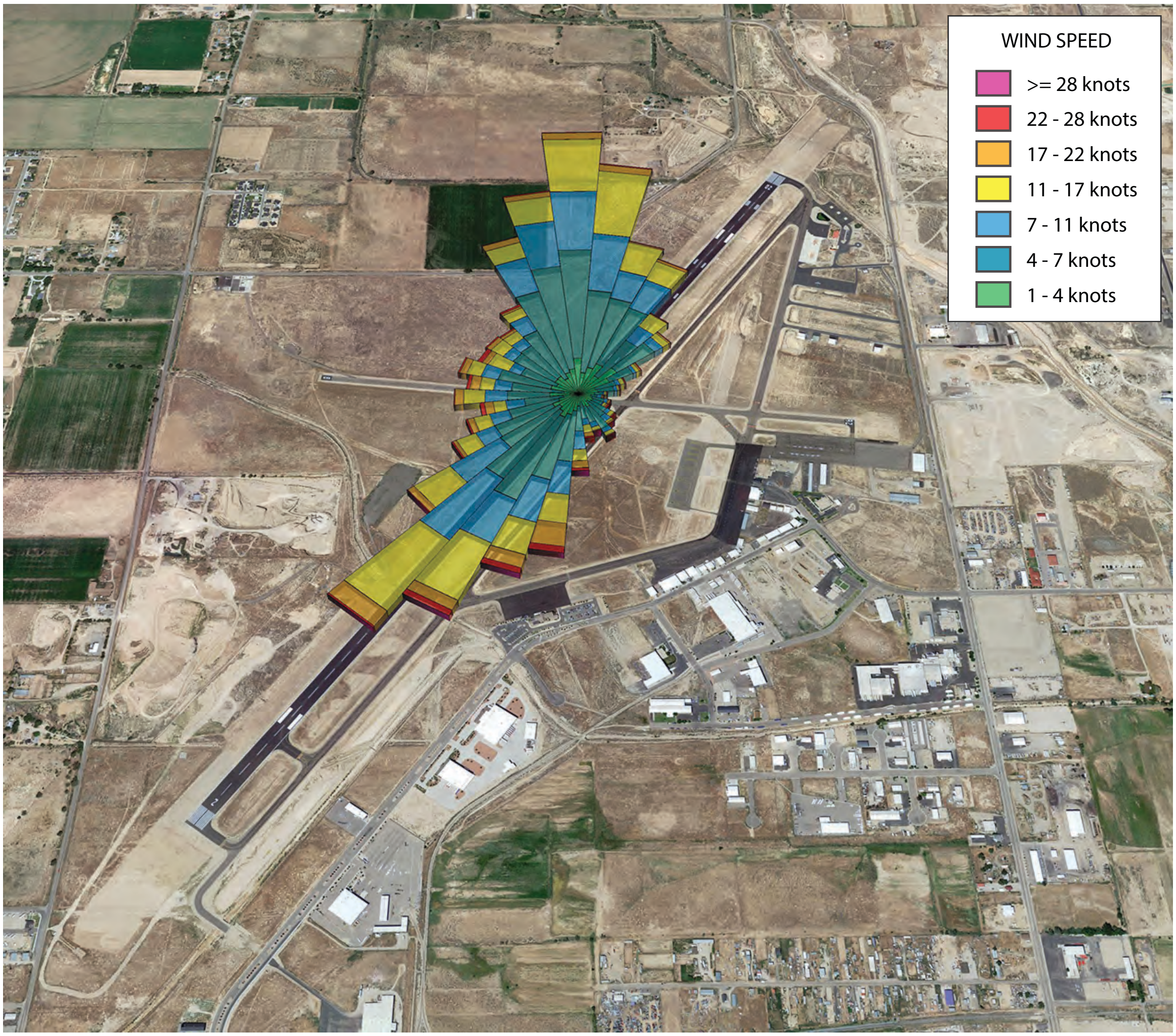


Figure 3.9 Wind Rose - IMC Overlay displays wind direction and speed during IMC (when horizontal visibility is less than three miles). This type of weather conditions occur about 8% of the time at CDC. There is a substantial change in wind direction and speed between instrument and visual conditions. For IMC, the weather predominately blows from the north. Wind speed falls at 10 knots or less during IMC roughly 84% of the time.

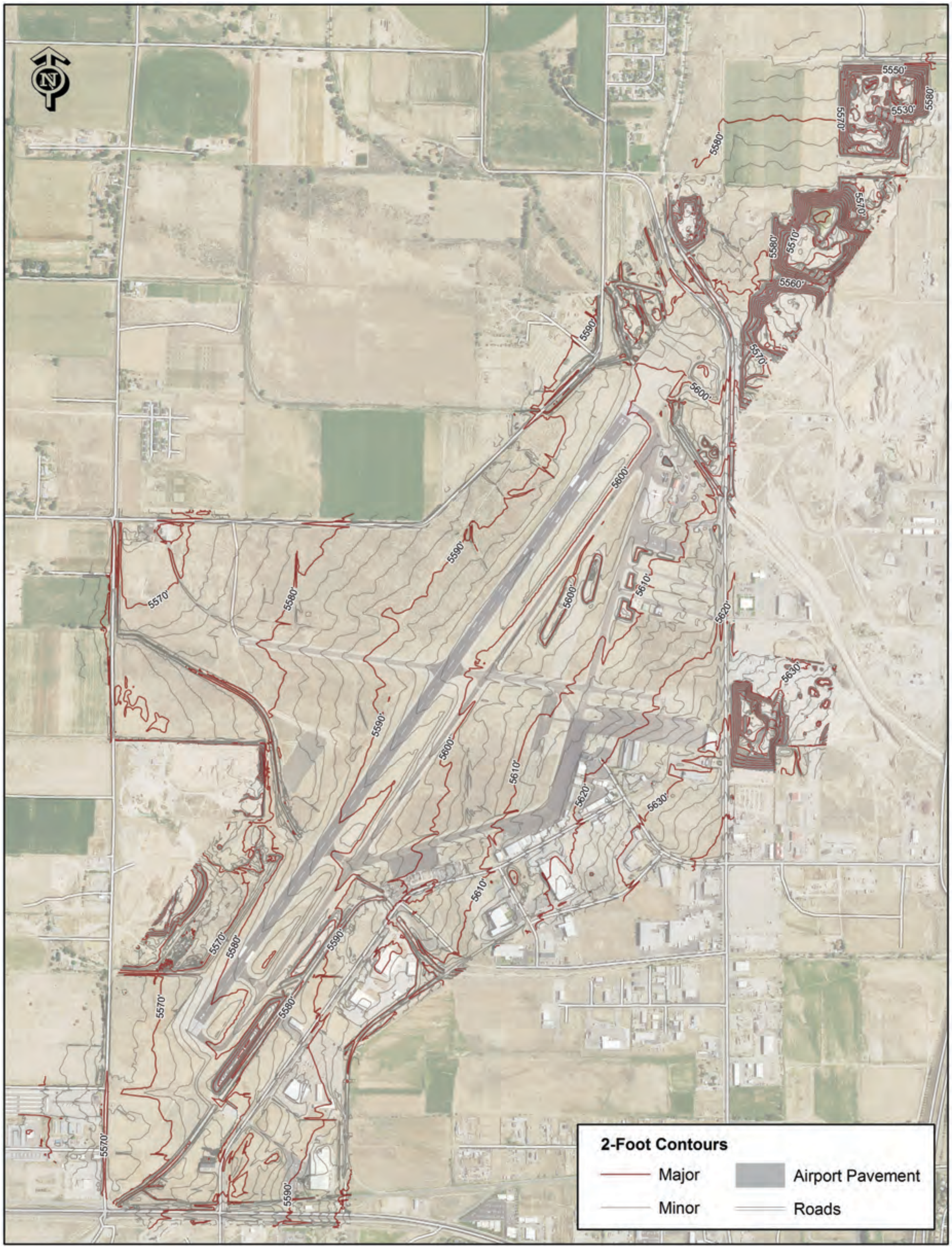
Figure 3.9 Wind Rose - IMC Overlay



TOPOGRAPHY AND DRAINAGE

The terrain contours at CDC are shown below in *Figure 3.10 Ground Contours*. The airport lays on fairly flat land, with an approximate height change of only 60 feet across the entire airport property. The property drains east to west, away from the runways. Quarries north of the airport are easily seen given their significant topography changes. Elevations of contours are overlaid in black.

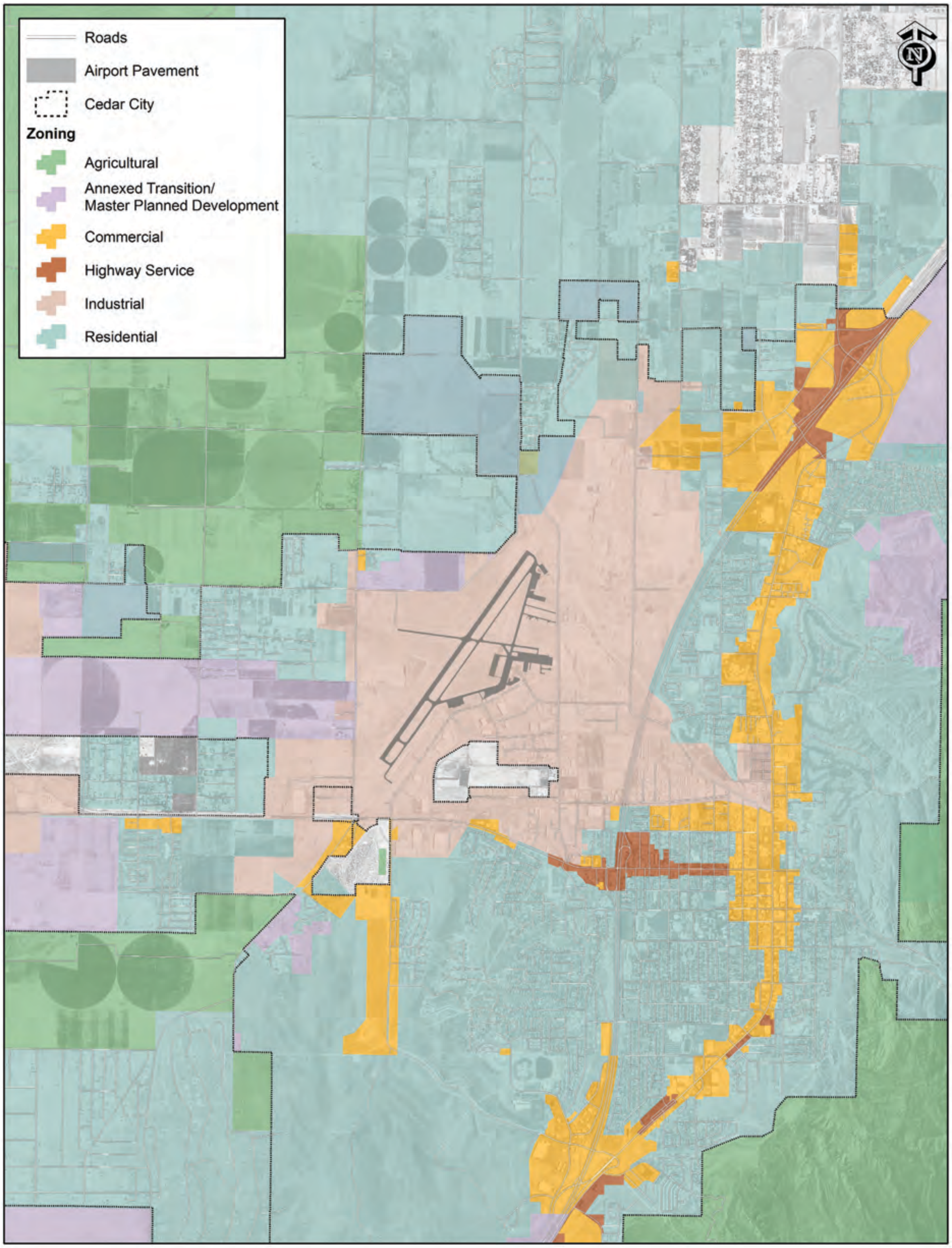
Figure 3.10 Ground Contours



3.2 AIRPORT AREA ZONING

Area land surface zoning is presented in *Figure 3.11*. Most land immediately surrounding the airport is industrially zoned owned, including the airport itself and other land held by the City Cedar Corporation. Northwest lies land zoned for agricultural use, while most commercially zoned land is south and east of the airport.

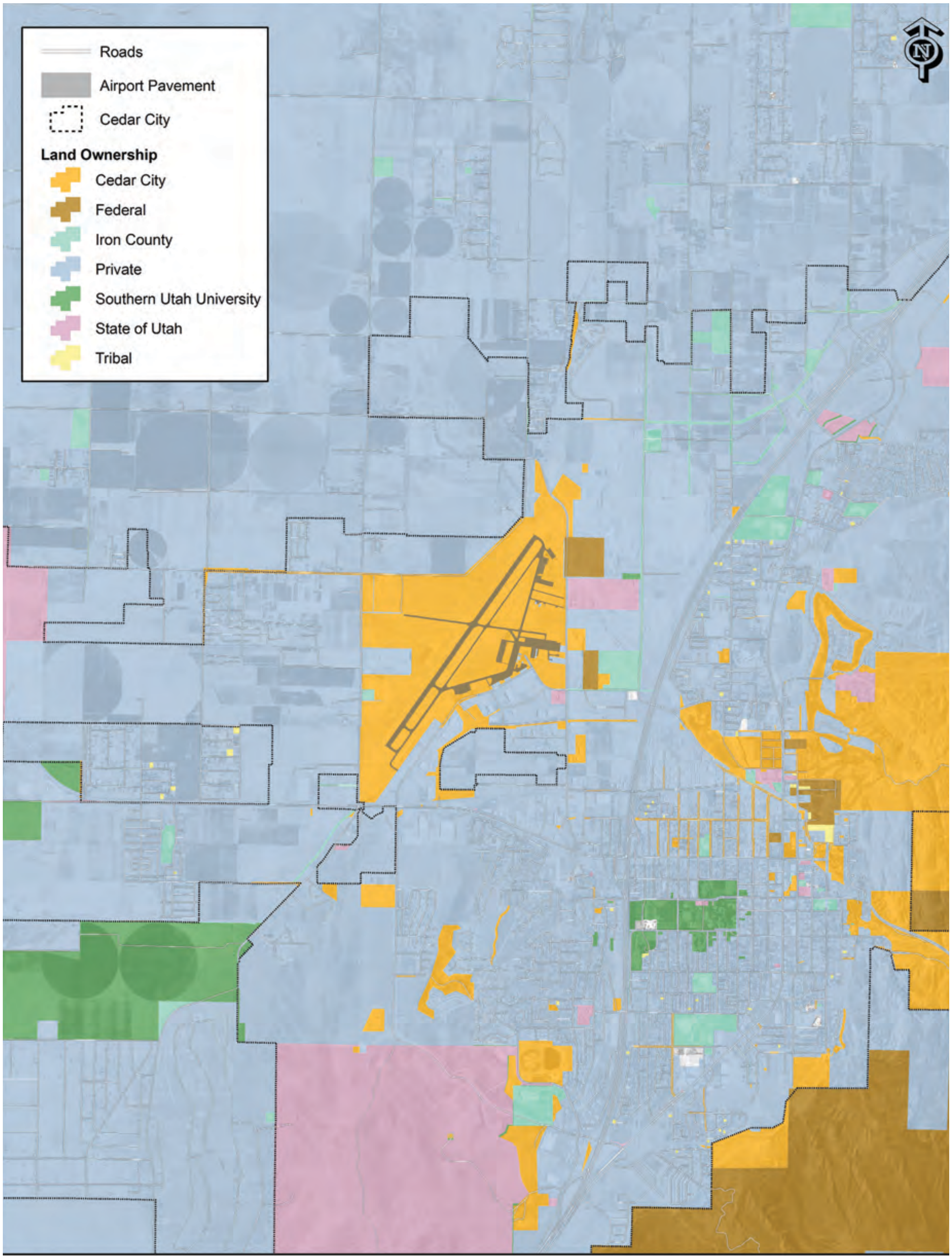
Figure 3.11 Zoning



3.3 AIRPORT AREA OWNERSHIP

Area land surface ownership is presented in *Figure 3.12 Land Ownership and Use*. The orange areas are owned by Cedar City Corporation.

Figure 3.12 Land Ownership and Use



In 1998, the FAA's Southern Region Airports Division Office established the Compatible Land Use Planning Task Force to provide guidance to airport personnel and local governments on how to establish and maintain compatible land uses around airports. The task force published a manual entitled *Land Use Compatibility and Airports*. According to this document, "the objective of aviation-related land use planning is to guide incompatible land uses away from the airport environs and to encourage compatible land uses to locate around airport facilities."[34] There are many land use planning and regulatory tools available to assist airport personnel and local governments, including comprehensive plans, zoning and subdivision regulations, building and housing codes, Capital Improvement Programming, growth policies, transferable development rights, and purchase of development rights. Because airport and community planning processes are intertwined, communication and cooperation is necessary for the development of compatible land use.

The Denver Regional Council of Governments (DRCOG) points out in its publication, *Airport Compatible Land Use*, that most airports were originally developed well away from developed urban and suburban areas. However, as communities continue to grow, airports increasingly become the subject of complaints from adjacent residences regarding perceived noise and safety impacts. DRCOG notes that to mitigate or prevent these impacts, there is a growing need for a cooperative effort among local governments, developers, and airport operators.

According to DRCOG, commerce, industry, and agriculture tend to be far less sensitive to airport activity than residential uses. Like the Compatible Land Use Planning Task Force, DRCOG points out that many measures can be implemented by airports and planning jurisdictions "to improve the compatibility between an airport and its neighbors."[35] Because aviation and its related industries serve a vital role in a community's economic growth, it is essential that airports and surrounding uses be planned in order to protect communities from undue negative impacts while allowing airports to continue to fulfill their important roles.

As stated in Cedar City's General Plan, updated and adopted in 2012, "Development is encouraged where it will result in net social and economic benefits to the City. It is to be discouraged where it may result in degradation of the environment and cause undesirable changes to the character and identity of the community."[36] Cedar City's General Plan further states that "the City's goal for the future is to be a dynamic and healthy community, responsive to a pattern of quality growth while preserving its basic strengths and values through comprehensive planning." Cedar City's planning efforts extend to planning and zoning regulations for the community, as outlined in Chapter 26 of the Cedar City ordinances.

Under Chapter 26, Article XIV specifically addresses airport zoning. Chapter 26, Article XIV states, "It is the purpose of this Article to regulate and restrict the height of structures and objects of natural growth, and otherwise regulating the use of property, in the vicinity of the Cedar City Regional Airport by creating the appropriate zones and establishing the boundaries thereof; providing for changes in the restrictions and boundaries of such zones; defining certain terms used herein, referring to the Cedar City Regional Airport Height Restriction and Compatible Land Use Overlay Zoning Maps which are incorporated in and made a part of this ordinance; and, providing for enforcement."[37] This section also notes the following:

"To assist communities in the appropriate land use and height restriction designations, the Federal Aviation Administration (FAA) has published two documents, FAR Part 77, Objects Affecting Navigable Airspace, and Advisory Circular (AC) 150/5300-13, Airport Design. This Article incorporates the guidelines set forth in these FAA documents. Based on this information the City finds:

(1) That the creation or establishment of an obstruction has the potential of being a public nuisance and may injure the region served by the Cedar City Regional Airport; and,

(2) That the encroachment of noise sensitive or otherwise incompatible land uses within certain areas as set forth herein below may endanger the health, safety, and welfare of the owners, occupants, or users of the land; and
(3) That it is necessary in the interest of the public health, public safety, and general welfare that the creation or establishment of obstructions that are a hazard to air navigation be prevented; and
(4) That the Cedar City Regional Airport fulfills an essential community purpose."

Additionally, Chapter 26, Article XIV indicates that "the boundaries of the Airport Compatible Land Use Overlay Zones are delineated upon the Airport Compatible Land Use Overlay Zoning Map. The boundaries of the Airport Height Restriction Areas are delineated upon the Cedar City Regional Airport Height Restriction Overlay Map. Said Maps are adopted by reference and made a part of this Chapter as fully as if the same were set forth herein in detail." The Airport Compatible Land Use Overlay Zoning map is depicted in *Figure 3.13*, while the Airport Height Restriction Areas map is shown in *Figure 3.14*. These documents can be downloaded from Cedar City's website (http://www.cedarcity.org/128/Maps).

Chapter 26, Article XIV further states, "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 area created by this Ordinance to a height in excess of the applicable height limit herein established for such area. Such applicable height limitations are hereby established for each of the areas in question as shown on the Cedar City Regional Airport Height Restriction Overlay Zoning Map. When determined appropriate by the City, a person may be required to submit a Notice of Proposed Construction or Alteration to the FAA to address any height concerns."

This ordinance also details the controlled area of Cedar City Regional Airport, which is divided into five compatible land use overlay zones. Within these defined zones, "no land shall be used and no structure or other object shall hereafter be erected, altered, converted, or modified other than for those compatible land uses permitted." Land uses for each of the five overlay zones is then outlined in the ordinance. The ordinance in its entirety is included in Appendix E.

Additional land use regulations include a provision prohibiting the use of "land, water, or structures within any zone established by this Chapter 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."

Also included in this ordinance is a requirement for property owners to grant an avigation easement to the Cedar City Corporation over and across the property establishing a height restriction on the use of the property and holding the public 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 CDC.

Further, the owner of any existing nonconforming structure or tree is required to permit the installation, operation, and maintenance of markers and lights deemed necessary by the City to indicate the presence of such obstructions to aircraft operators in the vicinity of the airport. Markers and lights will be installed, operated, and maintained at the expense of CDC.

Iron County has also implemented land use protections for Cedar City Regional Airport. County regulations state that they exist to "regulate and restrict the height of structures and objects of natural growth, and otherwise regulate the use of property, in the vicinity of Cedar City Regional Airport by creating the appropriate zones and establishing the boundaries thereof." The entire ordinance is included in Appendix E.

Figure 3.13 Airport Compatible Land Use Overlay Zoning Map

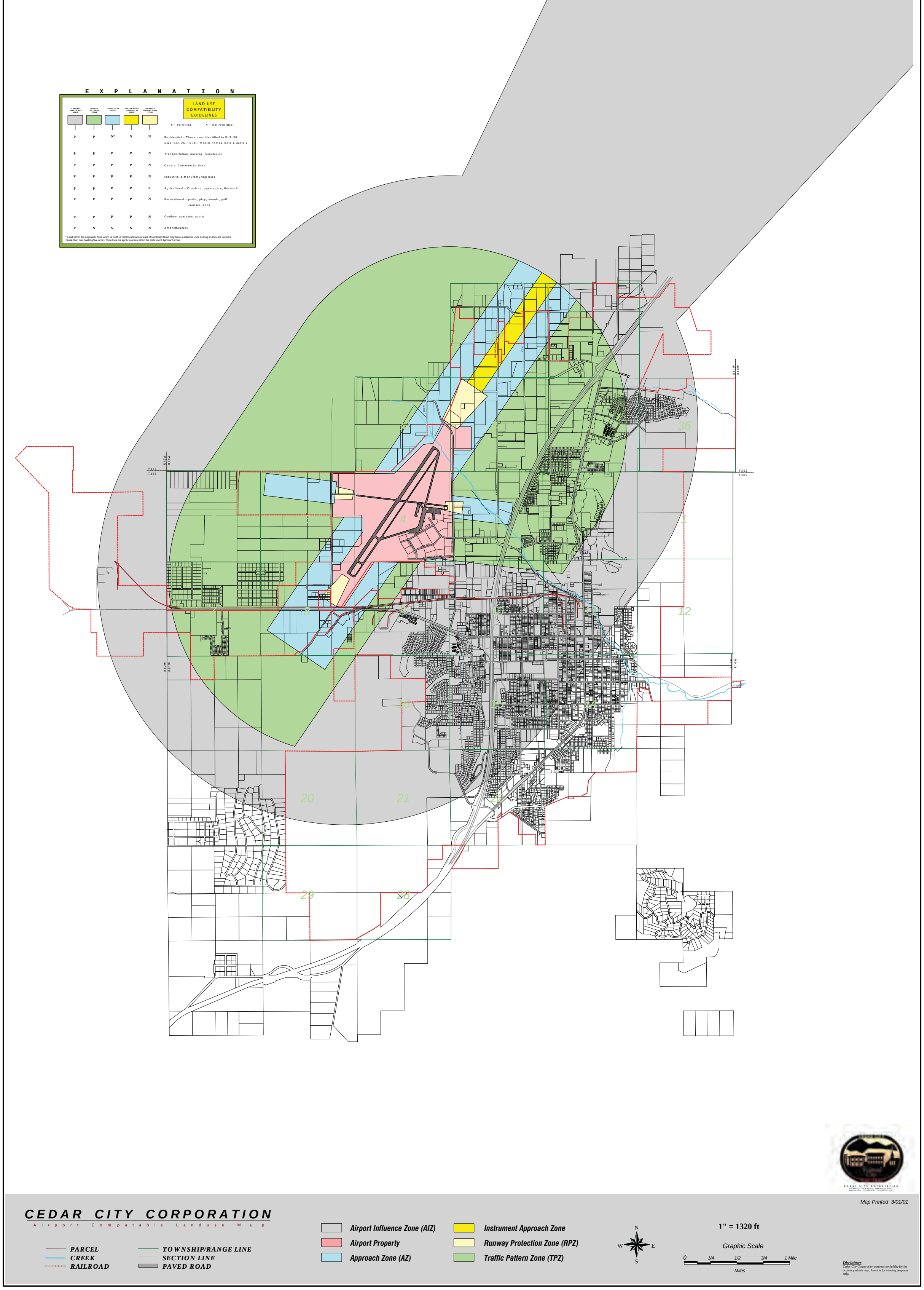
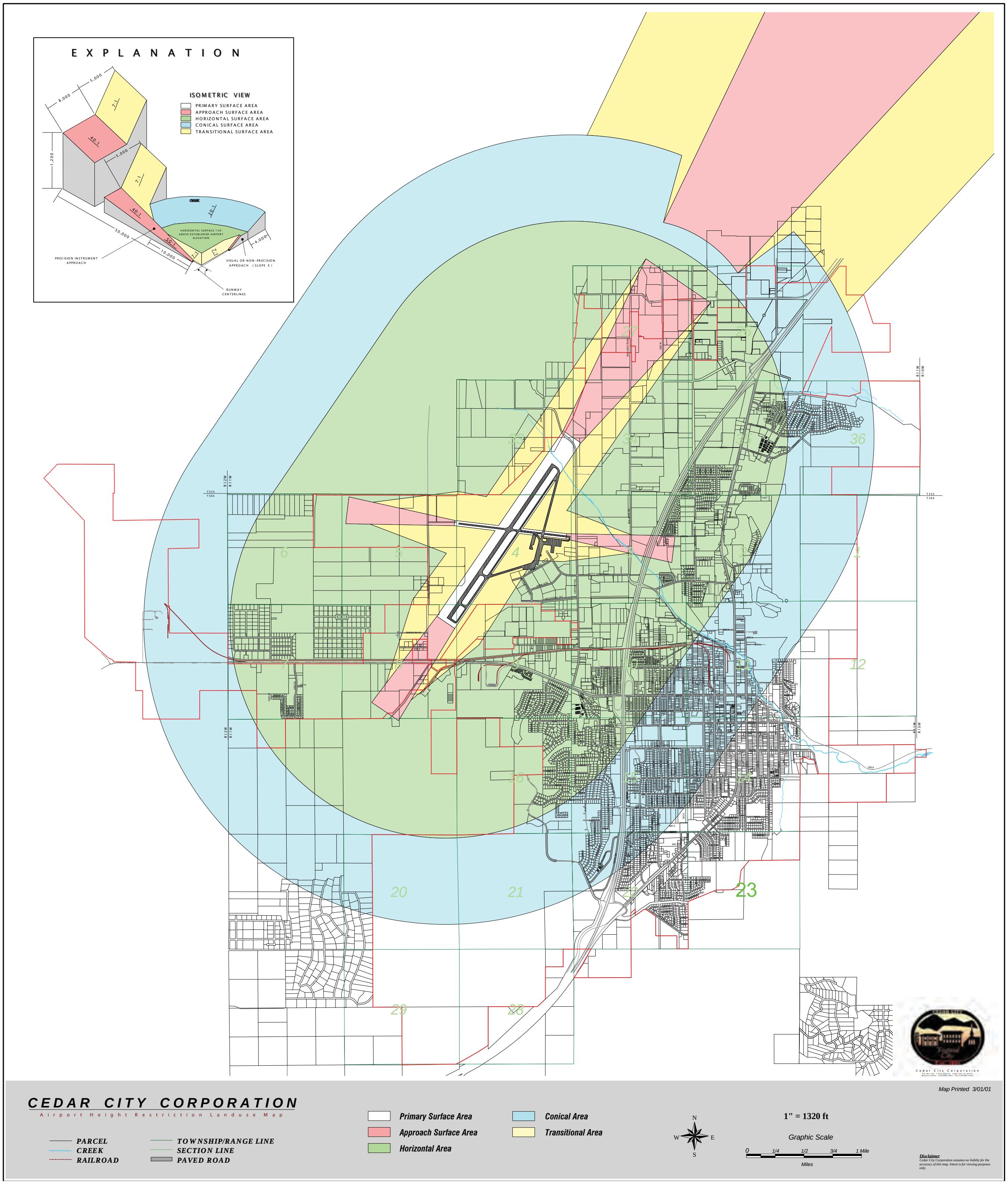


Figure 3.14 Airport Height Restriction Areas Map



Iron County's airport zoning ordinance, which can be found in Title 17, Chapter 17.58, refers to two FAA documents, CFR 14 Part 77, Objects Affecting Navigable Airspace, and Advisory Circular 150/5300-13, Airport Design, noting that the zoning ordiance "incorporates the guidelines set forth in these FAA documents."

3.4 BASED AIRCRAFT

According to Cedar City Regional Airport's FAA 5010 Master Record, last updated in April 2015, there are currently 91 based aircraft. The Terminal Area Forecast (TAF), published annually by the FAA, lists 70 based aircraft for 2014. The 2011 Airport Layout Plan, completed by Armstrong Consultants, Inc., indicated a count of 68 based aircraft in 2009. The FAA National Based Aircraft Inventory Program does not list CDC as a participating airport.

The airport manager continually maintains an internal based aircraft inventory. The July 2015 inventory listed 84 based aircraft for the airport, 30 of which are owned by Upper Limit Aviation. For the purpose of this study, the airport's internal based aircraft inventory is assumed to be the most accurate and will be used for further extrapolation in the forecast.

TABLE 3.2 BASED AIRCRAFT COMPARISON

	Number of Based Aircraft			
YEAR	Terminal Area Forecast	FAA 5010 Master Record	2011 ALP Update	Actual (Manager Inventory)
2006	48			
2007	83			
2008	75			
2009	75		68	
2010	69			
2011	67			
2012	67			
2013	70			
2014	70			
2015	70	91		84

3.5 PAVEMENT CONDITION

Pavements at airports are routinely surveyed and tested. The result of these tests is a Pavement Condition Index (PCI), a score ranging from 0 to 100, which provides a general gauge of the current operational condition. A score of 100 indicates flawless pavement, while a 0 indicates extremely high degradation. Typically the window for rehabilitation for asphalt is when the PCI is between 50 and 80. Thus, a 50 is generally considered the critical score, such that anything lower is not a candidate for rehabilitation and will require reconstruction. UDOT tracks pavement condition at Utah's airports using PCI scores that are assessed every three years. This allows UDOT to track and rank pavements across the state, determining priority need for rehabilitation and maintenance.

The pavements at Cedar City Regional Airport were last tested in 2014. Thirteen paved areas were sampled and tested with resulting scores ranging from 55 to 100. Generally, the pavements at CDC are in fair condition with eight sections rated between 47 and 81. Under this scoring system, these eight areas are in need of rehabilitation. All areas are eligible to be maintained through public funding, except for sections of private hangars that lead into the apron area.

The full list of scores for CDC are presented in *Table 3.3 Pavement Condition Index Scores*. On the following page, *Figure 3.15* shows the pavement sections tested in 2014 with corresponding ratings for both the apron area and all paved surfaces of the airport.

TABLE 3.3 PAVEMENT CONDITION INDEX SCORES

Airport City	*PCI Scores 2014*	*Description*
Cedar City	*55*	*Apron Adjacent to Taxiway B*
Cedar City	*62*	*Apron Adjacent to Taxiway C*
Cedar City	*66*	*Apron to the South End*
Cedar City	*83*	*Apron Adjacent to Taxiway B to the East*
Cedar City	*100*	*Helicopter Parking Positions*
Cedar City	*99*	*Runway 2/20*
Cedar City	*55*	*Runway 8/26*
Cedar City	*67*	*Taxiway A*
Cedar City	*65*	*Taxiway C*
Cedar City	*65*	*Taxiway B*
Cedar City	*90*	*Taxiway D prior to Taxiway A*
Cedar City	*65*	*Commercial Apron*

Figure 3.15 Pavement Condition Index

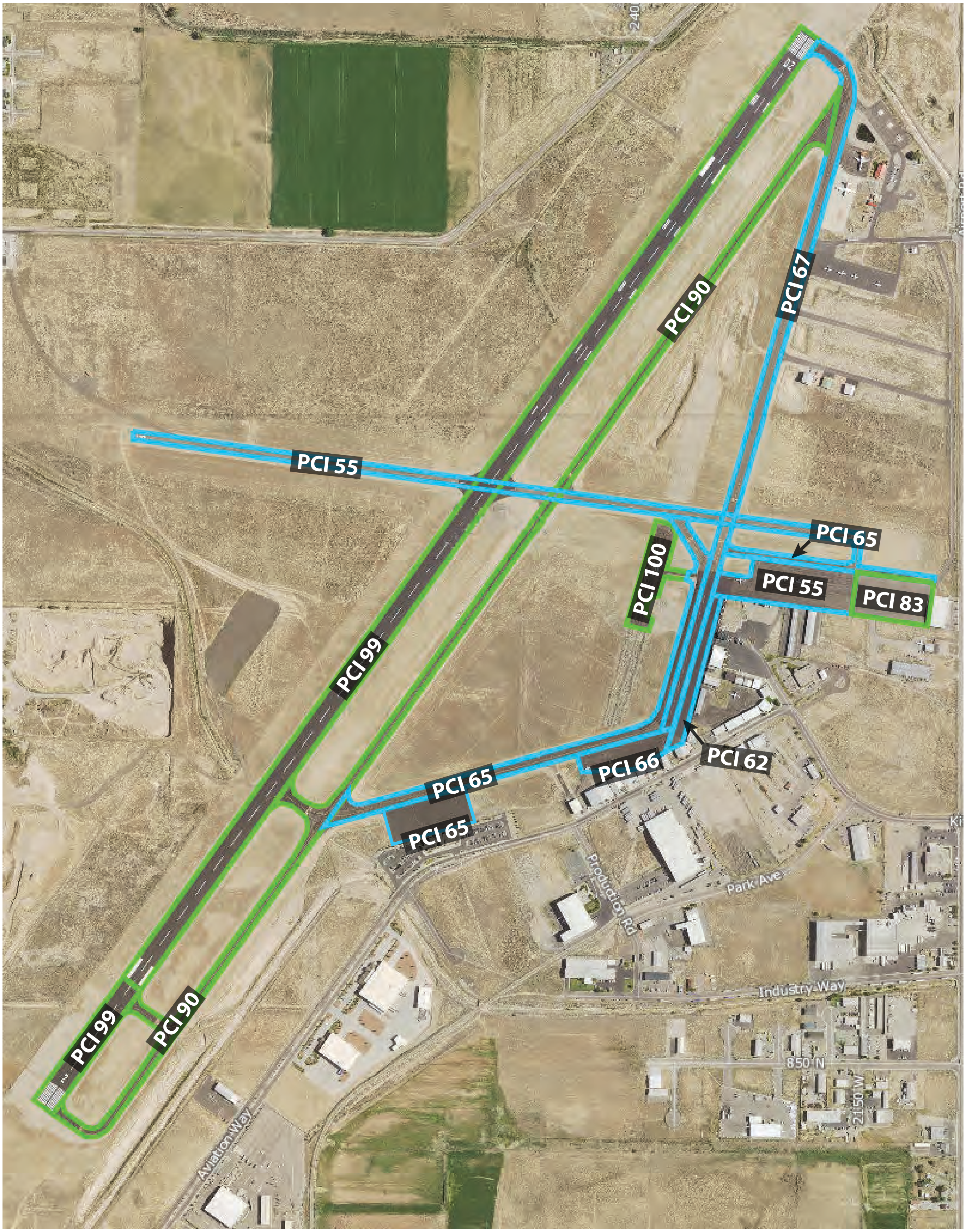
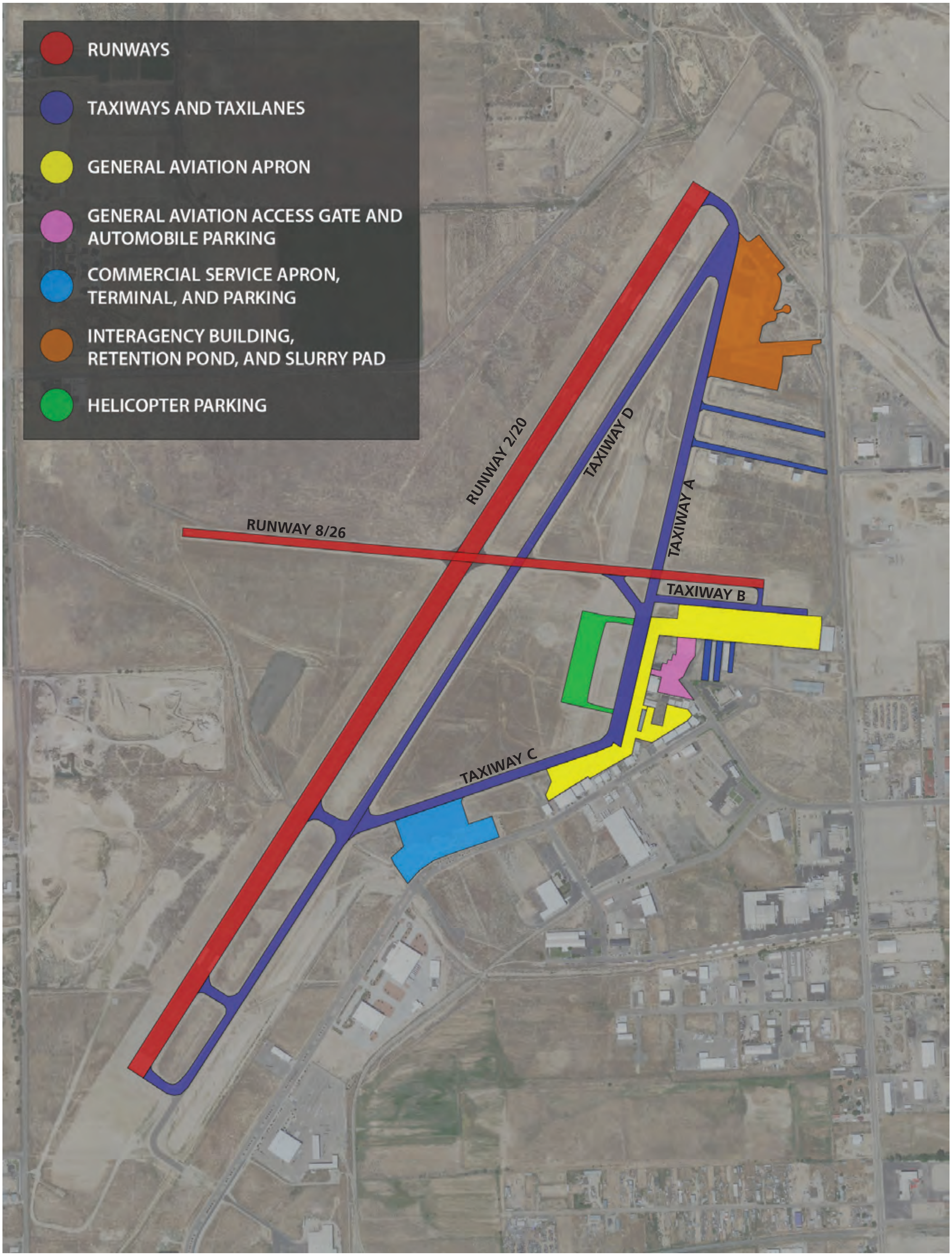


Figure 3.16 Airport Layout



3.6 AIRPORT LAYOUT

Figure 3.16 Airport Layout depicts the general layout of the Cedar City Regional Airport with specific areas highlighted. These colored areas are key components of the airport and will be referenced throughout this document. The total area of the airport property is 1,040 acres. Airport elevation is 5,622 feet above Mean Sea Level (MSL), which is the highest point of either runway.

Runways

Cedar City Regional Airport has two asphalt runways. The pavement on Runway 2/20 is 8,653 feet long and 150 feet wide with a weight bearing capacity of 75,000 pounds for single wheel gear, 100,000 pounds for double wheel gear, and 150,000 pounds for double tandem wheel gear. Runway 8/26 is 4,822 feet long and 60 feet wide with a weight bearing capacity of 16,500 pounds for single wheel gear. There are no displaced thresholds for either runway. The airport runway is highlighted in red in *Figure 3.16.*

Taxiways, Taxilanes, and Connectors

CDC has four taxiways. Taxiway A runs north from the general aviation apron intersecting Runway 8/26 and is adjoined by Taxiway D at the north end adjacent to the Interagency Fire Air Center. Taxiway A has one connector with Runway 8/26. Taxiway B adjoins the 26 end of Runway 8/26 to the general aviation apron. Taxiway C extends southwest from the general aviation apron towards Taxiway D. Taxiway C is adjoined by the commercial apron. Taxiway D runs parallel to Runway 2/20 and intersects Runway 8/26, Taxiway A and C. Taxiway D has three connectors at the south end of the airport. The taxiways are highlighted in blue in *Figure 3.16*.

General Aviation Apron

On the west side of the airport is a large apron designated for general aviation use. There are 58 tie-downs on the apron for parking smaller local and transient aircraft. This apron provides access to a self-fueling station, as well as to the FBO, Sphere One Aviation.

General Aviation Access Gate and Automobile Parking

A small paved parking lot is located outside of the airport security fence for automobile parking. Access can be gained to the airport through an access gate that requires a code, through a foot gate, or through the FBO building. On the southern end of the apron is Upper Limit Aviation. Many of Upper Limit Aviation's students park and practice hover taxiing in this area.

Commercial Service Apron, Terminal, and Parking

The commercial service terminal, apron, and automobile parking are located on the south side of the airport. The terminal, 15,000 square feet, was constructed in 2005. The commercial apron is designated with red paint for restricted access to personnel with Security Identification Display Area (SIDA) badges. The apron allows for a single regional jet aircraft to park adjacent to the commercial terminal building.

Interagency Building, Retention Pond, and Slurry Pad

Located on the north portion of the airport is the Iron County Interagency Fire Center. This fire center includes a building for housing on-duty workers. There are five tanks for slurry and a retention pond. The center has three dedicated wash pads capable of servicing large firefighting aircraft, such as the P-2 Neptune and BAe 146, aircraft parking for up to seven AT-802 Single Engine Air Tankers (SEAT), three helicopter parking positions, and one helipad for servicing during firefighting operations.

Helicopter Parking

A helicopter parking area, connected to Taxiway A, is situated just west of the general aviation apron. This area has parking spots for four large and four small helicopters.

Deicing

Aircraft deicing is located next to the commercial terminal building. The deicing system is owned and operated by SkyWest. The system sprays an ethylene glycol based fluid. The fluid is sprayed from a truck with a lift and bucket to allow application above the wing. The deicing truck uses a deicing and anti-icing fluid. The deicing agent is classified as Type I, used for removing snow, ice, and frost. It is identified with orange dye to aid the application process. Due to the current level of aircraft operations at CDC, the airport is not required to have a collection or capture system in place for glycol.

Figure 3.17 Deicing Truck

Signage

Guidance signs at CDC are mounted on concrete bases by frangible couplings. The panels are plastic, and the frame is painted steel. These are often powered on the same constant current circuit as the runway or taxiway edge lighting. Illumination can be via traditional incandescent bulbs, but LED lighting is becoming more and more popular due to the longer life of the bulbs, decreased maintenance, and lower power consumption.

Figure 3.18 Guidance Sign

Fencing

An eight-foot tall chain linked security fence runs the majority of the airport property. The fence is in great condition and is continuously maintained by the airport staff. An eight-foot wrought iron fence surrounds the commercial terminal building and most of the adjacent parking lot. The airport property has 12 vehicle gates allowing for quick access for the servicing and maintenance of equipment, emergency access, and tenant access to the apron. One gate is dedicated to Aircraft Rescue and Fire Fighting (ARFF) and another gate is dedicated to Snow Removal Equipment (SRE). The airport has multiple pedestrian gates located around the commercial terminal building and tenant hangar area.

Figure 3.19 Airport Property Fence

Fuel Facilities

There is a self-fueling station on the general aviation apron that dispenses AvGAS. Sphere One Aviation, the local FBO, also provides AvGAS and JetA fueling for customers through four fuel trucks. There are fuel tanks located near the interagency fire center, which are used by the center on an as-needed basis. Sphere One Aviation also provides fuel for SkyWest's commercial aircraft with their fueling trucks.

Figure 3.20 Fuel Trucks

Figure 3.21 Navigational Aids Map

3.7 NAVIGATIONAL AIDS

Cedar City Regional Airport is outfitted with an assortment of different navigational aids (NAVAIDs) to assist pilots with obtaining the visual environment of the airport. NAVAIDs increase pilot safety and airport access. The map on the previous page (*Figure 3.21*) marks all NAVAIDs at CDC, and short descriptions accompanied with pictures of each NAVAID follow.

1. LOCALIZER

The localizer is one part of the Instrument Landing System installed at CDC. The localizer, which is powered through the neighboring electrical vault, provides aircraft with proper equipment lateral location assistance.

Figure 3.22 Localizer and Electrical Vault (1)

2. RUNWAY END IDENTIFIER LIGHTS (REIL)

Runway End Identifier Lights, or more commonly called REILs, are positioned at the ends of Runways 2, 8, and 20 at CDC. REILs are extremely bright directional lights that assist in quickly identifying the end of a particular runway.

Figure 3.23 REILs (2)

3. SUPPLEMENTAL WIND CONES

Multiple wind cones (or wind socks) are placed in the airfield at CDC. Wind cones provide a visual indication of wind speed and direction. Typically, a wind cone is fully extended with a 15-knot or higher wind. The main wind cone, placed within a segmented circle, is discussed later. Below are pictures of supplemental wind cones placed near the ends of Runway 2/20.

Figure 3.24 Supplemental Wind Cones (3)

4. PRECISION APPROACH PATH INDICATORS (PAPI)

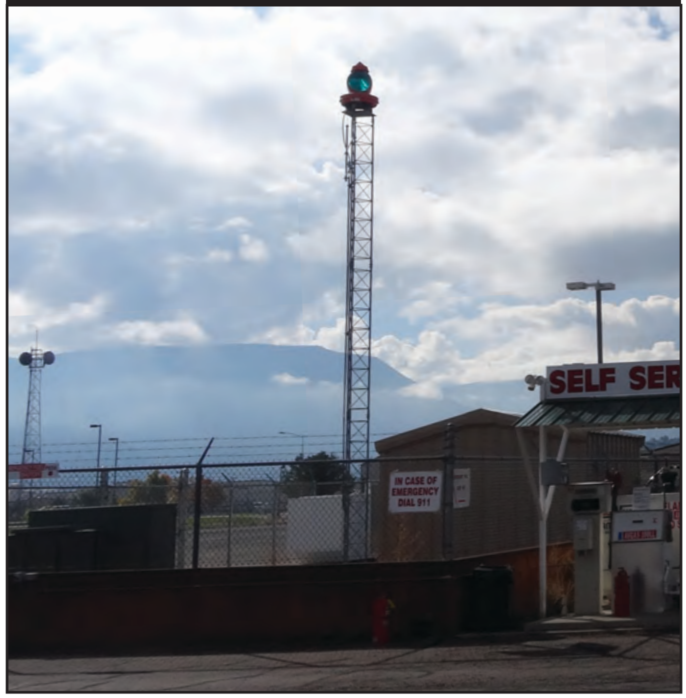
Precision Approach Path Indicators (PAPI) are NAVAIDs, placed adjacent to the runway landing thresholds, provide visual cues whether pilots are above, below, or on the correct glide slope for landing. PAPIs, with a three-degree glide path, are installed on Runways 2, 8, and 20.

Figure 3.25 PAPIs (4)

5. AIRPORT BEACON

Airport beacons are rotating omni-directional lights mounted on tall towers that indicate the location of an airport. In the United States, different types of airports, such as land, water, or military, are represented by specific color combinations on the beacon. A white and green or green only beacon indicates a lighted land airport. The beacon at CDC is situated near the general aviation apron, slightly outside of the airfield.

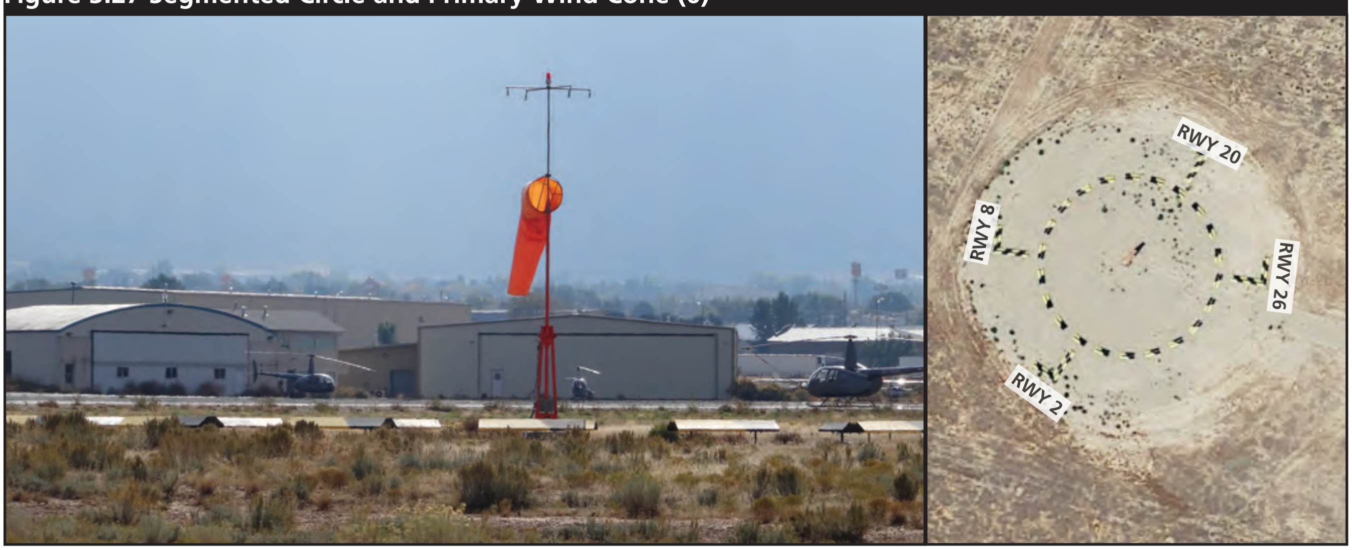
Figure 3.26 Airport Beacon (5)



6. SEGMENTED CIRCLE AND PRIMARY WIND CONE

The primary wind cone, which is lighted at CDC for night visibility, is place in the center of the segmented circle near the approximate center of the primary runway. The segmented circle, which can be seen below from a profile and aerial view, is used when flying under visual flight rules (VFR) and identifies the aerial traffic pattern. The traffic pattern is established to avoid obstacles like mountains, towers, or densely populated areas. The legs extending from the circle indicate the direction a pilot should turn when making final approach to a given runway end. At CDC, Runways 2 and 26 have right turn final approaches while Runways 2 and 8 have left turns.

Figure 3.27 Segmented Circle and Primary Wind Cone (6)



7. AND 8. RUNWAY EDGE LIGHTING

Runway edge lighting marks the edge of runway pavements, increasing safety and visibility. These lights are classified in three categories: High Intensity Runway Lights (HIRL), Medium Intensity Runway Lights (MIRL), and Low Intensity Runway Lights (LIRL). Runway 2/20 has HIRL and Runway 8/26 has MIRL. Golf tees are affixed to the top of many runway lights at CDC to discourage birds from landing on the lights.

Figure 3.28 Medium and High Intensity Runway Edge Lighting (7 and 8)

9. GLIDE SLOPE

The glide slope, also called a visual slope indicator or visual glide slope indicator, is another component of the ILS at the airport. The lights on the unit provide vertical guidance (whereas the localizer provides horizontal) to landing pilots.

Figure 3.29 Glide Slope (9)

10. AUTOMATED SURFACE OBSERVING SYSTEM (ASOS)

An Automated Surface Observing System (ASOS) assists pilots and flight planning by providing up-to-date meteorological observations automatically. These system can have a variety of different sensors, typically including a wind sensor, altimeter, visibility, dew point, air temperature, and humidity. An ASOS may be accessible via telephone, online, radio, and/or local computer terminal. The ASOS at CDC, located near the north end of Runway 20, provides the above information, plus Runway Visual Range (RVR). Pilots can access the ASOS on 119.025 or by calling 435-867-0278. If the airport staff observes adverse weather conditions at the airport, a Notice to Airmen (NOTAM) is published via the Federal NOTAM System (FNS). The FNS allows for immediate dissemination of information capable of being retrieved by any potential user of the airport through the FAA NOTAM retrieval system.

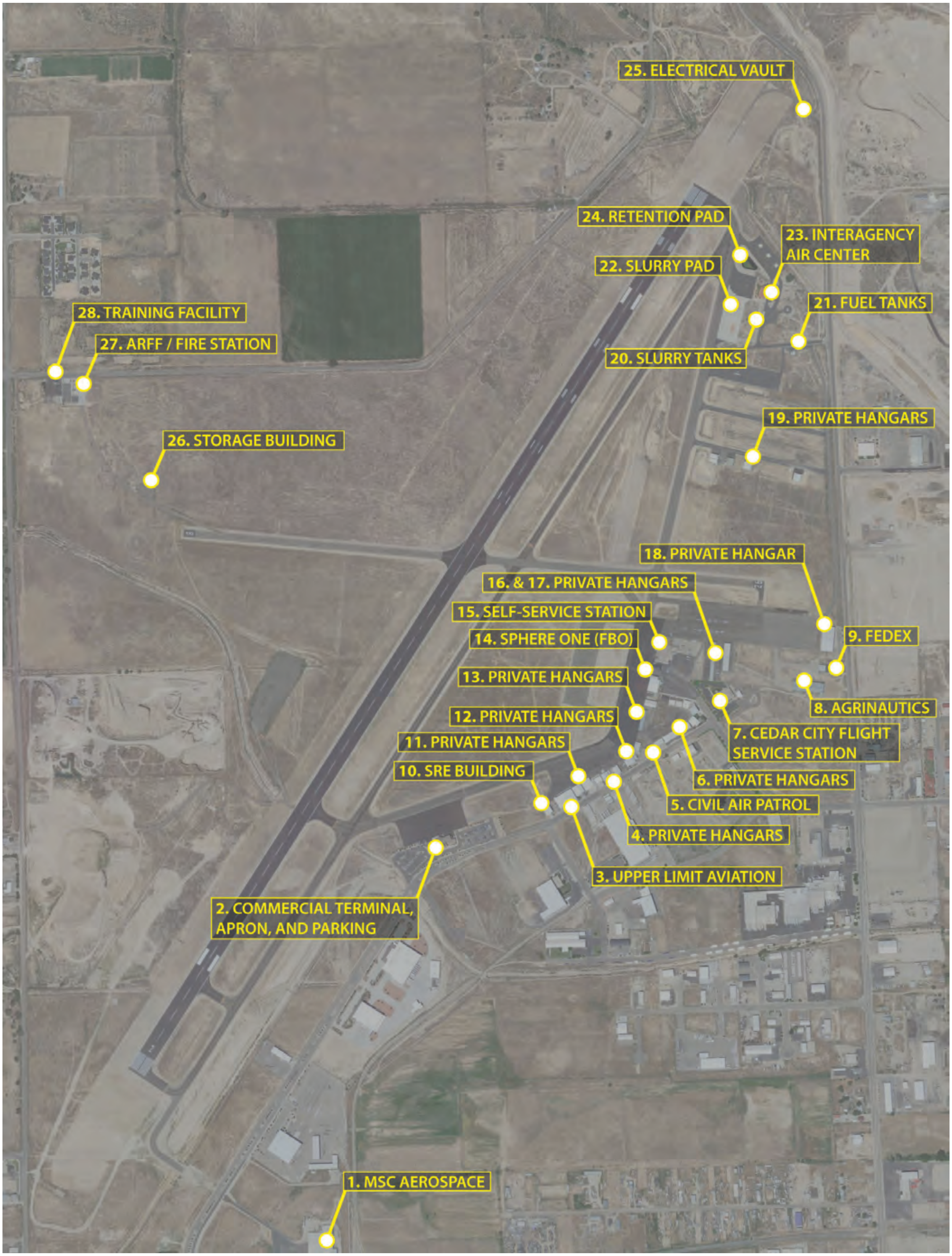
Figure 3.30 ASOS (10)

11. MEDIUM INTENSITY APPROACH LIGHTING SYSTEM (MALSR)

The Medium Intensity Approach Lighting System (MALSR) is the third component of the airport's ILS. These lights, which extend from the centerline of Runway 20, assist pilots in transitioning from instrument flight to visual flying. The series of lights, mounted on poles of varying heights, run approximately 2,000 feet from the end of the runway.

Figure 3.31 MALSR (11)

Figure 3.32 Airport Structures Map



3.8 STRUCTURES

Structures of importance on or near Cedar City Regional Airport are numbered on the map in *Figure 3.32*. Corresponding pictures of each structure follow. This map provides understanding of the current airport layout, including notably tall objects, traffic flow, and key user locations.

Figure 3.33 SyberJet (1)

Figure 3.34 Commercial Service Terminal and Parking Lot (2)

Figure 3.35 Upper Limit Aviation (3)

Figure 3.36 Private Hangars (4)

Figure 3.37 Civil Air Patrol (5)

Figure 3.38 Private Hangars (6)

Figure 3.39 Cedar City Flight Service Station (7)

Figure 3.40 Agrinautics (8)

Figure 3.41 FedEx (9)

Figure 3.42 SRE Building (10)

Figure 3.43 Private Hangars (11)

Figure 3.44 Private Hangars (12)

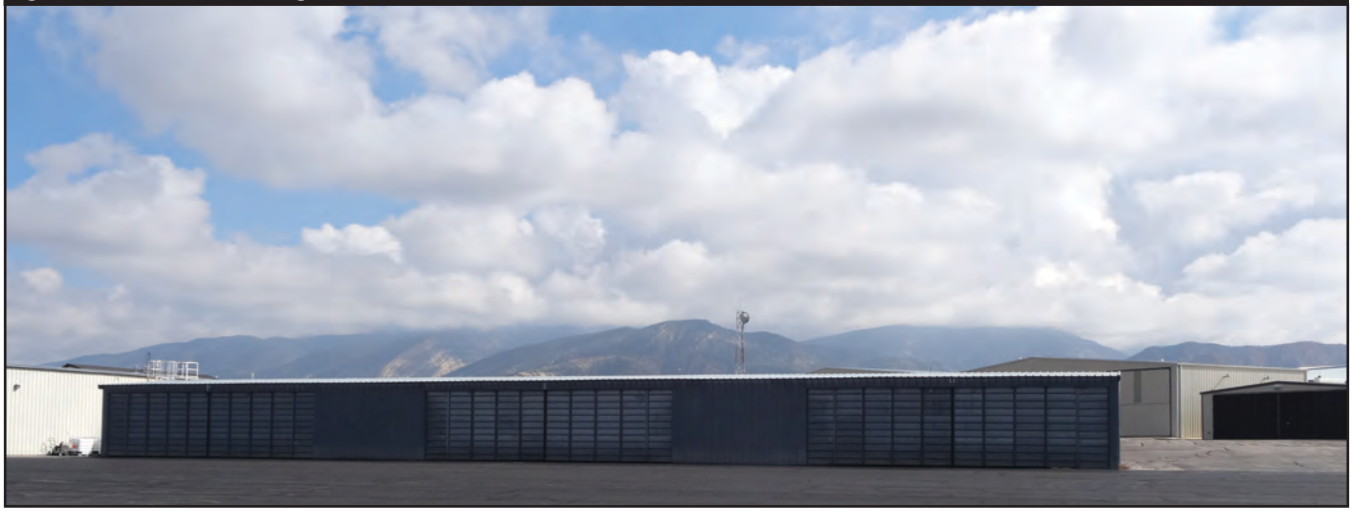


Figure 3.45 Private Hangars (13)

Figure 3.46 Sphere One (14)

Figure 3.47 Self-Service Station (15)

Figure 3.48 Private Hangars (16)

Figure 3.49 Private Hangars (17)

Figure 3.50 Private Hangar (18)

Figure 3.51 Private Hangars (19)

Figure 3.52 Slurry Tanks (20)

Figure 3.53 Fuel Tanks (21)

Figure 3.54 Slurry Pad (22)

Figure 3.55 Interagency Air Center (23)

Figure 3.56 Retention Pond (24)

Figure 3.57 Electrical Vault (25)

Figure 3.58 Storage Building (26)

Figure 3.59 ARFF / Fire Station (27)

Figure 3.60 Training Facility (28)

3.9 COMMERCIAL SERVICE TERMINAL

The passenger commercial service in Cedar City was opened in 2005. The terminal is situated on the southeastern side of the airport. The terminal is flanked by two free automobile parking lots. In the north wing of the building is a passenger check-in and ticketing area, currently operated by SkyWest. In the south wing is the baggage claiming area and the rental car check-in counter. The center of the terminal includes a spacious and comfortable sitting area, with chairs and couches, and a small area with tables and two vending machines.

Figure 3.61 Commercial Service Terminal Interior

Passengers who are flying commercially must pass through a Transportation Security Administration (TSA) check. In this check, passengers pass through a metal detector and all luggage is scanned. After TSA, passengers are retained in a secure holding area. This area has a single bathroom, a vending machine, and enough seating for 50 passengers. Based on the size of commercial aircraft operating at CDC, there is not enough room to accommodate the passengers of two different flights. There is also a SkyWest kiosk to provide customer assistance.

Figure 3.62 Commercial Service Security Check and Holding

3.10 FIXED BASE OPERATOR

One fixed base operator, Sphere One, services Cedar City Regional Airport. The Sphere One facility has a deluxe pilots' lounge that includes a pool table, couches, vending machine, bathrooms, and a flight planning area. Sphere One also provides a number of services including fuel sales and filling (AvGAS and JetA), car rentals, de-icing, oxygen, ground power units (GPU), aircraft detailing, and flight instruction. (Tug? Overnight hangaring?)

Figure 3.63 Sphere One

3.11 SNOW AND ICE CONTROL EQUIPMENT

In order to maintain safe operations all year for commercial services, CDC must have a Snow and Ice Control Plan in place with commensurate equipment. There are three major pieces of equipment used at CDC for snow and ice control:

- Ford 9000 with 20' Henke Plow
- New Holland TV145 Tractor with 14' Plow, Snow Bucket, and Snow Thrower
- Oshkosh Snow Blower

Equipment is stored and maintained in the Snow Removal Equipment buillding. Snow removal clearance time is one hour to allow air carrier and air cargo operators full operational capability. There are no chemicals used at CDC for snow and ice control. After plowing, the airport staff tests friction on the runway for aircraft traction.

The areas of the airport that have top priority for clearing following a snow event are:

- Runway 2/20
- Air Carrier Apron
- Runway 8/26
- Taxiway D (South of Taxiway C Intersection)
- Taxiway D1
- ARFF Access Road
- West Kitty Hawk Electronic Access Gate
- North Electronic Access Gate

Figure 3.64 Snow Removal Equipment

3.12 AIRCRAFT RESCUE AND FIREFIGHTING (ARFF) EQUIPMENT

CDC has an Oshkosh Striker 1500 fire truck. This vehicle currently fulfills more than the minimum requirements as outlined by Part 139. It contains 1,500 gallons of water, 210 gallons of Aqueous Film Forming Foam (AFFF), 450 pounds of dry chemical and 460 pounds of clean agent. The vehicle is designed to respond immediately and allow emergency personnel to start combating any aircraft fire, thus allowing crew and passengers to depart the aircraft as safely as possible. The vehicle has a bumper and roof turret that can be operated from within the cabin of the vehicle by both the driver and passenger. The fire truck is housed in the fire station on the northwest corner of the airport property.

AFFF is designed to blanket Class B fuels, such as gasoline, kerosene, and diesel, preventing them from igniting through deprivation of oxygen. When AFFF is used, it can be identified as a slightly yellow fluid. Dry chemical application, used for both Class B (fuel) and Class C (electrical) fires, is used in conjunction with water and AFFF to be compliant with Part 139 standards. A typical dry checmical used is Purple K, which when used is identified with a purple plume. Clean agents are used for Class A (combustible materials), Class B, and Class C fires. If a vehicle carries enough clean agent, it would be a sufficient extinguishing method for ARFF to meet minimum requirements as stated under Part 139. The typical clean agent used is Halotron I. When Halotron I is used, it can be identified as a colorless liquid leaving no residue.

The Oshkosh Striker 1500 is the primary ARFF response unit at CDC. The secondary ARFF equipment at the airport is a Chevrolet 4X4 quick response vehicle, a Pierce heavy rescue and hazardous materials vehicle, two Pierce pumper trucks, an E-One pumper truck, and a Freightliner Tender 4000 truck.

Figure 3.65 ARFF Truck

4. Forecast of Aviation Demand

SECTION OVERVIEW

Chapter 4. Forecast of Aviation Demand provides a forecast of anticipated future aviation demands at the current airport over the next two decades. These projections are critical for proper planning. Forecasts are based on an assortment of data sources. The Airport Reference Code (ARC) is C-III.

4.1 GENERAL

Forecasts of future levels of aviation activity at an airport are the foundation for effective decisions in airport planning and development. The projections are used to determine the need and timing for new and/or expanded facilities or to decommission old facilities. Forecasts are intended to be realistic and based upon the most up-to-date available data and information, in order to provide adequate justification for airport planning and development. With an accurate forecast, an appropriate time frame or trigger points for phasing of capital investments can be created to help avoid early and unnecessary operating expenses or a loss of economic benefits through the airport for the community.

Although as accurate as possible, forecasts cannot be absolute as they only predict aviation trends based upon past and current events. This study focuses on the 5-, 10-, and 20-year time frames for the Cedar City Regional Airport. The degree of accuracy for the forecast is more precise short-term. A demographic and economic analysis for Iron County and Cedar City was provided in *Chapter 2*, as a background foundation upon which to base the forecast. A review of historic aircraft operations, based aircraft, and existing aviation forecasts, including the Federal Aviation Administration (FAA) and State of Utah forecasts, are also included.

Establishing realistic levels of "baseline" or existing demand is particularly important for CDC since the airport does not have an airport traffic control tower to record actual airport demand. Several options for establishing the baseline aviation demand are available including third party industry data sources, available FAA data, compiled Fixed Base Operator (FBO) records, and interviews with existing airport tenants. The specific methodology for establishing existing baseline airport demand will be discussed in subsequent sections of this chapter.

Organization is as follows:

- Aviation Industry Trends
- Utah Aviation Trends
- Airport Reference Code (ARC)
- CDC Operations Forecast Methodology
- General Aviation Forecast
- Commercial Service Forecast
- Instrument Operations and Filed Flight Plans
- Growth Rates
- Combined Forecast
- Based Aircraft
- Comparison with FAA TAF
- Forecast Summary

National data is presented first, followed by Utah information and then local data. An important component in this forecast is to determine which factors are driving the use of aviation in the nation, region, and at the local airport.

4.2 AVIATION INDUSTRY TRENDS

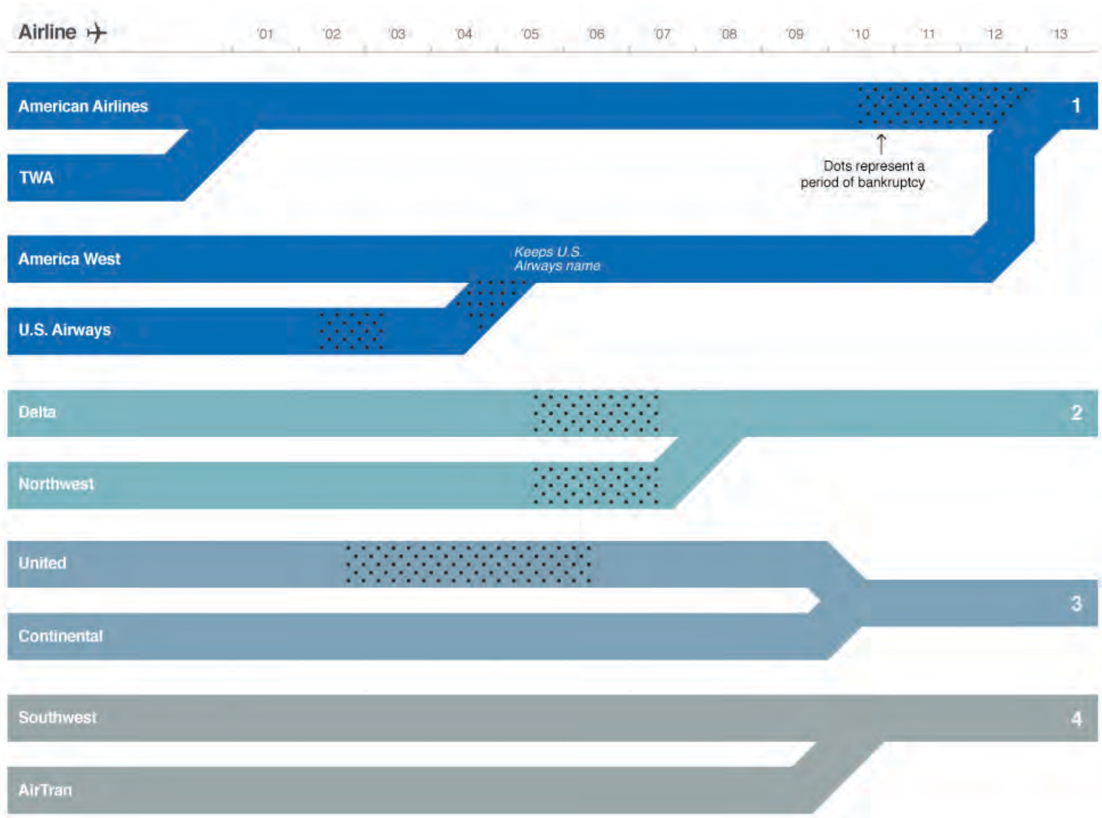
A vibrant economy and healthy aviation industry go hand-in-hand. However, the aviation industry is a complex, global entity that cannot be broken down into a single number and it is important to understand the two main types of aviation present in Utah: commercial service and general aviation. Cedar City Regional Airport has both commercial service and general aviation activity. Only when a passenger purchases a ticket on a scheduled airline is the flight considered commercial service.

This section presents trends for the United States and, to the extent possible, Utah and Cedar City. These trends are intended to provide a general frame of reference. Their analysis provides an understanding of how aviation activity within the region compares to aviation activity throughout the country. This analysis also establishes a basis for predicting how aviation activity may be expected to develop in the future. This frame of reference is essential when identifying potential activity scenarios for the airport.

The most recent *FAA Aerospace Forecast Fiscal Years 2015 - 2036* proclaimed the following in the forecast highlights: "As the economy recovers from the most serious economic downturn since World War II and the slowest expansion in recent history, aviation will continue to grow over the long run. Fundamentally, over the medium and long term, demand for aviation is driven by economic activity."[37] In other words, as the economy grows, so will the aviation industry.

Since its deregulation in 1978, the US commercial air carrier industry has been characterized by boom-to-bust cycles. Due to fundamental changes in operations and finances, such as refining their business models to minimize losses and increase operating revenue, air carriers contributed to the fifth consecutive year of profitability for the aviation industry in 2014. In 2015, US airlines reported a record $25.6 billion in profits, a huge increase from 2014's $7.5 billion, according to the USDOT's Bureau of Transportation Statistics.

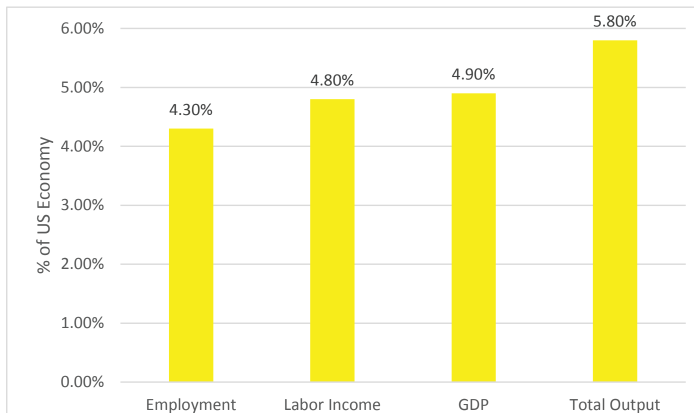
Figure 4.1 US Airline Mergers, 2001-2013



Additionally, the industry experienced an unprecedented period of consolidation with four major mergers in five years. *Figure 4.1* illustrates the airline mergers that have been executed in the US since 2001. As a result of these mergers and the airlines augmenting their business models, there is optimism that the aviation industry has been transformed from that of a boom-to-bust cycle to one of sustainable profits.

According to a report released by the Transportation Research Board's Airport Cooperative Research Program (ACRP) in May 2015, the national economic impact of airports included in the National Plan of Integrated Airport Systems (NPIAS) was calculated to be $1.6 trillion in output resulting in 7.6 million jobs across the nation that pay workers a combined total of $453 billion.[38] These numbers translate into 5.8% of the national output and 4.9% of the Gross Domestic Product (GDP). GDP is the monetary value of all the finished goods and services produced within a country's borders in a specific time period. Additionally, NPIAS airports generate 4.3% of all jobs in the United States, paying 4.8% of labor income earned nationally. These numbers are illustrated graphically in *Figure 4.2*.

Figure 4.2 Total Impact of NPIAS Airports



There are roughly 3,330 NPIAS airports that accounted for about 65% of US public use airports and 99.8% of all enplanements in 2012. Refer to *Chapter 1. Airports and Master Plans Introduction* for more information on the NPIAS.

In July 2015, the Boeing Company, an American corporation that designs, manufactures, and sells airplanes and rotorcraft, released a forecast showing continued strong demand for commercial airline pilots and maintenance technicians as the world's airlines add 38,000 airplanes to the global fleet over the next 20 years. Boeing's *2015 Pilot and Technician Outlook* projects that between 2015 and 2034, the world will require 558,000 new commercial airline pilots and 609,000 new commercial airline maintenance technicians.[39] Additionally, Boeing's forecast projects continued increases in pilot demand, up more than 4% compared to the 2014 forecast. For maintenance technicians, demand increased approximately 5%. As evidenced by the aforementioned numbers, the aviation system plays a key role in the success, strength, and growth of the US economy.

COMMERCIAL SERVICE TRENDS

In May 2013, a white paper entitled *Trends and Market Forces Shaping Small Community Air Service in the United States* was published by Michael D. Wittman and William S. Swelbar with the Massachusetts Institute of Technology (MIT) International Center for Air Transportation (ICAT). The authors of this document reported that the previous six years had been challenging for US domestic service and that most airports had seen a reduction in scheduled domestic flights because of "a difficult global economic climate and a US recession, high and volatile fuel prices, and a recent trend of capacity discipline strategies by major airlines."[40] In the airline industry, capacity discpline is the practice of decreasing the number of available seats on weaker routes, often but not always to increase them on more profitable routes. The result of this practice tends to be fuller flights.

Capacity discipline evolved in response to the challenging economic conditions noted above. Instead of focusing on capacity expansion, airline managers shifted their attention to reducing operating costs by eliminating redundant flying and rationalizing services at some smaller hubs. This shift contributed to new trends in high yields and annual gains for air carriers; however, it also resulted in cutbacks in domestic service at many US airports, especially smaller facilities.

The most recent FAA Aerospace Forecast reported that between 1978 and 2000, Available Seat Miles (ASMs) in domestic markets increased at an average annual rate of 4% a year, recording only two years of decline.[37] ASMs show the total number of passenger miles that could be generated. Domestic ASMs shrank by 6.9% in 2002, following the events of September 11, 2001. However, growth resumed and by 2007 domestic ASMs were 3.6% above the 2000 level. Since 2007, domestic ASMs have decreased by 5.7% as the airline industry responded to the rise in oil prices (up 155% between 2004 and 2008) and then the global recession that followed (2009 to the present). This 5.7% reduction in domestic ASMs has not been shared equally between mainline carriers and their regional counterparts.

As explained in *Trends and Market Forces Shaping Small Community Air Service in the United States*, the nation's small- and medium-sized airports have been disproportionally affected by these reductions in service. The United States' 29 largest airports (by 2011 enplanements) lost 8.8% of their yearly scheduled domestic flights between 2007 and 2012, compared to a 21.3% reduction in scheduled domestic flights at smaller airports during the same period.[40] Much of this service reduction at smaller airports is a result of large network carriers reducing frequency to large hubs and removing direct flights to other small- and medium-sized communities. *Table 4.1* to the right highlights these changes. As can be seen in this table, Essential Air Service (EAS) airports, such as CDC, whose levels of service are mandated by the federal government, performed the best during the study period, losing only 5.0% of their scheduled domestic departures. *Table 4.2* lists the number of airports for each FAA hub type.

Some airports are too small to be labeled "non-hub." This study included some of these airports because of their participation in the EAS program, which provides federal subsidies to foster consistent air service for smaller US communities. While some EAS airports are contained in the "non-hub" category, as many as 80 additional airports are too small to be assigned a hub status.

TABLE 4.1 PERCENT CHANGE IN SCHEDULED DOMESTIC DEPARTURES BY AIRPORT HUB TYPE, 2007-2012

AIRPORT TYPE	% change in domestic departures
Large Hub	-8.8%
Medium Hub	-26.2%
Small Hub	-18.2%
Non-Hub	-15.4%
Essential Air Service (EAS)	-5.0%
All Smaller Airports	**-21.3%**
All Airports	**-14.3%**

TABLE 4.2 US AIRPORTS BY FAA HUB TYPE

HUB TYPE	# of Airports
Large Hub	29
Medium Hub	35
Small Hub	74
Non-Hub	249

One of the most significant recent trends in small community air service is the extent to which the network carriers have exited EAS markets. Service that was previously provided by regional affiliates of network carriers is now being operated by a small handful of ultra-regional carriers: Great Lakes Airlines and Cape Air are the major players in these markets. These ultra-regionals, or ULCCs, operate fleets of mostly small Cessna or Beechcraft aircraft with 8-19 seats that lack some amenities, but provide service from the smallest US communities to nearby airports. Passengers departing from airports served by these carriers may lose out on flight attendants and a multiple-class cabin, but on the whole have shown support for this type of service as both Cape Air and Great Lakes have continued to grow both their frequency and destinations served from 2007 through 2012. There are passenger advantages at both large and small airports as outlined in *Figure 4.3*.

Figure 4.3 Airport Passenger Advantages

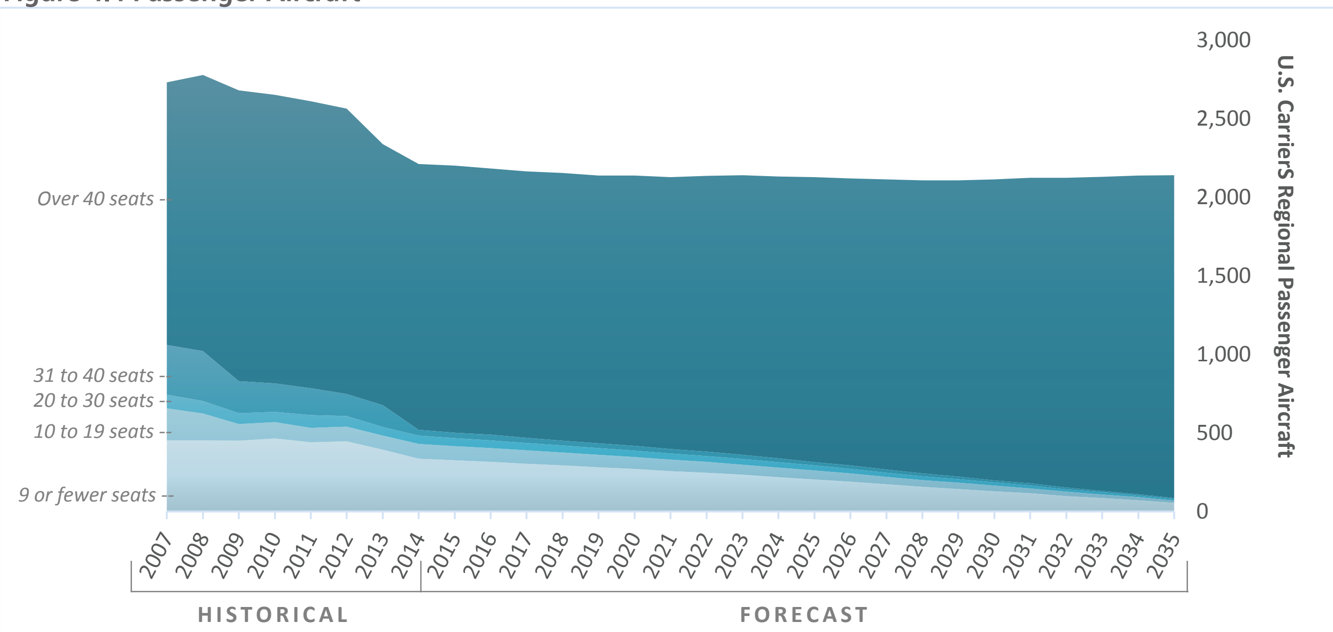
Small Airports	Large Airports
• Distance	• Price
• Convenience	• Service
• Familiarity	• Flexibility

Another notable trend in the commercial service industry is the airlines' continued search for the correct gauge of aircraft to serve the smallest airports in the United States, including those funded by EAS subsidies. In some markets, small turbo prop aircraft operated by independent ultra-regional carriers, like Cape Air and Great

Lakes Airlines, are replacing larger prop planes. At other small airports, turbo prop service has been replaced by 37-50 seat regional jets (RJs). "Upgauging" to larger regional jet service in some markets has also taken place, albeit slowly. However, relatively few airports have lost all of their commercial air service because network carriers who have exited these markets have often been quickly replaced by ultra-low cost carriers (ULCCs) or ultra-regional service, although at reduced frequencies and sometimes with fewer available connecting options. For example, while passengers in Boise, ID can still reach Reno, NV via commercial air service, previously existing direct flights have been cut and replaced by connecting service through Salt Lake City, UT.

The total number of passenger aircraft operated by US regional carriers has decreased since 2007 (*Figure 4.4*). The FAA forecasts that the total number of such aircraft will now remain fairly stable. However, the fleet will transition from using aircraft with less than 41 seats to almost exclusively using aircraft with 41 or more seats. If airlines are able to fill these larger aircraft with more seats, they will typically operate at a lower cost per passenger compared to the smaller aircraft. This trend is important because it points to an aviation market that is healthy and projected to remain as such. *Figure 4.4 Passenger Aircraft* reflects the recent transition to larger aircraft, as well as the projected forecast.

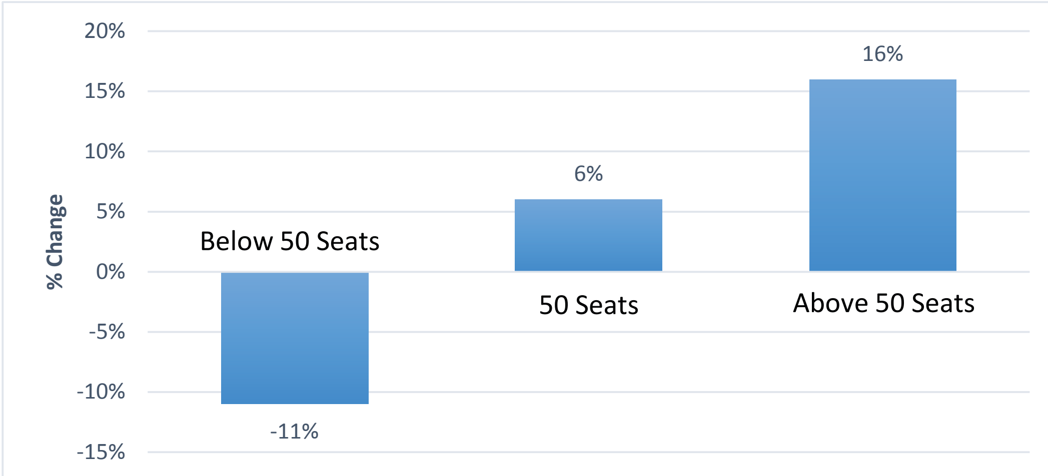
Figure 4.4 Passenger Aircraft



Non-hub airports like CDC, which are served by regional carriers only, have seen a marked decrease in the number of departures based on aircraft seat configuration. *Table 4.3* lists the number of departures per year in 2013 and 2014, as well as the percent change, for aircraft with less than 50 seats, 50 seats, and more than 50 seats.[42] This percent change is graphically illustrated in *Figure 4.5* on the following page.

TABLE 4.3 DEPARTURES GROUPED BY AIRCRAFT SEAT CONFIGURATION								
BELOW 50 SEATS			50 SEATS			ABOVE 50 SEATS		
2013	2014	% Change	2013	2014	% Change	2013	2014	% Change
390,749	346,257	-11%	97,969	104,052	6%	19,985	23,238	16%

Figure 4.5 % Change in Departures by Seat Capacity



The most recent industry trend to take hold is that of ancillary, or supplementary, revenues. Carriers generate ancillary revenues by selling products and services beyond that of an airplane ticket to customers. This includes the un-bundling of services previously included in the ticket price such as checked bags and on-board meals, and by adding new services such as boarding priority. As noted earlier, US passenger carriers posted net profits for the sixth consecutive year in 2015 and ancillary revenues were a contributing factor. In fact, new information from the USDOT's Bureau of Transportation Statistics shows that revenue earned by airlines from baggage fees reached a record high of $3.8 billion in 2015. Additionally, airlines earned $3 billion from change fees, a slight increase from 2014.

The FAA Aerospace Forecast for Fiscal Years 2015-2035 reported that demand for air travel in 2014 grew at a modest pace amid an improving economic environment in the US. In 2014, national Revenue Passenger Miles (RPMs) increased 2.5% as enplanements increased 2.3%.[37] RPMs are a transportation industry metric that shows the number of miles traveled by paying passengers. RPMs are calculated by multiplying the number of paying passengers by the distance traveled. For example, an airplane with 100 passengers that flies 250 miles has generated 25,000 RPMs. Additionally, commercial air carrier domestic enplanements were up by 2.1%, while international enplanements were up 3.4%. By the end of 2014, the US commercial aviation industry consisted of 16 scheduled mainline air carriers that used large passenger jets (over 90 seats) and 70 regional carriers that used smaller piston, turbo prop, and regional jet aircraft (up to 90 seats) to provide connecting passengers to the larger carriers.

The most recent FAA Aerospace Forecast also noted that the average size of domestic aircraft is expected to increase by 1.1 seats in 2015 to 128.2 seats. Average seats per aircraft for mainline carriers are projected to increase by 1.2 seats as network carriers continue to reconfigure their domestic fleets. While demand for 70-90 seat aircraft continues to increase, the FAA expects the number of 50 seat regional jets in service to fall, increasing the average regional aircraft size in 2015 by 0.8 seats to 57.8 seats per mile.

Over the long term, the FAA foresees a "competitive and profitable aviation industry characterized by increasing demand for air travel and airfares growing more slowly than inflation, reflecting over the long term a growing US economy." With lower energy prices, US carrier profitability should remain steady or increase as an economy in its sixth year of recovery leads to strengthening demand and increased revenues, while operating costs are falling or stable.

GENERAL AVIATION TRENDS

Current and future trends within the general aviation industry may impact the demand for general aviation facilities and services, which represent the most common aviation use at CDC. An understanding of recent and current industry trends is helpful in identifying the future demand for this aviation activity. The changing patterns in the business use of general aviation aircraft are also an important element of general aviation trends. Annually, general aviation contributes $218.6 billion to the United States economy.[6]

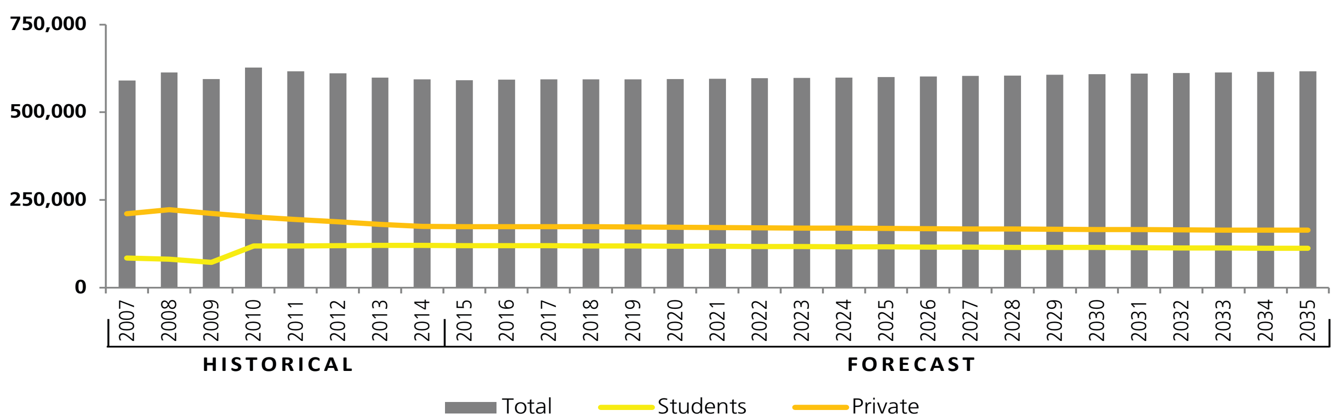
According to a recent report from the National Business Aviation Association (NBAA), there has been a nationwide increase in business aircraft and business related general aviation flights. This trend is occurring, in part, due to a substantial increase in fractional ownership of business aircraft. With fractional ownership in an aircraft, businesses are able to control the costs associated with a flight department and can often upgrade to a nicer aircraft than they would have been able to afford otherwise. Fractional ownership allows customers (referred to as "owners") to buy a "share" of a plane, rather than an entire plane. The price is pro-rated from the market price of a full aircraft. Owners then have guaranteed access to that plane, or a similar plane in the operator's fleet. Examples of such companies include NetJets and Flexjet.

The impacts seen at general aviation airports are in direct relation to this growth. As the number of business owners and individuals that travel by private aircraft increases, the more operations will be seen at destination, general aviation airports. However, according to the *National Plan of Integrated Airport Systems (NPIAS) Report to Congress for 2015-2019* released in September 2014, delivery of aircraft for these programs flourished until 2009.[3] The recession has impacted the number of fractional share owners and aircraft. In 2013, the number of share owners and aircraft decreased for the fifth year.

The *FAA Aerospace Forecast Fiscal Years 2015 - 2036* reported that the general aviation market continues its recovery.[37] In 2014, the turbo jet sector recorded its first increase in deliveries by US manufacturers since 2008. For a third year in a row, single engine piston deliveries have increased. The long term outlook for general aviation is favorable, and near term also looks promising, especially for piston aircraft activity, which is sensitive to fuel price movements. While it is slightly lower than predicted last year, the growth in business aviation demand over the long term continues. As the fleet grows, the number of general aviation hours flown is projected to increase an average of 1.4% per year through 2035.

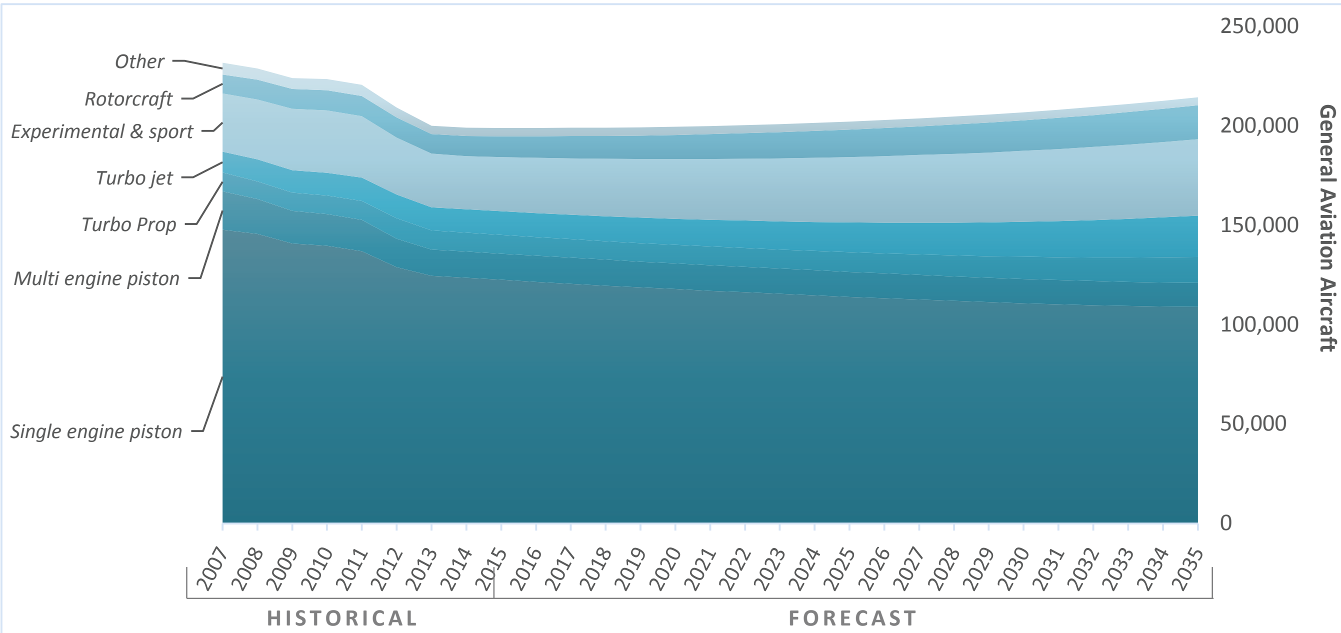
The FAA Aerospace Forecast includes statistics on active pilots by type of certificate. *Figure 4.6 Pilot Licensure* shows these trends. Pilot licensure is forecasted to have a slow, steady growth over the next 20 years. Student and private pilot licenses comprise a majority of general aviation activity; however, they compose a relatively small percentage of the overall licensed pilots in the nation, and those percentages are projected to remain essentially flat.

Figure 4.6 Pilot Licensure



From 2015 to 2035, the FAA forecasts that general aviation fleet size will slowly increase (*Figure 4.7*). The single engine piston fleet is projected for overall reduction, while the number of experimental and sport, other, and turbo jet aircraft are anticipated to increase. Over this period, the FAA projects 0.4% annual growth of the active general aviation aircraft fleet.

Figure 4.7 General Aviation Aircraft



The NBAA represents many of the nation's employers who use general aviation as a business tool. The 2014 Business Aviation Fact Book, released by the NBAA, states that "business aviation contributes $150 billion to US economic output and employs more than 1.2 million people.[43] General aviation activities – including sales of new and previously owned airplanes, as well as maintenance and other operational support – generate substantial financial benefits for every state in the nation." Business aviation is simply the use of general aviation aircraft for business purposes.

Business use of general aviation aircraft ranges from small, single engine aircraft rental up to corporate aircraft fleets with multiple bases supported by dedicated flight crews and mechanics. General aviation aircraft enable employers to transport personnel and air cargo, link office locations, and reach existing and potential new customers. Smaller companies have expanded their use of business aircraft through a variety of options including: chartering, leasing, time-sharing, interchange agreements, partnerships, and management contracts.

Business leaders cite the following reasons for using business aviation: enhanced productivity, going multiple places in a day, going global, secure travel, staying connected, effectively managing distant facilities, building strong relationships, beating the competition, connecting companies and communities, and getting "face to face."

Business airplanes can reach about 5,000 airports, while airlines can only reach 500, which is why 80% of business aviation flights are into small towns and communities. The vast majority (85%) of the US companies that utilize business aircraft are small and mid-size businesses, many of which are based in the dozens of communities across the country where the airlines have reduced or eliminated service.

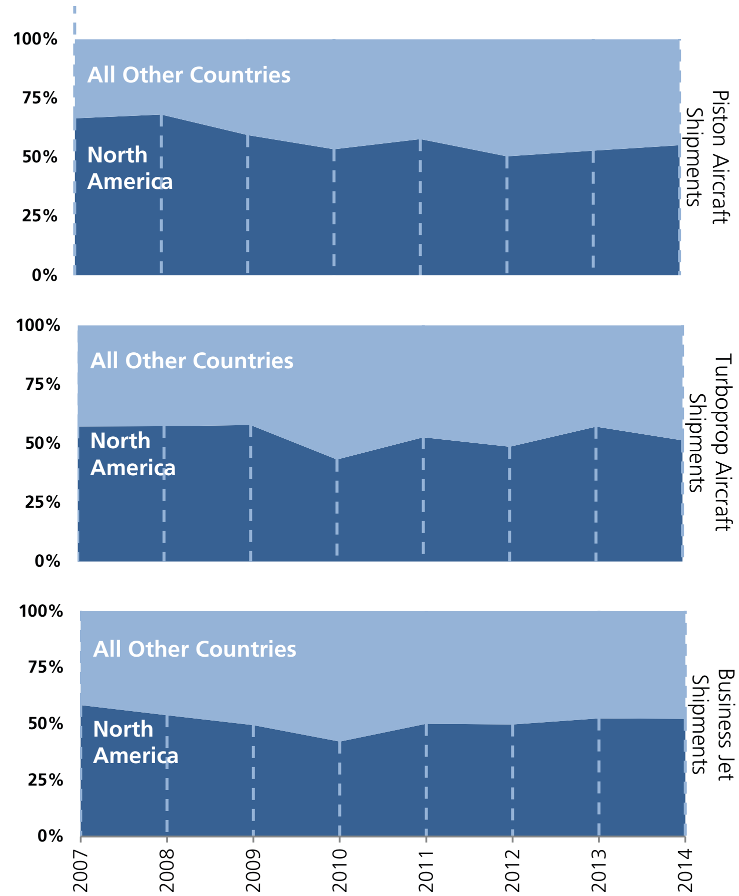
Studies have shown that companies using business aircraft reliably outperform similar companies that do not use business aircraft. For example, average annual revenue growth is higher for companies using business aviation than for companies that do not use business aviation. Among Fortune magazine's "World's Most Admired Companies" and Business Week's "50 Most Innovative Companies," 95% are business aircraft users.[44]

The General Aviation Manufacturers Association (GAMA) is an international association representing over 90 manufacturers of general aviation airplanes and rotorcraft, engines, avionics, components and related services. GAMA releases data annually about the state of global general aviation aircraft. Data below is from the most recent publication (*2015 General Aviation Statistical Databook and 2016 Industry Outlook*).[45]

Over the past five years, there has been a decreasing trend in the percentage of general aircraft shipments delivered to North America as compared to all other countries in the world. This trend is not predictive of a downturn in the overall shipments, rather just the percentage split delivered to North America.

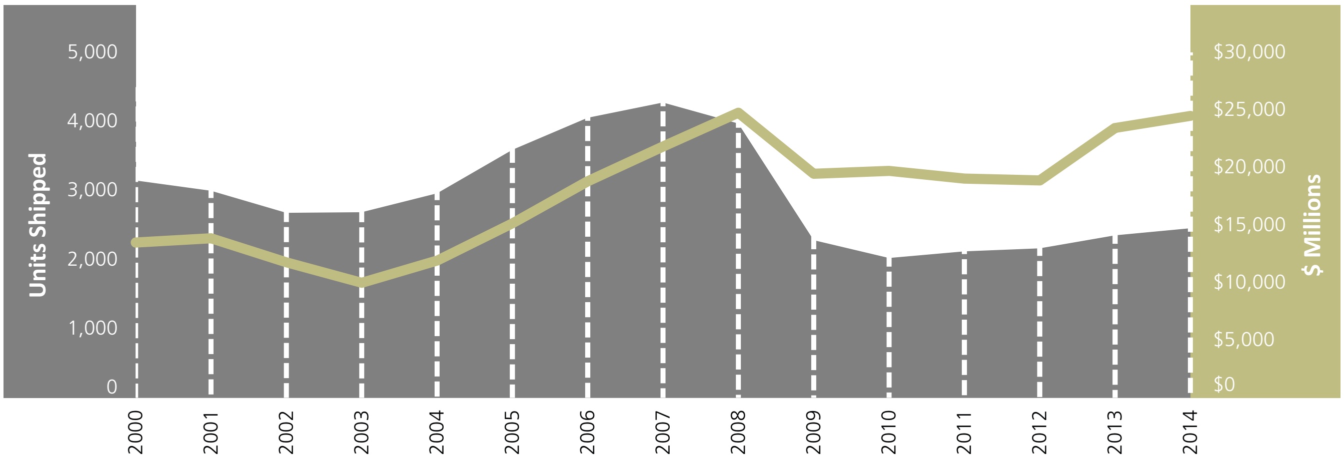
The graphs, shown to the right and split by piston aircraft, turboprop, and business jet, highlight the importance that the North American aviation industry plays in the worldwide general aviation aircraft market. Generally, North America accounts for the same amount of general aviation aircraft deliveries as the remainder of the world's countries.

Figure 4.8 General Aircraft Shipments Distribution



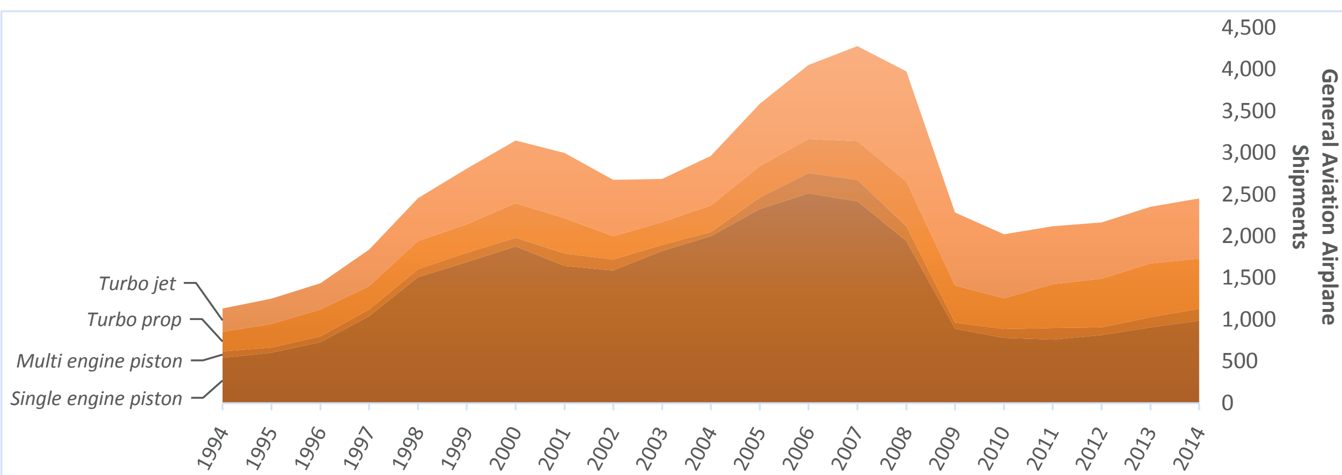
Worldwide general aviation airplane shipments decreased sharply from 2008 to 2009, corresponding with a decrease in general aviation aircraft billings. The decrease is typically attributed to the state of the worldwide economy and recession during that time. A small but steady uptick in sales and shipments were reported in 2013 and 2014 while economies continued to recover. This data suggest that the general aviation industry is steady and healthy, but not substantially expanding. Units shipped are compared to sales figures from 2000 to 2014 in *Figure 4.9 General Aviation Airplane Shipments and Billings Worldwide.*

Figure 4.9 General Aviation Airplane Shipments and Billings Worldwide



Worldwide general aviation airplane shipments since 1994 are shown in *Figure 4.10.* Since 2011, there has been a positive swing in the annual grand total shipments. Currently, single engine piston are the most commonly shipped general aviation aircraft. However, turbo jet and turbo prop aircraft have slowly claimed a larger share since 1994. Multi-engine piston is a distant fourth. These trends are in line with the increase of business aircraft use seen around the nation.

Figure 4.10 General Aviation Aircraft Shipments



In its 24th annual Global Business Aviation Outlook, released in November 2015, Honeywell Aerospace forecasts up to 9,200 new global business jet deliveries worth $270 billion from 2015 to 2025, with a 3 to 5% reduction over the value noted in the 2014 forecast as a result of the economy's slow recovery.[46] An estimated 61% of projected demand comes from North American operators, up 2 points from the 2014 survey.

Honeywell's outlook also projects deliveries of approximately 675 to 725 new jets in 2015. The improvement in deliveries expected in 2015 is largely due to new model introductions and an increase in fractional-usage type of aircraft deliveries. 2016 deliveries are projected to be slightly lower reflecting weaker emerging market demand partially offset by deliveries to fractional operators.

Similarly, during NBAA's annual business aviation convention and exhibition, held in November 2015, JetNet released its state of the market briefing indicating that the business jet fleet will grow by 33% over the next 10 years with 9,365 new deliveries valued at $255 billion expected.[47]

Aviation Week Network produces annual 10-year forecasts that show projected deliveries, estimated retirements, and annual maintenace, repair, and overhaul (MRO) costs. The newly released 2016 Military Fleet and MRO Forecast shows a worldwide fleet estimated to grow to 41,880 aircraft by 2025, with a 10-year MRO requirement of $716 billion. According to NBAA, the majority of the world's business aircraft are operated, serviced, and maintained in the US, creating jobs in every state in the nation.

These industry forecasts provide valuable data to aviation professionals, as well as community leaders and the public, because increased aircraft production equates to increased operations at airports with general aviation facilities, such as CDC. Increased aviation activity creates additional economic impact for the community, including jobs.

Economic development is important to the State of Utah and Iron County, as evidenced by the Tax Increment Incentives established by both the state and the county. At a minimum, companies must bring in a signficant number of new jobs and pay above the average county wage. In June 2013, SyberJet Aircraft, based at CDC, was approved to receive an incentive from the Governor's Office of Economic Development. This company created 240 jobs resulting in $288,047,817 in new state wages. This is just one example of how a community airport, like CDC, is able to boost jobs, local investment, and economic activity in communities such as Cedar City.

Qualitative benefits, such as those detailed in *Section 1.5 Why are Airports Important* of this document, are also enhanced when aviation activity at the local airport grows. Not only do qualititative benefits include medical evacuations and search and rescue flights, they also entail a variety of humanitarian efforts. Business aircraft are uniquely suited to provide first response to natural disasters and other crises because they can operate on short notice into outlying airports with small, and sometimes unpaved, runways that are inaccessible to airlines or even automobiles. According to GAMA, general aviation conducted more than 15,000 flights in one recent year in support of missions for humanitarian purposes. Sometimes business aircraft are used to supplement the capabilities of government agencies. For example, during wildfire season, general aviation airplanes are contracted by state and federal fire fighting agencies to help keep fires under control by flying aerial spotters overhead to direct emergency and fire control services below.

AVIATION INDUSTRY TRENDS CONCLUSION

Overall, the aviation industry has slowly recovered from its dip during the recent recession. Important indices, such as aircraft shipments, pilot licensure, instructional hours flown, and general aviation operations are all projected to increase steadily over the next 20 years. A healthy aviation industry emphasizes that the Cedar City Regional Airport is a key part of the local, as well as state and national, economies.

4.3 UTAH AVIATION TRENDS

The Utah Continuous Airport System Plan (UCASP) was last updated in 2007. Data included in the UCASP is from 2006. The primary purpose of the UCASP is to assess the needs of Utah's airports, help justify funding for airport improvements, and provide information regarding the value, use, and needs of the state's public use airports.[49]

The UCASP inlcuded projections of both passenger enplanements and commercial aircraft operations. *Table 4.4* lists the forecasted passenger enplanements for Cedar City Regional Airport. Commercial operations are divided into two categories, air carrier and air taxi. Air carrier operations operate on a set schedule, while air taxi operations are composed of commercial charter operations that operate "on demand" on a charter and/or nonscheduled basis. *Table 4.5* lists the forecasted commercial operations for CDC as provided by the UCASP.

TABLE 4.4 UCASP PASSENGER ENPLANEMENTS FORECAST FOR CDC

Associated City	Airport	Forecasted Passenger Enplanements 2006	2011	2016	2026	Average Annual Rate of Change
Cedar City	CDC	7,658	8,580	9,613	12,068	2.3%

TABLE 4.5 UCASP COMMERCIAL OPERATIONS FORECAST FOR CDC

Associated City	Airport	2006		2011		2016		2026		Average Annual Rate of Change
		Air Carrier	Air Taxi	Air Carrier	Air Taxi	Air Carrier	Air Taxi	Air Carrier	Air Taxi	
Cedar City	CDC	2,760	0	3,092	0	3,465	0	4,349	0	2.3%

Data for commercial aviation is more readily available because carriers are required by FAA regulations to report information about their operations. However, general aviation is not subject to these federal reporting requirements. Only three of Utah's public use airports have an air traffic control tower that tracks their operations. Consequently, the remaining public use airports, included Cedar City Regional Airport, rely on estimated numbers of operations. UDOT Aeronautics has also relied on the use of acoustical counters at many airports to establish a baseline of operations. An acoustical counter records the sounds of aircraft taking off and then the recording is audited to determine the number of take-offs. It is assumed that for every take-off, there is a landing, so the number of take-offs counted is then doubled to determine the number of operations that occurred.

The 2007 UCASP provides an estimate of current operations for each airport, as well as based aircraft information. The numbers for Cedar City Regional Airport are provided in *Tables 4.6* and *4.7*. Future growth for based aircraft and operations is projected at the rate forecasted for population growth in Iron County.

TABLE 4.6 UCASP GENERAL AVIATION BASED AIRCRAFT FORECAST FOR CDC

Associated City	Airport	Based Aircraft 2006	2011	2016	2026	Average Annual Rate of Change
Cedar City	CDC	48	54	60	76	2.3%

TABLE 4.7 USCASP GENERAL AVIATION OPERATION FORECAST FOR CDC

Associated City	Airport	General Aviation Operations 2006	2011	2016	2026	Average Annual Rate of Change
Cedar City	CDC	24,968	27,974	31,342	39,345	2.3%

Future levels of air cargo activity were also projected. *Table 4.8* provides the forecasted amount of cargo in pounds projected to be enplaned (loaded) and deplaned (unloaded) at Cedar City Regional Airport. Air cargo activy at CDC ranks third among the six Utah airports that regularly receive air cargo service.

TABLE 4.8 UCASP AIR CARGO FORECAST FOR CDC

Associated City	Airport	Enplaned 2006	Deplaned 2006	Enplaned 2011	Deplaned 2011	Enplaned 2016	Deplaned 2016	Enplaned 2026	Deplaned 2026	Average Annual Rate of Change
Cedar City	CDC	273,168	554,400	306,061	621,157	342,915	695,952	430,470	873,647	2.3%

Given the age of the data included in the UCASP (2006), it will not be included in the forecast methodology or used for comparisons.

The General Aviation Manufacturers Association (GAMA) provided information for active general aviation aircraft and hours flown for each state in the *2015 General Aviation Statistical Databook & 2016 Industry Outlook*.[45] Information regarding active general aviation aircraft and hours flown for Utah is depicted in the figures below. As evidenced by these charts, general aviation activity in Utah dipped during the recession and decreased dramatically in 2012, but returned to near 2008 levels in 2014. Data is not available for the year 2011.

Figure 4.11 Active General Aviation Aircraft for Utah

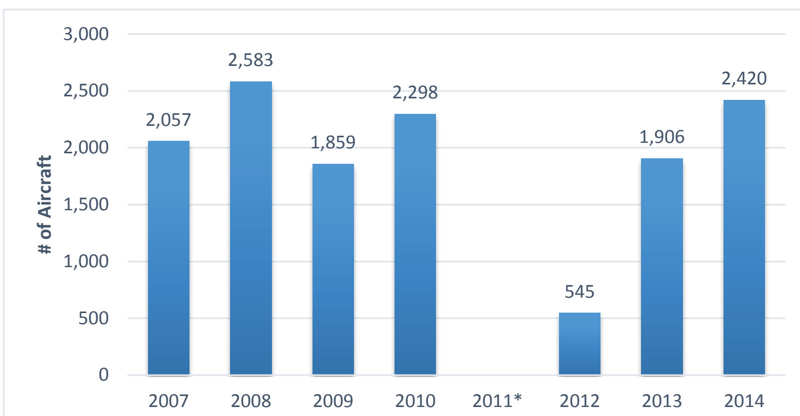
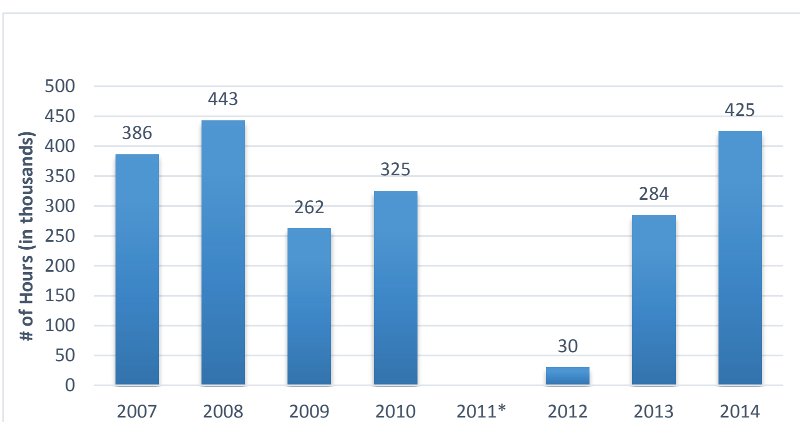


Figure 4.12 General Aviation Hours Flown for Utah



4.4 AIRPORT REFERENCE CODE (ARC)

The FAA has developed an airport coding system referred to as the Airport Reference Code (ARC) that establishes the specific design criteria for facility development. The ARC provides insights into the performance, design characteristics, and physical facility requirements of aircraft using an airport. The ARC is based on two separate components of aircraft design: Aircraft Approach Category (AAC) and Airplane Design Group (ADG). The ARC is designated by a letter (A through E) and a Roman numeral (I through VI).

The letter represents the aircraft approach category and is determined by an aircraft's speed as it approaches an airport for landing. The higher an aircraft's speed, normally the longer the runway must be to accommodate that aircraft. Safety area dimensions are also expanded as the approach speed increases. The Roman numeral is the airplane design group and is determined by an aircraft's wingspan and tail height. Typically, as an aircraft's wingspan increases, the separation requirements increase between runways, taxiways, aprons, and aircraft parking areas. Understanding and incorporating the FAA ARC system is imperative to proper forecasting and airport planning.

TABLE 4.9 AIRPORT REFERENCE CODE (ARC) AIRCRAFT APPROACH CATEGORY (AAC)

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

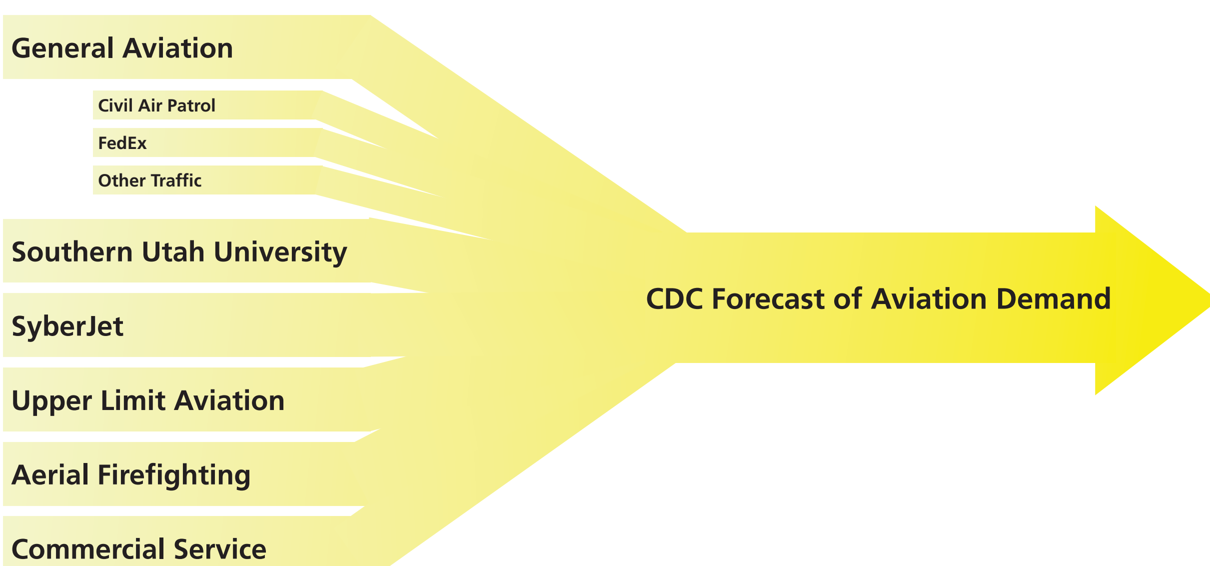
TABLE 4.10 AIRPORT REFERENCE CODE (ARC) AIRPLANE DESIGN GROUP (ADG)

Group #	Tail Height (Feet)	Wingspan (Feet)
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

4.5 CDC OPERATIONS FORECAST METHODOLOGY

The major components of the CDC aviation forecast are the operations by general aviation, Southern Utah University, SyberJet, Upper Limit Aviation, aerial firefighting, and commercial service. Each component individually only relays a portion of the traffic at the airport. Combining these components accounted for most, if not all, aviation traffic occurring at the airport. Data and findings for each component are first presented individually, and then combined to create a complete forecast. Filed flight plan records are cross-referenced with the forecast numbers as a final check to ensure accuracy and reasonableness.

Figure 4.13 Forecast Methodology



4.6 GENERAL AVIATION FORECAST

General aviation accounts for a large and diverse portion of traffic at Cedar City Regional Airport, including recreational pilots, private business aircraft, and experimental airplanes. The forecast for general aviation is based on photographed operations. As part of the Airport Master Plan process, six motion-activated cameras were mounted around the airport to capture live traffic, including both day and night operations.

Most cameras were placed near connectors between the runway and parking apron where aircraft typically move slower and stop. One camera was placed facing the helicopter parking area. Locations and alignments of the six cameras are displayed below in *Figure 4.14 Camera Locations and Alignments.*

Figure 4.14 Camera Locations and Alignments

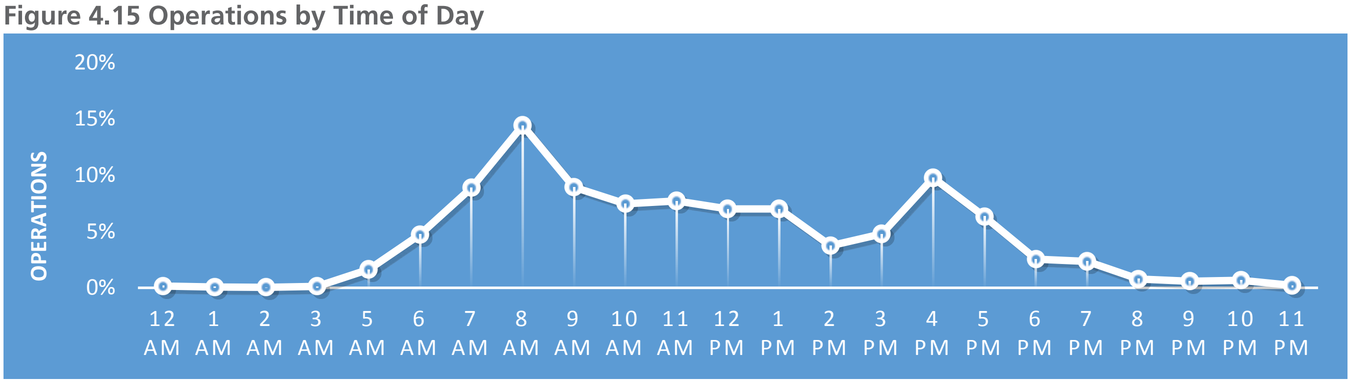
CDC experiences a significant amount of traffic, even when excluding all non-general aviation traffic. Due to the huge number of photographs collected, a sampling methodology was developed. This methodology was developed in conjunction with the University of Wyoming's Survey & Analysis Center. The sampling design made the following assumptions:

- Six months of photographs will be utilized to minimize seasonality effects, if any are present.
- Six months will be representative of a complete year.
- Each of the six months will be considered distinct and treated as an independent stratum.
- Fourteen days per month is assumed to be representative of the month as a whole.
- Weekends may be significantly different from weekdays.
- Saturdays may be significantly different from Sundays.
- The working week days are not significantly different from each other.

Based upon these assumptions, the final design included a total of 81 days, for the period of March 13th, 2015 through September 4th, 2015. All photographed commercial service, fire fighting, and Upper Limit Aviation operations were excluded. All rotorcraft operations were assumed to be by Upper Limit Aviation. More than 40,000 images were taken and manually sorted. Operations were cataloged in a database with as much detail as possible, using information about the aircraft, time of day, and date. Some photographs only contained a wing tip or rudder, and thus could not be classified beyond merely an aircraft operation. *Table 4.11* summarizes the data collected by the motion activated cameras.

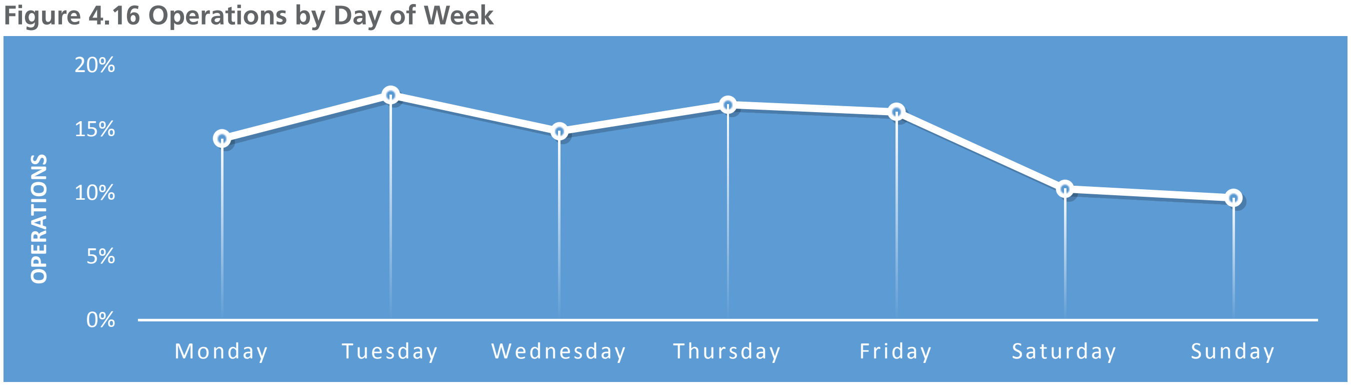
The time of day for each recorded general aviation operation is depicted below. Unsurprisingly, the majority of operations occurred during business hours, with peaks around 8 AM and 4 PM. Roughly 40% of all general aviation aircraft operations occurred from 8 AM to noon. Fewer than 1% of these operations occurred from midnight to 4 AM.

Figure 4.15 Operations by Time of Day



Tuesday (18%), Thursday (17%), and Friday (16%) were the most popular days for flying, while Saturday (10%) and Sunday (10%) tied for the least popular.

Figure 4.16 Operations by Day of Week



ANNUAL OPERATIONS BASELINE

An aircraft operation is defined as a takeoff or landing, with a touch-and-go counting as two operations. Historical aviation activity at CDC is essentially limited to the estimates provided by the FAA Terminal Area Forecast (TAF). Therefore, actual past air traffic data is incomplete and extremely limited. Only the data specifically collected for this forecast were utilized to create the baseline total operations. This planning forecast covers a 20-year period, using a baseline of 2015 and running from 2016 through 2036.

Depending on the positioning of cameras in the airfield, operations may be missed. Given the position of cameras at Cedar City Regional Airport, the most likely missed operations are from aircraft that failed to properly stop at the holdlines or were performing a touch-and-go. As such, the data obtained and calculated from photographed operations provides the absolute minimum count.

The use of motion-activated cameras on airports is a relatively new technique, so there is currently no literature or guidance as to the number of operations missed by the cameras. Fuel sales records, interviews with pilots and FBOs, and other local data sources help to provide guidance in creating a positive *missing modifier* (for example, an additional 25%) to the operation count. However, at its best, such a modifier is still merely an estimate. A small portion of photographed operations that filed a flight plan were cross-checked against photographed operations. It was approximated that at least 10% of these types of operations were missed. Based on these sources and conversation with the Airport Manager, for the purposes of completing the CDC forecast, a missing modifier of 10% was utilized.

ROTORCRAFT OPERATIONS

Due to the flight patterns of rotorcraft, a significant portion of rotorcraft activity at CDC was missed by the motion-activated cameras. Of these rotorcraft operations captured, it was often impossible to decipher the registry number or owner of the machine. Thus, all rotorcraft operations were removed from the base calculations and replaced with the averaged annual number from Upper Limit Aviation (ULA), as well as an estimate from the Airport Manager. The Airport Manager estimated that there are 2,500 annual general aviation rotorcraft operations performed at CDC not by ULA.

BASELINE TOTAL

After cleaning the photographed operations data, a total of 2,385 operations were included in the general aviation baseline sample (see *Table 4.11* on following page). This total was extrapolated to create a 12-month total, resulting in 10,747 operations. A 10% missing modifier was then applied. This resulted in a final general aviation baseline total of 11,822. These values serve as the base for all other calculations in the forecast. Additional operations, including those for commercial service, ULA, additional rotorcraft, and aerial fire fighting, were added to this total, as detailed later in this chapter.

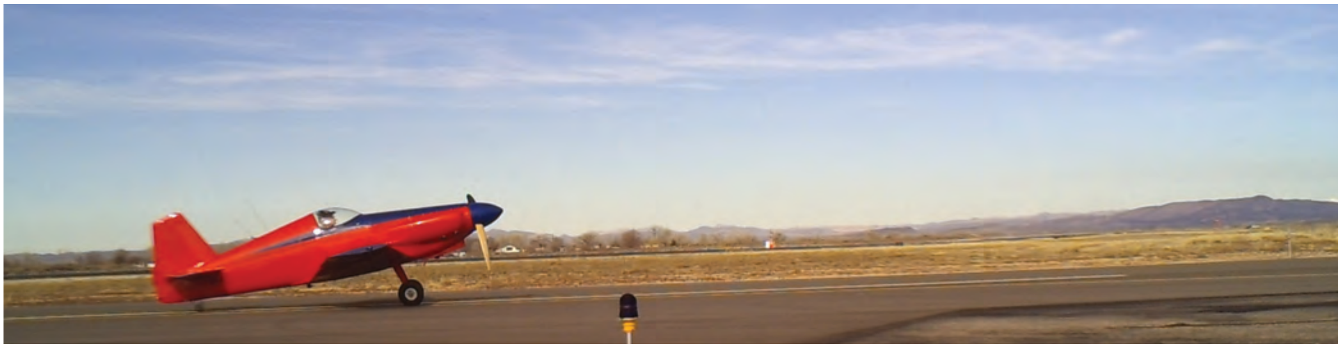
Figure 4.17 Camera on Frangible Stand by Signage

TABLE 4.11 MOTION ACTIVATED CAMERA OPERATION DATA AT CDC

Cedar City Regional Airport	Start Date:	3/13/2015	End Date:	9/4/2015
Period of Observation	Days:	176	Year:	48%
Days of Data Recorded	Data Days:	81	Data Year:	22%

	Unique Aircraft	Operations	Percentage	Average #/Day	Extrapolate to 365 Days	*Missing Modifier*	Estimated Annual Total
TOTAL	**354**	**2,385**	*100%*	29.4	10,747	*+10%*	**11,822**
Operations by Origin							
Local	*24*	265	*11%*	3.3	1,194	*+10%*	**1,314**
Transient	*327*	1,523	*64%*	18.8	6,863	*+10%*	**7,549**
Military	*1*	8	*0%*	0.1	36	*+10%*	**40**
Unknown	*2*	589	*25%*	7.3	2,654	*+10%*	**2,920**
Operations by Forecasting Type							
Single Engine Piston	*167*	1,417	*59%*	17.5	6,385	*+10%*	**7,024**
Multi-Engine Piston	*22*	49	*2%*	0.6	221	*+10%*	**243**
Turbo Prop	*57*	471	*20%*	5.8	2,122	*+10%*	**2,335**
Turbo Jet	*90*	396	*17%*	4.9	1,784	*+10%*	**1,963**
Rotorcraft	*0*	0	*0%*	0.0	0	-	**0**
Experimental	*14*	37	*2%*	0.5	167	*+10%*	**183**
Sport Aircraft	*4*	15	*1%*	0.2	68	*+10%*	**74**
Operations by ARC Code							
A-I	*198*	1,518	*64%*	18.7	6,840	*+10%*	**7,524**
A-II	*16*	134	*6%*	1.7	604	*+10%*	**664**
B-I	*35*	261	*11%*	3.2	1,176	*+10%*	**1,294**
B-II	*45*	165	*7%*	2.0	744	*+10%*	**818**
B-III	*1*	2	*0%*	0.0	9	*+10%*	**10**
C-I	*3*	10	*0%*	0.1	45	*+10%*	**50**
C-II	*53*	281	*12%*	3.5	1,266	*+10%*	**1,393**
C-III	*2*	6	*0%*	0.1	27	*+10%*	**30**
C-IV	*1*	8	*0%*	0.1	36	*+10%*	**40**
Operations by Day							
Sunday	-	229	*10%*	19.8	1,032	*+10%*	**1,135**
Monday	-	340	*14%*	29.4	1,532	*+10%*	**1,685**
Tuesday	-	422	*18%*	36.5	1,902	*+10%*	**2,092**
Wednesday	-	354	*15%*	30.6	1,595	*+10%*	**1,755**
Thursday	-	404	*17%*	34.9	1,820	*+10%*	**2,003**
Friday	-	390	*16%*	33.7	1,757	*+10%*	**1,933**
Saturday	-	246	*10%*	21.3	1,109	*+10%*	**1,219**
Operations by Time							
4:00-7:59 AM	-	333	*14%*	4.1	1,501	*+10%*	**1,651**
8:00-11:59 AM	-	950	*40%*	11.7	4,281	*+10%*	**4,709**
12:00-3:59 PM	-	548	*23%*	6.8	2,469	*+10%*	**2,716**
4:00-7:59 PM	-	490	*21%*	6.0	2,208	*+10%*	**2,429**
8:00-11:59 PM	-	54	*2%*	0.7	243	*+10%*	**268**

Following are multiple pages with photographs of an assortment of aircraft that operated at CDC during the Master Plan. A variety of different aircraft, ranging from small experimental aircraft to large turbo jets, were captured. The pictures show a sampling of the aircraft, and assist the planning process by providing data on existing fleet mix and aircraft operation patterns. In addition to capturing aircraft traffic, the cameras also photographed a number of everyday activities, such as maintenance vehicles and non-aircraft incursions, on the airport grounds. Many of these non-aircraft vehicles, such as Snow Removal Equipment (SRE) and mowers, are critical to the successful operation and safety of the airport.



Single Engine Piston (A-I)

Single Engine Piston (A-I)

Multi-Engine Turbo Piston (A-I)

Single Engine Piston (A-I)

Single Engine Piston (A-I)


Single Engine Piston (A-I)


Single Engine Piston (A-I)


Single Engine Piston (A-I)


Single Engine Turbo Prop (A-II)


Twin Engine Piston (A-I)

Multi-engine Turbo Prop (B-I)

Single Engine Piston (A-I)

Single Engine Turbo Prop (A-II)

Multi-Engine Turbo Prop (A-II)

Multi-Engine Turbo Prop (B-I)

Multi-Engine Turbo Jet (A-I)

Multi-Engine Turbo Jet (B-II)

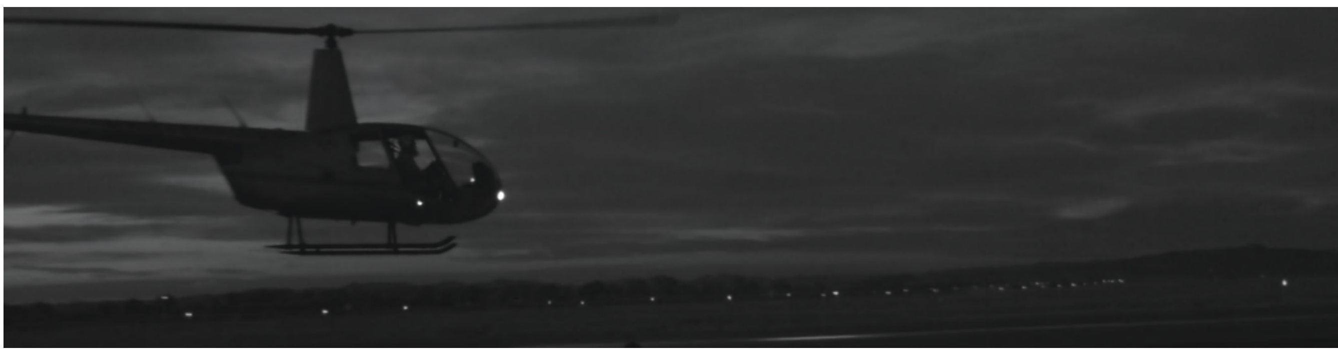
Multi-Engine Turbo Prop (B-III)


Multi-Engine Turbo Prop (B-II)

Multi-Engine Turbo Jet (C-II)

Multi-Engine Turbo Jet (C-IV)

Multi-Engine Turbo Jet (B-III)



Rotorcraft

Military Rotorcraft

Rotorcraft

Fire Fighting Rotorcraft

Rotorcraft

Fuel Truck

Aircraft Tow

Service Vehicle

CIVIL AIR PATROL

An interview was conducted with Air Force Commander Lieutenant Colonel Loren Barney regarding the Cedar Mustangs Squadron Civil Air Patrol. The Mustangs use CDC intermittently, averaging only a few operations per month, and do not currently have an aircraft based at the airport. The long term use of CDC by the Mustangs is essentially insubstantial for this forecast and the facilities are sufficient for their needs.

FEDEX

An Operations Manager for FedEx in southern Utah was interviewed regarding the future plans for FedEx at CDC. Currently, FedEx uses multiple Cessna 208Bs at the airport, which average two operations per day (land one plane inbound and launch one plane outbound). The company predicted that within 10 years an additional two operations per day, relying on the same type of aircraft, will be added. The existing runway and taxiway facilities meet the current and long term plans of FedEx. FedEx was unable to provide annual cargo volumes. The FedEx flights were accounted for within the general aviation photographed operations.

SOUTHERN UTAH UNIVERSITY (SUU) ATHLETICS

Multiple interviews were conducted with SUU Athletics staff regarding their past and planned charter operations at CDC. SUU Athletics charters large aircraft to transport their football team to games. In the past, they have chartered with Allegiant and Swift Air. The number of operations varies per year, and increases if the football team advances to the playoffs and finals. The high end annual number of potential operations by SUU Athletics is 30. The most recent charter operations have been with Allegiant using a Boeing 757 (a twinjet that is an ARC C-IV aircraft).

SYBERJET

Chuck Taylor, President of SyberJet Aircraft, provided details on the company's long term planned use of CDC. From an operational perspective, the impending release of the company's SJ30 will have minimal impact. The jet's ARC is B-I, with a wingspan of 42 feet 4 inches and an approach speed of 120 knots. CDC easily accommodates the jet's smaller size and high performance capabilities. Each SJ30 that rolls off the production line will require a minimum number of testing operations. A letter provided by SyberJet (Appendix C) estimates no more than 200 operations per month (2,400 annually) once full production begins. Overall, these operations will have a minimal impact on the overall capacity and demand of CDC.

Figure 4.18 SyberJet SJ30

UPPER LIMIT AVIATION

Upper Limit Aviation (ULA) provided historical operation counts, shown to the right. The operations were split between their fixed-wing fleet, which is comprised of a Cessna 150, Cessna 172, and Tecnam P2006T, and their rotorcraft fleet. The company was unable to provide a forecast of their future operations.

The ULA rotorcraft and fixed-wing operations that were captured were removed and excluded from the camera sampling procedure. To best address the future operations of the company, the average of the historical rotocraft and fixed-wing data was used and assumed to remain flat throughout the planning period.

TABLE 4.12 UPPER LIMIT AVIATION OPERATIONS

Year	Rotorcraft Operations	Fixed Wing Operations
2014	50,513	1,419
2015	51,019	5,031
Average of 2014 and 2015	***50,766***	***3,225***

Figure 4.19 ULA Rotorcraft

AERIAL FIREFIGHTING

The Bureau of Land Management (BLM) is responsible for all Single Engine Airtanker (SEAT) fire fighting efforts out of CDC. The only SEAT recently deployed from CDC was the Air Tractor AT-802A. The US Forest Service (USFS) contracts with multiple private companies that operate large air tankers (LAT). The current LAT fleet has included P2V, MD-87, C-130, BAe-146, and RJ-85 aircraft.

For the purposes of this forecast, interviews were conducted with federal staff from the BLM and USFS, and employees of the private companies Tanker 10, Neptune Aviation, Aero Air, Air Spray, Erickson, Aero Flite, and Colson Aviation. These companies are scattered across the western US and each contracts with the USFS to perform aerial firefighting. Letters and correspondence from these interviews are included in Appendix C..

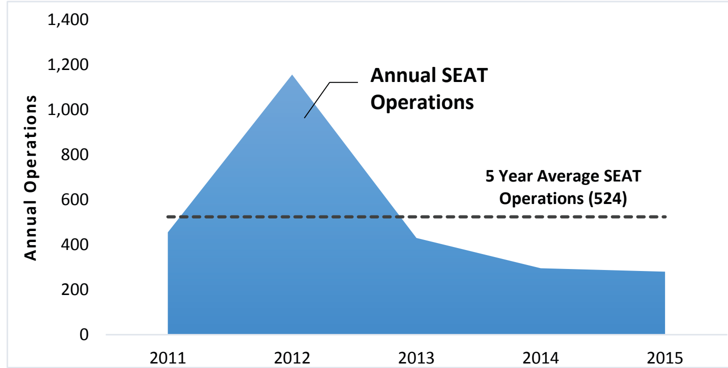
TABLE 4.13 AVIATION OPERATIONS

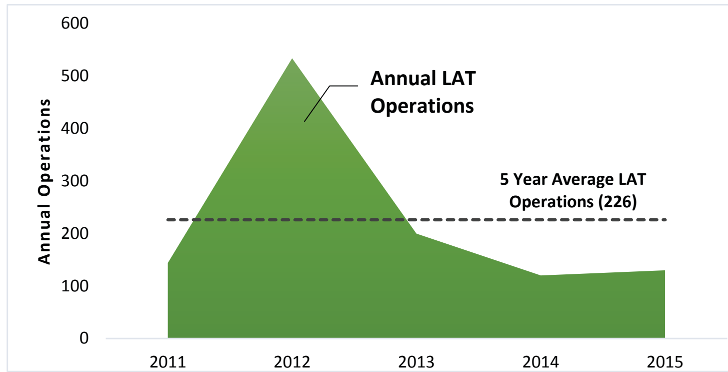
Year	SEAT Operations	LAT Operations	Retardant Gallons
2011	456	144	323,333
2012	1158	534	921,201
2013	430	200	353,142
2014	296	120	261,951
2015	280	130	249,397
5 Year Average	***524***	***226***	***421,805***

The historical number of SEAT and LAT operations and gallons of retardant used at CDC were provided by staff from the on-site interagency tanker base. Over the past five years, 2012 was the busiest fire season for CDC by a large margin. The average of all five years for LAT and SEAT operations was used for forecasting purposes. This five year span included a wide range of activity, from the peak in 2012 to the trough in 2015. As fire fighting is an unpredictable business, an average of this period served as the most realistic base for future operations.

All future SEAT operations are assumed to be by AT-802A aircraft (ARC B-II). The aircraft used in the LAT fleet vary widely, depending on many national factors. The pavements at CDC are unable to accommodate the DC-10 air tanker fleet, which can operate around 400,000 pounds when fully loaded. The BAe-146 (ARC B-III), Avro RJ-85 (ARC B-III), MD-87 (ARC C-III) and C-130 (ARC C-IV) could all feasibly be called to fight fires from CDC in the future. As such, all forecasted LAT operations are presumed to be by ARC C-IV turbo jets, to safely accommodate the most demanding potential aircraft.

Figure 4.20 Firefighting Averages





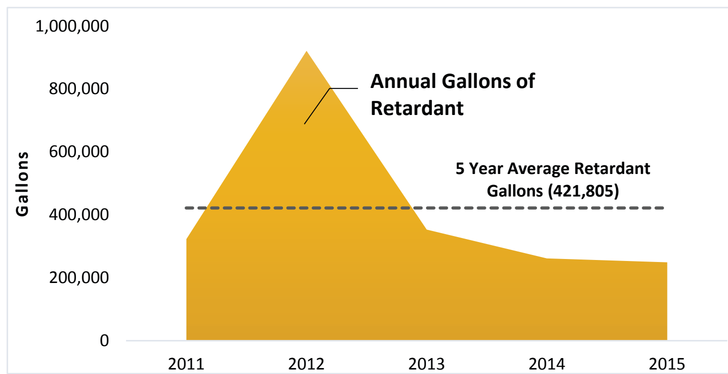


Figure 4.21 BAe-146 Fire Fighting Aircraft

4.7 COMMERCIAL SERVICE FORECAST

Forecast, Inc., a recognized national forecasting firm based in Colorado, was contracted by GDA Engineers to contribute data and narrative for the commercial service forecast. Forecast, Inc. provided the lion's share of this section. Supplemental data was provided by GDA Engineers.

Forecast, Inc. has leveraged the most recently available data to provide information, and insights into Cedar City's airline service, historic enplanements, and to develop projected enplanement trends. In addition, Forecast, Inc. has leveraged these data sources to identify air service opportunities, in accordance with industry standard practice for such exercises. The data sources used were:

- USDOT DB1B O&D Survey: Data through 2nd Quarter of 2015
- USDOT T-100 Data: Data through 3rd Quarter of 2015
- OAG Schedule Data: Data through December 2016
- GOMB Population Projections: Data through April 2014
- IATA Air Passenger Forecast: Dated November 2015
- OECD: Publication Dated 2015

ENPLANEMENTS

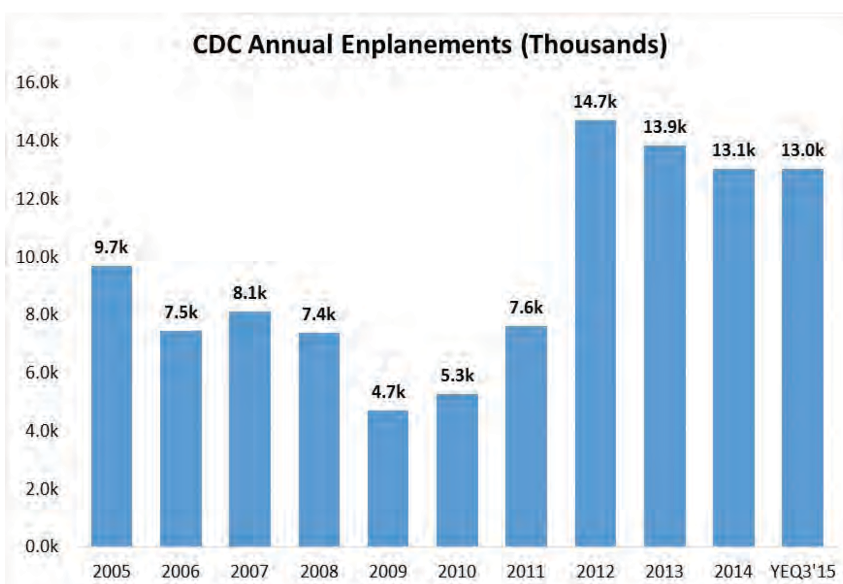
For the most recently available USDOT T-100 Data, for the period year end third quarter 2015, CDC total enplanements were approximately 13,000 annually. This represents an approximate 35% increase versus the period 10 years prior (calendar year 2005), or the equivalent of a Compound Annual Growth Rate (CAGR) of 3.0%.

Throughout the period from 2005 through 2009, CDC enplanements progressively declined. From 2005 through 2009, CDC enplanements declined from approximately 9,700 to 4,700, or the equivalent of 52%. In 2010, enplanements began to rebound and increased from 2009 levels by 600, or the equivalent of 12%. This trend continued in both 2011 and 2012. In 2012, CDC enplanements reached 14,700, peak levels for this period. This was a dramatic increase, over 200%, since the enplanement levels hit the bottom in 2009.

Despite growth from the period of 2010 through 2012, CDC enplanement trends reversed their trajectory in 2013. For each of the following periods, CDC enplanements have declined. From year end 2012 through year end third quarter 2015, passenger levels declined by 1,700 passengers. This is equivalent to a cumulative decline of 11%, or a CAGR of 3.8%.

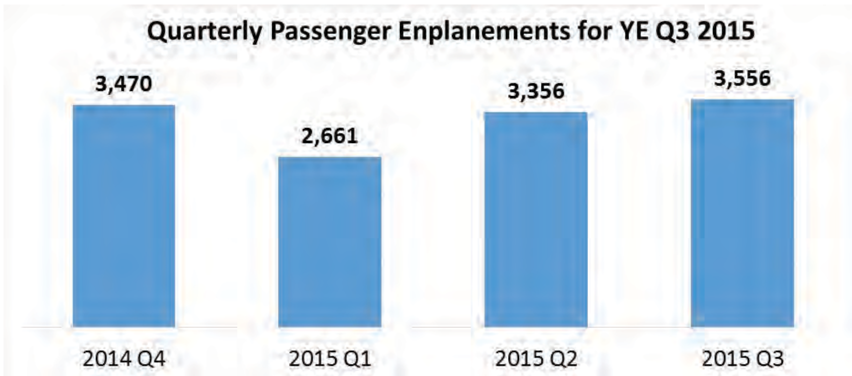
The passenger enplanement trend for CDC is captured on the graph to the right. This graph depicts annual enplanement values based on USDOT T-100 Data.

Figure 4.22 CDC Historical Passenger Enplanements



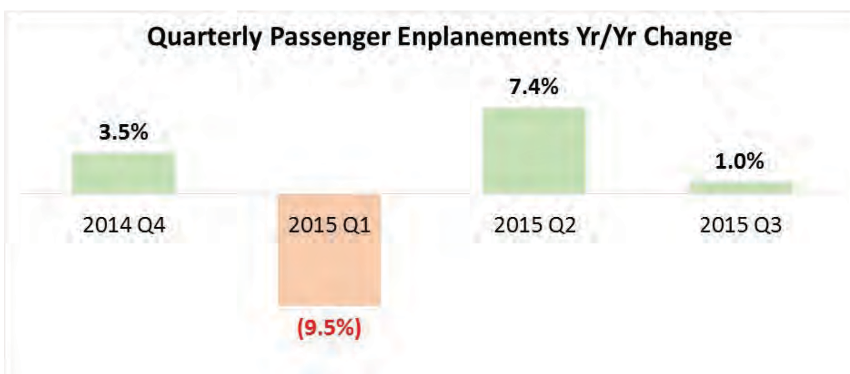
For the period year end September 2015, CDC enplanements totaled approximately 13,000 passengers. For each of the quarters during this period, the third quarter represents the most considerable volume of traffic, at just under 3,600 passengers for that period. This represents 27% of the annual traffic, or 9% above the quarterly average. Quarterly detail for the last 12 months of data are provided below, based on USDOT T-100 Data.

Figure 4.23 CDC Quarterly Passenger Enplanements



For the period 2012 through 2014, CDC continued to see material passenger declines, as outlined in the preceding section. In 2015, however, enplanements appeared to begin rebounding in a more positive direction. In the first quarter of 2015, passenger numbers declined by 9.5% year over year. However, gains were made on a year over year basis in both the 2nd and 3rd quarters of 2015. In the 2nd quarter of 2015, passenger numbers grew considerably, up 7.4% versus 2014. Passenger number improvements were less significant in the 3rd quarter of 2015, but positive nonetheless, improving 1.0% versus 2014 levels. Year over year enplanement detail for the most recent four quarters is outlined below.

Figure 4.24 CDC Quarterly Passenger Enplanements - % Change



PASSENGER DESTINATION COMPOSITION

Per the USDOT DB1B O&D survey, the composition of CDC traffic can be identified. For the most recent period, Salt Lake City is the top destination for passengers to/from Cedar City. This is expected provided that Salt Lake City (SLC) is the only market served on a non-stop basis from CDC. For the most recent period available (Year End 2nd Quarter 2015), approximately 39% of passengers to/from Cedar City were either traveling to or originating in Salt Lake City.

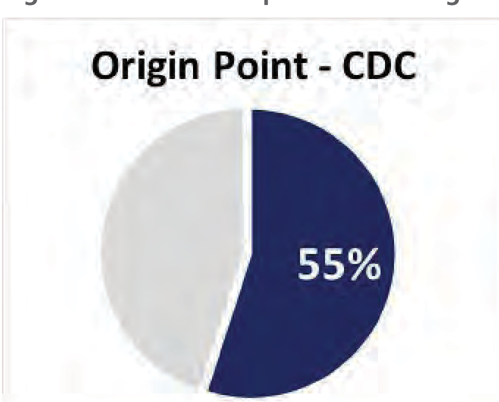
Outside of Salt Lake City, other top passenger markets from Cedar City include several markets in the Pacific Northwest. The 2nd (Seattle, WA), 3rd (Portland, OR), and 4th (Boise, ID), largest markets are all in the Pacific Northwest region. Other notable markets from CDC include several markets in California, such as Los Angeles, San Francisco, San Jose, and Sacramento. In addition, several mid-continent hubs, Dallas and Denver, are relatively large markets from Cedar City. Detailed passenger metrics by destination are provided below.

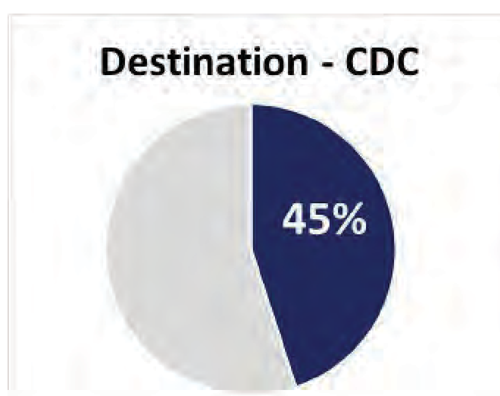
TABLE 4.14 PASSENGERS EACH WAY PER DAY FOR CEDAR CITY (CDC)

Rank	Destination	2014 Q3	2014 Q4	2015 Q1	2015 Q2	Average	% of Total
1	Salt Lake City	15.6	14.7	12.9	13.5	14.2	39%
2	Seattle	0.9	1.5	1.1	2.1	1.4	4%
3	Portland	1.3	0.9	1.3	1.7	1.3	4%
4	Boise	1.1	0.9	1.0	0.8	1.0	3%
5	Los Angeles	1.0	0.8	0.6	1.2	0.9	3%
6	San Francisco	0.7	0.8	0.8	1.0	0.8	2%
7	Dallas / Ft. Worth	0.7	0.9	0.4	1.0	0.8	2%
8	Denver	0.2	1.4	0.5	0.9	0.8	2%
9	Sacramento	1.2	0.3	0.4	0.9	0.7	2%
10	San Jose	0.9	1.0	0.4	0.5	0.7	2%

From the same data-set, the composition of origin and destination traffic to/from CDC was identified. The data indicates that CDC is slightly more of an origin versus destination market. For the most recent period, year end 2nd quarter 2015, approximately 55% of traffic was "point of origin" for CDC, versus 45% "point of destination."

Figure 4.25 CDC Composition of Origin and Destination Traffic





COMPARATIVE STATISTICS

From the period 2005 through 2015, there has been variability in the level of enplanements at CDC, particularly influenced by fluctuating levels of capacity.

For longer term trends, CDC enplanement growth has considerably outperformed both national and state averages. Since 2005, CDC enplanements have grown nearly 35%, whereas Utah total enplanements declined by nearly 3% and national enplanements only grew by approximately 3%.

In the most recent period, the year-end third quarter of 2015, CDC enplanements showed modest enplanement growth of 0.8%. This was below national averages for enplanements by approximately 3.1 points, with total domestic enplanements for all US airports growing by 3.9%. CDC enplanement growth did trail all other Utah airports, with the exception of Vernal and Moab, which lost air service in 2015, by a more substantial margin. As a whole, enplanements in the State of Utah grew at 4.5%, which considerably outpaced CDC growth. Detailed comparison charts are provided below based on USDOT T-100 Data.

TABLE 4.15 UTAH ENPLANEMENT DETAIL (YE Q3 2015)

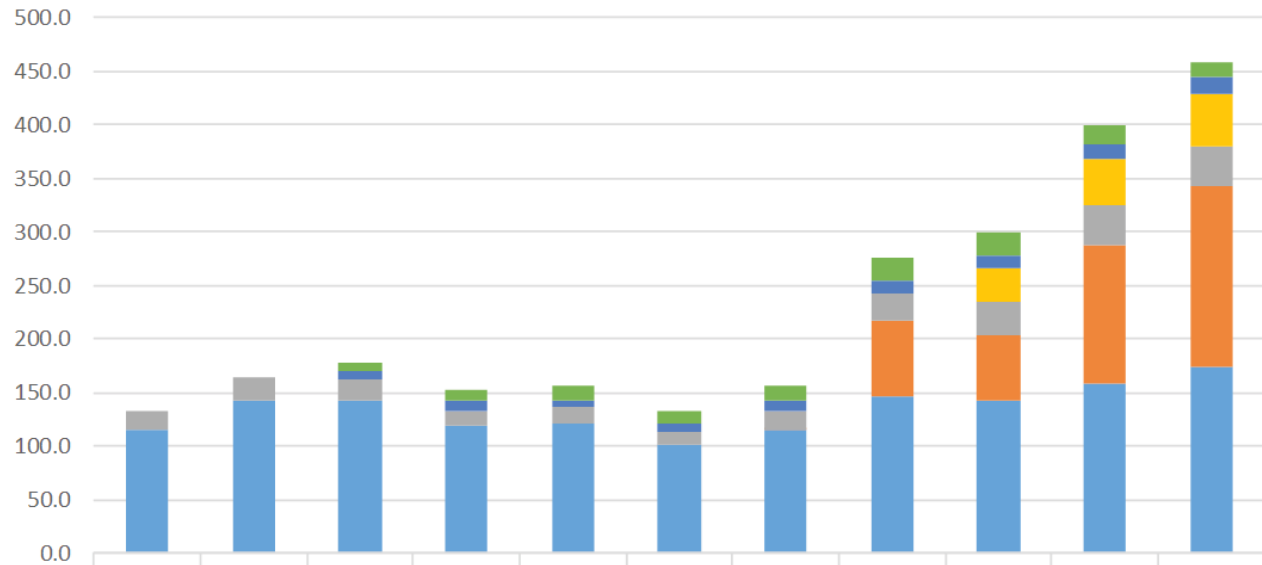
Rank	Airport Code	City	Enplanements	Yr/Yr Change	Load Factor
1	SLC	Salt Lake City	10,394,585	4.5%	86.0%
2	SGU	St. George	65,937	13.0%	71.4%
3	PVU	Provo	61,606	15.3%	86.6%
4	CDC	Cedar City	13,042	0.8%	42.0%
5	OGD	Ogden	15,581	4.7%	87.1%
-	CNY	Moab	3,926	Suspended	36.3%
-	VEL	Vernal	2,640	Suspended	24.9%
-	**-**	**All Utah Airports**	**12,493,376**	**4.5%**	**86.0%**

TABLE 4.16 ENPLANEMENT CHANGE

Origin YE Q3 2015 Yr/Yr	Cedar City +0.8%	Utah +4.5%	US +3.9%
3 Years	(11.3%)	+8.8%	+6.0%
5 Years	+147.8%	+4.8%	+7.8%
10 Years	+34.7%	(2.8%)	+2.9%

Despite an increase in its own traffic of more than 108%, O&D data suggest that CDC has seen its share of regional traffic in Utah decrease from 13.2% to 8.0%. This is due in large part to increases in service at other regional airports. Specifically, Allegiant's entry into the Provo and Ogden markets accounts for two-thirds of the total difference in O&D from regional airports in Utah in 2015 versus 2005.

Figure 4.26 Daily Regional O&D Generation



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
VEL			7.9	10.7	14.0	12.5	14.7	20.9	21.0	18.4	12.6
CNY			7.7	8.3	6.7	7.2	9.7	12.7	11.1	14.1	16.6
OGD									31.8	43.1	48.3
CDC	17.5	21.4	19.1	13.8	15.7	12.1	16.4	24.6	31.1	35.6	36.4
PVU							1.2	71.4	60.5	129.6	170.0
SGU	114.8	142.5	143.2	120.3	120.5	101.3	115.2	146.4	143.6	159.0	173.6

AIRLINE OVERVIEW

Since 2005, CDC has seen considerable variability in the air service portfolio for a regional airport. The airport has been served by two airlines, SkyWest Airlines (operated on behalf of Delta), and Air Midwest (operating on behalf of America West/ US Airways). Further detail on air service history and current schedules are included as part of this section.

Air Service History

Through May 2006, SkyWest Airlines operated into CDC with Embraer 120 equipment. SkyWest Airlines operated as a Delta Connection, and provided connections throughout Delta's global network beyond their hub in Salt Lake City. The Embraer 120 is a turbo-prop aircraft configured for 30 seats. When service by SkyWest was suspended in May 2006, the service was operating thrice daily on peak days.

In May of 2006, Air Midwest, operating on behalf of America West, took over the Essential Air Service (EAS) contract into CDC. Service on Air Midwest was operated with 19-seat Beech 1900D equipment. When Air Midwest began flights from Cedar City, non-stop service was provided to both Salt Lake City and Las Vegas. Service to Salt Lake City was ultimately re-allocated to Phoenix in March of 2007. During their service, flights to/from Cedar City were often scheduled to have stops in Ely, Nevada or Farmington, New Mexico.

In January 2008, SkyWest Airlines replaced Air Midwest as the carrier and re-entered the market following award of the EAS contract. SkyWest initially began service with Embraer 120 aircraft, the same equipment type previously operated into CDC. Ultimately, in June 2012, SkyWest retired the Embraer 120 aircraft type. Consequently, SkyWest upgraded their flights into CDC onto a Canadair CRJ-200 50-seat regional jet aircraft operating with 13 departures per week. This pattern of service has continued through March 2016.

Historic capacity trends are provided in *Figures 4.25* and *4.26* from OAG schedule data.

Figure 4.27 Weekly Flights in Cedar City

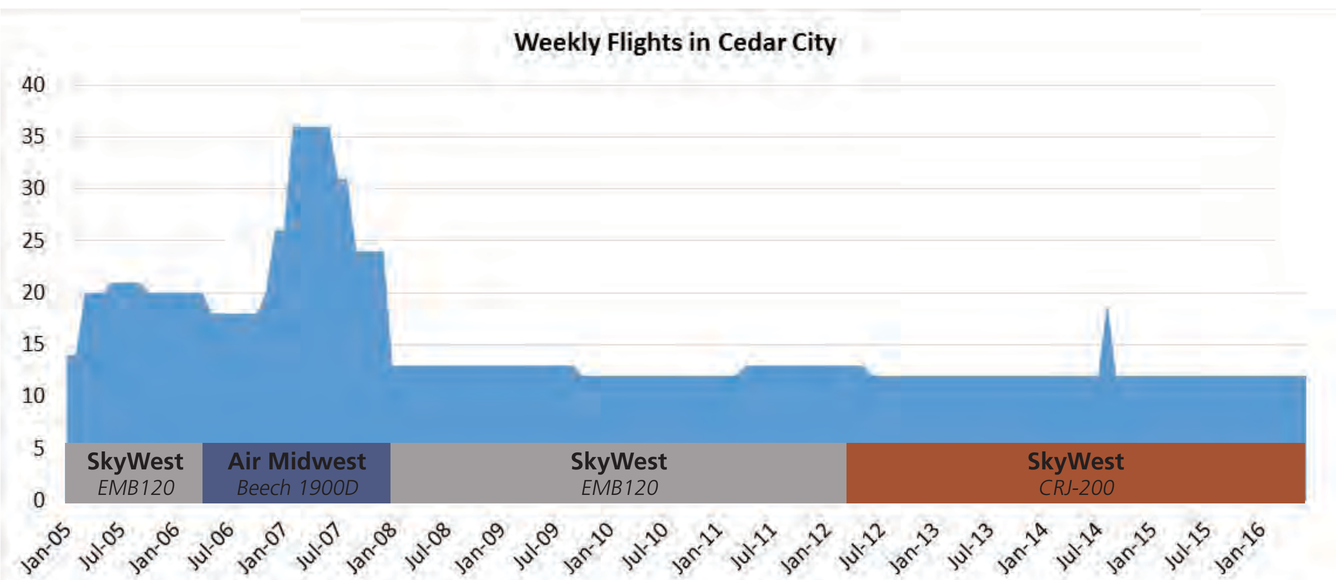
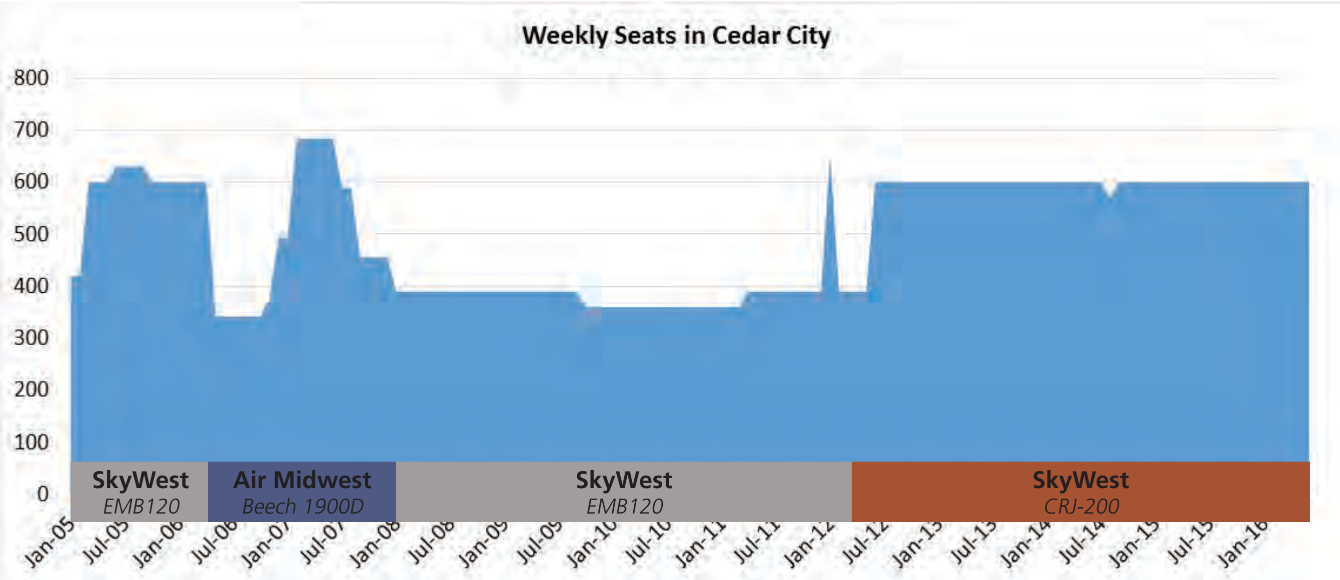


Figure 4.28 Weekly Seats in Cedar City



The following is a route map depicting markets that were served on a non-stop basis from January 2005 through March 2016 from CDC.

Figure 4.29 CDC Route Map

The following graphic provides a more granular timeline of variations in service at CDC from January 2005 through June 2016 (scheduled). Shaded areas indicate periods of service for SkyWest and Air Midwest.

Figure 4.30 Air Service Timeline (January 2005 - June 2016)

Airline	SkyWest		Air Midwest				
Destination	SLC		ELY	FMN	LAS	PHX	SLC
A/C Type	*EMB120*	*CRJ200*			*B1900*		
Q105							
Q205							
Q305							
Q405							
Q106							
Q206							
Q306	*May06*				*May 06*		*May 06*
Q406			*Nov 06*				
Q107				*Feb 07*		*Mar 07*	*Feb 07*
Q207							
Q307				*Sep 07*			
Q407							
Q108	*Jan 08*		*Jan 08*		*Jan 08*	*Jan 08*	
Q208							
Q308							
Q408							
Q109							
Q209							
Q309							
Q409							
Q110							
Q210							
Q310							
Q410							
Q111							
Q211							
Q311							
Q411							
Q112							
Q212	*Jun 12*	*Jun 12*					
Q312							
Q412							
Q113							
Q213							
Q313							
Q413							
Q114							
Q214							
Q314							
Q414							
Q115							
Q215							
Q315							
Q415							

Current Schedule (As of March 2016)
SkyWest Airlines currently operates 12 weekly flights between Salt Lake City and Cedar City. All flights are operated by 50 seat CRJ-200 regional jet equipment. While SkyWest is the operating carrier, flights are marketed and branded as Delta Air Lines. Because Delta is the primary marketing carrier, all flights carry the two-letter DL code.

SkyWest operates two frequencies on peak days in both directions (all days except Saturday and Sunday). These flights both operate as scheduled turns in Cedar City, meaning neither frequency overnights at the airport. One flight operates in the morning, leaving Salt Lake City in the 0800 hour and returning in the 0900 hour. The second frequency operates in the evening, leaving Salt Lake City in the 1700 hour and returning to SLC in the 1800 hour. The morning frequency does not operate on Saturday in either direction.

The below tables detail the current schedule that SkyWest is operating at CDC.

TABLE 4.17 SKYWEST SCHEDULE (CDC TO SLC)

Marketing Airline	Operating Airline	Origin	Destination	Flight	Aircraft	Seats	Departure	Arrival	Operating Days
Delta	SkyWest	CDC	SLC	7379	CRJ-200	50	0930	1030	ex. Sat/Sun
Delta	SkyWest	CDC	SLC	7379	CRJ-200	50	1145	1245	Sat Only
Delta	SkyWest	CDC	SLC	7380	CRJ-200	50	1815	1915	ex. Sat/Sun
Delta	SkyWest	CDC	SLC	7380	CRJ-200	50	1820	1920	Sun Only

TABLE 4.18 SKYWEST SCHEDULE (SLC TO CDC)

Marketing Airline	Operating Airline	Origin	Destination	Flight	Aircraft	Seats	Departure	Arrival	Operating Days
Delta	SkyWest	SLC	CDC	7379	CRJ-200	50	0820	0910	ex. Sat/Sun
Delta	SkyWest	SLC	CDC	7379	CRJ-200	50	0953	1043	Sat Only
Delta	SkyWest	SLC	CDC	7380	CRJ-200	50	1700	1750	ex. Sat

Given the status of CDC as an Essential Air Service facility, service patterns are generally fixed via a competitive bid process for a period of two years. SkyWest has recently transitioned all of its EAS flying to the CRJ-200, and the 50-seat jet comprises nearly half of SkyWest's current fleet. In some periods of history, other carriers have fulfilled the EAS obligation to the airport, and this is possible in the future. The CRJ-200 is currently the smallest aircraft in SkyWest's fleet – provided that SkyWest continues to maintain the EAS contract for CDC, it could be assumed that the aircraft used will likely have a minimum capacity of 50 seats given that a smaller type is not included in their fleet.

FORECAST METHODOLOGY

Forecast, Inc. has prepared an annual forecast of passenger enplanements in CDC for the planning period. The methodology leveraged, detailed below, is consistent with industry best practices for forecasting long-term passenger enplanements.

Potential new market opportunities have been identified based on a professional analysis of traffic, airline schedules, and airline network planning strategies. The list has been compiled based on this information coupled with Forecast, Inc.'s industry expertise in this field.

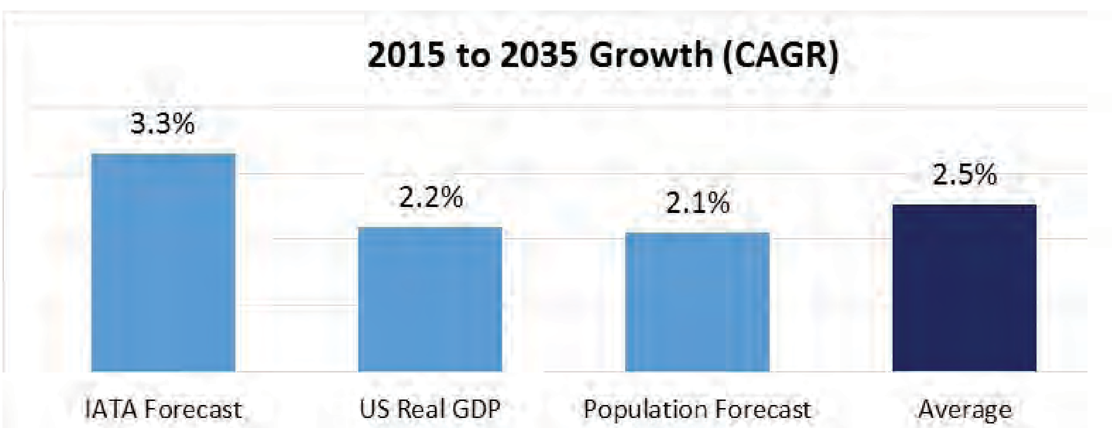
The baseline for the forecast for CDC enplanements is the most recently available USDOT T-100 Data, for the September 2015 12-month end period. Forecast, Inc. has estimated fourth quarter 2015 enplanements based on year to date trends in the CDC market.

From the 1st Quarter of 2016 and beyond, Forecast, Inc. has leveraged three variables to develop the passenger enplanement forecast. The three data sources for this include:

1. IATA Domestic US Passenger Forecast
2. US Real GDP Growth Forecast
3. Population Forecast of Cedar City

The value associated with each of the individual variables for the period is outlined below. The compound annual growth rate (CAGR) is the mean annual growth rate of an investment over a specified period of time (typically divided into years).

Figure 4.31 Population CAGR



The average CAGR of these three variables is equal to 2.5%. This represents the un-weighted average of each variable. Each is considered an important indicator and relevant to forecasted traffic growth for CDC enplanements. IATA's forecast for enplanements considerably outpaces the CAGR of either the US Real GDP forecast or the population forecast of Cedar City. These three data points allow insight into future economic activity of the local, national, and international marketplace – all of which will interact and ultimately determine Cedar City's own travel market.

COMMERCIAL ENPLANEMENT FORECAST

Forecast, Inc. evaluated relative ratios of each of the three indicators of enplanements. Based on recent history and consistent capacity at CDC, it appears that enplanements at CDC have considerably lagged US industry averages. This trend is forecasted to continue given the limited portfolio of capacity at CDC and the minimal likelihood this is expected to increase.

Based on most recent history, CDC enplanements have grown at a rate of approximately 30% the un-weighted average of passenger growth, US Real GDP growth, and population growth in Cedar City. This is to say, that if the weighted average of these variables equals 2.5%, the enplanement CAGR for CDC can be reasonably deduced to equal 0.75%.

Given the timeframe being forecasted, Forecast, Inc. has also provided an upper and lower bound of expected enplanement growth at CDC. The projected enplanement CAGR is forecasted at 0.75%. A conservative and reasonable lower bound would be to assume CAGR growth slows by 50% versus recent history, or the equivalent of a 0.38% CAGR. Alternatively, the projected population growth of 2.1% could be reasonably deduced as an upper CAGR for Cedar City. Details of the forecast are provided in the chart below by year.

TABLE 4.19 COMMERCIAL ENPLANEMENT FORECAST

Year	Low (0.38%)	Medium (0.75%)	High (2.1%)
2015	13,042	13,270	13,502
2016	13,092	13,369	13,785
2017	13,141	13,470	14,075
2018	13,191	13,571	14,370
2019	13,241	13,672	14,672
2020	13,292	13,775	14,980
2021	13,342	13,878	15,295
2022	13,393	13,982	15,616
2023	13,444	14,087	15,944
2024	13,495	14,193	16,279
2025	13,546	14,299	16,620
2026	13,598	14,407	16,969
2027	13,649	14,515	17,326
2028	13,701	14,623	17,690
2029	13,753	14,733	18,061
2030	13,805	14,844	18,440
2031	13,858	14,955	18,828
2032	13,911	15,067	19,223
2033	13,963	15,180	19,627
2034	14,017	15,294	20,039
2035	14,070	15,409	20,460
2036	14,123	15,525	20,503

FORECAST IMPACT ON LOAD FACTOR

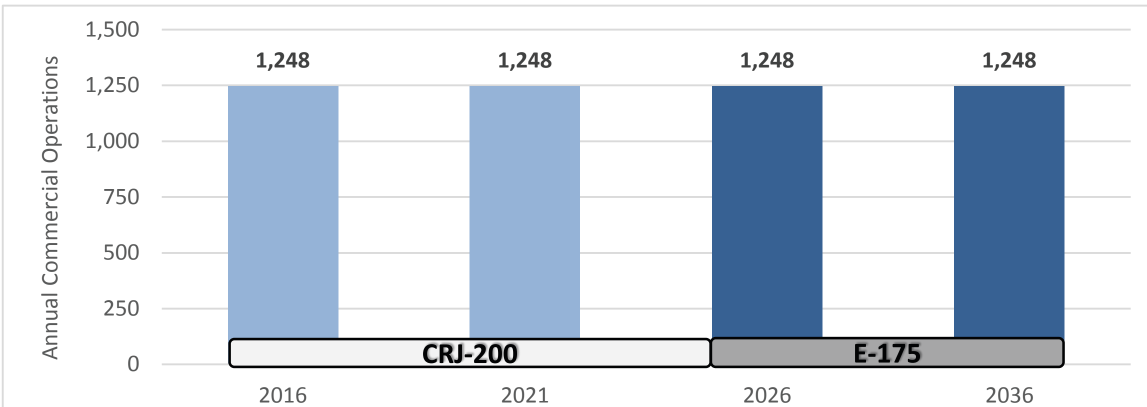
Given the various service patterns that have been used to service CDC, load factor has had terrific movement - generally in response to service initiation and maturity and schedule connectivity. Since 2005, load factor has ranged from a low of 25% to a high of 47%. Forecast, Inc. developed pro-forma load factors for each year in high/medium/low scenarios, assuming that CDC continues to be served by 50-seat aircraft at levels comparable to 2015. Ultimately, the medium forecast was selected as the most reasonable.

TABLE 4.20 COMMERCIAL OPERATIONS FORECAST			
Year	**Actual Load Factor**		
2005	33%		
2006	32%		
2007	31%		
2008	35%		
2009	25%		
2010	28%		
2011	38%		
2012	47%		
2013	43%		
2014	42%		
Year	**Low**	**Medium**	**High**
2015	41%	42%	43%
2016	41%	42%	44%
2017	42%	43%	44%
2018	42%	43%	45%
2019	42%	43%	46%
2020	42%	44%	47%
2021	42%	44%	48%
2022	42%	44%	49%
2023	42%	45%	50%
2024	43%	45%	51%
2025	43%	45%	53%
2026	43%	46%	54%
2027	43%	46%	55%
2028	43%	46%	56%
2029	43%	47%	57%
2030	44%	47%	58%
2031	44%	47%	60%
2032	44%	48%	61%
2033	44%	48%	62%
2034	44%	48%	63%
2035	44%	49%	65%

SKYWEST OPERATIONS

As previously noted, Skywest currently operates 50-seat CRJ-200, which is the smallest aircraft in their fleet. SkyWest serves as a Delta Connection, a feeder airline to major hubs, under a contract with Delta Airlines. In 2012, Delta announced that they would slowly transition all 50-seat regional jets out of their fleet in favor of larger 70- and 76-seat aircraft (E-175 and CRJ-900 respectively). Based on conversation with SkyWest staff familiar with CDC, this transition may take up to 10 years for Cedar City service. As such, the current CRJ-200 is forecasted to continue performing 24 weekly operations for the next 10 years. After which time, it is assumed the CRJ-200 will be replaced with a larger regional aircraft for the same number of operations (for the purposes of this forecast the wider E-175 was used). Unlike the enplanement forecast, the commercial operation does not factor in population growth, because the load factors for these flights could be doubled before demand for another flight would be feasibly warranted.

Figure 4.32 Commercial Service Operations



NEW MARKET OPPORTUNITIES

Given limited passenger volumes, the EAS designation, and the relative proximity to other major markets, CDC growth opportunities are forecasted to be fairly limited. That said, several opportunities do exist.

Denver, Colorado

Denver is the largest hub in the Mountain West and one of the top destination markets for Cedar City passengers (currently ranked 8th). As of January 2016, United Airlines operates 67% more flights and 60% more seats from their hub in Denver versus Delta's hub in Salt Lake City. In addition, SkyWest Airlines is also a significant regional carrier for United Airlines in Denver. Ultimately, Denver could be viewed as a complementary destination to the existing service in Salt Lake City.

Phoenix, Arizona

Phoenix is a hub for American Airlines (via the merger between American Airlines and US Airways) and has a history of service to CDC. American's hub in Phoenix has 57% more seats and 26% more flights versus Delta's hub in Salt Lake City. While not a top market from CDC, Phoenix is a more economical distance from Cedar City versus other surrounding hubs.

Los Angeles, California

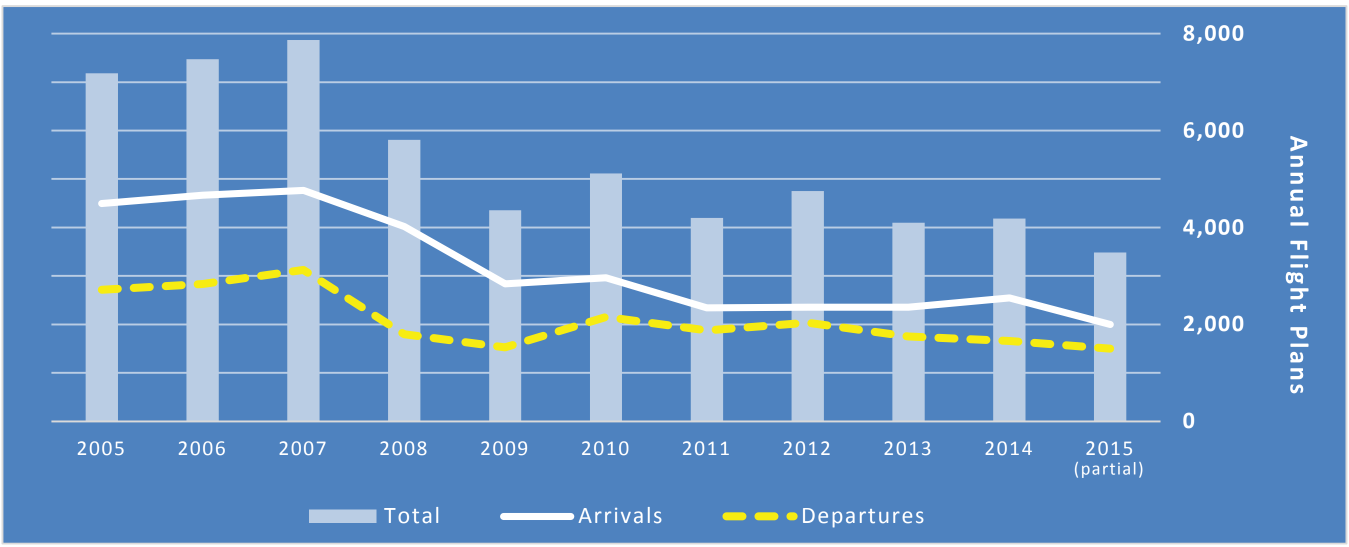
Los Angeles is a hub for all major network carriers in the United States, including American Airlines, Delta Air Lines, and United Airlines. In addition, SkyWest Airlines operates a substantial network from Los Angeles feeding each of those carriers. Additionally, Los Angeles is a relatively large O&D market from CDC, currently ranked 5th in terms of total O&D passengers. This makes Los Angeles the largest market from Cedar City not already served or not geographically located in the Pacific Northwest (which is an uneconomical distance from Cedar City).

4.8 INSTRUMENT OPERATIONS AND FILED FLIGHT PLANS

Historical instrument operations aid in determining instrument approach requirements and air traffic control facility needs, as well as market breakdown and forecast numbers. An instrument operation is defined as any operation wherein the pilot operates using published instrument procedures. Instrument operations can be used regardless of the weather conditions, but are far more common for general aviation aircraft during inclement weather. Typically, air taxi/charter operators conduct their operations almost exclusively as instrument operations. Each instrument operation has an associated flight plan filed indicating origin airport and destination airport.

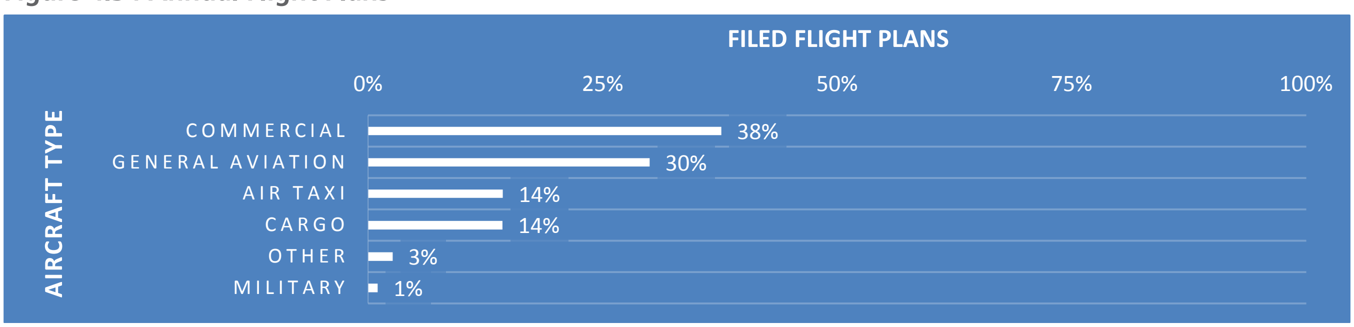
Over a ten year period, from 2005 through 2014, there were 58,515 flight plans filed for aircraft with Cedar City Regional Airport listed as the origin or destination. Plans that listed CDC as the origin and destination were counted twice. In 2007, there were 7,868 flight plans, the highest annual count for the period, meanwhile only 4,098 flight plans were filed in 2013, the lowest total. Typically each year, there are slightly more flight plans filed with CDC as the destination airport compared to plans listing CDC as the origin.

Figure 4.33 Annual Flight Plans



The breakdown of all flight plans during this time period, according to the aircraft activity type, is shown below. Approximately 38% of a flight plans were for commercial flights, followed by 30% for general aviation. The air taxi, cargo, other, and military activity types accounted for the remainder of the flight plans.

Figure 4.34 Annual Flight Plans



The following graph shows the most common originating airports for flight plans filed in 2015 (only partial data was available from the FAA, flight plans included below were filed from January 1st through October 21st) that listed Cedar City Regional Airport as the destination. Salt Lake International Airport, located in Salt Lake City, UT, was the most common origin airport by a substantial margin, in large part because of SkyWest's commercial flights. McCarran International Airport, in Las Vegas, NV, had the second most flight plans. The map below depicts all 225 origin airports in 2015 listed on filed flight plans

Figure 4.35 2015 Origin Airports

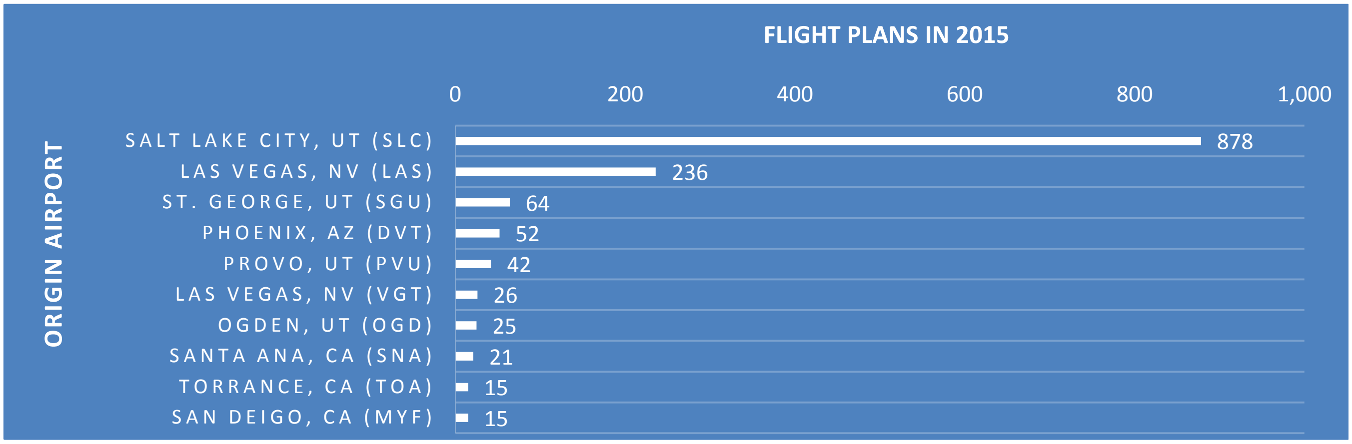
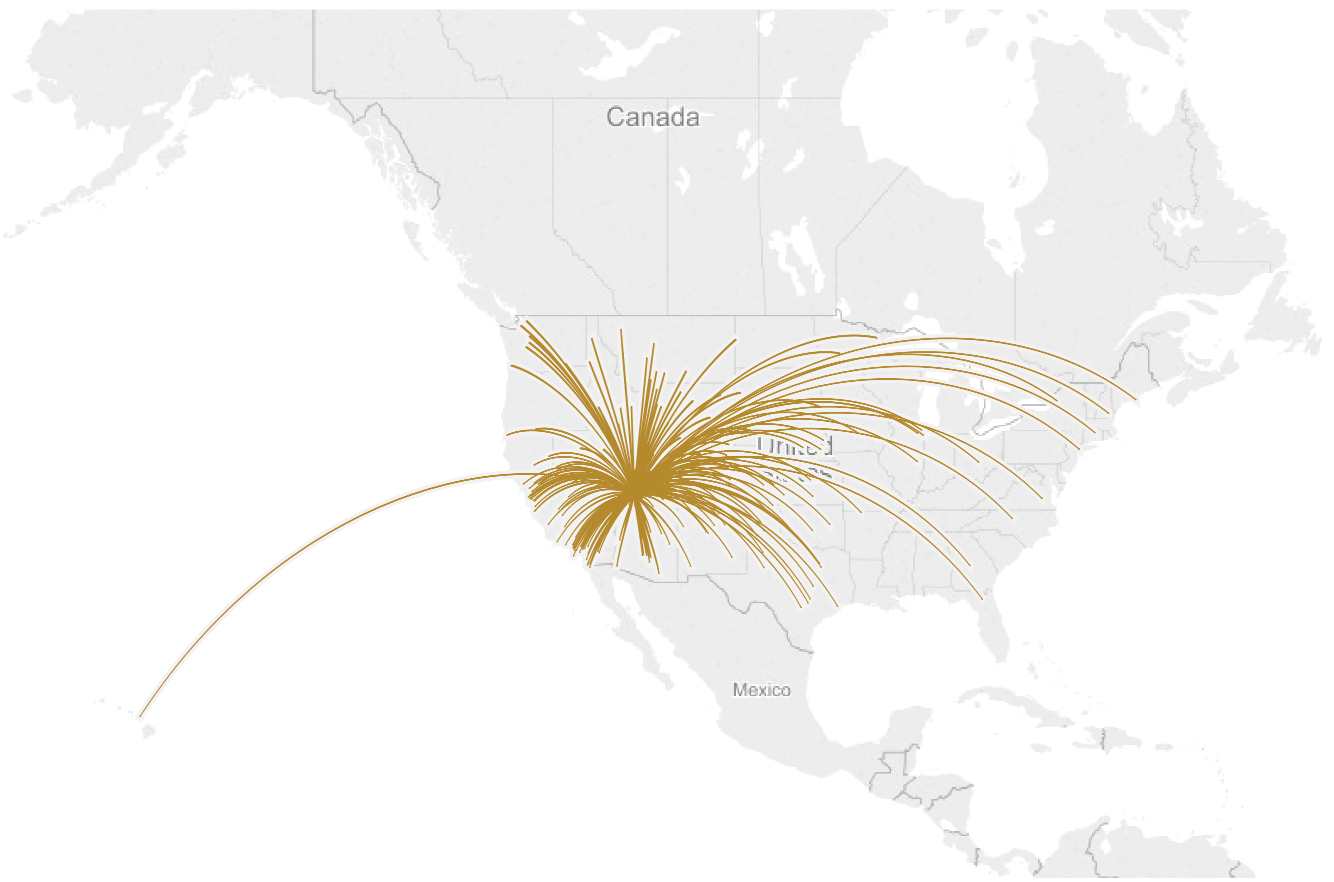


Figure 4.36 2015 Origin Airports Map



The top ten airports listed as the final destination from aircraft departing CDC in 2015 are shown below. Again, mainly due to SkyWest, Salt Lake City was far and away the most common destination. The map below depicts all 180 destination airports listed on filed flight plans in 2015.

Figure 4.37 2015 Destination Airports

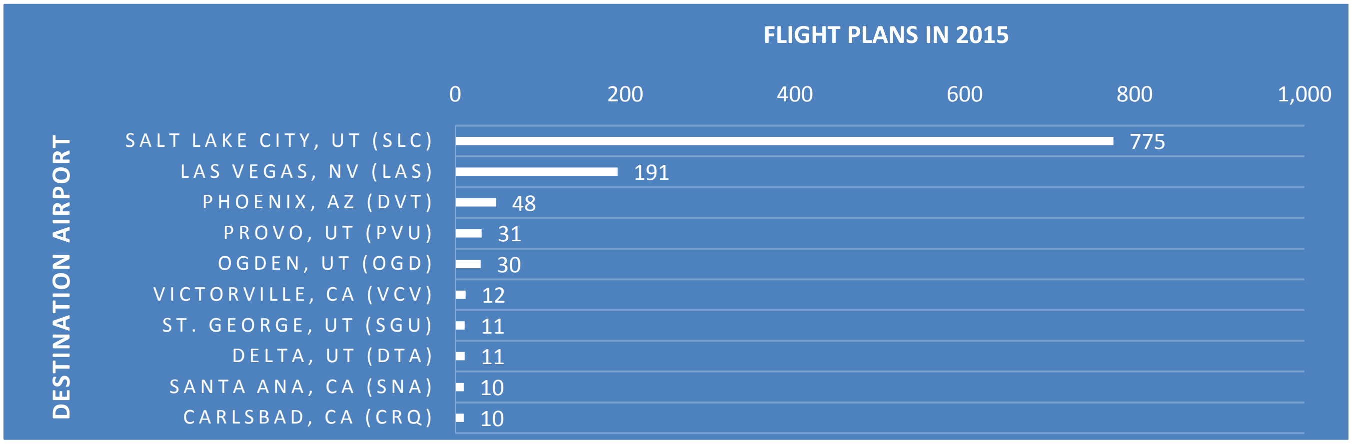
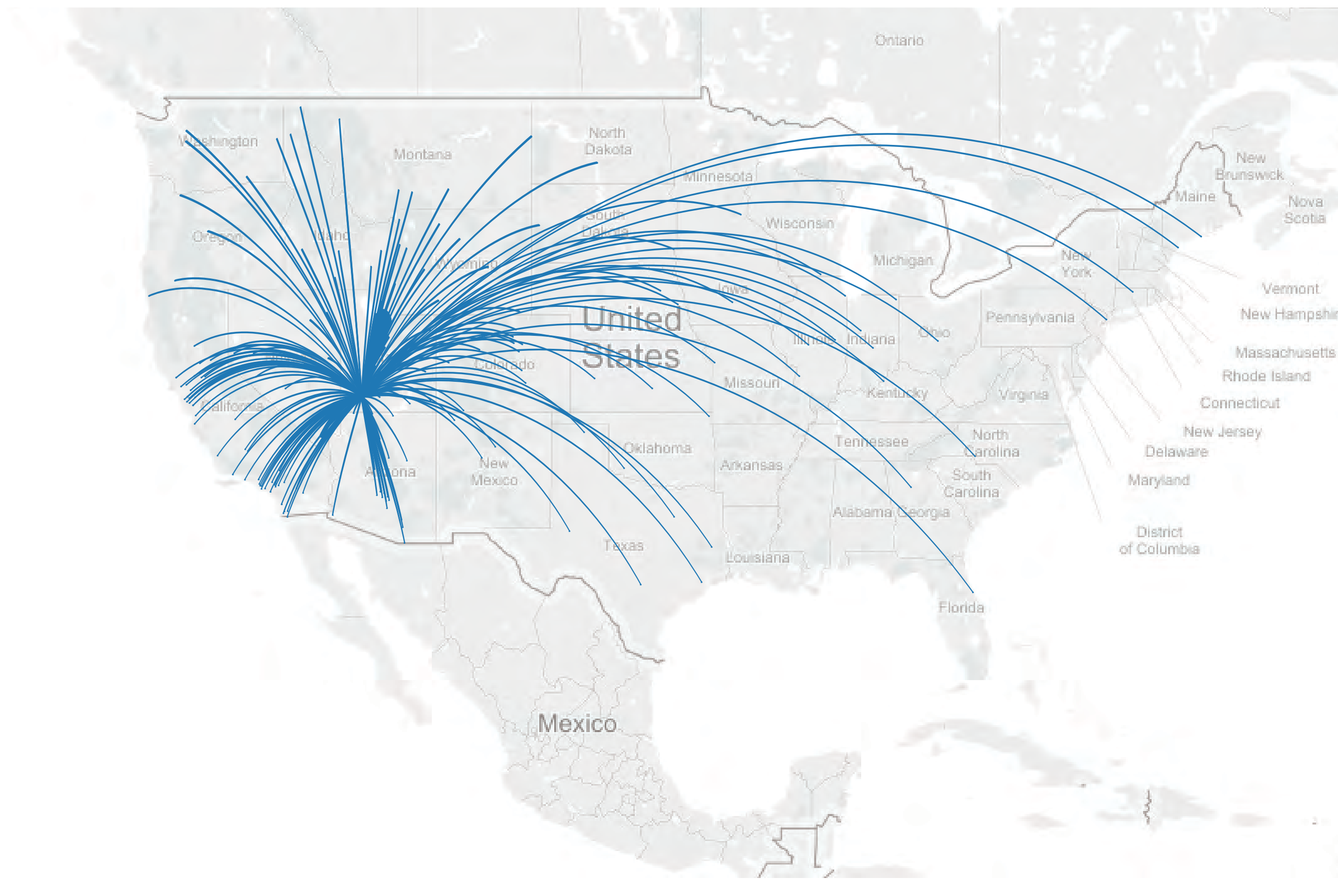


Figure 4.38 2015 Destination Airports Map



4.9 GROWTH RATES

The FAA Aerospace Forecast Fiscal Years 2016 - 2036 states that as the economy recovers, aviation will continue to grow over the long run. Although the European recession has dampened the near term prospects for general aviation, the long-term outlook remains favorable. The FAA predicts that business use of general aviation aircraft will expand at a faster pace than that for personal and recreational use.

The FAA uses estimates of fleet size, hours flown, and utilization from the General Aviation and Part 135 Activity Survey for historical reference and as baseline numbers. Based on the latest FAA assumptions about fleet attrition, aircraft utilization, and aircraft shipment statistics, active general aviation hours flown are projected to increase at an average annual rate of 1.2% over the 21-year forecast period, growing from an estimated 23,300,000 hours in 2016 to 29,582,000 hours by 2036. The number of active general aviation and air taxi aircraft is projected to increase 0.2% annually through 2036.

The average annual growth from 2015 - 2036 for the active general aviation air taxi hours flown and number of aircraft is shown in *Table 4.21.* The hours flown growth rates will be utilized as growth rates for annual general aviation operations at Cedar City Regional Airport, while the growth rate of number of aircraft will be used for based aircraft forecasting. In doing this, an assumption must be made that hours flown and operations are highly correlated and have comparable growth rates.

TABLE 4.21 AVERAGE ANNUAL GROWTH RATE 2015 - 2036

Aircraft Type	Single Engine Piston	Multi-Engine Piston	Turbo Prop	Turbo Jet	Rotorcraft	Experimental	Sport
Active General Aviation and Air Taxi Aircraft	-0.7%	-0.5%	1.3%	2.5%	2.2%	0.9%	4.5%
Active General Aviation and Air Taxi Hours Flown	-0.6%	-0.2%	1.6%	3.1%	2.5%	1.9%	5.0%

The FAA Forecasting Type growth rates were applied by breaking the general aviation operations photographed at CDC into their respective aircraft forecasting types and applying the growth rates compounded annually. In practical terms, combining the break down of operations by aircraft type and respective adjusted growth rates resulted in an annual operation growth rate for all general aviation operations at CDC of about 1.1%.

4.10 COMBINED FORECAST

All of the previously presented general aviation and commercial service data was combined to create a holistic, detailed, and accurate forecast of aviation activity at CDC. To create annual operations totals for the short, medium, and long term forecasting periods, the FAA growth rates were applied to the operations baseline. To increase the ease of use for this forecast, these results are presented graphically on the following pages.

TABLE 4.22 COMBINED FORECAST

	Photographed General Aviation and Rotorcraft					Southern Utah University Athletics					SyberJet					Upper Limit Aviation					Aerial Firefighting					Commercial Service					TOTAL				
	Baseline	2021	2026	2031	2036	Baseline	2021	2026	2031	2036	Baseline	2021	2026	2031	2036	Baseline	2021	2026	2031	2036	Baseline	2021	2026	2031	2036	Baseline	2021	2026	2031	2036	**Baseline**	**2021**	**2026**	**2031**	**2036**
Operations by Origin																																			
Local	1,588	1,645	1,707	1,785	1,882	30	30	30	30	30	0	2,400	2,400	2,400	2,400	53,991	53,991	53,991	53,991	53,991	0	0	0	0	0	0	0	0	0	0	**55,609**	**58,066**	**58,128**	**58,206**	**58,303**
Transient	9,149	9,874	10,586	11,411	12,365	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	750	750	750	750	750	1,248	1,248	1,248	1,248	1,248	**11,147**	**11,872**	**12,584**	**13,409**	**14,363**
Military	40	48	55	65	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**40**	**48**	**55**	**65**	**75**
Unknown	3,544	3,577	3,623	3,683	3,763	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3,544**	**3,577**	**3,623**	**3,683**	**3,763**
Operations by Aircraft Type																																			
Single Engine Piston	7,024	6,775	6,574	6,379	6,190	0	0	0	0	0	0	0	0	0	0	3,225	3,225	3,225	3,225	3,225	0	0	0	0	0	0	0	0	0	0	**10,249**	**10,000**	**9,799**	**9,604**	**9,415**
Multi-Engine Piston	243	240	238	235	233	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**243**	**240**	**238**	**235**	**233**
Turbo Prop	2,335	2,568	2,780	3,010	3,259	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	524	524	524	524	524	0	0	0	0	0	**2,859**	**3,092**	**3,304**	**3,534**	**3,783**
Turbo Jet	1,963	2,358	2,746	3,199	3,727	30	30	30	30	30	0	2,400	2,400	2,400	2,400	0	0	0	0	0	226	226	226	226	226	1,248	1,248	1,248	1,248	1,248	**3,467**	**6,262**	**6,650**	**7,103**	**7,631**
Rotorcraft	2,500	2,899	3,280	3,711	4,199	0	0	0	0	0	0	0	0	0	0	50,766	50,766	50,766	50,766	50,766	0	0	0	0	0	0	0	0	0	0	**53,266**	**53,665**	**54,046**	**54,477**	**54,965**
Experimental	183	205	225	247	272	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**183**	**205**	**225**	**247**	**272**
Sport Aircraft	74	99	127	162	206	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**74**	**99**	**127**	**162**	**206**
Operations by ARC Code																																			
A-I	7,524	7,349	7,222	7,114	7,028	0	0	0	0	0	0	0	0	0	0	3,225	3,225	3,225	3,225	3,225	0	0	0	0	0	0	0	0	0	0	**10,749**	**10,574**	**10,447**	**10,339**	**10,253**
A-II	664	724	778	837	901	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**664**	**724**	**778**	**837**	**901**
B-I	1,294	1,419	1,534	1,661	1,799	0	0	0	0	0	0	2,400	2,400	2,400	2,400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1,294**	**3,819**	**3,934**	**4,061**	**4,199**
B-II	818	926	1,029	1,144	1,274	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	524	524	524	524	524	0	0	0	0	0	**1,342**	**1,450**	**1,553**	**1,668**	**1,798**
B-III	10	11	12	13	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**10**	**11**	**12**	**13**	**14**
C-I	50	60	69	81	94	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**50**	**60**	**69**	**81**	**94**
C-II	1,393	1,673	1,949	2,270	2,645	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,248	1,248	0	0	0	**2,641**	**2,921**	**1,949**	**2,270**	**2,645**
C-III	30	36	42	48	56	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			1,248	1,248	1,248	**30**	**36**	**1,290**	**1,296**	**1,304**
C-IV	40	48	55	65	75	30	30	30	30	30	0	0	0	0	0	0	0	0	0	0	226	226	226	226	226	0	0	0	0	0	**296**	**304**	**311**	**321**	**331**
Not Classified	2,500	2,899	3,280	3,711	4,199	0	0	0	0	0	0	0	0	0	0	50,766	50,766	50,766	50,766	50,766	0	0	0	0	0	0	0	0	0	0	**53,266**	**53,665**	**54,046**	**54,477**	**54,965**
Annual Total																																			
	14,322	15,144	15,971	16,944	18,086	30	30	30	30	30	0	2,400	2,400	2,400	2,400	53,991	53,991	53,991	53,991	53,991	750	750	750	750	750	1,248	1,248	1,248	1,248	1,248	**70,341**	**73,563**	**74,390**	**75,363**	**76,505**

PAGE LEFT BLANK INTENTIONALLY

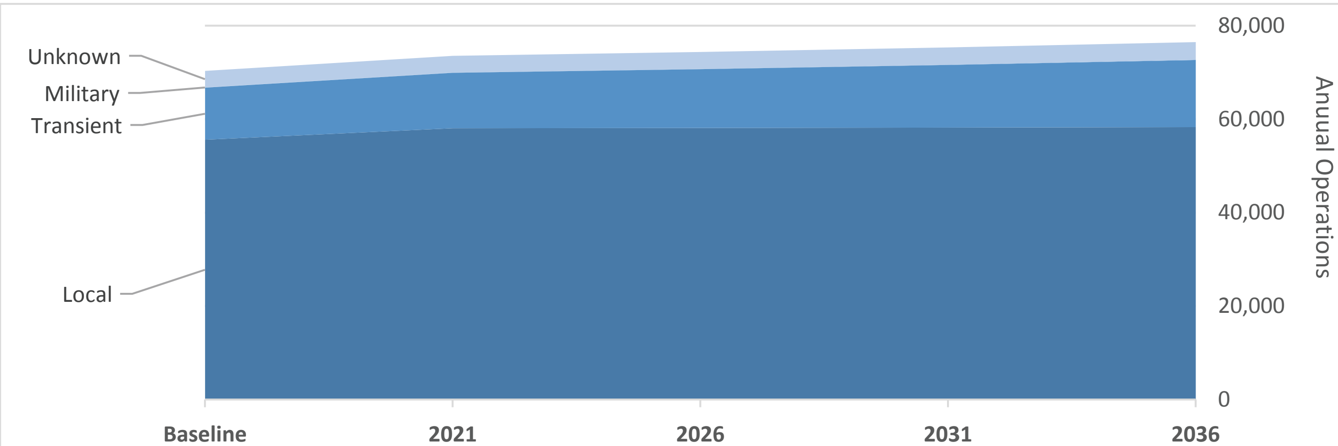
FORECAST BY ORIGIN

The data collected from photographed general aviation operations included the airport at which each aircraft is based. Each operation was placed into one of four categories:

- **Local:** Operations by aircraft based at CDC
- **Transient:** Operations by aircraft based at airports other than CDC
- **Military:** All operations by military aircraft
- **Unknown:** All operations by aircraft that could not be placed into one of the other categories

The huge majority (76%) of operations performed at CDC are by aircraft based at the airport, followed by transient aircraft (19%). Military operations make up less than 1% of the overall traffic at CDC.

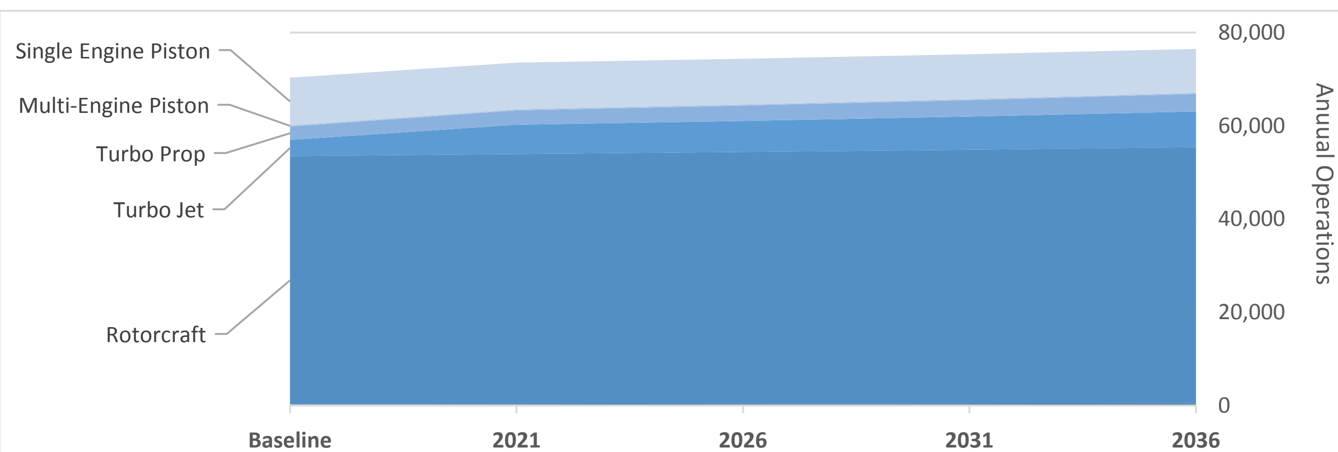
Figure 4.39 Origin Operations



FORECAST BY AIRCRAFT TYPE

The breakdown of aircraft type (essentially the type of engine in an aircraft) was calculated from the photographed operations, interviews, and logs. The large majority (72%) of operations at CDC are by rotorcraft, mainly due to the substantial amount of ULA rotorcraft student activity. Single engine piston (12%) and turbo jet (10%) account for the next highest categories of traffic. All other aircraft types account for 5% or less of the overall CDC traffic.

Figure 4.40 Aircraft Type Operations



FORECAST BY ITINERANT AND LOCAL

The FAA categorizes aircraft operations into two categories: itinerant and local. These are distinctly different than the aircraft origin previously detailed.

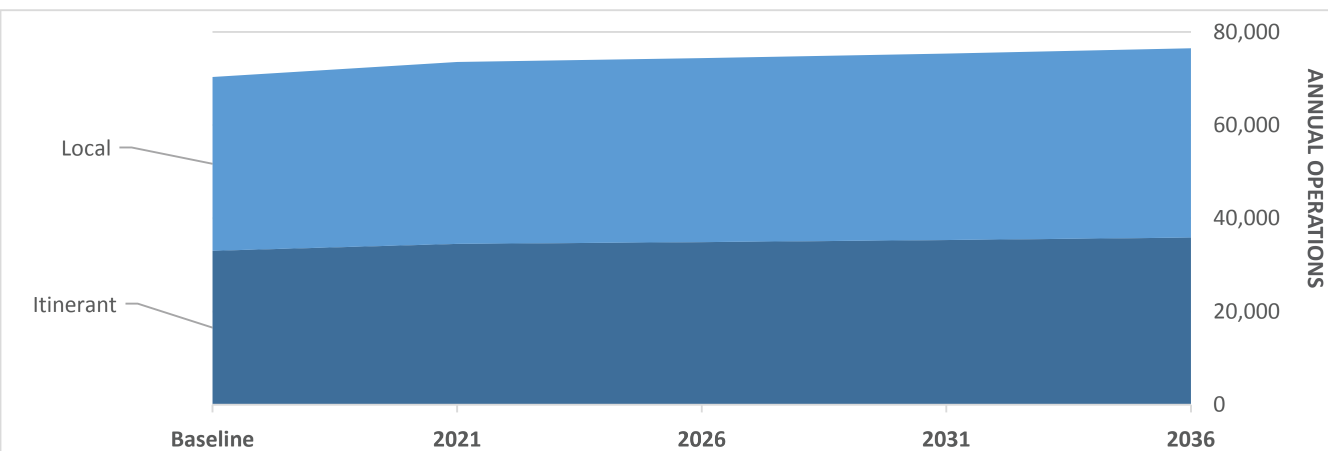
- **Itinerant Operations** – Represents operations that arrive from outside the traffic pattern or depart the airport traffic pattern.
- **Local Operations** – Represents operations that stay within the traffic pattern airspace (non-itinerant). Local operations should not be assumed to be any operation performed by aircraft based at CDC.

Data from the FAA Terminal Area Forecast (TAF) for CDC in 2015 indicate 46% of operations were itinerant and 53% were local. The TAF also breaks out itinerant operations into four categories (Air Carrier, Air Taxi, General Aviation, and Taxi) and local operations into two categories (Civil and Military). This percentage split was applied to the CDC operational totals, as shown below. Since SkyWest is a regional operator, all of their operations were assumed to be itinerant air taxi.

TABLE 4.23 FORECAST OF OPERATIONS BY MIX

Year	Air Carrier	Air Taxi / Commuter	General Aviation	Military	*Itinerant Total*	General Aviation	Military	*Local Total*	*Grand Total*
Baseline	0	1,248	31,764	18	33,031	37,289	21	37,310	70,341
2021	0	1,248	33,243	22	34,513	39,024	26	39,050	73,563
2026	0	1,248	33,620	26	34,893	39,466	30	39,496	74,389
2031	0	1,248	34,063	30	35,341	39,988	35	40,022	75,364
2036	0	1,248	34,583	35	35,866	40,598	41	40,638	76,504

Figure 4.41 Itinerant and Local Operations



FORECAST BY ARC

The operational forecast, split by ARC, is shown below. Refer to Section 4.4 for additional explanation of the FAA ARC coding system.

The first chart depicts annual operations split by the Aircraft Approach Category (AAC), and the second chart depicts annual Airplane Design Group (ADG) operations. The dotted black line on each graph designates the 500 operation threshold. Through the planning period, the airport is forecasted to easily surpass the 500 threshold for AAC A, AAC B, and AAC C, as well as ADG I, ADG II, and ADG III. The airport is forecasted to slowly approach the threshold for ADG IV, reaching approximately 331 ADG IV operations in 2036. Thus, the forecasted ARC for CDC is C-III with long-term consideration given to a potential C-IV ARC.

Figure 4.42 Aircraft Approach Category (AAC) Operations

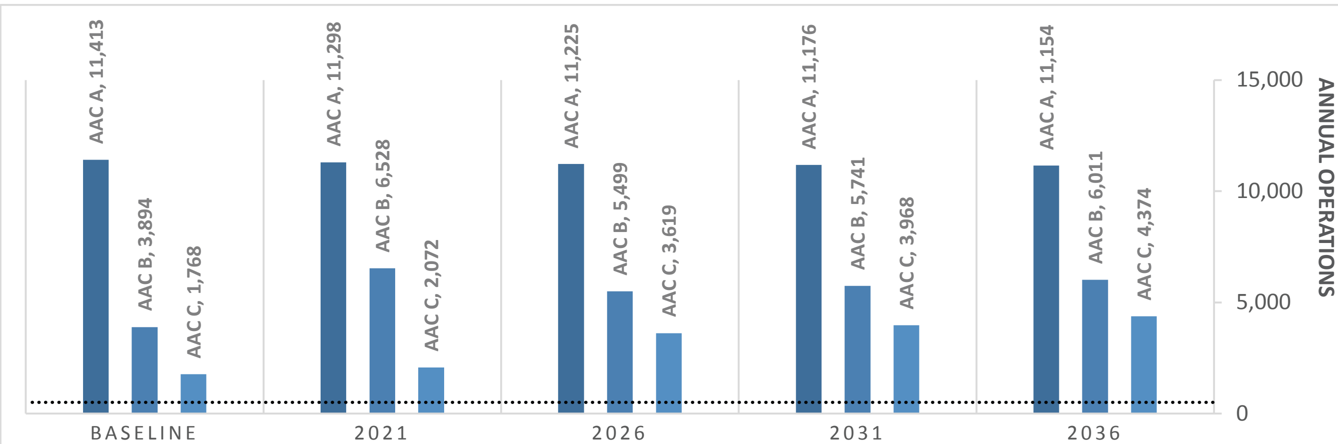
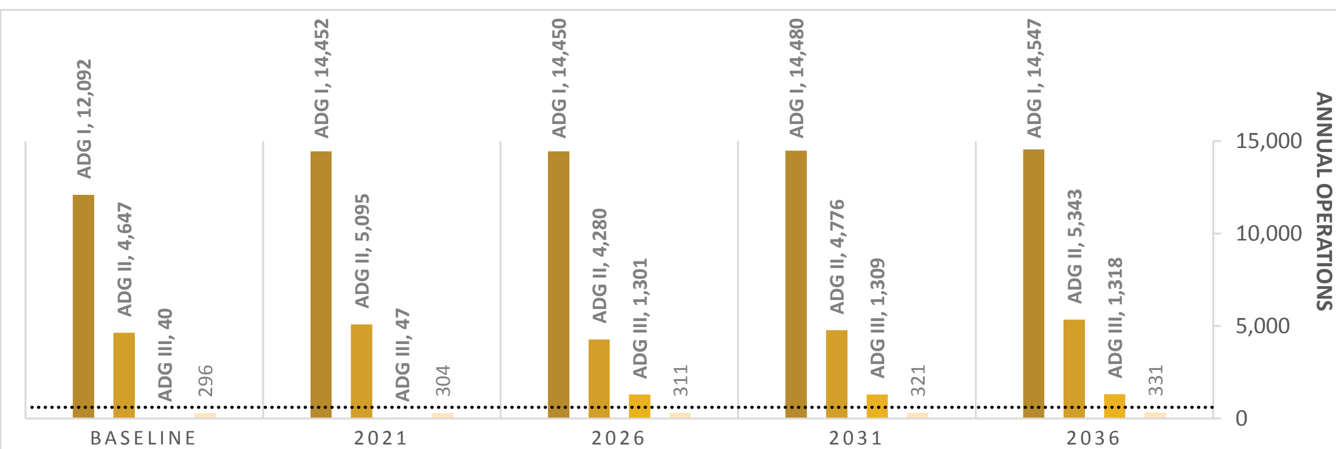


Figure 4.43 Airplane Design Group (ADG) Operations



CRITICAL AIRCRAFT

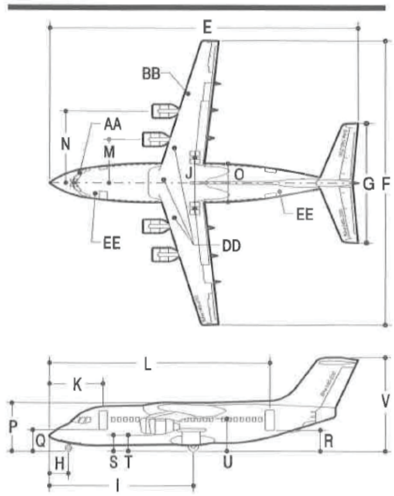
The criteria required for planning and design of an airport is determined by the airport's role, level of operations, and the "critical" aircraft using the airport. The critical or design aircraft, is defined as the most demanding aircraft operating at an airport on a regular basis. The critical aircraft (or type of aircraft) must perform 500 operations annually to be considered the critical aircraft. However, when a category or group aircraft starts approaching 350 operations, planning should take steps to prepare the airport for the greater design requirements.

For many airports proper airfield planning must accommodate a grouping of aircraft that share similar characteristics, rather than a singular critical aircraft. This is the case for CDC - a combination of multiple aircraft with similar approach speeds (AAC C) and wingspans (ADG III) resulted in the forecasted totals surpassing the operational threshold of 500.

An assortment of aircraft relevant to the critical aircraft discussion at CDC are included. The BAe-146 is an aerial firefighting aircraft that is deployed from CDC. Multiple private individuals and businesses use Gulfstream G-V aircraft at CDC. The Embraer 175 is commonly used in the SkyWest fleet and is slowly phasing out the 50-seat fleet that currently services CDC. The Utah National Guard trains at CDC with a fleet of KC-135 aircraft.

BAe146-200
AVRO RJ 85

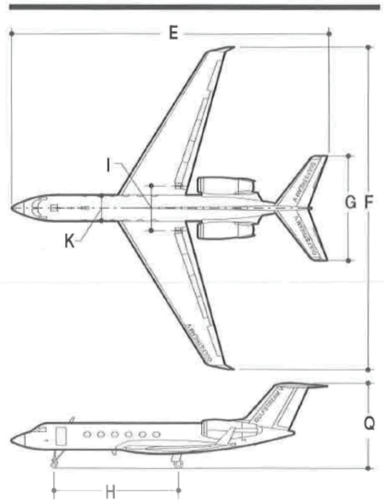
Notes:
* Dimensions Not Shown On Drawing
** (Outside to outside of tire...no differential braking)
*** All seating capacities shown for single class



	Airport Reference Code	B-III	
	Aircraft Range	1,300-1,495 nm	
	Fuel Capacity	22,704 lb	10,298 kg
		3,364 gal	12,714L
	Main Gear	1D	
***	Passenger Capacity	112 seats	
A.	Maximum Aircraft Ramp Weight	93,500 lb	42,410 kg
B.	Maximum Aircraft Landing Weight	81,000 lb	36,741 kg
C.	Maximum Aircraft Takeoff Weight	93,000 lb	42,184 kg
**D.	Minimum Pavement Width for 180° Turn	Not Available	
E.	Length (Overall)	93'-10"	28.60m
F.	Wing Span	86'-5"	26.34m
G.	Tail Span	36'-5"	11.09m
H.	Nose to Nose Gear	7'-5"	2.26m
I.	Nose to Main Gear	44'-2"	13.46m
J.	Main Gear Width	15'-6"	4.72m
K.	Nose to Forward Passenger Door	16'-8"	5.08m
L.	Nose to Aft Passenger Door	66'-8"	20.36m
M.	Inboard Engine from Aircraft Centerline	13'-7"	4.14m
N.	Outboard Engine from Aircraft Centerline	22'-4"	6.80m
O.	Fuselage Width	11'-8"	3.56m
P.	Fuselage Height Above Ground	14'-10"/14'-5"	4.51m/4.39m
Q.	Forward Passenger Door Sill Height Above Ground	6'-2"	1.89m
R.	Aft Passenger Door Sill Height Above Ground	6'-6"	1.98m
S.	Inboard Engine Clearance Above Ground	4'-11"/4'-6"	1.50m/1.36m
T.	Outboard Engine Clearance Above Ground	4'-11"/4'-6"	1.50m/1.36m
U.	Wing Tip Vertical Clearance	11'-9"/11'-3"	3.58m/3.44m
V.	Tail Height	28'-7"/27'-11"	8.70m/8.51m
*W.	Nose to Lower Cargo Doors	Not Available	
*X.	Nose to Main Deck Cargo Door	Not Available	
*Y.	Lower Cargo Doors Sill Height Above Ground	3'-2"/2'-8" 3'-3"/2'-9"	0.97m/0.81m 0.99m/0.85m
*Z.	Under Floor Forward Cargo Door Sill Height Above Ground	2'-7"	0.78m

Gulfstream V

Notes:
* Dimensions Not Shown On Drawing
** Steering Angle 65° (Outside to outside of tire...no differential braking)
*** All seating capacities shown for single class

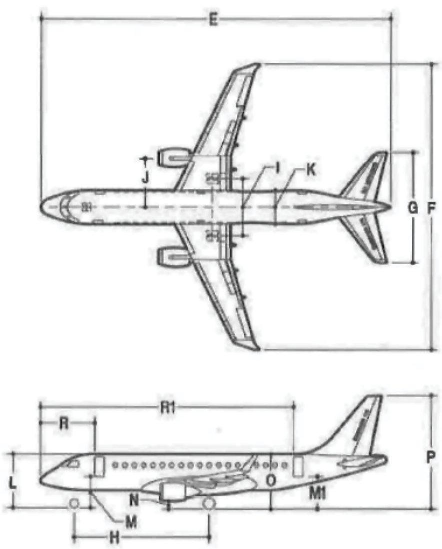


	Airport Reference Code	C-III	
	Aircraft Range	3,000-5,000 nm	
	Fuel Capacity	41,000 lb	18,597 kg
		6,074 gal	22,959L
	Main Gear	1D	
***	Passenger Capacity	8 seats	
A.	Maximum Aircraft Ramp Weight	89,400 lb	40,640 kg
B.	Maximum Aircraft Landing Weight	72,000 lb	32,730 kg
C.	Maximum Aircraft Takeoff Weight	89,000 lb	40,455 kg
**D.	Minimum Turning Radius	48'-2"	14.68m
E.	Length (Overall)	96'-5"	29.39m
F.	Wing Span	98'-6"	30.02m
G.	Tail Span	32'-0"	9.75m
H.	Wheel Base	38'-1.2"	11.61m
I.	Wheel Track	13'-8"	4.17m
*J.	Engine from Aircraft Centerline	Not Available	
K.	Fuselage Width	7'-10"	2.38m
*L.	Fuselage Height Above Ground	Not Available	7.72m
*M.	Forward Passenger Door Sill Height Above Ground	Not Available	
*N.	Aft Passenger Door Sill Height Above Ground	Not Applicable	
*O.	Engine Clearance Above Ground	Not Available	
*P.	Wing Tip Vertical Clearance	Not Available	
Q.	Tail Height	25'-10"	7.87m
R.	Main Cargo Door Sill Height Above Ground	Not Available	

Embraer 175

Notes:

*	Dimensions Not Shown On Drawing
**	Steering Angle 65° (No Slip) (Outside to outside of tire...no differential braking)
***	All seating capacities shown for single class

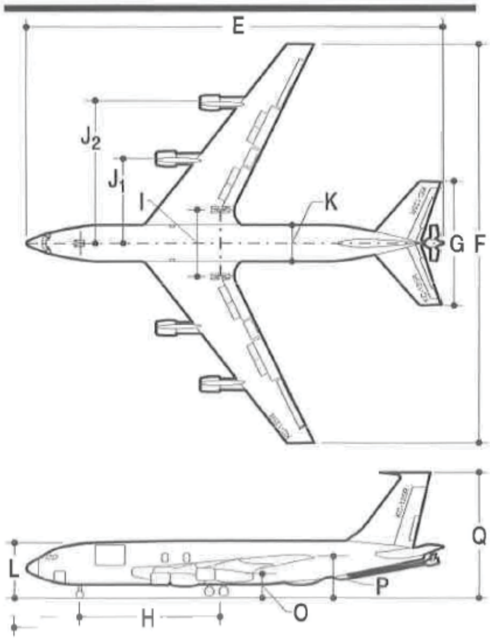


	Aircraft Range	1,600 nm	
	Fuel Capacity	20,785 lb	9,428 kg
		3,079 gal	11,640L
	Main Gear	1D	
***	Passenger Capacity	80 seats	
A.	Maximum Aircraft Ramp Weight	83,026 lb	37,660 kg
B.	Maximum Aircraft Landing Weight	74,957 lb	34,000 kg
C.	Maximum Aircraft Takeoff Weight	82,673 lb	37,500 kg
**D.	Minimum Pavement Width for 180° Turn	59'-2"	18.04m
E.	Length (Overall)	103'-11"	31.68m
F.	Wing Span	85'-4"	26.00m
G.	Tail Span	32'-9"	10.00m
H.	Wheel Base	37'-5"	11.40m
I.	Wheel Track	17'-0"	5.20m
J.	Engine from Aircraft Centerline	Not Available	
K.	Fuselage Width	9'-11"	3.01m
L.	Fuselage Height Above Ground	11'-0"	3.35m
M.	Forward Passenger Door Sill Height Above Ground	8'-4"/8'-8"	2.54m/2.64m
M1.	Aft Passenger Door Sill Height Above Ground	7'-10"/8'-6"	2.38m/2.59m
N.	Engine Clearance Above Ground	1'-7"/1'-10"	0.47m/0.56m
O.	Wing Tip Vertical Clearance	14'-7"/15'-1"	4.45m/4.60m
P.	Tail Height	31'-4"/32'-1"	9.54m/9.79m
*Q.	Forward Cargo Door Sill Height Above Ground	4'-9"/5'-11"	1.46m/1.54m
*Q1	Aft Cargo Door Sill Height Above Ground	4'-8"/5'-2"	1.42m/1.58m
R.	Nose to Forward Passenger Door	15'-5"	4.71m
R1.	Nose to Aft Passenger Door	75'-7"	23.04m
*S.	Nose to Forward Cargo Door	23'-0"	7.66m
*S1	Nose to Aft Cargo Door	65'-7"	20.00

KC-135

Notes:

*	Dimensions Not Shown On Drawing
**	Steering Angle 65° (No Slip) (Outside to outside of tire...no differential braking)



	Aircraft Range	1,500-2,500 nm	
	Fuel Capacity	Not Available	
	Main Gear	2D	
	Crew Size	4	
	Passenger Capacity (Max.)	80 Seats	
A.	Maximum Aircraft Ramp Weight	322,500 lb	146,591 kg
B.	Maximum Aircraft Landing Weight	322,500 lb	146,591 kg
C.	Maximum Aircraft Takeoff Weight	322,500 lb	146,591 kg
**D.	Minimum Turning Radius	107'-0"	32.60m
E.	Length (Overall)	135'-1"	41.17m
F.	Wing Span	130'-10"	39.88m
G.	Tail Span	43'-4"	13.21m
H.	Wheel Base	45'-8"	13.92m
I.	Wheel Track	22'-1"	6.73m
J1.	Engine from Aircraft Centerline	26'-9"	8.15m
J2.	Engine from Aircraft Centerline	45'-9"	13.95m
K.	Fuselage Width	12'-0"	3.66m
L.	Fuselage Height Above Ground	17'-10"	5.44m
*M.	Forward Crew Door Sill Height Above Ground	5'-4"	1.63m
*N.	Aft Crew Door Sill Height Above Ground	Not Available	
O.	Engine Clearance Above Ground (Inboard/Outboard)	1'-6"/3'-4"	0.46m/1.02m
P.	Wing Tip Vertical Clearance	11'-9"	3.58m
Q.	Tail Height	41'-8"	12.70m
*R.	Main Cargo Door Sill Height Above Ground	10'-0"	3.05m

4.11 BASED AIRCRAFT

Aircraft whose activities typically originate and terminate at CDC and whose primary place of storage is at CDC are referred to as based aircraft. The typical based aircraft owner is an individual or business that resides or has a major operation or headquarters in the Cedar City area near the airport.

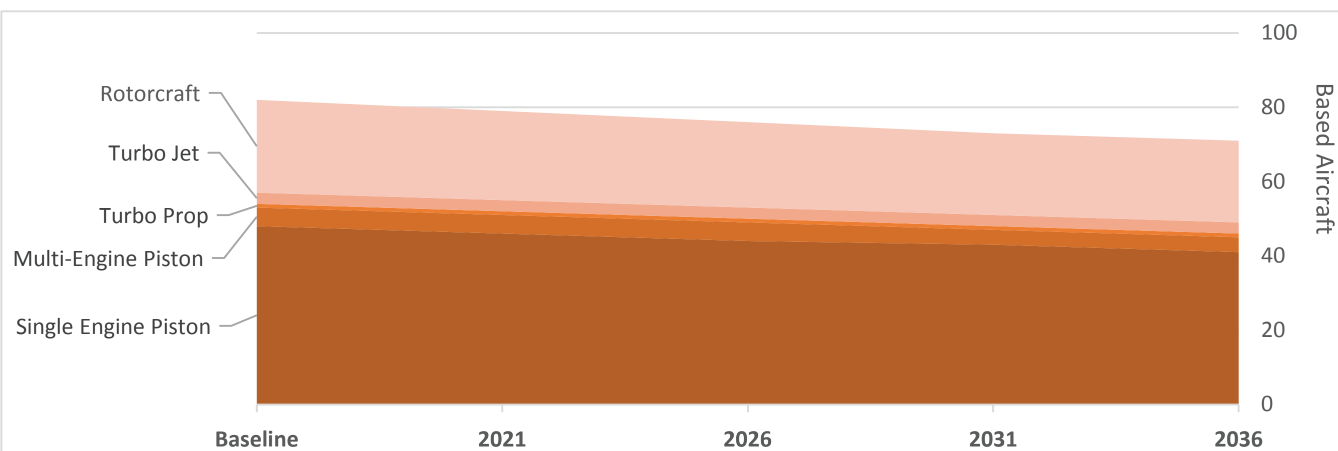
Current and historical data regarding based aircraft at CDC are inconsistent. A variety of sources were reviewed to compile an overview of based aircraft, including the TAF, FAA 5010 Master Records, FAA National Based Aircraft Inventory Program, and an inventory conducted by the Airport Manager. The recent inventory was determined to be the most accurate and was utilized for this forecast.

Table 4.24 provides a list of all based aircraft at CDC for the baseline year with appropriate growth rates, according to their type, and long term forecast numbers. The vast majority of aircraft based at CDC are single engine piston aircraft and rotorcraft. Based upon the FAA Growth Rates, the number of based aircraft at CDC is forecasted to decrease to 71 in 2036.

TABLE 4.24 FORECAST OF BASED AIRCRAFT

Aircraft Type	Baseline	FAA Growth Rate	2021	2026	2031	2036
Single Engine Piston	48	(-0.7%)	46	44	43	41
Multi-Engine Piston	5	(-0.5%)	5	5	4	4
Turbo Prop	1	(1.3%)	1	1	1	1
Turbo Jet	3	(2.5%)	3	3	3	3
Rotorcraft	25	(2.2%)	24	23	22	22
Experimental	0	(0.9%)	0	0	0	0
Sport Aircraft	0	(4.5%)	0	0	0	0
TOTAL	**82**	**-**	**79**	**76**	**73**	**71**

Figure 4.44 Based Aircraft



4.12 COMPARISON WITH FAA TAF

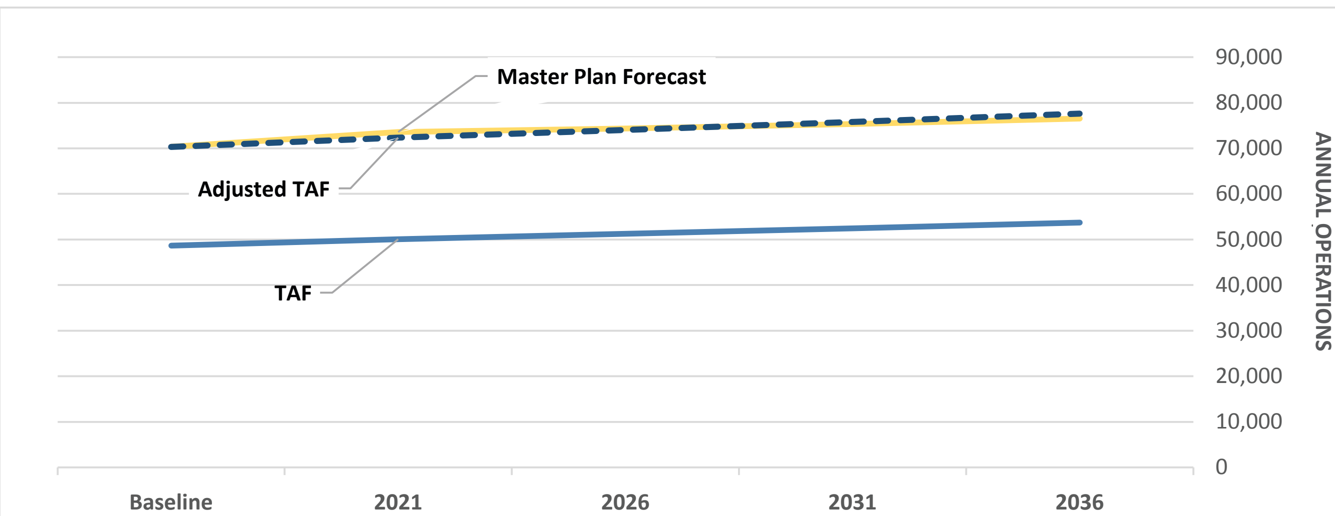
The table below presents a comparison with the FAA TAF. The baseline TAF operations were updated to reflect current conditions, including properly accounting for the flight school. The baseline year operations for the "Adjusted TAF" are equal to the Master Plan forecast baseline number. The subsequent years for the Adjusted TAF used the same growth rate (4.68%) as the original TAF, rather than the growth rates used within this Master Plan.

The Master Plan operations forecast for the existing airport ranges from -1% to 2% higher than the Adjusted TAF. The Master Plan based aircraft forecast ranges from -7% lower to 15% higher than the TAF. The Master Plan forecasted enplanements range from -9% lower to 5% higher than the TAF.

TABLE 4.25 TAF COMPARISON

YEAR	*TOTAL OPERATIONS*				*BASED AIRCRAFT*			*ENPLANEMENTS*		
	MASTER PLAN FORECAST	TAF	ADJUSTED TAF	% DIFFERENCE	MASTER PLAN FORECAST	TAF	% DIFFERENCE	MASTER PLAN FORECAST	TAF	% DIFFERENCE
Baseline	70,341	48,658	70,341	0%	82	70	15%	13,270	14,503	-9%
2021	73,563	50,044	72,339	2%	79	74	6%	13,878	14,503	-5%
2026	74,390	51,232	74,048	0%	76	76	0%	14,407	14,503	-1%
2031	75,363	52,458	75,797	-1%	73	76	-4%	14,955	14,503	3%
2036	76,505	53,739	77,587	-1%	71	76	-7%	15,252	14,503	5%

Figure 4.45 TAF Operation Comparison



4.13 FORECAST SUMMARY

The key socioeconomic indicators examined earlier point to a strong local economy capable of sustaining existing commercial and general aviation demand. Flight plans and other data corroborate the forecasted totals. The current commercial service delivers an adequate number of seats for the CDC market. Overall, passenger enplanements and operations at CDC are anticipated to increase slowly over the forecast period. The critical aircraft share similar characteristics of C-III, while extreme long-term planning should consider C-IV design standards.

TABLE 4.26 CDC FORECAST SUMMARY

	Baseline Year *(2015)*	2021	*2026*	*2031*	*2036*
Airport Reference Code (ARC)					
ARC	C-III	C-III	C-III	C-III	C-III
Operations (Total)					
Total	70,341	73,563	74,390	75,363	76,505
Operations (Aircraft Type)					
Single Engine Piston	10,249	10,000	9,799	9,604	9,415
Multi-Engine Piston	243	240	238	235	233
Turbo Prop	2,859	3,092	3,304	3,534	3,783
Turbo Jet	3,467	6,262	6,650	7,103	7,631
Rotorcraft	53,266	53,665	54,046	54,477	54,965
Experimental	183	205	225	247	272
Sport Aircraft	74	99	127	162	206
Operations (Aircraft ARC)					
A-I	10,749	10,574	10,447	10,339	10,253
A-II	664	724	778	837	901
B-I	1,294	3,819	3,934	4,061	4,199
B-II	1,342	1.450	1,553	1,668	1,798
B-III	10	11	12	13	14
C-I	50	60	69	81	94
C-II	2,641	2,921	1,949	2,270	2,645
C-III	30	36	1,290	1,296	1,304
C-IV	296	304	311	321	331
Not Classified	53,266	53,665	54,046	54,477	54,965
Operations (Itinerant & Local)					
Itinerant	33,031	34,513	34,893	35,341	35,866
Local	37,310	39,050	39,496	40,022	40,638
Based Aircraft (Aircraft Type)					
Single Engine Piston	48	46	44	43	41
Multi-Engine Piston	5	5	5	4	4
Turbo Prop	1	1	1	1	1
Turbo Jet	3	3	3	3	3
Rotorcraft	25	24	23	22	22
Experimental	0	0	0	0	0
Sport Aircraft	0	0	0	0	0
Enplanements					
Enplanements	13,270	13,878	14,407	14,955	15,252

5. Facility Requirements

SECTION OVERVIEW

The Facility Requirements chapter describes the facilities required to safely accommodate the aircraft traffic forecasted for Cedar City Regional Airport. FAA Design Standards for the airport's critical aircraft are detailed relative to the existing runways, taxiways, and other facilities.

5.1 OVERVIEW

The *Facility Requirements* chapter compares the current airport facilities and services at CDC to the forecasted aviation traffic to identify any deficiencies that require remediation. The chapter is split into four main categories: *Airfield and Airspace, Commercial Service, General Aviation,* and *Support Facilities.*

Airfield and Airspace	Commercial Service	General Aviation	Support Facilities
Airfield Capacity	Airside	Hangars	Fire
Runways	Terminal Building	Aircraft Parking	Snow
Taxiways	Landside	Terminal Facilities	Fuel
Navigational Aids			Deicing
Part 77			Utilities

Multiple critical facets of CDC were examined under each of these categories, drawing upon information from previous chapters. This type of examination is often referred to as a "gap analysis," such that the gap falls between CDC as it exists today and where it will need to be in the future. Following these categories is a discussion of the sponsor's strategic vision; a broader picture of how the Cedar City Corporation and airport management want the airport to develop over the next two decades and what types of facilities and items are required to achieve that vision.

5.2 FAA CLASSIFICATION SYSTEM

The FAA has an in-depth system of defining requirements for airports based upon an aircraft classification system. An understanding of the components that comprise this classification system is required prior to completing a gap analysis.

Airport Reference Code (ARC)

The FAA has developed an aircraft coding system comprised of two prongs: ***Aircraft Approach Category (AAC)*** and ***Airplane Design Group (ADG).*** The AAC is designated by a letter (A through E) and the ADG by a Roman numeral (I through VI). Each airport has a critical aircraft, typically defined as the most demanding aircraft (or combination of aircraft) that performs at least 500 annual itinerant operations. The combination of that aircraft's AAC and ADG (for example, A-I or B-II) signifies the ***Airport Reference Code (ARC)***.

TABLE 5.1 AIRCRAFT APPROACH CATEGORY

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

TABLE 5.2 AIRPLANE DESIGN GROUP

Group #	Tail Height (Feet)	Wingspan (Feet)
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

Runway Design Code (RDC)

Each runway also receives a combined AAC and ADG designation for approach and departure operations, called the ***Runway Design Code (RDC)***. Each RDC also contains a third component based on Runway Visibility Range (RVR) minimums (for example, B-II-4000). These categorizations are applied to individual runways, such that multiple runways at a single airport may have different RDCs. The ARC and RDC provide insights into the performance, design characteristics, and physical facility requirements of aircraft using components of an airport.

TABLE 5.3 RUNWAY VISIBILITY RANGE

RVR Value (Feet)	Visibility Minimum
1,200	<1/4 mile
1,600	1/4 mile - <1/2 mile
2,400	1/2 mile - <3/4 mile
4,000	3/4 mile - <1 mile
5,000	1 mile
VIS	Visual Approach Only

Taxiway Design Group (TDG)

For taxiway design, the FAA utilizes a ***Taxiway Design Group (TDG)***, which is a classification of airplanes based on outer to outer Main Gear Width and Cockpit to Main Gear distance. These measures are used because taxiways are designed for "cockpit over centerline" taxiing. Categories range from TDG 1A, for the smallest aircraft, up to TDG 7, for the largest.

Weight Class

There are two aircraft ***Weight Classes*** used by the FAA for planning: Small Aircraft and Large Aircraft. Small Aircraft have a maximum takeoff weight of 12,500 pounds or less and Large Aircraft are all other aircraft weighing more than 12,500 pounds. Some FAA documentation uses the terms Utility and Other than Utility in place of Small Aircraft and Large Aircraft.

Example Aircraft

The graphic below shows a small selection of common aircraft and their respective ARC.

Figure 5.1 Example Aircraft ARC

For the purpose of this study, the airport, runways, and taxiways receive an existing designation, as well as a future designation, if different design aircraft are expected in the future. This change might be to a larger, more demanding aircraft; but not always. If the forecast foresees a downward trend or a notable change, such as a major user leaving the facility, the future design aircraft might actually be in a lower category or group.

Critical Aircraft Specifications

The *Forecast of Aviation Demand* chapter established that CDC does not one have a singular critical aircraft, but rather a grouping of aircraft with similar characteristics. The following standards (*Table 5.4*) are applicable for CDC based on the critical aircraft grouping.

TABLE 5.4 CRITICAL AIRCRAFT SPECIFICATIONS

	Runway 2/20	**Runway 8/26**
Aircraft Approach Category (AAC)	C	B
Airplane Design Group (ADG)	III	I
Taxiway Design Group (TDG)	3	2
Weight Class	Large	Large

5.3 AIRFIELD AND AIRSPACE

Ensuring the airspace and airfield at an airport are properly planned is critical to safe and smooth aviation operation. The next section examines elements of the airspace surrounding Cedar City and the airfield at the airport.

Airfield Capacity

Demand and capacity represent the relationship between forecasted aviation traffic demand and an airport's physical ability to safely accommodate that demand. The purpose of a demand and capacity analysis is to assess the ability of the airport's existing facilities to efficiently accommodate its day-to-day and long-term demand without undue delays or compromises to safety. The analysis also assists in determining when improvements are needed to meet specific operational demands.

At low activity airports, airfield capacity often exceeds the anticipated level of demand many times over. The most widely recognized and accepted capacity analysis methodology comes from the FAA, and yields hourly capacities and annual service volumes. This method estimates aircraft delay levels as demand approaches and exceeds the capacity of each airfield configuration.

For calculating capacity at CDC, the assumption was made that all ARC A-I and B-I operations are under 12,500 pounds. Per FAA guidance, helicopter operations were excluded from the calculations. All remaining operations were assumed to be 12,500 pounds to not more than 300,000 pounds (referred to as Class C for the calculation). For the baseline forecast year, Class C operations account for 29% of the total operations, increasing to 33% over the next 20 years. With these assumptions and a two paved runway configuration, it was calculated that CDC has an annual service volume of 200,000 operations.

Over the 20-year planning period, the highest forecast of total annual operations at the airport is 21,540 (excluding rotorcraft). Thus, forecasted operations are approximately 10% of the calculated allowable value and no capacity issues are anticipated. Even if rotorcraft operations were included in the analysis, the operations would still fall well below 50% of the capacity of the airport.

TABLE 5.5 DEMAND AND CAPACITY ANALYSIS

Mix Index % (C[1]+3D[2])	Hourly Capacity Ops/Hr VFR	Hourly Capacity Ops/Hr IFR	Annual Service Volume (Operations per Year)
0 to 20	98	59	230,000
21 to 50	**77**	**57**	**200,000**
51 to 80	77	56	215,000
81 to 120	76	59	225,000
121 to 180	72	60	265,000

[1] C = Percent of airplanes over 12,500 pounds but not over 300,000 pounds.
[2] D = Percent of airplanes over 300,000 pounds.

Runway Requirements

The FAA has established requirements for almost every aspect of airports, including runways. The standards that apply each runway are determined by the relevant critical ARC, Weight Class, and lowest approach minimums. As determined by the forecast, Runway 2/20 is C-III Large Aircraft (1/2 mile visibility) and Runway 8/26 is B-I Large Aircraft (visual only approach).

Runway Protection

The FAA has defined multiple imaginary protection surfaces around runway centerlines to protect aircraft, people, and objects on the ground. The table below lists the appropriate FAA protection surfaces for the primary runway and crosswind runway at CDC. The runway protection surfaces are defined as follows:

> ***Runway Safety Area (RSA):*** A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway.
>
> ***Runway Object Free Area (ROFA):*** An area centered on the ground on a runway centerline provided to enhance the safety of aircraft operations by remaining clear of objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.
>
> ***Runway Obstacle Free Zone (ROFZ):*** The OFZ is the three-dimensional airspace along the runway and extended runway centerline that is required to be clear of obstacles for protection for aircraft landing or taking off from the runway and for missed approaches.
>
> ***Runway Protection Zone (RPZ):*** An area at ground level prior to the threshold or beyond the runway end to enhance the safety and protection of people and property on the ground.

Currently, the taxiway connector to SyberJet's building beyond the end of Runway 2 is in the ROFA and RPZ, a fence beyond the end of Runway 20 is within the ROFA, and a portion of the transient apron is within the RPZ beyond the end of Runway 26.

TABLE 5.6 RUNWAY PROTECTION

	Runway 2/20 (ARC C-III)	FAA C-III Standards	Runway 8/26 (ARC B-I)	FAA B-I Standards
Runway Safety Area (RSA)				
Width	500′	500′	120′	120′
Length Beyond Runway End	1,000′	1,000′	240′	240′
Runway Object Free Area (ROFA)				
Width	**800′** [1]	800′	400′	400′
Length Beyond Runway End	**1,000′** [1]	1,000′	240′	240′
Runway Obstacle Free Zone (ROFZ)				
Width	400′	400′	400′	400′
Length Beyond Runway Ends	200′	200′	200′	200′
Approach Runway Protection Zone (RPZ)				
Inner Width	**2,500′** [1]	2,500′	**500′** [1]	500′
Outer Width	**1,000′** [1]	1,000′	**700′** [1]	700′
Length Beyond Runway Ends	**1,750′** [1]	1,750′	**1,000′** [1]	1,000′

[1] Incompatible objects in surface

Runway Design Standards

Each runway has prescribed geometric design standards based upon the type and frequency of aircraft operating. The standards relevant to CDC are shown in the table below. **Runway 8/26 meets all runway design standards. It is recommended that the airport protect for an eventual long-term extension to Runway 2/20 through land use and future projects.**

TABLE 5.7 RUNWAY DESIGN STANDARDS

	Runway 2/20 (ARC C-III)	FAA C-III Standards	Runway 8/26 (ARC B-I)	FAA B-I Standards
Width	150'	150'	60'	60'
Length[1]	8,653'	-	4,822'	-
Shoulder Width	25'	25'	10'	10'

[1] Runway length is an FAA recommendation, not requirement. The distances shown here represent the recommended length for each runway based on the airport's elevation, weather, and aircraft fleet mix.

Many factors determine the suitability of runway length for an airplane operation. These factors include airport elevation above mean sea level, temperature, wind velocity, airplane operating weights, takeoff and landing flap settings, runway surface condition (dry or wet), effective runway gradient, presence of obstructions in the vicinity of the airport, and any locally imposed noise abatement restrictions or other prohibitions. A given runway length may not be suitable for all aircraft operations. Runway length is not a FAA Design Standard, unlike minimum runway width, but rather a recommendation. The table below lists the runway length recommendations based on the five step process outlined by the FAA. Ultimately, it is up to the pilot of each flight to determine if the runway is sufficient for a safe take off or landing.

At 8,652', Runway 2/20 essentially meets the recommended length for 75% of the aircraft fleet between 12,500 and 60,000 pounds at a 90% useful load. These runway lengths are illustrated on the following page. **Given the fleet mix operating at CDC, notably commercial regional jets and fire fighting aircraft, it is recommended that the airport protect for an eventual runway extension to accommodate a larger percentage of the 12,500 to 60,000 pound aircraft fleet. The current length of Runway 8/26 is only 78' feet short of the recommended length. In this case, this length difference is minor and practically inconsequential, thus the airport essentially meets the recommended length.**

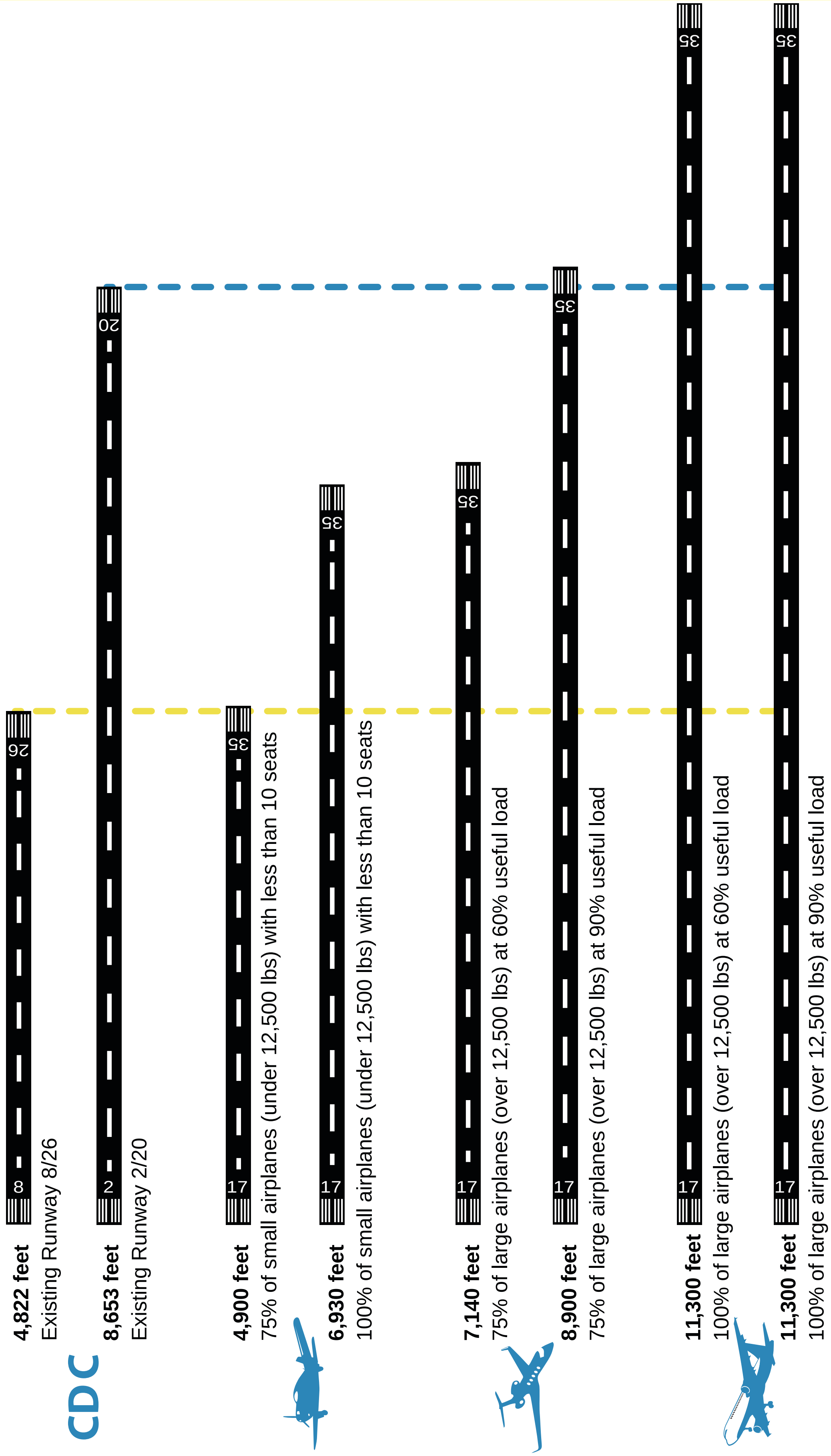
TABLE 5.8 RUNWAY LENGTH RECOMMENDATIONS

Airport Elevation: 5,622 feet

Mean Daily Maximum Temperature of the Hottest Month: 87º F

Aircraft Fleet and Useful Loads	Length	Recommendations and Notes
Aircraft 12,500 pounds or less with approach speeds of 50 knots or more with less than 10 passenger seats		
75% of fleet	4,900' →	*Current and future recommended length for Runway 8/26*
95% / 100% of fleet	6,930'	
Aircraft 12,500 pounds or less with approach speeds of 50 knots or more with 10 or more passengers	6,930'	
Aircraft over 12,500 pounds but less than 60,000 pounds		
75% of fleet at 60% useful load	7,140'	
75% of fleet at 90% useful load	8,900'	
100% of fleet at 60% useful load	11,300' →	*Current recommended length for Runway 2/20*
100% of fleet at 90% useful load	11,300' →	*Recommended to protect for this length for Runway 2/20 for the 20-year and beyond planning horizon*
Aircraft over 60,000 pounds	6,990'	

Figure 5.2 Recommended Runway Lengths



Runway Separation Standards

There are several standards for runway separation distances between other objects and pavements on the airport. The runway separation standards for Cedar City Regional Airport are shown below. **Runway 2/20 currently meets all runway separation standards to meet C-III standards. Runway 8/26 does not meet the B-I runway centerline to parallel taxiway/taxilane centerline and holding position standards.** The centerline of Runway 8/26 is 25’ too close to the centerline of Taxiway B and is 70’ too close to the holding position on the connector.

TABLE 5.9 RUNWAY SEPARATION STANDARDS

	Existing Runway 2/20	ARC C-III, Large Aircraft	Existing Runway 8/26	ARC B-I, Large Aircraft
Runway Centerline to Parallel Taxiway/Taxilane Centerline	400’	400’	**200’**	225’
Runway Centerline to Aircraft Parking Area	500’	500’	300’	200’
Runway Centerline to Holding Position	250’	250’	**130’**	200’

Runway Orientation and Designation

At some facilities, changes in magnetic declination may dictate runway renumbering. **A review of the geodetic and magnetic heading indicates Runway 2/20 is still current, but Runway 8/26 requires renumbering to Runway 9/27**.

TABLE 5.10 RUNWAY ORIENTATION

	Runway 2/20	Runway 8/26
Geodetic Heading	34° 15’ 18.6069” / 214° 15’ 55.6605”	96° 48’ 07.0250” / 276° 48’ 43.4456”
Magnetic Heading	22° 43’ 18.6069” / 202° 43’ 55.6605”	85° 16’ 07.0250” / 265° 16’ 43.4456”
Magnetic Declination	11° 32’ E	11° 32’ E
Updated Runway Designation	2/20	9/27

Runway Pavement Design Strength

To meet the design life goals of the airport, runway pavements must be designed to physically withstand the weight of arriving, taxiing, and departing aircraft. The maximum takeoff weight of the existing design aircraft and those aircraft forecasted to use the airport must be considered to determine pavement strength. Pavement loading is also a function of the number of pressure points, such that the more tires an aircraft has to distribute its load the less stress is put on the pavements. The existing Runway 2/20 pavement is rated at 54,000 pounds single-wheel gear, 74,000 pounds for double-wheel gear, and 137,000 pounds for dual tandem wheel gear. These strength ratings were based on the weakest pavement section of the runway and calculated using the PCN technical method and fleet mix from this master plan. **The pavement strength for Runway 2/20 falls slightly short of the standards for most of the design aircraft determined by the aviation activity forecast.** Runway 8/26 is rated at 16,000 pounds single-wheel gear which meets the need of the design aircraft and fleet mix utilizing that runway.

Line of Sight

The FAA requires that two points five feet above the centerline of a runway without a parallel taxiway, such as Runway 8/26 at Cedar City Regional Airport, be mutually visible for the entire runway. For runways with a full parallel taxiway, like Runway 2/20, the two points five feet above the centerline must be mutually visible for one half of the runway length. Additionally, points five feet above the centerline of intersecting runways must be mutually visible within the Runway Visibility Zone (RVZ). The RVZ is defined as an area formed by imaginary lines connecting the two runways’ line of sight points. **Runway 2/20 does not currently meet either line of sight requirement due to a crown near the middle of the runway. Runway 8/26 and the RVZ meet line of sight requirements.**

Taxiway Standards

A taxiway is a defined path established for the taxiing of aircraft from one part of an airport to another. Taxilanes generally have less strict requirements because they are designed for low speed and precise taxing. Taxilanes are usually, but not always, located outside the movement area, providing access from taxiways to aircraft parking positions and other terminal areas.

Some of the taxiway and taxilane standards are based upon design aircraft ADG, while others are based on the TDG, which is derived from aircraft gear dimensions (overall main gear width and cockpit to main gear distance). This permits "cockpit over centerline" taxiing with pavement being sufficiently wide to allow a certain amount of wander. There are two TDGs used for planning at CDC, depending on the area of the airfield: TDG 2 and TDG 3. The majority of the taxiways should comply with ADG III and TDG 3 standards, with a few needing to meet ADG II and TDG 2. At CDC, Taxiways A, C, and D lead to Runway 2/20 (ADG III, TDG 3), while Taxiway B leads to Runway 8/26 (ADG II, TDG 2).

Taxiway Protection

An important aspect of taxiway and taxilane design standards compliance is the clear zones provided through the Taxiway and Taxilane Object Free Areas. In general, when a taxiway or taxilane has a painted centerline pilots should be able to assume that they have wingtip clearance and buffers for the TDG of that area. **Taxiways A, B, C, and D adhere to all taxiway protection standards.**

Taxiway/Taxilane Safety Area (RSA): A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft deviating from the taxiway.

Taxiway/Taxilane Object Free Area (OFA): An area centered on the ground on a taxiway/taxilane centerline provided to enhance the safety of aircraft operations by remaining clear of objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

TABLE 5.11 TAXIWAY PROTECTION

	CDC - ADG 3 Areas	FAA ADG 3 Standards	CDC - ADG 2 Areas	FAA ADG 2 Standards
Taxiway/Taxilane Safety Area (TSA)				
Width	118′	118′	79′	79′
Taxiway Object Free Area (TOFA)				
Width [1]	**186**′	186′	131′	131′
Taxilane Object Free Area (TOFA)				
Width	162′	162′	115′	115′

[1] Incompatible objects in surface

Taxiway Design Standards

The taxiway and taxilane design standards pertinent to CDC are shown in below. **All taxilanes and taxiways meet or exceed FAA design standards.**

TABLE 5.12 TAXIWAY DESIGN STANDARDS				
	CDC - TDG 3	**FAA TDG 3 Standards**	**CDC - TDG 2**	**FAA TDG 2 Standards**
Width	50-75'	50'	35'	35'
Edge Safety Margin	10'	10'	7.5'	7.5'
Shoulder Width	20-30'	20'	15'	15'

Taxiway Separation Standards

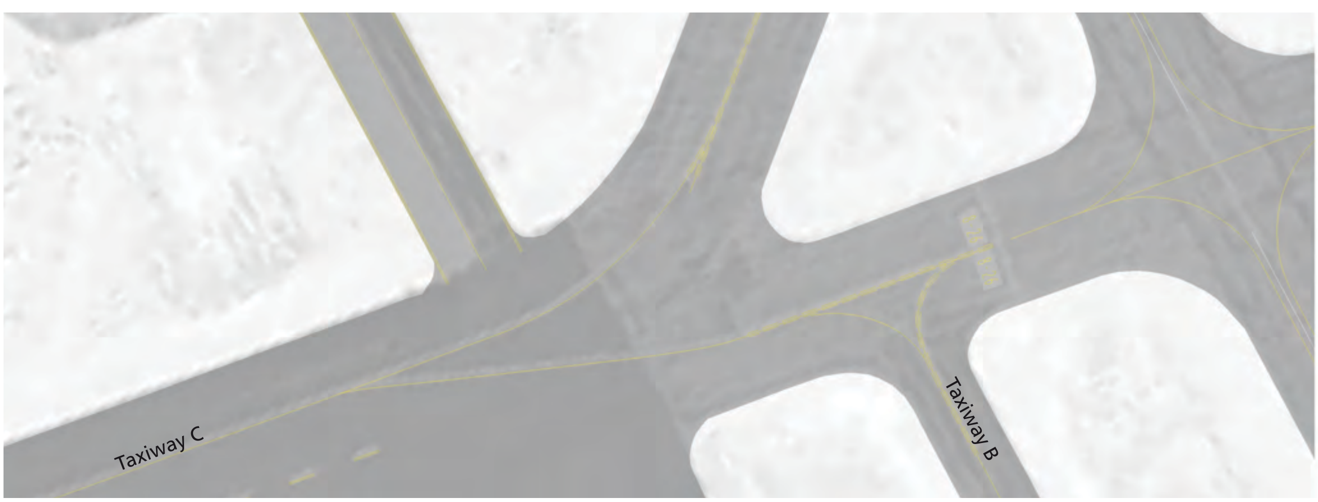
Just as for the runway, the FAA has standards regarding separation distances between taxiways/taxilanes and other objects. **All taxiway separation standards for CDC, shown below, are met.**

TABLE 5.13 TAXIWAY SEPARATION STANDARDS				
	CDC - ADG 3	**FAA ADG 3 Standards**	**CDC - ADG 2**	**FAA ADG 2 Standards**
Taxiway Centerline to Parallel Taxiway/Taxilane Centerline	152'	152'	105'	105'
Taxiway Centerline to Fixed or Movable Object	93'	93'	65.5'	65.5'
Taxilane Centerline to Parallel Taxilane Centerline	140'	140'	97'	97'
Taxilane Centerline to Fixed or Movable Object	81'	81'	57.5'	57.5'

Three-Node Concept

The FAA promotes taxiway design to adhere to the "three-node concept." This concept is meant to prevent any taxiway and taxilane intersections from becoming overly complex and potentially confusing for pilots. The three-node concept states that a pilot should have no more than three choices of direction at each intersection, ideally left, right, or straight. **All intersections at Cedar City Regional Airport meet the three-node concept.** Although passing the three-node test, the intersection where the northern end of the helicopter parking area connects to Taxiway A is potentially confusing to pilots.

Figure 5.3 Taxiway Intersection



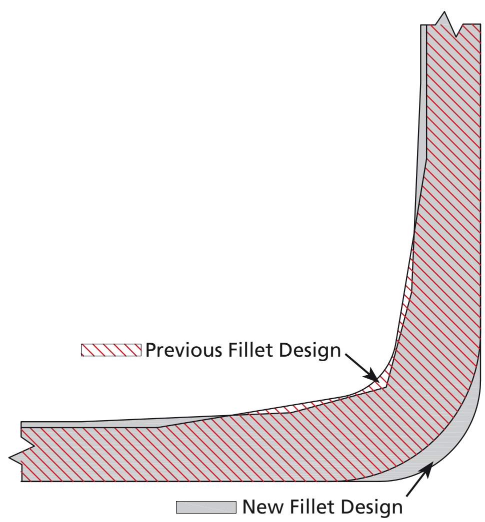
Taxiway Access and Fillets

The latest revision to the FAA Advisory Circular about Airport Design contained two large changes to taxiways. The first change was establishing that taxiways must not have direct access from the apron to the runway without requiring a turn. Such configuration can lead to confusion when a pilot typically expects to encounter a parallel taxiway, but instead accidently enters a runway. **There is direct access from the general aviation apron to Runway 8/26 via the connector. The angle of the turn from the commercial service apron via Taxiway C and connector D1 is also problematic because it provides near direct access to Runway 2/20. All other taxiways at CDC meet this design standard.**

Figure 5.4 Direct Runway Access

The second change was an update to geometry of turns in taxiways. The new geometry removed the previous rounded fillets and replaced them with fillets that have multiple straight edges to create the inner portion of the turn (see figure). The exact dimensions of each fillet vary, based on the relevant TDG and degree of the turn. This change is to better accommodate aircraft taxiing along a centerline through a turn. **No taxiway turns at CDC match the new fillet design.**

Figure 5.5 Taxiway Fillet Design



Navigational Aids

Aids to navigation provide pilots with information to assist them in locating the airport and provide horizontal and/or vertical guidance during landing. Navigational aids also permit access to the airport during poor weather conditions. The need for new or additional navigational aids is a function of the fleet mix, the percentage of time that poor weather conditions are present, and the cost to users of not being able to utilize the airport when it is not accessible. CDC has a rotating beacon and AWOS. There is an Instrument Landing System (ILS) to Runway 20, Precision Approach Path Indicators (PAPI) on Runways 2 and 8, and Runway End Identifier Lights (REIL) on Runways 2, 8, and 26. **There is no need for additional NAVAids at CDC. The rotating beacon needs relocated to increase visibility and free highly desirable land for development.**

Part 77

Title 14 of the Code of Federal Regulations (CFR) Part 77, *Objects Affecting Navigable Airspace* establishes standards for determining obstructions in navigable airspace. Part 77 describes imaginary surfaces that surround each airport and are defined relative to the specific airport and each runway. The imaginary surfaces vary in size and configuration based on the category of each runway. The runway category is determined by the types of approaches that exist or are proposed for that runway.

The most precise existing or proposed approach for the specific runway end determines the slope and dimensions of each approach surface. Any object, natural or man-made, that penetrates these imaginary surfaces is considered to be an obstruction. *Figure 5.6* is a graphical illustration of these surfaces.

Primary Surface: A rectangular area, symmetrically located along the runway centerline and extending a distance of 200 feet beyond each runway threshold. The elevation of the Primary Surface is the same as the corresponding runway elevation. The most demanding type of existing or planned approach for either runway end sets the width of the Primary Surface. In all cases, the width equals the inner width of the approach surface.

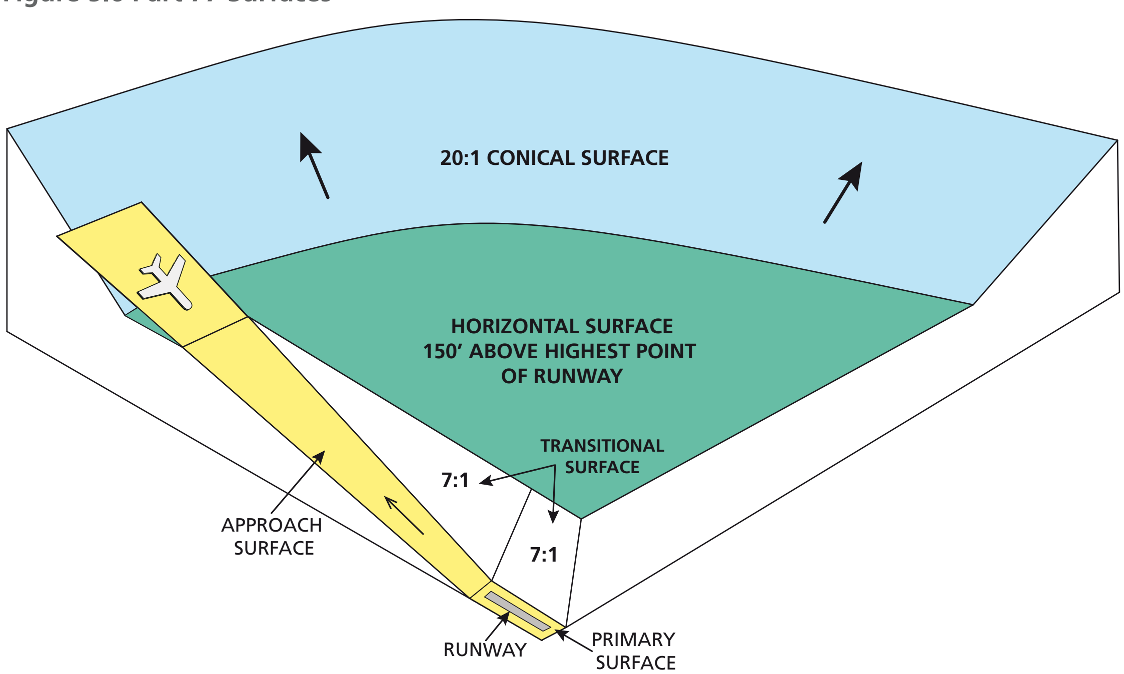
Horizontal Surface: An oval-shaped, level area situated 150 feet above the airport elevation. The perimeter is established by swinging arcs of specified radii from the center of each end of the Primary Surface of each runway and connecting the adjacent arcs by lines tangent to those arcs. The arcs at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

Conical Surface: A sloping area whose inner perimeter conforms to the shape of the horizontal surface.

Transitional Surface: An area that begins at the edge of the Primary Surface and slopes upward at a ratio of 7:1 (horizontal:vertical) until it intersects the Horizontal Surface.

Approach Surface: A surface that begins at the ends of the Primary Surface and slopes upward and flares outward horizontally at a predetermined ratio. The width and elevation at the inner ends of the Approach Surface conform to that of the Primary Surface. Slope, length, and width of the outer ends are governed by the runway service category, existing or proposed instrument approach procedure, and approach visibility minimums.

Figure 5.6 Part 77 Surfaces



The table below lists the Part 77 dimensions for CDC.

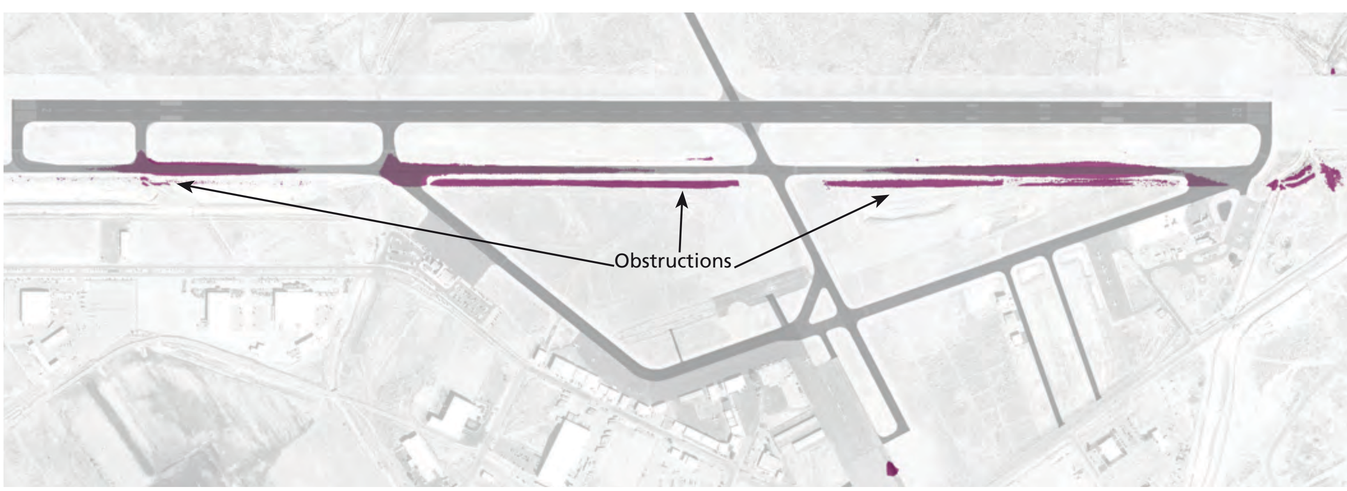
TABLE 5.14 PART 77 DIMENSIONS		
	CDC	
Conical Surface		
Length	4,000'	
Slope	20:1	
Transitional Surface		
Slope	7:1	
	Runway 2/20	**Runway 8/26**
Primary Surface		
Width	1,000'	500'
Length Beyond Runway End	200'	
Horizontal Surface		
Height Above Airport Elevation	150'	
Radius Arc	5,000'	10,000'
Approach Surface		
Inner Width	1,000'	500'
Outer Width	16,000'	4,000'
Length	50,000'	10,000'
Slope	50:1 for 10,000', then 40:1 for 40,000'	20:1

There are numerous obstructions to these surfaces at the airport. The most critical obstructions, which will likely require mitigation, are:

- Terrain and the parallel taxiway (which is two feet higher than the runway) in the Primary Surface of Runway 2/20
- Apron and terrain in the Primary Surface for Runway 8/26, and
- A hangar in the transitional surface near the Runway 26 end.

All other obstructions are in the Horizontal and Conical Surfaces.

Figure 5.7 Critical Part 77 Obstructions



5.4 COMMERCIAL SERVICE

Commercial service at an airport requires specific facilities, services, and adherence to additional rules and regulations beyond what is required of a general aviation-only airport. The "commercial service complex" includes the airside ramp area where commercial aircraft park and passengers enplane and deplane, the commercial service terminal building, and curbside access and vehicular parking.

Airfield

The commercial service terminal in Cedar City is situated on the southeastern side of the airport and has one gate for passengers. The apron has a hardstand parking location for a single regional jet aircraft to park adjacent to the commercial terminal building, which was recently upgraded to support additional weight. The current commercial apron hardstand was designed to support the weight and size of a CRJ-200 or Boeing 757-200. The terminal is flanked by two free automobile parking lots. Ground service equipment is stored adjacent to the terminal on the edge of the commercial apron, thus minimizing the time required to deploy each item. **There is adequate space for the current amount of equipment.**

There may be occasion, due to weather, mechanical failure, or other reasons, that two commercial aircraft are present at the same time. Large aircraft are chartered for the football team. When these charters overlap with commercial service flights there is significant congestion both in the terminal and on the apron. However, such events are exceedingly rare and do not warrant additional facilities at this time. **This commercial airfield configuration is currently sufficient as the airport does not have more than one flight scheduled at the airport at any given time.**

Terminal

The commercial service terminal at CDC is a two-story 15,000 square foot building that serves as the entry and exit point for ticketed passengers. This building includes a 605 square foot holding area for passengers who have passed through security screening. This building, which also houses offices and a conference room, is relatively new and in good condition. In the north wing of the building is a passenger check-in and ticketing area, currently operated by SkyWest. In the south wing is the baggage claiming area and the rental car check-in counter. The center of the terminal includes a spacious and comfortable sitting area, with chairs and couches, and a small area with tables and two vending machines.

The forecasted load factors for 2035 range from 44% to 65%, with 49% defined as the medium forecast. The SkyWest fleet is transitioning to 76-seat E-175 and CRJ-900 and 70 seat CRJ-700 aircraft over the next decade. This includes service for CDC. It is assumed that the holding area should be able to accommodate at least one completely full flight, as well as a partially full flight (determined by load factor) incase of delays or new flights being added. Thus, the CDC holding area should have sufficient space for a full 76 seat aircraft plus 49% of another 76 passengers (37 passengers) equaling 113 passengers.

The Canada Transport, International Air Transport Association, and Transportation Research Board recommend 15 square feet per passenger to achieve the highest level of service (the FAA does not provide specific guidance on the topic). The current terminal holding area has capacity for 50 people (12.1 square feet per passenger). To accommodate 113 passengers at the highest level of service an additional 1,090 feet are required (for a total of 1,695). **To maintain the same area per passenger, 762 additional feet of secure holding are needed.**

The terminal has a single baggage claim matching the needs of the planned commercial service flights. The ticket counters and rental car counters exceed current needs. The concessions court, a small area with seating and one vending machine, also meets current needs. **The forecasted future enplanements do not suggest that the baggage claim, counters, or concessions items need expanded.**

Landside

The curbside length at the terminal building facilitates reasonable traffic flow. Passengers are able to easily and quickly reach the terminal from the curbside or any of the available parking spaces. There are two parking lots that are shared between long-term and short-term passengers, rental car services, and airport employees. **The parking lots are often near capacity and an expansion or additional lot is needed.**

5.5 GENERAL AVIATION

General aviation has different needs than the commercial service side of an airport. This section reviews items specific to general aviation operations at CDC.

Hangars

There is an assortment of different hangar types and sizes at CDC, nearly all of which are currently occupied. Hangars range in size from a large 100’ x 200’ building down to small nested T-hangars. Given the weather in Cedar City, the majority of aircraft based at the airport opt to lease or own hangar space. **Additional hangars, both large and small, are needed to accommodate future growth when new users arrive and when current users acquire larger or additional aircraft.**

Aircraft Parking

General aviation aircraft parking is split between two areas. The northern apron has 59 small aircraft tie-downs and typically occupied by transients. **This number of tie-downs is sufficient for transient traffic.** The southern apron has only three tie-downs. Within the last year, six of tie-downs from this apron were removed due to frost heave rendering them unsafe for use. **Additional tie-downs on this apron for local aircraft are needed.**

Terminal Facilities

There is no airport-managed pilots lounge. General aviation pilots and passengers are able to use the facilities at the FBO. The FBO is a full-service company with an updated building, including numerous services and amenities that meet the needs of general aviation pilots. **No additional general aviation terminal building services or upgrades are recommended.**

5.6 SUPPORT FACILITIES

Support facilities provide a plethora of functions and services to ensure safe and efficient aircraft operation. These facilities support general aviation operations, commercial service flights, or, often times, both.

Fire

Cedar City Regional Airport is required to meet ARFF index requirements as described by 14 CFR Part 139. Part 139 establishes certification requirements for airports serving scheduled air carrier operations based upon the air carrier aircraft length. The most demanding air carrier aircraft forecasted to use Cedar City Regional Airport is the Embraer 175, which is 103’11” in length. When there are fewer than five average daily departures of the longest air carrier aircraft serving the airport, the Index required for the airport will be the next lower Index group than the Index group prescribed for the longest aircraft. Currently, there are two daily departures serving CDC, Monday through Friday, and only one daily departure on both Saturdays and Sundays. **Based on CDC’s forecasted passenger volumes, both the current and future ARFF Index for CDC is Index A.**

TABLE 5.15 ARFF INDEXES	
Index	**Air Carrier Aircraft Length**
A	less than 90’
B	90’ - < 126’
C	126’ - <159’
D	159’ - <200’
E	200’ or longer

Part 139 lists minimum equipment and agents needed to meet the minimum requirements for each Index. **Currently, CDC has an Oshkosh Striker 1500 fire truck, which meets Part 139 requirements for Index A.** This vehicle contains 1,500 gallons of water, 210 gallons of Aqueous Film Forming Foam (AFFF), 450 pounds of dry chemical, and 460 pounds of clean agent

Snow

Cedar City Regional Airport is required to have a Snow and Ice Control Plan. In order to carry out this plan, the FAA has recommended equipment based on annual operations and average annual snowfall in a year. The equipment selection process to select the recommended amount and type of equipment is listed in the table below.

With the forecasted period showing an anticipated growth to roughly 76,000 annual operations and an average snowfall of 49 inches per year, the recommended equipment for CDC includes two snow plows and one high-speed rotary plow (snow blower) to be operated simultaneously. Currently, the airport has one plow, one blower, one broom, and one tractor with a v-blade. The airport needs one additional broom to meet requirements. However, all of the existing equipment is approaching the end of its service life and will need replaced in coming years.

TABLE 5.16 SNOW REMOVAL EQUIPMENT REQUIREMENTS		
Annual Operations	**Annual Snowfall (inches)**	**Minimum type and number of equipment**
10,000 or fewer	30 inches (76 cm) or less	1 snow plow
	more than 30 inches (76 cm)	1 high-speed rotary plow supported by 2 snow plows
Over 10,000	15 inches (38 cm) or more	1 high-speed rotary plow supported by 2 snow plows
	Less than 15 inches (38 cm)	1 snow plow

Fuel
Located on the northern side of the airfield are above ground fuel storage tanks. There are two 10,000 gallon tanks (one 100LL and one JetA) and two 12,000 gallon tanks (one 100LL and one JetA). A self-serve fueling station located adjacent to the transient apron has a 500 gallon fuel tank with 100LL available for purchase. The FBO maintains four fueling trucks (5,000 gallons apiece) which provide fueling services across the airfield. In accordance with Environmental Protection Agency regulations, the airport has an up-to-date Spill Prevention, Control, and Countermeasures (SPCC) Plan for the fuel storage. **Relocation of the self-fuel station would increase safety and clearance for taxiing aircraft and free desirable land for potential leasing. No additional fueling services are required at this time.**

Deicing
Aircraft deicing is located next to the commercial terminal building. The deicing system is owned and operated by SkyWest. The system sprays an ethylene glycol based fluid. The fluid is sprayed from a truck with a lift and bucket to allow application above the wing. The deicing truck uses a deicing and anti-icing fluid. The deicing agent is classified as Type I, used for removing snow, ice, and frost. It is identified with orange dye to aid the application process. **Due to the current level of aircraft operations at CDC, the airport is not required to have a collection or capture system in place for glycol. No additional deicing services are needed. SphereOne offers deicing for general aviation aircraft.**

Utilities
Available utilities at CDC include city water, sewer, and trash, as well as internet, telephone, and satellite television. There is no forecasted need for additional utilities at the airport. **However, future projects will require the expansion or extension of specific utilities.** For example, new hangar development or relocated self-serve fueling would require electricity.

5.7 SPONSOR'S STRATEGIC VISION
Each airport is an important cog of the local community's growth and economic development. Beyond meeting the Design Standards and other requirements set forth by the FAA, each airport sponsor and management team has short-term needs for increasing the airport viability, as well as a long range vision that often requires additional facilities or infrastructure.

In the case of Cedar City Regional Airport, due to wind coverage provided by primary Runway 2/20, the crosswind runway is not eligible for federal funding. As local and state funding for pavement preservation is limited, relying upon these funds for Runway 8/26 can be challenging and time-consuming which results in poor pavement conditions. **Converting Runway 8/26 to a taxiway, which would be eligible for federal funds, is being discussed locally and should continue to be researched.** In most situations, the removal of a runway is strongly discouraged. However, the lion's share of traffic utilizes Runway 2/20 since the crosswind runway is substantially shorter and narrower than the primary runway and less aligned with the wind. Changing the runway to a taxiway would also fix separation and RPZ issues, free additional airport land for development, and simplify airport operations tasks and maintenance. The general consensus from local citizens has been supportive or ambivalent, although some local pilots are opposed to the change.

The planned expansion of SUU's flight school will significantly drive up fixed-wing traffic, especially as student pilots practice in the local airspace and traffic pattern. Depending on the number of aircraft and students, this increase may be enough to warrant a traffic control tower. The FAA does not have strict criteria that mandates the installation of a control tower. **The number of annual operations should be monitored and if a point is reached in which**

safety starts to become a concern the addition of a local tower or a remote tower (using a camera array that transmits over the internet) should be considered.

A small, single building holds the SRE and other maintenance vehicles. Often, due to constrained space, multiple vehicles have to be removed from the building to access the needed vehicle. **It is recommended that a new SRE building be constructed.** This building, located by the existing ARFF facilities, would locate all airport operation staff and equipment in one location and improve response time.

In order to secure safe airspace and accommodate future growth, **it is suggested that a large portion of the northwestern airport property be reserved for aeronautical expansion. Additionally, airport sponsor should strongly consider acquiring any adjacent land that becomes available for purchase.**

5.8 FACILITY REQUIREMENTS SUMMARY

The airport, classified as ARC C-III, Large Aircraft, meets the majority of FAA Design Standards and recommendations. The deficiencies and other considerations identified during the gap analysis are summarized below.

Deficiencies:

- Runways
  - ◊ Taxiway connector to SyberJet's building in Runway 20 ROFA and RPZ.
  - ◊ Fence beyond runway end in Runway 20 ROFA.
  - ◊ Portion of transient apron in Runway 26 RPZ.
  - ◊ Protect, through land use and future projects, an eventual runway extension to Runway 2/20 accommodate a larger percentage of the 12,500 to 60,000 pound aircraft fleet.
  - ◊ Runway 2/20 does not meet line of sight requirements due to a crown near the middle of the runway.
  - ◊ Runway 8/26 does not meet the B-I runway centerline to parallel taxilane centerline and holding position standards.
  - ◊ Runway 8/26 requires renumbering to Runway 9/27.
  - ◊ Runway 2/20 pavement strength is slightly below standards.
- Taxiways
  - ◊ Direct access from the general aviation apron to Runway 8/26.
  - ◊ Angle of the turn from the commercial service apron via Taxiway C and connector D1 provides near direct access to Runway 2/20.
  - ◊ No taxiway turns at CDC match the new fillet design.
- Commercial Service
  - ◊ The secure holding area needs expanded by approximately 760 square feet.
  - ◊ Automobile parking lots need expanded or additional lot needs constructed.
- General
  - ◊ Beacon relocation suggested.
  - ◊ Self-fuel station suggested.
  - ◊ Obstructions present in the Part 77 primary and transitional surfaces.
  - ◊ Additional tie-downs on the general aviation apron needed.
  - ◊ Additional general aviation hangars needed.

Considerations:

- Research converting Runway 8/26 to a taxiway.
- Monitor annual operations and if safety becomes a concern, consider the addition of a control tower.
- Reserve a large portion of the northwestern airport property for aeronautical expansion.
- Purchase land adjacent to the airport as it becomes for sale.

6. Development Alternatives

SECTION OVERVIEW

This chapter identifies and evaluates different alternatives to meet the needs of the Airport Sponsor and users. A key element is addressing the previously identified facility requirements. Alternatives selected by the Airport Sponsor are summarized at the end of the chapter.

6.1 GENERAL

Previous chapters outlined the existing airport structures and pavements, current and future aviation users, and airport deficiencies. This alternatives chapter combines all of that background information to create future construction projects to address issues and accommodate future use. Final alternatives, as well as some preliminary and rough concepts, that were designed for future improvements at Cedar City Regional Airport are reviewed. CDC has served the aviation needs of Cedar City and Iron County for decades. Development has taken place at the airport during this time with capital resources invested into the airport facilities. The most recent improvements include rehabilitation of the runway, widening of a taxiway, construction of a Snow Removal Equipment building, and the purchase of Snow Removal Equipment.

Multiple criteria were used in development and evaluation of alternatives for Cedar City Regional Airport:

- **Existing Infrastructure:** Described in *Chapter 3. Airside and Landside Inventory,* conceptual alternatives weighed the condition or lack of existing facilities at the airport.
- **Future Aviation Activity:** Detailed in *Chapter 4. Forecast of Aviation Demand,* conceptual alternatives considered the forecasted number of operations and type of aircraft for the next 20 years.
- **FAA Design Standards:** Outlined in *Chapter 5. Facility Requirements,* alternatives adhered to the applicable FAA Design Standards and recommendations.
- **Community and Airport Goals:** Conceptual alternatives were designed based on feedback from Cedar City officials, airport users, and other community members. Future improvements to the airport should support long term community and economic goals.
- **Compatible Land Use:** Alternatives were designed to ensure compatible and environmentally friendly land use.
- **Efficiency**: Alternatives aimed to utilize existing space in the most efficient manner, balancing airfield traffic, hangar access, and safety areas..
- **Reasonable and Justified:** Only alternatives that progressed toward a reasonable and justified goal were evaluated.
- **Utah State System Plan:** Design of alternatives incorporated Utah Continuous Airport System Plan goals and objectives.

6.2 SPONSOR AND USER INPUT

Ensuring development alternatives were vetted and approved by the public and pertinent users was a top priority. The Cedar City Regional Airport Board, airport staff, Master Plan Advisory Council (refer to Appendix A), airport users, and general public contributed input throughout the development of alternatives. FAA staff also contributed to the discussions via email and teleconference.

6.3 NEEDED IMPROVEMENTS SUMMARY

For simpler issues, such as relocating the airport beacon or renumbering the crosswind runway, the solutions were straight forward. However, more complex deficiencies and desired improvements required multiple potential alternatives be developed and compared. For example, more than a dozen alternatives were created to address the self-serve fuel relocation and transient apron redesign. Ultimately, the airport staff and Airport Board vetted and selected all final alternatives. Development projects that required in-depth analyses and are discussed in this chapter are grouped into five broad categories: Runway, Taxiway, Apron and Hangar, Commercial Service, and General.

6.4 RUNWAY DEVELOPMENT

TABLE 6.1 RUNWAY IMPROVEMENTS

Runway Deficiencies	Improvements Needed
A. Runway 2/20 grade does not meet Line of Sight requirements	Reconstruct runway to correct longitudinal gradient requirements
A. Runway 2/20 transverse grade causes water to pond on runway	Reconstruct runway to correct transverse gradient requirements
A. Runway 2/20 is lower than Taxiway D	Reconstruct and lower Runway 2/20 or reconstruct and raise Taxiway D
A. Runway 2/20 pavement strength slightly below forecasted need	Reconstruct and strengthen Runway 2/20
B. Runway 2/20 length short of ultimate forecasted need	Extension recommended (20+ years out)

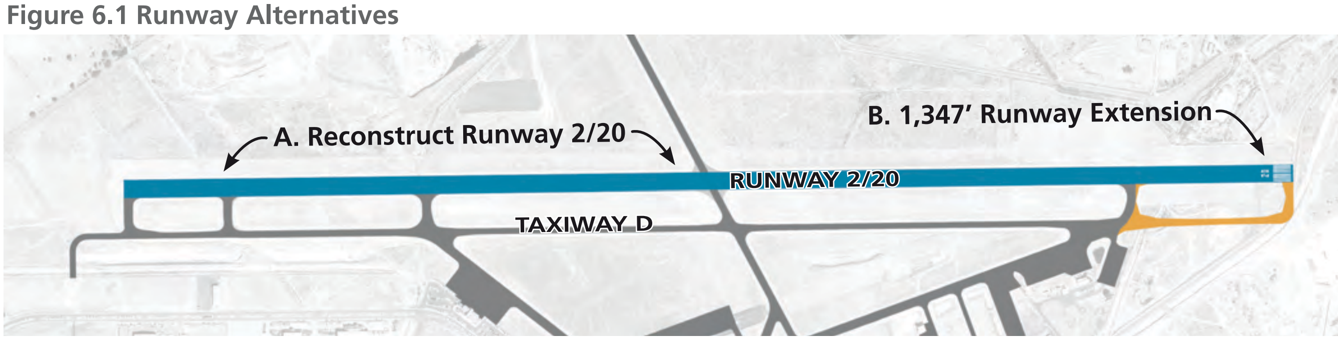
A. Runway Reconstruction

In the near term, there are multiple runway issues (water ponding, lack of line of sight, and lower pavement strength ratings) that can all be remediated through a reconstruction project. The ponding and line of sight issues can only be corrected through reconstruction, which will be expensive and require closure of the primary runway for a significant amount of time. If Taxiway D were to be reconstructed for strengthening or another reason, prior to a project on the primary runway, lowering should be strongly considered to remedy that issue as quickly as possible.

B. Runway Extension

The airport is encouraged to protect for an eventual runway extension due to the combination of commercial service and aerial firefighting aircraft increasing in size and the growth of Cedar City. This runway extension is forecasted to be needed beyond the planning period of 20 years. The proposed extension to the end of Runway 20 would increase the overall length from 8,653’ to 10,000’ to better accommodate more of the large aircraft fleet. This extension will require relocation of the approach lighting system. An extension beyond 10,000’ was evaluated and discarded due to existing terrain and land use. An extension to the Runway 2 end was also examined and rejected because it would require substantial land acquisition, removal of a large number of existing privately-owned structures, and relocation or closure of a major roadway. Since the runway extension is planned for the very long term, another master plan with an alternative analysis in-depth enough to meet NEPA requirements will need to be completed prior to construction.

Figure 6.1 Runway Alternatives



6.5 TAXIWAY DEVELOPMENT

TABLE 6.2 TAXIWAY IMPROVEMENTS	
Taxiway Deficiencies	Improvements Needed
A. Taxiway Connector D2 under utilized	Removal of connector
B. Runway 2/20 is lower than Taxiway D	Reconstruct and lower Runway 2/20 or reconstruct and raise Taxiway D
C. Direct access from apron to Runway 8/26	Paint a no-taxi island for short term solution, change connector geometry or apron layout for permanent solution
C. Near direct access from commercial apron to Runway 2/20	Change connector geometry
D. Traffic congestion	Create a run-up area off the taxiways for small general aviation aircraft, especially for student pilots. Create connector on north side of Runway 2/20. Remove non-standard pavements.

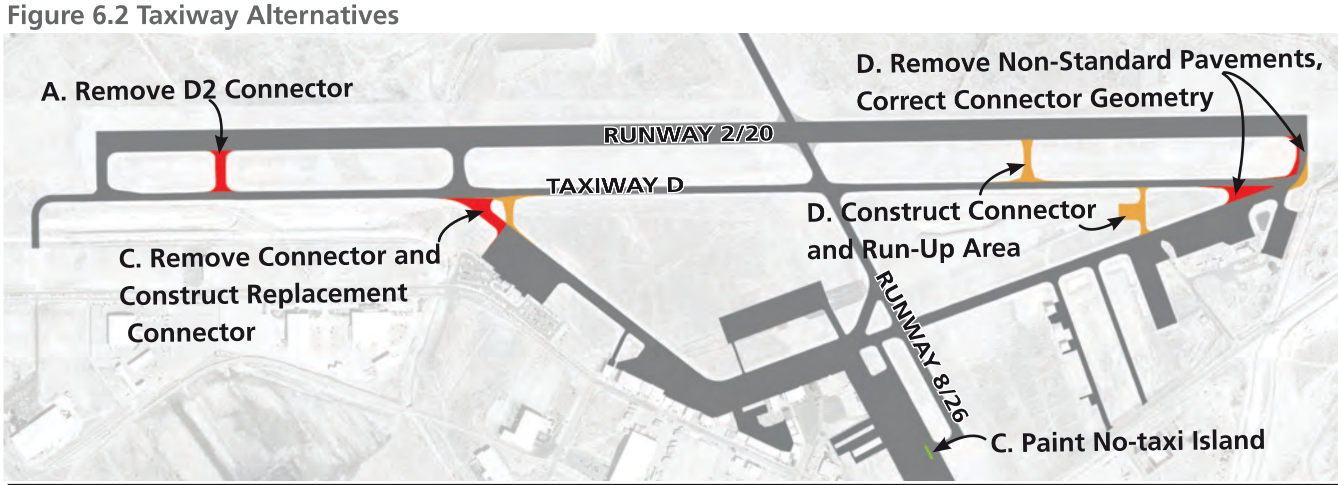
A. Taxiway Connectors
Taxiway connector D2 (shown in red) is located very close to the Runway 2 end and, as such, is barely utilized by aircraft. To reduce pavement maintenance costs, removal of the connector is recommended.

B. Taxiway D
Design standards state that taxiways are to be lower than runways, and Taxiway D is higher than Runway 2/20. Taxiway D should be lowered if Runway 2/20 is not raised during a reconstruction.

C. Direct Access
Direct access from an apron to a runway can cause aircraft to inadvertently enter an active runway. To fix the direct access issue from the commercial apron the existing connector to Runway 2/20 will be removed and a new connector, with the approved angles and fillet design, will be constructed. To remedy the direct access to Runway 8/26 from the adjacent apron, painting a no-taxi island is proposed as a short term solution. For the long term, if Runway 8/26 remains a runway, substantial work will be required, likely including pavement removal, adjusted taxiway centerlines and apron layout, and a new connector.

D. Traffic Congestion
To remedy traffic congestion and encourage a safe traffic flow, a run-up area for student and other general aviation pilots will be constructed in between Taxiways D and A. This will allow aircraft to be safely away from the active movement areas during run-up. Additionally, construction of a new connector to the parallel taxiway on the north end of Runway 2/20 is recommended, as this will permit aircraft to exit the active runway more quickly.

Figure 6.2 Taxiway Alternatives



6.6 APRON AND HANGAR DEVELOPMENT

TABLE 6.3 APRON AND HANGAR IMPROVEMENTS

Apron and Hangar Deficiencies	Improvements Needed
A. Transient apron does not meet TOFA standards	Redesign apron layout
B. Self-fuel station location inconvenient and prevents proper apron traffic flow	Relocate self-fuel station
C. Provide hangar expansion area for business aircraft	New apron and hangar development area with landside access
D. Provide hangar expansion for flight school and/or general aviation users	New apron and hangar development area
E. Provide inexpensive hangar option for general aviation users	New T-hangar development area

A. Transient Apron
An apron redesign is recommended that meets all design standards, removes all movement areas from the RPZ of Runway 26, and maximizes the number of tie-down locations.

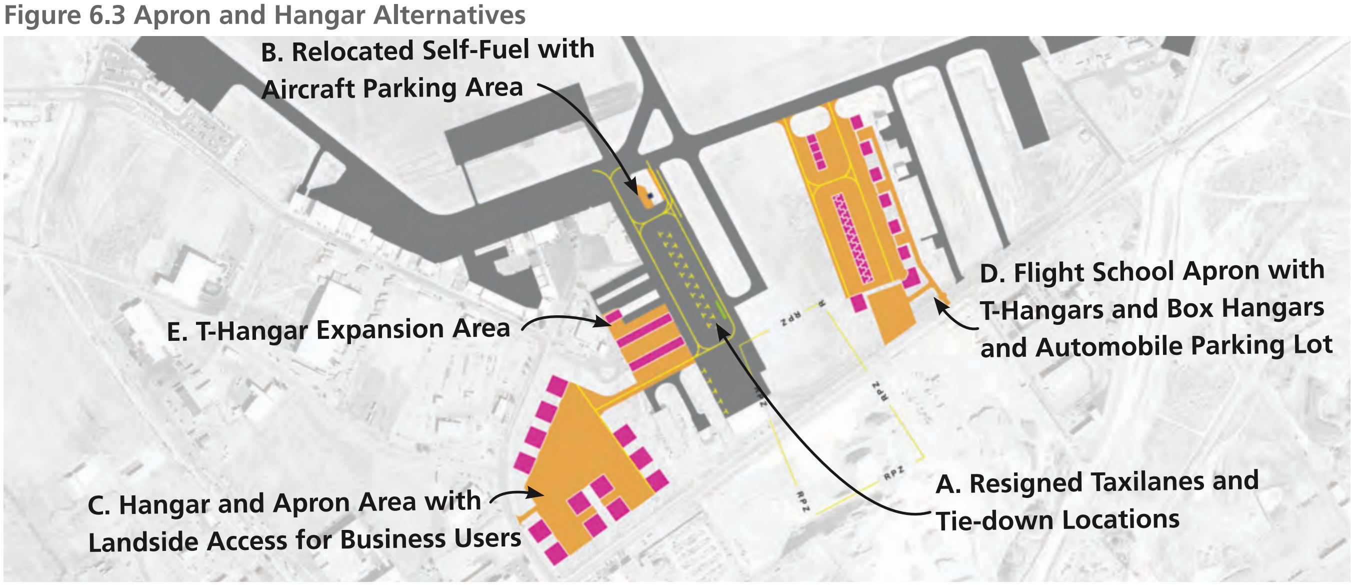
B. Fuel Station
The self-fuel relocation area works within the redesigned apron layout, and removes aircraft from movement areas and clear of the TOFA on a small temporary parking area.

C. Business Apron
A large apron area with landside access that meets all C-III is recommended. This apron area can accommodate a range of hangars, from small to very large. This land is owned by the airport and currently not used.

D. Flight School Apron
This apron and hangar expansion is a flexible area with locations for box hangars, T-hangars, an automobile parking lot, and complete traffic circulation with two entry/exit points. This area is designed to meet B-II standards.

E. Inexpensive Hangar Expansion
As demand dictates, up to two additional rows of T-hangars next to the existing T-hangars can be constructed.

Figure 6.3 Apron and Hangar Alternatives



6.7 COMMERCIAL SERVICE DEVELOPMENT

TABLE 6.4 COMMERCIAL SERVICE IMPROVEMENTS	
Commercial Service Deficiencies	**Improvements Needed**
A. Inadequate automobile parking	Add additional parking lot
B. Secure holding room undersized	Expand secure holding room

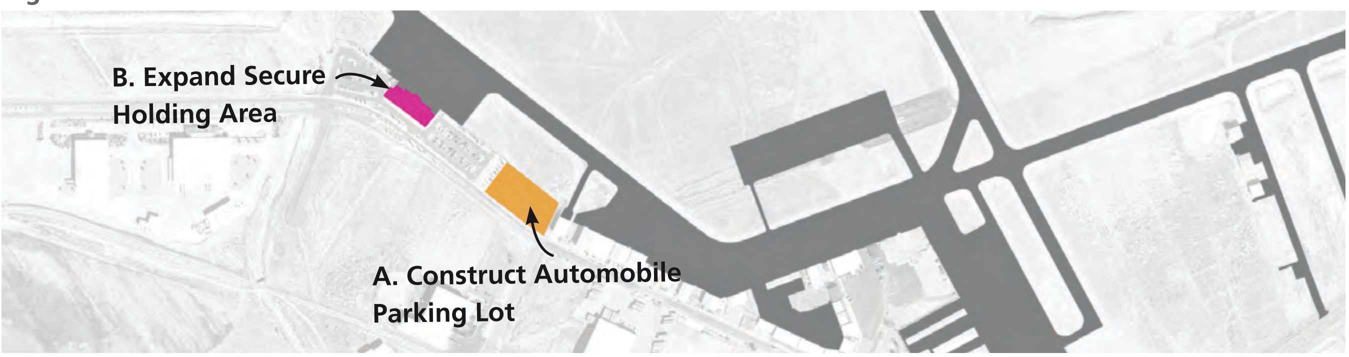
A. Automobile Parking

There is ample room to the north of the existing automobile parking lots for construction of a new lot. This lot would alleviate current parking issues.

B. Secure Holding Area

There is limited space within the existing terminal to expand the secure holding area. If additional space is needed, or the costs for remodeling are prohibitive, there is also space to expand the secure holding area on the commercial apron and still leaving enough room for the commercial aircraft.

Figure 6.4 Commercial Service Alternatives



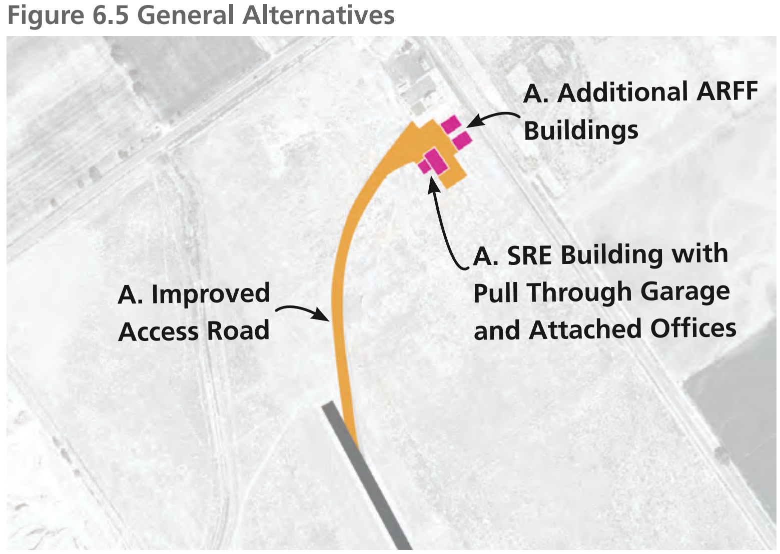
6.8 GENERAL DEVELOPMENT

TABLE 6.5 GENERAL IMPROVEMENTS	
General Deficiencies	**Improvements Needed**
A. Inadequate space for ARFF, SRE, and other maintenance equipment	Construct additional buildings

A. ARFF and SRE Buildings

Construction of additional ARFF buildings, adjacent to existing buildings, is warranted on an as-needed basis. The airport is planning to acquire new and larger SRE. To accommodate this equipment, a new SRE building, with a pull-through garage, is recommended to improve traffic flow, ease of use, and snow clearing response time. This new SRE building should also have administrative space that overlooks the airfield for operations personnel and storage for emergency equipment. The road leading from the SRE building to the airfield pavements should be paved or improved in some manner.

Figure 6.5 General Alternatives



6.9 COMPARISON TO THE PREVIOUS PLAN

Prior to this master plan, the most recently finished planning document for CDC was a 2011 Airport Layout Plan Update. The ALP Update listed 12 development projects. The current disposition for these 12 projects is listed below, accompanied by a comparison to the projects proposed by this master plan.

Many of the projects listed in the 2011 ALP Update, as well as in this master plan, are for the long-term planning horizon. So, it is expected that some of the longer term projects would still be pending.

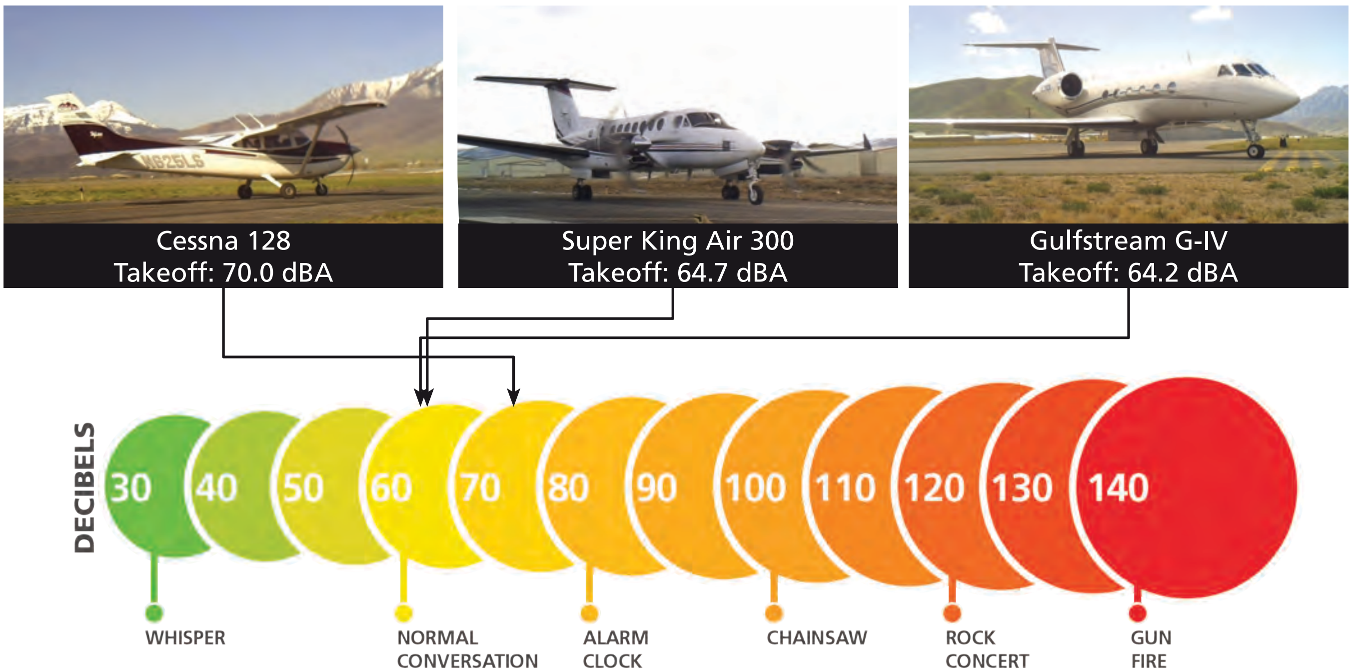
TABLE 6.6 NEEDED IMPROVEMENTS SUMMARY

2011 ALP Update Development Projects	Current Disposition / Comparison to Current Projects
1. Snow Removal Equipment and Maintenance Equipment Storage Building	Building was constructed northeast of terminal. Building is already at capacity and an additional building, adjacent to ARFF facility, is proposed in current plan.
2. Passenger Terminal Area Expansion	No progress to date. Current plan notes need for expanded secure holding area.
3. Widen Taxiway D	No progress to date. Project was not found to be currently justified and is not shown on current plan.
4. Non-Aeronautical Revenue Generating Development (west of Runway 2/20 and south of Runway 8/26)	No progress to date. The area designated on old plan not designated for any specific purpose on current plan.
5. Corporate/Aeronautical Development with Airfield Access	No progress to date. Area remains designated for aeronautical development on current plan.
6. Runway 8/26 Parallel Taxiway/Corporate Access Taxiway	No progress to date. Project is not shown on current plan.
7. Extend Runway 2/20	No progress to date. Shown on current plan as long-term project
8. Construct Taxilane (North of Runway 8/26)	No progress to date. Project was not found to be currently justified and is not shown on current plan.
9. T-Hangar Expansion (east of existing T-Hangars)	No progress to date. Project is shown on current plan.
10. Corporate Hangar Expansion (southeast of existing T-Hangars)	No progress to date. Project is shown on current plan.
11. ARFF Facility	Facility was constructed. Current plan shows the addition of more ARFF buildings.
12. FBO Expansion Area	FBO expansion is anticipated to be completed by the end of 2017.

6.10 NOISE ABATEMENT

Sound is measured in decibels and many factors influence how loud a sound is perceived. An "A-weight" is a correction often applied to decibels (abbreviated dBA) to reduce the perceived sound of low frequencies because the human ear is less sensitive at low frequencies than at high audio frequencies. The chart below provides decibel ratings for some common sounds and aircraft during takeoff. All aircraft data is from FAA estimated airplane noise levels.

Figure 6.6 Decibel Ratings

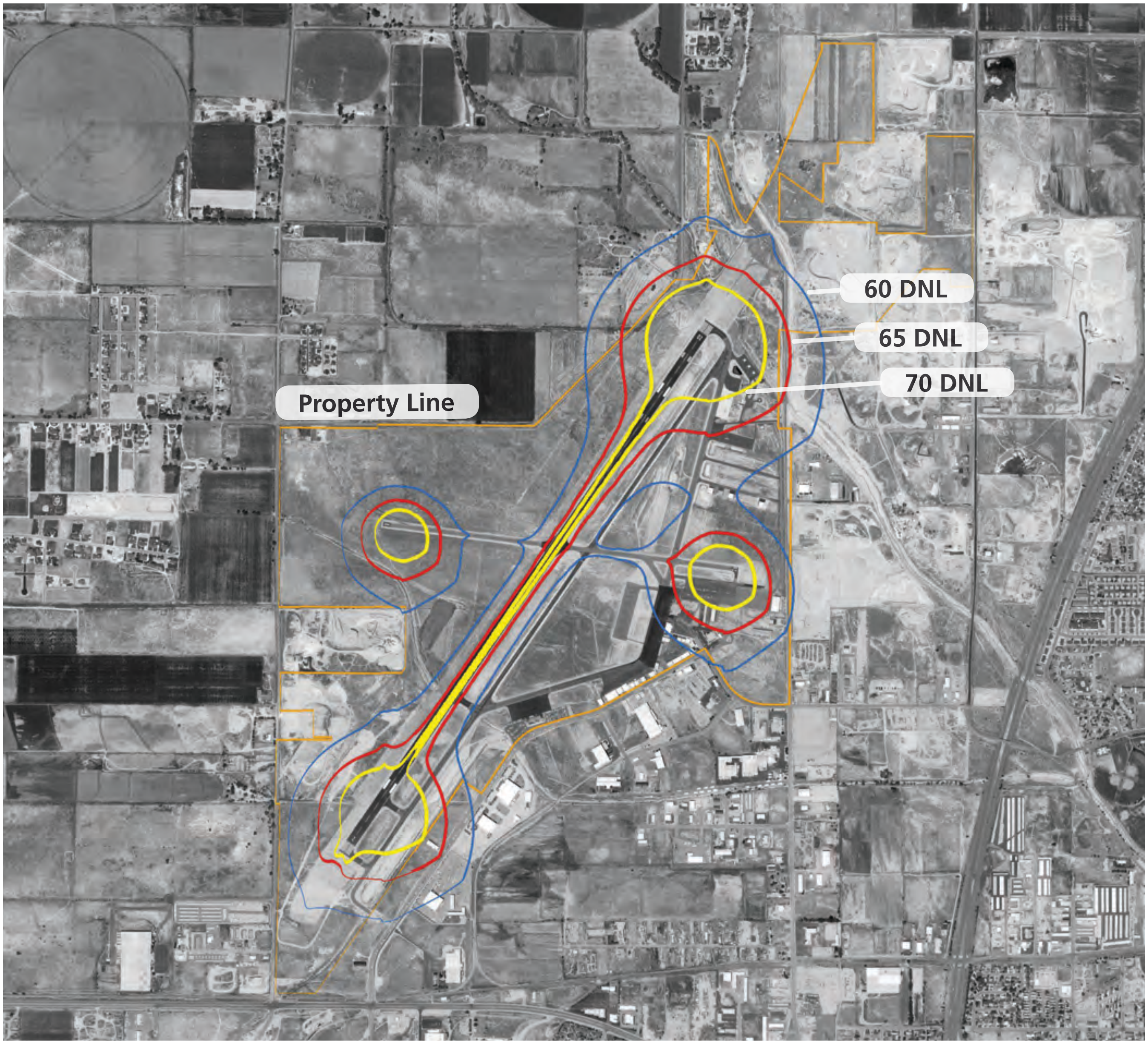


Day-Night Average Sound Level (DNL) represents noise averaged over a 24-hour period, with nighttime noise events given additional weight because noise at night is often perceived to be more intrusive. The FAA and EPA have set the guideline at 65 DNL to determine compatible land use around airports. Noise complaints can and will occur in areas impacted by lesser noise levels because individual human perception of noise is subjective.

To calculate the DNL for Cedar City Regional Airport, a representative fleet mix was selected based on the approved forecast data. Typically, one or two aircraft were selected to represent each engine type (for example, the Cessna 172, a very common aircraft in Cedar City, was used to represent all single-engine piston operations). The percentage of daytime and nightime operations, as well as\ the split of aircraft arriving and departing for each runway end were extracted from the motion-activated camera data and then confirmed by the Airport Manager. The fleet mix and other variables were approved by the FAA Project Manager prior to performing any calculations.

The calculated 60, 65, and 70 DNL noise contours, based upon the 2036 forecasted aircraft operations, are shown below. As can be seen, the critical contour (65 DNL) is contained almost entirely (94%) within the existing airport property. The differences in area between the 2016 and 2036 contours were extremely minimal. As such, no development is recommended to abate existing or forecasted noise.

Figure 6.7 Noise Contours



6.11 ALTERNATIVES SUMMARY

Each airport is unique and comes with a distinctive set of aviation activity, community goals, terrain, weather, and financial capabilities. As a result, planning of aviation facilities cannot be done with a cookie-cutter approach. Ultimately, through collaboration with the local community and Airport Sponsor, reasonable alternatives were developed to address the short and long term needs of CDC. Some alternatives are specific, detailing dimensions and locations, while others are more general to allow flexibility in design for current situations when funding arrives. As time passes, some projects are completed while others that were at one time needed are ultimately no longer needed and are dismissed. The alternatives detailed in this chapter provide Cedar City with a set of plans to accommodate the needs of the airport and airport users over the next two decades.

7. Environmental Overview

SECTION OVERVIEW

This chapter presents environmental considerations and factors pertinent to Cedar City Regional Airport, with an emphasis on proposed development. Information is compiled from a number of sources, notably multiple governmental agencies.

7.1 GENERAL

The purpose of considering environmental factors in airport master planning is to help the Airport Sponsor evaluate potential development alternatives and to provide information that will help expedite future environmental processes. Airport planning provides the basis for a project's purpose and need in environmental evaluation and the alternatives that will carry into future National Environmental Policy Act (NEPA) analysis. The NEPA [42 USC 4321 et seq.] was signed into law on January 1, 1970.

NEPA establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment and provides a process for implementing these goals within the federal agencies. Title I of NEPA contains a Declaration of National Environmental Policy which requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony. Section 102 requires federal agencies to incorporate environmental considerations in their planning and decision-making through a systematic interdisciplinary approach. NEPA requires federal agencies to integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and reasonable alternatives to those actions.

All known applicable state and federal agencies were contacted for comments pertaining to the proposed improvements and agency responses are included in Appendix F. Multiple public meetings were held to gather local public input during the planning process, as detailed in Appendix A. The agency responses provide preliminary information that may be useful in determining future environmental review requirements.

NEPA PROCESS

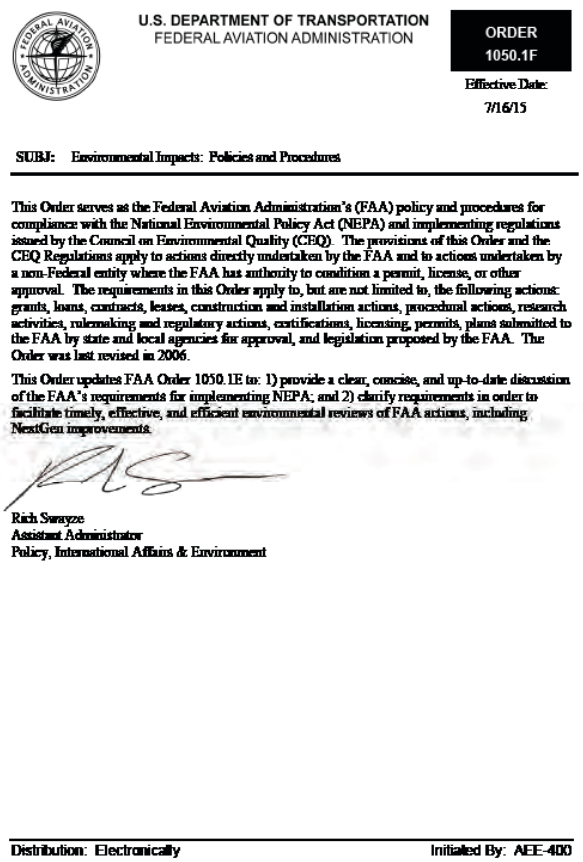
The NEPA process consists of an evaluation of the environmental effects of a federal undertaking including its alternatives. There are three levels of analysis: categorical exclusion (CATEX) determination; preparation of an environmental assessment/finding of no significant impact (EA/FONSI); and preparation of an environmental impact statement (EIS).

- CATEX: At the first level, an undertaking may be categorically excluded from a detailed environmental analysis if it meets certain criteria which a federal agency has previously determined as having no significant environmental impact. A number of agencies have developed lists of actions which are normally categorically excluded from environmental evaluation under their NEPA regulations.
- EA/FONSI: At the second level of analysis, a federal agency prepares a written EA to determine whether or not a federal undertaking would significantly affect the environment. If the answer is no, the agency issues a FONSI. The FONSI may address measures which an agency will take to mitigate potentially significant impacts.
- EIS: If the EA determines that the environmental consequences of a proposed federal undertaking may be

significant, an EIS is prepared. An EIS is a more detailed evaluation of the proposed action and alternatives. The public, other federal agencies, and outside parties may provide input into the preparation of an EIS and then comment on the draft EIS when it is completed.

If a federal agency anticipates that an undertaking may significantly impact the environment, or if a project is environmentally controversial, a federal agency may choose to prepare an EIS without having to first prepare an EA. After a final EIS is prepared and at the time of its decision, a federal agency will prepare a public record of its decision addressing how the findings of the EIS, including consideration of alternatives, were incorporated into the agency's decision making process.

Figure 7.1 FAA Order 1050.1F Cover Page


U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

ORDER
1050.1F

Effective Date:
7/16/15

SUBJ: Environmental Impacts: Policies and Procedures

This Order serves as the Federal Aviation Administration's (FAA) policy and procedures for compliance with the National Environmental Policy Act (NEPA) and implementing regulations issued by the Council on Environmental Quality (CEQ). The provisions of this Order and the CEQ Regulations apply to actions directly undertaken by the FAA and to actions undertaken by a non-Federal entity where the FAA has authority to condition a permit, license, or other approval. The requirements in this Order apply to, but are not limited to, the following actions: grants, loans, contracts, leases, construction and installation actions, procedural actions, research activities, rulemaking and regulatory actions, certifications, licensing, permits, plans submitted to the FAA by state and local agencies for approval, and legislation proposed by the FAA. The Order was last revised in 2006.

This Order updates FAA Order 1050.1E to: 1) provide a clear, concise, and up-to-date discussion of the FAA's requirements for implementing NEPA; and 2) clarify requirements in order to facilitate timely, effective, and efficient environmental reviews of FAA actions, including NextGen improvements.

Rich Swayze
Assistant Administrator
Policy, International Affairs & Environment

Distribution: Electronically   Initiated By: AEE-400

CATEXs represent federal actions meeting the criteria contained in 40 CFR 1508.4 that the FAA has found do not normally require an EA or EIS because they do not individually or cumulatively have a significant effect on the human environment. According to FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, the following actions, organized by function, are generally categorically excluded:

- Administrative/General: Actions that are administrative or general in nature;
- Certification: Actions concerning the issuance of certificates or compliance with certificate programs;
- Equipment and Instrumentation: Actions involving installation, repair, or upgrade of equipment or instruments necessary for operations and safety;
- Facility Siting, Construction, and Maintenance: Actions involving acquisition, repair, replacement, maintenance, or upgrading of grounds, infrastructure, buildings, structures, or facilities that generally are minor in nature;
- Procedural: Actions involving establishment, modification, or application of airspace and air traffic procedures;
- Regulatory: Actions involving establishment of, compliance with, or exemptions to, regulatory programs or requirements.

Extraordinary circumstances are factors or circumstances in which a normally categorically excluded action may have a significant environmental impact that then requires further analysis in an EA or EIS. The FAA uses screening and other analyses and consultation, as appropriate, to assist in determining extraordinary circumstances. Paragraph 4-3 of Order 1050.1F details the FAA's significance thresholds and factors to consider in evaluating significance. Additionally, supporting guidance to determine the potential for significant environmental impacts is available in the 1050.1F desk reference.

Environmental reviews look at several impact categories as defined by NEPA. These impact categories are briefly described in the following sections as they relate to Cedar City Regional Airport. Order 1050.1F serves as the FAA's policy and procedures for compliance with NEPA and implementing regulations issued by the Council on Environmental Quality (CEQ). Order 1050.1F went into effect in July 2015. At that time, the FAA also published the desk reference to complement Order 1050.1F and provide further explanatory guidance, including relevant laws, regulations, and other requirements, such as executive orders.

7.2 AIR QUALITY

There are primarily two laws that apply to air quality: NEPA and the Clean Air Act (CAA). The CAA established National Ambient Air Quality Standards (NAAQS) for six pollutants, called criteria pollutants. The criteria pollutants include carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM-10 and PM-2.5), and sulfur dioxide (SO_s). A non-attainment area is any geographic area that experiences a violation of one or more NAAQS. A maintenance area is any geographic area previously designated non-attainment for a criteria pollutant and later redesignated to attainment. Areas of concern have not reached non-attainment levels and Class I areas include all national parks greater than 6,000 acres, wilderness areas and national memorial parks greater than 5,000 acres, and certain international parks.

There are three non-attainment and two maintenance areas in Utah; however, these areas are located in the general vicinity of Salt Lake City; none of them are located near Cedar City Regional Airport, Cedar City, or Iron County.

The FAA's *Aviation Emissions and Air Quality Handbook* is designed to assist in the planning and completion of air quality assessments conducted for aviation-related projects or actions. There is no single, universal criterion for determining what type of analysis is appropriate for FAA supported projects or actions. The *Aviation Emissions and Air Quality Handbook* provides detailed guidance on the various assessment models that are available and recommended to conduct aviation-related air quality assessments. For example, Emissions and Dispersion Modeling System (EDMS) is designed to assess the air quality impacts of airport emission sources which consist of aircraft, Auxilary Power Units, Ground Support Equipment, stationary sources, and ground access vehicles. EDMS is one of the few air quality assessment tools specifically engineered for the aviation community. The FAA identified EDMS as the "required" model to perform air quality analyses for aviation sources in 1998.

The General Conformity Rule establishes the procedures and criteria for determining whether certain federal actions conform to state or EPA air quality implementation plans. The General Conformity Rule only applies in areas that the EPA has designated non-attainment or maintenance. Certain federal actions are exempt from the General Conformity Rule because they result in no emissions or emissions are clearly below the rule's applicability emission threshold levels. These include, but are not limited to routine maintenance and repair (40 CFR Section 93.153(c)(2)(iv)), routine installation and operation of navigational aids, transfers of land, facilities, and real properties (40 CFR Section 93,.153(c)(2)(xiv)), and actions affecting an existing structure where future activities will be similar in scope to activities currently being conducted. According to 72 Federal Register 41565 (2007), Section II(2), airport maintenance, repair, removal, replacement, and installation work that matches the characteristics, size, and function of a facility as it existed before the replacement or repair activity typically qualifies as routine maintenance and repair for purposes of general conformity if the activity does not increase the capacity or change the operational environment of the airport.

7.3 BIOLOGICAL RESOURCES

Section 7 of the Endangered Species Act (ESA), applies to Federal agency actions and sets forth requirements for consultation to determine if the proposed action may impact an endangered or threatened species. There are many other regulations that apply to potential impacts of actions on fish, wildlife, plants, and their respective habitats, including the Bald and Golden Eagle Protection Act, Fish and Wildlife Coordination Act, Magnuson-Stevens Fishery Conservation and Management Act, Marine Mammal Protection Act, Migratory Bird Treaty Act, Executive Order 13112, Invasive Species, Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, Council on Environmental Quality Guidance on Incorporating Biodiversity Considerations Into Environmental Impact Analysis Under the National Environmental Policy Act (January 1993),the Memorandum of Understanding to Foster the Ecosystem Approach (December 1995), the Presidential Memorandum on Economically and Environmentally Beneficial Landscaping, and FAA AC 150/5200-33B, Hazardous Wildlife Attractants on or Near Airports.

Under Section 7 of the ESA, the FAA must initiate consultation with the US Fish and Wildlife Service and/or National Marine Fisheries Service if the FAA determines that an action may affect a threatened or endangered species. IPaC (Information, Planning, and Conservation) is an online system that provides information regarding federally designated and proposed candidate, threatened, and endangered species, final critical habitats, and service refuges that may occur in an identified area, or may be affected by proposed activities.[50] IPaC is a collaborative effort by the US Fish and Wildlife Service, US Department of Homeland Security, US Geological Survey, and US Pipeline and Hazardous Materials Safety Administration.

The IPaC resource report for the proposed project area shows two endangered species and four threatened species as outlined in *Table 7.1*. Proposed, candidate, threatened, endangered, and experimental non-essential species are managed by the Endangered Species Program, facilitated by the US Fish and Wildlife Service.

- Proposed Species - Any species of fish, wildlife, or plant that is proposed in the Federal Register to be listed under Section 4 of the Endangered Species Act.
- Candidate Species - A species under consideration for official listing for which there is sufficient information to support listing.
- Threatened Species - A species likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
- Endangered Species - A species in danger of extinction throughout all or a significant portion of its range.
- Experimental Population - Non-Essential - A species listed as experiemental and non-essential.

TABLE 7.1 ENDANGERED SPECIES ACT SPECIES LIST

Type	Species	Latin Name	Listing Status
Bird	California Condor	*Gymnogyps californianus*	Endangered
Bird	Mexican Spotted Owl	*Strix occidentalis lucida*	Threatened
Bird	Southwestern Willow Catcher	*Empidonax trallii extimus*	Endangered
Bird	Yellow-billed Cuckoo	*Coccyzus americanus*	Threatened
Flowering Plant	Jones Cycladenia	*Cycladenia humilis var. jonesii*	Threatened
Mammal	Utah Praire Dog	*Cynomys parvidens*	Threatened

Potential effects to critical habitats within the project area must be analyzed along with the endangered species themselves. When a species is proposed for listing as endangered or threatened under the Endangered Species Act, the US Fish and Wildlife Service must consider whether there are areas of habitat believed to be essential to the species' conservation. Those areas may be proposed for designation as critical habitat. There are no critical habitats in the proposed CDC project area. A critical habitat designation does not necessarily restrict further development. It is a reminder to federal agencies that they must make special efforts to protect the important characteristics of these areas.

Birds are protected by the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The 1988 amendment to the Fish and Wildlife Conservation Act mandates the US Fish and Wildlife Service to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973." Birds of Conservation Concern 2008 is the most recent effort to carry out this mandate. The overall goal of the Birds of Conservation Concern is to accurately identify the migratory and non-migratory bird species (beyond those already designated as federally threatened or endangered) that represent the highest conservation priorities of the US Fish and Wildlife Service. *Table 7.2* on the following page lists the species identified in the proposed project area.

TABLE 7.2 MIGRATORY BIRD TREATY ACT SPECIES LIST				
Type	**Species**	**Latin Name**	**Listing Status**	**Season**
Bird	Bald Eagle	*Haliaeetus leucocephalus*	Bird of conservation concern	Wintering
Bird	Bendire's Thrasher	*Toxostoma dendirei*	Bird of conservation concern	Breeding
Bird	Black Rosy-finch	*Leucosticte atrata*	Bird of conservation concern	Year-round
Bird	Brewer's Sparrow	*Spizella breweri*	Bird of conservation concern	Breeding
Bird	Burrowing Owl	*Athene cunicularia*	Bird of conservation concern	Breeding
Bird	Calliope Hummingbird	*Stellula calliope*	Bird of conservation concern	Migrating
Bird	Cassin's Finch	*Carpodacus cassinii*	Bird of conservation concern	Year-round
Bird	Eared Grebe	*Podiceps nigricollis*	Bird of conservation concern	Breeding
Bird	Ferruginous Hawk	*Buteo regalis*	Bird of conservation concern	Year-round
Bird	Flammulated Owl	*Buteo regalis*	Bird of conservation concern	Breeding
Bird	Golden Eagle	*Aquila chrysaetos*	Bird of conservation concern	Year-round
Bird	Grace's Warbler	*Dendroica graciae*	Bird of conservation concern	Breeding
Bird	Gray Vireo	*Vireo vicinior*	Bird of conservation concern	Breeding
Bird	Greater Sage-grouse	*Centrocercus urophasianus*	Bird of conservation concern	Year-round
Bird	Lewis's Woodpecker	*Melanerpes lewis*	Bird of conservation concern	Year-round
Bird	Loggerhead Shrike	*Lanius ludovicianus*	Bird of conservation concern	Year-round
Bird	Lucy's Warbler	*Vermivora luciae*	Bird of conservation concern	Breeding
Bird	Olive-sided Flycatcher	*Contopus cooperi*	Bird of conservation concern	Breeding
Bird	Peregrine Falcon	*Falco peregrinus*	Bird of conservation concern	Breeding
Bird	Pinyon Jay	*Gymnorhinus cyancephalus*	Bird of conservation concern	Year-round
Bird	Rufous Hummingbird	*Selasphorus rufus*	Bird of conservation concern	Migrating
Bird	Sage Thrasher	*Oreoscoptes montanus*	Bird of conservation concern	Breeding
Bird	Short-eared Owl	*Asio flammeus*	Bird of conservation concern	Wintering
Bird	Swainson's Hawk	*Buteo swainsoni*	Bird of conservation concern	Breeding
Bird	Virginia's Warbler	*Vermivora virginiae*	Bird of conservation concern	Breeding
Bird	Western Grebe	*Aechmophorus occidentalis*	Bird of conservation concern	Breeding
Bird	Williamson's Sapsucker	*Sphyrapicus thyroideus*	Bird of conservation concern	Breeding
Bird	Willow Flycatcher	*Empidonax trailii*	Bird of conservation concern	Breeding

Any activity proposed on National Wildlife Refuge lands must undergo a "Compatibility Determination" conducted by the refuge. There are no refuges within the proposed project area.

Construction activities can potentially impact biological resources through the destruction or alteration of habitat, the disturbance or elimination of fish, wildlife, and plants, or the introduction of invasive species. Operational activities can impact biological resources in similar ways, in addition to creating noise disturbances on noise-sensitive species. Impacts to biological resources can be mitigated through various measures, such as phasing activities to avoid breeding, nesting, flowering, or pollination seasons, re-vegetation of temporarily disturbed work areas, or enhancement of off-site habitats to replace those habitats made unusable or inaccessible.

FAA AC 150/5200-33B, *Hazardous Wildlife Attractants on or Near Airports*, recommends separation distances of wildlife attractants to prevent wildlife hazards on airports. Wildlife attractants include waste disposal operations, water management facilities, wetlands, dredge spoil containment areas, agricultural activities, golf courses, and landscaping that attracts wildlife. Hazardous wildlife are defined as species of wildlife (birds, mammals, reptiles), including feral animals and domesticated animals not under control, that are associated with aircraft strike problems, are capable of causing structural damage to airport facilities, or act as attractants to other wildlife that pose a strike hazard. Deer are the species group that provide the greatest potential hazard to aircraft based on the FAA National Wildlife Strike Database (January 1990-April 2003). The FAA recommends a separation distance of 5,000 feet at airports serving piston-powered aircraft and 10,000 feet at airports serving turbine-powered aircraft from hazardous wildlife attractants. For all airports, the FAA recommends a distance of five statute miles between the farthest edge of the airport's operating area and the hazardous wildlife attractant if the attractant could cause hazardous wildlife movement into or across the approach or departure airspace.

The United States Fish and Wildlife Service provided a letter, dated April 25, 2017 (included in Appendix F) stating that "the Utah prairie dog occurs on the Cedar City airport property and may be impacted by construction and maintenance activities. However, we completed a programmatic section 7 consultation with the Federal Aviation Administration (FAA) on March 29, 2010 that provides guidance for impact avoidance and minimization measures associated with ongoing airport operations. In addition, the FAA fully mitigated the loss of prairie dog habitat at this airport, through the provision of funding that allowed us to purchase and protect prairie dog habitat elsewhere. We are also working with the FAA to evaluate and construct a Utah prairie dog proof fence that will substantially reduce the numbers of prairie dogs on airport property and associated mortality and injury of the animals from airport operations. We recommend that you coordinate with the FAA to include any pertinent details from the programmatic section 7 consultation and fencing proposal in the Airport Master Plan."

7.4 CLIMATE

Research has shown that there is a direct link between fuel combustion and greenhouse gas (GHG) emissions. In terms of U.S. contributions, the General Accounting Office (GAO) reports that "domestic aviation contributes about 3% of total carbon dioxide emissions, according to EPA data," compared with other industrial sources including the remainder of the transportation sector (20%) and power generation (41%). The International Civil Aviation Organization (ICAO) estimates that GHG emissions from aircraft account for roughly 3% of all anthropogenic GHG emissions globally.

The FAA, with support from the US Global Change Research Program and its participating federal agencies (e.g., NASA, NOAA, EPA and DOE), has developed the Aviation Climate Change Research Initiative (ACCRI) in an effort to advance scientific understanding of regional and global climate impacts of aircraft emissions. The FAA also funds the Partnership for AiR Transportation Noise & Emissions Reduction (PARTNER) Center of Excellence research initiative to quantify the effects of aircraft exhaust and contrails on global and US climate and atmospheric composition. Similar research topics are being examined at the international level by the ICAO.

Although there are no federal standards for aviation-related GHG emissions, it is well-established that GHG emissions can affect climate. The Council on Environmental Quality (CEQ) has indicated that climate should be considered in NEPA analyses. As noted by CEQ, however, "it is not currently useful for the NEPA analysis to attempt to link specific climatological changes, or the environmental impacts thereof, to the particular project or emissions, as such direct linkage is difficult to isolate and to understand." Consequently, it is not useful to attempt to determine the significance of such impacts.

7.5 COASTAL RESOURCES

Coastal resources include all natural resources occurring within coastal waters and their adjacent shorelands. Cedar City Regional Airport is located approximately 450 miles from the nearest coastal area and any of the Great Lakes. Therefore, there are no coastal resources that will be directly impacted by actions at the airport. The Coastal Zone

Management Act (CZMA), the Coastal Barrier Resources Act (CBRA), the National Marine Sanctuaries Act (NMSA), Executive Order 13089, Coral Reef Protection, and Executive Order 13547, Stewardship of the Ocean, Our Coasts, and the Great Lakes do not apply to actions at the airport.

7.6 DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F)

Section 4(f) of the Department of Transportation Act (now located at 49 USC 303) states that the Secretary of Transportation will not approve any program or project that requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge or historic site of national, state, or local significance as determined by the officials having jurisdiction thereof, unless there is no feasible and prudent alternative and the project includes all possible planning to minimize harm resulting from the use. Other regulations that apply include the Land and Water Conservation Fund Act of 1965, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA–LU) – Section 6009, and the US Department of Defense Reauthorization.

A property must be a significant resource for Section 4(f) to apply. Any part of a Section 4(f) property is presumed to be significant unless there is a statement of insignificance relative to the entire property by the federal, state, or local official having jurisdiction over the property. Section 4(f) protects only those historic or archeological properties that are listed, or eligible for inclusion, on the National Register of Historic Places (NRHP), except in unusual circumstances.

A Section 4(f) use would occur if the proposed action or alternative(s) would involve an actual physical taking of Section 4(f) property through purchase of land or a permanent easement, physical occupation of a portion or all of the property, or alteration of structures or facilities on the property.

Use, within the meaning of Section 4(f), includes not only the physical taking of such property, but also “constructive use.” The concept of constructive use is that a project that does not physically use land in a park, for example, may still, by means of noise, air pollution, water pollution, or other impacts, dissipate its aesthetic value, harm its wildlife, restrict its access, and take it in every practical sense. Constructive use occurs when the impacts of a project on a Section 4(f) property are so severe that the activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. Substantial impairment occurs only when the protected activities, features, or attributes of the Section 4(f) property that contribute to its significance or enjoyment are substantially diminished. This means that the value of the Section 4(f) property, in terms of its prior significance and enjoyment, is substantially reduced or lost.

Nearly all of CDC’s proposed improvements are contained within the existing boundaries of the airport. The long term potential runway and parallel taxiway extensions are the only exceptions to this; they would require minimal land acquisition. During the land acquisition process, further environmental review would be conducted of all off-airport property. At this time, and for the foreseeable future, section 4(f) does not apply because all of the proposed improvements will take place on existing airport property.

7.7 FARMLANDS

The Farmland Protection Act (FPPA) regulates federal actions with the potential to convert farmland to nonagricultural uses. For the purpose of the FPPA, farmland includes pasturelands, croplands, and forests considered to be prime farmland, unique farmland, and land of statewide or local importance. The FPPA defines prime and unique farmland. State and locally important farmland is land that has been designated as “important” by a state government, county commissioners, or equivalent elected body.

The FAA may determine whether or not the site of the proposed action or alternative(s) is prime, unique, state, or locally important farmland using criteria provided in 7 CFR 658.5. If the FAA elects not to make its own determination, the FAA or applicant should submit a request to the local Natural Resources Conservation Service (NRCS) field office on Form AD-1006, the Farmland Conversion Impact Rating Form, for determination of whether the site is farmland subject to the Farmland Protection Policy Act (the Act).

As noted in *Section 3.1 Natural and Physical Environment*, according to the NRCS soil report. 79% of the soil on airport property is farmland of state importance, 12% is prime farmland if irrigated, and 9% is not prime farmland or not classified.

7.8 HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION

A total of fourteen statutes, executive orders, and other requirements govern hazardous materials, solid waste, and pollution prevention.

Hazardous material is any substance or material that has been determined to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce. The term hazardous materials includes both hazardous wastes and hazardous substances, as well as petroleum and natural gas substances and materials (see 49 CFR § 172.101).

Solid waste is defined by the implementing regulations of the Resource Conservation and Recovery Act (RCRA) generally as any discarded material that meets specific regulatory requirements, and can include such items as refuse and scrap metal, spent materials, chemical by-products, and sludge from industrial and municipal waste water and water treatment plants (see 40 CFR § 261.2 for the full regulatory definition).

Pollution prevention describes methods used to avoid, prevent, or reduce pollutant discharges or emissions through strategies such as using fewer toxic inputs, redesigning products, altering manufacturing and maintenance processes, and conserving energy.

HAZARDOUS WASTE

The Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) are the two most applicable regulations. The RCRA governs the generation, treatment, storage, and disposal of hazardous wastes while the CERCLA establishes responsibility for hazardous substance releases, including payment of cleanup costs, and creates a trust fund to finance cleanup costs in situations in which no responsible party can be identified.

There are two considerations when describing the study area for hazardous materials, solid waste, and pollution prevention. One, existing contaminated sites at the proposed project site or in the immediate vicinity of the project site, and two, local disposal capacity for solid and hazardous wastes generated from the proposed action or alternative(s).

The EPA maintains a list of Superfund sites called the National Priorities List (NPL) in accordance with CERCLA. These sites have known releases or threatened releases of hazardous substances, pollutants, or contaminants. There are twenty-four sites listed in Utah. The sites are identified in *Table 7.3* with corresponding city, county, and NPL status.

According to AC 150/5100-17, *Land Acquisition and Relocation Assistance for Airport Improvement Program (AIP) Assisted Projects*, as part of the project planning and environmental assessment phases, the Sponsor should have an adequate due diligence environmental audit made for the presence of hazardous materials and contamination on

TABLE 7.3 EPA UTAH SUPERFUND SITES			
Site Name	**City**	**County**	**NPL Status**
Kennecott (North Zone)	Magna	Salt Lake	Proposed NPL
Murray Smelter	Murray City	Salt Lake	Proposed NPL
Richardson Flat Tailings	Summit City	Iron	Proposed NPL
700 South 1600 East PCE Plume	Salt Lake City	Salt Lake	Listed NPL
Bountiful/Woods Cross 5th South PCE Plume	Bountiful, Woods Cross	Davis	Listed NPL
Davenport and Flagstaff Smelters	Sandy City	Salt Lake	Listed NPL
Eureka Mills	Eureka	Juab	Listed NPL
Five Points PCE Plume	Woods Cross	Davis	Listed NPL
Hill Air Force Base	Ogden	Weber	Listed NPL
Intermountain Waste Oil Refinery	Bountiful	Davis	Listed NPL
Jacobs Smelter	Stockton	Tooele	Listed NPL
Monticello Mill Tailings (USDOE)	Monticello	San Juan	Listed NPL
Ogden Defense Depot (DLA)	Ogden	Weber	Listed NPL
Portland Cement (Kiln Dust 2 & 3)	Salt Lake City	Salt Lake	Listed NPL
Tooele Army Depot (North Area)	Tooele	Tooele	Listed NPL
U.S. Magnesium	Tooele County	Tooele	Listed NPL
Utah Power & Light/American Barrel Co.	Salt Lake City	Salt Lake	Listed NPL
Wasatch Chemical Co. (Lot 6)	Salt Lake City	Salt Lake	Listed NPL
International Smelting and Refining	Tooele	Tooele	Deleted NPL
Midvale Slag	Midvale	Salt Lake	Deleted NPL
Monticello Radioactively Contaminated Properties	Monticello	San Juan	Deleted NPL
Petrochem Recycling Corp./Ekotek, Inc.	Salt Lake City	Salt Lake	Deleted NPL
Rose Park Sludge Pit	Salt Lake City	Salt Lake	Deleted NPL
Sharon Steel Corp. (Midvale Tailings)	Midvale	Salt Lake	Deleted NPL

property needed for a project. Contaminated property must be avoided as is feasible, or the use minimized to avoid excessive project costs for the cleanup and remediation of hazardous materials. These audits include Phase I and Phase II Environmental Site Assessments, which should identify quantities of any hazardous materials located at the proposed project site or in the immediate vicinity of a project site.

SOLID WASTE

A review of the impacts the airport and construction projects will have on solid waste facilities is required, including identification of types and quantities of any solid waste that would be generated by the implementation of the proposed action or alternative. A description regarding how solid waste would be stored, managed, and disposed should also be included. Further analysis is needed if airport-generated solid waste will exceed available landfill or incineration capacities or require extraordinary effort to meet applicable solid waste permit conditions or regulations. None of the proposed projects at Cedar City Regional Airport are anticipated to exceed the capacity of existing and proposed solid waste facilities in the county.

POLLUTION PREVENTION

There are many local, state, and federal regulations that address the impacts of construction activities, including noise, dust, disposal of construction debris, air pollution, and water pollution. Construction activities on airports should comply with FAA AC 150/5370-10F, *Standards for Specifying Construction of Airports*, and FAA AC 150/5370-2F, *Operational Safety of Airports During Construction*. Utah Department of Environmental Quality permits may be required for mining, air quality, and water quality. Generalized construction impacts may include:

- A temporary increase in particulate and gaseous air pollution levels as a result of dust generated from construction activity and by vehicle emissions from construction equipment and construction worker transportation;
- A temporary increase in noise from construction equipment and traffic;
- Temporary erosion, scarring of land surfaces, and loss of vegetation in excavated or otherwise disturbed areas;
- Generation of solid and sanitary waste from on-site construction workers and construction waste; and
- A temporary increase in traffic volumes in the airport vicinity.

A significance threshold for hazardous materials, solid waste, and pollution prevention has not been established by the FAA, although factors to consider and evaluate have been identified. Such factors include:

- Violation of applicable federal, state, tribal, or local laws or regulations;
- Involvement of a contaminated site;
- Production or generation of an appreciably different quantity or type of hazardous or solid waste;
- Use of a different method of collection or disposal and/or exceeding local capacity; or
- Impacting human health and the environment in an adverse manner.

7.9 HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL, AND CULTURAL RESOURCES

There are fifteen statutes, executive orders, and other requirements that govern historic, architectural, archaeological, and cultural resources. Primarily, the National Historic Preservation Act (NHPA) establishes the Advisory Council on Historic Preservation (ACHP) and the National Register of Historic Places (NRHP) within the National Park Service (NPS). Section 106 of the NHPA requires federal agencies to consider the effects of their undertaking on properties on or eligible for inclusion in the NRHP. The Archeological and Historic Preservation Act of 1974 provides for the preservation of historic American sites, buildings, objects, and antiquities of national significance by providing for the survey, recovery, and preservation of historical and archeological data that might otherwise be destroyed or lost due to a federally funded action. The Archaeological Resources Protection Act (ARPA) prohibits unauthorized excavation of archaeological resources on federal or Indian lands and requires federal agencies to identify archaeological sites on federal lands. The American Indian Religious Freedom Act requires federal agencies to consider the impacts of their actions on religious sites and objects that are important to Native Americans.

If there are historic properties in a proposed project area, the FAA must assess what effect the undertaking would have on those historic properties. An effect is defined as an alteration to the characteristics of a historic property. There are three possible outcomes when assessing effects: no historic properties affected, no adverse effect on historic properties, or adverse effects on historic properties.

According to the National Register of Historic Places, there are 19 sites in Iron County listed on the national register (see *Table 7.4*). Since nearly all of the proposed improvements are expected to take place on exisiting airport property, with the exception of the poential long term runway and parallel taxiway extensions, which will require the acquisition of minimal land, it is not likely that there will be any impacts on historical, architectural, archeological, or cultural resources as a result of the proposed airport development projects.

TABLE 7.4 IRON COUNTY HISTORICAL SITES	
Location	**Description**
Caretaker's Cabin	Off of 14th in Cedar City
Cedar City Historic District	District bounded by 100 West and 300 West, College Avenue and 400 South in Cedar City
Cedar City Railroad Depot (aka Union Pacific Railroad Depot)	220 Main Street in Cedar City
Ensign-Smith House (aka Silas Smith House)	96 North Main in Paragonah
Evans Mound	File not available
Gold Spring	File not available
Long Flat Site	File not available
Lyman, William & Julia, House	191 South Main Street in Parowan
Meeks/Green Farmstead	Approximately 40 North 400 West in Parowan
Modena Elementary School	Block J. Plat A in Modena
Old Irontown	Approximately 22 miles west of Cedar City in Old Irontown
Old Main and Science Buildings (aka Old Main and Administration Buildings)	Southern Utah State College Campus in Cedar City
Page, Daniel R. and Sphia G., House (aka Page Ranch House)	Richie Flat at the western edge of the Harmony Mountains in Page Ranch
Parowan Gap Petroglyphs	File not available
Parowan Meetinghouse (aka Parowan Rock Church)	West side of Main Street between Center and 100 South in Parowan
Jesse N. Smith Home	45 West 100 South in Parowan
Cedar City Main Post Office	10 North Main in Cedar City
Visitor Center	Off of 14th in Cedar City
George H. Wood House	432 North Main in Cedar City

7.10 LAND USE

FAA Order 1050.1F states that the compatibility of existing and planned land uses in the vicinity of an airport are usually associated with the extent of the airport's noise impacts. Order 1050.1F requires documentation to support the required Sponsor's assurance under 49 USC 47107(a)(10) that appropriate action, including the adoption of zoning laws, has been or will be taken, to the extent reasonable, 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 for existing and planned land uses. Land use impacts not previously discussed in other impact categories should be presented here.

There are airport land use regulations in effect in Cedar City and Iron County as outlined in more detail in *Section 3.3 Airport Area Ownership*. The majority of the land around CDC is zoned for industrial purposes. Cedar City owns the airport property. Most of the land adjacent to the airport is privately owned land, with small sections owned by the federal government, State of Utah, and Iron County.

7.11 NATURAL RESOURCES AND ENERGY SUPPLY

Executive Order 13123, *Greening the Government Through Efficient Energy Management*, encourages each federal agency to expand the use of renewable energy within its facilities and activities. The Energy Independence and Security Act requires federal agencies to take actions to move the United States toward greater energy independence and security, to increase the production of clean renewable fuels, to protect consumers, to increase the efficiency of products, buildings, and vehicles, to promote research on and deploy greenhouse gas capture and storage options, and to improve the energy performance of the federal government

The environmental review should consider the potential increased demands on energy utilities, water supplies and treatment, and natural resources. Major construction projects often involve a high demand for energy and/or natural resources. For most actions, changes in energy demands or other natural resource consumption will not result in significant impacts.

7.12 NOISE AND NOISE-COMPATIBILITY LAND USE

The compatibility of existing and planned land uses with proposed aviation actions is usually determined in relation to the level of aircraft noise. Aviation noise primarily results from the operation of fixed and rotary wing aircraft, such as departures, arrivals, overflights, taxiing, and engine run-ups. Noise is often the predominant aviation environmental concern of the public. There are six primary statutes and regulations related to noise and noise-compatible land use impacts, as well as state and local noise laws/ordinance to consider.

According to 1050.1F Desk Reference, no noise analysis is needed for proposals involving Design Group I and II airplanes in approach Categories A through D operating at airports whose forecast operations do not exceed 90,000 annual propeller operations (247 average daily operations) or 700 jet operations (2 average daily operations). Any jet aircraft producing less noise than the propeller aircraft under study may be counted as propeller aircraft rather than jet aircraft.

The FAA has developed an Aviation Environmental Design Tool (AEDT) capable of evaluating noise generated by aircraft operations. The AEDT program can calculate cumulative aircraft noise by using forecasted air traffic by aircraft type, runway alignment, direction of aircraft movement, and time of day.

Noise levels are measured in Day/Night Levels (DNL). DNL is an average of day and night time levels of sound and are computed so that night time sound levels are given more weight. The FAA and EPA have set the guideline at 65 DNL to determine compatible land use around airports. The 65 DNL was calculated for CDC (*See Section 6.10*) and no abatement development is recommended. Approximately 94% of the 65 DNL is contained on airport property.

In 1967, the National Business Aviation Association (NBAA) established its Noise Abatement program to promote safe, standardized, and uncomplicated operating procedures that are effective in reducing noise exposure. The program was revised in 2015 to reflect technological advances and their impacts on operating requirements.

According to the NBAA, when available, pilots should utilize their company's recommended noise abatement departure and arrival procedures or those recommended by the aircraft manufacturer for their specific aircraft. When airport or aircraft-specific procedures are unavailable, operators are encouraged to use NBAA's recommended noise abatement procedures, which are suitable for any aircraft type and airport operating environment.

The 2015 program includes:

- Noise abatement best practices for flight crews;
- Updates to NBAA's "close-in" noise abatement departure procedure and approach and landing procedures, and
- Noise abatement guidance for other aviation stakeholders, including airports and air traffic control facilities.

The NBAA advocates that pilots should always be mindful of noise impacts at airports because even the quietest modern aircraft may disturb those who live near the airport. Whenever possible, care should be taken to minimize the aircraft's noise profile by utilizing noise abatement best practices at all airports, especially during night-time and early-morning hours when aircraft operations may be especially disturbing. As the NBAA points out, effective aircraft noise management requires a collaborative effort between aircraft operators and airport operators because minimizing noise impacts is in the best interest of all stakeholders.

If the NBAA's noise abatement procedures are incorporated by the airport, key information, including the following, should be provided to pilots through readily available materials:

- Approach and departure paths over least noise-sensitive areas;
- Preferential runway use, if applicable;
- General map showing surrounding areas and marking places of specific sensitivity, such as residential areas, schools, and hospitals;
- Airport approach and takeoff paths should be designated on all official zoning maps;
- Jet aircraft run-up areas should be developed;
- Natural terrain should be evaluated for use in controlling noise;
- Posted reminder signs outlining noise procedures in conspicuous locations, such as the pilots' lounge, taxiways, and runways, and
- Education programs to inform pilots of the airport's noise abatement procedures.

7.13 SOCIOECONOMIC IMPACTS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S HEALTH AND SAFETY RISKS

SOCIOECONOMIC IMPACTS

A socioeconomic analysis evaluates how elements of the human environment such as population, employment, housing, and public services might be affected by a proposed action or alternative. If acquisition of real property or displacement of persons is involved, 49 CFR part 24 (implementing the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970), as amended, must be met for federal projects and projects involving federal funds. The environmental review should consider the impacts of the alternatives on the following broad indicators: economic activity, employment, income, population, housing, public services, and social conditions.

The principal social impacts to be considered are those associated with relocation or other community disruption, transportation, planned development, and employment. An example of a direct socioeconomic impact is the change in job availability caused when a new construction project is proposed in an area. The construction project may result in an increase in available jobs; however, these jobs may be temporary in nature and would cease to exist when construction is completed.

ENVIRONMENTAL JUSTICE

Environmental justice is 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. There are six primary statutes, executive orders, and other guidance related to environmental justice impacts. Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* and Order DOT 5610.2, *Environmental Justice in Minority and Low-Income Populations*, require the FAA to provide for meaningful public involvement by minority and low-income populations. It requires a demographic analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse. The includes a disclosure of the effects on subsistence patterns of consumption of fish, vegetation, or wildlife.

CHILDREN'S HEALTH AND SAFETY RISKS

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, requires agencies to make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children. This may include a review of air, food, drinking water, recreational waters, soil, or other products that may be impacted by airport actions.

No socioeconomic, environmental justice, or children's health and safety risks impacts are anticipated at Cedar City Regional Airport in the foreseeable future.

7.14 VISUAL EFFECTS

Visual effects deal broadly with the extent to which the proposed action or alternative(s) would either produce light emissions that create annoyance or interfere with activities or contrast with, or detract from, the visual resources and/or the visual character of the existing environment. Visual effects can be difficult to define and assess because they involve subjectivity. Proposed aviation and aerospace actions do not commonly result in adverse visual effects, but these effects may occur in certain circumstances.

The FAA has not established a significant threshold in determining when an impact occurs. They have setforth, in Order 1050.1F, factors that will be evaluated to determine if there are significant impacts. If a significant impact is found, shielding to reduce light emissions and angular adjustments are a few measures that can be used to mitigate visual impacts.

No visual impacts are anticipated at the Cedar City Regional Airport.

7.15 WATER RESOURCES

Water resources are surface waters and groundwater that are vital to society; they are important in providing drinking water and in supporting recreation, transportation and commerce, industry, agriculture, and aquatic ecosystems. Surface water, groundwater, floodplains, and wetlands do not function as separate and isolated components of the watershed, but rather as a single, integrated natural system. Disruption of any one part of this system can have consequences to the functioning of the entire system. The analysis should include not only disruption of the resources but also potential impacts to the quality of the water resources. Because of the close and integrated relationship of these resources, their analysis is conducted under the all-encompassing impact category of water resources.

WETLANDS

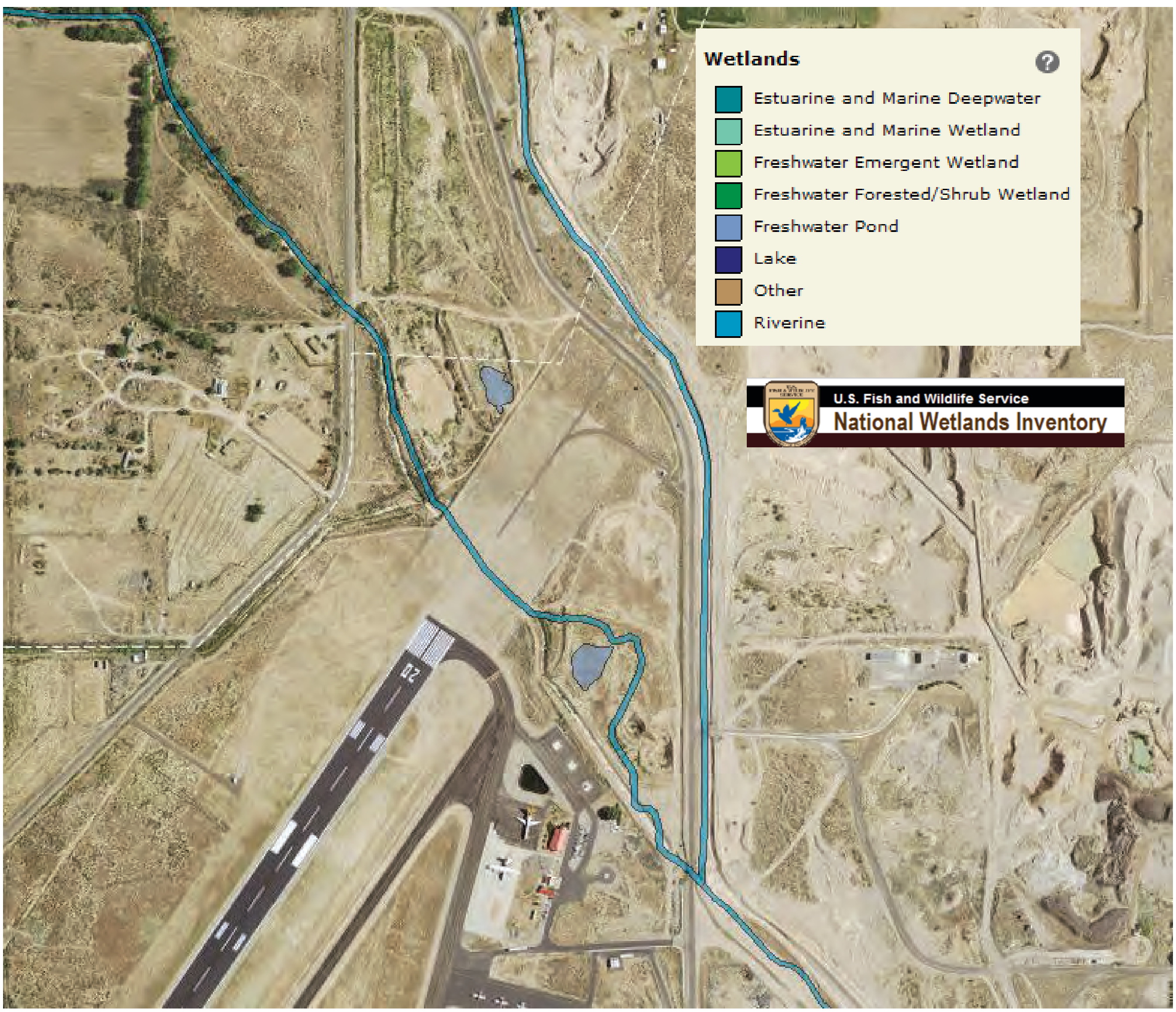
For regulatory purposes under the Clean Water Act (CWA), the term wetlands means areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. Areas covered with water for such a short time that there is no effect on moist-soil vegetation are not considered wetlands, nor are the waters of streams, reservoirs, and deep lakes. Wetlands provide many benefits to the human, biological, and hydrological environment, including habitat for fish and wildlife, water quality improvement, flood storage, and opportunities for recreation.

The following statutes, regulations, Executive Orders, and requirements should be reviewed if the project would impact wetlands:

- Executive Order 11990, *Protection of Wetlands.*
- Clean Water Act.
- Fish and Wildlife Coordination Act.
- DOT Order 5660.1A, *Preservation of Nation's Wetlands.*
- State statutes protecting wetlands.

The National Wetlands Inventory map for wetland areas near the Runway 20 end of Cedar City Regional Airport is depicted in *Figure 7.2*. Neither one of the freshwater ponds located near the Runway 20 end is likely to be impacted by the proposed improvements until the potential runway and parallel taxiway extensions are pursued, at which time steps to minimize impacts to these wetland areas would need to be explored prior to construction. Additionally, the channel that runs through the RPZ where the future runway and taxiway would be constructed would need to be addressed prior to pursuing either extension.

Figure 7.2 Runway 20 End Wetlands Map



The National Wetlands Inventory map for wetland areas near the Runway 2 end of CDC is depicted in *Figure 7.3*. None of the proposed improvements will impact the freshwater ponds located near the terminal apron parking lot.

Figure 7.3 Runway 2 End Wetlands Map

However, there are two irrigation channels that run under the runway and parallel taxiway. These channels are likely to be impacted by both the runway reconstruction project and the parallel taxiway reconstruction project. Further exploration of the impacts that may result from these channels will be required prior to construction commencing on either project.

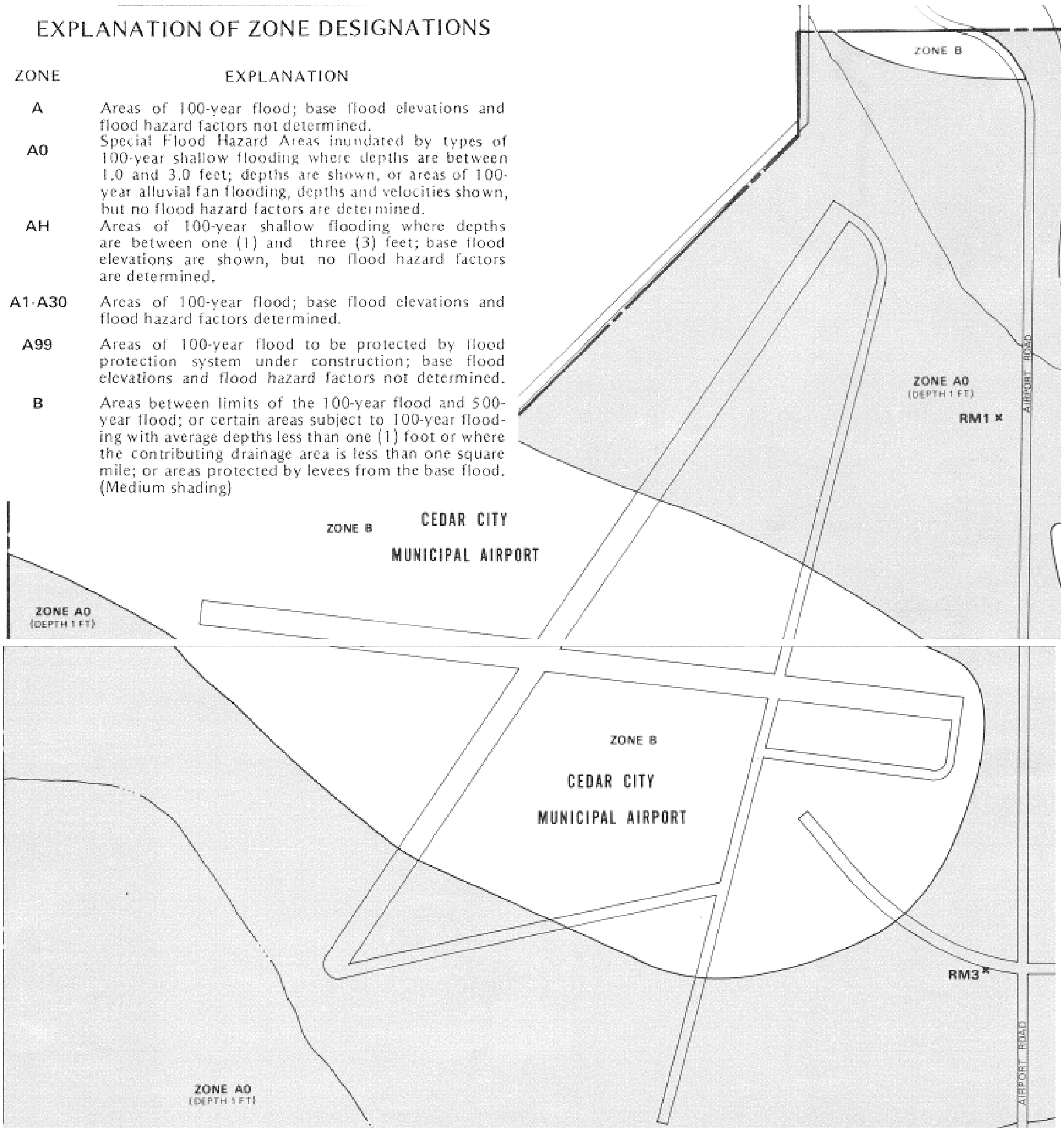
FLOODPLAINS

Floodplains are lowland areas adjoining inland and coastal waters which are periodically inundated by flood waters, including flood-prone areas of offshore islands. Floodplains are often discussed in terms of the 100-year flood. The 100-year flood is a flood having a 1% chance of occurring in any given year. Floodplains are valued for their natural flood and erosion control, enhancement of biological productivity, and socioeconomic benefits and functions.
The following statues, regulations, executive orders, and requirements should be reviewed for possible impacts to floodplains:

- Executive Order 11988, Floodplain Management.
- National Flood Insurance Act.
- DOT Order 5650.2, Floodplain Management and Protection.
- State and local statues protecting floodplains.

The Federal Emergency Management Agency (FEMA) floodplain maps for Cedar City Regional Airport are depicted in *Figure 7.4*. The maps are from October 1984, so they do not reflect all of the current airport geometry. The northern and southern ends of the aiport are designated as Zone AO, which is characterized by 100-year flooding at a shallow depth of 1.0 foot.

Figure 7.4 FEMA Floodplains Map



SURFACE WATERS

Surface waters include streams, rivers, lakes, ponds, estuaries, and oceans. Note that this section discusses how to conduct the analysis for surface waters that is not otherwise captured in the wetlands, floodplains, groundwater, or Wild and Scenic Rivers sections.

The following statutes, regulations, and requirements should be reviewed if the project would impact surface waters:

- Clean Water Act (CWA).
- Fish and Wildlife Coordination Act.
- Rivers and Harbors Act.
- Safe Drinking Water Act.
- State statutes protecting surface waters.

Specifically, the CWA established the basic structure for regulating the discharge of pollutants into waters of the United States. Waters of the United States are considered jurisdictional surface waters or wetlands under the CWA. Not all surface waters are considered jurisdictional under the CWA; therefore, it is recommended that the FAA consult with the US Army Corps of Engineers (USACE) to determine the jurisdictional status of any surface water that may be affected by a proposed action or alternative.

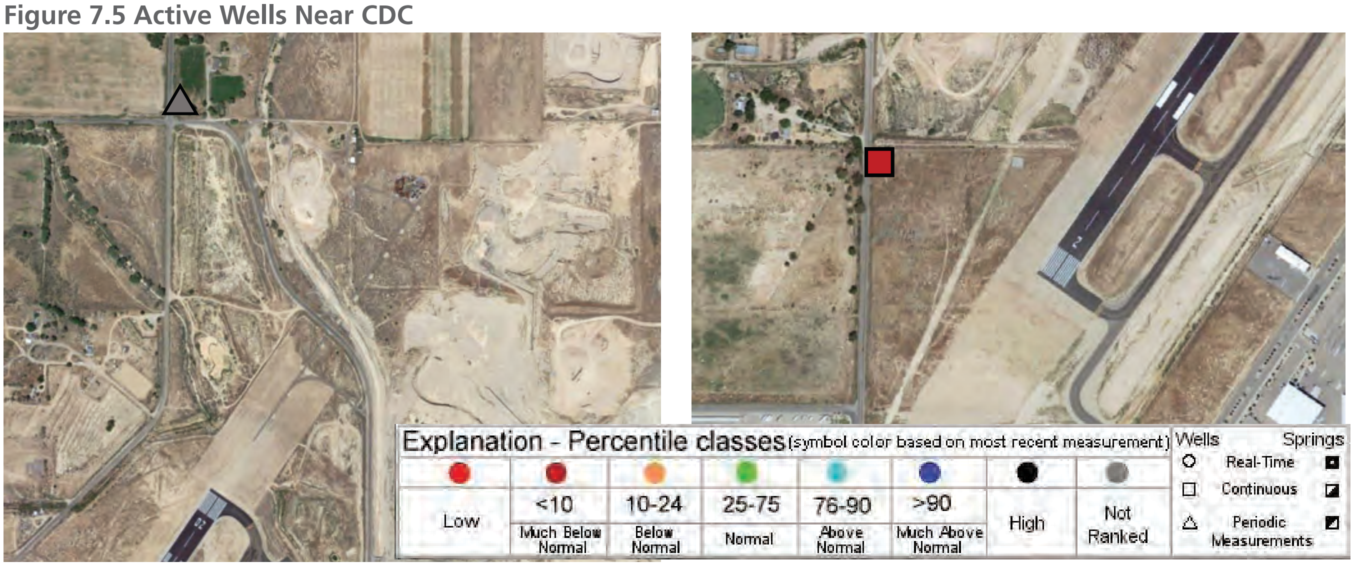
Before beginning the project, a determination would need to be made if a significant imact would exist with this project. A significant impact exists if the action would exceed water quality standards established by federal, state, local and tribal regulatory agencies or contaminate the public drinking water supply such that public health may be adversely affected.

GROUNDWATER

Groundwater is subsurface water that occupies the space between sand, clay, and rock formations. The term aquifer is used to describe the geologic layers that store or transmit groundwater, such as to wells, springs, and other water sources. The statutes and requirements that may be relevant to groundwater impacts include the Safe Drinking Water Act and any state statutes protecting groundwater.

According to the US Geological Survey (USGS), there are 101 active wells within Iron County. There are two located near CDC. However, due to their locations and distances from the proposed improvement areas, there are no anticipated impacts for either well at this time.

Figure 7.5 Active Wells Near CDC

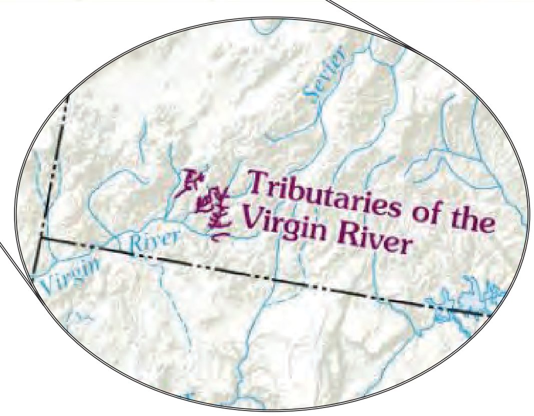


WILD AND SCENIC RIVERS

Wild and Scenic Rivers are those rivers having remarkable scenic, recreational, geologic, fish, wildlife, historic, or cultural values as defined by the Wild and Scenic Rivers Act. If the FAA is taking an action that would physically impact resources covered by the Wild and Scenic Rivers Act, there may be consultation requirements under the Act.

The National Park Service River and Trail Conservation Assistance Program maintains a Nationwide Rivers Inventory (NRI) of river segments that appear to qualify for inclusion in the National Wild and Scenic River System, but that have not been designated as a Wild and Scenic River. The NRI is a listing of more than 3,400 free-flowing river segments in the United States that are believed to possess one or more "outstandingly remarkable" natural or cultural values judged to be of more than local or regional significance. Under a 1979 Presidential Directive, and related Council on Environmental Quality procedures, all federal agencies must seek to avoid or mitigate actions that would adversely affect one or more NRI segments.

Figure 7.6 Wild and Scenic Rivers



The Virgin River and its tributaries are considered Wild and Scenic Rivers. These tributaries are located approximately 20 to 38 miles from Cedar City. As such, Cedar City Regional Airport is not located near a Wild or Scenic River. The National Wild and Scenic Rivers System, as of September 2009, is shown in *Figure 7.6 Wild and Scenic Rivers*. The inset illustrates the Tributaries of the Virgin River.

7.16 CUMULATIVE IMPACTS

Cumulative impacts should be considered as early as possible in the project development process, as early identification of potential cumulative impacts may help in the design of alternatives or mitigation measures that minimize a project's impacts on the environment. While significant impacts of FAA actions tend to be primarily in the airport vicinity, the consideration of cumulative impacts is not limited to the airport or near the airport. The analysis should focus on impacts that are truly meaningful to decision-makers.

Past, present, and reasonably foreseeable future actions must be considered in determining whether there are potential cumulative impacts.

- Past actions are actions that occurred in the past and may warrant consideration in determining the environmental impacts of an action.
- Present actions are any other actions that are occurring in the same general time frame as the proposal.
- Reasonably foreseeable future actions are actions that may affect projected impacts of a proposal and are not remote or speculative.

TABLE 7.5 POTENTIAL ENVIRONMENTAL IMPACTS

Impact Category	Potential Mitigation Measures
7.2 Air Quality	Use Best Management Practices (BMPs) during construction
7.3 Biological Resources	Phase activities to avoid breeding and nesting seasons, use Best Management Practices (BMPs) during construction
7.4 Climate	Not applicable
7.5 Coastal Resources	Not applicable
7.6 Department of Transportation Act Section 4(F)	Not applicable
7.7 Farmlands	Not applicable
7.8 Hazardous Materials, Solid Waste, and Pollution Prevention	Use Best Management Practices (BMPs) during construction
7.9 Historical, Architectural, Archaeological, and Cultural Resources	Not applicable
7.10 Land Use	Not applicable
7.11 Natural Resources and Energy Supply	Not applicable
7.12 Noise and Noise-Compatible Land Use	No abatement recommended
7.13 Socioeconomic Impacts, Environmental Justice, and Children's Health and Safety Risks	Not applicable
7.14 Visual Effects	Not applicable
7.15 Water Resources	Further analysis prior to construction
7.16 Cumulative Impacts	Not applicable

8. Recycling and Solid Waste Management

SECTION OVERVIEW

Chapter 8. Recycling and Solid Waste Management provides a general overview of sustainability requirements, efforts, and recommendations for Cedar City Regional Airport to encourage recycling and solid waste management at the airport.

8.1 SUSTAINABILITY REQUIREMENTS

The FAA Modernization and Reform Act of 2012 (FMRA) expanded the definition of airport planning to include "developing a plan for recycling and minimizing the generation of airport solid waste, consistent with applicable state and local laws." The FMRA added a provision requiring airports that have or plan to prepare a Master Plan, and that receive Airport Improvement Program (AIP) funding, to ensure that the new or updated master plan addresses issues relating to solid waste recycling at the airport.

Based on FAA guidance, recycling and solid waste management plans need to incorporate the following components: 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;
- review of waste management contracts; and
- potential for cost savings and/or the generation of revenue.

8.2 WHAT IS SUSTAINABILITY?

The United Nations convened the Brundtland Commission to address the growing concern about the deterioration of natural resources. In its' 1987 report, the commission defined sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[51] Based on this definition, Airport Master Plans need to carefully evaluate how programs and initiatives impact existing and future users and also consider the wider impact on the surrounding community and natural environment.

Figure 8.1 Triple Bottom Line

In considering the effects of Cedar City Regional Airport on the quality of the human environment, present and future problems should be addressed from the perspective of the "triple bottom line" - environment, economy, and social equity. In other words, to reduce the environmental impacts, maintain economic growth, and advance social progress that recognizes the needs of all airport stakeholders.

Recycling refers to any program, practice, or opportunity to reduce the amount of waste disposed of in a landfill. This includes reuse and waste reduction, as well as the recycling of materials.

8.3 WHY BE SUSTAINABLE?

Along with improving the community and the natural environment, sustainability can make good business sense. Airports that have adopted sustainable practices have reported experiencing tangible benefits including, but not limited to, the following:

- greater utilization of assets;
- reduced operating and maintenance costs;
- improved work environment for employees;
- reduced energy consumption;
- reduced waste;
- reduced emissions;
- improved water quality; and
- positive community relationships.[52]

8.4 HOW DOES SUSTAINABILITY RELATE TO CEDAR CITY REGIONAL AIRPORT?

Airports large and small have the ability to incorporate sustainability into their Master Plans based on the needs and resources of each individual facility and community. Sustainability is a strategic investment that can leverage a facility's potential. Existing practices that fall within the sustainability realm include, but are certainly not limited to, the use of recycled materials for construction, use of available local materials, and use of recycled stormwater.

Like any initiative, sustainability measures need to be formally documented and tracked to measure progress. As a core part of the Master Plan, identified sustainability initiatives and activities will be formally documented. Areas of recycling and solid waste management can be split into multiple categories - those over which the airport has direct control, those over which the airport has influence, and those over which the airport has little or no control or influence.

The term solid waste is defined in accordance with the Resource Conservation and Recovery Act, of 1976 (RCRA) but is generally, non-soluble, discarded solid materials, including sewage sludge, municipal garbage, industrial wastes, agricultural refuse, demolition wastes, and mining residues. Sanitary sewer wastes are not considered solid wastes.

The types of solid waste generated at airports include the following:

- **Municipal Solid Waste (MSW)**: everyday items that are used and discarded.
- **Construction and Demolition (C&D) Debris**: any non-hazardous solid waste that results from land clearing, excavation, or construction, demolition, renovation, or repair of structures, roads, and utilities (i.e. concrete, wood, metals, soil, bricks, asphalt, rock, stone, gravel, roofing materials, drywall, carpet, plastic, pipe, rocks, and earthwork).
- **Compostables**: green waste (trees, shrubs, grass clippings, leaves, weeds, branches, and similar debris generated by landscaping activities) and food waste (unconsumed food or items generated during food preparation activities and discarded).
- **Deplaned Waste**: MSW removed from passenger aircraft (i.e. bottles, cans, newspapers, magazines, plastic cups/utensils).

In addition to the RCRA, Utah State Statute 19-6-502 defines solid waste as "a putrescible or nonputrescible material or substance discarded or rejected as being spent, useless, worthless, or in excess of the owner's needs at the time of discard or rejection, including:

- garbage;
- refuse;
- industrial and commercial waste;
- sludge from an air or water control facility;
- rubbish;
- ash;
- contained gaseous material;
- incinerator residue;
- demolition and construction debris;
- a discarded automobile; and
- offal.

Solid waste does not include sewage or another highly diluted water carried material or substance and those in gaseous form."[53]

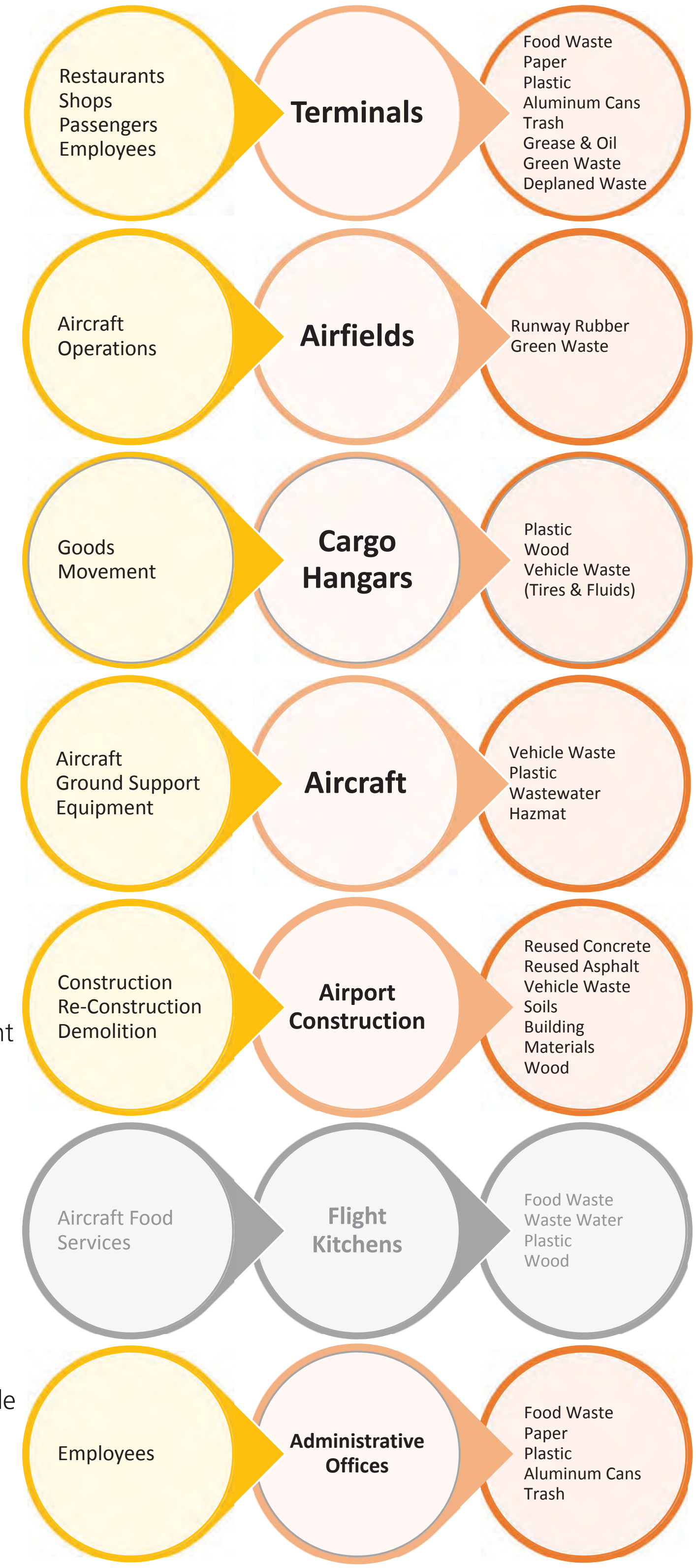
Decision-makers contemplating future planning efforts at CDC need to have a clear understanding of how recycling and solid waste management is performed for the entire facility, as well as knowledge of existing plans and potential stakeholder groups involved in enhancing sustainability at the airport.

8.5 WASTE AUDIT

As part of the Master Plan process, consultants are required to conduct a waste audit that takes into account any applicable federal, state, and local recycling and/or solid waste management laws. Before recycling and waste minimization plans are developed, an inventory of current waste produced at the airport must be completed. A waste audit is a structured process that identifies what type of waste is generated, where it is created, and how much is collected. For CDC, the first step in the waste audit was identification of applicable waste streams, followed by categorization of when each stream peaks in waste production, and who is responsible for each stream.

In 2013, the FAA issued *Recycling, Reuse and Waste Reduction at Airports: A Synthesis Document* that summarizes sources and streams of potential airport waste.[54] The seven identified streams are shown to the right in *Figure 8.2 Waste Streams*.

Figure 8.2 Waste Streams



The grayed out stream, flight kitchens, is not applicable to CDC. The remaining six applicable streams are discussed below.

Terminals: The Cedar City Regional Airport has a commercial terminal building. Typically, generated waste includes food, paper, plastic, aluminum cans, trash, and deplaned waste. The airport staff is responsible for maintaining and cleaning the terminal building. Consequently, they are responsible for ensuring the disposal of such waste. There is no pilots' lounge located within the commercial terminal building. A pilots' lounge is provided by the Fixed Based Operator (FBO), Sphere One Aviation, who maintains, cleans, and disposes of waste from the lounge.

Airfields: Waste created at the runways and taxiways at CDC is typically limited to rubber from aircraft and vehicle tires and green waste from mowing operations. Airfield wastes are typically solid or compostable and increase sharply in volume during warmer months. The airport staff is the party responsible for disposing of these wastes.

Cargo Hangars: Air cargo is loaded/unloaded and temporarily stored in hangars that contain equipment needed to move heavy cargo and large pallets. Waste from cargo hangars generally includes tires, fluids from equipment, universal waste (batteries, electronics, light bulbs, etc.), wooden pallets, and pastic packing material. Employees of the air cargo companies, such as FedEx, are responsible for disposing of any wastes generated within the air cargo hangars.

Aircraft: Maintenance of aircraft and ground support equipment (such as the SRE and mower at CDC) routinely produces waste, including oil, grease, chemicals, plastic, wastewater, universal waste, and vehicle waste, such as tires and fluids (brake, transmission, etc.). The party responsible for aircraft and ground support equipment waste varies, typically by whomever owns the vehicle or performs the maintenance. The amount of aircraft waste is highly correlated with the number of operations occurring at the airport.

Airport Construction: Construction at CDC is sporadic, corresponding with programmed Capital Improvement Program (CIP) projects and time of year. Construction activities have the potential to create a large amount of waste, including concrete, asphalt, wood, soil, and metal. These wastes increase during warmer months as that is when construction usually occurs. Airport construction wastes are typically solid or C&D. Ownership of these wastes typically belongs to the construction company performing the work.

Administrative Offices: The commercial terminal building houses administrative offices, including the airport manager's office and a conference room. TSA also has offices located within the terminal buidling. Similar to terminals, offices produce waste, such as paper, plastic, aluminum cans, food, and universal waste. Office waste is usually solid or compostable, and is fairly steady throughout the year. Airport staff are responsible for waste stemming from the administrative offices, while TSA staff are responsible for waste stemming from the TSA offices.

TABLE 8.1 STEPS TO RECYCLING/ WASTE MINIMIZATION

Step	Description
1	*Commitment from Management*
2	*Program Leadership*
3	*Waste Identification*
4	*Waste Collection and Hauler*
5	*Waste Management Plan Development*
6	*Education and Outreach*
7	*Monitor and Refine*
8	*Performance Monitoring*
9	*Promote Success*
10	*Continuous Improvements*

8.6 ESTABLISHING AIRPORT RECYCLING/WASTE MINIMIZATION

The FAA encourages long-term airport recycling programs. To promote such programs, the FAA compiled a list of 10 steps to designing and implementing an effective recycling/waste minimization program, noting that each airport is unique and faces its own issues. The 10 identified steps are listed in *Table 8.1*. Cedar City Regional Airport should consider these steps as more recycling options become available in the area.

8.7 RECYCLING FEASIBILITY

While many airports currently implement solid waste recycling programs, the scope of such programs varies considerably due to the size and location of different airports, the amount of waste being produced, and other external factors, including:

- Local markets for recycling commodities;
- Cost for transport and processing recyclables;
- Local recycling infrastructure;
- Willingness of an airport and its tenants to implement recycling programs;
- The nature of an airport's waste stream(s);
- Competition between recycling and landfill firms; and
- Airport layout and logistics.

The options for recycling materials in Cedar City and Iron County are somewhat limited. "Binnies" are provided at six locations throughout the city. There are binnies to collect paper, plastics #1-7, glass, and tin/aluminum/steel cans. The binnies are provided and maintained by Washington County Waste Management, which is based in Washington, UT. Additionally, locally-based Robinson Recyling purchases copper, brass, aluminum, steel, cars/trucks, batteries, and miscellaneous items, including electronic waste and appliances for recycling. Metal and green waste can also be recycled at the Iron County landfill, which has two locations - one in Cedar City and one in Parowan.

The majority of waste produced by the Terminals and Administrative Offices streams could be recycled. Therefore, it is recommended that the terminal be provided small recycling collection bins to collect waste that is then transported periodically to the binnies around town. Airport personnel could easily be tasked with overseeing this effort. There is not enough waste generated at the airport to warrant a compactor.

Tips provided by the EPA to increase use of recycling bins include:

- Using large, clearly labeled signs to let the public know what materials they can recycle;
- Labeling signs with both graphics and words to communicate with non-English speakers. Consider posting signs in more than one language;
- Advertising the location of recycling bins and the importance of using them in transit ads, on printed schedules, and on the web; and
- Posting information and promotional messages throughout terminals.

The FBO and all private hangar lessors should be encouraged, potentially with lease discounts, to recycle all possible materials.

On the following page is a list of typical recyclables generated at airports with corresponding sources, created and distributed by the FAA. This list should be referenced periodically to ensure that all recyclable materials at CDC are being recycled.

8.8 PLAN TO MINIMIZE SOLID WASTE GENERATION

An initiative to minimize solid waste generation should be created. Aspects of the initiative for promoting waste minimization are:

- Including lease requirements for tenants;

Figure 8.3 Typical Recyclables Generated at Airports by Source

WHAT \ WHERE	Public Terminals	Ticketing	Security Gates	Food Service Areas	Concessionaires, Retailers, & Car Rental Facilities	Offices	Loading Docks	Maintenance Areas	Baggage Claim	Information Centers	Taxi Stands	Aircraft	Airfield Ramp Areas	Construction & Demolition Areas
Electronics		X	X	X	X	X				X				
Food Waste & Cooking Oil				X										
Pallets							X	X						X
Construction & Demolition Materials*								X					X	X
Organics/ Green Waste								X					X	
Tires								X						
Refrigerant				X	X			X						
Antifreeze								X						
Motor Oil								X						
Scrap Metal								X						X
Batteries						X		X						
Toner Cartridges		X			X	X	X	X						
Corrugated Cardboard				X	X		X	X				X		
Mixed Paper	X	X	X	X	X	X			X	X		X		
Newspaper	X	X	X	X	X	X			X	X	X	X		
Glass	X	X	X	X	X	X			X	X	X	X		
Aluminum Cans	X	X	X	X	X	X			X	X	X	X		
Plastic Beverage Bottles	X	X	X	X	X	X			X	X	X	X		

* Includes wood, asphalt, and concrete.

- Requiring containers and space for recycling;
- Implementing purchasing policies, and
- Including contract requirements for contractors.

Furthermore, personnel at the Cedar City Regional Airport will need to adopt an approach for tracking and reporting data needed to review and evaluate the airport's on-going sustainability efforts. Simple data collection of weight, type, and frequency of waste recycled would be sufficient.

8.9 OPERATIONAL AND MAINTENANCE REQUIREMENTS

Operational and maintenance activities at Cedar City Regional Airport that produce waste materials are limited to snow plowing and grass mowing. While the snow removed by snow plows is not considered waste, the snow removal process itself can generate waste by accumulating Foreign Object Debris (FOD). These items can potentially cause damage to people, aircraft, and airport property. The airport staff is responsible for ensuring proper disposal of such waste. The Sponsor is in charge of funding and maintenance of the equipment.

Tenant waste resulting from operational and maintenance activities is produced by each hangar tenant, with varied output. Each tenant, including the FBO, is responsible for his or her own waste.

C&D waste is produced by each construction project, to varying degrees. The construction companies are responsible for all waste collection and disposal produced by the projects. Recycling implementation and availability for C&D materials varies with each project.

According to AIP Sponsor Guide - 900, published by the Central Region Airports Division, the Sponsor's consultant is required to prepare and submit a design report for all development projects funded under the AIP. "The engineer's design report serves to document the design considerations, engineering analysis and design selections that occur early in the project design phase. The report must justify the design decisions made by the engineer. The rationale for the selections should address design aircraft requirements, economical analysis of alternate designs, site conditions and airport operations concerns."[55] Recycling of construction and demolition waste is one of the topics addressed in the design report. For example, planning to reuse millings produced from pavement demolition can significantly reduce the number of truck trips necessary to haul the millings off-site. Typically at CDC the mill fillings are rolled out onto the helipad on behalf of Upper Limit Aviation.

8.10 ENERGY EFFICIENCY

The FAA encourages all airports to increase energy efficiency and pursue alternate renewable energy sources. For example, there are low flow faucets and one dual flush toilet in the CDC terminal bathrooms. Additionally, all of the bathrooms are equipped with motion activated lights and the airport is transitioning to light-emitting diodes (LEDs). Approximately 30% of the lights have been replaced with LEDs and the lighting in the terminal parking area is entirely equipped with LEDs. None of the airfield lighting is LED. The terminal building has programmable thermostats and employs a Building Automation System that centrally controls the buidling's heating, ventilation, and air conditioning systems automatically. There is also glazing on the windows. Window glazing incorporates multiple panes of glass, gas fillings, and high-tech, heat-sensitive coatings to facilitate energy efficiency. Ensuring the terminal lights are turned off after each flight and at night has been added to the airport personnel checklist.

8.11 SUSTAINABLE LANDSCAPING

Landscaping with native plants fosters sustainability. Native plants reduce erosion, increase property values, and prevent introduction of invasive plants. Native plants require less maintenance and fewer pesticide and fertilizer treatments because they are adapted to their environment. Native plant species were incorporated into the landscaping at Cedar City Regional Airport.

Cedar City Regional Airport practices grasscycling, as recommended by the FAA for all mowing of native grasses on airport property. Grasscycling is the process of leaving grass clippings in place after mowing, which then quickly decompose and return moisture and nutrients to the soil. Bush trimmings are not mulched, but rather picked up by local youth as a community service project.

8.12 REVIEW OF WASTE MANAGEMENT CONTRACTS

Existing contracts may encourage or impede the purchase or use of environmentally-preferred products (e.g. products with high recycled content, minimal packaging, environmentally-friendly cleaning products, etc.). Tenant leases and service contracts should be reviewed periodically for opportunities to add recycling, reuse, and waste reduction objectives.

The airport has five household dumpsters located throughout the airport property and Sphere One has one large dumpster. Cedar City's Street, Storm Drain and Solid Waste Division is responsible for trash pick-up at the airport. Once collected, the trash is dumped at the Iron County Landfill in Cedar City. The landfill accepts all waste except hazardous waste (batteries, pesticides, etc.) and liquid waste (paint, oil, etc.). Nominal fees are charged for construction waste ($17/ton) and business waste ($22/ton). If a contractor is involved in bringing construction waste to the landfill, the load must be inspected for asbestos. Asbestos is accepted with advanced notice and payment of associated disposal fees.

To further minimize waste generation, Cedar City Regional Airport could consider installing electric hand dryers in the bathrooms, set printers to print on both sides of the paper by default, and use rechargeable batteries. The airport does reduce waste generation by utilizing reusable coffee mugs and recycling electronic waste. Additionally, wooden pallets are reused, sold, or returned to the City and used oil and rubber is recycled by the City.

8.13 POTENTIAL FOR COST SAVINGS OR REVENUE GENERATION

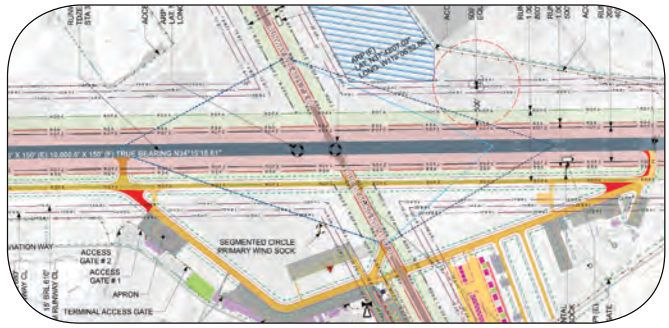
Sustainable development requires a stewardship approach to assuring quality of life for individuals and society and to preserving natural and human-made capital. Recommendations for changes to existing initiatives and activities to reduce the amount of waste going to the landfill must also consider the cost to the airport and local users. Currently, at Cedar City Regional Airport there are no waste disposal or recycling options that can produce cost savings or generate revenue. The only recommendations from this analysis are to provide recycling sorting containers to the FBO and terminal building, at a minimal up front cost to the airport, and consider additional waste minimization techniques as suggested.

Figure 8.4 Airport Sustainability

9. Airport Layout Plan

SECTION OVERVIEW

The Airport Layout Plan is a drawing set that depicts the current airport facilities and proposed developments based upon the previously determined aviation demand forecast, facility requirements, and selected alternatives. This chapter describes each drawing included in the set.



9.1 GENERAL

An approved Airport Layout Plan (ALP) is necessary for an airport to receive financial assistance under the terms of the Airport and Airway Improvement Act of 1982. An airport must keep its ALP current and follow the plan as part of AIP grant assurance requirements and previous airport improvement programs. The ALP creates a blueprint for airport development by depicting proposed facility improvements and a guideline to ensure that development meets airport design standards and safety requirements.

The ALP is a set of planning drawings and is intended to provide specific locations of the major components of an airport; runways, taxiways, aprons, and hangar areas. The various parts of the airport are all interconnected and need to be looked at as a whole. For this reason, the full ALP set is vetted through multiple divisions of the FAA. Each division analyzes the existing airport and planned improvements for overall compatibility with the national system of airports (such as airspace and planned approaches) and for on-airport compliance. After the ALP is approved, minor changes by the Sponsor are allowed, such as slight relocation of a hangar or taxiway, but FAA design standards and overall use of the land and space as planned must be followed, otherwise the airport drawings must be submitted to the FAA for approval again.

This chapter describes, in detail, the drawings of the Cedar City Regional Airport ALP and gives a description of the proposed improvements for the airport. The airport and the areas the airport impacts are graphically represented within the drawing set. All layout drawings appropriate to the project were produced with FAA standards as defined in AC 150/5070-6B, Change 2, *Airport Master Plans* and AC 150/5300-13A, Change 1, *Airport Design*. The following drawings were produced on 24” x 36” sheets and on 11” x 17” sheets as included as Appendix H:

- Title Sheet
- Airport Data Sheet
- Airport Layout Plan
- Airport Airspace
- Inner Portion of the Approach Surface - Runway Detail
- Inner Portion of the Approach Surface - Runway 2
- Inner Portion of the Approach Surface - Runway 20
- Inner Portion of the Approach Surface - Runway 8/26
- Runway Departure Surface - Runway 2/20
- Terminal Area - Overall
- Terminal Area - Detail
- Terminal Area - Detail
- On Airport Land Use
- Off Airport Land Use
- Photograph and Contour

- Airport Property Exhibit “A”
- Airport Property Exhibit “A” Tables

9.2 TITLE SHEET

The Title Sheet lists the drawings within the set, with an approval signature block for the Sponsor and designated space for the FAA acceptance letter. This sheet also includes the location and vicinity map, showing CDC, Cedar City, and Iron County in relation to the State of Utah. The project name, AIP number, and airspace case number are also included.

9.3 AIRPORT DATA SHEET

The data sheet includes the following information:

- Wind rose(s) including data source, time period covered, and coverage percentages for runways.
- Airport Data Table, existing and future, including airport elevation, Airport Reference Point data, mean maximum temperature, Airport Reference Code, and design aircraft.
- Runway Data Table, existing and future, including percent effective gradient, percent wind coverage, maximum elevation above MSL, runway length and width, runway surface type, runway strength, 14 CFR Part 77 approach category, approach type, approach slope, runway lighting, runway marking, navigational and visual aids, and RSA dimensions.
- FAA Approved Airport Modification to Standards Table, including approved date.
- Declared Distances Table, existing and future, including Take-off Run Available, Take-off Distance Available, Accelerated Stop Distance Available, and Landing Distance Available.

9.4 AIRPORT LAYOUT PLAN (ALP)

The ALP previously has been described as a set of drawings, but the main sheet of the set is also called the Airport Layout Plan. This sheet is the core of the set and is the overall representation of the existing and planned airport. The existing facility is depicted to show the reader the actual improvements. The surfaces presented, like the Runway Safety Areas and Object Free Areas, include dimensions to indicate they meet FAA design standards. If a surface falls short of standards, a note in the appropriate table and/or on the drawing will point out the deficiency.

A very important function of the ALP sheet is to show the planned development areas. These may be runways, extensions, taxiways, apron areas, or other aviation use of the airside of the facility. The development shown is presented meeting appropriate FAA design and safety standards. This is particularly important for aircraft movement areas and separation dimensions. The Cedar City Regional Airport ALP sheet shows the airport meeting ARC C-III design standards, currently and in the future, as detailed in previous chapters.

The need to meet design standards drove all of the development items shown in the CDC ALP. As mentioned in the Facility Requirements chapter, the forecasted operations fall well within the airport’s capacity.

The ALP depicts the existing and future airport facilities and includes facility identifications, description labels, imaginary surfaces, safety areas, and data tables. The ALP includes the following items:

- North Arrow showing True and Magnetic North and the year of the magnetic declination.
- Airport Reference Point (ARP), existing and future.
- Elevations, existing and future, for runway ends, touchdown zones, intersections, runway high and low points, structures on the airport, and roadways where they intersect the RPZ.
- Building limit lines.

- Runway details, existing and future, including dimensions, orientation, markings, threshold lighting, runway safety areas, and end coordinates.
- Taxiway details, existing and future, including widths and separations from the runway centerlines, parallel taxiway, aircraft parking, and objects.
- RPZ details, existing and future, including dimensions.
- Approach slope ratio.
- Sponsor plan acceptance and FAA conditional approval signature blocks.

9.5 AIRPORT AIRSPACE

The airport airspace drawing identifies all penetrations to surfaces, for the full extent of all airport development, as defined by 14 CFR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airpsace*. A primary function of the Part 77 drawing is to provide local planners and governments a means to check for potential obstructions from other planned development. A good example of this would be an application to build a cellular tower near the airport. By using the Part 77 drawing, planners can check obstruction impacts to airport safety surfaces prior to any construction degrading the airspace or approach procedures. This drawing is one of two that addresses land use protections near the airport, the other, discussed later, is the Land Use plan. Items in the Part 77 drawing include:

- Plan view of all 14 CFR Part 77 surfaces, based on the future runway lengths.
- Small scale profile views of future approaches.
- Obstruction data tables, including terrain and significant items, obstruction identification number and description, the amount of the approach surface penetration, and the proposed disposition of the obstructions.
- Contoured base map, runway end numbers, 50’ elevation contours on all slopes, most demanding surfaces more darkly shaded, and top elevations of objects that penetrate any surface.
- Runway ends, existing and future, with latitude, longitude, and elevation coordinates.
- North Arrow showing True and Magnetic North and the year of magnetic declination.
- Obstruction notes listing applicable airspace protection regulations and obstruction survey completion date.
- Vertical buffer notes.

The airport airspace drawing for Cedar City Regional Airport clearly illustrates the obstructions that penetrate the primary surface of Runway 2/20.

9.6 INNER PORTION OF APPROACH SURFACE AND RUNWAY DEPARTURE SURFACE DRAWINGS

The Inner Portion of Approach Surface sheet contains: 1) a top-down view of the inner approach for both runway ends with an aerial image with contoured background, 2) profile drawing that displays the center line ground profile detail and critical ground profile for the inner approach of both runway ends, and 3) obstructions to Part 77 surfaces.

The Runway Plan and Profile contains: 1) a top-down view of the entire approach and departure surface for both runway ends with a topographical background with contours, 2) an oblique view of the same area with contours shaded, and 3) a profile that displays the center line ground profile and critical ground profile beyond the runway ends for approximately 10,000 feet, as well as all surfaces, to determine obstructions.

In summary, these drawings include:

- Large scale plan views of inner portions of approaches for each runway, usually limited to the RPZ areas.
- Large scale projected profile views of inner portions of approaches for each runway, usually limited to the RPZ areas.
- Plan View Details including aerial photos for base maps, numbering system to identify obstructions, property

line, existing and future physical end of the runways with runway end numbers and elevation, and ground contours.
- Profile View Details including terrain and significant items and obstructions with numbers on the plan view.
- Approach Profile Details including a depiction of the ground profile along the extended runway centerline representing the composite profile, based on the highest terrain across the width and along the length of the approach surface.
- The Approach Profile Details also includes the identification of all significant objects within the approach surfaces, regardless of whether or not they are obstructions and the existing and ultimate runway ends and 14 CFR Part 77 approach slopes.

9.7 TERMINAL AREA

The Terminal Area plan is a detailed view of the apron that allows sufficient scale to present dimensions and show imaginary surfaces. When the Sponsor is approached for new hangar development, this drawing should be referenced for available space, location, and appropriate restrictions to meet the design standards, thus ensuring a safe environment.

The Terminal Area plan presents large-scale depictions of highlighted areas with existing and future building development opportunities and facilities. The FAA, during the airspace review, ensures that existing and planned building development will not impact instrument approach procedures or hamper improvements to the approaches. Depicted on the drawing is the Building Restriction Line (BRL) which represents where a 35-foot building can be located without penetrating 14 CFR Part 77 surfaces. The Terminal Area drawing presents the following information:
- Large scale plan views of the area or areas where aprons, buildings, hangars, and parking lots are located.
- A building and data table that lists structures and shows pertinent information including a numbering system to identify structures, top elevations of structures, and existing and planned obstruction markings.
- Existing and future airport facility and building list.
- Title and revision blocks.

9.8 LAND USE

The next drawings used for local protection of the airport is On Airport and Off Airport Land Use. These drawings focus on particular uses of the land near the airport whereas the Part 77 drawing dealt with height obstructions. Non-compatible land use can degrade the value of the public investment in the airport and/or can heighten the exposure of danger to greater numbers of the public. Studies have shown that generally, aircraft have a greater potential of crashing near the ends of the runway on both takeoff and landing. This heightened potential for risk has caused the FAA to develop safety areas off the runway ends and develop guidance and standards to preclude congregations or gatherings of people in the zones. Land uses such as hospitals, schools, high density residential (apartment complexes), and other places that have a greater potential for loss of life if an accident were to occur are prohibited or strongly discouraged in these areas.

Additional concerns with particular land uses near the airport are wildlife attractants and pilot interference. Limiting the amount of attractive natural ground is important to reduce the potential of wildlife impacts. Obvious problem areas are animal attractants, such as golf courses and parks (goose attractant), certain farming activities (mammal and bird attractants), landfills (bird attractant), and other uses like high cover that offer sanctuary to wildlife. Natural occurring attractants should be minimized when possible and man-made attractants should be avoided. Land uses that might interfere with pilot or aircraft operations must be avoided, including power plants or industrial uses that create steam columns/clouds or other visual obstructions. Uses that may cause interference with compasses or radios need to be avoided as well.

The off-airport land use and zoning photograph and map display the airport and a large surrounding area. Defined airport safety zones are overlaid. Cedar City land use zoning is described in Appendix E. These drawings include:

- Aerial base map.
- Legend with symbols and land use descriptions.
- Airport and nearby communities.
- City defined airport Safety Zones.

9.9 AIRPORT PHOTOGRAPH AND CONTOURS

The Airport Photograph and Contours depicts the terrain contours, using five-foot and two-foot contours, of land around the airport. General contours such as these are used for multiple purposes, including to highlight possible terrain obstructions and penetrations for approach and departures surfaces. Contours are also used in planning construction and earthwork. The existing airport and proposed facilities, as well as the airport property boundary and safety areas are included for reference against terrain contours.

9.10 AIRPORT PROPERTY MAP (EXHIBIT "A")

The airport property map, also called the Exhibit "A" if prepared in accordance with AC 150/5100-17, *Land Acquisition and Relocation Assistance for Airport Improvement Program Assisted Projects*, depicts the various tracks of land that were acquired to develop the airport and the method of acquisition. It displays easements beyond the airport boundary. The airport property map includes the following information:

- Parcel Data Table with a numbering or lettering system to identify tracts of land, the date the property was acquired, the Federal Aid project number under which it was acquired, the type of ownership, and existing and future airport features that would indicate a future aeronautical need for airport property.

To qualify as an Exhibit "A", the drawing must contain (AC 150/5100-17, Figure 1.2):

- Identification of the outside airport property boundary.
- All property parcels of the entire airport must be shown and numbered. In addition, parcels that were once airport property must also be shown.
- Show and/or directly reference parcel information including: Grantee (selling owner), type of interest acquired, acreage, public land record references such as book and page and date of recording.
- For each property parcel show FAA project number if acquired under a grant; Surplus Property Transfer or AP-4 Agreement if applicable; and type of easement (clearing, avigation, utility, ROW, etc.); and if released, date of FAA approval.
- Show the purpose of acquisition (current aeronautical, noise compatibility, or future development) and current use if different or in interim use pending development.
- Show runway protection zones, runway configurations, and building restriction lines.
- Show magnetic and true north arrows per standard drafting practices.
- The Exhibit "A" must be dated and amended whenever there is a change to any airport property.

PAGE LEFT BLANK INTENTIONALLY

10. Facilities Implementation and Financial Feasibility

SECTION OVERVIEW

This chapter reviews planned capital projects for Cedar City Regional Airport, in conjunction with the FAA Capital Improvement Plan (CIP). The airport's potential revenues and expenses are described in order to understand the financial feasibility and commitment of the upcoming projects for the Airport Sponsor.

10.1 GENERAL

The facilities implementation plan provides guidance on how to implement the findings and recommendations of this Master Plan. The plan must balance funding constraints, project sequencing limitations, environmental requirements, agency and tenant approvals and coordination processes, business issues, and the Airport Sponsor's strategic vision. Additionally, the plan must coordinate with the Airport Layout Plan (ALP) and the airport's financial plan. The plan should be implemented on an as-needed basis that is consistent with the financial capability and needs of the airport and community.

Because airports are critical to the economic health of their communities, it is important to include stakeholders and the general public in planning major projects, such as those involving capital improvement funds. For a community to realize the full benefit of the economic impact of its airport, sufficient infrastructure investments are required.

10.2 CAPITAL IMPROVEMENT PLAN

Capital projects differ from maintenance and general upkeep of the airport. Capital projects are normally large infrastructure improvements. These can include runways, runway extensions, taxiways, and aprons. Certain types of equipment, such as snow removal plows and blowers, fire fighting/rescue trucks, and their associated storage buildings, may also be eligible for FAA funding assistance. Capital projects often require substantial funding and must be planned for several years in advance.

Larger development items are determined to be needed and are justified through airport master planning. Once planning identifies a needed project, it is added to the CIP by the Airport Sponsor during the annual CIP review by the FAA. Typically during the review, completed projects are removed, pending projects are refined, and new needs are added for future years. Once a project is on the CIP, it may take years to schedule the funding depending upon the priority of the project. Runways and safety areas have top priority. Other projects related to safety, such as wildlife fencing, also have high priority.

This facilities implementation plan addresses the airport's planned capital projects, including, when relevant, those not associated with recommendations of the Master Plan, to ensure that adequate fiscal, staff, scheduling, and other resources are available. There are currently several planned capital projects included on CDC's approved CIP that are not addressed in this Master Plan. These projects entail installation of prairie dog fencing, acquisition of Aircraft Rescue and Fire Fighting (ARFF) and Snow Removal Equipment (SRE), and rehabilitation and marking projects.

10.3 MASTER SCHEDULE

The master schedule is intended to help establish interrelationships between projects, determine a sequence to minimize conflicts, and to help ensure that the sequence is maintained throughout the implementation plan. Detailed information is provided for the 20-year horizon. There are always more needs than funding available, so it is important for the Airport Sponsor to plan ahead and program needs well in advance of pavements failing or projects becoming urgent. Planning helps to ensure funding is available from the FAA and the Airport Sponsor. For sponsors who struggle with obtaining local matching funds, this level of planning is increasingly important.

The following cost estimates, outlined in *Table 10.1*, are based off of 2017 dollars. Detailed cost estimates are included in Appendix G. These cost estimates are provided as a general point of reference and are not as in-depth as would be required for actual construction. The FAA and Airport Sponsor share of the total costs are presented with the estimates. As noted in *Section 2.6 Economic Impact*, Cedar City is considered an economically distressed community; consequently, the current FAA share is 95% of the total cost of eligible improvements under the AIP grant program, leaving the local community with the remaining 5%.

Not all development costs are eligible under AIP guidelines. In such instances, Cedar City is responsible for 100% of the cost of the project. Such projects may be funded entirely by the Airport Sponsor, and may include financial assistance from the Utah Department of Transportation, Division of Aeronautics, or through third party support, such as private donations, developer financing, or community grants. Federal participation is usually available for runway, taxiway, and apron improvements. Other projects such as access roads are eligible, but not a high priority in the federal model. Automobile parking areas, hangars, fuel-storage facilities, and utilities are generally ineligible.

Improvement Projects and Costs
Table 10.1 lists the proposed capital improvement projects identified by this Master Plan, along with associated cost estimates, over the next 20 years. Cost estimates are an approximation and designed to provide a general starting point. Many items may effect these estimates, especially inflation or changes in unit prices, over the 20-year period. As projects are programmed into the CIP, cost estimates are updated annually. The general proposed time frame for these projects are also listed.

The details of these projects are discussed in *Chapter 6. Development Alternatives. Figure 10.1* illustrates proposed improvements. Several of the projects have been separated by bid schedule to facilitate the funding process and to assist in differentiating between AIP grant eligible and ineligible projects. For example, the SRE Building Addition has been separated between the new SRE building and the additional support buildings.

TABLE 10.1 PROPOSED IMPROVEMENTS IDENTIFIED BY THIS MASTER PLAN AND ESTIMATED COSTS				
Time frame	**Proposed Improvement**	**FAA Share**	**Local Share**	**Total Cost**
1-5 yrs	A. Reconstruct Runway 2/20 to Meet Line of Sight Standards and Correct Ponding	$19,722,950	$1,038,050	$20,761,000
1-5 yrs	B. Reconstruct Taxiway D to Meet Weight-Bearing Requirements	$10,927,850	$575,150	$11,503,000
1-5 yrs	C. Reconstruct Taxiway C Connector to Meet FAA Design Standards	$285,950	$15,050	$301,000
1-5 yrs	D. Reconstruct North Taxiway A Connector to Eliminate Direct Access	$1,049,750	$55,250	$1,105,000
6-10 yrs	E. Relocate Parallel Taxiway to Runway Connector	$580,450	$30,550	$611,000
6-10 yrs	F. Construct Aircraft Run-up Area	$584,250	$30,750	$615,000
6-10 yrs	G. Construct Small General Aviation Apron Expansion for Aircraft Parking	$215,650	$11,350	$227,000
6-10 yrs	H. SRE Building Addition - New SRE Building (Bid Schedule I)	$1,350,520	$71,080	$1,421,600
6-10 yrs	H. SRE Building Addition - Additional Support Buildings (Bid Schedule II)	$0	$859,200	$859,200
11-20 yrs	I. General Aviation Hangar Development (Bid Schedule I)	$938,178	$49,378	$987,556
11-20 yrs	I. General Aviation Hangar Development - Hangar Construction (Bid Schedule II)	$0	$475,200	$475,200
11-20 yrs	J. Flight School Apron Construction (Bid Schedule I)	$4,133,962	$217,577	$4,351,539
11-20 yrs	J. Flight School Apron Construction - Hangar Construction (Bid Schedule II)	$0	$3,175,200	$3,175,200
11-20 yrs	K. Corporate Hangar Development (Bid Schedule I)	$3,965,658	$208,719	$4,174,377
11-20 yrs	K. Corporate Hangar Development - Hangar Construction (Bid Schedule II)	$0	$4,836,000	$4,836,000
11-20 yrs	L. Construct New Terminal Parking	$232,750	$12,250	$245,000

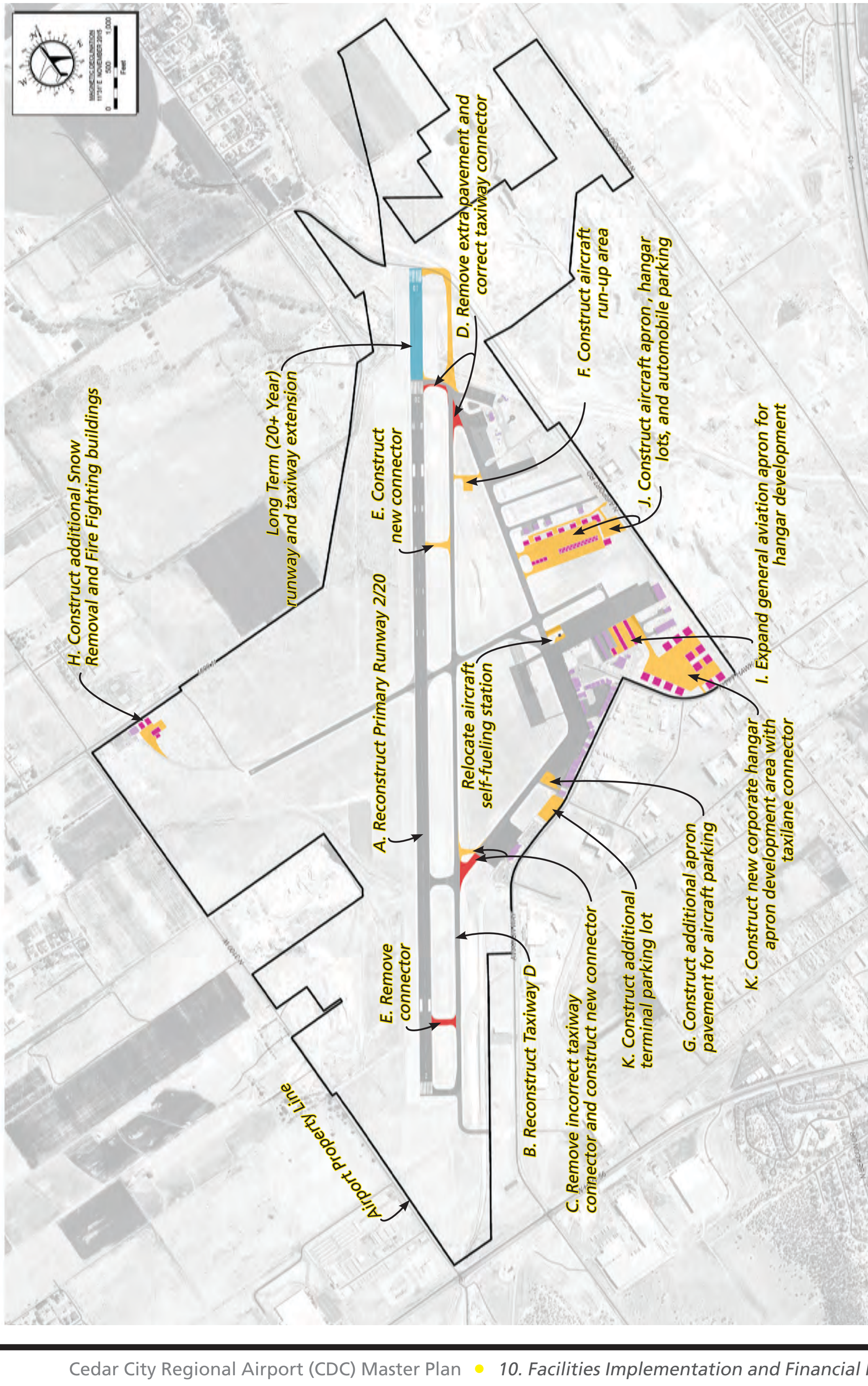
Regarding the reconstruction of Runway 20 and Taxiway D, it is assumed that all runway lights, PAPIs, REILs, and runway distance remaining signs will be replaced. The runway and taxiway will be reconstructed in their existing footprints to correct line of sight, pavement strength, and ponding issues. Additionally, the cost estimates for both of these reconstruction projects assume there will be no drainage improvements.

The "Relocate Connector" project will entail the removal of Taxiway Connector D2 and the construction of a new taxiway connector to the north of the crosswind runway.

According to the AIP handbook, the only AIP grant funding stream that CDC can use to pay for the airport's terminal parking area is its Passenger Facility Charges, provided no fees are charged for parking.[56] In the event that the Airport Sponsor desires to charge for parking in this area, the Airport Sponsor would be required to pay for the construction of the parking lot with local funds.

As for the flight school apron construction (bid schedule I), this project is only eligible for AIP grant funding if the apron area is accessible for public use. If not specifically built for a flight school, this apron and hangar area would accommodate general aviation.

Figure 10.1 Proposed Improvements



10.4 IN-KIND GRANT MATCH

The federal Office of Management and Budget (OMB) has requirements for all in-kind contributions that shall be accepted as part of the recipient's cost sharing or matching.[57]

Values for recipient contributions of services and property shall be established in accordance with the applicable cost principles. For example, if a federal awarding agency, such as the FAA, authorizes recipients to donate buildings or land for construction/facilities acquisition projects or long-term use, the value of the donated property for cost sharing or matching shall be the lesser of the certified value or the current fair market value.

Volunteer services furnished by professional and technical personnel, consultants, and other skilled and unskilled labor may be counted as cost sharing or matching if the service is an integral and necessary part of an approved project or program. Rates for volunteer services shall be consistent with those paid for similar work in the recipient's organization.

Donated supplies may include such items as expendable equipment, office supplies, laboratory supplies, or workshop and classroom supplies. Value assessed to donated supplies included in the cost sharing or matching share shall be reasonable and shall not exceed the fair market value of the property at the time of the donation. The value of donated property shall be determined in accordance with the usual accounting policies of the recipient.

10.5 REVENUE DIVERSION

Cedar City, as the Airport Sponsor, agreed to several assurances as part of accepting AIP grant funds. One of these assurances states that all funds generated by an airport and related aviation activities must be used for airport needs, according to the Airport Improvement Act passed in 1982 *(Airport and Airway Improvement Act of 1982 (Public Law 97-248))*.

Redirecting such funds to other sources is referred to as "revenue diversion," and the FAA defines revenue diversion as "the use of airport revenue for purposes other than airport capital or operating costs."[58] Revenue diversion is strictly prohibited and it is the responsibility of all parties involved in an airport's financials to be aware of this requirement and monitor for any such activity. It is permissible to spend airport revenue on the capital and operating costs of the airport, the local airport system, and other directly related aviation facilities and costs.

10.6 AIRPORT FUNDING SOURCES

Data in this section is derived from the Airport Finance Report to Congressional Committees entitled *Information on Funding Sources and Planned Capital Development* submitted by the US Government Accountability Office (GAO) dated April 2015.[59] This information is intended to provide a general overview of viable funding sources, not all of which apply to Cedar City Regional Airport.

The intent of the national airport system is to provide the US population with convenient access to air transportation and to support important national functions, such as defense, emergency readiness, and postal delivery. The criteria for airport projects to receive federal financial assistance are constructed around the national airport system goals for safety, capacity, security, efficiency, accessibility, and environmental suitability.

The National Plan of Integrated Airport Systems (NPIAS) identifies nearly 3,400 existing and proposed airports that are significant to the national airport system. From 2009 through 2013, NPIAS airports had an average of $10 billion per year available for capital improvement projects. These funds were derived from five sources:

- Airport-generated net income ($3.8 billion)
- Federal Airport Improvement Program (AIP) grants ($3.3 billion)
- Local Passenger Facility Charges (PFC) ($1.8 billion)
- Airport Sponsor or owner capital contributions ($644 million)
- State grants ($477 million).

In addition to these funding sources, some airports also issue bonds to fund infrastructure projects. Bonds allow an airport to fund a project up front and pay for its cost, plus interest, over a much longer time frame compared to the construction of the project. Bond issuances are not considered a direct source of funding. From 2009 to 2013, airports obtained an average of $6.3 billion per year for new projects by issuing bonds. Bond financing has traditionally been an option exercised by larger airports with substantial commercial service because they are more likely to have a greater and more certain revenue stream to support repayment of debt.

AIRPORT-GENERATED NET INCOME

Larger airports are more dependent than smaller airports on airport-generated net income, which contributed 53% of larger airports' total funding compared to 9% of smaller airports' total funding. In contrast, larger airports are less dependent than smaller airports on AIP grants, which contributed 15% of larger airports' total funding compared to 69% of smaller airports' total funding.

According to the Airports Council International-North America (ACI-NA), commercial airports have already committed a significant portion of their current and future airport-generated net income to the debt service of past and current projects.

On average from 2009 through 2013, 55% of airport operating revenues came from aeronautical revenues and 45% came from non-aeronautical revenues. Of the aeronautical revenues, 75% came from landing fees and terminal arrival fees, rent, and utilities paid by passenger airlines; 9% came from similar charges paid by cargo airlines; and the remainder came from a variety of other fees and taxes paid by airlines, general aviation, and the military, and other aeronautical sources. Parking and ground transportation accounted for the greatest portion (41%) of non-aeronautical revenue, followed by revenue from rental car operations (20%).

FEDERAL AIRPORT IMPROVEMENT PROGRAM (AIP) GRANTS

For fiscal years 2009 through 2013, national system airports received an average of $3.3 billion annually in AIP grant funding. Smaller airports received 71% of AIP grants compared to 29% received by larger airports. For both larger and smaller airports, the largest share of AIP grants went toward reconstruction projects (33% and 34%, respectively). The next largest share for larger airports was for projects to enhance airfield capacity (29%), while for smaller airports the next largest share was for projects to meet FAA's airport design standards (23%).

As a commercial service airport with more than 10,000 annual enplanements, CDC is eligible to receive $1 million in primary entitlement funds under the AIP each year. These funds can be saved for up to four years for more costly projects. For projects that exceed this amount, state apportionment funds may be available. State apportionment funds are provided by the FAA to states through the AIP program. For high priority projects, airports can also compete against each other on a regional level for federal discretionary funds.

LOCAL PASSENGER FACILITY CHARGES

The Aviation Safety and Capacity Expansion Act of1990 authorized the Secretary of Transportation to grant public agencies the authority to impose a PFC to fund eligible airport projects. PFC revenue may be used on a "pay-as-you-go" basis or leveraged to pay debt service on bonds or other debt used to pay for PFC-eligible projects. The FAA is required to approve the collection and use of PFCs, but the program provides more flexibility to Airport Sponsors than AIP funds.

Data from PFC applications for projects with start dates from 2009 through 2013 indicate that airports plan to spend 74% of their PFC revenues on debt service (38% on principal payments and 36% on interest payments). Commercial airports have already committed a significant portion of their current and future PFCs to the debt service of past and current projects and therefore have, and will continue to have, correspondingly less PFC funding available for new projects at current PFC rates.

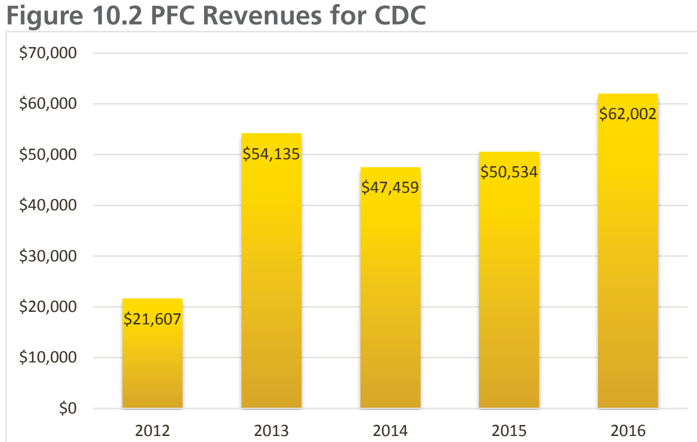
To be eligible for PFC funding, a project must preserve, enhance, or make a significant contribution to the safety, security, or capacity of the national air transportation system; reduce noise or mitigate noise impacts resulting from an airport; improve local air quality in accordance with the Voluntary Airport Low Emission program; or furnish opportunities for enhanced competition between or among air carriers; reduce current or anticipated congestion; or other qualification that may be added to the program over time.[60]

Airports can charge up to a maximum of $4.50 per enplaned passenger for PFCs. PFCs are capped at $4.50 per flight segment with a maximum of two PFCs charged on a one-way trip, or four PFCs on a round trip, for a maximum of $18 total. CDC charges the maximum $4.50 for PFCs.

Figure 10.2 illustrates the amount of funding CDC received in PFCs from 2012 through 2016. (The reporting period for these amounts is July1st through June 30th.) The airport has used these funds to match AIP grant funded projects as follows:

- 2012 – Construction of SRE Building;
- 2013 – Construction of Helipad;
- 2014 – Rehabilitation of Runway 8/26;
- 2015 – Construction of Fire House; and
- 2016 – Construction of Fire House.

Figure 10.2 PFC Revenues for CDC



CAPITAL CONTRIBUTIONS

Capital contributions are funds provided for infrastructure projects by the Airport Sponsor or entities that use the airport, such as airlines or tenants. For fiscal years 2009 through 2013, commercial airports received an annual average of $644 million in capital contributions. Of this amount, $419 million went to larger airports and $225 million went to smaller airports.

STATE GRANTS

Nearly all states provide financial assistance to airports, primarily in the form of grants used as matching funds for federal AIP grants or as separate grants. States fund their grant programs through a variety of sources, including aviation fuel and aircraft sales taxes, highway taxes, bonds, and general fund appropriations. During the study period (fiscal years 2009 through 2013), states provided an annual average of $477 million to national system airports, with $345 million (72%) going to smaller airports and $131 million (28%) going to larger airports. Matching grants accounted for $345 million (72%) of the state grant dollars, and state-only grants accounted for $132 million (28%). States vary significantly from one another, with some states being able to provide significant support to airports, while others are not due to a variety of factors.

In general, UDOT Aeronautics assists Airport Sponsors with the required match on federal grants at general aviation airports until they reach the status of Primary Commercial Service Airport and begin receiving the annual $1 million entitlement from the FAA. At this point, the State no longer contributes to the match. Then, the airports must use their entitlement funds to schedule maintenance and other projects. This same principle applies to preservation projects.

TABLE 10.2 CEDAR CITY REGIONAL AIRPORT PROJECTS FUNDED BY UDOT AERONAUTICS

Year	Project	FAA Funds	State Funds	Sponsor Funds	Total
2000	Runway 8/26 Crack Seal	$0	$80,000	$20,000	$100,000
2001	Update Airport Master Plan, Install Perimeter Fencing	$386,237	$19,240	$19,240	$424,717
2003	Seal Coat & Repaint Markings for Runway 2/20	$0	$76,500	$0	$76,500
2004	Crack Seal, Seal Coat, and Paint All Asphalt Surfaces (except Runway 2/20)	$0	$45,000	$5,000	$50,000
2005	Pavement Preservation - All Asphalt except Runway 2/20, Seal Coat and Repaint Markings	$0	$82,000	$9,112	$91,112
2009	Pavement Preservation	$0	$166,000	$18,445	$184,445
2010	Pavement Preservation Phase II	$0	$31,500	$3,500	$35,000
2012	Replace Hold Short Signs and Paint	$0	$22,500	$2,500	$25,000
2014	Pavement Preservation	$0	$198,000	$22,000	$220,000
2014	Rehabilitate Crosswind Runway 8/26, Backup Generator	$0	$369,000	$41,000	$410,000
2016	Purchase Lighting System Regulator	$0	$12,452	$1,384	$13,836
2018*	Aircraft Operations Counter	$0	$3,150	$350	$3,500

*Project is programmed, not yet completed

Cedar City Regional Airport currently receives the $1 million annual entitlement from the FAA; therefore, as a general rule, UDOT Aeronautics no longer contributes state funds to CDC. Although, there are a couple of exceptions to this, such as a backup generator in 2014, a lighting regulator in 2016, and an acoustical operations recorder scheduled for 2018. Additionally, the State issued pavement preservation grants to CDC thought 2014, when the $1 million annual entitlement became effective. *Table 10.2* outlines the funds UDOT has expended on projects at CDC since 2000.

10.7 FINANCIAL FEASIBILITY ANALYSIS

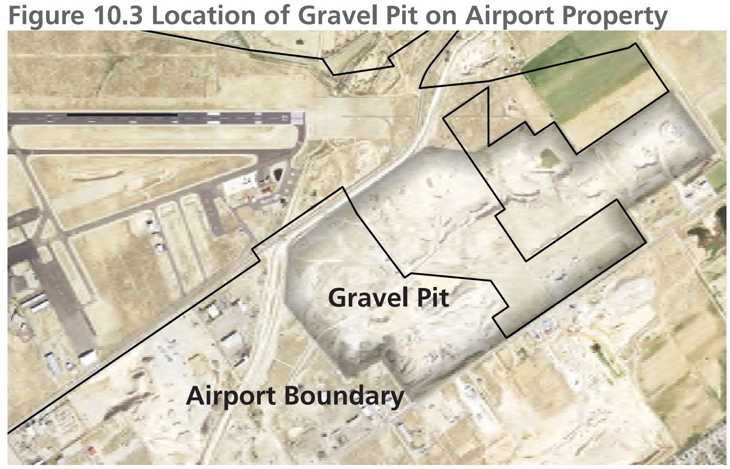
The purpose of this section is to demonstrate the Airport Sponsor's ability to fund the projects as described in the Airport Master Plan. The projects listed in *Table 10.1* are generally presented in ascending order from the most pressing, and thus emphasized for the near-term, to the least. The large majority of project monies come from federal AIP funding, although Cedar City Regional Airport has a variety of additional revenue sources available to assist with general operating and maintenance costs.

REVENUES

Airports typically receive revenue from multiple sources. *Table* lists the sources of revenue for Cedar City Regional Airport between 2010 and 2017. The most significant source of consistent revenue for CDC was rent, which averaged $122,000 per year. On occasion, fees brought in more revenue - for an average of $154,000 per year between 2010 and 2017 - but this varied substantially during years in which the fire season was busy and more revenue was generated in fuel fees. Income from fuel fees ranged significantly from $4,300 in 2010/2011 to more than $83,000 in 2015/2016. In developing the projected budgets for 2017 through 2025, outlined in *Table*, CDC officials assumed that the fire season would be busy and result in greater fuel fees every two to three years.

One of CDC's primary lease agreements is with SkyWest Airlines, which states that the agreement is for the "sole purpose of conducting Essential Air Service business." The lease extends for five years and may be renewed for one additional five-year term. Rent may increase annually. CDC's general lease agreements extend for 20-year periods and may be renewed for five, five-year terms. Rent may increase every five years. The primary purpose of these lease agreements is to "foster and abet air commerce at CDC." The conditions outlined in CDC's lease agreement with SkyWest Airlines, as well as its general lease agreements, do not appear to contain any atypical conditions for airports the size of Cedar City Regional Airport.

Figure 10.3 Location of Gravel Pit on Airport Property



Another source of revenue for CDC has been the sale of fixed assets, which is revenue received from the gravel pit located to the northeast of Runway 20. CDC leases the gravel pit, since it is located on airport property, for $70,000 in mining rights royalties. The lease amount is scheduled to increase to $78,000 per year in 2017. Caution should be used to not mine the area that may ultimately be used for the extension of the runway and/or taxiway. Additionally, Iron County supports Cedar City Regional Airport through an annual $25,000 appropriation.

In Utah, a state tax is imposed upon aviation fuel. At non-international airports, such as CDC, a tax at the rate of $0.09 per gallon is assessed. From this amount, $0.03 is returned to the airport in which the fuel was purchased and $0.06 is allocated to the Utah Department of Transportation Aeronautics Division for its operating budget. However, when aviation fuel is purchased by a federally certificated air carrier, a tax at the rate of $0.04 per gallon is assessed, of which $0.03 is returned to the airport and $0.01 is allocated to the Aeronautics Division budget. According to Utah code, the allocation to the airport may be used at the discretion of the airport's governing authority for the construction, improvements, operation, and maintenance of the airport and for payment of principal and interest on indebtedness incurred for such purposes. At CDC, aeronautical fuel fees have historically provided approximately $17,000 in annual revenues.

TABLE 10.3 ACTUAL REVENUES FOR CEDAR CITY REGIONAL AIRPORT								
Revenue Source	**2010/ 2011**	**2011/ 2012**	**2012/ 2013**	**2013/ 2014**	**2014/ 2015**	**2015/ 2016**	**2010-2016 Average % of Total**	**2016/ 2017***
Aeronautical Fuel Tax	$10,217	$10,420	$22,359	$17,016	$23,419	$11,540	3.27%	$25,000
Fees- Fuel	$4,314	$5,482	$10,313	$10,734	$22,188	$83,358	4.70%	$80,000
Fees- Landing	$10,875	$7,410	$44,919	$46,269	$54,076	$62,711	7.79%	$84,000
Fees- Passenger Facility Charges	$27,015	$27,920	$54,135	$56,216	$50,534	$67,701	9.77%	$65,000
Fees- Rental Car Concessions	$30,043	$30,339	$30,246	$28,490	$27,104	$31,343	6.12%	$25,000
Rent- FAA Building	$51,915	$52,378	$52,378	$52,377	$52,849	$53,006	10.85%	$52,400
Rent- FedEx Building	$4,200	$4,200	$4,283	$5,086	$4,695	$4,720	0.94%	$4,700
Rent- Hangars	$5,800	$8,651	$8,008	$8,832	$9,362	$5,294	1.58%	$8,500
Rent- Land	$14,607	$20,411	$13,858	$30,083	$43,205	$36,812	5.48%	$40,829
Rent- Snow Cat Garage	$10,200	$9,350	$11,050	$10,200	$10,200	$10,200	2.11%	$10,200
Rent- Terminal Building	$20,098	$19,092	$18,276	$16,926	$17,338	$21,703	3.91%	$18,800
Iron County	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	5.17%	$25,000
Interest Earnings	$2,898	$1,990	$2,216	$1,266	$1,756	$3,292	0.46%	$2,000
Sundry Revenue (tie-downs)	$13,487	$11,177	$1,424	$11,769	$6,029	$4,992	1.68%	$2,400
Sale of Fixed Assets	$70,000	$70,910	$70,000	$74,675	$65,325	$70,000	14.50%	$70,000
BLM Lease Improvements	$489,056	$116,406	$0	$0	$24,244	$0	21.69%	$0
Total	**$789,725**	**$421,136**	**$368,464**	**$394,939**	**$437,324**	**$491,672**	**-------------**	**$513,829**

*Reporting period is July 1st through June 30th, 2016/2017 is estimated

TABLE 10.4 PROJECTED REVENUE FOR CEDAR CITY REGIONAL AIRPORT								
Revenue Source	**2017/ 2018**	**2018/ 2019**	**2019/ 2020**	**2020/ 2021**	**2021/ 2022**	**2022/ 2023**	**2023/ 2024**	**2024/ 2025**
Aeronautical Fuel Tax	$21,000	$21,000	$25,000	$23,000	$23,000	$30,000	$25,000	$25,000
Fee- Fuel	$65,000	$80,000	$65,000	$80,000	$65,000	$65,000	$65,000	$80,000
Fee- Landing	$84,000	$84,000	$84,000	$84,000	$84,000	$84,000	$84,000	$84,000
Fees- Passenger Facility Charges	$65,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000
Fee- Rental Car Concessions	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
Rent- FAA Building	$52,400	$52,400	$52,400	$52,400	$52,400	$52,400	$52,400	$52,400
Rent- FedEx Building	$4,700	$4,700	$4,700	$4,700	$4,700	$4,700	$4,700	$4,700
Rent- Hangars	$8,500	$8,500	$8,500	$8,500	$8,500	$8,500	$8,500	$8,500
Rent- Land	$41,829	$42,829	$42,829	$42,829	$42,829	$42,829	$42,829	$42,829
Rent- Snow Cat Garage	$10,200	$10,200	$10,200	$10,200	$10,200	$10,200	$10,200	$10,200
Rent- Terminal Building	$18,800	$18,800	$18,800	$18,800	$18,800	$18,800	$18,800	$18,800
Iron County	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
Interest Earnings	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000	$2,000
Sundry Revenue (tie-downs)	$2,400	$2,400	$2,400	$2,400	$2,400	$2,400	$2,400	$2,400
Sale of Fixed Assets	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000	$78,000
Total	**$503,829**	**$584,829**	**$573,829**	**$586,829**	**$571,829**	**$578,829**	**$573,829**	**$588,829**

*Fiscal year starts July 1st and ends June 30th

Tie-down fees and interest earnings also provide income for the airport. Tie-down fees during the time period from 2010 through 2017 have varied from $1,400 to nearly $14,000 per year, while interest earnings have historically resulted in about $2,200 in annual revenue.

Moving forward, CDC's proposed budget assumes that a proposed increase in landing fees from $0.75 per 1,000 pounds for commercial service aircraft to $1.00 per 1,000 pounds is adopted and that proposed legislation increases the rate for Passenger Facility Charges from $4.50 to $9.00 by fiscal year 2018/2019. Cedar City, as the Airport Sponsor, will determine if the landing fees will increase.

National legislation is currently pending that would increase the maximum rate for Passenger Facility Charges from its current level of $4.50 per flight segment to $9.00 per flight segment. However, there has been some opposition to this legislation, so it is unknown if it will pass. CDC's proposed budget could be greatly impacted in the event that these increases do not occur.

EXPENDITURES

Airport revenues are allocated to the operating and maintenance (O&M) costs incurred by the airport. Typical O&M costs include personnel, utilities, and supplies. *Table 10.5* details CDC's operating and maintenance budget for the period 2010 through 2017. As *Table 10.5* indicates, personnel-related costs have increased each year from 2011 through 2017 and are projected to continue increasing annually through 2025, as proposed in *Table 10.6*. As *Tables 10.5* and *10.6* reflect, personnel-related costs have been CDC's greatest, non-capital expenditure since 2011 and are anticipated to be through 2025.

Cedar City also expends funds for local match on capital improvement projects. *Table 10.7* lists the historic capital contributions made by Cedar City for the purpose of airport development, while *Table 10.8* lists the projected capital contributions through 2025. These amounts will meet Cedar City's required match amount for the projects that are outlined in the airport's CIP. Several of CDC's proposed projects will be covered by its annual non-primary entitlement of $1 million, in conjunction with Cedar City's local match. However, a handful of projects will require AIP discretionary funds from the FAA in order to cover the costs. For example, the Runway 2/20 line of sight and ponding correction, combined with the taxiway relocation and rehabilitation (currently programmed for 2019) will require substantial AIP discretionary funding.

Additionally, should the Sponsor opt to retain the airport's crosswind runway (Runway 8/26), there will be expenses associated with its upkeep. *Table 10.9* lists the potential maintenance options and related costs for Runway 8/26. At a minimum, the runway will need a seal coat; an expense estimated at $87,000 in 2017 construction dollars. This expense will need to be covered by the Sponsor because CDC's crosswind runway is not eligible for AIP funding since the airport's primary runway (Runway 2/20) meets or exceeds the minimum wind coverage of 95%. In fact, as *Figure 3.4* indicates, wind coverage at 10.5 knots is 95.77%. The Sponsor could also seek funding from UDOT Aeronautics for this expense, but there is no guarantee the State would be willing to contribute to the project.

TABLE 10.5 ACTUAL EXPENDITURES FOR CEDAR CITY REGIONAL AIRPORT							
Expenditures	**2010/ 2011**	**2011/ 2012**	**2012/ 2013**	**2013/ 2014**	**2014/ 2015**	**2015/ 2016**	**2016/ 2017***
Salaries and Wages	$76,296	$71,527	$86,098	$105,057	$107,628	$118,328	$145,040
Social Security	$5,874	$5,514	$6,590	$8,036	$8,234	$9,042	$11,760
Employee Benefits	$10,164	$11,027	$16,974	$18,262	$24,717	$45,729	$56,704
Subtotal	**$92,334**	**$88,068**	**$109,662**	**$131,355**	**$140,579**	**$173,099**	**$213,504**
Advertising	$7,010	$995	$11,325	$10,758	$8,549	$5,709	$10,000
Travel and Training	$926	$285	$0	$840	$525	$920	$2,500
Office/Janitorial Supplies and Expenses	$4,477	$6,284	$2,945	$3,911	$3,177	$3,842	$3,950
Maintenance	$220,523	$78,275	$65,398	$86,215	$68,787	$60,328	$87,000
Gas and Oil	$3,047	$4,468	$4,438	$7,164	$4,925	$4,978	$9,000
Utilities/Telephone	$58,862	$54,880	$60,151	$54,496	$56,760	$60,751	$52,800
Professional and Technical Services	$1,114	$26,123	$340	$2,537	$279	$1,425	$2,267
Insurance and Surety Bonds	$22,769	$19,088	$17,973	$20,642	$20,012	$20,248	$21,037
Miscellaneous	$7,883	$9,010	$10,304	$8,840	$8,966	$8,780	$9,700
Total	**$418,945**	**$287,476**	**$282,536**	**$326,758**	**$312,559**	**$340,080**	**$411,758**

*Fiscal year starts July 1st and ends June 30th, 2016/2017 is estimated

TABLE 10.6 PROJECTED EXPENDITURES FOR CEDAR CITY REGIONAL AIRPORT								
Expenditures	**2017/ 2018**	**2018/ 2019**	**2019/ 2020**	**2020/ 2021**	**2021/ 2022**	**2022/ 2023**	**2023/ 2024**	**2024/ 2025**
Salaries and Wages	$147,941	$150,899	$153,917	$156,995	$160,136	$163,339	$166,606	$169,937
Social Security	$11,995	$12,235	$12,480	$12,729	$12,984	$13,244	$13,509	$13,779
Employee Benefits	$59,514	$62,520	$65,736	$69,178	$72,865	$76,814	$81,048	$85,587
Subtotal	**$219,450**	**$225,654**	**$232,133**	**$238,902**	**$245,985**	**$253,397**	**$261,163**	**$269,303**
Advertising	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000	$10,000
Travel and Training	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500	$2,500
Office/Janitorial Supplies and Expenses	$3,950	$3,950	$3,950	$3,950	$3,950	$3,950	$3,950	$3,950
Maintenance	$87,000	$87,000	$87,000	$87,000	$78,500	$78,500	$78,500	$78,500
Gas and Oil	$9,000	$9,000	$9,000	$9,000	$9,000	$9,000	$9,000	$9,000
Utilities/Telephone	$52,800	$52,800	$52,800	$52,800	$52,800	$52,800	$52,800	$52,800
Professional and Technical Services	$2,267	$2,267	$2,267	$2,267	$2,267	$2,267	$2,267	$2,267
Insurance and Surety Bonds	$21,037	$21,037	$21,037	$21,037	$21,037	$21,037	$21,037	$21,037
Miscellanous	$9,700	$9,700	$9,700	$9,700	$9,700	$9,700	$9,700	$9,700
Total	**$417,704**	**$423,908**	**$430,387**	**$437,156**	**$435,739**	**$443,151**	**$450,917**	**$459,057**

*Fiscal year starts July 1st and ends June 30th

TABLE 10.7 CEDAR CITY CORPORATION CONTRIBUTIONS TO CEDAR CITY REGIONAL AIRPORT							
	Historic						
Expenditures	**2010/ 2011**	**2011/ 2012**	**2012/ 2013**	**2013/ 2014**	**2014/ 2015**	**2015/ 2016**	**2016/ 2017***
Capital Outlay-Buildings	$1,195,087	$104,332	$0	$0	$0	$0	$0
Capital Outlay-Equipment	$0	$10,900	$11,166	$0	$0	$32,870	$25,000
Capital Outlay-Improvements	$489,057	$114,670	$0	$0	$24,730	$0	$13,000
Capital Outlay-Non-Capital Assets	$0	$0	$4,351	$0	$0	$0	$0
State Airport Improvement Grant	$0	$25,000	$0	$0	$0	$0	$0
Transfer to Airport Construction Fund	$0	$0	$0	$109,632	$52,632	$52,631	$52,632
Total	**$1,684,144**	**$254,902**	**$15,517**	**$109,632**	**$77,362**	**$85,501**	**$90,632**

*Fiscal year starts July 1st and ends June 30th, 2016/2017 is estimated

TABLE 10.8 CEDAR CITY CORPORATION CONTRIBUTIONS TO CEDAR CITY REGIONAL AIRPORT								
	Projected							
Expenditures	**2017/ 2018**	**2018/ 2019**	**2019/ 2020**	**2020/ 2021**	**2021/ 2022**	**2022/ 2023**	**2023/ 2024**	**2024/ 2025**
Capital Outlay-Buildings	$0	$0	$0	$0	$0	$0	$0	$0
Capital Outlay-Equipment	$75,000	$0	$0	$0	$0	$0	$0	$0
Capital Outlay-Improvements	$158,000	$474,000	$29,000	$30,000	$30,000	$30,000	$30,000	$119,000
Capital Outlay-Non-Capital Assets	$0	$0	$0	$0	$0	$0	$0	$0
State Airport Improvement Grant	$0	$0	$0	$0	$0	$0	$0	$0
Transfer to Airport Construction Fund	$52,632	$52,000	$52,000	$52,000	$52,000	$52,000	$52,000	$52,000
Total	**$285,632**	**$526,000**	**$81,000**	**$82,000**	**$82,000**	**$82,000**	**$82,000**	**$171,000**

*Fiscal year starts July 1st and ends June 30th, 2016/2017 is estimated

TABLE 10.9 MAINTENANCE OPTIONS FOR RUNWAY 8/26			
Proposed Improvement	**FAA Share**	**Local Share**	**Total Cost**
Runway 8/26 Seal Coat	$0	$87,000	$87,000
Runway 8/26 Rehabilitation	$0	$981,000	$981,000
Runway 8/26 Reconstruction	$0	$3,155,000	$3,155,000

REVENUE AND EXPENSE COMPARISON

Shown in *Table 10.10* are the revenues and expenses for fiscal years 2010/2011 through 2016/2017, as well as the resulting profit and/or loss for each year. CDC did not incur losses for the operation of the airport during this period.

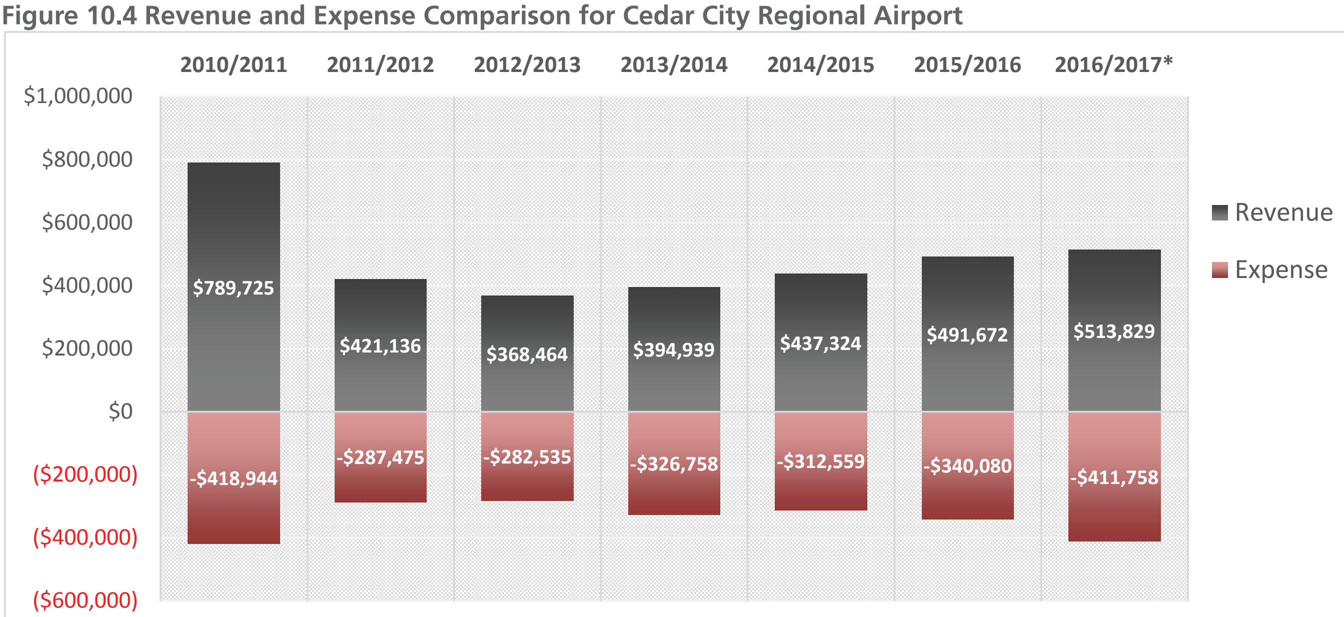
TABLE 10.10 CEDAR CITY REGIONAL AIRPORT PROFIT/LOSS

	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015	2015/2016	2016/2017*
Revenues	$789,725	$421,136	$368,464	$394,939	$437,324	$491,672	$513,829
Expenses	$418,944	$287,475	$282,535	$326,758	$312,559	$340,080	$411,758
Profit/Loss	**$370,781**	**$133,661**	**$85,929**	**$68,181**	**$124,765**	**$151,592**	**$102,071**

*Reporting period is July 1st through June 30th, 2016/2017 is estimated

Figure 10.4 depicts the revenues and expenses from fiscal years 2010/2011 through 2016/2017. Funds received from the FAA and UDOT Aeronautics for capital improvement projects are not included. As evidenced by this illustration, CDC is able to operate in the black, bringing in more revenue than expenditures. The 2016/2017 numbers are estimated.

Figure 10.4 Revenue and Expense Comparison for Cedar City Regional Airport



10.8 POTENTIAL REVENUE SOURCES

CDC has had success in attracting key aerospace tenants to the airport, which have provided benefit to airport revenues, as well as the local economy. Land to the north of the crosswind runway has been reserved for aeronautical expansion on the Airport Layout Plan (ALP). This is a key area for continued commercial and industrial development, which may further increase rental and lease revenues, and provide direct, indirect, and induced economic benefits to the community.

10.9 SUMMARY

In summary, Cedar City Regional Airport has multiple revenue streams that allow the airport to prosper financially in a self-sustaining manner. Cedar City officials and airport management have maintained a proactive stance in regard to fiscal planning, evidenced by the fact that CDC's proposed budget extends to 2025. Such careful planning will allow Cedar City to react to any changes in anticipated revenues and expenditures in a timely manner. For example, if pending legislation permitting an increase in Passenger Facility Charges does not pass, then CDC will have to reduce its projected revenue and balance the updated budget.

According to FAA Advisory Circular 150/5070-6B, airports are often under pressure to improve their financial condition, but to keep user costs at reasonable levels. As such, non-aeronautical revenues provide the best opportunity for an Airport Sponsor to establish new types of lease revenue. At this time, CDC has capitalized on multiple options for obtaining non-aeronautical revenues.

PAGE LEFT BLANK INTENTIONALLY

11. Compliance

SECTION OVERVIEW

The FAA has published the FAA Airport Compliance Manual, Order 5190.6B. This chapter provides a brief overview of planning needs for compliance with some of these standards.

11.1 GENERAL

The FAA published the FAA Airport Compliance Manual, Order 5190.6B, in September 2009 that provides guidance on interpreting and administering the various continuing commitments Airport Sponsors make to the US government when they accept grants of federal funds or federal property for airport purposes. The Airport Compliance Program was developed to ensure that Airport Sponsors comply with federal obligations in the form of grant assurances, surplus and nonsurplus obligations, or other applicable federal laws.

Federal regulation under Title 14, Part 139, Certification of Airports, sets forth the required standards commercial service airports must meet in order to allow scheduled commercial service operations to occur at the airport. Part 139 airports can further be subcategorized into Class I, II, III, and IV airports. Each class represents if the airport can receive scheduled or unscheduled commercial aircraft and what size aircraft by seat capacity is permissible. Cedar City Regional Airport is a Class I airport, meaning it can receive scheduled and unscheduled, small (10-30 seats) and large (30+ seats) air carrier aircraft, as indicated in *Table 11.1*. Operators of Class I airports must comply with all Part 139 requirements. Part 139 certifications are maintained by airport staff and enforced by FAA Part 139 inspectors on an annual basis.

TABLE 11.1 AIR CARRIER OPERATIONS AT EACH PART 139 CLASS

Type of Air Carrier Operation	*Class I*	*Class II*	*Class III*	*Class IV*
Scheduled Large Air Carrier Aircraft (30+ seats)	X			
Unscheduled Large Air Carrier Aircraft (30+ seats)	X	X		X
Scheduled Small Air Carrier Aircraft (10-30 seats)	X	X	X	

72% of the airports certificated under Part 139 are Class I airports (approximately 435 airports). The remaining airports to be certificated under Part 139 (approximately 172 airports) are Class II, III, or IV airports. Air carrier operations in large aircraft are so infrequent at these facilities that their operators are only required to comply with Part 139 in a limited manner.

11.2 SOURCES OF OBLIGATIONS

The federal obligations a Sponsor assumes by accepting FAA administered airport development assistance are mandated by federal statute. These obligations are incorporated in the grant agreements and property conveyance instruments entered into by the Sponsor and the US government. The sources of Airport Sponsor federal obligations include:

- Grant agreements issued through airport development grant programs including:

    - Federal Aid to Airports Program (FAAP)
    - Airport Development Aid Program (ADAP)
    - Airport Improvement Program (AIP)
- Grant agreements and instruments of nonsurplus conveyance issued under the:
    - 1946 Airport Act
    - 1970 Airport Act
    - Airport and Airway Improvement Act of 1982 (AAIA)
- Surplus property instruments of transfer issued under the provisions of Section 13(g) of the Surplus Property Act of 1944, as amended
- Deeds of conveyance issued under section 16 of the 1946 Airport Act, Section 23 of the 1970 Airport Act, and Section 516 of the AAIA
- AP-4 agreements authorized by various acts between 1939 and 1944
- Exclusive Rights under section 303 of the Civil Aeronautics Act of 1938, as amended and section 308(a) of the FAA Act, as amended
- Title VI of the Civil Rights Act of 1964, as amended
- Commitments in environmental documents prepared in accordance with current Federal Aviation Administration requirements that address the National Environmental Policy Act of 1969 (NEPA) and the AAIA
- Separate written agreements between the Sponsor and the FAA, including settlement agreements resulting from litigation.

11.3 FEDERAL GRANT OBLIGATIONS

The following list of assurances and deed restrictions are those most commonly encountered in compliance cases.

a. Exclusive Rights Prohibition:
    1) Applies to airports subject to: Any federal agreement or property conveyance.
    2) Obligation: To operate the airport without granting or permitting any exclusive right to conduct any aeronautical activity at the airport. (Aeronautical activity is defined as any activity which involves, makes possible, or is required for the operation of an aircraft, or which contributes to or is required for the safety of such operations; i.e., air taxi and charter operations, aircraft storage, sale of aviation fuel, etc.)
    3) Duration of obligation: For as long as the property is used as an airport.

b. Maintenance of the Airport:
    1) Applies to airports subject to: FAAP/ADAP/AIP agreements, surplus property, conveyances, and certain section 16/23/516 conveyances.
    2) Obligation: To preserve and maintain the airport facilities in a safe and serviceable condition. This applies to all facilities shown on the approved ALP which are dedicated for aviation use, and includes facilities conveyed under the Surplus Property Act.
    3) Duration of obligation: Standard[1].

[1] Standard means:

1) <u>Grant agreements for development other than land purchase.</u> Pavement and other facilities built to FAA standards are designed to last at least 20 years, and the duration of the obligation should generally be assumed to be 20 years. The duration may be shorter for grants made exclusively for certain equipment, such as a vehicle, that clearly has a useful life shorter than 20 years.
2) <u>Grant agreements for land purchase.</u> AIP grant agreements for purchase of land provide that obligations do not expire, since the useful life of land does not end or depreciate. However, FAAP and ADAP grants did not always contain this language, and the grant documents should be reviewed to determine whether the obligations expire in 20 years or continue indefinitely. Also, grants to a private operator of a public-use general aviation airport provide for a defined duration of the obligations attached to the grant, and the grant documents should be reviewed to determine the actual obligations that apply.

c. Operation of the Airport:
    1) Applies to airports subject to: FAA/ADAP/AIP agreements and surplus property conveyances.
    2) Obligation: To operate the aeronautical and common use areas for the benefit of the public and in a manner that will eliminate hazards to aircraft and persons.
    3) Duration of obligation: Standard[1].

d. Protection of Approaches:
    1) Applies to airports subject to: FAAP/ADAP/AIP agreements and surplus property conveyances.
    2) Obligation: To prevent, insofar as it is reasonably possible, the growth or establishment of obstructions in the aerial approaches to the airport. (The term "obstruction" refers to natural or man-made objects which penetrate the imaginary surfaces as defined in FAR Part 77, or other appropriate citation applicable to the specific agreement or conveyance document.)
    3) Duration of obligation: Standard[1].

e. Compatible Land Use:
    1) Applies to airports subject to: FAAP (after 1964)/ADAP/AIP agreements.
    2) Obligation: To take appropriate action, to the extent reasonable, to restrict the use of lands in the vicinity of the airport to activities and purposes compatible with normal airport operations.
    3) Duration of obligation: Standard[1].

f. Availability of Fair and Reasonable Terms:
    1) Applies to airports subject to: Any federal agreement or property conveyance.
    2) Obligation: To operate the airport for the use and benefit of the public to make it available to all types, kinds, and classes of aeronautical activity on fair and reasonable terms and without unjust discrimination.
    3) Duration of obligation: Twenty years from the date of execution for grant agreement prior to 1964. For grants executed subsequent to the passage of the Civil Rights Act of 1964, the statutory requirement prohibiting discrimination remains in effect for as long as the property is used as an airport. The obligation runs with the land for surplus property and section 16/23/516 conveyances.

g. Adherence to the Airport Layout Plan:
    1) Applies to airports subject to: FAAP/ADAP/AIP agreements.
    2) Obligation: To develop, operate, and maintain the airport in accordance with the latest approved Airport Layout Plan. In addition, airport land depicted on the latest property map (Exhibit "A") cannot be disposed of or otherwise encumbered without prior FAA approval.
    3) Duration of obligation: Standard[1].

h. Utilization of Surplus Property:
    1) Applies to airports subject to: Surplus property conveyances.
    2) Obligation: Property conveyed under the Surplus Property Act must be used to support the development, maintenance and operation of the airport. If not needed to directly support an aviation use, such property must be available for use to produce income for the airport. Such property may not be leased or rented at a discount or for nominal consideration to subsidize nonairport objectives. Airport property cannot be used, leased, sold, salvaged, or disposed of for other than for airport purposes without FAA approval.
    3) Duration of obligation: Standard[1].

i. Utilization of Section 16/23/516 lands:
    1) Applies to airports subject to: Section 16/23/516 conveyances.
    2) Obligation: Property must be used for airport purposes; i.e., uses directly related to the actual operation or the foreseeable aeronautical development of the airport. Incidental use of the property must be approved by the FAA.
    3) Duration of obligation: Standard[1].

---

3) Surplus property deeds and nonsurplus land conveyance documents. Documents conveying federal land and property interests for airport use generally have no expiration date, and obligations continue indefinitely until the Sponsor is formally released from the obligation by the FAA. Obligations run with the land and bind subsequent owners.

j. Sale or Other Disposal of Property Acquired Under FAAP/ADAP/AIP:
    1) Applies to airports subject to: FAAP/ADAP/AIP agreements.
    2) Obligation: To obtain FAA approval for the sale or other disposal of property acquired under FAAP/ADAP/AIP, as well as approval for the use of any net proceeds realized.
    3) Duration of obligation: Standard[1].

k. Utilization of Airport Revenue:
    1) Applies to airports subject to: Any federal agreement or property conveyance.
    2) Obligation: To use all airport revenues 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 directly related to the actual air transportation of passengers or property.
    3) Duration of obligation: Standard for grants and conveyances executed prior to October 1, 1996. For airports receiving assistance on or after that date, the obligation continues as long as the facility is used as a public-use airport.
    4) Special Conditions Affecting Noise Land and Future Aeronautical Use Land: Apply interim revenue derived from noise land or future aeronautical use land to projects eligible for grants under the AIP. This income may not be used for the matching share of any grant.

l. National Emergency Use Provision:
    1) Applies to airports subject to: Surplus property conveyances (where Sponsor not released from this clause.)
    2) Obligation: That during any war or national emergency, the government has the right of exclusive possession and control of the airport.
    3) Duration of Obligation: Runs with the land (unless released from this clause by the FAA, with concurrence of the Department of Defense.)

m. Fee and Rental Structure:
    1) Applies to airports subject to: FAAP/ADAP/AIP agreements.
    2) Obligation: To maintain a fee and rental structure of the facilities and services being provided to the airport users which will make the airport as self-sustaining as possible. (Note: Fair and reasonable for aeronautical activities and fair market value for nonaeronautical activities.)
    3) Duration of obligation: Standard[1].

n. Preserving Rights and Powers:
    1) Applies to airports subject to: FAAP/ADAP/AIP agreements.
    2) Obligation: To not enter into any transaction which would operate to deprive it of any of the rights and powers necessary to perform any or all of the Sponsor assurances without FAA approval, and to act promptly to acquire, extinguish or modify any outstanding rights or claims of right of others that would interfere with such performance by the Sponsor. To not dispose of or encumber its title or other interests in the site and facilities for the duration of the terms, conditions, and assurances in the grant agreement without FAA approval.
    3) Duration of Obligation: Standard[1].

o. Environmental Requirements:
    1) The AAIA requires that for certain types of project, an environment review be conducted. The review can take the form of either an environmental assessment or an environmental impact statement. These environmental documents often contain commitments related to mitigation of environmental impacts. FAA approval of environmental documents containing such commitments has the effect of requiring that these commitments be fulfilled before FAA grant issuance or as part of the grant.

p. Other Obligations:
    1) The above obligations represent the more important obligations assumed by an airport Sponsor. Other obligations that may be found in grant agreements include:
        - Use of government Aircraft
        - Land for Federal Facilities
        - Standard Accounting Systems

- Reports and Inspections
- Consultation with Users
- Terminal Development Prerequisites
- Construction Inspection and Approval
- Minimum Wage Rates
- Veterans Preference
- Audits, Audit Reports and Record Keeping Requirement
- Local Approval
- Civil Rights
- Construction Accomplishment
- Planning Projects
- Good Title
- Sponsor Fund Availability

11.4 GRANT ASSURANCES

There are 39 Grant Assurances that are briefly described here. Complete descriptions and requirements are located within Appendix A of FAA Airport Compliance Manual, Order 5190.6B.

1. General Federal Requirements - The Sponsor must 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 the project.
2. Responsibility and Authority of the Sponsor - The Sponsor must have legal authority to apply for the grant and to finance and carry out the proposed project and comply with all terms, conditions, and assurances of the grant agreement. As applicable, a resolution, motion, or similar action must be duly adopted or passed as an official act of the applicant's governing body authorizing the filing of the application.
3. Sponsor Fund Availability - The Sponsor must have sufficient funds available for the portion of the project costs that will not be paid by the U.S. government. Sufficient funds must also be available to assure operation and maintenance of items funded under the grant agreement.
4. Good Title - The Sponsor must show that good title is held or will be acquired by the Sponsor, public agency, or federal government. The Sponsor must hold good title or obtain good title for noise compatibility program projects.
5. Preserving Rights and Powers - The Sponsor will not take or permit any action which would deprive it of any of the rights and powers necessary to perform any or all of the terms, conditions, and assurances in the grant agreement. The Sponsor 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 or properties for which noise compatibility program funds have been expended. The Sponsor must enter into an agreement with the property owner for noise compatibility programs that are not on airport property.
6. Consistency with Local Plans - The project should be reasonably consistent with plans of public agencies that are authorized by the State to plan for area development existing at the time of application submission.
7. Consideration of Local Interest - The Sponsor should give fair consideration to the interest of communities located in or near the project location.
8. Consultation with Users - The Sponsor must undertake reasonable consultations with parties that use the airport.
9. Public Hearings - The Sponsor must give opportunities for public hearings for projects involving the location of an airport, an airport runway, or a major extension of the runway.

10. Metropolitan Planning Organization - 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 Preventative Maintenance - The Sponsor assures or certifies that an effective pavement-maintenance management program has been implemented.
12. Terminal Development Prerequisites - The Sponsor must show that all required safety equipment, security equipment, and access to the passenger enplaning and deplaning areas have been provided for projects which include terminal area development.
13. Accounting System, Audit, and Record Keeping - All project accounts and records must be kept and be available for inspection.
14. Minimum Wage Rates - Contracts in excess of $2,000 that involve labor must have provisions establishing minimum wage rates to be paid.
15. Veterans Preference - The employment of labor preference shall be given to Veterans of the Vietnam era and disabled veterans. The preference does not apply to executive, administrative, and supervisory positions and only applies where individuals are available and qualified.
16. Conformity to Plans and Specifications - The project must be executed subject to FAA approved plans, specifications, and schedules.
17. Construction Inspection and Approval - The Sponsor must provide and maintain competent technical supervision at the construction site throughout the project to assure that the work conforms to the FAA approved plans, specifications, and schedules.
18. Planning Projects - Planning projects must be completed in an approved method. The material must be made available for examination. The plan may not be copyrighted and approval of the plan does not constitute or imply any assurance or commitment to approve any future airport grants.
19. Operations and Maintenance - The airport and all facilities that are necessary to serve the aeronautical users of the airport shall be operated at all times in a safe and serviceable condition and in accordance with the minimum standards that may be required. The Sponsor may not cause or permit any activity or action that would interfere with its use for airport purposes.
20. Hazard Removal and Mitigation - The Sponsor must take actions to ensure that terminal airspace as required to protect instrument and visual operations to the airport will be adequately cleared and protected by mitigating existing airport hazards and by preventing the creation of future hazards.
21. Compatible Land Use - The Sponsor must take appropriate action, to the extent reasonable, to restrict the use of land adjacent to and in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations. If the project is for noise compatibility program implementation, the Sponsor will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility with respect to the airport or the noise compatibility program measures.
22. Economic Nondiscrimination - The Sponsor must make the airport available 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.
23. Exclusive Rights - The Sponsor may not permit an exclusive right for the use of the airport by any person providing, or intending to provide, aeronautical services to the public. There may be a single FBO serving the airport that would not be considered an exclusive right if certain conditions exist.

24. Fee and Rental Structure - The Sponsor must maintain a fee and rental structure for the facilities and services at the airport that will make the airport as self-sustaining as possible under the circumstances existing at the particular airport.
25. Airport Revenues - All revenues generated by the airport and any local taxes on aviation fuel will be expended for the capital or operating costs of the airport, the local airport system, or other local facilities that are owned or operated by the owner or operator of the airport and that are directly and substantially related to the actual air transportation of passengers or property. The revenues can also be used for noise mitigation purposes on or off the airport.
26. Reports and Inspections - Annual operations reports, airport development project records and documents, and noise compatibility program records must be maintained and be available for inspection.
27. Use by federal government Aircraft - The Sponsor must make all of the facilities of the airport developed with federal financial assistance and all those usable for landing and takeoff of aircraft available to the United States for use by government aircraft in common with other aircraft at all times without charge. If use by governmental aircraft is substantial, a reasonable and proportional charge for the cost of operating and maintaining the facilities may be charged.
28. Land for Federal Facilities - The Sponsor must furnish without cost land or water areas to the federal government for the use in connection with any air traffic control, air navigation activities, weather-reporting, and communication activities related to air traffic control.
29. Airport Layout Plan - The Sponsor must keep the Airport Layout Plan up to date at all times. Changes or alterations made on the airport that are not shown on an approved airport layout plan may be subject to elimination or relocation at the Sponsor's expense.
30. Civil Rights - The Sponsor must comply with existing rules to ensure that no person is excluded on the grounds of race, creed, color, national origin, sex, age, or disability from participating in any activity conducted with or benefiting from funds received.
31. Disposal of Land - Land no longer used for airport noise compatibility purposes or airport development purposes must be properly disposed of following existing guidelines.
32. Engineering and Design Services - All contracts or sub-contracts for services must be awarded in a qualifications-based method.
33. Foreign Market Restrictions - The Sponsor will not allow funds provided under the grant to be used to fund any project that uses any product or service of a foreign country when that 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 - The Sponsor must carry out the project in accordance with the FAA approved policies, standards, and specifications.
35. Relocation and Real Property Acquisition - The Sponsor must follow Subparts B, C, D, and E of 49 CFR Part 24.
36. Access by Intercity Buses - The airport owner will permit, to the maximum extent practicable, intercity buses or other modes of transportation to have access to the airport. There is no obligation by the airport owner to fund special facilities.
37. Disadvantaged Business Enterprises (DBE) - The grant recipient shall not discriminate on the basis of race, color, national origin, or sex in the award of any DOT-assisted contract, in the administration of its DBE program, or the requirements of 49 CFR Part 26. Implementation of the DBE program is a legal obligation.
38. Hangar Construction - The airport owner must grant a long term lease that may be subject to terms and conditions for hangars constructed on the airport at the aircraft owner's expense.
39. Competitive Access - Applies to medium or large hub airports.

The FAA has published additional guidance in a document entitled *Airport Sponsor and Airport User Rights and Responsibilities*. This 10-page booklet features a handful of key grant assurances in simplified terms. Notably, grant assurances 5, 22, 23, 24, and 25 are highlighted in this publication.

11.5 COMPLAINT RESOLUTION

Under 14 Code of Federal Regulations (CFR) 13.1, any person who knows of a violation of federal aviation laws, regulations, rules, policies, or orders may report the violation to the FAA informally as a "report of violation." Under this sections, airport users may report allegations of grant assurance violations to the FAA. This is commonly referred to as an "informal complaint." Indiviudals seeking to file informal complaints are encouraged to do so in writing. Alleged violations are investigated by the FAA's local Airports District Office (ADO) or Regional Airports Division.

14 CFR 16, commonly referred to as Part 16, outlines a formal complaint process. In order to file a formal complaint under Part 16, complainants must be "directly and substantially affected" by any alleged noncompliance. Part 16 includes regulatory time frames and detailed procedures associated with the process. The Part 16 Decision Database contains copies of final FAA determinations. Because complaints often focus on similar issues, an understanding of how the FAA has decided a case in the past may be beneficial.

Most violations of Airport Sponsor federal obligations are not a deliberate attempt to circumvent federal obligations. Generally, violations occur because Sponsors do not understand specific requirements or how a requirement applies to a specific circumstance. The Airport Compliance Program works to ensure Sponsors are fully informed of their federal obligations and of the applicability of those obligations to the circumstances at a given airport. Informal resolution is the preferred course of action when it comes to addressing complaints of violations.

11.6 COMPATIBLE LAND USE

Land use planning is important to ensure that airport investments are not affected by incompatible land uses adjacent to and in the immediate vicinity of the airport. Incompatible land uses at or near airports may result in the creation of hazards to air navigation, reductions in airport utility resulting from obstructions to flight paths, or noise-related incompatible land use resulting from residential areas too close to the airport.

Zoning is an effective method of meeting the federal obligation to ensure compatible land use and to protect airport approaches. According to 5190.6B, restricting residential development near the airport is essential in order to avoid noise-related problems. Residential developments can also be incompatible for safety reasons. The development of public facilities such as schools, churches, public health facilities, and concert halls should also be avoided near the airport due to noise incompatibility.

Compatibility of land use is attained when the use of property adjacent to and near the airport neither adversely affects flight operations from the airport nor is itself adversely affected by the flight operations. Land uses that adversely affect flight operations are ones that create or contribute to a flight hazard. These can include tall structures, features that inhibit pilot visibility such as light or smoke, produce electronic aberrations in navigational guidance systems, or that attract birds.

Order 5190.6B states the FAA's position in regard to several variations on residential properties on or near airports. Airpark developments allow aircraft owners to reside and park their aircraft on the same property with immediate access to an airfield. The FAA considers residential use by aircraft owners to be no different from any residential use and finds it incompatible with the operation of a public use airport (20.4.b).

Permitting development of a residential airpark near a federally obligated airport, through zoning approval or otherwise, would be inconsistent with Grant Assurance 21 (20.4.b). Any residential use existing on the airport or any residential use granting "through-the-fence" access is an incompatible land use (20.4.a).

A "through-the-fence" operation is defined by the Federal Aviation Administration (FAA) as any activity or use of real property of an aeronautical or nonaeronautical nature that is located outside (or off) of airport property but has access to the airport's runway and/or taxiway system. Airport property is property owned by the airport Sponsor and shown on an FAA approved Airport Layout Plan (ALP). "Through-the-fence" operations occur from property that is immediately adjacent to the airport but which is owned by corporations, businesses or private parties. These properties are not under control in any manner by the airport Sponsor.

Off-airport residential airparks are privately owned and maintained residential facilities. The FAA does not consider them to be aeronautical facilities eligible for reasonable access to a federally obligated airport. Therefore, the Sponsor is under no federal obligation to allow "through-the-fence" access for privately owned residential airparks. Allowing access could be an encumbrance on the airport in conflict with Grant Assurance 5. Residential hangars with "through-the-fence" access are considered incompatible land uses at federally obligated public use airports.

Other non-residential "through-the-fence" activities may be allowed, but the Sponsor must make sure that the use agreement does not violate any of the grant assurances.

The most common improper and noncompliant land uses include nonaeronautical leaseholds being located on designated aeronautical use land without FAA approval (not shown on the ALP) or on property not released by the FAA. Another common noncompliant land use is allowing dedicated aeronautical property to be used for nonaeronautical uses. This includes using hangars to store vehicles, using property and buildings for animal control facilities, nonairport vehicle and maintenance equipment storage, aircraft museums, and municipal administrative offices.

Some common incompatible land uses include the introduction of a wildlife attractant or failure to take adequate steps to mitigate hazardous wildlife at the airport. Other incompatible land uses include wastewater ponds, municipal flood control channels and drainage basins, sanitary landfills, solid waste transfer stations, electrical power substations, water storage tanks, golf courses, and other bird attractants. Towers or buildings that penetrate Part 77 surfaces or are located within a runway protection zone (RPZ), runway object free area (ROFA), object free zone (OFZ), and clearway or stopway are also incompatible uses.

11.7 PART 139 CERTIFICATION OF AIRPORTS

Part 139 Airport Operating Certificates serve to ensure safety in air transportation. To obtain a certificate, an airport must agree to certain operational and safety standards and provide for such things as firefighting and rescue equipment. These requirements vary depending on the size of the airport and the type of flights available. Because Cedar City Regional Airport is considered a Class I airport, the Sponsor is required to comply with all Part 139 requirements.

Part 139 is subdivided into four parts, A through D. Subpart D lists the operational requirements of a Part 139 certificate holder. The information below pertains to Subpart D of Part 139, which explains what each airport must do to maintain its Part 139 certificate. As part of the certification, the airport must also have an FAA-approved Airport Certification Manual (ACM), Airport Emergency Plan (AEP), Airport Security Plan (ASP), and Snow and Ice Control Plan (SICP).

- §139.301 Records - Maintain personnel training, inspection, accident and incident, and airport conditioning records.

- §139.303 Personnel - Description of the required training, reoccuring training, familiarization, and lengths to keep records of training.
- §139.305 Paved areas - Description when repairs are required for runways, taxiways, loading ramps, and parking areas.
- §139.307 Unpaved areas - Description when repairs area required for gravel, turf, and unpaved runways, taxiways, or loading ramps and parking areas.
- §139.309 Safety areas - Description of the safety area required to be provided by the airport for each runway and taxiway used for air carrier use.
- §139.311 Marking, signs, and lighting - Description of the required marking, signs, and lighting for air carrier operations.
- §139.313 Snow and ice control - Description of the minimum required standards for an airport's snow and ice control plan.
- §139.315 Aircraft rescue and firefighting: Index determination - Description of the length and frequency in aircraft to determine the airport Aircraft Rescue and Firefighting (ARFF) index.
- §139.317 Aircraft rescue and firefighting: Equipment and agents - Description of the minimum equipment and agents needed corresponding to the appropriate ARFF index.
- §139.319 Aircraft rescue and firefighting: Operational requirements - Addresses rescue and firefighting capabilities, how to increase an ARFF index, procedures for reducing capabilities, required vehicle communication, vehicle markings, vehicle readiness, response requirements, personnel training, hazardous materials guidance, emergency access roads, methods and procedures, and implementation of these requirements.
- §139.321 Handling and storing of hazardous substances and materials - Description of protection of persons and property for airports who handle cargo.
- §139.323 Traffic and wind direction indicators - Description of required traffic and wind direction indicators.
- §139.325 Airport emergency plan - Description of requirements for an airport emergency plan to minimize the possibility and extent of personal injury and property damage on the airport in an emergency.
- §139.327 Self-inspection program - Description of the required self-inspection program each airport must follow to maintain their certificate.
- §139.329 Pedestrians and ground vehicles - Addresses the required manner to control pedestrians and ground vehicle to prevent incursions, accidents, and incidents.
- §139.331 Obstructions - Addresses the requirements for obstructions.
- §139.333 Protection of NAVAIDS - Description of how to protect navigational aids (NAVAIDS).
- §139.335 Public protection - Description of how to protect the public from harm, including airport personnel within and the general public outside the fenceline.
- §139.337 Wildlife hazard management - Description of how and when to conduct wildlife hazard assessments.
- §139.339 Airport condition reporting - Description of when and how to disseminate airport condition information to air carriers.
- §139.341 Identifying, marking, and lighting construction and other unserviceable areas - Addresses how to mark and light construction and unserviceable areas.
- §139.343 Noncomplying conditions - Description as to when to limit air carrier operations when noncomplying conditions exist.

To ensure that airports with Airport Operating Certificates are meeting the requirements of Part 139, FAA Airport Certification Safety Inspectors conduct certification inspections. These inspections typically occur yearly, but thte FAA can also make unannouced inspections. If the FAA finds that an airport is not meeting its obligations, it often imposes an administrative action. It can also impose a financial penalty for each day the airport continues to violate a

Part 139 requirement. In extreme cases, the FAA might revoke the airport's certificate or limit the areas of an airport where air carriers can land or takeoff.

11.8 CONCLUSION

According to the FAA Airport Compliance Manual, Order 5190.6B, the FAA Airport Compliance Program is contractually based; it does not attempt to control or direct the operation of airports. Rather, the 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. The FAA considers all federal airport obligations important. However, the most important objective in the FAA's oversight of the compliance program is to ensure and preserve safety at all federally obligated airports.

PAGE LEFT BLANK INTENTIONALLY

12. References

[1]	US Department of Transportation, Federal Aviation Administration. (2015). *Airport and Airway Trust Fund (AATF) Fact Sheet.* Accessed online: https://www.faa.gov/about/budget/aatf/
[2]	US Department of Transportation, Federal Aviation Administration. (2012). *General Aviation Airports: A National Asset*. Accessed online: http://www.faa.gov/airports/planning_capacity/ga_study/
[3]	US Department of Transportation, Federal Aviation Administration. (2015). *Report to Congress National Plan of Integrated Airport Systems (NPIAS) 2015-2019.* Accessed online: http://www.faa.gov/airports/planning_capacity/npias/reports/
[4]	Airports Council International. (2004). *The Social and Economic Impact of Airports in Europe.* Accessed online: https://www.aci-europe.org/
[5]	Airport Owners and Pilots Association. (2009). *It's Your Airport*. Accessed online: cityofwatsonville.org/download/airport/FAQs/its_my_airport.pdf
[6]	General Aviation Manufacturers Association. (2015). *Contribution of General Aviation to the US Economy in 2013.* Accessed online: https://www.gama.aero/media-center/industry-facts-and-statistics/statistical-databook-and-industry-outlook
[7]	US Census Bureau. (2015). *People QuickFacts*. Accessed online: http://www.census.gov/
[8]	National Register of Historic Places. (2015). *Spreadsheet of NRHP List*. Accessed online: http://www.nps.gov/nr/research/
[9]	Southern Utah University. (2014). *2014 Fall Term 3rd Week Headcount Enrollment Statistics*. Accessed online: https://suu.edu/general/ir/fact14/enrollment.html
[10]	Utah Shakespeare Festival. (2015). Accessed online: http://www.bard.org/about/
[11]	Utah Summer Games. (2015). Accessed online: http://www.utahsummergames.org/results/2015_results.html
[12]	US Department of Agriculture, Natural Resources Conservation Service. (2015). *Iron County Resource Assessment*. Accessed online: http://www.nrcs.usda.gov/wps/portal/nrcs/detail/ut/technical/dma/nri/?cid=nrcs141p2_034116)
[13]	US Department of Transportation, Federal Aviation Administration. (2015). *Commercial Service Airports Based on Preliminary CY 2014 Enplanements*. Accessed online: http://www.faa.gov/airports/planning_capacity/passenger_allcargo_stats/passenger/
[14]	Regulations.gov. (2015). *2013-11-7 Order Re-Selecting Air Carrier*. Accessed online: http://www.regulations.gov/#!documentDetail;D=DOT-OST-2003-16395-0074
[15]	Regulations.gov. (2015). Letter to Michael Reynolds, Acting Assistant of Aviation and International Affairs, US Department of Transportation from Utah State Senator Thomas Hatch dated February 7, 2006. Accessed online: http://www.regulations.gov/
[16]	US Department of Transportation, Federal Aviation Administration. (2008). *Pilots Handbook of Aeronautical Knowledge: Chapter 14 Airspace*. Accessed online: https://www.faa.gov/regulations_policies/handbooks_manuals/aviation/pilot_handbook/

[17]	Airport Owners and Pilots Association. (2002). *Airspace for Everyone*. Accessed online: http://www.aopa.org/
[18]	Wikipedia: The Free Encyclopedia. (2015). Accessed online: https://en.wikipedia.org/wiki/Instrument_approach
[19]	National Transportation Safety Board. (2015). *Aviation Accident Database & Synopses*. Accessed online: http://www.ntsb.gov/_layouts/ntsb.aviation/index.aspx
[20]	Utah Department of Transportation, Division of Aeronautics. (2004). *Utah Airports Economic Impact Study*. Accessed online: http://www.udot.utah.gov/main/f?p=100:pg:0:::1:T,V:3152,
[21]	US Inflation Calendar. (2015). Accessed online: http://www.usinflationcalculator.com/
[22]	Liberty Street Economics. (2012.). *How Colleges and Universities Can Help Their Local Economies*. Abel, Jaison R. and Deitz, Richard. Accessed online: http://libertystreeteconomics.newyorkfed.org/2012/02/how-colleges-and-universities-can-help-their-local-economies.html#.VipPcytjx-4
[23]	Utah System of Higher Education. (2015). *Projected Headcount by USHE Institution, 2014 (actual) – 2024*. Accessed online: http://higheredutah.org/enrollment-at-ushe-institutions-expected-to-grow-to-over-226000-students-by-2024/
[24]	WP Carey School of Business, Arizona State University. (2009). *The Contribution of Universities to Regional Economies: A Report from the Productivity and Prosperity Project (P3)*. Hoffman, Dennis, Ph.D. and Hill, Kent, Ph.D. Accessed online: https://wpcarey.asu.edu
[25]	Bureau of Economic and Business Research, David Eccles School of Business, University of Utah. (2014). *Utah Travel and Tourism Profile*. Accessed online: http://gardner.utah.edu/utah-travel-tourism/
[26]	US Bureau of Labor Statistics. (2015). *Local Area Unemployment Statistics*. Accessed online: http://www.bls.gov/lau/#tables
[27]	Utah Governor's Office of Management and Budget. (2012). *2012 Baseline City Population Projections*. Accessed online: http://gomb.utah.gov/budget-policy/demographic-economic-analysis/
[28]	US Department of Agriculture, Natural Resource Conservation Service. (2015). *Web Soil Survey*. Accessed online: http://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx
[29]	US Department of Agriculture, Agricultural Research Service. (2015). *USDA Plant Hardiness Zone Map*. Accessed online: http://planthardiness.ars.usda.gov/PHZMWeb/
[30]	WeatherSpark. (2015). *Average Weather for Cedar City, Utah, USA*. Accessed online: https://weatherspark.com/averages/29870/Cedar-City-Utah-United-States
[31]	Intellicast. (2015). *Cedar City, Utah*. Accessed online: http://www.intellicast.com/Local/Weather.aspx?location=USUT0038
[32]	US Climate Data. (2015). *Climate Data - Cedar City, Utah*. Accessed online: http://www.usclimatedata.com/climate/cedar-city/utah/united-states/usut0038
[33]	US Department of Transportation, Federal Aviation Administration. (1998.) *Land Use Compatibility and Airports*. Accessed online: http://www.faa.gov/airports/environmental/land_use/

[34] Denver Regional Council of Governments. (1998.). *Airport Compatible Land Use*. Accessed online: https://www.drcog.org/

[35] Cedar City Corporation. (2012). *Cedar City General Plan 2012*. Accessed online: http://www.cedarcity.org/364/General-Plan-2012

[36] Cedar City Corporation. (2015). *Ordinances, Chapter 26, Article 14 Airport Overlay Zoning*. Accessed online: http://www.cedarcity.org/6/Ordinances

[37] US Department of Transportation, Federal Aviation Administration. (2015). F*AA Aerospace Forecast Fiscal Years 2015-2035*. Accessed online: https://www.faa.gov/data_research/aviation/aerospace_forecasts/

[38] Transportation Research Board, Airport Cooperative Research Program. (2015). *The Role of US Airports in the National Economy*. Accessed online: http://www.trb.org/Publications/Blurbs/172595.aspx

[39] Boeing Company. (2015). *2015 Pilot and Technician Outlook*. Accessed online: http://www.boeing.com/commercial/market/long-term-market/pilot-and-technician-outlook/

[40] Wittman, Michael D. and Swelbar, William S. (2013) *Trends and Market Forces Shaping Small Community Air Service in the United States*. Accessed online: http://dspace.mit.edu/handle/1721.1/78844

[41] Regional Airline Association. (2016). *Change in Annual Departures by Equipment Type*. Accessed online: http://www.raa.org/resource/resmgr/AR2015/ChangeinAnnualDepbyEqupType.jpg

[42] National Business Aviation Association. (2014.) *Business Aviation Fact Book*. Accessed online: https://www.nbaa.org/business-aviation/fact-book/

[43] No Plane, No Gain. (2015). *Business Leaders on Business Aviation*. Accessed online: http://noplanenogain.org/resources/advocacy-resources/business-leaders-on-business-aviation/

[44] General Aviation Manufacturers Association. (2015). *2015 General Aviation Statistical Databook and 2016 Industry Outlook*. Accessed online: http://www.gama.aero/publications/statistical-databook-and-industry-outlook

[45] Honeywell Aerospace. (2016). *Global Business Aviation Outlook*. Accessed online: https://aerospace.honeywell.com/en/press-release-listing/2015/november/honeywell-business-aviation-forecast-2015

[46] National Business Aviation Association. (2016). *Business Aviation Insider, January/February 2016 Edition*. Accessed online: https://www.nbaa.org/news/insider/archives/

[47] Cedar City Corporation. (2016). *Economic Development - Incentives*. Accessed online: http://www.cedarcity.org/164/Incentives

[48] Utah Department of Transportation, Division of Aeronautics. (2007). *Utah Continuous Airport System Plan 2007*. Accessed online: http://www.udot.utah.gov/main/f?p=100:pg:0:::1:T,V:555,

[49] US Department of the Interior, US Fish and Wildlife Service. (2017). *IPaC Information for Planning and Consultation*. Accessed online: https://ecos.fws.gov/ipac/

[50] United Nations Economic Commission for Europe. (2015). *Sustainable Development - Concept and Action*. Accessed online: http://www.unece.org/oes/nutshell/2004-2005/focus_sustainable_development.html

[51] US Department of Transportation, Federal Aviation Administration. (2015). *Sustainable Master Plan Pilot Program - Newton City-County Airport Master Plan Update*. Accessed online: https://www.faa.gov/airports/environmental/sustainability/media/EWKSustainableMasterPlan.pdf

[52] Utah State Legislature. (2015). *Utah Code, Title 19 Environmental Quality Code, Chapter 6 Hazardous Substances, Part 5 Solid Waste Management Act, Section 502 Definitions*. Accessed online: http://le.utah.gov/xcode/Title19/Chapter6/19-6-S502.html?v=C19-6-S502_2014040320140513

[53] US Department of Transportation, Federal Aviation Administration. (2013). *Recycling, Reuse and Waste Reduction at Airports: A Synthesis Document*. Accessed online: https://www.faa.gov/airports/resources/publications/reports/environmental/media/RecyclingSynthesis2013.pdf

[54] US Department of Transportation, Federal Aviation Administration, Central Region Airports Divison. (2014). *AIP Sponsor Guide – 900*. Accessed online: http://www.faa.gov/airports/central/aip/sponsor_guide/media/0900.pdf

[55] US Department of Transportation, Federal Aviation Administration. (2014). Order 5100.38D, *Airport Improvement Program Handbook*, Table 4-5(a)(1).

[56] US Department of Transportation, Federal Aviation Administration. (2017). *OMB Circular A-110 Section 215.23 Cost Sharing or Matching*. Accessed online: https://www.faa.gov/about/office_org/headquarters_offices/ang/offices/management/coe/grant_awards/guidance/

[57] US Department of Transportation, Federal Aviation Administration. (2009). Order 5190.6B, *FAA Airport Compliance Manual*.

[58] US Government Accountability Office. (2017). *Information on Funding Sources and Planned Capital Development*. Accessed online: http://www.gao.gov/products/GAO-15-306

[59] US Department of Transportation, Federal Aviation Administration. (2015). *Advisory Circular 150/5070-6B Change 2 to Airport Master Plans*.

13. Glossary

COMMON ACRONYMS

AC: Advisory Circular
ACIP: Airport Capital Improvement Plan
ADG: Airplane Design Group
ADO: Airports District Office
AGL: Above Ground Level
AIP: Airport Improvement Plan
ALP: Airport Layout Plan
ALS: Approach Lighting System
AMSL: Above Mean Sea Level
AOA: Airport Operations Area
AOPA: Airplane Owners and Pilots Association
APS: Airport Planning Standard
ARC: Airport Reference Code
ARP: Office of Airports
ASL: Above Sea Level
ASM: Available Seat Mile
ASOS: Automated Surface Observing System
ASV: Annual Service Volume
AT: Air Traffic
ATC: Air Traffic Control
AVGAS: Aviation Gasoline
AWOS: Automated Weather Observation System

BLM: Bureau of Land Management
BMP: Best Management Practices
BRL: Building Restriction Line

CAA: Clean Air Act
CAD: Computer-Aided Design
CAP: Civil Air Patrol
CAT: Category
CATEX: Categorical Exclusion
CEQ: Council on Environmental Quality
CFI: Certificated Flight Instructor
CFR: Code of Federal Regulations
CIP: Capital Improvement Plan
CTAF: Common Traffic Advisory Frequency

dB: Decibel
DBE: Disadvantaged Business Enterprise
DEQ: Department of Environmental Quality
DME: Distance Measuring Equipment
DME/P: Precision Distance Measuring Equipment
DNL: Day/Night Equivalent Sound Level (see also Ldn)
DOD: Department of Defense
DOI: Department of Interior
DOT: Department of Transportation
DTWG: Dual-Tandem Wheel Gear
DWG: Dual Wheel Gear

EA: Environmental Assessment
EIS: Environmental Impact Statement
ENAV: En Route Navigational Aids
EPA: Environmental Protection Agency
ETA: Estimated Time of Arrival

FAA: Federal Aviation Administration
FAAP: Federal Aid Airport Program
FAR: Federal Aviation Regulations
FBO: Fixed Base Operator
FEIS: Final Environmental Impact Statement
FEMA: Federal Emergency Management Agency
FIRM: Flood Insurance Rate Maps
FONSI: Finding of No Significant Impact
FPPA: Farmland Protection Policy Act
FSDO: Flight Standards District Offices

GA: General Aviation
GIS: Geographic Information System
GPS: Global Positioning Satellite or System
GPU: Ground Power Unit

HELI: Heliport
HF: High Frequency
HIRL: High Intensity Runway Lights
HITL: High Intensity Taxiway Lights

IAP: Instrument Approach Procedure
IATA: International Air Transport Association
IFR: Instrument Flight Rules
ILS: Instrument Landing System
IMC: Instrument Meteorological Conditions

Ldn: Day/Night Noise Levels
LIRL: Low Intensity Runway Lights
LOB: Line of Business
LOC: Localizer
LPV: Localizer Performance with Vertical Guidance

MALS: Medium Intensity Approach Lighting System
MAP: Missed Approach Procedure
MDA: Minimum Descent Altitude
ME: Multi-Engine Aircraft
MGW: Maximum Gross Weight
MGTW: Maximum Gross Takeoff Weight
MIRL: Medium Intensity Runway Lights
MITL: Medium Intensity Taxiway Lights
MPU: Master Plan Update
MSL: Mean Sea Level

NAAQS: National Ambient Air Quality Standards
NAS: National Airspace System
NAVAIDS: Navigational Aids
NBAA: National Business Aviation Association
NDB: Non-Directional Radio Homing Beacon
NEPA: National Environmental Policy Act
NM: Nautical Mile
NOAA: National Oceanic and Atmospheric Administration
NOTAM: Notice to Airmen
NPDES: National Pollutant Discharge Elimination System
NPE: Non-Primary Airport Entitlement
NPI: Non-Precision Instrument
NPIAS: National Plan of Integrated Airport Systems
NRCS: National Resource Conservation Services
NWS: National Weather Service

O&M: Operations and Maintenance
ODAL: Omni-Directional Approach Lighting System
OE/AAA: Obstruction Evaluation/ Airport Airspace Analysis
OFA: Object Free Area
OFZ: Obstacle Free Zone
OMB: Office of Management and Budget
OPS: Operations

PA: Precision Approach
PAPI: Precision Approach Path Indicator (Visual Approach Aid)
PCI: Pavement Condition Index
PFC: Passenger Facility Charge
PIR: Precision Instrument Runway

REIL: Runway End Identification Lights
RF: Radio Frequency
RIP: Runway Incursion Program
RNAV: Area Navigation
ROFA: Runway Object Free Area
RPZ: Runway Protection Zone
RSA: Runway Safety Area
RWY: Runway

SE: Single Engine Aircraft
SM: Statute Mile
SOP: Standard Operating Procedures
SOW: Statement of Work
SWG: Single Wheel Gear
SWY: Stopway

TAF: FAA Terminal Area Forecast
TAP: Terminal Area Plan
TCH: Threshold Crossing Height
TDG: Taxiway Design Group
TL: Taxilane
TOFA: Taxiway/Taxilane Object Free Area
TSA: Taxiway Safety Area
TSA: Transportation Security Administration
TW: Taxiway

UAS: Unmanned Aircraft System
UAV: Unmanned Aerial Vehicle
UNICOM: Universal Communications
USACE: US Army Corps of Engineers
USDA: US Department of Agriculture
USFWS: US Fish and Wildlife Service
USGS: United States Geological Survey

VASI: Visual Approach Slope Indicator
VFR: Visual Flight Rules
VHF: Very High Frequency
VLF: Very Low Frequency
VLJ: Very Light Jet
VMC: Visual Meteorological Conditions
VOR: VHF Omnidirectional Range

WX: Weather

COMMON TERMS

14 Code of Federal Regulations (CFR) Part 77: A federal regulation, titled "Objects Affecting Navigable Airspace," that establishes standards for determining obstructions and their potential effects on aircraft operations. Objects are considered to be obstructions to air navigation according to 14 CFR Part 77 if they exceed certain heights or penetrate certain imaginary surfaces established in relation to airport operations.

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.

Above Ground Level (AGL): Altitude expressed as feet above terrain or airport elevation.

Above Mean Sea Level (AMSL): Altitude expressed as feet above sea level, rather than above local terrain.

Access Road: The right-of-way, the roadway and all improvements constructed thereon connecting

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): External publications issued by the FAA consisting of non-regulatory material providing for the recommendations relative to a policy, and guidance and information relative to a specific aviation subject.

Air Taxi: An aircraft operated under an air taxi operating certificate for the purpose of carrying passengers, mail, or cargo for revenue in accordance with FAR Part 121 and FAR Part 135.

Air Traffic Control: The control of aircraft traffic, in the vicinity of airports from control towers, and in the airways between airports from control centers.

Aircraft Approach Category (AAC): A grouping of aircraft based on 1.3 times their stall speed in their landing configuration at their maximum certificated landing weight. The categories are Category A through Category E and range from a speed of less than 91 knots to 166 knots or more.

Aircraft Mix: The type of aircraft which are to be accommodated at the airport.

Aircraft Operation: The landing, takeoff or touch-and-go procedure by an aircraft on a runway at an airport.

Aircraft Tiedowns: Positions on the ground surface that is available for securing aircraft.

Aircraft: A device that is used or intended to be used for flight in the air (FAR Part 1).

Airplane Design Group (ADG): A grouping of aircraft based on wingspan and/or tail height. When an airplane is in two categories, the most demanding category should be used.

Airport Beacon: A visual navigation aid displaying alternating white and green flashes to indicate a lighted airport or white flashes only for an unlighted airport.

Airport Capital Improvement Plan (ACIP): The planning program used by the Federal Aviation Administration to identify, prioritize and distribute funds for airport development and the needs of the National Airspace System to meet specified national goals and objectives.

Airport Elevation: The highest point of an airport's usable runways measured in feet above mean sea level (AMSL).

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: The planner's concept of the long-term development of an airport.

Airport Obstruction Chart: A scaled drawing depicting the Federal Aviation Regulation (FAR) Part 77 surfaces, a representation of objects that penetrate these surfaces, runway, taxiway, and ramp areas, navigational aids, buildings, roads and other detail in the vicinity of an airport.

Airport Reference Code (ARC): The ARC combines two separate factors of aircraft design (aircraft approach category and airplane design group) 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 and/or tail height.

Airport Reference Point (ARP): The latitude and longitude of the approximate center of the airport.

Airport Sponsor: The entity that is legally responsible for the management and operation of an airport including the fulfillment of the requirements of laws and regulations related thereto.

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.

Annual Service Volume (ASV): The number of annual operations that can reasonably be expected to occur at the airport based on a given level of delay.

Approach and Runway Protection Zone Layout: A graphic presentation to scale of the imaginary surfaces defined in 14 CFR 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 Lighting System (ALS): Radiating light beams guiding pilots to the extended centerline of the runway on final approach and landing.

Approach Lights: High intensity lights located along the approach path at the end of an instrument runway. Approach lights aid the pilot as he transitions from instrument flight conditions to visual conditions at the end of an instrument approach.

Approach Slope Ratio: The ratio of horizontal to vertical distance indicating the degree of inclination of the approach surface.

Approach Surface: A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based upon the type of approach available or planned for that runway end.

Apron: A specified portion of the airfield used for passenger, cargo or freight loading and unloading, aircraft parking, and the refueling, maintenance and servicing of aircraft.

Automated Surface Observing System (ASOS): A weather observing system that provides minute by minute weather observations, such as temperature, dew point, wind, altimeter setting, visibility, sky condition, and precipitation. Some ASOS stations include a precipitation discriminator that can differentiate between liquid and frozen precipitation.

Automated Weather Observing System (AWOS): Equipment that 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.

Auxiliary Power Unit (APU): A self-contained generator in aircraft producing power for ground operation and for starting the engines.

Available Seat Mile (ASM): A measure of an airline flight's passenger carrying capacity equal to the number of seats available multiplied by the number of miles flown.

Avigation Easement: A land use easement permitting the unlimited operation of aircraft in the airspace above the land area involved and restricting incompatible development of areas.

Avionics: Airborne navigation, communications, and data display equipment required for operation under specific air traffic control procedures.

Based Aircraft: The total number of active general aviation aircraft which use or may be expected to use an airport as a home base.

Best Management Practices (BMPs): Construction procedures that minimize environmental impacts.

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 which identifies suitable building area locations on airports.

Capital Improvement Plan (CIP): The planning program used by the Federal Aviation Administration to identify, prioritize and distribute Airport Improvement Program funds for airport development and the needs of the National Airspace System to meet specified national goals and objectives.

Categorical Exclusion (CATEX): An environmental analysis performed pursuant to the National Environmental Policy Act when an action does not individually or cumulatively have a significant effect on the human environment.

Code of Federal Regulations (CFR): General rules and regulations published in the Federal Register by the executive departments and agencies of the federal government of the United States.

Commercial Service: Commercial service airports are public use airports which receive scheduled passenger service aircraft, and which annually enplane 2,500 or more passengers.

Common Traffic Advisory Frequency (CTAF): A frequency designed for the purpose of carrying out airport advisory practices while operating to or from an airport without an operating control tower. The CTAF may be a UNICOM, Multicom, FSS, or tower frequency and is identified in appropriate aeronautical publications.

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.

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.

Critical (Design) Aircraft: The most demanding aircraft with at least 500 annual operations that operates, or is expected to operate, at the airport.

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.

Crosswind: A wind that is not parallel to a runway centerline or to the intended flight path of an aircraft.

Decibel (dB): A unit of measurement used for defining a noise level or an exposure level.

Displaced Threshold: A threshold that is located at a point on the runway other than the physical beginning. Aircraft can begin departure roll before the threshold, but cannot land before it.

Distance Measuring Equipment (DME): Equipment used to measure, in nautical miles, the distance of an aircraft from the DME navigational aid located on the airport.

Environmental Assessment (EA): An environmental analysis performed pursuant to the National Environmental Policy Act to determine whether an action would significantly affect the environment and thus require a more detailed environmental impact statement.

Environmental Impact Statement (EIS): A document required of federal agencies by the National Environmental Policy Act for major projects or legislative proposals affecting the environment. It is a tool for decision-making describing the positive and negative effects of a proposed action and citing alternative actions.

Exit Taxiway: A taxiway used as an exit from a runway to the apron or other aircraft operating area.

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 including aircraft safety, movement, and controls.

Federal Aviation Regulations (FAR): Rules and regulations that govern the operation of aircraft, airways, and airmen.

Finding of No Significant Impact (FONSI): A public document prepared by a Federal agency that presents the rationale why a proposed action will not have a significant effect on the environment and for which an environmental impact statement will not be prepared.

Fixed Base Operator (FBO): An individual or company located at an airport, and providing commercial general aviation services such as fuel, maintenance, and storage.

Flight Plan: Specified information relating to the intended flight of an aircraft, which is filed orally or in writing with air traffic control. (FAR Part 1)

Fuel Flowage Fees: Fees levied by the airport operator per gallon of aviation gasoline and jet fuel sold at the airport.

General Aviation (GA): The segment of aviation that encompasses all aspects of civil aviation except certified air carriers and other commercial operators such as airfreight carriers.

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.

Geographic Information System (GIS): A system designed to capture, store, manipulate, analyze, manage, and present all types of spatial or geographical data.

Glide Slope: Generally a 3-degree angle of approach to a runway established by means of airborne instruments during instrument approaches, or visual ground aids for the visual portion of an instrument approach and landing.

Global Positioning System (GPS): A satellite based radio positioning, navigation, and time-transfer system.

Ground Power Unit (GPU): A source of power, generally from the terminals, for aircraft to use while their engines are off.

Hangar: A building used to store one or more aircraft, and/or conduct aircraft maintenance.

Horizontal Surface: An imaginary obstruction-limiting surface defined in 14 CFR Part 77 that is specified as a portion of a horizontal plane surrounding a runway located 150 feet above the established airport elevation. The specific horizontal dimensions of this surface are a function of the types of approaches existing or planned for the runway.

IFR Airport: An airport with an authorized instrument approach procedure.

IFR Conditions: Weather conditions below the minimum for flight under visual fight rules.

Instrument Approach Runway: A runway served by an electronic aid providing at least directional guidance adequate for a straight-in approach.

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 Flight Rules (IFR): Procedures for the conduct of flight in weather conditions below Visual Flight Rules weather minimums. The term IFR is often also used to define weather conditions and the type of flight plan under which an aircraft is operating.

Instrument Landing system (ILS): A precision instrument approach system which provides in the aircraft, the lateral, longitudinal, and vertical guidance necessary for a landing.

Instrument Meteorological Conditions (IMC): Describes weather conditions that require pilots to fly primarily by reference to instruments, and therefore under instrument flight rules (IFR), rather than by outside visual references under visual flight rules (VFR).

Itinerant Operations: Operations by aircraft that leaves the local airspace.

Jet Noise: The noise generated externally to a jet engine in the turbulent jet exhaust.

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.

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.

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 Operations: Aircraft operations performed by aircraft that are based at the airport and that operate in the local traffic pattern or within sight of the airport, that are known to be departing for or arriving from flights in local practice areas within a prescribed distance from the airport, or that execute simulated instrument approaches at the airport.

Localizer: A navigational aid that consists of a directional pattern of radio waves modulated by two signals which, when receding with equal intensity, are displayed by compatible airborne equipment as an "on-course" indication, and when received in unequal intensity are displayed as an "off-course" indication.

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.

Maximum Gross Takeoff Weight (MGTW): The maximum weight at which a pilot is allowed to attempt to take off due to structural or other limits.

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.

Missed Approach Procedure (MAP): A maneuver conducted by a pilot when an approach to a landing cannot be completed.

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 Environmental Policy Act (NEPA): Federal legislation that establishes environmental policy for the nation. It requires an interdisciplinary framework for federal agencies to evaluate environmental impacts and contains action-forcing procedures to ensure that federal agency decision makers take environmental factors into account.

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.

Nautical Mile Per Hour (KNOT): Most common measure of aircraft speed. One knot is equal to one nautical mile per hour (1.15 knots = 1 mile).

Nautical Mile: Most common distance measurement in aviation, equivalent to the length of one minute of latitude along the earth's equator or 6076.115 feet.

Navigable Airspace: Airspace at and above the minimum flight altitudes prescribed in the FARs, including airspace needed for safe takeoff and landing. (FAR Part 1)

Navigational Aid (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.

Noise Contour: A line connecting equal points of noise exposure. Usually color coded by decibels.

Non-Directional Beacon: Signal that can be read by pilots of aircraft with direction finding equipment. Used to determine bearing and can "home" in or track to or from the desired point.

Non-Precision Approach: Provides course guidance without vertical path guidance.

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 Omni range (VOR) and the non-directional beacon (NDB) are two examples of non-precision instrument equipment.

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-Primary Airport Entitlement (NPE): Non-primary entitlement funds are specifically for general aviation airports listed in the latest published National Plan of Integrated Airports (NPIAS), that show needed airfield development.

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.

Object Free Area (OFA): An area on the ground centered on a runway, taxiway, or taxilane centerline provided to enhance the safety of aircraft operations by having the area free of objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

Obstacle Free Zone (OFZ): The OFZ is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway, and for missed approaches. The OFZ is divided into the Runway OFZ, the Inner-approach OFZ, and the Inner-Transitional OFZ.

Obstruction: An object which penetrates an imaginary surface described in the FAA's Federal Aviation Regulation (FAR) Part 77.

Operation: The landing, takeoff or touch-and-go procedure by an aircraft on a runway at an airport.

Overflight: Aircraft whose flights originate or terminate outside the metropolitan area that transit the airspace without landing.

Parallel Taxiways: Two taxiways which are parallel to one another which allow traffic to move simultaneously in different directions at busy airports.

Parking Apron: An apron intended to accommodate parked aircraft.

Federal Aviation Regulations (FAR) Part 135: A federal regulation, titled "Commuter and On Demand Operations and Rules Governing Persons On Board Such Aircraft," that defines a set of rules with more stringent standards for commuter and on demand operations.

Federal Aviation Regulations (FAR) Part 139: A federal regulation, titled "Certification of Airports," requires the FAA to issue airport operating certificates to airports that meet a specific set of requirements, including those that serve scheduled and unscheduled air carrier aircraft with more than 30 seats and those that serve scheduled air carrier operations in aircraft with more than 9 seats but less than 31 seats. Commonly associated with commercial service airports.

Passenger Facility Charge (PFC): A fee up to $4.50 for every enplaned passenger at commercial airports controlled by public agencies. Airports use these fees to fund FAA-approved projects that enhance safety, security, or capacity; reduce noise; or increase air carrier competition.

Pavement Condition Index (PCI): Pavements at airports are routinely surveyed and tested. The result of these tests is a Pavement Condition Index (PCI), a score ranging from 0 to 100, which provides a general gauge of the current operational condition. A score of 100 indicates flawless pavement, while a 0 indicates extremely high degradation.

Pavement Structure: The combination of runway base and subbase courses and surface course which transmits the traffic load to the subgrade.

Pavement Sub-Grade: The upper part of the soil, natural or constructed, which supports the loads transmitted by the runway pavement structure.

Peak Hour: An estimate of the busiest hour in a day. This is also known as the design hour.

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.

Precision Approach: A standard instrument approach using a precision approach procedure. See precision approach procedure.

Precision Instrument Runway (PIR): A runway having an existing instrument approach procedure utilizing an Instrument Landing System (ILS), or a Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated by an FAA approved airport layout plan; a military service approved military airport layout plan; any other FAA planning document, or military service military airport planning document.

Primary Surface: An imaginary obstruction limiting surface defined in 14 CFR Part 77 that is specified as a rectangular surface longitudinally centered about a runway. The specific dimensions of this surface are a function of the types of approaches existing or planned for the runway.

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 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 (RPZ): 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 (RSA): 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.

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.

Runway: A defined rectangular area at an airport designated for the landing and taking-off of an aircraft.

Scope of Work (SOW): The document that identifies and defines the tasks, emphasis and level of effort associated with a project or study.

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: A airport having one runway.

Small Aircraft: Aircraft of 12,500 pounds or less maximum certificated takeoff weight.

Socioeconomic: Information dealing with population or economic characteristics of a region.

Statute Mile (SM): An English unit of length equal to 1,760 yards and standardized as exactly 1,609.344 meters.

Stopway (SWY): A defined rectangular surface beyond the end of a runway prepared or suitable for use in lieu of runway to support an airplane, without causing structural damage to the airplane, during an aborted takeoff.

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.

Student Pilot: A pilot who is training for a private pilot certificate, either before or after the first solo.

Taxilane (TL): The portion of the aircraft parking area used for access between taxiways and aircraft parking positions.

Taxiway (TW): A defined path, usually paved, over which aircraft can taxi from one part of an airport to another without interfering with takeoffs or landings.

Taxiway Safety Area (TSA): A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway.

Terminal Area Forecast (TAF): The official forecast of aviation activity, both aircraft and enplanements, at FAA facilities. This includes FAA-towered airports, federally contracted towered airports, non-federal towered airports, and many non-towered airports.

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 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.

Threshold: The designated beginning of the runway that is available and suitable for the landing of airplanes.

Total Operations: All arrivals and departures performed by military, general aviation and air carrier aircraft.

Touch-and-Go: An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway.

Touchdown Zone: The area of a runway near the approach end where airplanes normally alight.

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.

Traffic Pattern: The traffic flow that is prescribed for aircraft landing at, taxiing on, and taking off from an airport (FAR Part 1). The usual components of a traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach.

Transient Operations: Operations or other activity performed by aircraft not based at the airport.

Transitional Surface: These surfaces extend outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces. Transitional surfaces for those portions of the precision approach surface which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline.

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.

Unmanned Aircraft System (UAS): An aircraft without a human pilot aboard (see UAV).

Unmanned Aerial Vehicle (UAV): An aircraft without a human pilot aboard (see UAS).

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.

Very High Frequency (VHF) Omni directional range (VOR): A ground based electronic navigation aid transmitting navigation signals for 360 degrees orientated from magnetic north. VOR is the historic basis for navigation in the national airspace system.

VFR Airport: An airport without an authorized or planned instrument approach procedure.

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 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 Approach Slope Indicator (VASI): An airport lighting facility in the terminal area navigation system used primarily under VFR conditions that provides vertical visual guidance to aircraft during approach and landing, by radiating a pattern of high intensity red and white focused light beams, which indicate to the pilot that they are above, on, or below the glide path.

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 Flight Rules (VFR): Procedures for the conduct of flight in weather conditions above Visual Flight Rules (VFR) weather minimums. The term VFR is often also used to define weather conditions and the type of flight plan under which an aircraft is operating.

Visual Meteorological Conditions (VMC): An aviation flight category in which visual flight rules (VFR) flight is permitted—that is, conditions in which pilots have sufficient visibility to fly the aircraft maintaining visual separation from terrain and other aircraft.

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 (14 CFR Part 77).

Wind Cone or Wind Sock: A free-rotating fabric truncated cone which when subjected to air movement indicates wind direction and wind force.

Wind Rose: A diagram for a given location showing relative frequency and velocity of wind from all compass directions.

Wind Tee: A visual device in the shape of a "T" used to determine wind direction.

PAGE LEFT BLANK INTENTIONALLY

Appendix A - Public Involvement

Public Involvement Summary

This project commenced with a kick-off meeting with the Airport Board in August of 2015. One public meeting and two public workshops were held after standard work hours. Additionally, an Airport Master Plan Advisory Council was established to help facilitate meetings, gather feedback, and provide guidance to the Consultant's planning efforts. The Advisory Council consisted of the following individuals:

Jyl Shuler, Airport Board Chair
Danny Stewart, Cedar City Economic Development
Rick Holman, Cedar City Manager
Chuck Taylor, Syberjet
Mike Mower, Upper Limit Aviation
Matt Huse, Bureau of Land Management Tanker Base
Brenda Blackburn, Sphere One Aviation
Mike DeRoest, SkyWest Airlines
Vaugh Montgomery, Pilot

Rick Patton, lead planner on the project, and Trent Holder, project manager, also met with the Airport Board and Airport Master Plan Advisory Council at various times throughout the project.

Following are the invitations, agendas, handouts, newspaper advertisements, etc. used during the public involvement process for the Master Plan project. Nearly 500 individuals and businesses were included on direct-mailings and correspondences related to this project.

Cedar City Regional Airport ~ Master Plan

Meeting 1 • October 20th, 2015 • 7:00 p.m. • Airport Terminal

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

MEETING INVITATION

Cedar City is beginning work on an Airport Master Plan. You are invited to attend the first of several public meetings.

When: October 20th, 2015 at 7:00 p.m.
Where: Airport Terminal, 2560 W. Aviation Way
Duration: Approximately one hour

PLANNED PROJECT MEETINGS

Meeting 1 • Project Start
Meeting 2 • Completion of Inventory and Forecast
Meeting 3 • Completion of Facility Requirements
Meeting 4 • Completion of Development Alternatives
Meeting 5 • Presentation of Draft Master Plan and Airport Layout Plan
Meeting 6 • Presentation of Final Documents

Cedar City, Utah

WEBSITE ACCESS

Throughout the Airport Master Plan process, information will be available on the GDA Engineers website. **By registering you will have access to the latest draft documents and be included on future correspondence, such as this letter.** To create an account:

1. Go to www.gdaengineers.com.
2. Click on the "Project Portal" tab at the top of the page.
3. Register a new account and select "Cedar City Regional Airport Master Plan" under the Request Project Access tab.
4. GDA staff will approve the account and you will receive an e-mail. Then repeat the first two steps and sign in with your email address and password.

"Strong and careful planning ensures a thoroughly-supported set of project justifications and documentation of alternatives. Careful planning also ensures that local match funding will be available for projects."

— FAA Northwest Mountain Regional Airport Plan

AIRPORT USER SURVEY

A survey for the users of the Cedar City Regional Airport is currently under development. Once completed, a copy of the survey will be mailed to you. By completing the survey, you will be providing critical public feedback for the Airport Master Plan. Specific responses and comments will not be associated with the individuals who submitted them.

It is imperative that as many local users participate in the survey as possible. If you know of anyone else who should receive a copy of the survey, please provide their contact information to Trent at the information below.

Trent Holder
GDA Engineers
502 33rd Street
Cody, WY 82414
tholder@gdaengineers.com
Telephone: 307.587.3411
Fax: 307.527.5182

Cedar City Regional Airport ~ Master Plan

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING

AIRPORT MASTER PLANS

An Airport Master Plan is a comprehensive study of an airport that describes short-, medium-, and long-term development plans to meet future and unmet aviation demand.

The elements of the master planning process vary in level of detail and complexity depending upon the size, function, and problems of the individual airport. Airport Master Plans are prepared to support the creation of a new airport or the modernization and expansion of an existing airport. Each plan presents a strategy for the development of the airport by providing a framework to cost-effectively satisfy aviation demand while considering the potential environmental and socioeconomic impacts.

Master plans generally meet the following objectives:

- Document the issues that the proposed development will correct or mitigate;
- Justify the proposed development with technical, economic, and environmental investigation of designs and alternatives;
- Provide an effective graphic representation of the development of the airport and the anticipated land uses in the vicinity of the airport;
- Establish a realistic schedule, especially for the short-term, for the implementation of the development proposed;
- Propose an achievable financial plan to support the implementation schedule;
- Provide sufficient project scope and detail for future environmental evaluations that may be required before the project is approved;
- Provide a plan that adequately addresses the issues and satisfies local, state, and Federal regulations;
- Document policies and future aeronautical demand to support municipal or local deliberations on land use controls, spending, debt, and other policies necessary to preserve the integrity of the airport and its surroundings; and
- Establish a framework for continued planning.

The master planning process usually includes a pre-planning phase, public involvement, a review of environmental considerations, an inventory of existing conditions, forecasts of aeronautical demand, facility requirements, alternative development and evaluation, airport layout plans, a facilities implementation plan, and a financial feasibility analysis. **Feedback from the local community and airport users is critical for developing a successful Airport Master Plan.**

ADVISORY COUNCIL

An Advisory Council will be established as part of this project. Members of the Advisory Council will be asked to review documents associated with the Master Plan, attend public meetings, and provide input regarding future development of the airport.

The Advisory Council will be comprised of local citizens. Likely candidates are representatives of the City, County, businesses (aviation and non-aviation related), hospital, governmental agencies with an airport interest (such as the Bureau of Land Management for firefighting), and local pilots.

GDA Engineers • www.gdaengineers.com
Cedar City Regional Airport (CDC)

THE SPECTRUM

Public Notice

Airport Master Plan Public Meeting Notice
The Cedar City Regional Airport is beginning the process to create an Airport Master Plan. The first public meeting will be held on Tuesday, October 20th, 2015 at 7:00 p.m. at the Cedar City Airport Terminal, 2560 West Aviation Way in Cedar City, UT. More information about the Airport Master Plan is available by contacting Trent Holder at GDA Engineers at 307.587.3411 or tholder@gdaengineers.com. Information is also available on the GDA Engineers website at

LEGAL NOTICES

www.gdaengineers.com by creating an account under "Project Portal." The public is invited to attend to learn about the Airport Master Plan and to provide questions and feedback.

Pub# L2417
Published
October 6, 12, 20, 2015
The Spectrum
UPAXLP

PROOF
OF
PUBLICATION

STATE OF UTAH SS.
COUNTY OF WASHINGTON

I Becky Thompson, being duly sworn, deposes and says that I am the advertising representative of The Spectrum, a newspaper of general circulation published daily at Saint George, Washington County, State of Utah, also distributed in Iron County, and placed on Utahlegals.com; and that the notice:

PUB # : L2417

is a true copy of which is here to attached, was published in its issue dated the **6** day of **October** 2015 and was published again in the issues of said newspaper and Utahlegals.

10/12, 20, 2015 for a total of **3** insertion(s) and per Utahlegals.com will remain on Utahlegals.com for a total of 30 days.

Becky Thompson

Becky Thompson

Subscribed and sworn before me

this 13 day of
March 2017.

Bonnie Thompson

NOTARY PUBLIC RESIDING
AT WASHINGTON COUNTY

BONNIE THOMPSON
NOTARY PUBLIC • STATE of UTAH
COMMISSION NO. 691766
COMM EXP. 11-10-2020

ST GEORGE OFFICE
275 E St. George Blvd - St. George, UT 84770
Office (435)674-6200 FAX 674-6265
CEDAR CITY OFFICE
369 N 100 W - Cedar City, UT 84720
Office (435) 586-7646 FAX 586-7471

Cedar City Regional Airport ~ Master Plan

Meeting 1 • October 20th, 2015 • 7:00 p.m. • Airport Terminal

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING

MEETING AGENDA

- Introductions and Sign-In
- Airport Funding
  - National Plan of Integrated Airport Systems
- Airport Master Plan Overview
  - Inventory
  - Forecast
  - Facility Requirements
  - Safety Design Standards
- Essential Air Services
- Economically Distressed Areas
- Airport User Survey
- How to Get Involved
  - Public Meetings
  - Listening Sessions
  - Emails, Calls, Website
  - Advisory Council
- Questions and Comments

Contact Information:
Rick Patton, Project Manager
rpatton@gdaengineers.com
307.899.3421

Trent Holder, Planner
tholder@gdaengineers.com
307.587.3411

FAA Requirements

The Federal Aviation Administration (FAA) is a world of standards. The FAA uses Design Standards to provide an acceptable level of safety on airports. By applying Design Standards to classes of aircraft the FAA is able to match the level of safety appropriately to the level of risk. This is an important core concept for every Master Plan.

Economic Impact

Airports throughout Utah accommodate a long list of aviation related businesses, including flight schools, commercial airlines, aircraft maintenance and repair shops, air cargo companies, ground transportation providers, concessionaires, and others. There are also on-airport employees who are charged with the day-to-day maintenance, operation, and development of system airports. Additionally, airports throughout Utah support visitor-related travel. These visitors spend money on hotels, entertainment, shopping, ground transportation, food, and other items. In 2003, Cedar City Regional Airport's economic impact was calculated as follows:

Total Employment	***Total Payroll***	***Total Output***
336.5	*$9,711,200*	*$22,848,600*

When inflation rates are applied to the total output, this amount could equate to about $29.4 million in 2014.

Public Involvement

Public input is highly encouraged during the Master Plan process. Each Master Plan includes a public involvement program, and the amount of public involvement typically corresponds to the complexity of the airport and project. Effective public involvement includes numerous parties, including but not limited to: aircraft owners, hangar tenants, staff of the airport and businesses on airport property, public officials, governmental agencies, and the general public.

Cedar City Regional Airport ~ Master Plan

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING

AIRPORT USER SURVEY

A survey is being developed for the users of Cedar City Regional Airport. The survey will be available at the public meetings, as well as on the GDA Engineers' website. Copies can be emailed or mailed upon request. Your participation will provide critical public feedback for the Master Plan. Specific responses and comments on the survey will not be associated with the individuals who provided them.

It is imperative that as many local users participate in the survey as possible. If you know of anyone else who should receive a copy of the survey, please provide their contact information to Trent at the information below.

Trent Holder
GDA Engineers
502 33rd Street
Cody, WY 82414
tholder@gdaengineers.com
Telephone: 307.587.3411
Fax: 307.527.5182

Please reference the CDC Master Plan in your correspondence.

ADVISORY COUNCIL

An Advisory Council will be established as part of this project. As outlined in the approved Scope of Work, the purpose of the Advisory Council will be to assist in facilitating meetings, gathering feedback, and providing guidance to the planning efforts.

The Advisory Council will be comprised of local area citizens. Likely candidates will be representatives of the City, County, businesses (aviation and non-aviation related), hospital, governmental agencies with an airport interest (such as the Bureau of Land Management for firefighting), and local pilots.

Members of the Advisory Council will be asked to review documents associated with the Master Plan, attend public meetings, and provide input regarding future development of the airport.

WEBSITE ACCESS

Throughout the Airport Master Plan process, information will be available on the GDA Engineers' website by creating an account.

1. Go to www.gdaengineers.com.
2. Click on the "Project Portal" tab at the top of the page.
3. Register a new account and select "Cedar City Regional Airport Master Plan" under Request Project Access.
4. GDA staff will approve the account and you will receive an email. Then repeat the first two steps and sign in with your email address and password. If you experience any difficulty, contact GDA.

GDA Engineers • www.gdaengineers.com   *Cedar City Regional Airport (CDC)*

Cedar City Regional Airport ~ Master Plan
Meeting 1 • October 20th, 2015 • 7:00 p.m. • Airport Terminal

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING

MEETING INVITATION

The Cedar City Regional Airport is beginning work on a Master Plan. This is the first of several public meetings. The meeting should last approximately one hour.

PLANNED PROJECT MEETINGS

Meeting 1 • Project Start
Meeting 2 • Completion of Inventory and Forecasts
Meeting 3 • Completion of Facility Requirements
Meeting 4 • Completion of Existing Airport Development Alternatives Workshop
Meeting 5 • Presentation of Draft Master Plan and ALP Drawings
Meeting 6 • Presentation of Final Documents

AIRPORT MASTER PLANS

An Airport Master Plan is a comprehensive study of an airport that describes short-, medium-, and long-term development plans to meet future aviation demand. Master planning studies that address major revisions are referred to as "Master Plans" while those that only change parts of the existing documentation and require a relatively low level of effort are referred to as "Master Plan Updates."

The elements of the master planning process vary in the level of detail and complexity depending upon the size, function, and problems of the individual airport. Airport Master Plans are prepared to match the community's aviation need with the most appropriately sized facility. A Master Plan presents a strategy for the development of the airport by providing a framework to cost-effectively satisfy aviation demand while considering the potential environmental and socioeconomic impacts.

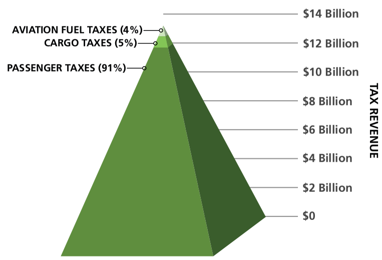
The Master Plan usually includes a pre-planning phase, public involvement, a review of environmental considerations, an inventory of existing conditions, forecasts of aeronautical demand, facility requirements, alternative development and evaluation, airport layout plans, a facilities implementation plan, and a financial feasibility analysis. **Feedback from the local community and airport users is critical for developing a successful Airport Master Plan.**

GDA Engineers • www.gdaengineers.com   *Cedar City Regional Airport (CDC)*

AIRPORT FUNDING

The Airport Improvement Program (AIP) was established by the Airport and Airway Improvement Act of 1982 to provide funding to airports on a priority needed basis. The FAA (Federal Aviation Administration) coordinates this program. Revenues that fund the AIP program are generated from taxes on aviation activity: taxes on airline tickets, cargo, and fuels used by aircraft.

Airport and Airway Trust Fund (2014)



The AIP is a user funded program and is not funded by federal income tax dollars. The AIP funds are collected in the Airport and Airway Trust fund which is divided into several entitlements. While some of the funding is used for FAA overhead costs, the majority of the money is distributed to community airports through grants. Eligible airports range from small community facilities to the largest commercial airports in the national system. Eligible projects include those improvements that enhance airport safety, capacity, security, and address environmental concerns.

Aviation demand at the airport must justify the projects. Eligible projects include such things as runway construction, airfield lighting, land acquisition, planning studies, and automated weather observation stations.

This Master Plan project is funded with AIP and local funds. Additional information about Airport Improvement Program (AIP) funding can be found at: www.faa.gov/airports/aip/.

NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS (NPIAS)

The national infrastructure of public use airports form what the FAA defines as the National Plan of Integrated Airport Systems (NPIAS). The national airport system is critical to the national transportation system and helps air transportation contribute to a productive national economy and international competitiveness. The NPIAS includes 3,283 airports, 10 heliports, and 38 seaplane bases. Each state has many airports in the NPIAS. To be eligible for AIP funding an airport must be in the NPIAS.

AVIATION IN UTAH

The NPIAS recognizes six Commercial Service airports and 41 General Aviation airports within Utah. Cedar City Regional Airport is one of the six Commercial Service airports. This airport is categorized as a Primary Non-Hub airport, meaning enplanements of 10,000 or more passengers annually. Of the other five airports, two are categorized as Non-Primary with enplanements between 2,500 and 10,000 annually, two are categorized as Primary Non-Hub, and one, Salt Lake City International Airport, is categorized as Large Hub, meaning it captures 1% or more of annual national enplanements.

ESSENTIAL AIR SERVICES (EAS)

The Essential Air Services (EAS) program was created to guarantee commercial service by a carrier for remote communities, if such service was provided before the Airline Deregulation Act of 1978 was passed.

Cedar City meets the criteria for the EAS program, having had commercial service before the deregulation. Additionally, Cedar City is more than 175 miles from the closest large or medium hub airport; it is located 179 miles northeast of McCarran International Airport (LAS) in Las Vegas, NV. Salt Lake City International Airport (SLC) is the next closest large or medium hub airport, located 250 miles to the northeast of Cedar City.

When negotiating subsidy rates with carriers to provide EAS, the US Department of Transportation (USDOT) generally establishes two-year contracts. This allows for the competitive bidding process to keep subsidy costs in check and gives communities and USDOT opportunities to switch carriers, if appropriate.

Most recently, SkyWest was selected in January 2014 for a 2-year contract to provide EAS to Cedar City. A Request for Proposal for the EAS subsidy contract beginning in January 2016 was issued in June 2015. In July 2015, SkyWest submitted a proposal. In September 2015, Cedar City Mayor Maile Wilson submitted a letter to USDOT in support of SkyWest's proposal.

ECONOMICALLY DISTRESSED AREAS (EDA)

The FAA Modernization and Reform Act of 2012 established a special rule for economically distressed communities permitting the federal government's share of allowable AIP project costs to be increased from 90% to 95%. This special rule applies to airports that participate in the EAS program as of October 1 of each year and are located in an area that meets one or more of the following criteria:

1. Low per capita income – the area has a per capita income of 80% or less of the national average per capita income. ***Cedar City meets this criteria. In 2013, the community's per capita income of $17,710 was 63% of the national average of $28,155.***

2. Unemployment rate above national average – the area has an unemployment rate that is, for the most recent 24-month period for which data are available, at least 1% greater than the national average unemployment rate.

3. Unemployment or economic adjustment problems – the area is in an area that the Secretary of Commerce determines has experienced or is about to experience a special need arising from actual or threatened severe unemployment or economic adjustment problems resulting from severe short-term or long-term changes in economic conditions.

1

Cedar City Regional Airport ~ Master Plan
Meeting 1 • October 20th, 2015 • 7:00 p.m • Airport Terminal

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING

MEETING SIGN-IN SHEET

Name: Ron Adams Business/Title: Cedar City Council
Mailing Address: 10 North Main
Email Address: aron@scinternet.net Phone Number: 435-463-7002

==

Name: JEREMY VALGARDSON Business/Title: AIRPORT MANAGER
Mailing Address: 2560 W AVIATION WAY ST. 4
Email Address: VJEREMY@CEDARCITY.ORG Phone Number: 435-868-8759

==

Name: Scott Jones Business/Title: Student Pilot
Mailing Address: 717 South 2075 West, Cedar City, UT 84720
Email Address: C.Scottjones17@gmail.com Phone Number: (408) 892-9627

==

Name: Paul Douglas Business/Title: Chevrolet Parts Mgr
Mailing Address: 455 Hillside Place Cedar 84721
Email Address: pauld@bradshawchevy.com Phone Number: 435-592-0625

==

Name: Kyle J Hunsaker Business/Title: USDA WILDLIFE SERVICES
Mailing Address: 1223 N Airport Rd CC 84721
Email Address: Kyle.J.Hunsaker@APHIS.USDA.GOV Phone Number: 435 531 3457

==

Name: Kelly Daugerfield Business/Title:
Mailing Address: 1072 S. Interstate Dr
Email Address: dkelly@netutah.com Phone Number: 435-463 7720

==

Name: JEREMY LEE Business/Title: ENGINEER
Mailing Address: 355 400 W ST GEORGE, UT
Email Address: Jeremy.Lee@Jviation.com Phone Number: 720 413 6095

GDA Engineers • www.gdaengineers.com Cedar City Regional Airport (CDC)

2

Cedar City Regional Airport ~ Master Plan
Meeting 1 • October 20th, 2015 • 7:00 p.m. • Airport Terminal

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING

MEETING SIGN-IN SHEET

Name: John Black Business/Title: City Council
Mailing Address: 2438 W. Church St. Cedar 84720
Email Address: jsblack@q.com Phone Number: 435-592-2392

Name: Don Marchant Business/Title: City Council
Mailing Address: 315 S. 200 W. Cedar City, UT 84721
Email Address: ~~donr~~ donmarchant1946@gmail.com Phone Number: 435-327-0365

Name: MICHAEL LEITCH Business/Title: INSTRUCTOR
Mailing Address: 240 E COLLEGE AVE CEDAR 84720
Email Address: michaelleitch@hotmail.com Phone Number: 435 817 6769

Name: Brad Beadles Business/Title: Airport Operations
Mailing Address: 4285 W 200 N Cedar City UT 84720
Email Address: babeadles1@gmail.com Phone Number: (812)453-4136

Name: Danny Stewart Business/Title: Economic Development
Mailing Address: 10 N Main Street
Email Address: dans@cedarcity.org Phone Number: 435-865-5115

Name: Ryan Marshall Business/Title: City Mgt.
Mailing Address:
Email Address: Mryan@cedarcity.org Phone Number: 435-229-8661

Name: MERLIN MACKAY Business/Title:
Mailing Address: 133 So. Columbia Way CEDAR City
Email Address: Phone Number: 435-586-0515

3

Cedar City Regional Airport ~ Master Plan

Meeting 1 • October 20th, 2015 • 7:00 p.m. • Airport Terminal

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

MEETING SIGN-IN SHEET

Name: DAVE BELSKI Business/Title: WORLD LINK
Mailing Address: 534 HILLVIEW DR CEDAR CITY
Email Address: Phone Number: 562 6189500

==

Name: Rick Patton Business/Title: GDA - Project Planner
Mailing Address:
Email Address: Phone Number:

==

Name: Jeremy McAlister Business/Title: GDA - Engineer + Heber City Office Manager
Mailing Address:
Email Address: Phone Number:

==

Name: Trent Holder Business/Title: GDA - Planner
Mailing Address:
Email Address: Phone Number:

==

Name: Derek Bruton Business/Title: GDA - Engineer/Planner
Mailing Address:
Email Address: Phone Number:

==

Name: Business/Title:
Mailing Address:
Email Address: Phone Number:

==

Name: Business/Title:
Mailing Address:
Email Address: Phone Number:

GDA Engineers • www.gdaengineers.com Cedar City Regional Airport (CDC)

4

Cedar City Regional Airport ~ Master Plan

Meeting 1 • October 20th, 2015 • 7:00 p.m. • Airport Terminal

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

MEETING SIGN-IN SHEET

Name: Don Scott Business/Title:
Mailing Address: 670 Knoll Ridge Dr.
Email Address: kdscott1990@gmail.com Phone Number:

Name: AJ McGuire Business/Title: General Manager FBO
Mailing Address: 2277 W. Kittyhawk Dr.
Email Address: sphereonexec@gmail.com Phone Number: (435)559-1714

Name: Vaughn Montgomery Business/Title:
Mailing Address: 2258 W 700 S.
Email Address: Vaughn@Biophotrex.com Phone Number:

Name: Annette Hirschi-Boden Business/Title:
Mailing Address: 7461 W 2200 S Cedar City UT 84720
Email Address: triplel@netutah.com Phone Number: 435 867.9523

Name: Tyler Stevens Business/Title: Lineman Sphere One
Mailing Address: 1494 S 300 W Cedar City
Email Address: tylerjstevens@gmail.com Phone Number:

Name: FRED ROWLEY Business/Title: CEDAR CITY COUNCIL
Mailing Address:
Email Address: Phone Number:

Name: Business/Title:
Mailing Address:
Email Address: Phone Number:

Cedar City Regional Airport Master Plan Meeting 1 - Minutes

Location: Terminal Building, Cedar City Regional Airport, Cedar City, UT
Date: 10.20.15
Time: 7:00 p.m.
Duration: 1 hour

Attendance:

- Rick Patton, Project Manager, GDA Engineers
- Trent Holder, Planner, GDA Engineers
- Jeremy McAlister, Heber City Office Manager, GDA Engineers
- Derek Bruton, Planner, GDA Engineers
- Ron Adams, Cedar City Council
- John Black, Cedar City Council
- Don Marchant, Cedar City Council
- Fred Rowley, Cedar City Council
- Jeremy Valgardson, Cedar City Regional Airport Manager
- Brad Beadles, Cedar City Regional Airport Operations
- Danny Stewart, Cedar City Economic Development
- Ryan Marshall, Cedar City Management
- J.J. McGuire, General Manager, SphereOne
- Tyler Stevens, Lineman, SphereOne
- Kyle Hunsaker, USDA Wildlife Services
- Paul Douglas, Chevrolet Parts Manager
- Dave Belsri, World Link
- Jeremy Lee, Engineer, JViation
- Scott Jones, Student Pilot
- Michael Leitch, Instructor
- Merlin Mackay
- Don Scott
- Kelly Dangerfield
- Vaughn Montgomery
- Annette Hirschi-Boden

The meeting began with Rick Patton, the Project Manager from GDA Engineers, introducing the four GDA staff members present. Next, Rick gave a brief overview of airport master plans and how the plan for Cedar City will document impacts to the airport and community and potential changes to the airfield. Rick stressed the importance of public feedback for a successful master plan.

In response to a question from the audience, Rick defined an “operation” and “enplanement” and how they differ. Substantial group discussion followed regarding the 10,000 annual enplanement threshold for additional funding. In reply to a question, Jeremy

Valgardson, the airport manager, stated that last year's annual enplanements were about 13,000.

An audience member asked how general aviation operations are counted. Rick responded that GDA deployed motion activated cameras months ago at CDC, at each taxiway connector, and that the aircraft in the pictures are being manually identified.

Rick reviewed the history of the Essential Air Service (EAS), describing the planned "hub and spoke" system of airports throughout the nation. Then, he spoke about how the EAS applies to CDC, guaranteeing commercial service. Additionally, Cedar City is considered "economically distressed," which results in additional federal funding for the airport (an increase from 90% to 95%).

Next, Trent Holder, a planner with GDA, explained that a survey is being developed for the airport. Once completed, this survey will be provided to airport users and the results will be included in the forecast chapter. He encouraged anyone to email him with potential questions for the survey.

Rick then went over the general contents of an airport master plan. He described the inventory chapter, which documents airside and landside structures, all runways, taxiways, aprons, hangars, and maintenance vehicles. He explained that inventorying the current airport assets and condition provides a foundation for future comparisons and decision making. Next, the forecast chapter was reviewed, highlighting the research process, FAA aircraft coding system (ARC), and operations threshold for determining the airport's critical (or design) aircraft.

Following a question from the audience, Rick stated that all airport users, including SkyWest and Syberjet, will be involved in the airport master plan. Related to another question about Upper Limits Aviation helicopter training, GDA collects the day of the week and time of day that each operation occurs, which will be used in the noise modeling.

In response to a question, Rick stated that GDA will calculate hangar space available and compare it to the current and forecasted number of based aircraft.

After multiple questions about pavement strength and design, Jeremy McAlister, a GDA engineer and manager of the Heber City office, gave a brief overview of how pavement design includes the airport's fleet mix and identifying the most stress-inducing aircraft.

Related to the runway pavement strength discussion, Rick added that runway length is not an FAA design standard (although width is). This is because it is ultimately up to the pilot whether or not they can operate their aircraft given all of the variables (temperature, pilot skill, weight, etc.) on the runway length.

Answering a question about the master plan "process," Rick presented the overall project timeline, aiming to complete the project within a year, and noted that six public meetings are anticipated. Once the forecast is completed, it will have to be approved by the FAA.

An individual asked if the master plan will look at how the taxiways handle the flow of traffic. Rick responded that the master plan will, in fact, look at the airfield geometry and that plans for the airfield markings and signage will be completed.

An audience member asked if the master plan will address the topic of drones at all. In response, Rick stated that the master plan may briefly cover the topic, but since the current FAA rules state that drones are not allowed within 5 miles of an airport, there is not a lot to cover with regards to CDC.

Rick concluded the meeting by encouraging meeting attendees to continue their involvement in the project.

Cedar City Regional Airport ~ Master Plan

Meeting 2 • June 23rd, 2016 • Cedar City Regional Airport Terminal

ENGINEERING • SURVEYING • PLANNING

PUBLIC MEETING INVITATION

You are invited to attend the second public meeting for the Cedar City Regional Airport Master Plan. This meeting will be held as an open workshop. Stop by any time **between 6:30 p.m. and 7:30 p.m.** to learn more about the project, ask questions, and provide feedback. The inventory, aviation forecast, and facility requirements will be presented and discussed.

When: Thursday, June 23rd, 2016

Where: Cedar City Regional Airport Terminal, 2560 West Aviation Way

PLANNED PROJECT MEETINGS

Meeting 1 • Project Start (Held 10/20/15)

Meeting 2 • Completion of Inventory, Forecast, and Facility Requirements

Meeting 3 • Presentation of Development Alternatives

Meeting 4 • Presentation of Draft Master Plan and Airport Layout Plan Drawings

Meeting 5 • Presentation of Final Documents

OVERVIEW

An inventory of Cedar City Regional Airport's airside and landside facilities will be presented. The inventory identifies the physical environment of the airport, such as soils and terrain, and includes documentation of all major airport components, structures, and pavements.

Identifying future aviation demand is a critical element in the overall planning process for any airport. The forecast process establishes the demand, which ultimately defines an airport's ability, or lack thereof, to accommodate both existing and future aircraft activity. Forecast demand determines the type, size, and timing of airside and landside facility development. Projections of aviation demand were prepared for the Cedar City Regional Airport Master Plan for the 20-year period through the year 2035. These projections, as well as the identified critical aircraft, will be presented during the meeting.

Additionally, a description of the facilities required to safely accomodate the forecasted traffic for the airport's critical aircraft will be evaluated relative to the existing runways, taxiways, and other structures.

WEBSITE ACCESS

Throughout the Airport Master Plan process, information will be available on the GDA Engineers website. By registering you will have access to the latest draft documents and be included on future correspondence, such as this letter. To create an account:

1. Go to www.gdaengineers.com.
2. Click on the "Project Portal" tab at the top of the page.
3. Register a new account and select "Cedar City Regional Airport Master Plan" under Request Project Access.
4. GDA staff will approve the account and you will receive an e-mail. Then repeat the first two steps and sign in with your email address and password.

GDA Engineers • www.gdaengineers.com   Cedar City Regional Airport (CDC)

THE SPECTRUM

PROOF
OF
PUBLICATION

STATE OF UTAH SS.
COUNTY OF WASHINGTON

I Becky Thompson, being duly sworn, deposes and says that I am the advertising representative of The Spectrum, a newspaper of general circulation published daily at Saint George, Washington County, State of Utah, also distributed in Iron County, and placed on Utahlegals.com; and that the notice:

PUB # : L3205

is a true copy of which is here to attached, was published in its issue dated the **9** day of **June** 2016 and was published again in the issues of said newspaper and Utahlegals. **6/16, 23, 2016** for a total of **3** insertion(s) and per Utahlegals.com will remain on Utahlegals.com for a total of 30 days.

Becky Thompson

Becky Thompson

Subscribed and sworn before me this 13 day of March 2017.

Bonnie Thompson

NOTARY PUBLIC RESIDING AT WASHINGTON COUNTY

BONNIE THOMPSON
NOTARY PUBLIC • STATE of UTAH
COMMISSION NO. 691766
COMM EXP. 11-10-2020

Notices

Airport Master Plan Public Meeting Notice

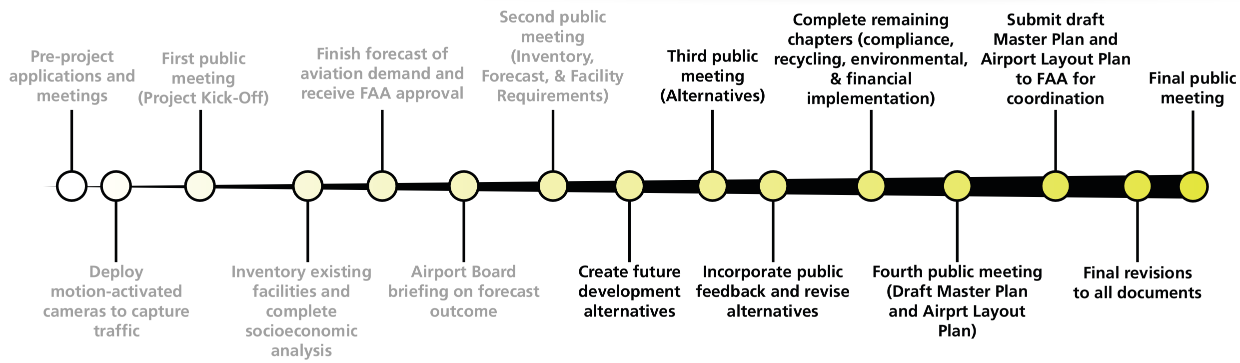
The Cedar City Regional Airport is in the process of completing an Airport Master Plan. The second public meeting will be held on Thursday, June 23rd, 2016 at the Cedar City Regional Airport Terminal, 2560 West Aviation Way in Cedar City, UT. The meeting, which will include presentation of the aviation forecast and facility requirements, will be conducted as an open workshop. The public is invited to stop by any time between 6:30 p.m. and 7:30 p.m. to learn more about the project, ask questions, and provide feedback. More information about the Airport Master Plan is available by contacting Trent Holder at GDA Engineers at 307.587.3411 or tholder@gdaengineers.com. Information is also available on the GDA Engineers website at www.gdaengineers.com by creating an account under "Project Portal."

PUB # L3205
Published
June 09, 16 & 23, 2016
The Spectrum
UPAXLP

ST GEORGE OFFICE
275 E St George Blvd - St. George, UT 84770
Office (435)674-6200 FAX 674-6265
CEDAR CITY OFFICE
369 N 100 W - Cedar City, UT 84720
Office (435) 586-7646 FAX 586-7471


Cedar City Regional Airport
Airport Master Plan

AIRPORT MASTER PLANS



An Airport Master Plan is a comprehensive study of an airport that describes short (1-5 years), medium (6-10 years), and long (11-20 years) term plans to meet the future aviation activcity. The FAA recommends most airports complete an Airport Master Plan every 5 to 7 years in order to stay abreast of new developments at the airport and in the surrounding community.

Master Plans assess the current airport facilities and traffic, and then present a strategy for future development while considering potential environmental and socioeconomic impacts.

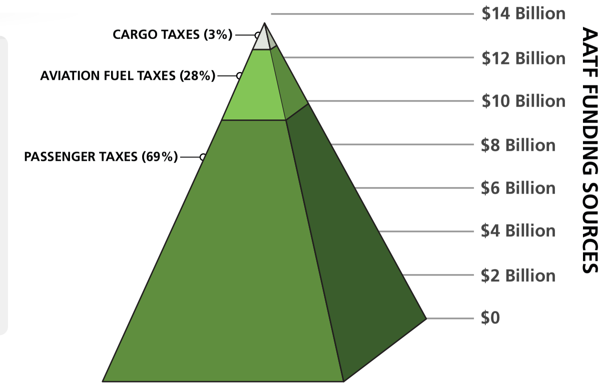
The project milestones for the Cedar City Regional Airport Master Plan are outlined to the left.

FUNDING

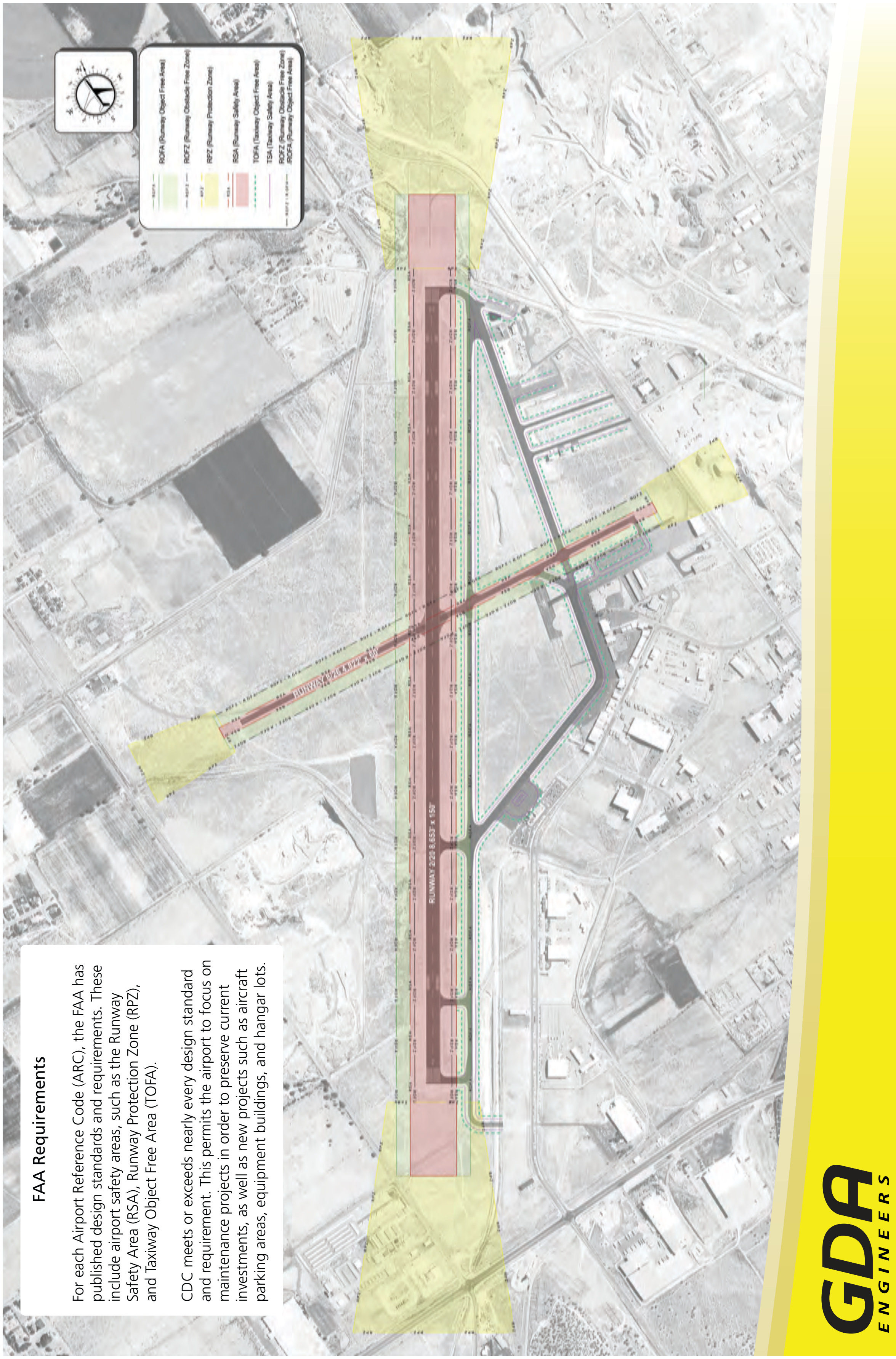
The **Airport Improvement Program (AIP)** provides funding to airports on a priority needed basis. Eligible airports range from small community facilities to the largest commercial airports in the national system.

The AIP is primarily funded through the Airport and Airway Trust Fund (AATF). In 2014, more than 80% of the AIP was funded from the AATF, with the remainder coming from general funds. The AATF is **funded by** three components: **passengers** (tax on ticket sales), **cargo** (tax on shipping fees), and **fuel** (tax on fuels used by aircraft).

For Utah airports, AIP funds cover 90.63% of FAA eligible project costs at commercial service airports. However, since Cedar City is designated by the federal government as economically distressed Cedar City Regional Airport (CDC) receives AIP funds for 95% of eligible projects. The remaining 5% (commonly called the "match") is covered by the Cedar City Corporation.



GDA ENGINEERS


FAA Requirements
For each Airport Reference Code (ARC), the FAA has published design standards and requirements. These include airport safety areas, such as the Runway Safety Area (RSA), Runway Protection Zone (RPZ), and Taxiway Object Free Area (TOFA).
CDC meets or exceeds nearly every design standard and requirement. This permits the airport to focus on maintenance projects in order to preserve current investments, as well as new projects such as aircraft parking areas, equipment buildings, and hangar lots.
GDA
ENGINEERS


OPERATION PICTURES
These pictures were taken by motion activated cameras deployed in the airfield. Photographic evidence of air traffic is crucial in determining the runway, taxiway, and related needs of an airport. As you can see, CDC is used by a wide range of aircraft.
GDA
ENGINEERS

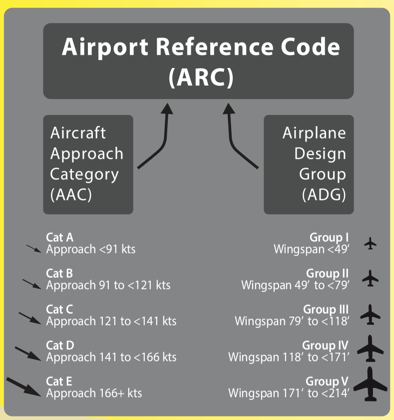
FORECAST RESULTS

FAA CODING SYSTEM

The FAA has developed an airport coding system referred to as the Airport Reference Code (ARC) that establishes the specific design criteria for facility development.

The ARC provides insights into the performance, design characteristics, and physical facility requirements of aircraft using an airport. The ARC is based on two separate components of aircraft design: Aircraft Approach Category (AAC) and Airplane Design Group (ADG).

Safety area dimensions are expanded as the approach speed increases. Typically, as an aircraft's wingspan increases, the separation requirements increase between runways, taxiways, aprons, and aircraft parking areas.

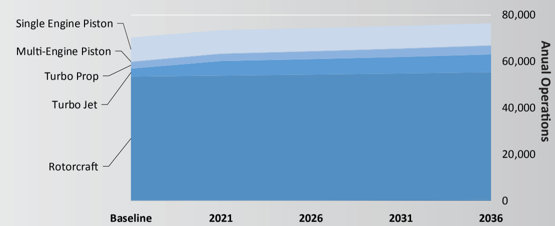


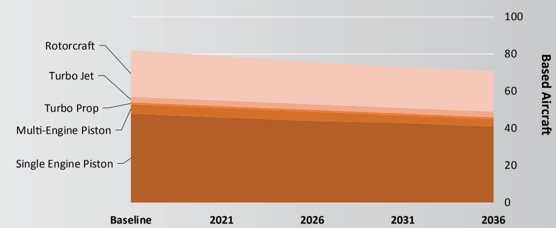
RESULTS

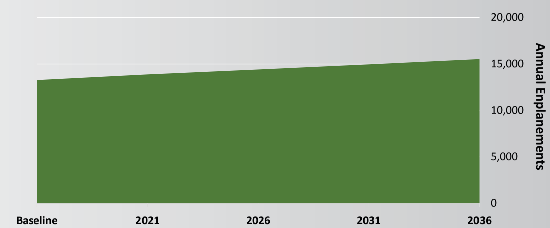
CDC is one of the larger airports within its region, consequently, it will remain an essential facility for the surrounding area supporting local general aviation use, such as recreational flying, medical evacuations, fire fighting, and flight training.

Operations are forecasted to slowly increase over the next 20 years. However, based aircraft are projected to decrease in line with the FAA's forecast of decreasing single-engine piston aircraft in use.

The current commercial service delivers more seats than the market typically fills. Overall, passenger enplanements at Cedar City Regional Airport are anticipated to increase very slowly – in line with population change – over the forecast period.







CRITICAL AIRCRAFT

The criteria required for planning and design of an airport is determined by the airport's role, level of operations, and the "critical" aircraft using the airport. The critical (or design) aircraft is defined as the most demanding aircraft operating at an airport on a regular basis. The critical aircraft (or type of aircraft) must perform 500 operations annually to be considered the critical aircraft. However, when a category or group of aircraft starts approaching 350 operations, planning should take steps to prepare the airport for the greater design requirements.

For many airports, proper airfield planning must accommodate a **grouping of aircraft that share similar characteristics**, rather than a singular critical aircraft. This is the case for CDC - a combination of multiple aircraft with similar approach speeds (AAC C) and wingspans (ADG III) resulted in the forecasted totals surpassing the operational threshold of 500.

This grouping includes the BAe-146, an aerial firefighting aircraft that is deployed from CDC. Multiple private individuals and businesses use Gulfstream G-V aircraft at CDC. The Embraer 175 is commonly used in the SkyWest fleet and is slowly phasing out the current 50 seat fleet in favor of 70 seat aircraft. The Utah National Guard trains at CDC with a fleet of KC-135 aircraft.

GDA ENGINEERS

COMMERCIAL SERVICE

COMMERCIAL SERVICE PROVIDER

SkyWest, based out of St. George, Utah, has provided commercial service for Cedar City Regional Airport since 2008.

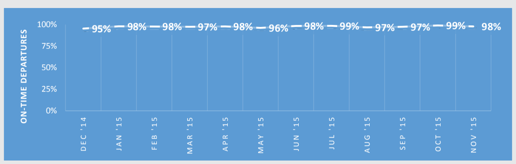
Skywest's operational fleet consists of Bombardier and Embraer regional jets, ranging from 50 to 76 seats. Currently, Cedar City is served by the 50-seat Bombardier CRJ200, providing a direct connection to Salt Lake City.

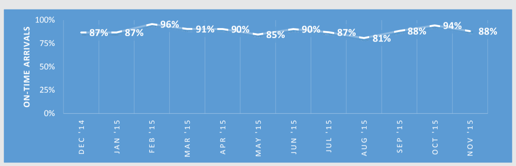
www.skywest.com

ON-TIME PERFORMANCE

The on-time arrival and departure performance for CDC's commercial service, dating from December 2014 to November 2015, is charted below. On-time performance is the percentage of flight operations that arrived/departed within 15 minutes of the scheduled time.

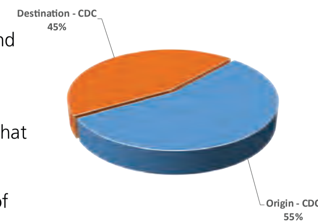
SkyWest's overall on-time performance is extremely consistent at CDC, averaging above 90%. In the airline industry, an average above 85% is considered exceptionally high. This is an important metric for CDC commercial service passenger retainment and recruitment.





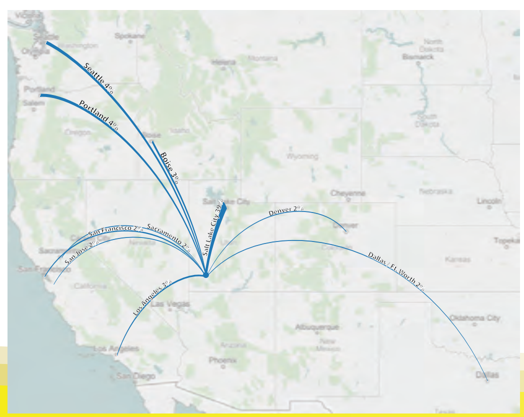
PASSENGER O&D

Tracking passenger origin and destination (commonly shortened to O&D) provides insight to how an airport is used. Collected data show that CDC is slightly more of an origin versus destination market. Passengers fly out of Cedar City more often than they fly in to Cedar City.



PASSENGER MARKET

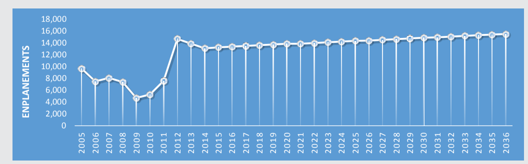
The map below depicts the top ten most common destinations and origins for passengers using CDC. Salt Lake City is the top destination for passengers to/from Cedar City (39%). This is not a surprise given that Salt Lake City is the only market served on a non-stop basis from CDC. The next top markets are Seattle, Portland, Boise, and Los Angeles.

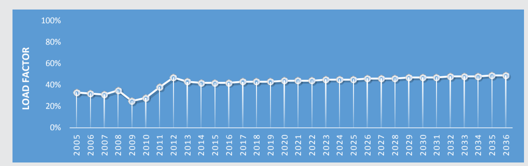


LOAD FACTOR AND ENPLANEMENTS

Passenger load factor is generally calculated as the number of passengers on a flight divided by the total number of seats. A fairly empty flight would have a low load factor while a completely full flight would have a 100% load factor. The load factor for CDC has been very low, averaging under 50%. This is forecasted to slowly increase over the next 20 years, in line with a projected increase in population, assuming the same number of seats are available each day.

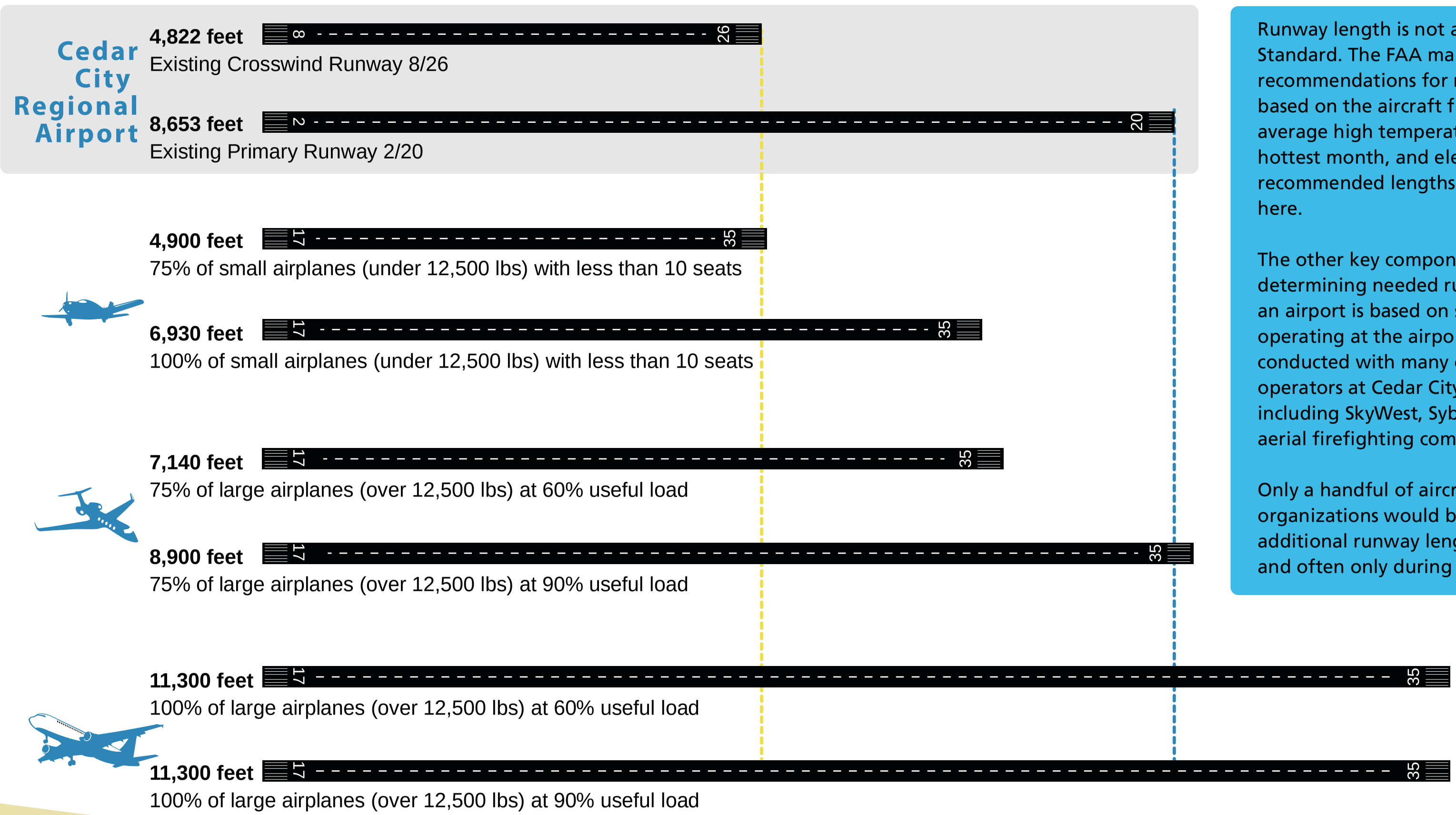
Similarly, the number of enplanements (that is, number of people boarding a commercial aircraft at CDC) is also forecasted to slowly increase over this time period. Starting in 2012, the airport has averaged more than 13,000 enplanements annually.





GDA ENGINEERS

RUNWAY LENGTH



Runway length is not an FAA Design Standard. The FAA makes general recommendations for runway lengths based on the aircraft fleet in use, average high temperature during the hottest month, and elevation. The FAA recommended lengths are depicted here.

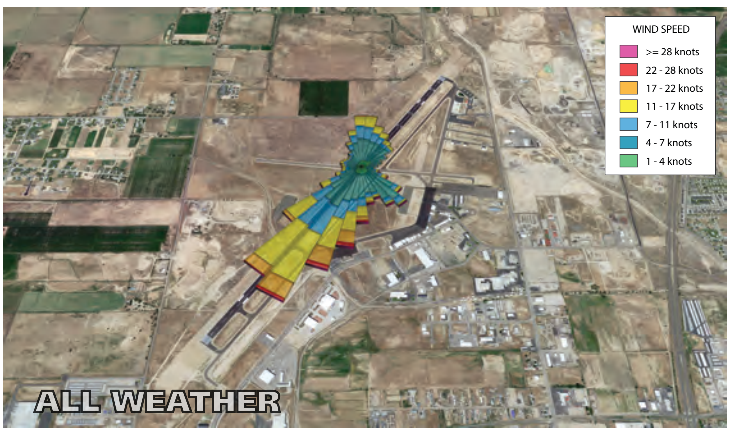
The other key component in determining needed runway length at an airport is based on specific aircraft operating at the airport. Interviews were conducted with many of the key aircraft operators at Cedar City Regional Airport, including SkyWest, SyberJet, FedEx, and aerial firefighting companies.

Only a handful of aircraft flown by these organizations would benefit from additional runway length at the airport, and often only during very hot days.

WIND ANALYSIS

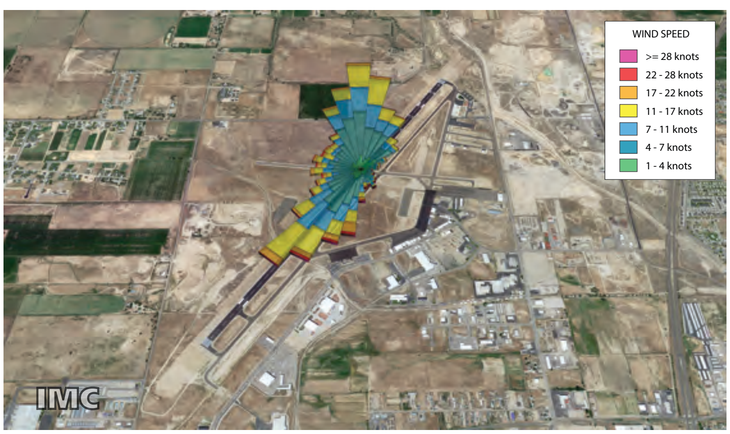
Aligning the primary runway of an airport with the predominate wind direction increases the safety of aircraft operations. A crosswind is a wind that is perpendicular to the runway. Wind coverage is the percentage of time that crosswinds are below an acceptable speed. Thus, properly aligning runways provides the best wind coverage.

GDA Engineers completed an analysis of wind data for the Cedar City Regional Airport (CDC). A total of 95,732 observations, containing wind direction and speed for every hour from 2005 to 2014, were used for the analysis. The bars show from which direction the wind blows.



Approximately 81% of the time wind speeds at CDC fall between 0 and 10 knots.

For all observations, the runways provide 98.08% coverage with a 13 knot crosswind component. This is above the FAA recommendation of 95% wind coverage.



Instrument Meteorological Conditions (IMC) are when visibility is under three miles. In Cedar City, the wind changes noticeably during IMC, such that speeds are typically lower and blow more often from the north and less often from the east.

GDA ENGINEERS

Cedar City Regional Airport ~ Master Plan

Meeting 2 • June 23rd, 2016 • 6:30 -7:30 p.m. • Airport Terminal

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

MEETING SIGN-IN SHEET

Name: JEREMY VALGARDSON Business/Title: AIRPORT MNGR

Mailing Address:

Email Address: Phone Number: 435-868-8759

==========

Name: HILARY FLETCHER Business/Title: JVIATION

Mailing Address: 35 SOUTH 400 WEST, ST GEORGE

Email Address: hilary.fletcher@jviation.com Phone Number: 970.379.2413

==========

Name: Maile Wilson Business/Title: Cedar City Mayor

Mailing Address:

Email Address: mayorwilson@cedarcity.org Phone Number:

==========

Name: Terri Hartley Business/Title: City Council/Airport board

Mailing Address: ~~[illegible]~~ 1375 S. 550 W. Cedar City UT 84720

Email Address: terri_hartley@outlook.com Phone Number: 435 590 1316

==========

Name: Brad Beadles Business/Title: Airport Operations

Mailing Address: 4285 W 200 N

Email Address: bbrad@cedarcity.org Phone Number: (812) 453-4136

==========

Name: Business/Title:

Mailing Address:

Email Address: Phone Number:

==========

Name: Business/Title:

Mailing Address:

Email Address: Phone Number:

GDA Engineers • www.gdaengineers.com *Cedar City Regional Airport (CDC)*

Cedar City Regional Airport ~ Master Plan

Meeting 2 • June 23rd, 2016 • 6:30 -7:30 p.m. • Airport Terminal

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

MEETING SIGN-IN SHEET

Name: Carrie Charles Business/Title: N/A
Mailing Address:
Email Address: carcharles@yahoo.com Phone Number:

===

Name: BLAINE NAY Business/Title: PILOT N67162, N747LG
Mailing Address: 714 SOUTH 1175 WEST, CEDAR CITY, UT 84720
Email Address: blaine@nay.org Phone Number: 435-590-7569

===

Name: Paul Douglas Business/Title:
Mailing Address: 455 Hillside Place
Email Address: Paul Douglas@yahoo.com Phone Number: 592.0875

===

Name: JYL SHULER Business/Title: Airport Board
Mailing Address:
Email Address: Phone Number:

===

Name: Brenda Lee Blackburn Business/Title:
Mailing Address:
Email Address: Phone Number: 435-691-5484

===

Name: J. J. McGuire Business/Title: Sphere One
Mailing Address:
Email Address: Sphereonexec@gmail.com Phone Number: 435-559-1714

===

Name: Thomas Mathew Business/Title: Sphere One
Mailing Address:
Email Address: aviation@gateone.com Phone Number:

GDA Engineers • www.gdaengineers.com Cedar City Regional Airport (CDC)

Cedar City Regional Airport (CDC)

An Airport Master Plan is nearing completion for Cedar City Regional Airport. The next public workshop will be held **Thursday, June 8th, 2017** at the Airport Terminal, 2560 Aviation Way in Cedar City, UT. You are invited to stop by any time between 7:00 p.m. and 8:00 p.m. to view the draft documents, learn more about the project, ask questions, and provide feedback.

Phone: 307.587.3411 | www.gdaengineers.com

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

THE SPECTRUM

Notices

Airport Master Plan Public Meeting Notice

The Cedar City Regional Airport is in the process of completing an Airport Master Plan. The next public meeting will be held on Thursday, June 8th, 2017 at the Cedar City Regional Airport Terminal, 2560 West Aviation Way in Cedar City, UT. The meeting, which will include presentation of the draft master plan report and Airport Layout Plan drawing set, will be conducted as an open workshop. The public is invited to stop by any time between 7:00 p.m. and 8:00 p.m. to learn more about the project, ask questions, and provide feedback. More information about the Airport Master Plan is available by contacting Trent Holder at GDA Engineers at 307.587.3411 or tholder@gdaengineers.com. Information is also available on the GDA Engineers website at www.gdaengineers.com by creating an account under "Project Portal."

Pub# L4395
Published
May 25, June 1 & 8, 2017
The Spectrum
UPAXLP

PROOF
OF
PUBLICATION

STATE OF UTAH SS.
COUNTY OF WASHINGTON

I Becky Thompson, being duly sworn, deposes and says that I am the advertising representative of The Spectrum, a newspaper of general circulation published daily at Saint George, Washington County, State of Utah, also distributed in Iron County, and placed on Utahlegals.com; and that the notice:

PUB # : L4395

is a true copy of which is here to attached, was published in its issue dated the **25** day of **May** 2017 and was published again in the issues of said newspaper and Utahlegals.

6/1, 8, 2017 for a total of **3** insertion(s) and per Utahlegals.com will remain on Utahlegals.com for a total of 30 days.

Becky Thompson
Becky Thompson

Subscribed and sworn before me this 14th day of June 2017.

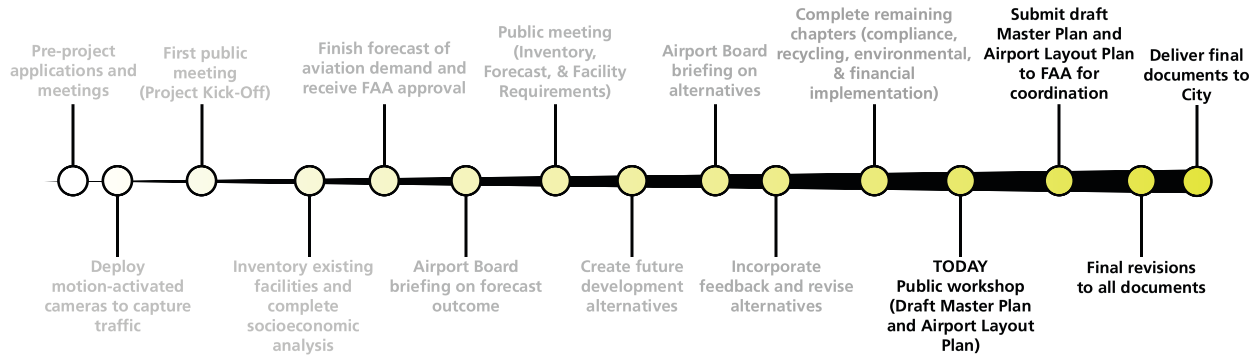
Bonnie Thompson
NOTARY PUBLIC RESIDING AT WASHINGTON COUNTY

BONNIE THOMPSON
NOTARY PUBLIC • STATE of UTAH
COMMISSION NO. 691766
COMM EXP. 11-10-2020

ST. GEORGE OFFICE
275 E. St. George Blvd. - St. George, UT 84770
Office (435)674-6200 FAX 674-6265
CEDAR CITY OFFICE
369 N. 100 W. - Cedar City, UT 84720
Office (435) 586-7646 FAX 586-7471


Cedar City
Regional Airport
Master Plan Workshop
Learn about your local airport
and provide input
for its future development!
Thursday
June 8th, 2017
7:00 to 8:00 pm
Airport Terminal
2560 Aviation Way
GDA
ENGINEERS

AIRPORT MASTER PLANS



An Airport Master Plan is a comprehensive study of an airport that describes short (1-5 years), medium (6-10 years), and long (11-20 years) term plans to meet the future aviation activity. The FAA recommends most airports complete an Airport Master Plan every 5 to 7 years in order to stay abreast of new developments at the airport and in the surrounding community.

Master Plans assess the current airport facilities and traffic, and then present a strategy for future development while considering potential environmental and socioeconomic impacts.

The project milestones for the Cedar City Regional Airport Master Plan are outlined to the left.

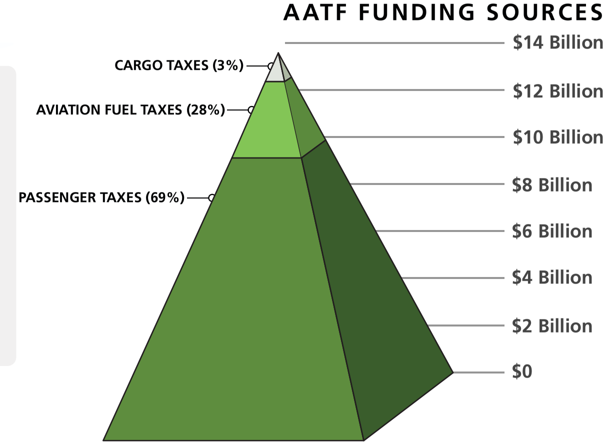
FUNDING

The **Airport Improvement Program (AIP)** provides funding to airports on a priority needed basis. Eligible airports range from small community facilities to the largest commercial airports in the national system.

The AIP is primarily funded through the Airport and Airway Trust Fund (AATF). In 2014, more than 80% of the AIP was funded from the AATF, with the remainder coming from general funds. The AATF is **funded by** three components: **passengers** (tax on ticket sales), **cargo** (tax on shipping fees), and **fuel** (tax on fuels used by aircraft).

For Utah airports, AIP funds cover 90.63% of FAA eligible project costs at commercial service airports. However, since Cedar City is designated by the federal government as economically distressed, Cedar City Regional Airport (CDC) receives AIP funds for 95% of eligible projects. The remaining 5% (commonly called the "match") is covered by the Cedar City Corporation.

AATF FUNDING SOURCES



GDA ENGINEERS

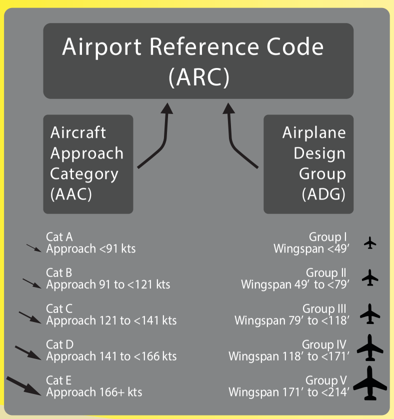
FORECAST RESULTS

FAA CODING SYSTEM

The FAA has developed an airport coding system referred to as the Airport Reference Code (ARC) that establishes the specific design criteria for facility development.

The ARC provides insights into the performance, design characteristics, and physical facility requirements of aircraft using an airport. The ARC is based on two separate components of aircraft design: Aircraft Approach Category (AAC) and Airplane Design Group (ADG).

Safety area dimensions are expanded as the approach speed increases. Typically, as an aircraft's wingspan increases, the separation requirements increase between runways, taxiways, aprons, and aircraft parking areas.

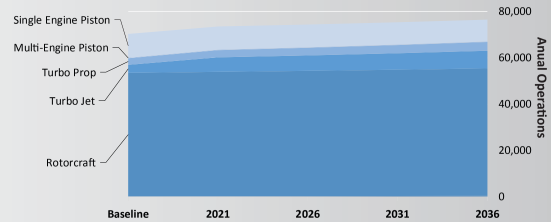


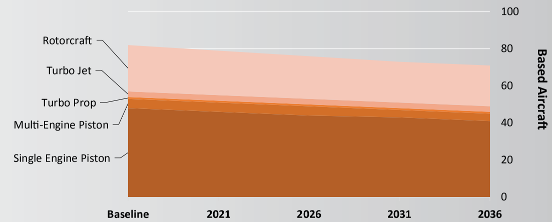
RESULTS

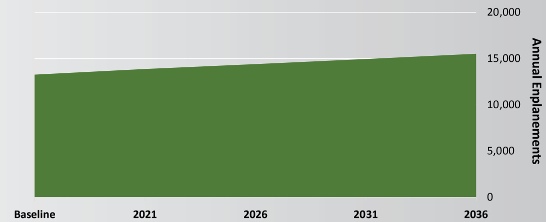
CDC is one of the larger airports within its region, consequently, it will remain an essential facility for the surrounding area supporting local general aviation use, such as recreational flying, medical evacuations, fire fighting, and flight training.

Operations are forecasted to slowly increase over the next 20 years. However, based aircraft are projected to decrease in line with the FAA's forecast of decreasing single-engine piston aircraft in use.

The current commercial service delivers more seats than the market typically fills. Overall, passenger enplanements at Cedar City Regional Airport are anticipated to increase very slowly – in line with population change – over the forecast period.







CRITICAL AIRCRAFT

The criteria required for planning and design of an airport is determined by the airport's role, level of operations, and the "critical" aircraft using the airport. The critical (or design) aircraft is defined as the most demanding aircraft operating at an airport on a regular basis. The critical aircraft (or type of aircraft) must perform 500 operations annually to be considered the critical aircraft. However, when a category or group of aircraft starts approaching 350 operations, planning should take steps to prepare the airport for the greater design requirements.

For many airports, proper airfield planning must accommodate a **grouping of aircraft that share similar characteristics**, rather than a singular critical aircraft. This is the case for CDC - a combination of multiple aircraft with similar approach speeds (AAC C) and wingspans (ADG III) resulted in the forecasted totals surpassing the operational threshold of 500.

This grouping includes the BAe-146, an aerial firefighting aircraft that is deployed from CDC. Multiple private individuals and businesses use Gulfstream G-V aircraft at CDC. The Embraer 175 is commonly used in the SkyWest fleet and is slowly phasing out the current 50 seat fleet in favor of 70 seat aircraft. The Utah National Guard trains at CDC with a fleet of KC-135 aircraft.

GDA ENGINEERS

COMMERCIAL SERVICE

COMMERCIAL SERVICE PROVIDER

SkyWest, based out of St. George, Utah, has provided commercial service for Cedar City Regional Airport since 2008.

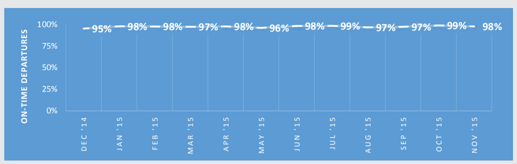
Skywest's operational fleet consists of Bombardier and Embraer regional jets, ranging from 50 to 76 seats. Currently, Cedar City is served by the 50-seat Bombardier CRJ200, providing a direct connection to Salt Lake City.

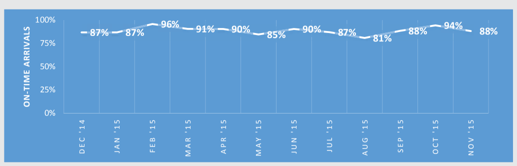
www.skywest.com

ON-TIME PERFORMANCE

The on-time arrival and departure performance for CDC's commercial service, dating from December 2014 to November 2015, is charted below. On-time performance is the percentage of flight operations that arrived/departed within 15 minutes of the scheduled time.

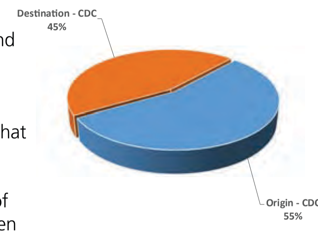
SkyWest's overall on-time performance is extremely consistent at CDC, averaging above 90%. In the airline industry, an average above 85% is considered exceptionally high. This is an important metric for CDC commercial service passenger retainment and recruitment.





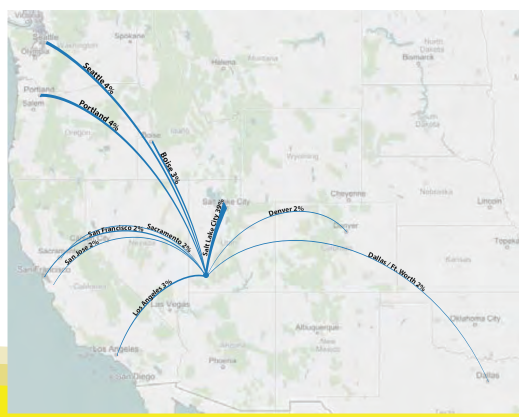
PASSENGER O&D

Tracking passenger origin and destination (commonly shortened to O&D) provides insight to how an airport is used. Collected data show that CDC is slightly more of an origin versus destination market. Passengers fly out of Cedar City slightly more often than they fly in to Cedar City.



PASSENGER MARKET

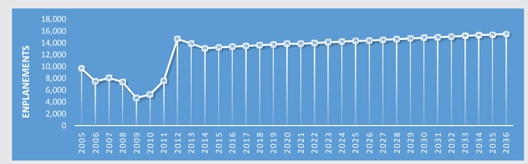
The map below depicts the top ten most common destinations and origins for passengers using CDC. Salt Lake City is the top destination for passengers to/from Cedar City (39%). This is not a surprise given that Salt Lake City is the only market served on a non-stop basis from CDC. The next top markets are Seattle, Portland, Boise, and Los Angeles.

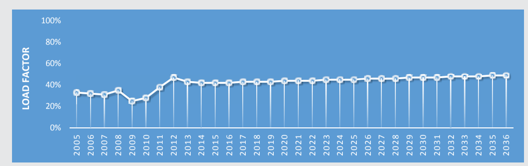


LOAD FACTOR AND ENPLANEMENTS

Passenger load factor is generally calculated as the number of passengers on a flight divided by the total number of seats. A fairly empty flight would have a low load factor while a completely full flight would have a 100% load factor. The load factor for CDC has been very low, averaging under 50%. This is forecasted to slowly increase over the next 20 years, in line with a projected increase in population, assuming the same number of seats are available each day.

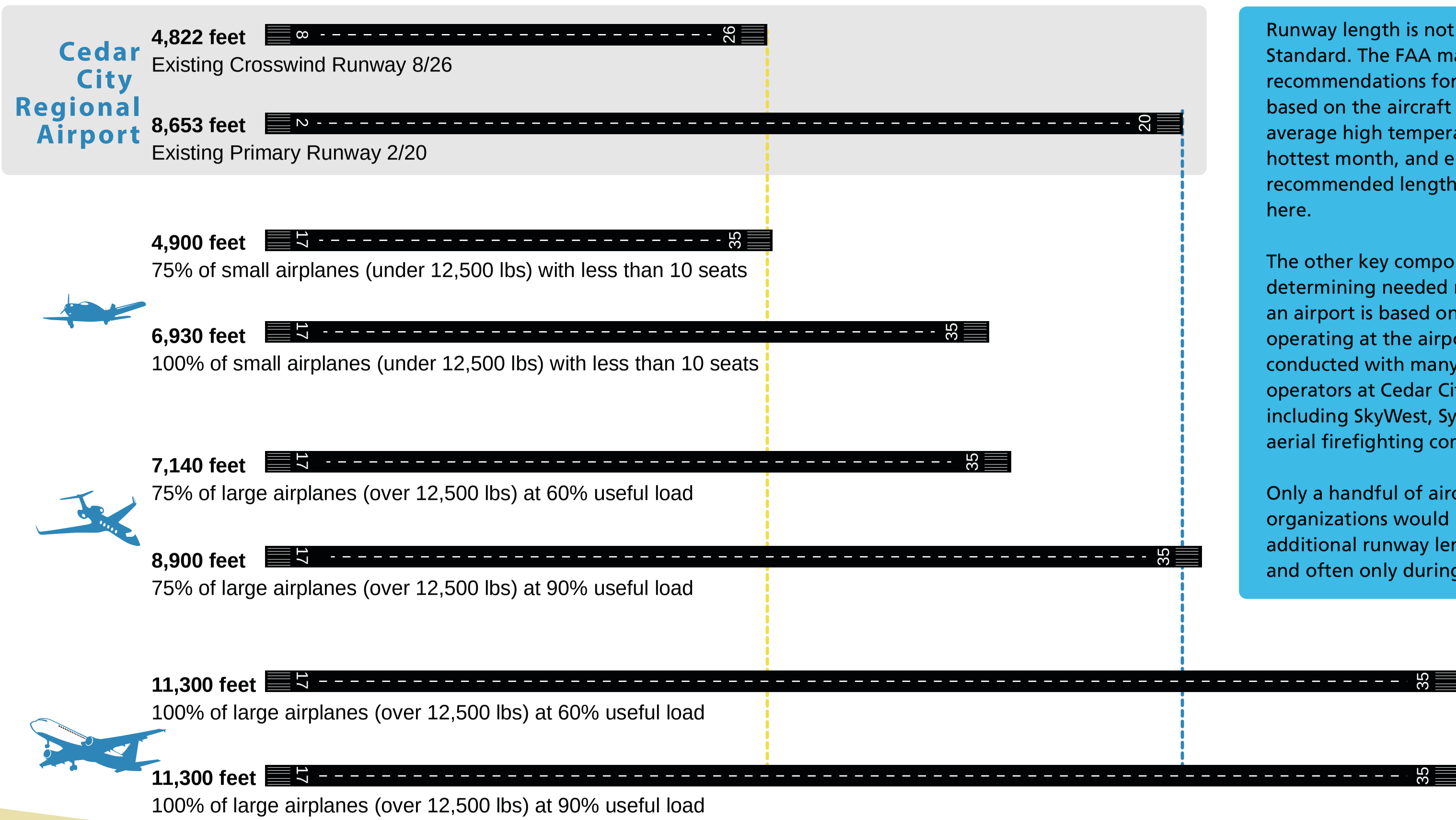
Similarly, the number of enplanements (that is, number of people boarding a commercial aircraft at CDC) is also forecasted to slowly increase over this time period. Starting in 2012, the airport has averaged more than 13,000 enplanements annually.





GDA ENGINEERS

RUNWAY LENGTH



Runway length is not an FAA Design Standard. The FAA makes general recommendations for runway lengths based on the aircraft fleet in use, average high temperature during the hottest month, and elevation. The FAA recommended lengths are depicted here.

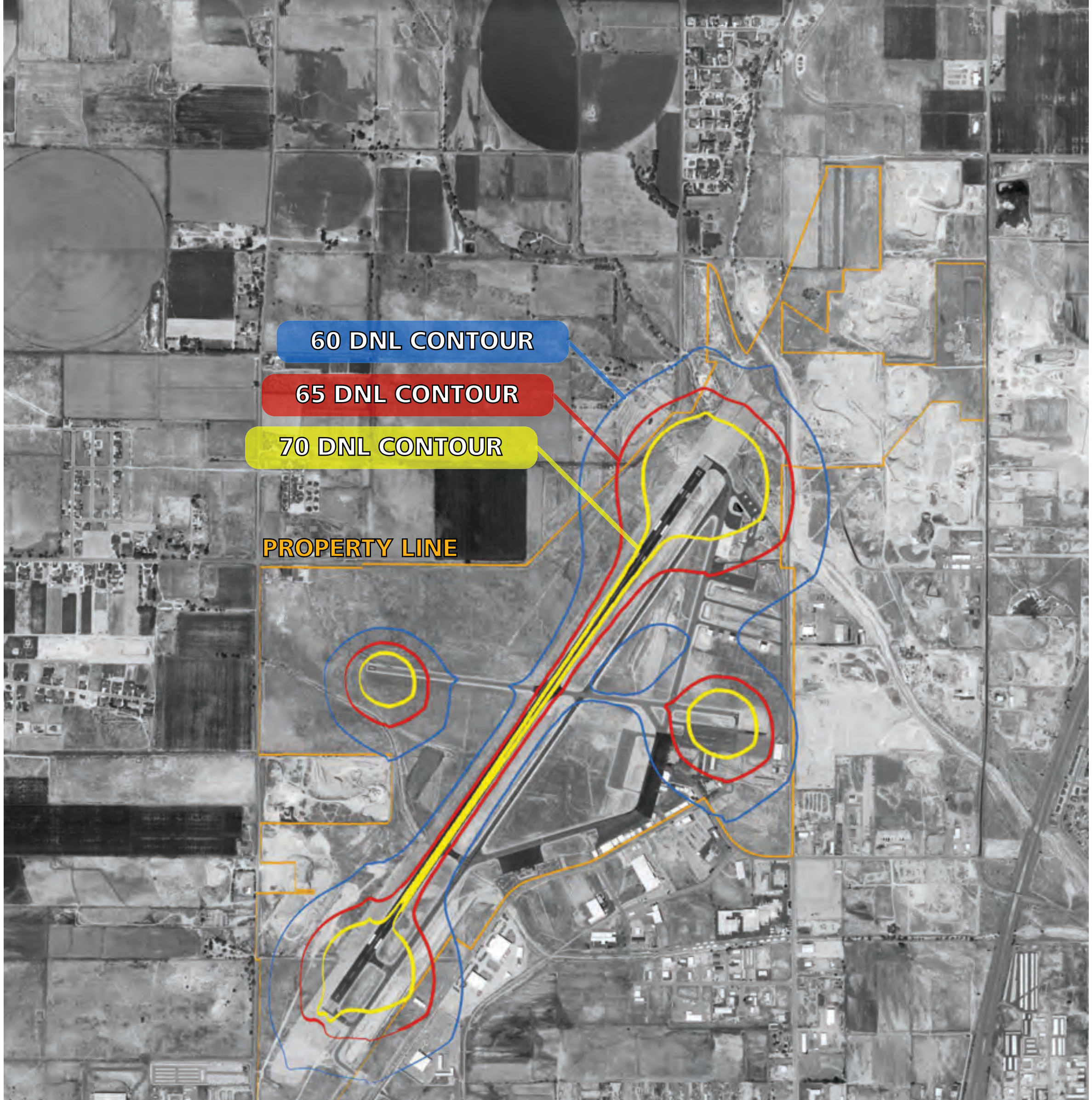
The other key component in determining needed runway length at an airport is based on specific aircraft operating at the airport. Interviews were conducted with many of the key aircraft operators at Cedar City Regional Airport, including SkyWest, SyberJet, FedEx, and aerial firefighting companies.

Only a handful of aircraft flown by these organizations would benefit from additional runway length at the airport, and often only during very hot days.

GDA ENGINEERS


DEFICIENCIES AND FUTURE PROJECTS
As part of the Facility Requirements chapter, the ability of existing airport facilities to meet current and future demand was assessed. The most significant deficiencies requiring correction to accommodate the forecasted aviation activity, as well as issues necessitating remediation to meet FAA Design Standards, are shown in YELLOW.
Development options and solutions to correct deficiencies and assist with airport needs are shown in BLUE. Depending on funding and importance, timing of construction of these projects may vary from as soon as next year to more than 20 years out.
Snow removal equipement needed, inadequate space for airport maintenance equippment
Obtain new snow removal equipment and construction additional equipment buildings
Runway 2/20 does not meet Line of Sight (5') requirement
Runway 2/20 below Taxiway D
Reconstruct Runway 2/20
Water ponding in multiple locations
Incorrect fillet geometry
Remove excess pavement and construct fillet to standards
Direct access from taxiway to runway
Relocate connector
Secure holding area in terminal is 760 square feet smaller than recommendation
Expand holding area
Create run-up area for student and other general aviation pilots to alleviate traffic congestion
Lack of apron and hangar space for smaller aircraft
Construct new apron and provide hangar lots
Inadequate automobile parking
Construct new parking lot
Relocate self-fueling to better accommodate taxiway geometry and traffic flow
Direct access from apron to runway
Paint a no-taxiway island
Portion of apron in Runway Protection Zone
Move aircraft movement paths and parking locations outside of the Runway Protection Zone
Lack of apron and hangar space for business class aircraft
Construct new apron and provide hangar lots
GDA ENGINEERS

NOISE ANALYSIS



Noise is measured in decibels and the Day-Night Average Sound Level (DNL) represents noise averaged over a 24-hour period. Nighttime noise events are given additional weight because sound at night is often perceived to be more intrusive. The FAA has set a guideline of 65 DNL to determine compatible land use around airports.

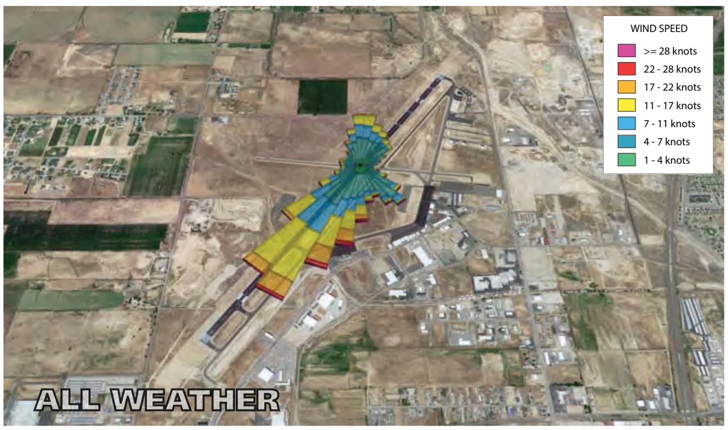
The noise contours shown were calculated using the aircraft operations forecasted for the year 2036. The differences in area between the 2016 and 2036 contours were extremely minimal. The critical 65 DNL contour is contained almost entirely (94.3%) within the existing airport property. At this time, no development to abate existing or forecasted noise is recommended.

GDA ENGINEERS

WIND ANALYSIS

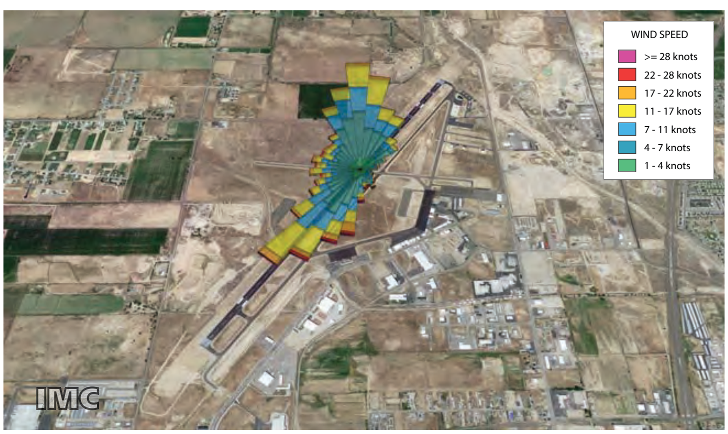
Aligning the primary runway of an airport with the predominate wind direction increases the safety of aircraft operations. A crosswind is a wind that is perpendicular to the runway. Wind coverage is the percentage of time that crosswinds are below an acceptable speed. Thus, properly aligning runways provides the best wind coverage.

GDA Engineers completed an analysis of wind data for the Cedar City Regional Airport (CDC). A total of 95,732 observations, containing wind direction and speed for every hour from 2005 to 2014, were used for the analysis. The bars show from which direction the wind blows.



Approximately 81% of the time wind speeds at CDC fall between 0 and 10 knots.

For all observations, the runways provide 98.08% coverage with a 13 knot crosswind component. This is above the FAA recommendation of 95% wind coverage.



Instrument Meteorological Conditions (IMC) are when visibility is under three miles. In Cedar City, the wind changes noticeably during IMC, such that speeds are typically lower and blow more often from the north and less often from the east.

GDA ENGINEERS

Cedar City Regional Airport ~ Master Plan
Meeting 4 • June 8th , 2017 • 7:00 -8:00 p.m. • Airport Terminal

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING

MEETING SIGN-IN SHEET

Name: Loren Barney Business/Title: Flight Instructor - Sphere One Aviation
Mailing Address: 3807 W 1350 N Cedar City, UT 84721
Email Address: L_MBarney92@Yahoo.com Phone Number: 951-760-3367

==========

Name: Steve Plett Business/Title: Iron Co. Engineer
Mailing Address: 82 N. 100 E. Ste 104 Cedar City
Email Address: steve@ironcounty.net Phone Number: 865-5370

==========

Name: JEREMY VALGARDSON Business/Title: AIRPORT
Mailing Address:
Email Address: Phone Number:

==========

Name: Maile Wilson Business/Title: Cedar City Mayor
Mailing Address:
Email Address: Phone Number:

==========

Name: Ron Adams Business/Title: Cedar City Council
Mailing Address:
Email Address: Phone Number:

==========

Name: Michal Adams Business/Title: Adm. Asst. City Engineering
Mailing Address:
Email Address: Phone Number:

==========

Name: RANDY Q. JONES Business/Title:
Mailing Address: 717 S. 2075 W.
Email Address: RQJONES@pacbell.net Phone Number: 408-892-5529

GDA Engineers • www.gdaengineers.com Cedar City Regional Airport (CDC)

Cedar City Regional Airport ~ Master Plan

Meeting 4 • June 8th, 2017 • 7:00 -8:00 p.m. • Airport Terminal

GDA ENGINEERS

ENGINEERING • SURVEYING • PLANNING

MEETING SIGN-IN SHEET

Name: CHUCK HOHOS Business/Title: Retired
Mailing Address: 1479 S. HILL CREST DR.
Email Address: Phone Number: (435) 867-1701

Name: Jyl Shuler Business/Title:
Mailing Address: 114 N. 700 W., CC 84720
Email Address: Shuler@band.org Phone Number: 970-556-2875

Name: CLINT COATES Business/Title: FOREST SERVICE AVIATION OFFICER
Mailing Address: 1789 N. Wedgewood LN. CEDAR City UT 84721
Email Address: ccoates@fs.fed.us Phone Number: 435-865-4600

Name: Paul Bittmenn Business/Title: Cedar City Manager
Mailing Address: 10 W main Cedar City, ut 84720
Email Address: paulb@cedarcity.org Phone Number:

Name: BLAINE NAY Business/Title: N6716Z AND N747LG
Mailing Address: 714 S 1175 W, CEDAR CITY 84720
Email Address: blaine@nay.org Phone Number: 435-590-7569

Name: TRENT HOLDER Business/Title: GDA Engineers
Mailing Address:
Email Address: tholder@gdaengineers.com Phone Number:

Name: Business/Title:
Mailing Address:
Email Address: Phone Number:

GDA Engineers • www.gdaengineers.com Cedar City Regional Airport (CDC)

Appendix B - Airport Surveys

Airport Survey Summary

Three surveys were created based on input from the Airport Manager and Airport Board combined with previously identified issues and topics of concerns. These surveys (one for airport businesses, one for airport tenets, and one for airport users) were mailed at the beginning of December 2015. In total, 23 airport business surveys, 35 airport tenant surveys, and 409 airport user surveys were mailed. Mailing addresses were provided by the Airport Manager. Surveys were also available from the Airport Manager, upon request.

Two months after mailing surveys, 1 airport business survey, 5 airport tenant surveys, and 12 airport user surveys had been returned. With such a low rate of return, any data provided was statistically insignificant. However, all comments were reviewed and considering during this master plan effort, as appropriate.

Blank copies of each survey appear on the following pages.

Cedar City Regional Airport ~ Business Survey

ENGINEERING • SURVEYING • PLANNING

Thank you for completing this survey. It should only take about five minutes to finish. This survey is for businesses that operate on or near Cedar City Regional Airport. Private airport tenants and users will receive separate surveys. Please answer the following questions for your business.

Part of the Master Plan study of the Cedar City Regional Airport is to assess the economic impact of the airport. The results of this Master Plan will be used to communicate the airport's role in benefiting the region to the public and decision makers.

We ask that you please **complete this survey by December 31st, 2015**. Instructions for returning the survey are on the last page. Your responses will be held in strict confidence and results of the survey will **only be released in aggregate form** so that responses from individual people and companies cannot be identified. Individual responses will not be released to any party without your written consent. To ensure the results fully capture the true size of the airport's user base, it is important that the entire airport community participates. Your time and effort are greatly appreciated.

If you have any questions, please call Trent Holder with GDA Engineers at (307) 587-3411.

Name: ______________________ **Business:** ______________________

Mailing Address: ______________________ **City, State, Zip Code:** ______________________

Telephone Number: ______________ **Email Address:** ______________________

Provide a brief description of this business and aviation related activity: ______________________

____

____

1. **What is the total number of employees in your business at this location?**

   ☐ **# full-time employees** ☐ **# part-time employees**

2. **A job is determined to be aviation related if that job would be lost if the airport were to close. Hypothetically, how many employees would be lost at your business if Cedar City Regional Airport were to close?**

   ☐ **# full-time employees** ☐ **# part-time employees**

3. **What were the approximate total annual wages and benefits paid to all employees in 2014?**

   [ ] **Annual wages and benefits (in dollars)**

4. **What was the approximate total of annual capital improvement expenditures for this business in 2014?**

   [ ] **Annual capital expenditures (in dollars)**

5. **What were the approximate annual operating expenses (excluding payroll and capital expenditures) for this business in 2014?**

   [ ] **Annual operating expenses (in dollars)**

6. **If applicable, what were the annual gross sales for this business in 2014?**

   [ ] **Annual gross sales (in dollars)**

7. **Is there someone we can contact for further details, if needed? We value your privacy and will only contact you with your permission.**

   Name: ______________________________

   Phone Number: ______________________________

   Email Address: ______________________________

8. **Additional comments:** ______________________________

____

____

____

____

____

Thank you for completing this survey! Your feedback is valuable.
Please return this survey via mail, email, or fax to:

GDA Engineers
Trent Holder
502 33rd Street
Cody, WY 82414

tholder@gdaengineers.com
phone: 307-587-3411
fax: 307-527-5182

Cedar City Regional Airport ~ Tenant Survey

ENGINEERING • SURVEYING • PLANNING

This survey is for tenants at Cedar City Regional Airport. If you are associated with a business that works on the airport property or industrial park, your business will receive a separate survey. If you are an airport user, but do not lease airport property, you will receive a different survey.

Part of the Master Plan study of the Cedar City Regional Airport is to assess the needs of aircraft operating at the airport. The results of this Master Plan will be used to communicate the airport's role in benefiting the region to the public and decision makers.

We ask that you please **complete this survey by December 31st, 2015**. Instructions for returning the survey are on the last page. Your responses will be held in strict confidence and results of the survey will only be released in aggregate form so that responses from individual people and companies cannot be identified. Individual responses will not be released to any party without your written consent. To ensure the results fully capture the true size of the airport's user base, it is important that the entire airport community participates. Your time and effort are greatly appreciated.

If you have any questions, please call Trent Holder with GDA Engineers at (307) 587-3411.

Name: ______________________ **Business:** ______________________

Mailing Address: ______________________ **City, State, Zip Code:** ______________________

Telephone Number: ______________________ **Email Address:** ______________________

1. **Please provide make and model for all aircraft that you operate at Cedar City Regional Airport, where each is based, and if you are the owner, pilot, or both:**

Make	Model	Based Airport	N-Number	Owner?	Pilot?
1.				Yes - ☐ No - ☐	Yes - ☐ No - ☐
2.				Yes - ☐ No - ☐	Yes - ☐ No - ☐
3.				Yes - ☐ No - ☐	Yes - ☐ No - ☐
4.				Yes - ☐ No - ☐	Yes - ☐ No - ☐
5.				Yes - ☐ No - ☐	Yes - ☐ No - ☐

2. **On average, how often do you land at Cedar City Regional Airport per month?**

☐ monthly landings

3. **What length runway does your aircraft require to operate at Cedar City?**

__________ feet

4. **Have you ever been unable to use Cedar City Regional Airport for the following reasons:**
   - ☐ Insufficient runway length
   - ☐ Approach minimums
   - ☐ Other, please explain: ______________________________

5. **What percentage of your flights to Cedar City Regional Airport are for:**

Business	____ %
Recreation	____ %
Flight Training	____ %
Other: _________________	____ %
Total	**100%**

6. **In your opinion, do the following airfield services and facilities at Cedar City Regional Airport need major improvement, minor improvement, or no improvement?**

	Needs major improvement	Needs minor improvement	Does not need improvement	Don't know or Not sure
A. Length of Runway 2/20	○	○	○	○
B. Surface condition of Runway 2/20	○	○	○	○
C. Runway 2/20 lighting	○	○	○	○
D. Length of Runway 8/26	○	○	○	○
E. Surface condition of Runway 8/26	○	○	○	○
F. Runway 8/26 lighting	○	○	○	○
G. Taxiway pavement condition	○	○	○	○
H. Taxiway lighting	○	○	○	○
I. Airfield markings	○	○	○	○
J. Airfield signage	○	○	○	○
K. Heliport pavement condition	○	○	○	○
L. Apron pavement condition	○	○	○	○
M. Instrument approaches	○	○	○	○
N. Hangar lot availability	○	○	○	○
O. NAVAIDs	○	○	○	○
P. Terminal building	○	○	○	○
Q. Fueling facilities	○	○	○	○
R. FBO / Pilots' lounge	○	○	○	○

7. **May we contact you for further details, if needed? We value your privacy and will only contact you with your permission.**

   ○ Yes   ○ No

8. **Additional comments:** ____________________

Thank you for completing this survey! Your feedback is valuable and will be considered.
Please return this survey via mail, email, or fax to:

GDA Engineers
Trent Holder
502 33rd Street
Cody, WY 82414

tholder@gdaengineers.com
phone: 307-587-3411
fax: 307-527-5182

Cedar City Regional Airport ~ User Survey

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING

This survey is for users at Cedar City Regional Airport. If you are associated with a business that works on the airport property or industrial park, your business will receive a separate survey. If you lease airport property, you will receive a tenant survey.

Part of the Master Plan study of the Cedar City Regional Airport is to assess the needs of aircraft operating at the airport. The results of this Master Plan will be used to communicate the airport's role in benefiting the region to the public and decision makers.

We ask that you please **complete this survey by December 31st, 2015**. Instructions for returning the survey are on the last page. Your responses will be held in strict confidence and results of the survey will only be released in aggregate form so that responses from individual people and companies cannot be identified. Individual responses will not be released to any party without your written consent. To ensure the results fully capture the true size of the airport's user base, it is important that the entire airport community participates. Your time and effort are greatly appreciated.

If you have any questions, please call Trent Holder with GDA Engineers at (307) 587-3411.

Name: ______________________ **Business:** ______________________

Mailing Address: ______________________ **City, State, Zip Code:** ______________________

Telephone Number: ______________ **Email Address:** ______________________

1. **Do you currently have a pilot's license (certification)?**
   ○ Yes ○ No ○ Student

2. **Please provide make and model for all aircraft that you operate at Cedar City Regional Airport, where each is based, and if you are the owner, pilot, or both:**

Make	Model	Based Airport	N-Number	Owner?	Pilot?
1.				Yes - ☐ No - ☐	Yes - ☐ No - ☐
2.				Yes - ☐ No - ☐	Yes - ☐ No - ☐
3.				Yes - ☐ No - ☐	Yes - ☐ No - ☐
4.				Yes - ☐ No - ☐	Yes - ☐ No - ☐
5.				Yes - ☐ No - ☐	Yes - ☐ No - ☐

3. **Where do you typically park your aircraft at Cedar City Regional Airport?**
   ☐ Tiedown
   ☐ Hangar
   ☐ Other, please explain: ______________________

4. **On average, how often do you land at Cedar City Regional Airport per month?**

[ ] monthly landings

5. **What length runway does your aircraft require to operate at Cedar City?**

__________ feet

6. **What percentage of your flights to Cedar City Regional Airport are for:**

Business	____	%
Recreation	____	%
Flight Training	____	%
Other: _________________	____	%
Total	**100%**	

7. **In your opinion, do the following airfield services and facilities at Cedar City Regional Airport need major improvement, minor improvement, or no improvement?**

	Needs major improvement	Needs minor improvement	Does not need improvement	Don't know or Not sure
A. Length of Runway 2/20	○	○	○	○
B. Surface condition of Runway 2/20	○	○	○	○
C. Runway 2/20 lighting	○	○	○	○
D. Length of Runway 8/26	○	○	○	○
E. Surface condition of Runway 8/26	○	○	○	○
F. Runway 8/26 lighting	○	○	○	○
G. Taxiway pavement condition	○	○	○	○
H. Taxiway lighting	○	○	○	○
I. Airfield markings	○	○	○	○
J. Airfield signage	○	○	○	○
K. Heliport pavement condition	○	○	○	○
L. Apron pavement condition	○	○	○	○
M. Instrument approaches	○	○	○	○
N. Hangar lot availability	○	○	○	○
O. NAVAIDs	○	○	○	○
P. Terminal building	○	○	○	○
Q. Fueling facilities	○	○	○	○
R. FBO / Pilots' lounge	○	○	○	○

8. **Have you ever been unable to use Cedar City Regional Airport for the following reasons:**
   ☐ Insufficient runway length
   ☐ Approach minimums
   ☐ Other, please explain: ______________________________

9. **May we contact you for further details, if needed? We value your privacy and will only contact you with your permission.**
   ○ Yes ○ No

10. **Additional comments:** ____

____
____
____
____
____
____
____

Thank you for completing this survey! Your feedback is valuable and will be considered.
Please return this survey via mail, email, or fax to:

GDA Engineers	tholder@gdaengineers.com
Trent Holder	phone: 307-587-3411
502 33rd Street	fax: 307-527-5182
Cody, WY 82414	

PAGE LEFT BLANK INTENTIONALLY

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Utah State Office
P.O. Box 45155
Salt Lake City, UT 84145-0155
http://www.blm.gov/ut/st/en.html

Date: 8/1/2013

Cedar City Regional Airport
2650 West Aviation Way
Cedar City, Utah 84720

From: State Director, BLM Utah

Re: Expanded Airport Capabilities

BLM, Utah understands that the Cedar City Regional Airport has several planned improvements which would enhance and expand capabilities at the airport. Planned improvements include extending the Instrument Landing System (ILS) runway to 10,000 feet in length, widening of the parallel taxiway, and construction of a heavy airplane parking apron. BLM Utah supports all of these improvements.

Cedar City is an ideal location to support Southern Utah, Southern Nevada, and Northern Arizona with aircraft firefighting capability. Currently, nine legacy air tankers are being utilized within the large air tanker fleet. Before the end of August 2013, seven next-generation airtankers and 2 very large air tankers are expected to be added to the airtanker fleet.

The Cedar City Airtanker Base has the infrastructure to support the “legacy” Fleet of P2V airtankers at their full tank capacity. However, the “next generation” airtanker fleet of DC-10, C-130Q, RJ-85 and MD-87 aircraft is constrained by runway length and space to take full advantage of the larger tank capacities and physical size. Without the proposed runway, taxiway, and parking apron improvements, the next generation of airtankers will not be able to deliver the full capacity of retardant due to density altitude constraints (on a typical summer day). With the improvements, efficiency of the retardant operation will be improved, which in turn will equate to significantly less exposure to risk. In addition, the cost to deliver retardant is primarily associated with delivery (flight time); as more flight time is required, expenditures of taxpayer funds increase.

For the reasons stated, the BLM supports the proposed improvements to the Cedar City regional airport.

Respectfully,

Juan Palma

USDA United States Department of Agriculture | Forest Service | Intermountain Region | 324 25th Street Ogden, UT 84401

File Code: 5700
Date: MAY 09 2016

Mr. Trent Holder
GDA Engineers
2211 W. 3000 S., Suite B
Heber City, UT 84032

Dear Mr. Holder:

The U. S. Forest Service Intermountain Region has long valued Cedar City Regional Airport (CDC) as an important airfield in a strategic location to support wildfire suppression activities in southern Utah as well as northern Arizona and southern Nevada.

The Cedar City Interagency Air Center, managed by the Bureau of Land Management (BLM), intermittently supports the USFS large air tanker fleet when wildfire threatens forests and grasslands. The Forest Service is transitioning to larger, faster and more modern contract air tankers and the new fleet consists of heavier jet aircraft than those we have traditionally used in support of our wildland fire mission. High temperatures on higher elevation fields like Cedar City sometimes mean that larger aircraft must download fuel and/or retardant to reduce weight to meet safe takeoff criteria.

This year's heavy air tanker fleet consists of C-130Q, MD-87, RJ85, Bae-146, and DC-10 aircraft as well as the legacy P2V's. With the trend toward higher performing jet and turbine aircraft, critical field lengths are becoming more of an issue throughout the west. While lengthening and strengthening the runway and taxiways would be beneficial, the cost benefit of doing both deserves discussion. All of our current large air tanker fleet require downloading which reduces the effectiveness of these aircraft in fighting fire. The DC-10 cannot be loaded at CDC due to runway and taxiway limitations. All of the wildland jurisdictions that use our contract air tankers would value a longer runway and higher load bearing capacity to increase the operational capability of our air tankers who fuel and reload in Cedar City. However, the Forest Service is not in a position to share the costs for any improvements to the Cedar City Airport.

We appreciate the continued support of the Cedar City Interagency Air Center and are encouraged and excited at the prospect of airport improvements which would greatly increase our ability to suppress and control wildfire events in Southern Utah. Sam Ramsay, our Regional Aviation Officer, would be available for any questions you may have at sramsay@fs.fed.us.

Sincerely,

Christopher B. Hart

for NORA B. RASURE
Regional Forester

cc: Susan Stewart

Caring for the Land and Serving People

Printed on Recycled Paper

AIR SPRAY
aviation services USA

RE: Bae 146 200 tanker performance for Cedar City:

Dear Trent,

The manual doesn't recognize runway lengths greater than 9,000 feet. In addition we are limited by Weight and Temperature limits (WAT) rather than runway limitations in the kinds of altitude and temperature regime you are in during fire season.

At 87 □ F
a full tank but that is a lot of work and expense for 59 gallons. It would be better to limit fuel a little to make up the retardant load. Normal maximum retardant load is 3000 us gallons.

At 8653' runway length:	87 □	95 □	100 □
Max retardant load:	25Klbs/2841gals	23Klbs/2613gals	21.5Klbs/2443gals

Even at 100 degrees we can take a full load of retardant if we download fuel which the contact has provision for when conditions are extreme.

Therefore with this in mind we can successfully operate out of Cedar City in its present configuration. We would still be happy if a runway extension is contemplated as a rejected take-off at V1 on a hot day leaves very little margin.

Regards,

Bruce Gordon
DSO
Airspray USA
c530 570 9449

C-130 Next Gen Air Tanker

Coulson Aviation (USA) Inc
610 SW Alder Street, Suite 910
Portland, Oregon 97205

COULSON AVIATION USA

Dear Trent,

I am writing today in regards to your questions regarding Coulson's C130 performance numbers for Cedar City, Utah. I understand you are in charge of writing a master plan and I hope that the information gathered is of some assistance to you and your colleagues.

First of all to answer your question of runway strengthening or extensions. Given our current Gross weight of 144,000 lbs and performance numbers we can operate out of Cedar City and fully meet our contract requirements and no downloading would be required.

I have included the following excerpt from our pilot with response to your other question:

6922' would be 80% of 8553' runway length.

The takeoff distance at 100 degrees F would be 6874' with 36K of retardant, 29K fuel at max power.

Takeoff distance at 95 degrees F would be 6871' with 36K of retardant, 31K fuel at max power.

The takeoff distance at 87 degrees F would be 6673' with 36K of retardant, 32K fuel at max power.
29K of fuel is about 4 hours of operations before refueling.

If we start with less fuel, we could perform reduced power takeoffs. All of these numbers are based on normal procedures which means if we want to abort the takeoff even at takeoff speed we can stop the aircraft in the remaining runway. Bottom line is even at 100 degrees F we can carry a full load of retardant for our customer and operate four hours without refueling. We have no issues operating out of Cedar City.

Kind Regards,

Matt Ralph

General Manager of Aviation

10 TANKER AIR CARRIER, LLC

Mar. 7, 2016

To Whom It May Concern:

10 Tanker Air Carrier operates DC10-30 aircraft in aerial firefighting operations worldwide.

While aircraft performance is a function of numerous variables, our aircraft can operate at typical loads from runways of 7000' or greater length and 150' width, and do so throughout the North American spectrum of field elevations and fire season temperatures.

CDC has Rwy. 02/20 with a published length of 8663' at an elevation of 5578' msl. At typical summer temperatures our a/c would not need to limit the 11,600 gal. load of retardant to meet all regulations regarding safe operations.

The only published restriction of concern at CDC is the dual tandem weight limit of 150,000 lbs. Our MGTOW is 420,000 lbs. and our aircraft typically depart at approx. 390,000 lbs. and land weighing less than 260,000. At many airports with weight restrictions lower than 400,000. a waiver has been granted due to the relatively low frequency of these operations – typically not exceeding 25 per year from any runway. 50 or more operations could occur if a large fire caused multiple DC-10s to be ordered and CDC were the optimum location. This higher tempo has occurred at LMCC, KMER, and KSBD in the last few years.

Other than the runway requirements, a parking space with access and pavement strength, jet fueling, and water from a 4" main would meet our minimum requirements. Our turning radius is 150', and the wing span is 162'. Ideally the ramp would permit entrance/exit without a sharp 180 degree turn.

Please advise if additional information is desired.

Sincerely,

Rick Hatton
Pres. & CEO

3201 UNIVERSITY
ALBUQUERQ

From: Wayne Banker [mailto:wbanker@neptuneaviation.com]
Sent: Thursday, March 31, 2016 5:37 PM
To: Trent Holder <tholder@gdaengineers.com>
Cc: Dan Snyder <dsnyder@neptuneaviation.com>; Tom Loehde <tloehde@neptuneaviation.com>
Subject: Cedar City Utah BAe 146-200A airport data

Hello Trent,

I worked with our chief pilot and came up with the some data for a 87/95/100 degree day. The Max T/O weight for the aircraft is 91,200 lbs., with max ramp weight of 91,700…so that's the heaviest we will ever be. I don't think we will ever use Runway 8 or 26. So this data is for Runway 2 and 20.

8653 ft runway

Degrees	Runway 2 (+4% slope) max acft weight	Runway 20 (-4% slope) max acft weight
87	83,058 lb	85,347 lb
95	80,830 lb	83,030 lb
100	79,532 lb	81,670 lb

We looked at a 10,000 ft runway and ran the numbers for Runway 20 (best case) and didn't find that much an improvement.

10000 ft runway

Degrees	Runway 2 (+4% slope) max acft weight	Runway 20 (-4% slope) max acft weight
87		85,942 lb
95		83,605 lb
100		82,231 lb

I have also included the airport planning guide for the BAe 146-200A. Look at page 36 in section 7 (standard tires) for the ACN. (aircraft classification numbers)
If you look at AirNav.com and look up CDC. Look for declared distances, the numbers we would look at would be the TORA and TODA numbers which happens to be the same as the runway length. We also have a AFM limitation on length of runway past a certain distance. So based on your elevation that seems to me to be the most limiting factor. In order to use a "stopway" it has to be published and identified in an airport diagram.

Thanks,

Wayne Banker
Quality Systems Manager
NEPTUNE AVIATION SERVICES
2 Corporate Way
Missoula, MT 59808
W (406) 542-0606
C (406) 207-9017
F (406)-542-9493
WE are Neptune! Embracing Family! Firm Handshake! Resilient Spirit!

From: Greg Clausen
To: Trent Holder
Subject: Re: MD-87s at Cedar City
Date: Thursday, March 31, 2016 9:40:07 AM

We're game to support that, but time is short, and to provide an official letter we'd want to take the time to scrub the numbers to assure we've done proper due diligence. That said, overall its fairly straightforward. Our CDC specific performance numbers show that above 33 degrees C we need to start downloading either fuel or retardant. If the fire is close, downloading fuel does not greatly effect us, other than to cause a small delay on our turn-time between drops as we would have to refuel each time, rather than every few drops.
If the fire is more than approximately 30 mins away (approx 250knots, so thats around 125nautical miles) , we would then have to start downloading retardant as well. The trick here is to determine how much we'd have to download based on the distance to the fire, so it's a multiple variable equation, making it hard to provide scenarios.

So again, happy to support the effort here, but may want to wait until we get into the fire season, mid summer, and things calm down (my job gets easier once we are on the job, and all the planes "leave the nest"… right now is our extremely busy time preparing for the season).

Hope this helps for now, and then I'll be glad to re-address this mid summer if you like.

Best regards,

G Clausen
Aero Air
Erickson Aero Tanker

SYBERJET AIRCRAFT

April 12, 2016

Trent Holder
GDA Engineers
502 33rd Street
Cody, Wyoming 82414

Mr. Holder

Pursuant to your request I have outlined the specification and performance characteristic of the SyberJet SJ30.

Wing Span – 42.33 Feet
Length – 46.80 feet
Tail Height – 14.19 feet
Standard Empty Weight – 8,500 lbs
Maximum Ramp Weight – 14,050 lbs
Maximum Take Off Weight – 13,950 lbs
Maximum Landing Weight – 12,725 lbs
Takeoff Distance – 3,939 feet
Typical V Speed at Max Takeoff Weights – 110 kts
Landing Distance – 2,585 feet
Typical Landing Speeds – 102 kts

During full rate production we anticipate less that 200 flights per month, 100 takeoffs and 100 landings. During the ground test portion of the production flight test for each aircraft we will require several low and high speed taxi runs that will require the use of the runway. We anticipate this number to be less than 75 taxi runs per month.

Let me know if you need any additional information.

Sincerely,

Chuck Taylor

Chuck Taylor

President
SyberJet Aircraft

Utah Operations
526 North Aviation Way
Cedar City, UT 84721
+1 435.238.7165

An MSC AEROSPACE Company
www.syberjet.com

Texas Operations
900 Isom Road Ste. 110
San Antonio, TX 78216
+1 210.764.3500

March 16th, 2016

Trent Holder
GDA Engineers

SkyWest Airlines' Air Service Requirements for Cedar City, UT

Dear Mr. Holder

SkyWest Airlines currently serves Cedar City to Salt Lake City with a CRJ-200. We have included below the weights and specifications of all of our aircraft. All of these aircraft are operationally capable of serving the Cedar City to Salt Lake City market under the current conditions of a runway length of 8,653 ft. at 5,622 ft. in elevation.

As the larger aircraft are heavier and take up more space we recommend that GDA engineers evaluate the pavement strength and space in the ramp and taxi areas to accommodate larger aircraft should the need ever arise in the future.

SkyWest Airlines Current Aircraft Weights and Measurements:

CRJ-200:
Length-------------------87 ft. 10 in.
Wingspan--------------69 ft. 7 in.
Max. Operating wt. -53,000 lbs.
Max. Landing wt.----47,000 lbs.

CRJ-700:
Length-------------------106 ft. 8 in.
Wingspan--------------76 ft. 3 in.
Max. Operating wt.--75,000 lbs.
Max. Landing wt.-----67,000 lbs.

CRJ-900:
Length-------------------118 ft. 1 in.
Wingspan--------------81 ft. 6 in.
Max Operating wt.---84,500 lbs.
Max Landing wt.-----75,100 lbs.

E-175:
Length------------------103 ft. 11 in.
Wingspan--------------94 ft. 2 in.
Max. Operating wt.--85,517 lbs.
Max. Landing wt.----74,957 lbs.

Greg Atkin
Managing Director – Market Development
SkyWest Airlines

PAGE LEFT BLANK INTENTIONALLY

Appendix D - Forecast Approval

U.S. Department
of Transportation
Federal Aviation Administration

Denver Airports District Office
26805 E. 68th Avenue, Room 224
Denver, Colorado 80249
303-342-1250; FAX303-342-1260

June 7, 2016

Mr. Jeremy Valgardson
Cedar City Regional Airport
10 North Main Street
Cedar City, Utah 84720

Cedar City Regional Airport
Cedar City, UT
AIP Project No. 3-49-0005-029-2015
Forecast Approval

Dear Mr. Valgardson,

The Federal Aviation Administration has completed review of forecast information for the Cedar City Regional Airport received May 13, 2016. We found the forecast to be supported by reasonable planning assumptions and current data and developed using acceptable forecasting methodologies. Accordingly this forecast is approved for the use in the Cedar City Regional Airport Master Plan.

If you have any questions concerning this matter, please contact me at (303) 342-1263 or john.sweeney@faa.gov

Sincerely,

John Sweeney
Airport Planner

ecc: UDOT
GDA

PAGE LEFT BLANK INTENTIONALLY

The following document from Cedar City can be accessed online at http://www.cedarcity.org/6/Ordinances.

CHAPTER 26
PLANNING AND ZONING
ARTICLE XIV. AIRPORT OVERLAY ZONING

Section 26-XIV-1. Purpose and Findings.

(A) Purpose.

It is the purpose of this Article to regulate and restrict the height of structures and objects of natural growth, and otherwise regulating the use of property, in the vicinity of the Cedar City Regional Airport by creating the appropriate zones and establishing the boundaries thereof; providing for changes in the restrictions and boundaries of such zones; defining certain terms used herein, referring to the Cedar City Regional Airport Height Restriction and Compatible Land Use Overlay Zoning Maps which are incorporated in and made a part of this ordinance; and, providing for enforcement.

(B) Findings.

To assist communities in the appropriate land use and height restriction designations, the Federal Aviation Administration (FAA) has published two documents, FAR Part 77, Objects Affecting Navigable Airspace, and Advisory Circular (AC) 150/5300-13, Airport Design. This Article incorporates the guidelines set forth in these FAA documents. Based on this information the City finds:

(1) That the creation or establishment of an obstruction has the potential of being a public nuisance and may injure the region served by the Cedar City Regional Airport; and,

(2) That the encroachment of noise sensitive or otherwise incompatible land uses within certain areas as set forth herein below may endanger the health, safety, and welfare of the owners, occupants, or users of the land; and

(3) That it is necessary in the interest of the public health, public safety, and general welfare that the creation or establishment of obstructions that are a hazard to air navigation be prevented; and

(4) That the Cedar City Regional Airport fulfills an essential community purpose.

SECTION 26-XIV-2. Definitions.

AIRPORT - Cedar City Regional Airport.

AIRPORT ELEVATION - The highest point of an airport's usable landing area measured in feet from mean sea level. This elevation is 5622 feet MSL (NAD 83) as of the date of this ordinance.

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 area height limitation slope set forth in Section 26-126 of this Ordinance.

HAZARD TO AIR NAVIGATION - An obstruction determined to have a substantial adverse effect on the safe and efficient utilization of the navigable airspace.

HEIGHT - For the purpose of determining the height limits in all areas set forth in this Ordinance and shown on the area map, the datum shall be mean sea level elevation unless otherwise specified.

HELIPORT PRIMARY SURFACE - The primary surface coincides in size and shape with the designated takeoff and landing area of a heliport. This surface is a horizontal plane at the elevation of the established heliport elevation.

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.

NAD 83 - North American Datum 1983. All elevations in this ordinance are referenced to the 1983 North American Datum. To convert elevations referenced to the 1927 North American Datum (NAD 27) to the NAD 83 datum, add 3.5 feet to the NAD 27 elevation.

NON-PRECISION 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 non-precision instrument approach procedure has been approved or planned. It also means a runway for which a non-precision approach system is planned and is so indicated on an approved Airport Layout Plan or any other planning document.

OBSTRUCTION - Any structure, growth, or other object, including a mobile object, which exceeds a limiting height set forth in Section 26-126 of this Ordinance.

PERSON - An individual, firm, partnership, corporation, company, association, joint stock association, or governmental entity; includes a trustee, a receiver, an assignee, or a similar representative of any of them.

PRECISION INSTRUMENT RUNWAY - A runway having an existing instrument approach procedure utilizing an Instrument Landing System (ILS), a Precision Approach Radar (PAR) or a Global Positioning System (G.P.S.). It also means a runway for which a precision approach system is planned and is so indicated on an approved airport layout plan or any other planning document.

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 26-126 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.
STRUCTURE - An object, including mobile object, constructed or installed by man, including but without limitation, buildings, towers, cranes, smokestacks, earth formation, and overhead transmission lines.

TRANSITIONAL SURFACES - These surfaces extend outward at 90 degree angles to the runway centerline and the runway centerline extended at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces to where they intersect the horizontal and conical surfaces. Transitional surfaces for those portions of the precision approach surfaces, which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at 90 degree angles to the extended runway centerline.

TREE - Any object of natural growth.

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.

Section 26-XIV-3. Maps & Boundaries

The boundaries of the Airport Compatible Land Use Overlay Zones are delineated upon the Airport Compatible Land Use Overlay Zoning Map. The boundaries of the Airport Height Restriction Areas are delineated upon the Cedar City Regional Airport Height Restriction Overlay Map. Said Maps are adopted by reference and made a part of this Chapter as fully as if the same were set forth herein in detail. Where uncertainty exists as to the boundaries of the

Airport Compatible Land Use Overlay Zones and/or the Airport Height Restriction Areas as shown on the official Maps, the following rules shall apply:

Boundaries shall be scaled from the nearest physical feature shown on the maps.

Boundaries may be scaled from the nearest platted lot line as shown on the maps.

Distances not specifically indicated on either of the original maps shall be determined by a scaled measurement.

Where physical features on the ground differ from the information shown on either of the Official Maps or when there arises a question as to how or where a parcel of property is located in relation to a Airport Compatible Land Use Zone or a Airport Height Restriction Area and such questions cannot be resolved by the application of the appropriate section of this Chapter, the property shall be considered to be classified as the most restrictive Airport Compatible Land Use Overlay Zone or Airport Height Restriction Area. Where a parcel of land lies within more than one (1) Airport Compatible Land Use Overlay Zone or Airport Height Restriction Area, the zone or area within which each portion of the property is located shall apply individually to each portion of the development.

SECTION 26-XIV-4. Airport Height Limitations

(A) Airport Height Restriction Areas.
In order to carry out the provisions of this Article, there are hereby created and established certain areas which include all of the land lying beneath the Approach Surfaces, Transitional Surfaces, Horizontal Surfaces, and Conical Surfaces as they apply to the Cedar City Regional Airport. Such areas are shown on the Cedar City Regional Airport Height Restriction Overlay Map. Height restrictions shall be implemented according to FAR Part 77, Objects Affecting Navigable Airspace.

Precision Instrument Runway Approach Area - This area applies to Runway 20. The inner edge of this approach area coincides with the width of the primary surface and is 1,000 feet wide. The approach surface expands outward uniformly to a width of 16,000 feet at a horizontal distance of 50,000 feet from the primary surface. The centerline of the approach area is the continuation of the centerline of the runway.

Visual Runway Approach Area (Larger Than Utility Aircraft) - This area applies to Runway 2. The inner edge of this approach area coincides with the width of the primary surface and is 1,000 feet wide. The approach surface expands uniformly to a width of 1,500 feet at a horizontal distance of 5,000 feet from the primary surface. The centerline of the approach area is a continuation of the centerline of the runway.

Visual Runway Approach Area (Utility Aircraft) - This area applies to Runways 8 and 26. The inner edge of this approach area 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 area is a continuation of the centerline of the runway.

Transitional Areas - The transitional areas are beneath the transitional surfaces.

Horizontal Areas - The horizontal area is established by swinging arcs of 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 area does not include the approach and transitional areas.

Conical Area - The conical area is commences at the periphery of the horizontal area and extends outward therefrom a horizontal distance of 4,000 feet.

(B) Airport Height Limitations

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 area created by this Ordinance to a height in excess of the applicable height limit herein established for such area. Such applicable height limitations are hereby established for each of the areas in question as shown on the Cedar City Regional Airport Height Restriction Overlay Zoning Map. When determined appropriate by the City, a person may be required to submit a *Notice of Proposed Construction or Alteration* to the FAA to address any height concerns.

Precision Instrument Runway Approach Surface - Slopes fifty (50) 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. It continues on for a distance of 40,000 feet at a slope of forty (40) feet outward for each foot upward along the extended runway centerline.

Visual Runway Approach Surface - 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.

Transitional Surface - Slope 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. Where the precision instrument runway approach area projects beyond the conical area, 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 a horizontal distance of 5,000 feet measured at 90 degree angles to the extended runway centerline.

Horizontal Surface - Established at 150 feet above the airport elevation or at a height of 5772 feet above mean sea level (MSL).

Conical Surface - Slopes twenty (20) feet outward for each foot upward beginning at the periphery of the horizontal area and at 150 feet above the airport elevation (5772 feet MSL) and extending to a height of 350 feet (5972 feet MSL) above the airport elevation.

SECTION 26-XIV-5. Compatible Land Use Regulations

(A) Airport Compatible Land Use Overlay Zones Established

For the purpose of regulating the development of noise sensitive land uses to promote compatibility between the Airport and the surrounding land uses, to protect the Airport from incompatible development and to promote the health, safety, and general welfare of property users, the Controlled Area of Cedar City Regional Airport is divided into five (5) Airport Compatible Land Use Overlay Zones, and shall be known as:

Runway Protection Zone (RPZ) - This zone begins at the end of the primary surface of each runway. For Runways 20 and 2 the zone begins at a width of 1,000 feet and expands outward uniformly to a width of 1,725 feet at a horizontal distance of 2,450 feet from the primary surface. For Runways 26 and 8 the zone begins at a width of 500 feet and expands outward uniformly to a width of 700 feet at a horizontal distance of 1,000 feet from the primary surface.

Instrument Approach Zone (IAZ) - This zone applies to Runway 20 and begins at the end of the Runway Protection Zone. It is 1,000 feet wide and extends a horizontal distance of 7,350 feet. The centerline of the IAZ is a continuation of the centerline of the runway.

Approach Zone (AZ) - This zone applies to Runways 02/20 and 08/26. The Approach Zone for Runway 02/20 has a width of 3,750 and shares the Runway centerline. It begins 10,000 feet from primary surface of Runway 20 and extends toward Runway 02 to a distance of 4,900 feet beyond the primary surface of Runway 02. The Approach Zone for Runway 08/26 has a width of 2,000 feet and shares the Runway centerline. It begins at Interstate-15 and extends toward Runway 08 to a distance of 4,900 feet beyond the primary surface of Runway 08.

Traffic Pattern Zone (TPZ) - The Traffic Pattern Zone is established by swinging arcs of 10,000 feet radii from the center of each end of the primary surface of the Runway 02/20 and connecting the adjacent arcs by drawing lines tangent to those arcs. Excluded from this Zone is an area created by the following intersecting lines: parallel to Runway 02 centerline, a line east at a horizontal distance of 2,950 feet from the centerline; and, parallel to Runway 26 centerline, a line south at a horizontal distance of 2,950 feet from the centerline.

<u>Airport Influence Zone</u> (AIZ) - The Airport Influence Zone commences at the periphery of the Traffic Pattern Zone and extends outward therefrom a horizontal distance of 4,000 feet. It also includes the area excluded from the Traffic Pattern Zone described above.

(B) Use of Land and Buildings.

(1) Within the Airport Compatible Land Use Overlay 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 underlying comprehensive zoning districts, as specified in this Chapter. Additionally, land uses not compatible with the Airport Compatible Land Use Overlay Zones, as set forth in the following land use table, regardless of the underlying zoning, are prohibited. Uses designated as "P" are permitted, those designated as "N" are not permitted.

	AIZ	TPZ	AZ	IAZ	RPZ
Residential - those uses identified in R-3-36 uses (sec. 26-15 (B)), mobile homes, hotels, motels	P	P	N*	N*	N
Churches, schools, hospitals, places of public assembly	P	P	N	N	N
Transportation, parking, cemeteries	P	P	P	P	N
General Commercial Uses	P	P	P	P	N
Industrial & Manufacturing Uses	P	P	P	P	N
Agricultural - Cropland, open space, livestock	P	P	P	P	N
Recreational - parks, playgrounds, golf courses, zoos	P	P	P	P	N
Outdoor spectator sports	P	P	P	P	N
Amphitheaters	P	N	N	N	N

* Land within the Approach Zone which is north of 3000 North and/or east of Northfield road may have residential uses as long as they are no more dense than one dwelling/five acres and are located as far as practical away from the centerline extended of the runway.

(2) Where any prohibited use of land and buildings set forth in this Section conflicts with any use of land and buildings set forth in Article III of this Chapter, as an allowed use on the Zoning Map, the more restrictive regulation shall apply.

(3) Owners of property within the Approach Zone, prior to receiving a building permit, shall grant, an avigation easement to Cedar City Corporation. 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 near Cedar City Regional Airport.

(4) Owners of property constructing new buildings or structures within the Approach Zone, where the public is received, office areas, noise sensitive areas, or where the normal noise level is low, or dwellings, shall incorporate measures to achieve at least 25 dB sound attenuation.

(C) Additional Land Use Regulations.

(1) On property within the Airport Compatible Land Use Overlay Zoning Map Jurisdiction, but outside the city limits of Cedar City, this Section shall apply to the property to establish the prohibited uses, but no other provisions of this Chapter shall apply to this property.

(2) Notwithstanding any other provisions of this Chapter or other Chapter of the Cedar City, Utah Municipal Code, no use may be made of land, water, or structures within any zone established by this Chapter 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. The FAA documents; FAR Part 77, Objects Affecting Navigable Airspace and, Advisory Circular (AC) 150/5300-13, Airport Design, should be consulted.

(3) When a subdivision plat is required for any property within the Approach Zone, the property owner shall grant an avigation easement to the Cedar City Corporation over and across that property. This easement shall establish a height restriction on the use of the property and hold the public 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 Cedar City Regional Airport.

Section 26-XIV-6. Nonconforming Structures & Uses.

(A) Regulations Not Retroactive

The regulations prescribed by this Ordinance shall not be construed to require the removal, lowering, or other change or alteration of any structure or tree not conforming to the regulations as of the effective date of this Ordinance, or otherwise interfere with the continuance of nonconforming use. Nothing contained herein shall require any change in the construction, alteration, or intended use of any structure, the construction or alteration of which was begun prior to the effective date of this Ordinance, and is diligently prosecuted.

(B) Marking and Lighting

Notwithstanding the preceding provision of this Section, the owner of any existing nonconforming structure or tree is hereby required to permit the installation, operation, and maintenance thereon of such markers and lights as shall be deemed necessary by Cedar City Corporation to indicate to the operators of aircraft in the vicinity of the airport the presence of such airport obstruction. Such markers and lights shall be installed, operated, and maintained at the expense of the Cedar City Regional Airport.

The following document from Iron County can be accessed online at https://www.municode.com/library/ut/iron_county/codes/code_of_ordinances?nodeId=TIT17ZO_CH17.58AIOVZO

Iron County, Utah - Code of Ordinances, Title 17 - ZONING

Chapter 17.58 - AIRPORT OVERLAY ZONING

- Sections:

- 17.58.010 - Purpose and findings.

- A. Purpose. It is the purpose of this chapter to regulate and restrict the height of structures and objects of natural growth, and otherwise regulating the use of property, in the vicinity of the Cedar City regional airport by creating the appropriate zones and establishing the boundaries thereof; providing for changes in the restrictions and boundaries of such zones; defining certain terms used in this chapter, referring to the Cedar City regional airport height restriction and compatible land use overlay zoning maps which are incorporated in and made a part of this chapter; and, providing for enforcement.

B. Findings. To assist communities in the appropriate land use and height restriction designations, the Federal Aviation Administration (FAA) has published two documents, FAR Part 77, Objects Affecting Navigable Airspace, and Advisory Circular (AC) 150/5300-13, Airport Design. This chapter incorporates the guidelines set forth in these FAA documents. Based on this information Iron County finds:

1. That the creation or establishment of an obstruction has the potential of being a public nuisance and may injure the region served by the Cedar City regional airport;

2. That the encroachment of noise sensitive or otherwise incompatible land uses within certain areas as set forth in this chapter may endanger the health, safety and welfare of the owners, occupants, or users of the land;

3. That it is necessary in the interest of the public health, public safety and general welfare that the creation or establishment of obstructions that are hazard to air navigation be prevented; and

4. That the Cedar City regional airport fulfills an essential community purpose.

(Ord. 172 § 1 (part), 2001)

- 17.58.020 - Definitions.

As used in this chapter, certain words are defined as follows.

"Airport" means Cedar City regional airport.

"Airport elevation" means the highest point of an airport's usable landing area measured in feet from mean sea level. This elevation is five thousand six hundred twenty-two feet MSL (NAD 83) as of the date of the ordinance codified in this chapter.

"Approach surface" means 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 area height limitation slope set forth in Section 17.58.040 of this chapter.

"Hazard to air navigation" means an obstruction determined to have a substantial adverse effect on the safe and efficient utilization of the navigable airspace.

"Height" for the purpose of determining the height limits in all areas set forth in this chapter and shown on the area map, the datum shall be mean sea level elevation, unless otherwise specified.

"Heliport primary surface" means the primary surface coincides in size and shape with the designated takeoff and landing area of a heliport. This surface is a horizontal plane at the elevation of the established heliport elevation.

"Larger than utility runway" means a runway that is constructed for and intended to be used by propeller-driven aircraft of greater than twelve thousand five hundred pounds maximum gross weight and jet-powered aircraft.

"NAD 83" means North American Datum 1983. All elevations in this chapter are referenced to the 1983 North American Datum. To convert elevations referenced to the 1927 North American Datum (NAD 27) to the NAD 83 datum, add 3.5 feet to the NAD 27 elevation.

"Nonprecision instrument runway" means 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 indicated on an approved airport layout plan or any other planning document.

"Obstruction" means any structure, growth, or other object, including a mobile object, which exceeds a limiting height set forth in Section 17.58.040 of this chapter.

"Person" means an individual, firm, partnership, corporation, company, association, joint stock association, or governmental entity; includes a trustee, a receiver, an assignee, or a similar representative of any of them.

"Precision instrument runway" means a runway having an existing instrument approach procedure utilizing an instrument landing system (ILS), a precision approach radar (PAR) or a global positioning system (GPS). It also means a runway for which a precision approach system is planned and is indicated on an approved airport layout plan or any other planning document.

"Primary surface" means a surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends two hundred 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 17.58.040 of this chapter. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline.

"Runway" means a defined area on an airport prepared for landing and takeoff of aircraft along its length.

"Structure" means an object, including mobile object, constructed or installed by man, including but without limitation, buildings, towers, cranes, smokestacks, earth formation and overhead transmission lines.

"Transitional surfaces" mean surfaces that extend outward at ninety degree angles to the runway centerline and the runway centerline extended at a slope of seven feet horizontally for each foot vertically from the sides of the primary and approach surfaces to where they intersect the horizontal and conical surfaces. Transitional surfaces for those portions of the precision approach surfaces, which project through and beyond the limits of the conical surface, extend a distance of five thousand feet measured horizontally from the edge of the approach surface and at ninety degree angles to the extended runway centerline.

"Tree" means any object of natural growth.

"Utility runway" means a runway that is constructed for and intended to be used by propeller-driven aircraft of twelve thousand five hundred pounds maximum gross weight and less.

"Visual runway" means a runway intended solely for the operation of aircraft using visual approach procedures.

(Ord. 172 § 1 (part), 2001)

April 10, 2017

«First» «Last», «Title»
«Department»
«Address»
«City_State», «Zip_Code»

RE: Cedar City Regional Airport Master Plan

To Whom It May Concern:

GDA Engineers is currently completing an Airport Master Plan for the Cedar City Regional Airport located in Cedar City, Utah. This Master Plan will be reviewed by the Federal Aviation Administration (FAA) and Utah Department of Transportation (UDOT) Aeronautics Division.

The Airport Master Plan includes an overview of environmentally sensitive topics at the airport. This is intended to help the airport owner and funding agencies determine if the potential projects might affect the environment in a positive, neutral, or negative way.

The enclosed drawing depicts the current airport and potential future development areas. Over the next 20 years, Cedar City Regional Airport has multiple large development projects planned, including the following:

- Reconstruction of primary runway 2/20
- Removal of an incorrect taxiway connector/construction of a new taxiway connector
- Removal of extra pavement and correction of a taxiway connector
- Construction of an aircraft run-up area
- Construction of general aviation aircraft apron and hangar lots
- Construction of additional snow removal equipment and fire fighting buildings
- Construction of flight school apron, hangar lots, and automobile parking
- Relocation of the aircraft self-fueling station
- Construction of additional pavement for aircraft and automobile parking
- Extension of Runway 20 (long-term)

Following the National Environmental Policy Act (NEPA) process, the FAA has created a summary of requirements and procedures to be used in environmental impact analyses. These requirements and procedures are divided into Requirements, FAA Responsibilities, Significant Impact Threshold, and Analysis of Significant Impacts.

1 of 2

The following impact categories will be reviewed:

- Air Quality
- Biological Resources
- Climate
- Coastal Resources
- Department of Transportation Act: Section 4(f)
- Farmlands
- Hazardous Materials, Solid Waste, and Pollution Prevention
- Historical, Architectural, Archeological, and Cultural Resources
- Land Use
- Natural Resources and Energy Supply
- Noise and Noise-Compatible Land Use
- Socioeconomic Impacts, Environmental Justice, and Children's Health and Safety
- Visual Effects
- Water Resources
- Cumulative Impacts

Please accept this letter as our request for your agency review of known environmental concerns and potential impacts of the planned development. Please provide any comments, concerns, or requirements your agency may have regarding the listed impact categories no later than **April 30, 2017.**

During the Airport Master Plan process, information can be found on GDA Engineers' website, including the Master Plan draft when it becomes available. If you wish to access this information, complete the following steps:

1. Go to http://www.gdaengineers.com/
2. Click on "Project Portal" on the top menu
3. Click on the "Create Account" icon
4. Make sure that the Cedar City Regional Airport Master Plan is checked under "Request Project Access"
5. Your account will be activated after we receive and review your information.

The Airport Master Plan is being prepared according to guidance provided in FAA Advisory Circular 150/5070-6B, Change 2, *Airport Master Plans*. Please contact me at 307.587.3411 or tholder@gdaengineers.com if you need any further information or if you have any questions.

Thank you for your assistance,
GDA Engineers

Trent Holder

CC: Please review the enclosed agency mailing list. If you note any omitted agencies or incorrect contacts, please let me know.

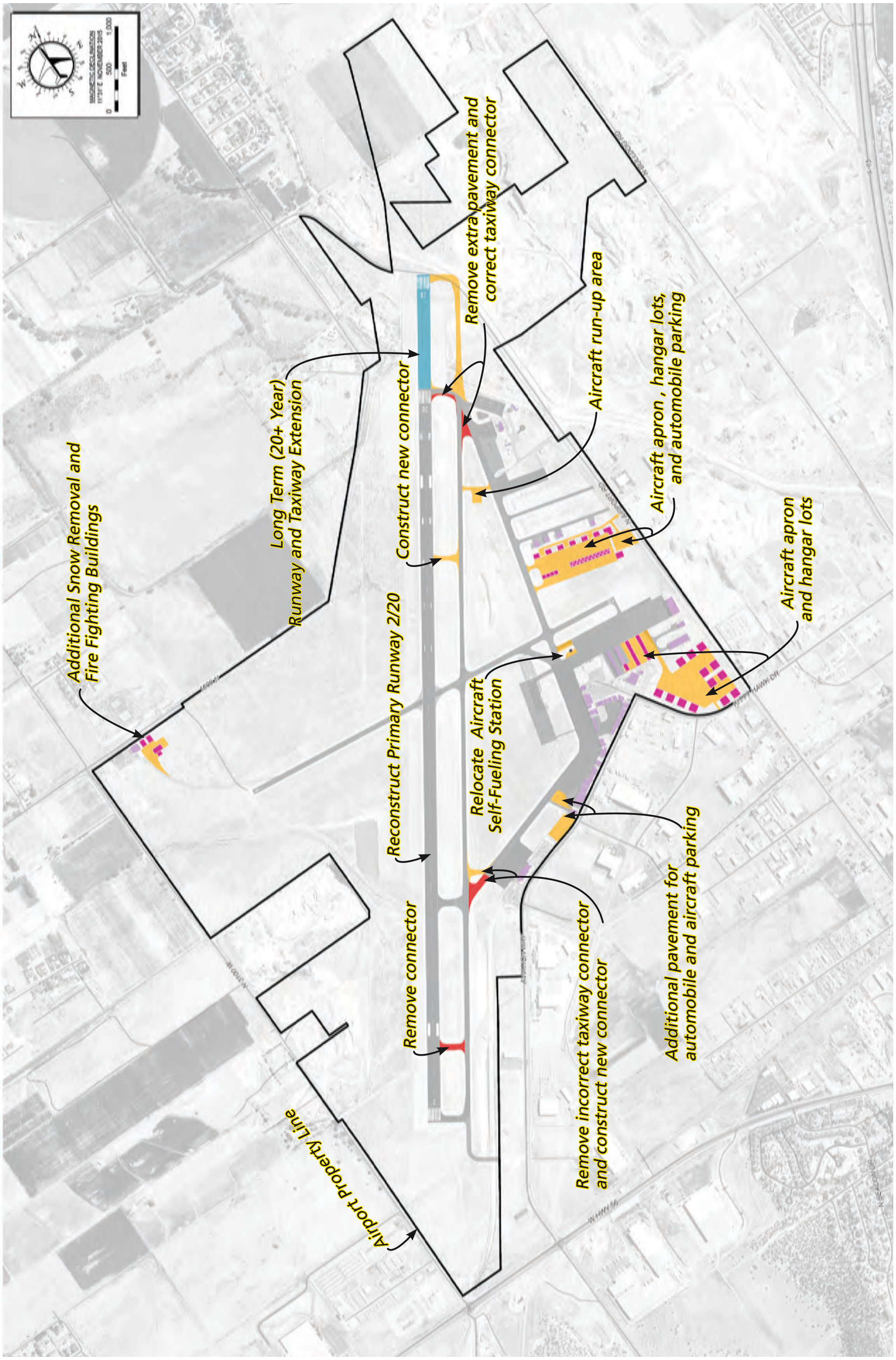
Enclosure(s): Agency Mailing List
Drawing

1 of 2

First	Last	Title	Department	Address	City, State	Zip Code
Maile	Wilson	Mayor	Cedar City Administration	10 N. Main St.	Cedar City, UT	84720
Paul	Bittmenn	City Attorney	Cedar City Administration	10 N. Main St.	Cedar City, UT	84720
Rick	Holman	City Manager	Cedar City Administration	10 N. Main St.	Cedar City, UT	84720
Jeremy	Valgardson	Airport Manager	Cedar City Regional Airport	2560 W. Aviation Way	Cedar City, UT	84720
Jyl	Schuler	Airport Board Chair	Cedar City Regional Airport	2560 W. Aviation Way	Cedar City, UT	84720
Drew	Jackson	Chief Building Officer	Cedar City Building & Zoning	10 N. Main St.	Cedar City, UT	84720
Ryan	Marshall	Public Works Director	Cedar City Public Works	716 N. Airport Road	Cedar City, UT	84721
Cindy	Bulloch	County Assessor	Iron County Assessor	PO Box 537	Parowan, UT	84761
Chad	Nay	Building Official/Zoning Administrator	Iron County Building and Zoning	82 N 100 E, Suite 102	Cedar City, UT	84720
Steve	Platt	County Engineer	Iron County Engineering and Surveying	82 N 100 E, Suite 104	Cedar City, UT	84761
Mike	Worthen	Natural Resource Management Specialist	Iron County Natural Resource	82 N 100 E, Suite 102	Cedar City, UT	84761
John	Higley	Emergency Management Coordinator	Iron County Emergency Management	581 N Main Street	Cedar City, UT	84721
Paul	Monroe	Executive Director	Central Iron County Water Conservancy District	88 E Fiddlers Canyon Rd., Suite A	Cedar City, UT	84721
			Southwest Utah Public Health Department: Iron County	260 East DL Sargent Drive	Cedar City, UT	84721
Heather	Whitman	District Manager	Bureau of Land Management	176 East DL Sargent Drive	Cedar City, UT	84721
Jenna	Whitlock	Acting Director	Bureau of Land Management	440 West 200 South, Suite 500	Salt Lake City, UT	84101
Wayne	Pullan	Area Manager	Bureau of Reclamation	302 East 1860 South	Provo, UT	84606
Christy	Goldfuss	Managing Director	Council on Environmental Quality (CEQ)	1600 Pennsylvania Ave NW	Washington, DC	20500
Gina	McCarthy	Task Force on Health Risks & Safety to Children	Environmental Protection Agency	1200 Pennsylvania Avenue, N.W., Mail Code 1101A	Washington, DC	20460
Shaun	McGrath	Regional Administrator	US EPA, Region 8	1595 Wynkoop Street	Denver, CO	80202-1129
Kandice	Krull	Airport Engineer/Environmental Protection Specialist	FAA, Denver Airports District Office	26805 E. 68th Avenue, Suite 224	Denver, CO	80249
John	Sweeney	Community Planner	FAA, Denver Airports District Office	26805 East 68th Avenue, Suite 224	Denver, CO	80249
Jeanine	Cook	State Executive Director (Acting)	Utah State Farm Service Agency	125 S State Street #3202	Salt Lake City, UT	84138
Kathy	Hendricks	County Executive Director	Iron County Farm Service Agency	2390 W Hwy 56	Cedar City, UT	84720
Mike	Styler	Executive Director	Utah Department of Natural Resources	PO Box 145610	Salt Lake City, UT	84114
Margaret	Dayton	Chair	State Water Development Commission	97 W Westview Dr.	Orem, UT	84058
			Natural Resources Conservation Service - Cedar City Office	2390 West Highway 56, Suite 14	Cedar City, UT	84720
Brad	Westwood	Director, State Historic Preservation Officer	Utah Division of State History	300 S. Rio Grande Street	Salt Lake City, UT	84101
Christopher	Merritt	Deputy State Historic Preservation Officer	Antiquities	300 S. Rio Grande Street	Salt Lake City, UT	84101
Roger	Roper	Deputy State Historic Preservation Officer	Historic Preservation	300 S. Rio Grande Street	Salt Lake City, UT	84101
			Rocky Mountain Power	1407 W North Temple	Salt Lake City, UT	84116
		US Army Engineer, Sacramento District, Environmental-Planning	US Army Corps of Engineers	1325 J Street -- Room 1513	Sacramento, CA	95814
		USACE, Sacramento District-St. George Field Office	US Army Corps of Engineers	196 E. Tabernacle Street, Suite 30	St. George, UT	84770
Noreen	Walsh	Regional Director	US Fish & Wildlife Service	134 Union Blvd.	Lakewood, CO	80228
Nora	Rasure	Regional Forester	US Forest Service Intermountain Region	324 25th Street	Ogden, UT	84401
Dan	Haas	US Fish and Wildlife Service	Wild and Scenic Rivers	64 Maple Street	Burbank, WA	99323
Patrick	Morley	Director of Aeronautics	Utah Division of Aeronautics	135 North 2400 West	Salt Lake City, UT	84116
Matthew	Swapp	Planner	Utah Division of Aeronautics	135 North 2400 West	Salt Lake City, UT	84116
Craig	Ide	Engineer	Utah Division of Aeronautics	135 North 2400 West	Salt Lake City, UT	84116
LuAnn	Adams	Commissioner	Utah Department of Agriculture and Food	PO Box 146500	Salt Lake City, UT	84114
Grant	Cooper	Regional Director	Western Region Headquarters	125 South State Street	Salt Lake City, UT	84138
		Salt Lake City Weather Forecast Office	US Department of Commerce: NOAA	2242 West North Temple	Salt Lake City, UT	84116
Craig	Anderson	Director	Utah Department of Environmental Quality	PO Box 144810	Salt Lake City, UT	84114
Rick	Torgerson	Region Director	UDOT: Region Four	210 West 800 South	Richfield, UT	84701
Brandon	Weston	Environmental Services Director	UDOT: Project Development - Environmental Services Division	PO Box 148450	Salt Lake City, UT	84114
Greg	Sheehan	Director	Utah Division of Wildlife Resources	Box 146301	Salt Lake City, UT	84114
			Utah DWR: Southern Region	1470 N Airport Road	Cedar City, UT	84720
Kris	Hamlet	Director	Utah DPS: Division of Emergency Management	1110 State Office Building	Salt Lake City, UT	84114
John	Baza	Director	Division of Oil, Gas, and Mining	PO Box 145801	Salt Lake City, UT	84114
Eric	Millis	Divison Director	Division of Water Resources	PO Box 146201	Salt Lake City, UT	84114
Ron	Wilson	Area Manager	Utah Division of Forestry, Fire & State Lands: Southwestern Area	646 N. Main	Cedar City, UT	84720
Rick	Allis	Director	Utah Geological Survey	PO Box 146100	Salt Lake City, UT	84114

GDA
ENGINEERS
ENGINEERING • SURVEYING • PLANNING

Cedar City Regional Airport ~ Master Plan
Future Development Drawing



IRON COUNTY UTAH / EST. 1851

COMMISSIONERS
Alma L. Adams
Michael P. Bleak
Dale M. Brinkerhoff

ASSESSOR / Cindy W. Bulloch
ATTORNEY / Scott F. Garrett
AUDITOR / Dan Jessen
CLERK / Jonathan T. Whittaker
RECORDER / Deborah B. Johnson
SHERIFF / Mark O. Gower
TREASURER / Nicole B. Rosenberg

P.O. Box 429
68 South 100 East
Parowan, Utah 84761
P 435.477.8300
F 435.477.8847

April 24, 2017

GDA Engineers
Attn: Trent Holder

RE: Iron County Engineering and Surveying Department: Cedar City Regional Airport Master Plan

Dear Mr. Holder,

As per your letter dated April 10, 2017, I am submitting to you my comments, questions, and/or concerns.

I' m glad to see the airport is growing. My father and I were the civil engineers for the airport from 1963 to 1997. I have no environmental concerns and believe the impacts from the planned development will only make Cedar City Regional Airport better. I believe this airport to be the biggest feather in Cedar City's economic war bonnet.

1. Are you going to maintain the cross-wind runway?

2. Runway 2/20 was realigned to its present location in 1963. Why the reconstruct on 2/20 when, as I understand, it recently received new pavement (4" thick total length) by Armstrong's only a few years ago.

3. Where you show incorrect taxiway connector was all previously approved by the FAA. Same on the north end of 2/20. You are messing with a lighting system that was meticulously correctly placed.

4. Along the Lund Hwy, could the perimeter chain-link fence be set back 30 feet? Iron County has a livestock trail along Lund Hwy. The northern part of this fence has already been set back.

5. Check the latest FEMA Flood Plain maps.

6. Lastly, just an FYI on your department list, Paul Monroe *(CICWCD)* is listed twice.

Thanks for the opportunity to make comments. Good luck!

Respectfully,

Stephen R. Platt

Stephen R. Platt, P.E.
Iron County Engineer

United States Department of the Interior
FISH AND WILDLIFE SERVICE
UTAH FIELD OFFICE
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UTAH 84119

April 24, 2017

Mr. Trent Holder
GDA Engineers
502 33rd Street
Cody, WY 82414

Dear Mr. Holder:

Thank you for your letter of April 10, 2017, regarding the Airport Master Plan for the Cedar City Regional Airport located in Cedar City, Utah. Your letter requested our review of known environmental concerns and potential impacts of planned development at the airport.

The Utah prairie dog occurs on the Cedar City airport property and may be impacted by construction and maintenance activities. However, we completed a programmatic section 7 consultation with the Federal Aviation Administration (FAA) on March 29, 2010, that provides guidance for impact avoidance and minimization measures associated with ongoing airport operations. In addition, the FAA fully mitigated the loss of prairie dogs habitat at this airport, through the provision of funding that allowed us to purchase and protect prairie dog habitat elsewhere. We are also working with the FAA to evaluate and construct a Utah prairie dog proof fence that will substantially reduce the numbers of prairie dogs on airport property and associated mortality and injury of the animals from airport operations. We recommend that you coordinate with the FAA to include any pertinent details from the programmatic section 7 consultation and fencing proposal in the Airport Master Plan. The State of Utah Division of Wildlife Resources, Southern Region Office in Cedar City (435-865-6100) may also be able to provide you with updated information on the location of prairie dog colonies and numbers of prairie dogs occurring on airport property if useful for your analysis.

Thank you for coordinating with us during your planning process. If you have any questions concerning this matter, please contact Laura Romin, Deputy Field Supervisor in our office, at (801) 975-3330, ext. 142.

Sincerely,

for Larry Crist
Field Supervisor

Cc: Mr. John Bauer, Manager
Federal Aviation Administration
Northwest Mountain Region
Denver Airports District Office
26805 East 68th Avenue, Suite 224
Denver, CO 80249-6361

Mr. Kevin Bunnell, Southern Region Supervisor
Utah Division Wildlife Resources
1470 North Airport Road
Cedar City, UT 84720

State of Utah
GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

Department of
Environmental Quality

Alan Matheson
Executive Director

DIVISION OF ENVIRONMENTAL
RESPONSE AND REMEDIATION

Brent H. Everett
Director

ERRC-079-17

May 31, 2017

Trent Holder
GDA Engineers
502 33rd Street
Cody, Wyoming 82414

RE: Your request for Information about Cedar City Regional Airport Master Plan in Cedar City, Utah

Dear Mr. Holder:

I am writing in response to your letter dated April 10, 2017, requesting that the Division of Environmental Response and Remediation (DERR) notify you of any issues regarding environmental concerns at, or in the vicinity of the proposed site. Because a specific address wasn't given, the DERR used the listed address of 2277 Kitty Hawk Drive, Cedar City, Utah (the Cedar City Regional Airport).

There are nine Underground Storage Tanks facilities, one Tier 2 facility, and one Toxic Release Inventory facility within a one-mile radius of the above listed address:

- Facility ID 6000038 – an underground storage tank (UST) facility located at 716 Airport Road in Cedar City, Utah. The tanks at this facility are permanently out of use and were removed from the ground.
- Facility ID 6000042/6000045 – an underground storage tank (UST) facility located at 2281 W Kitty Hawk Drive in Cedar City, Utah. The tanks at this facility are permanently out of use and were removed from the ground.
- Facility ID 6000088 – an underground storage tank (UST) facility located at 997 N Airport Road in Cedar City, Utah. The tanks at this facility are permanently out of use and were removed from the ground.
- Facility ID 6000090 – an underground storage tank (UST) facility located at 1105 N Bulldog Road in Cedar City, Utah. Four tanks at this facility are permanently out of use and were removed from the ground, and one tank remains in use.
- Facility ID 6000217 – an underground storage tank (UST) facility located at 1065 N Airport Road in Cedar City, Utah. The tanks at this facility are permanently out of use and were removed from the ground.
- Facility ID 6000256 – an underground storage tank (UST) facility located at 2117 Kitty Hawk Drive in Cedar City, Utah. The tanks at this facility are permanently out of use and were removed from the ground.
- Facility ID 6000363 – an underground storage tank (UST) facility located at 1470 N Airport Road in Cedar City, Utah. There are three tanks at this facility that are currently in use. These include one 12,000-gallon tank of diesel and one 12,000- gallon tank of gasoline. The third tank is a 10,000-gallon tank of heating oil, which is not regulated.

195 North 1950 West • Salt Lake City, UT
Mailing Address: P.O. Box 144840 • Salt Lake City, UT 84114-4840
Telephone (801) 536-4100 • Fax (801) 359-8853 • T.D.D. (801) 536-4284
www.deq.utah.gov

Page 2

- Facility ID 6000783 – an underground storage tank (UST) facility located at 954 N Aviation Way in Cedar City, Utah. There are three tanks at this facility that are currently in use.
- Tier 2 Facility – Fire-Trol, Cedar City Airtanker Base located at 1748 W Kitty Hawk Drive in Cedar City, Utah.
- Toxic Release Inventory (TRI) Facility – Western Quality Foods LLC located at 997 North Airport Road in Cedar City, Utah.

Based on the descriptions in your letter, it is unclear if the activities conducted as part of the Cedar City Regional Airport Master Plan will have any impact on the aforementioned sites. Please coordinate with each facility owner and/or assigned DERR Project Manager to ensure compliance with applicable environmental regulatory requirements prior to proceeding with your project.

There is also a Solid Waste Facility and a Hazardous Waste and Used Oil facility within a one-mile radius of the proposed Master Plan. These facilities are:

- Schmidt Construction-Recycling Facility (Facility ID – SW244)
- Insituform Technologies Inc (Facility ID – UTR11270)

We suggest you contact the Division of Waste Management and Radiation Control (DWMRC) within the Utah Department of Environmental Quality (UDEQ) for further information regarding this Solid Waste Facility and Hazardous Waste and Used Oil facility, and their possible impact to your proposed project.

The DERR recommends that you retain an environmental professional to provide research and advice concerning environmental issues at specific properties. Information is available online about DERR-regulated facilities and public records. Please visit http://enviro.deq.utah.gov and http://eqedocs.utah.gov/ to view facility-specific information. Some properties may also have an Environmental Covenant attached to the property to address contamination left in place in lieu of, or following, site remediation.

Not all UDEQ divisions publish information in the aforementioned links. Additional environmental issues may be identified by requesting public records from other UDEQ divisions. Instructions for requesting public records are available online at http://www.deq.utah.gov/ProgramsServices/services/grama/GRAMA.htm.

If you have any questions regarding this matter, please feel free to call me at (801) 536-0026.

Sincerely,

Melissa Ottley

Melissa Ottley
Environmental Scientist, Project Manager
Division of Environmental Response and Remediation

MO/ab

cc: David W. Blodgett, M.D., M.P.H., Director, Southwest Utah Public Health Department
Robert Beers, Environmental Health Director, Southwest Utah Public Health Department
Paul Wright, District Engineer, Utah Department of Environmental Quality

PAGE LEFT BLANK INTENTIONALLY

CEDAR CITY REGIONAL AIRPORT 7/26/2017
CEDAR CITY, UTAH
A. RECONSTRUCT RUNWAY 2/20

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 2,617,800.00	$ 2,617,800.00
P-101a	Saw Cut Pavement	1,580	LF	$ 2.70	$ 4,266.00
P-101d	Mill Asphalt	144,170	SY	$ 2.50	$ 360,425.00
P-102	Utility Location and Identification	1	EA	$ 2,000.00	$ 2,000.00
P-152a	Excavation	84,500	CY	$ 5.50	$ 464,750.00
P-152b	Subgrade Preparation	144,170	SY	$ 0.60	$ 86,502.00
P-156	Erosion Control	1	LS	$ 27,000.00	$ 27,000.00
P-209	Crushed Aggregate Base Course	44,060	CY	$ 50.00	$ 2,203,000.00
P-310	Geotextile Fabrics	144,170	SY	$ 1.50	$ 216,255.00
P-401a	Plant Mix Bituminous Pavements - Aggregate	70,560	TON	$ 70.00	$ 4,939,200.00
P-401b	Plant Mix Bituminous Pavements - Binder	4,939	TON	$ 750.00	$ 3,704,250.00
P-602	Bituminous Prime Coat	43,250	GAL	$ 4.50	$ 194,625.00
P-603	Bituminous Tack Coat	57,670	GAL	$ 2.50	$ 144,175.00
P-607	Soil Sterilization	144,170	SY	$ 0.10	$ 14,417.00
P-620a	Temporary Marking	109,720	SF	$ 0.70	$ 76,804.00
P-620b	Permanent Marking	109,720	SF	$ 0.60	$ 65,832.00
T-901	Seeding	10.0	ACRE	$ 1,000.00	$ 10,000.00
T-905a	Topsoil - Removal	1,780	CY	$ 3.50	$ 6,230.00
T-905b	Topsoil - Placement	1,780	CY	$ 4.00	$ 7,120.00
T-908	Mulching	10.0	ACRE	$ 1,200.00	$ 12,000.00
L-100	Electrical (Lights, Signs, PAPIs, and REILs)	1	LS	$ 550,000.00	$ 550,000.00

Total:	**$ 15,706,651.00**
Contingency (10%):	**$ 1,570,665.10**
Engineering Design:	**$ 1,727,731.61**
Construction Engineering:	**$ 1,727,731.61**
Legal and Administrative:	**$ 3,000.00**
Flight Check:	**$ 25,000.00**
TOTAL:	**$ 20,760,779.32**
FOR ESTIMATE:	**$ 20,761,000.00**

Assumptions:

- All runway lights, PAPIs, REILs, and RDR signs will be replaced.
- Assumes no drainage improvements
- Runway will be reconstructed in existing footprint to correct line of sight, strength, and ponding issues.

This estimate assumes 2017 construction dollars

CEDAR CITY REGIONAL AIRPORT
CEDAR CITY, UTAH
B. RECONSTRUCTION TAXIWAY D

7/26/2017

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 1,405,100.00	$ 1,405,100.00
P-101a	Saw Cut Pavement	3,640	LF	$ 2.70	$ 9,828.00
P-101d	Mill Asphalt	67,640	SY	$ 2.50	$ 169,100.00
P-102	Utility Location and Identification	1	LS	$ 2,000.00	$ 2,000.00
P-152a	Excavation	110,480	CY	$ 4.50	$ 497,160.00
P-152b	Subgrade Preparation	67,640	SY	$ 0.60	$ 40,584.00
P-156	Erosion Control	1	LS	$ 26,000.00	$ 26,000.00
P-209	Crushed Aggregate Base Course	20,670	CY	$ 50.00	$ 1,033,500.00
P-310	Geotextile Fabrics	67,640	SY	$ 1.50	$ 101,460.00
P-401a	Plant Mix Bituminous Pavements - Aggregate	33,110	TON	$ 70.00	$ 2,317,700.00
P-401b	Plant Mix Bituminous Pavements - Binder	2,318	TON	$ 750.00	$ 1,738,500.00
P-602	Bituminous Prime Coat	20,300	GAL	$ 4.50	$ 91,350.00
P-603	Bituminous Tack Coat	27,060	GAL	$ 2.50	$ 67,650.00
P-607	Soil Sterilization	67,640	SY	$ 0.10	$ 6,764.00
P-620a	Temporary Marking	10,470	SF	$ 0.70	$ 7,329.00
P-620b	Permanent Marking	10,470	SF	$ 0.60	$ 6,282.00
T-901	Seeding	8.5	ACRE	$ 1,000.00	$ 8,500.00
T-905a	Topsoil - Removal	1,520	CY	$ 3.50	$ 5,320.00
T-905b	Topsoil - Placement	1,520	CY	$ 4.00	$ 6,080.00
T-908	Mulching	8.5	ACRE	$ 1,200.00	$ 10,200.00
L-100	Electrical (Lights and Signs)	1	LS	$ 880,000.00	$ 880,000.00

Total:	**$ 8,430,407.00**
Contingency (10%):	**$ 843,040.70**
Engineering Design:	**$ 1,112,813.72**
Construction Engineering:	**$ 1,112,813.72**
Legal and Administrative:	**$ 3,000.00**
TOTAL:	**$ 11,502,075.15**
FOR ESTIMATE:	**$ 11,503,000.00**

Assumptions:

- Assumes no drainage improvements
- Taxiway will be reconstructed in existing footprint but lowered to meet runway/taxiway profile standards. Where the taxiway centerline must be lower than the runway centerline.

This estimate assumes 2017 construction dollars

CEDAR CITY REGIONAL AIRPORT
CEDAR CITY, UTAH
C. RELOCATE TAXIWAY C CONNECTOR

7/26/2017

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 33,200.00	$ 33,200.00
P-101a	Saw Cut Pavement	1,350	LF	$ 4.00	$ 5,400.00
P-101b	Demolition - Pavement	3,780	SY	$ 5.00	$ 18,900.00
P-102	Utility Location and Identification	1	LS	$ 2,000.00	$ 2,000.00
P-152a	Excavation	1,190	CY	$ 15.00	$ 17,850.00
P-152b	Subgrade Preparation	2,130	SY	$ 1.00	$ 2,130.00
P-154	Subbase Course	600	CY	$ 40.00	$ 24,000.00
P-156	Erosion Control	1	LS	$ 1,000.00	$ 1,000.00
P-209	Crushed Aggregate Base Course	360	CY	$ 50.00	$ 18,000.00
P-310	Geotextile Fabrics	2,130	SY	$ 3.00	$ 6,390.00
P-401a	Plant Mix Bituminous Pavements - Aggregate	470	TON	$ 70.00	$ 32,900.00
P-401b	Plant Mix Bituminous Pavements - Binder	30	TON	$ 750.00	$ 22,500.00
P-602	Bituminous Prime Coat	640	GAL	$ 4.50	$ 2,880.00
P-603	Bituminous Tack Coat	430	GAL	$ 3.00	$ 1,290.00
P-607	Soil Sterilization	2,130	SY	$ 0.50	$ 1,065.00
P-620a	Temporary Marking	430	SF	$ 2.50	$ 1,075.00
P-620b	Permanent Marking	430	SF	$ 2.50	$ 1,075.00
T-901	Seeding	1.3	ACRE	$ 1,000.00	$ 1,300.00
T-905a	Topsoil - Removal	480	CY	$ 4.00	$ 1,920.00
T-905b	Topsoil - Placement	660	CY	$ 4.00	$ 2,640.00
T-908	Mulching	1.3	ACRE	$ 1,200.00	$ 1,560.00

Total:	**$ 199,075.00**
Contingency (15%):	**$ 29,861.25**
Engineering Design:	**$ 34,340.44**
Construction Engineering:	**$ 34,340.44**
Legal and Administrative:	**$ 3,000.00**
TOTAL:	**$ 300,617.13**
FOR ESTIMATE:	**$ 301,000.00**

This estimate assumes 2017 construction dollars

CEDAR CITY REGIONAL AIRPORT 7/26/2017
CEDAR CITY, UTAH
D. RECONSTRUCT TAXIWAY A NORTH CONNECTOR

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization (20%)	1	LS	$ 90,000.00	$ 90,000.00
P-101a	Milling - 6" - 8" Depth	7,150	SY	$ 3.00	$ 21,450.00
P-102	Utility Location and Identification	1	LS	$ 2,000.00	$ 2,000.00
P-152a	Excavation	1,250	CY	$ 15.00	$ 18,750.00
P-152b	Subgrade Preparation	4,500	SY	$ 1.00	$ 4,500.00
P-156	Erosion Control	1	LS	$ 5,000.00	$ 5,000.00
P-209	Crushed Aggregate Base Course	1,250	CY	$ 50.00	$ 62,500.00
P-310a	Stabilization Fabric	4,500	SY	$ 3.00	$ 13,500.00
P-401a	Bituminous Surface Course (Plant Mix)	1,860	TON	$ 70.00	$ 130,200.00
P-401b	Bituminous Surface Course (Binder)	140	TON	$ 750.00	$ 105,000.00
P-602	Bituminous Prime Coat	1,350	GAL	$ 6.00	$ 8,100.00
P-603	Bituminous Tack Coat	450	GAL	$ 3.00	$ 1,350.00
P-607	Soil Sterilization	4,500	SY	$ 0.50	$ 2,250.00
P-620a	Temporary Runway and Taxiway Painting	12,670	SF	$ 1.50	$ 19,005.00
P-620b	Permanent Runway and Taxiway Painting	12,670	SF	$ 1.50	$ 19,005.00
L-108a	No. 8 AWG, 5 kV, L-824, Type C Cable	1,390	LF	$ 1.50	$ 2,085.00
L-108b	No. 6 AWG, Solid, Bare Counterpoise Wire	1,390	LF	$ 1.50	$ 2,085.00
L-110a	Electrical Conduit, 2 Inch PVC, Direct Bury	1,390	LF	$ 8.00	$ 11,120.00
L-110b	Concrete Encased Conduit	80	LF	$ 40.00	$ 3,200.00
L-125a	Elevated Taxiway Edge Light with Base Can	23	EA	$ 1,000.00	$ 23,000.00
L-125b	Elevated Runway Edge Light with Base Can	2	EA	$ 1,000.00	$ 2,000.00
L-125c	Elevated Runway Threshold Light with Base Can	8	EA	$ 700.00	$ 5,600.00
L-125d	Guidance Sign	3	EA	$ 4,000.00	$ 12,000.00
T-901	Seeding	1	Acre	$ 2,000.00	$ 2,000.00
T-908	Mulching	1	Acre	$ 2,000.00	$ 2,000.00
				Total:	**$ 567,700.00**
				Contingency (15%):	**$ 85,155.00**
				Engineering Design:	**$ 65,285.50**
				Construction Engineering :	**$ 65,285.50**
				Legal and Administrative:	**$ 3,000.00**
				TOTAL:	**$ 786,426.00**
				FOR ESTIMATE:	**$ 787,000.00**

This estimate assumes 2017 construction dollars

CEDAR CITY REGIONAL AIRPORT 7/26/2017
CEDAR CITY, UTAH
E. REMOVE AND CONSTRUCT NEW TAXIWAY D CONNECTOR

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 74,200.00	$ 74,200.00
P-101a	Saw Cut Pavement	430	LF	$ 2.70	$ 1,161.00
P-101b	Obliterate Markings	515	SF	$ 3.00	$ 1,545.00
P-101d	Mill Asphalt - Full Depth	3,130	SY	$ 5.00	$ 15,650.00
P-102	Utility Location and Identification	1	LS	$ 2,000.00	$ 2,000.00
P-152a	Excavation	1,880	CY	$ 15.00	$ 28,200.00
P-152b	Subgrade Preparation	3,230	SY	$ 0.60	$ 1,938.00
P-156	Erosion Control	1	LS	$ 2,000.00	$ 2,000.00
P-209	Crushed Aggregate Base Course	990	CY	$ 50.00	$ 49,500.00
P-310	Geotextile Fabrics	3,230	SY	$ 1.50	$ 4,845.00
P-401a	Plant Mix Bituminous Pavements - Aggregate	1,580	TON	$ 70.00	$ 110,600.00
P-401b	Plant Mix Bituminous Pavements - Binder - 7%	111	TON	$ 750.00	$ 83,250.00
P-602	Bituminous Prime Coat	970	GAL	$ 4.50	$ 4,365.00
P-603	Bituminous Tack Coat	1,290	GAL	$ 2.50	$ 3,225.00
P-607	Soil Sterilization	3,230	SY	$ 0.10	$ 323.00
P-620a	Temporary Marking	2,240	SF	$ 1.00	$ 2,240.00
P-620b	Permanent Marking	2,240	SF	$ 0.90	$ 2,016.00
T-901	Seeding	1.4	ACRE	$ 2,000.00	$ 2,800.00
T-905a	Topsoil - Removal	240	CY	$ 3.50	$ 840.00
T-905b	Topsoil - Placement	240	CY	$ 4.00	$ 960.00
T-908	Mulching	1.4	ACRE	$ 2,500.00	$ 3,500.00
L-100	Electrical (Relocate Lights and Signs)	1	LS	$ 50,000.00	$ 50,000.00

Total:	**$ 445,158.00**
Contingency (10%):	**$ 44,515.80**
Engineering Design:	**$ 58,760.86**
Construction Engineering:	**$ 58,760.86**
Legal and Administrative:	**$ 3,000.00**
TOTAL:	**$ 610,195.51**
FOR ESTIMATE:	**$ 611,000.00**

Assumptions:
- Assumes no drainage improvements
- Lights and signs will be relocated from old connector to new connector.

- P-401=9" and P-209=11"

This estimate assumes 2017 construction dollars

GDA ENGINEERS

CEDAR CITY REGIONAL AIRPORT 7/26/2017
CEDAR CITY, UTAH
F. CONSTRUCT RUN-UP AREA

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization (20%)	1	LS	$ 70,000.00	$ 70,000.00
P-102	Utility Location and Identification	1	LS	$ 2,000.00	$ 2,000.00
P-152a	Excavation	3,000	CY	$ 12.00	$ 36,000.00
P-152b	Subgrade Preparation	5,400	SY	$ 1.00	$ 5,400.00
P-154	Subbase Course	1,500	CY	$ 45.00	$ 67,500.00
P-156	Erosion Control	1	LS	$ 5,000.00	$ 5,000.00
P-209	Crushed Aggregate Base Course	900	CY	$ 50.00	$ 45,000.00
P-310a	Stabilization Fabric	5,400	SY	$ 3.00	$ 16,200.00
P-401a	Bituminous Surface Course (Plant Mix)	1,100	TON	$ 70.00	$ 77,000.00
P-401b	Bituminous Surface Course (Binder)	80	TON	$ 750.00	$ 60,000.00
P-602	Bituminous Prime Coat	1,600	GAL	$ 6.00	$ 9,600.00
P-603	Bituminous Tack Coat	540	GAL	$ 3.00	$ 1,620.00
P-607	Soil Sterilization	5,400	SY	$ 0.50	$ 2,700.00
P-620a	Temporary Runway and Taxiway Painting	600	SF	$ 2.00	$ 1,200.00
P-620b	Permanent Runway and Taxiway Painting	600	SF	$ 2.00	$ 1,200.00
L-108a	No. 8 AWG, 5 kV, L-824, Type C Cable	800	LF	$ 1.50	$ 1,200.00
L-108b	No. 6 AWG, Solid, Bare Counterpoise Wire	800	LF	$ 1.50	$ 1,200.00
L-110a	Electrical Conduit, 2 Inch PVC, Direct Bury	800	LF	$ 8.00	$ 6,400.00
L-110b	Concrete Encased Conduit	100	LF	$ 40.00	$ 4,000.00
L-125a	Elevated Taxiway Edge Light with Base Can	18	EA	$ 1,000.00	$ 18,000.00
L-125d	Guidance Sign	2	EA	$ 4,000.00	$ 8,000.00
T-901	Seeding	1	Acre	$ 2,000.00	$ 2,000.00
T-908	Mulching	1	Acre	$ 2,000.00	$ 2,000.00
				Total:	**$ 443,220.00**
				Contingency (15%):	**$ 66,483.00**
				Engineering Design:	**$ 50,970.30**
				Construction Engineering :	**$ 50,970.30**
				Legal and Administrative:	**$ 3,000.00**
				TOTAL:	**$ 614,643.60**
				FOR ESTIMATE:	**$ 615,000.00**

This estimate assumes 2017 construction dollars

CEDAR CITY REGIONAL AIRPORT
CEDAR CITY, UTAH
G. GENERAL AVIATION APRON EXPANSION

7/26/2017

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 27,100.00	$ 27,100.00
P-102	Utility Location and Identification	1	EA	$ 2,000.00	$ 2,000.00
P-152a	Excavation	1,270	CY	$ 12.00	$ 15,240.00
P-152b	Subgrade Preparation	2,290	SY	$ 1.00	$ 2,290.00
P-154	Subbase Course	640	CY	$ 35.00	$ 22,400.00
P-156	Erosion Control	1	LS	$ 1,000.00	$ 1,000.00
P-209	Crushed Aggregate Base Course	390	CY	$ 50.00	$ 19,500.00
P-310	Geotextile Fabrics	2,290	SY	$ 3.00	$ 6,870.00
P-401a	Plant Mix Bituminous Pavements - Aggregate	500	TON	$ 70.00	$ 35,000.00
P-401b	Plant Mix Bituminous Pavements - Binder	32	TON	$ 750.00	$ 24,000.00
P-602	Bituminous Prime Coat	690	GAL	$ 4.50	$ 3,105.00
P-603	Bituminous Tack Coat	460	GAL	$ 3.00	$ 1,380.00
P-607	Soil Sterilization	2,290	SY	$ 0.50	$ 1,145.00
				Total:	**$ 162,110.00**
				Contingency (15%):	**$ 24,316.50**
				Engineering Design:	**$ 18,642.65**
				Construction Engineering:	**$ 18,642.65**
				Legal and Administrative:	**$ 3,000.00**
				TOTAL:	**$ 226,711.80**
				FOR ESTIMATE:	**$ 227,000.00**

This estimate assumes 2017 construction dollars

GDA ENGINEERS

CEDAR CITY REGIONAL AIRPORT 7/26/2017
CEDAR CITY, UTAH
H. CONSTRUCT SRE/ARFF BUILDINGS

Bid Schedule 1: New SRE Building

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 131,900.00	$ 131,900.00
P-102	Utility Location and Identification	1	EA	$ 2,000.00	$ 2,000.00
P-152a	Excavation	1,440	CY	$ 12.00	$ 17,280.00
P-156	Erosion Control	1	LS	$ 3,000.00	$ 3,000.00
P-220	Base Course	960	CY	$ 40.00	$ 38,400.00
P-403a	Plant Mix Bituminous Pavements - Agg. (SRE Lot)	940	TON	$ 60.00	$ 56,400.00
P-403b	Plant Mix Bituminous Pavements - Binder (SRE Lot)	59	TON	$ 600.00	$ 35,400.00
S-100	SRE Building	1	EA	$ 507,000.00	$ 507,000.00
				Bid Schedule 1 Subtotal:	**$ 791,380.00**

Bid Schedule 2: Additional Support Buildings

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 143,200.00	$ 143,200.00
S-101	SRE Offices	1	EA	$ 450,000.00	$ 450,000.00
S-200	ARFF/ Airport Operations	2	EA	$ 133,000.00	$ 266,000.00
				Bid Schedule 2 Subtotal:	**$ 859,200.00**

Bid Schedule 1 + 2 Total:	**$ 1,650,580.00**
Contingency (15%):	**$ 247,587.00**
Engineering Design:	**$ 189,816.70**
Construction Engineering :	**$ 189,816.70**
Legal and Administrative:	**$ 3,000.00**
TOTAL:	**$ 2,280,800.40**
FOR ESTIMATE:	**$ 2,281,000.00**

This estimate assumes 2017 construction dollars

CEDAR CITY REGIONAL AIRPORT 7/26/2017
CEDAR CITY, UTAH
I. GENERAL AVIATION HANGAR DEVELOPMENT EXPANSION

Bid Schedule 1: GA Hangar Development

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 106,800.00	$ 106,800.00
P-102	Utility Location and Identification	1	EA	$ 2,000.00	$ 2,000.00
P-152a	Excavation	5,210	CY	$ 12.00	$ 62,520.00
P-152b	Subgrade Preparation	9,380	SY	$ 1.00	$ 9,380.00
P-154	Subbase Course	2,610	CY	$ 35.00	$ 91,350.00
P-156	Erosion Control	1	LS	$ 2,000.00	$ 2,000.00
P-209	Crushed Aggregate Base Course	1,570	CY	$ 50.00	$ 78,500.00
P-310	Geotextile Fabrics	9,380	SY	$ 3.00	$ 28,140.00
P-401a	Plant Mix Bituminous Pavements - Aggregate	2,040	TON	$ 70.00	$ 142,800.00
P-401b	Plant Mix Bituminous Pavements - Binder	129	TON	$ 750.00	$ 96,750.00
P-602	Bituminous Prime Coat	2,820	GAL	$ 4.50	$ 12,690.00
P-603	Bituminous Tack Coat	1,880	GAL	$ 3.00	$ 5,640.00
P-607	Soil Sterilization	9,380	SY	$ 0.20	$ 1,876.00
				Bid Schedule 1 Subtotal:	**$ 640,446.00**

Bid Schedule 2: Hangar Construction

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 79,200.00	$ 79,200.00
S-100	T-Hangars	18	EA	$ 22,000.00	$ 396,000.00
				Bid Schedule 2 Subtotal:	**$ 475,200.00**

Bid Schedule 1 + 2 Total:	**$ 1,115,646.00**
Contingency (15%):	**$ 167,346.90**
Engineering Design (Bid Schedule 1 Only):	**$ 88,381.55**
Construction Engineering (Bid Schedule 1 Only):	**$ 88,381.55**
Legal and Administrative:	**$ 3,000.00**
TOTAL:	**$ 1,462,756.00**
FOR ESTIMATE:	**$ 1,463,000.00**

This estimate assumes 2017 construction dollars

GDA ENGINEERS

CEDAR CITY REGIONAL AIRPORT 7/26/2017
CEDAR CITY, UTAH
J. FLIGHT SCHOOL/GENERAL AVIATION DEVELOPMENT AREA

Bid Schedule 1: Flight School Apron Construction

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 452,600.00	$ 452,600.00
P-102	Utility Location and Identification	1	EA	$ 2,000.00	$ 2,000.00
P-152a	Excavation	20,360	CY	$ 10.00	$ 203,600.00
P-152b	Subgrade Preparation	36,650	SY	$ 1.00	$ 36,650.00
P-154	Subbase Course	10,180	CY	$ 35.00	$ 356,300.00
P-156	Erosion Control	1	LS	$ 9,000.00	$ 9,000.00
P-209	Crushed Aggregate Base Course	6,110	CY	$ 50.00	$ 305,500.00
P-310	Geotextile Fabrics	36,650	SY	$ 3.00	$ 109,950.00
P-401a	Plant Mix Bituminous Pavements - Aggregate	7,980	TON	$ 70.00	$ 558,600.00
P-401b	Plant Mix Bituminous Pavements - Binder	503	TON	$ 750.00	$ 377,250.00
P-403a	Plant Mix Bituminous Pavements - Agg. (Parking)	1,690	TON	$ 60.00	$ 101,400.00
P-403b	Plant Mix Bituminous Pavements - Binder (Parking)	107	TON	$ 600.00	$ 64,200.00
P-602	Bituminous Prime Coat	11,000	GAL	$ 4.50	$ 49,500.00
P-603	Bituminous Tack Coat	7,330	GAL	$ 3.00	$ 21,990.00
P-607	Soil Sterilization	36,650	SY	$ 0.20	$ 7,330.00
P-620a	Temporary Marking	1,320	SF	$ 1.00	$ 1,320.00
P-620b	Permanent Marking	1,320	SF	$ 1.00	$ 1,320.00
F-160a	Wire Fence with Wood Posts - 8'	846	LF	$ 6.50	$ 5,499.00
F-160b	Fence Brace Panel	16	EA	$ 500.00	$ 8,000.00
F-160c	24' Double Swing Gate	3	EA	$ 2,500.00	$ 7,500.00
T-901	Seeding	0.1	ACRE	$ 10,000.00	$ 1,000.00
T-905a	Topsoil - Removal	7,120	CY	$ 4.00	$ 28,480.00
T-905b	Topsoil - Placement	1,320	CY	$ 4.00	$ 5,280.00
T-908	Mulching	0.1	ACRE	$ 12,000.00	$ 1,200.00
				Bid Schedule 1 Subtotal:	**$ 2,715,469.00**

Bid Schedule 2: Hangar Construction

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 529,200.00	$ 529,200.00
S-100	T-Hangars	20	EA	$ 26,000.00	$ 520,000.00
S-200	Hangars (100'X100')	2	EA	$ 310,000.00	$ 620,000.00
S-300	Hangars (75'X60')	6.00	EA	$ 156,000.00	$ 936,000.00
S-400	Hangar (50'X50')	6.00	EA	$ 95,000.00	$ 570,000.00
				Bid Schedule 2 Subtotal:	**$ 3,175,200.00**

Bid Schedule 1 + 2 Total:	**$ 5,890,669.00**
Contingency (15%):	**$ 883,600.35**
Engineering Design (Bid Schedule 1 Only):	**$ 374,734.72**
Construction Engineering (Bid Schedule 1 Only):	**$ 374,734.72**
Legal and Administrative:	**$ 3,000.00**
TOTAL:	**$ 7,526,738.79**
FOR ESTIMATE:	**$ 7,527,000.00**

This estimate assumes 2017 construction dollars

CEDAR CITY REGIONAL AIRPORT 7/26/2017
CEDAR CITY, UTAH
K. CORPORATE HANGAR EXPANSION

Bid Schedule 1: Corporate Hangar Development

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 402,800.00	$ 402,800.00
P-101a	Saw Cut Pavement	880	LF	$ 4.00	$ 3,520.00
P-101b	Demolition - Pavement	860	SY	$ 5.00	$ 4,300.00
P-101c	Demolition - Fence	550	LF	$ 1.50	$ 825.00
P-102	Utility Location and Identification	1	EA	$ 2,000.00	$ 2,000.00
P-152a	Excavation	18,990	CY	$ 12.00	$ 227,880.00
P-152b	Subgrade Preparation	34,180	SY	$ 1.00	$ 34,180.00
P-154	Subbase Course	9,500	CY	$ 35.00	$ 332,500.00
P-156	Erosion Control	1	LS	$ 8,000.00	$ 8,000.00
P-209	Crushed Aggregate Base Course	5,700	CY	$ 50.00	$ 285,000.00
P-310	Geotextile Fabrics	34,180	SY	$ 3.00	$ 102,540.00
P-401a	Plant Mix Bituminous Pavements - Aggregate	7,440	TON	$ 70.00	$ 520,800.00
P-401b	Plant Mix Bituminous Pavements - Binder	469	TON	$ 750.00	$ 351,750.00
P-602	Bituminous Prime Coat	10,260	GAL	$ 4.50	$ 46,170.00
P-603	Bituminous Tack Coat	6,840	GAL	$ 3.00	$ 20,520.00
P-607	Soil Sterilization	34,180	SY	$ 0.20	$ 6,836.00
P-620a	Temporary Marking	1,130	SF	$ 1.00	$ 1,130.00
P-620b	Permanent Marking	1,130	SF	$ 1.00	$ 1,130.00
F-160a	Wire Fence with Wood Posts - 8'	1,325.0	LF	$ 6.50	$ 8,612.50
F-160b	Fence Brace Panel	34.0	EA	$ 500.00	$ 17,000.00
T-901	Seeding	0.1	ACRE	$ 10,000.00	$ 1,000.00
T-905a	Topsoil - Removal	7,310	CY	$ 4.00	$ 29,240.00
T-905b	Topsoil - Placement	1,900	CY	$ 4.00	$ 7,600.00
T-908	Mulching	0.1	ACRE	$ 12,000.00	$ 1,200.00
				Bid Schedule 1 Subtotal:	**$ 2,416,533.50**

Bid Schedule 2: Hangar Construction

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 806,000.00	$ 806,000.00
S-200	Hangars (100'X100')	13	EA	$ 310,000.00	$ 4,030,000.00
				Bid Schedule 2 Subtotal:	**$ 4,836,000.00**

Bid Schedule 1 + 2 Total:	**$ 7,252,533.50**
Contingency (15%):	**$ 1,087,880.03**
Engineering Design (Bid Schedule 1 Only):	**$ 333,481.62**
Construction Engineering (Bid Schedule 1 Only):	**$ 333,481.62**
Legal and Administrative:	**$ 3,000.00**
TOTAL:	**$ 9,010,376.77**
FOR ESTIMATE:	**$ 9,011,000.00**

This estimate assumes 2017 construction dollars

CEDAR CITY REGIONAL AIRPORT 7/26/2017
CEDAR CITY, UTAH
L. TERMINAL AUTOMOBILE PARKING

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 29,200.00	$ 29,200.00
P-102	Utility Location and Identification	1	EA	$ 2,000.00	$ 2,000.00
P-152a	Excavation	1,760	CY	$ 12.00	$ 21,120.00
P-156	Erosion Control	1	LS	$ 1,000.00	$ 1,000.00
P-403a	Plant Mix Bituminous Pavements - Agg. (Parking)	1,150	TON	$ 60.00	$ 69,000.00
P-403b	Plant Mix Bituminous Pavements - Binder (Parking)	80	TON	$ 600.00	$ 48,000.00
F-160a	Wire Fence with Wood Posts - 8'	396	LF	$ 6.50	$ 2,574.00
F-160b	Fence Brace Panel	4	EA	$ 500.00	$ 2,000.00

Total:	**$ 174,894.00**
Contingency (15%):	**$ 26,234.10**
Engineering Design:	**$ 20,112.81**
Construction Engineering:	**$ 20,112.81**
Legal and Administrative:	**$ 3,000.00**
TOTAL:	**$ 244,353.72**
FOR ESTIMATE:	**$ 245,000.00**

This estimate assumes 2017 construction dollars

CEDAR CITY REGIONAL AIRPORT
CEDAR CITY, UTAH
RUNWAY 8-26 SEAL COAT

5/18/2017

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 5,400.00	$ 5,400.00
P-608a	Emulsified Asphalt Seal Coat	32,140	SY	$ 1.00	$ 32,140.00
P-608b	Sand	32,140	SY	$ 0.10	$ 3,214.00
P-608c	Runway Friction Testing	1	LS	$ 5,500.00	$ 5,500.00
P-620a	Temporary Marking	6,570	SF	$ 1.00	$ 6,570.00
P-620b	Permanent Marking	6,570	SF	$ 0.90	$ 5,913.00

Total:	**$ 58,737.00**
Contingency (10%):	**$ 5,873.70**
Engineering Design:	**$ 9,691.61**
Construction Engineering:	**$ 9,691.61**
Legal and Administrative:	**$ 3,000.00**
TOTAL:	**$ 86,993.91**
FOR ESTIMATE:	**$ 87,000.00**

Assumptions:

- Only runway pavement will be seal coated.

This estimate assumes 2017 construction dollars

Page 1 of 3

CEDAR CITY REGIONAL AIRPORT
CEDAR CITY, UTAH
RUNWAY 8-26 REHABILITATION

5/18/2017

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 119,500.00	$ 119,500.00
P-101a	Saw Cut Pavement	1,610	LF	$ 2.70	$ 4,347.00
P-101d	Mill Asphalt - 2"	32,140	SY	$ 2.50	$ 80,350.00
P-102	Utility Location and Identification	1	EA	$ 2,000.00	$ 2,000.00
P-156	Erosion Control	1	LS	$ 2,000.00	$ 2,000.00
P-401a	Plant Mix Bituminous Pavements - Aggregate	3,500	TON	$ 80.00	$ 280,000.00
P-401b	Plant Mix Bituminous Pavements - Binder	245	TON	$ 850.00	$ 208,250.00
P-603	Bituminous Tack Coat	3,220	GAL	$ 2.50	$ 8,050.00
P-620a	Temporary Marking	6,570	SF	$ 1.00	$ 6,570.00
P-620b	Permanent Marking	6,570	SF	$ 0.90	$ 5,913.00

Total:	**$ 716,980.00**
Contingency (10%):	**$ 71,698.00**
Engineering Design:	**$ 94,641.36**
Construction Engineering:	**$ 94,641.36**
Legal and Administrative:	**$ 3,000.00**
TOTAL:	**$ 980,960.72**
FOR ESTIMATE:	**$ 981,000.00**

Assumptions:

- Assumes no drainage or electrical improvements.
- Assumes 2" mill and overlay

This estimate assumes 2017 construction dollars

Page 3 of 3

GDA ENGINEERS

CEDAR CITY REGIONAL AIRPORT 5/18/2017
CEDAR CITY, UTAH
RUNWAY 8-26 FULL RECONSTRUCTION

Item No.	Item Description	Qty	Unit	Unit Cost	Total Cost
P-100	Mobilization	1	LS	$ 398,000.00	$ 398,000.00
P-101a	Saw Cut Pavement	1,610	LF	$ 2.70	$ 4,347.00
P-101d	Mill Asphalt - Full Depth	32,140	SY	$ 5.00	$ 160,700.00
P-102	Utility Location and Identification	1	EA	$ 2,000.00	$ 2,000.00
P-152a	Excavation	15,400	CY	$ 15.00	$ 231,000.00
P-152b	Subgrade Preparation	32,140	SY	$ 0.60	$ 19,284.00
P-154	Subbase Course	8,930	CY	$ 35.00	$ 312,550.00
P-156	Erosion Control	1	LS	$ 4,000.00	$ 4,000.00
P-209	Crushed Aggregate Base Course	5,360	CY	$ 50.00	$ 268,000.00
P-310	Geotextile Fabrics	32,140	SY	$ 1.50	$ 48,210.00
P-401a	Plant Mix Bituminous Pavements - Aggregate	6,990	TON	$ 70.00	$ 489,300.00
P-401b	Plant Mix Bituminous Pavements - Binder	490	TON	$ 750.00	$ 367,500.00
P-602	Bituminous Prime Coat	9,640	GAL	$ 4.50	$ 43,380.00
P-603	Bituminous Tack Coat	3,220	GAL	$ 2.50	$ 8,050.00
P-607	Soil Sterilization	32,140	SY	$ 0.10	$ 3,214.00
P-620a	Temporary Marking	6,570	SF	$ 1.00	$ 6,570.00
P-620b	Permanent Marking	6,570	SF	$ 0.90	$ 5,913.00
T-901	Seeding	5.0	ACRE	$ 1,000.00	$ 5,000.00
T-905a	Topsoil - Removal	600	CY	$ 3.50	$ 2,100.00
T-905b	Topsoil - Placement	600	CY	$ 4.00	$ 2,400.00
T-908	Mulching	5.0	ACRE	$ 1,200.00	$ 6,000.00

Total:	**$ 2,387,518.00**
Contingency (10%):	**$ 238,751.80**
Engineering Design:	**$ 262,626.98**
Construction Engineering:	**$ 262,626.98**
Legal and Administrative:	**$ 3,000.00**
TOTAL:	**$ 3,154,523.76**
FOR ESTIMATE:	**$ 3,155,000.00**

Assumptions:
- Assumes no drainage or electrical improvements.
- Assumes full depth reconstruction
- P-401=4", P-209=6", P-154=10"

This estimate assumes 2017 construction dollars

PAGE LEFT BLANK INTENTIONALLY

Appendix H - Airport Layout Plan

PAGE LEFT BLANK INTENTIONALLY

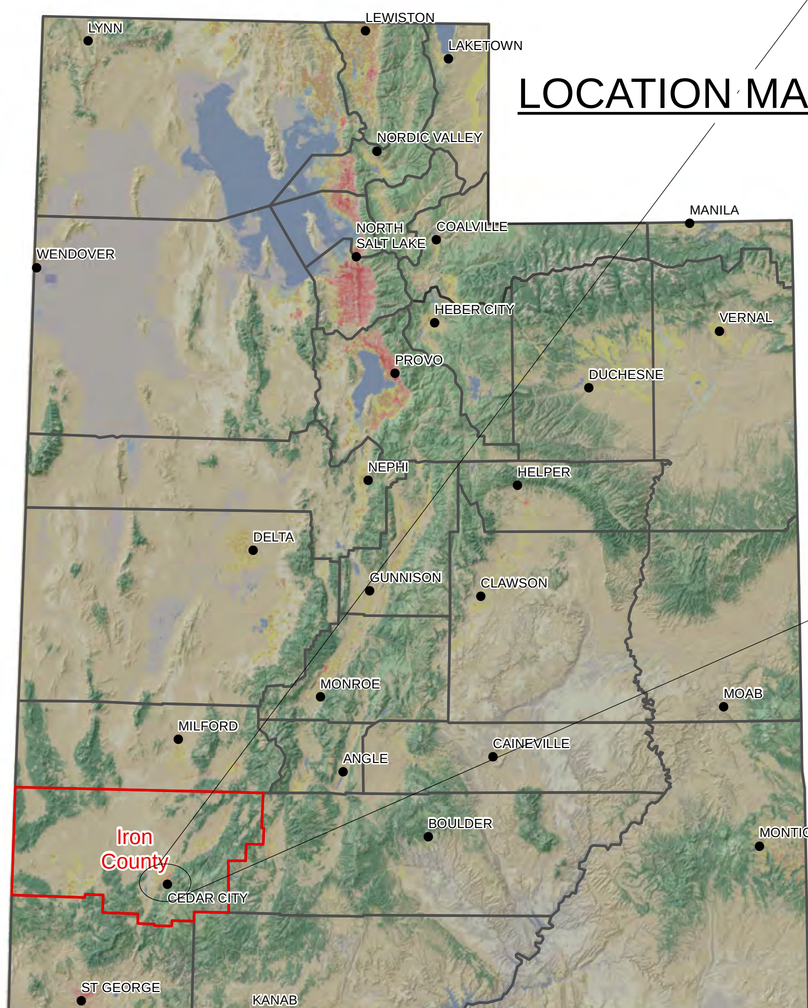
CEDAR CITY REGIONAL AIRPORT (CDC)

CEDAR CITY, UTAH

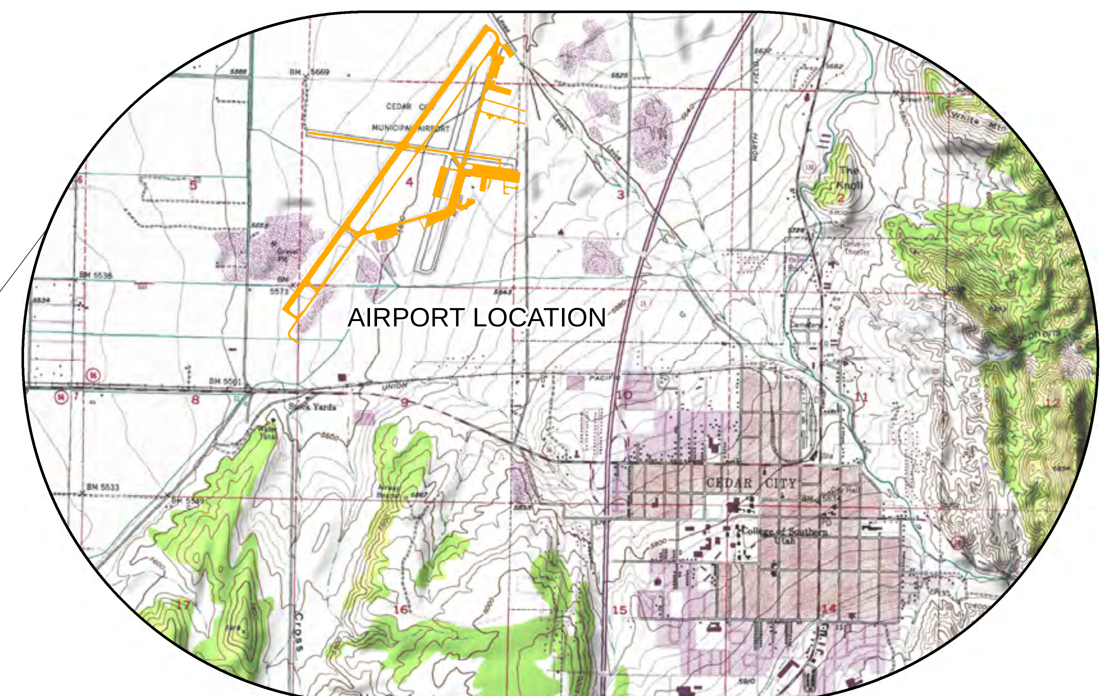
AIRPORT MASTER PLAN

A.I.P. NO: 3-49-0005-029-2015
ACCEPTED: DECEMBER 2017
AIRSPACE CASE NO: 2017-ANM-1599-NRA

DRAWING INDEX:



LOCATION MAP



VICINITY MAP

Acceptance Letter

PLAN ACCEPTANCE:	
CEDAR CITY CORPORATION MAYOR	DATE

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 AIP 3-49-0005-029-2015) as provided under title 49 U.S.C., 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 or would have justification in accordance with appropriate public laws.

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

NO.	DESCRIPTION	DATE:	BY:

REVISIONS

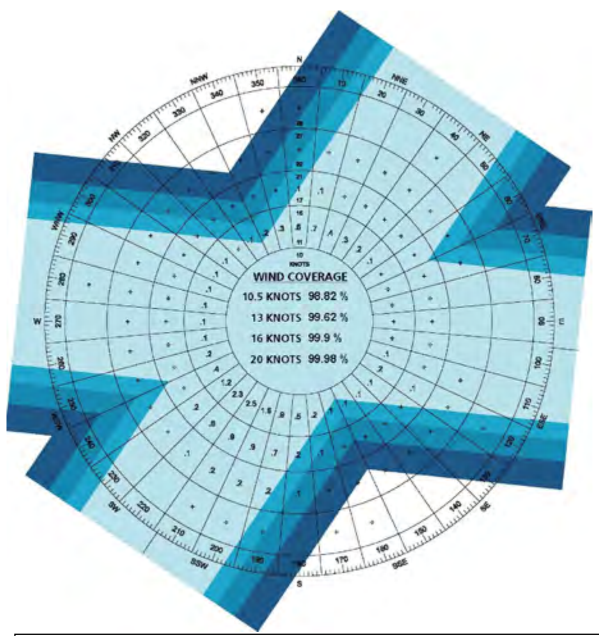
A.I.P. PROJECT # 3-49-0005-029-2015

TITLE SHEET
CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER
1
1 OF 17 SHEETS

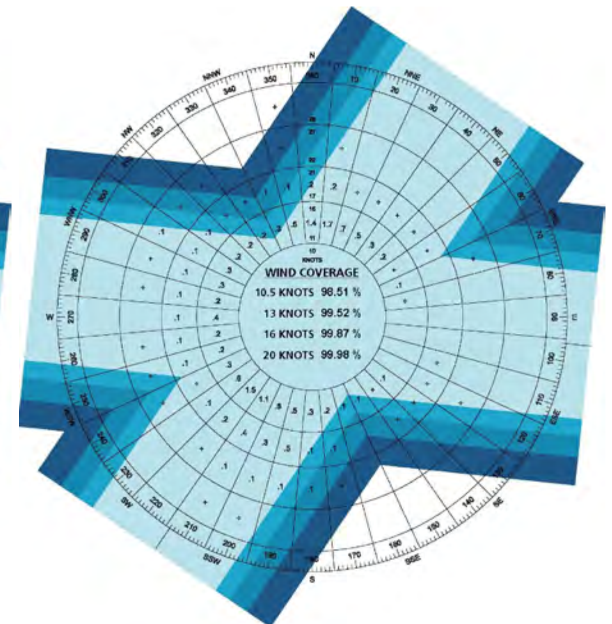
All Weather Wind Rose

COVERAGE: 10.5 KTS 98.82%– 13 KTS 99.62%– 16 KTS 99.90%– 20 KTS 99.98%
OBSERVATIONS: 95,948
TIME PERIOD: 1/1/2007-12/31/2016
DATA SOURCE: ON–SITE ASOS



IFR Wind Rose

COVERAGE: 10.5 KTS 98.51%– 13 KTS 99.52%– 16 KTS 99.87%– 20 KTS 99.98%
OBSERVATIONS: 7,271
TIME PERIOD: 1/1/2007-12/31/2016
DATA SOURCE: ON–SITE ASOS



FAA SOP 2.00 A.3 "F" DECLARED DISTANCES TABLE

	RUNWAY 2/20 (PRIMARY)	EXISTING	FUTURE
1	TAKE-OFF RUN AVAILABLE (TORA)	8,653'	10,000'
2	TAKE-OFF DISTANCE AVAILABLE (TODA)	8,653'	10,000'
3	ACCELERATED STOP DISTANCE (ASDA)	8,653'	10,000'
4	LANDING DISTANCE AVAILABLE (LDA)	8,653'	10,000'

	RUNWAY	EXISTING (8/26)	FUTURE (9/27)
1	TAKE-OFF RUN AVAILABLE (TORA)	4,822'	4,822'
2	TAKE-OFF DISTANCE AVAILABLE (TODA)	4,822'	4,822'
3	ACCELERATED STOP DISTANCE (ASDA)	4,822'	4,822'
4	LANDING DISTANCE AVAILABLE (LDA)	4,822'	4,822'

FAA SOP 2.00 A.3 "E" FAA APPROVED AIRPORT MODIFICATION TO STANDARDS TABLE

	ITEM OR SURFACE NOT MEETING STANDARD	ACTUAL	STANDARD	FAA APPROVED DATE
1	NONE APPROVED	NONE	NONE	NONE

FAA SOP 2.00 A.3 "C" AIRPORT DATA TABLE

			EXISTING	FUTURE
1	AIRPORT REFERENCE CODE (ARC)		C-III (LARGE AIRCRAFT)	C-III (LARGE AIRCRAFT)
2	MEAN MAX TEMPERATURE HOTTEST MONTH		87° F	87° F
3	AIRPORT ELEVATION		5621.6'	5621.6'
4	AIRPORT NAVIGATIONAL AIDS		BEACON, PAPI, REILS (CDC) MALSR, VOR (FAA)	BEACON, PAPI, REILS (CDC) MALSR, VOR (FAA)
5	AIRPORT REFERENCE POINT	LAT:	N37°42'03.49"	N37°42'07.02"
		LONG:	W113°05'55.86"	W113°05'52.86"
6	MISCELLANEOUS FACILITIES		ASOS	ASOS
7	CRITICAL AIRCRAFT		GROUPING OF AIRCRAFT WITH SIMILAR CHARACTERISTICS (ARC C-III)	GROUPING OF AIRCRAFT WITH SIMILAR CHARACTERISTICS (ARC C-III)
8	AIRPORT MAGNETIC VARIATION		11° 31' E, NOV 2015	11° 31' E, NOV 2015
9	NPIAS SERVICE LEVEL		NON-HUB	NON-HUB
10	UTAH STATE SERVICE ROLE		COMMERCIAL	COMMERCIAL

FAA SOP 2.00 A.3 "D" RUNWAY DATA TABLE

			RUNWAY 2/20 EXISTING	RUNWAY 2/20 FUTURE	RUNWAY 8/26 EXISTING	RUNWAY 9/27 FUTURE
1	RUNWAY		2/20	2/20	8/26	9/27
2	RUNWAY DESIGN CODE (RDC)		C-III (LARGE AIRCRAFT)	C-III(LARGE AIRCRAFT)	B-I (LARGE AIRCRAFT)	B-I (LARGE AIRCRAFT)
3	RUNWAY REFERENCE CODE (RRC)		C-III-2400	C-III-2400	B-I-VIS	B-I-VIS
4	PAVEMENT TYPE		ASPHALT	ASPHALT	ASPHALT	ASPHALT
	PAVEMENT STRENGTH BY WHEEL LOAD		56,000 SWG 76,000 DWG 142,000 OTG	56,000 SWG 76,000 DWG 142,000 OTG	16,000 SWG	16,000 SWG
	PAVEMENT CLASSIFICATION NUMBER (PCN)		21/F/C/S/T	21/F/C/S/T	8/F/C/X/T	8/F/C/X/T
5	EFFECTIVE RUNWAY GRADIENT (%)		0.25%	0.25%	0.89%	0.89%
	MAXIMUM GRADIENT WITHIN RUNWAY		0.60%	0.25%	1.20%	1.20%
6	WIND COVERAGE (10.5/13/16) IN KTS		98.82% / 99.62% / 99.90% (97.90% / 98.82% / 99.54% RUNWAY 2/20 ONLY)	99.82% / 99.62% / 99.90% (97.90% / 98.82% / 99.54% RUNWAY 2/20 ONLY)	98.82% / 99.62% / 99.90% (84.99% / 90.43% / 95.71% RUNWAY 8/26 ONLY)	98.82% / 99.62% / 99.90% (84.99% / 90.43% / 95.71% RUNWAY 9/27 ONLY)
7	RUNWAY DIMENSIONS		8,653' x 150'	10,000' x 150'	4,822' x 60'	4,822' x 60'
8	DISPLACED THRESHOLD		NONE	NONE	NONE	NONE
9	RUNWAY SAFETY AREA (STANDARD) WIDTH		500'	500'	120'	120'
	RUNWAY SAFETY AREA (STANDARD) LENGTH OFF ENDS		1,000'	1,000'	240'	240'
	RUNWAY SAFETY AREA DIMENSIONS (ACTUAL) WIDTH		500'	500'	120'	120'
	RUNWAY SAFETY AREA DIMENSIONS (ACTUAL) LENGTH OFF ENDS		1,000'	1,000'	240'	240'
10	RUNWAY END COORDINATES	LAT:	N37°41'26.20" (RWY 2)	N37°41'26.20" (RWY 2)	N37°42'09.82" (RWY 8)	N37°42'09.82" (RWY 9)
		LONG:	W113°06'28.14" (RWY 2)	W113°06'28.14" (RWY 2)	W113°06'22.06" (RWY 8)	W113°06'22.06" (RWY 9)
	RUNWAY END COORDINATES	LAT:	N37°42'36.88"(RWY 20)	N37°42'47.87" (RWY 20)	N37°42'04.17" (RWY 26)	N37°42'04.17" (RWY 27)
		LONG:	W113°05'27.55" (RWY 20)	W113°05'18.12" (RWY 20)	W113°05'22.51" (RWY 26)	W113°05'22.51" (RWY 27)
11	RUNWAY LIGHTING TYPE		HIRL	HIRL	MIRL	MIRL
12	RUNWAY PROTECTION ZONE DIMENSIONS (LENGTH/IN/OUT)		2,500' / 1,000' / 1,750'	2,500' / 1,000' / 1,750'	1,000' / 500' / 700'	1,000' / 500' / 700'
13	RUNWAY MARKING TYPE		PRECISION	PRECISION	VISUAL	VISUAL
14	CFR PART 77 APPROACH CATEGORY (SLOPE)		20:1 (RWY 2)	34:1 (RWY 2)	20:1	20:1
			50:1, 40:1 (RWY 20)	50:1, 40:1 (RWY 20)	-	-
15	APPROACH TYPE		PRECISION	PRECISION	VISUAL	VISUAL
16	VISIBILITY MINIMUMS		1/2 MILE	1/2 MILE	VISUAL	VISUAL
17	AERONAUTICAL SURVEY REQUIRED		NONE	NONE	NONE	NONE
18	RUNWAY DEPARTURE SURFACE		YES (40:1)	YES (40:1)	N/A	N/A
19	RUNWAY OBJECT FREE AREA WIDTH		800'	800'	400'	400'
	RUNWAY OBJECT FREE AREA LENGTH BEYOND RUNWAY END		1,000'	1,000'	240'	240'
20	OBSTACLE FREE ZONE WIDTH		400'	400'	400'	400'
	OBSTACLE FREE ZONE LENGTH BEYOND RUNWAY END		200'	200'	200'	200'
21	THRESHOLD SITING SURFACE (TSS)		TYPE #7 (NO PENETRATIONS)	TYPE #8 (NO PENETRATIONS)	TYPE #3 (NO PENETRATIONS)	TYPE #3 (NO PENETRATIONS)
22	VISUAL AND INSTRUMENT NAVAIDS		ASOS, BEACON, PAPI, REILS, MALSR	ASOS, BEACON, PAPI, REILS, MALSR	ASOS, BEACON, PAPI, REILS	ASOS, BEACON, PAPI, REILS
23	RUNWAY TOUCHDOWN ZONE ELEVATION		5519.4' (RWY 2)	5519.4' (RWY 2)	5533.2' (RWY 8)	5533.2' (RWY 9)
			5529.6' (RWY 20)	5603.8' (RWY 20)	5621.6' (RWY 26)	5621.6' (RWY 27)
	RUNWAY END ELEVATION (SURVEYED (E)) (CALCULATED (F))		5578.4' (RWY 2)	5578.4' (RWY 2)	5578.3' (RWY 8)	5578.3' (RWY 9)
			5600.4' (RWY 20)	5603.8' (RWY 20)	5621.6' (RWY 26)	5621.6' (RWY 27)
24	TAXIWAY AND TAXILANE WIDTH		75'	75'	35'	35'
	TAXIWAY EDGE SAFETY MARGIN (TESM)		10'	10'	7.5'	7.5'
25	TAXIWAY AND TAXILANE SAFETY AREA (TSA) WIDTH		118'	118'	79'	79'
26	TAXIWAY OBJECT FREE AREA (TOFA) WIDTH		186'	186'	131'	131'
	TAXILANE OBJECT FREE AREA (TOFA) WIDTH		162'	162'	115'	115'
27	TAXIWAY CENTERLINE TO RUNWAY CENTERLINE SEPARATION		400'	400'	200'	225'
28	TAXIWAY LIGHTING		MITL	MITL	NONE	NONE
29	VERTICAL DATUM		NAVD88 (US FEET)	NAVD88 (US FEET)	NAVD88 (US FEET)	NAVD88 (US FEET)
	HORIZONTAL DATUM		NAD83 (2011) (EPOCH:2010:0000)	NAD83 (2011) (EPOCH:2010:0000)	NAD83 (2011) (EPOCH:2010:0000)	NAD83 (2011) (EPOCH:2010:0000)

AIRPORT NON-STANDARDS CONDITIONS TABLE

	ITEM OR SURFACE NOT MEETING STANDARD	ACTUAL	STANDARD	DISPOSITION
1	RUNWAY 8/26 TO TAXIWAY SEPARATION	200'	225'	RELOCATE TAXIWAY, CORRECT IN FUTURE CONSTRUCTION PROJECTS
2	PARALLEL TAXIWAY IS HIGHER THAN RUNWAY 2/20	2'	0'	REBUILD TAXIWAY OR RUNWAY

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

GDA ENGINEERS

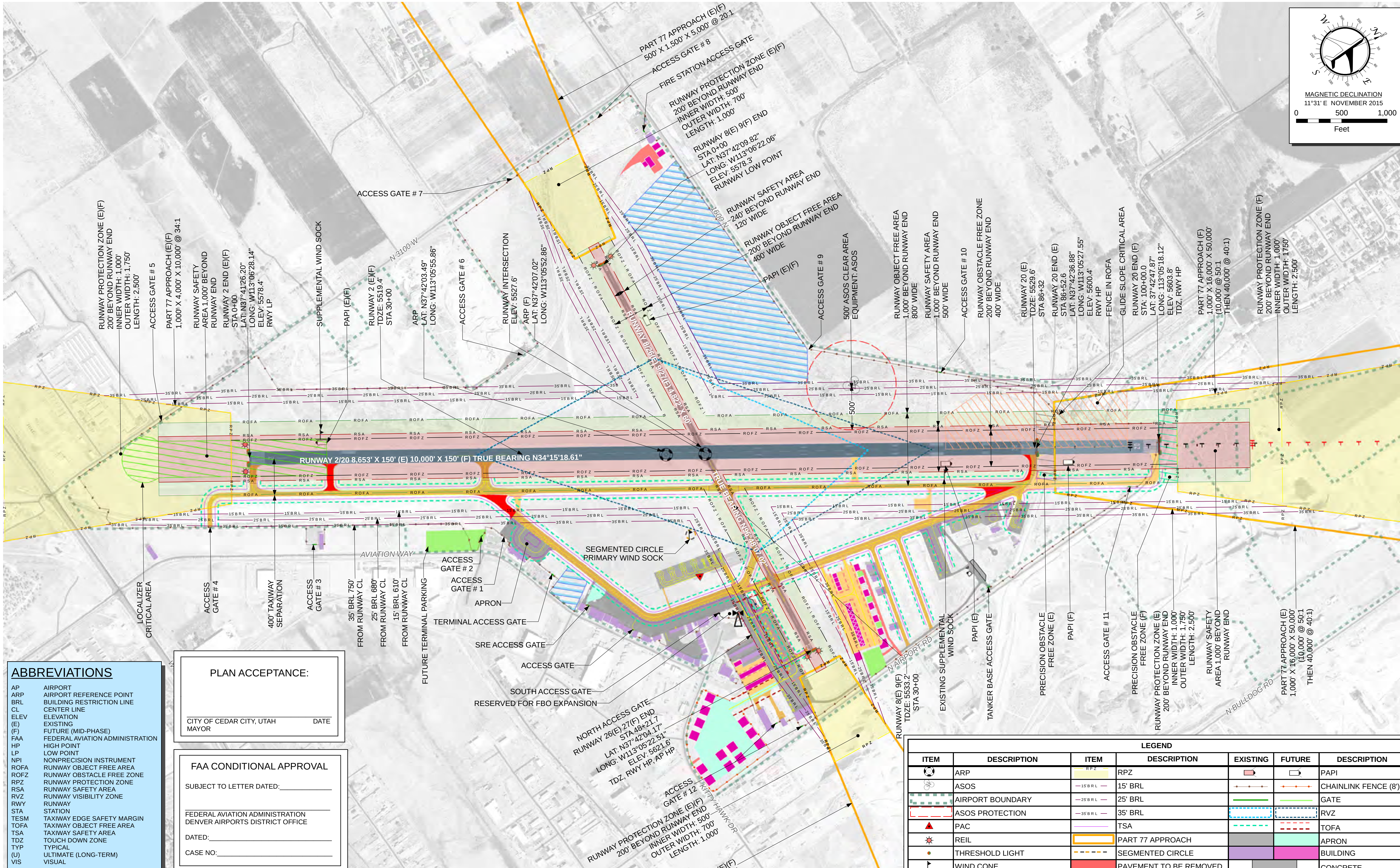
NO.	DESCRIPTION	DATE:	BY:

REVISIONS

A.I.P. PROJECT # 3-49-0005-029-2015

AIRPORT DATA SHEET
CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER
2
2 OF 17 SHEETS



ABBREVIATIONS

AP	AIRPORT
ARP	AIRPORT REFERENCE POINT
BRL	BUILDING RESTRICTION LINE
CL	CENTER LINE
ELEV	ELEVATION
(E)	EXISTING
(F)	FUTURE (MID-PHASE)
FAA	FEDERAL AVIATION ADMINISTRATION
HP	HIGH POINT
LP	LOW POINT
NPI	NONPRECISION INSTRUMENT
ROFA	RUNWAY OBJECT FREE AREA
ROFZ	RUNWAY OBSTACLE FREE ZONE
RPZ	RUNWAY PROTECTION ZONE
RSA	RUNWAY SAFETY AREA
RVZ	RUNWAY VISIBILITY ZONE
RWY	RUNWAY
STA	STATION
TESM	TAXIWAY EDGE SAFETY MARGIN
TOFA	TAXIWAY OBJECT FREE AREA
TSA	TAXIWAY SAFETY AREA
TDZ	TOUCH DOWN ZONE
TYP	TYPICAL
(U)	ULTIMATE (LONG-TERM)
VIS	VISUAL

PLAN ACCEPTANCE:

CITY OF CEDAR CITY, UTAH DATE
MAYOR

FAA CONDITIONAL APPROVAL

SUBJECT TO LETTER DATED:__________

FEDERAL AVIATION ADMINISTRATION
DENVER AIRPORTS DISTRICT OFFICE

DATED:__________

CASE NO:__________

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 AIP 3-49-0005-029-2015) as provided under title 49 U.S.C., 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 or would have justification in accordance with appropriate public laws.

LEGEND

ITEM	DESCRIPTION	ITEM	DESCRIPTION	EXISTING	FUTURE	DESCRIPTION
	ARP		RPZ			PAPI
	ASOS		15' BRL			CHAINLINK FENCE (8')
	AIRPORT BOUNDARY		25' BRL			GATE
	ASOS PROTECTION		35' BRL			RVZ
	PAC		TSA			TOFA
	REIL		PART 77 APPROACH			APRON
	THRESHOLD LIGHT		SEGMENTED CIRCLE			BUILDING
	WIND CONE		PAVEMENT TO BE REMOVED			CONCRETE
	RSA		AERONAUTICAL EXPANSION			DRIVEWAY
	ROFA		NO-TAXI ISLAND			PARKING LOT
	ROFZ/ROFA		BEACON			TAXIWAY
	ROFZ	EXISTING	FUTURE	DESCRIPTION		FUEL SITE
	LOCALIZER CRITICAL AREA			MALSR LIGHT		MARKING LINES
	GLIDE SLOPE CRITICAL AREA			MALSR STAND		POFZ

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

GDA ENGINEERS

NO.	DESCRIPTION	DATE	BY:

REVISIONS

A.I.P. PROJECT # 3-49-0005-029-2015

AIRPORT LAYOUT PLAN

CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER
3
3 OF 17 SHEETS

PART 77 SURFACE ELEVATIONS (MSL)

5,578.3' - 5,600' | 5,600.1' - 5,650' | 5,650.1' - 5,700' | 5,700.1' - 5,750' | 5,750.1' - 5,771.6' | 5,771.7' - 5,771.7' | 5,771.8' - 5,800' | 5,800.1' - 5,850' | 5,850.1' - 5,900' | 5,900.1' - 5,950' | 5,950.1' - 5,971.6'

RUNWAY 20 APPROACH SURFACE

5,825.7' - 6,077.8' | 6,077.9' - 6,250' | 6,250.1' - 6,500' | 6,500.1' - 6,750' | 6,750.1' - 7,000' | 7,000.1' - 7,250' | 7,250.1' - 7,500' | 7,500.1' - 7,517.7'

PART 77 OBSTRUCTIONS

FEET ABOVE PART 77 SURFACE

0' - 100' | 100.1' - 200' | 200.1' - 300' | 300.1' - 400' | 400.1' - 500' | 500.1' - 600' | 600.1' - 700'

OBSTRUCTION CHART

REF #	OBJECT DESCRIPTION	SURFACE AFFECTED	MAXIMUM OBJECT ELEVATION (FT.)	AREA OF PENETRATION (SQ. FT.)	MAXIMUM PENETRATION HEIGHT (FT.)	DISPOSITION
1	TERRAIN / TAXIWAY	PRIMARY	4.1	108652	5587.2	TO BE LOWERED
2	TERRAIN / TAXIWAY	PRIMARY	7.1	223792	5604.9	TO BE LOWERED
3	TERRAIN / TAXIWAY	PRIMARY	7.2	254952	5606.3	TO BE LOWERED
4	VEGETATION	PRIMARY	10.4	31628	5611.1	TO BE LOWERED
5	TERRAIN	PRIMARY	6.7	1040	5608.1	TO BE LOWERED
6	TERRAIN	PRIMARY	4.0	5804	5625.9	TO BE LOWERED
7	BUILDING	TRANSITIONAL	10.0	9960	5661.2	TO REMAIN
8	VEGETATION	HORIZONTAL	10.3	2324	5781.9	TO REMAIN
9	TERRAIN	HORIZONTAL	153.8	1423332	5925.4	TO REMAIN
10	VEGETATION	HORIZONTAL	292.0	3727964	6063.6	TO REMAIN
11	VEGETATION	CONICAL	293.7	10616732	6126.0	TO REMAIN
12	VEGETATION	CONICAL	340.3	34481812	6099.9	TO REMAIN
13	VEGETATION	HORIZONTAL	310.1	27009276	6081.7	TO REMAIN
14	VEGETATION	HORIZONTAL	65.6	735704	5977.9	TO REMAIN
15	VEGETATION	CONICAL	49.6	114228	5854.2	TO REMAIN
16	TERRAIN	HORIZONTAL	199.1	4038448	5970.6	TO REMAIN
17	VEGETATION	CONICAL	677.9	36962288	6648.6	TO REMAIN

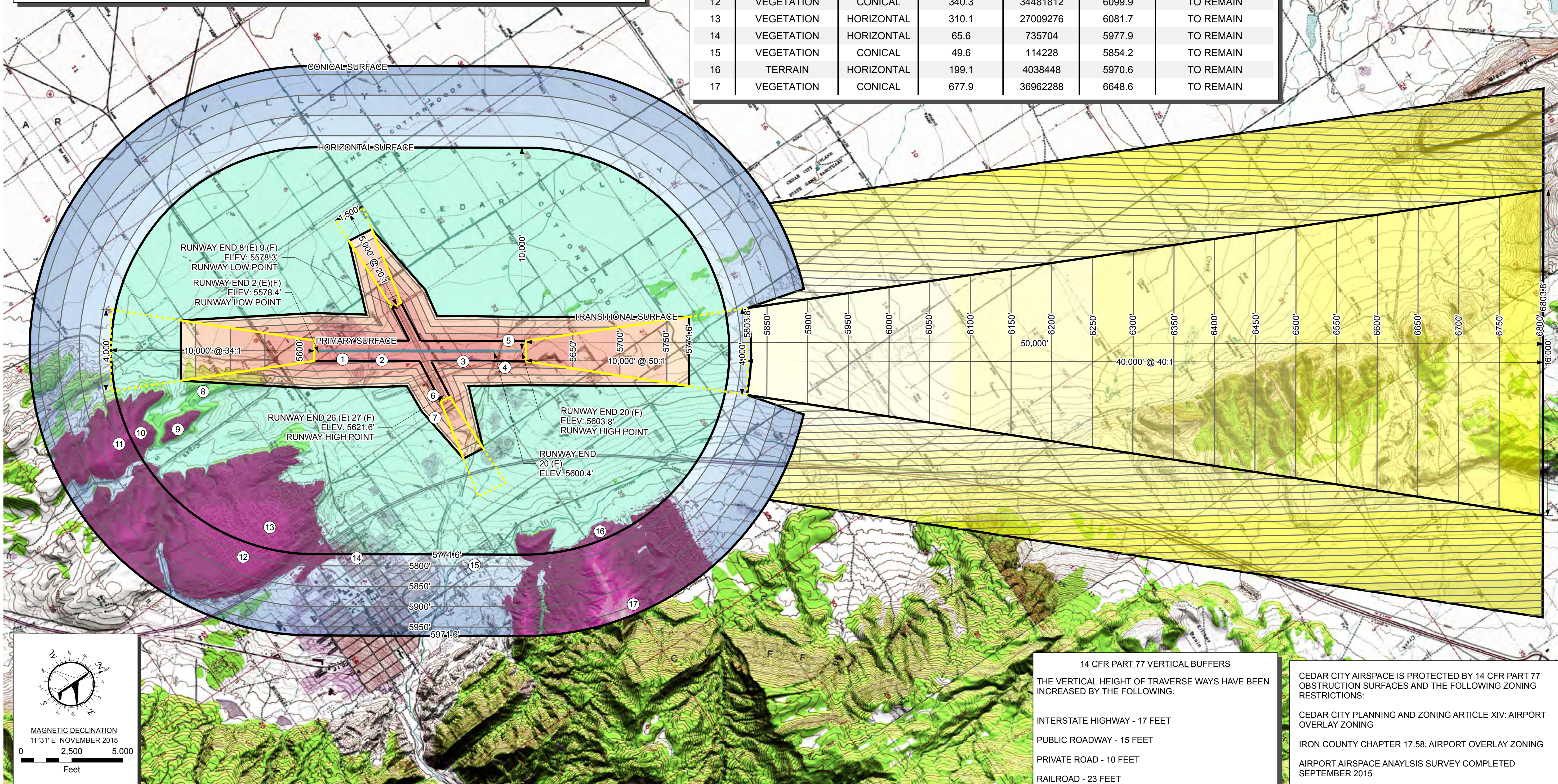
RUNWAY 2 (E) (F)
LAT: 37°41'26.194740"
LONG: 113°06'28.1540"
ELEV: 5578.4'

RUNWAY 8 (E) 9 (F)
LAT: 37°42'09.828121"
LONG: 113°06'22.06337"
ELEV: 5578.3'

RUNWAY 20 (E)
LAT: 37°41'36.8778"
LONG: 113°06'28.14540"
ELEV: 5600.4'

RUNWAY 26 (E) 27 (F)
LAT: 37°42'04.17300"
LONG: 113°05'22.50928"
ELEV: 5621.6'

RUNWAY 20 (F)
LAT: 37°42'47.86814"
LONG: 113°05'18.12269"
ELEV: 5603.8'



MAGNETIC DECLINATION
11°31' E NOVEMBER 2015
0 2,500 5,000
Feet

14 CFR PART 77 VERTICAL BUFFERS

THE VERTICAL HEIGHT OF TRAVERSE WAYS HAVE BEEN INCREASED BY THE FOLLOWING:

INTERSTATE HIGHWAY - 17 FEET

PUBLIC ROADWAY - 15 FEET

PRIVATE ROAD - 10 FEET

RAILROAD - 23 FEET

CEDAR CITY AIRSPACE IS PROTECTED BY 14 CFR PART 77 OBSTRUCTION SURFACES AND THE FOLLOWING ZONING RESTRICTIONS:

CEDAR CITY PLANNING AND ZONING ARTICLE XIV: AIRPORT OVERLAY ZONING

IRON COUNTY CHAPTER 17.58: AIRPORT OVERLAY ZONING

AIRPORT AIRSPACE ANAYLSIS SURVEY COMPLETED SEPTEMBER 2015

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

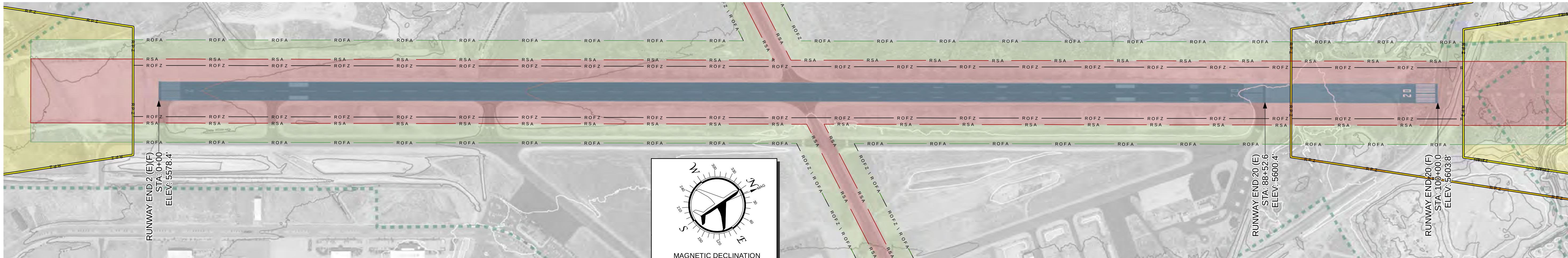
GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

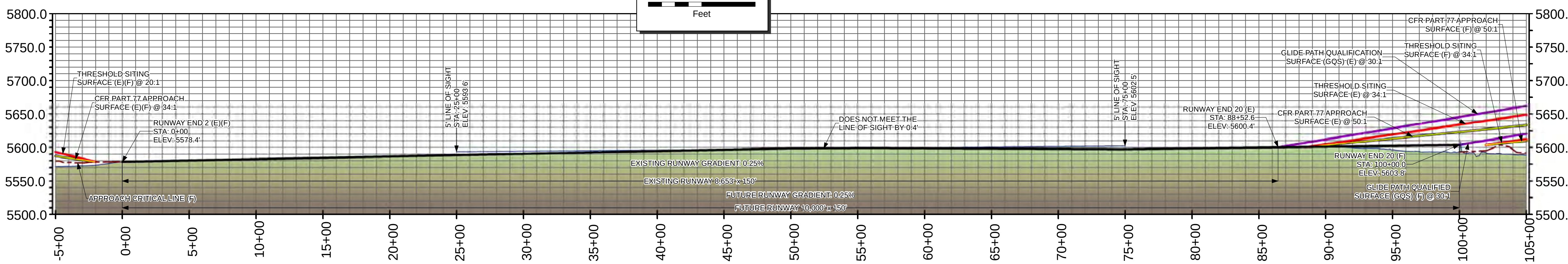
NO.	DESCRIPTION	DATE	BY:
	REVISIONS		

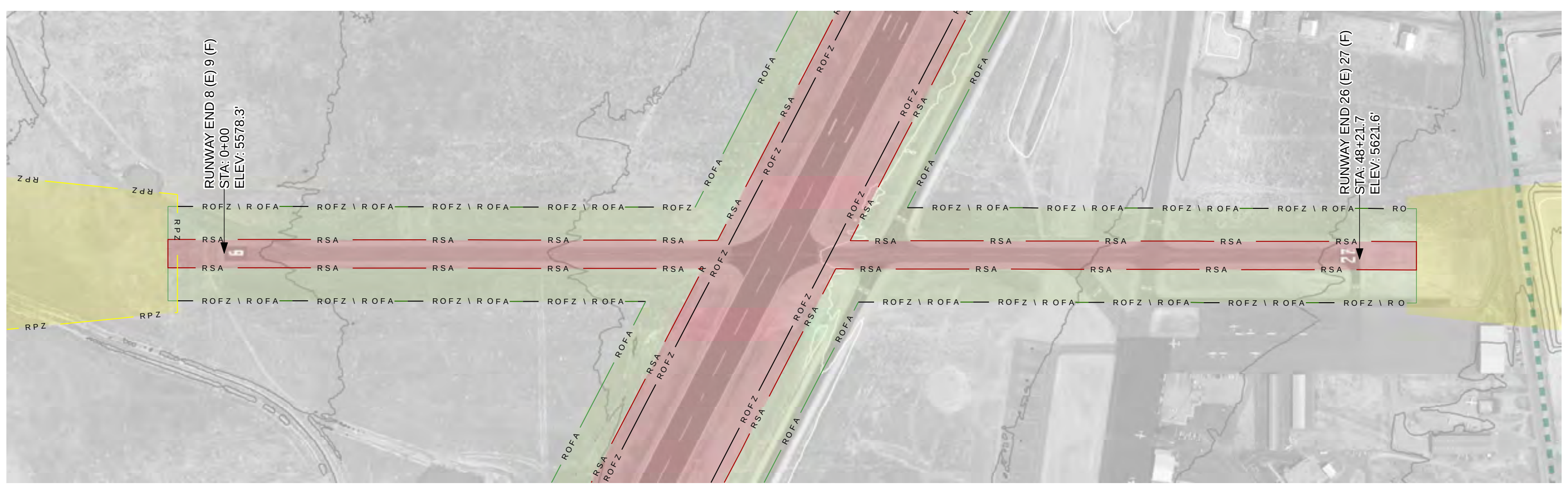
A.I.P. PROJECT # 3-49-0005-029-2015

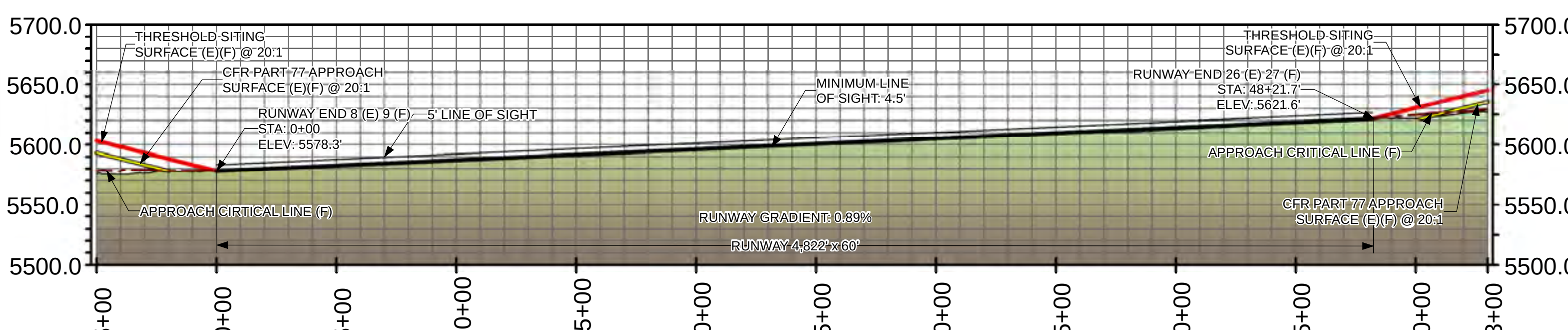
AIRPORT AIRSPACE

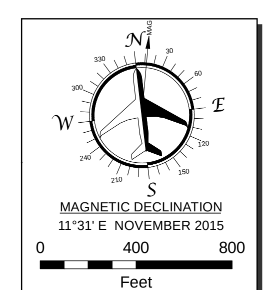
CEDAR CITY REGIONAL AIRPORT MASTER PLAN











LEGEND	
ITEM	DESCRIPTION
	APPROACH CRITICAL LINE
	THRESHOLD SITING SURFACE
	GLIDE PATH QUALIFICATION SURFACE (GQS)
RSA	RSA
ROFA	ROFA
RPZ	RPZ
ROFZ	ROFZ
ROFZ \ ROFA	ROFA/ROFZ
	AIRPORT BOUNDARY
	RUNWAY (F)
10-FOOT CONTOURS	
	MAJOR CONTOUR (WHITE LINE)
	MINOR CONTOURS
PART 77 SURFACES	
	APPROACH

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

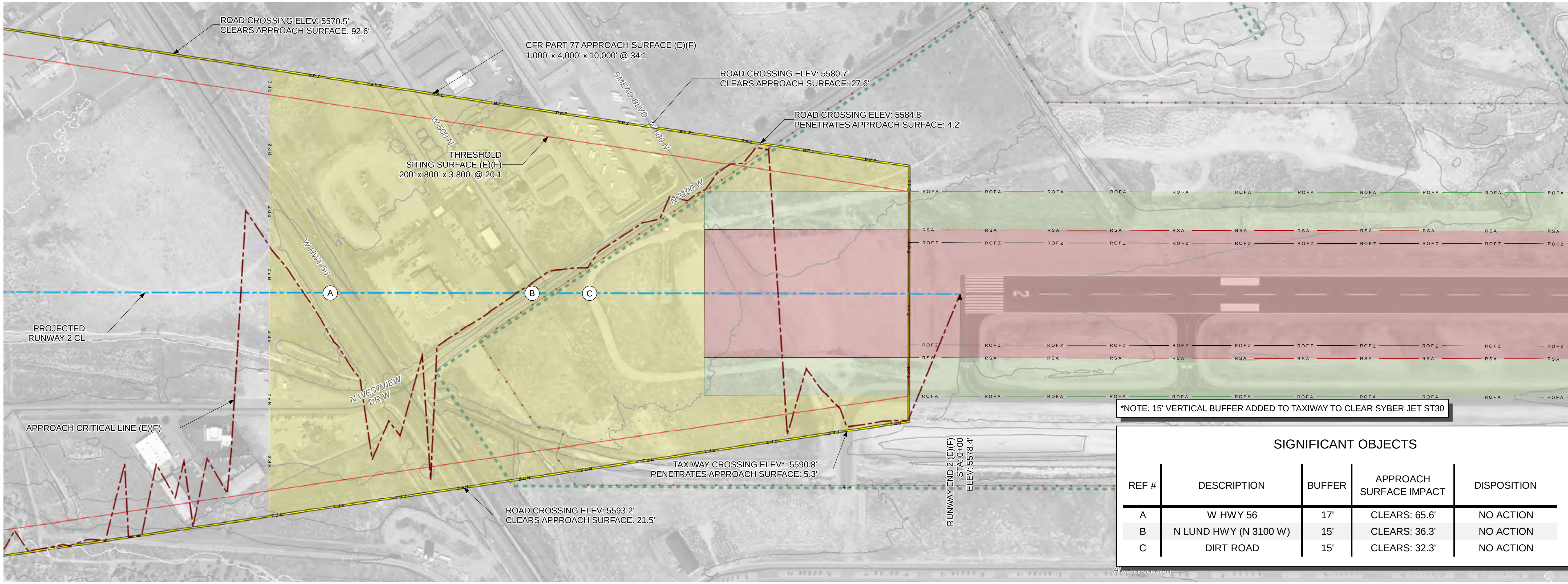
GDA ENGINEERS

NO.	DESCRIPTION	DATE:	BY:
REVISIONS			

A.I.P. PROJECT # 3-49-0005-029-2015

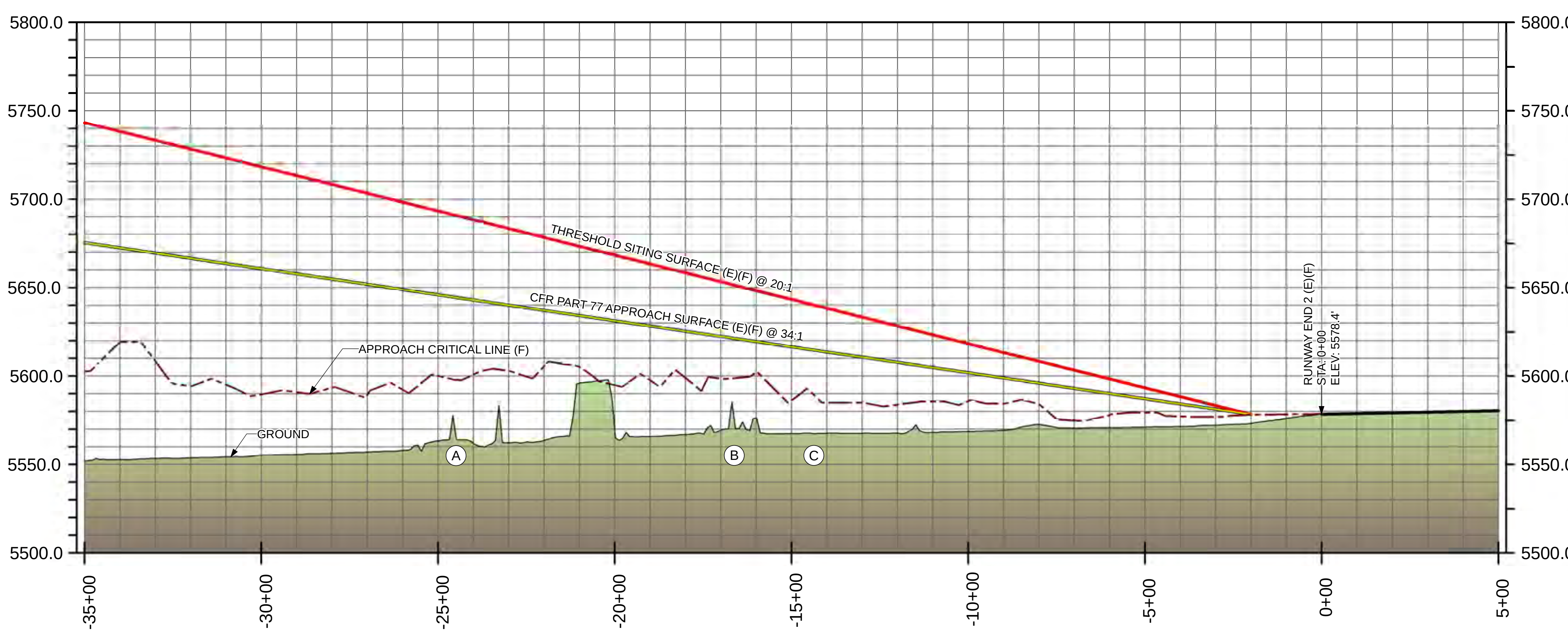
INNER PORTION OF THE APPROACH SURFACE
RUNWAY DETAIL
CEDAR CITY REGIONAL AIRPORT MASTER PLAN

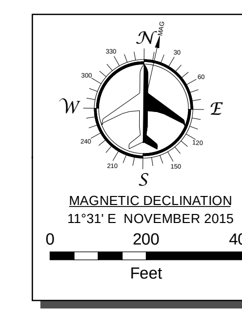
SHEET NUMBER
5A
5 OF 17 SHEETS



SIGNIFICANT OBJECTS

REF #	DESCRIPTION	BUFFER	APPROACH SURFACE IMPACT	DISPOSITION
A	W HWY 56	17'	CLEARS: 65.6'	NO ACTION
B	N LUND HWY (N 3100 W)	15'	CLEARS: 36.3'	NO ACTION
C	DIRT ROAD	15'	CLEARS: 32.3'	NO ACTION





OBSTRUCTION SURVEY: SEPTEMBER 2015

LEGEND	
ITEM	DESCRIPTION
	CHAINLINK FENCE (8')
	APPROACH CRITICAL LINE
	THRESHOLD SITING SURFACE
	PROJECTED RUNWAY CENTERLINE
RSA	RSA
ROFA	ROFA
RPZ	RPZ
ROFZ	ROFZ
	AIRPORT BOUNDARY
10-FOOT CONTOURS	
	MAJOR CONTOUR (WHITE LINE)
	MINOR CONTOURS
PART 77 SURFACES	
	APPROACH

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

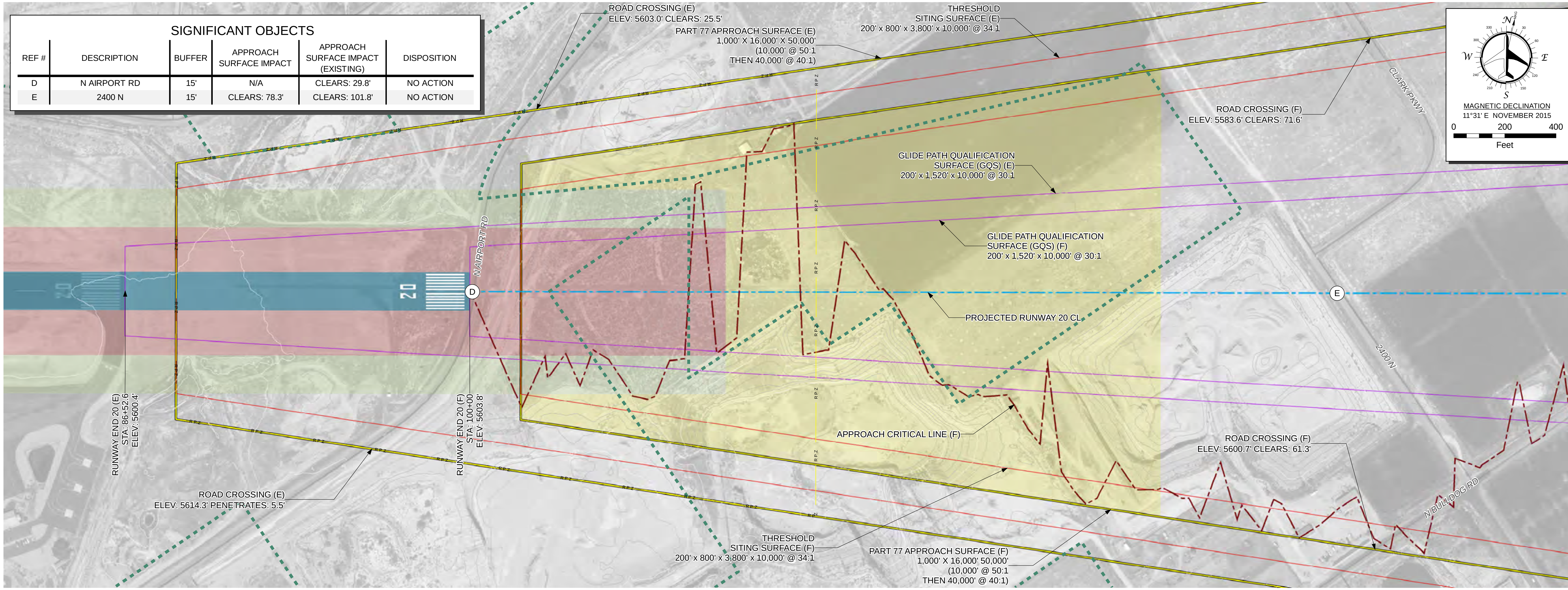
NO.	DESCRIPTION	DATE:	BY:

REVISIONS

A.I.P. PROJECT # 3-49-0005-029-2015

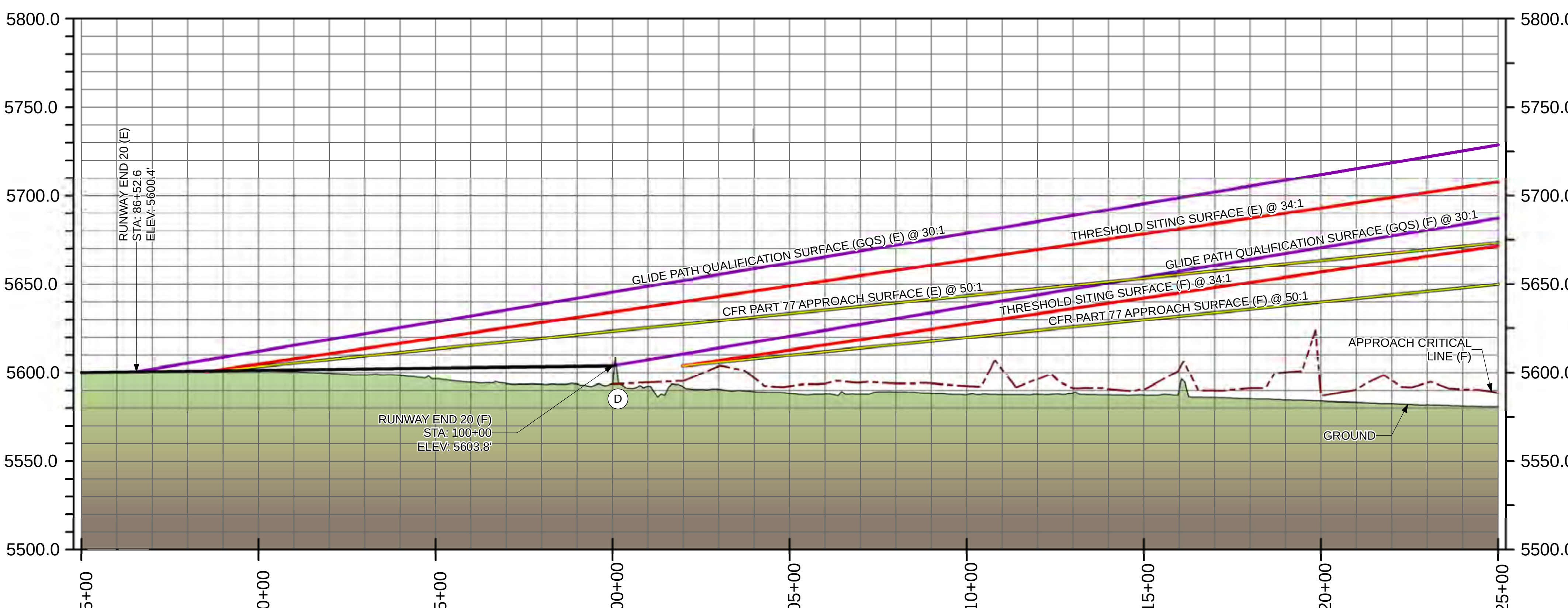
INNER PORTION OF THE APPROACH SURFACE
RUNWAY 2
CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER
5B
6 OF 17 SHEETS



SIGNIFICANT OBJECTS

REF #	DESCRIPTION	BUFFER	APPROACH SURFACE IMPACT	APPROACH SURFACE IMPACT (EXISTING)	DISPOSITION
D	N AIRPORT RD	15'	N/A	CLEARS: 29.8'	NO ACTION
E	2400 N	15'	CLEARS: 78.3'	CLEARS: 101.8'	NO ACTION



OBSTRUCTION SURVEY: SEPTEMBER 2015

LEGEND	
ITEM	DESCRIPTION
	APPROACH CRITICAL LINE
	THRESHOLD SITING SURFACE
	GLIDE PATH QUALIFICATION SURFACE (GQS)
	PROJECTED RUNWAY CENTERLINE
RSA	RSA
ROFA	ROFA
RPZ	RPZ
ROFZ	ROFZ
ROFZ \ ROFA	ROFA/ROFZ
	AIRPORT BOUNDARY
	RUNWAY (F)
10-FOOT CONTOURS	
	MAJOR CONTOUR (WHITE LINE)
	MINOR CONTOURS
PART 77 SURFACES	
	APPROACH

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

ENGINEERING • SURVEYING • PLANNING

Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

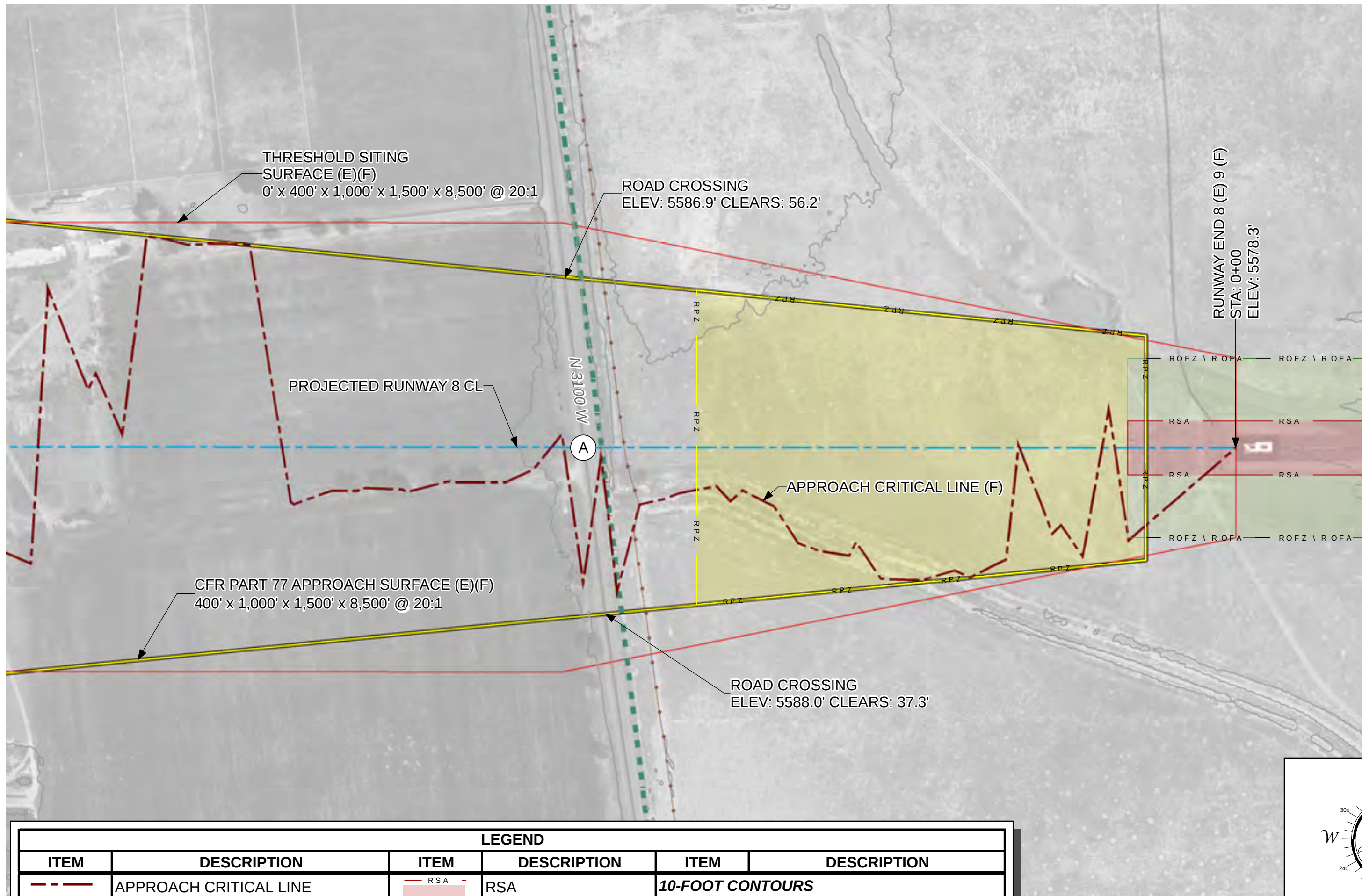
GDA ENGINEERS

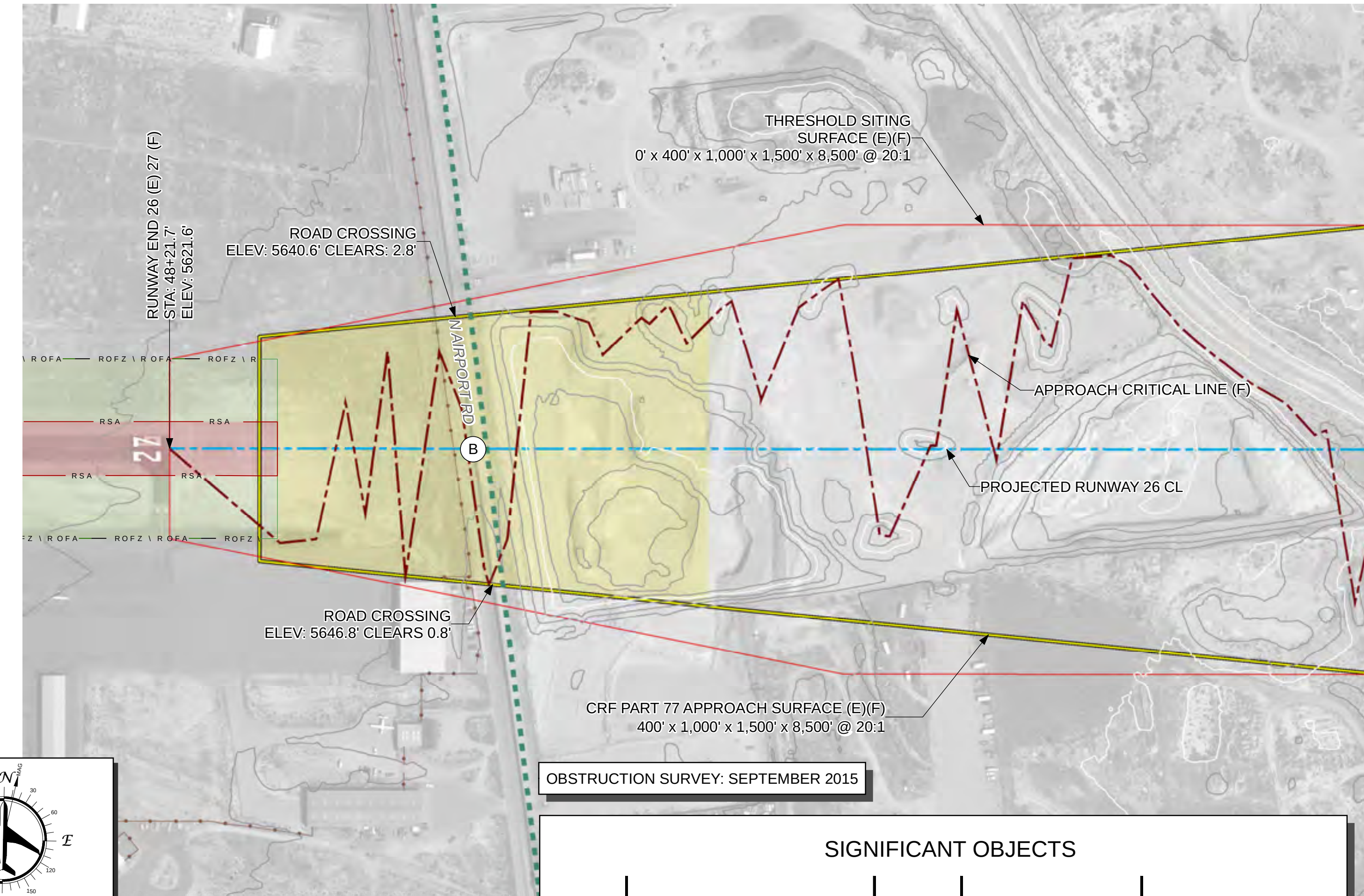
NO.	DESCRIPTION	DATE:	BY:
	REVISIONS		

A.I.P. PROJECT # 3-49-0005-029-2015

INNER PORTION OF THE APPROACH SURFACE
RUNWAY 20
CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER
5C
7 OF 17 SHEETS

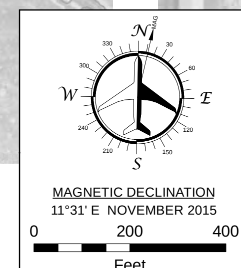




OBSTRUCTION SURVEY: SEPTEMBER 2015

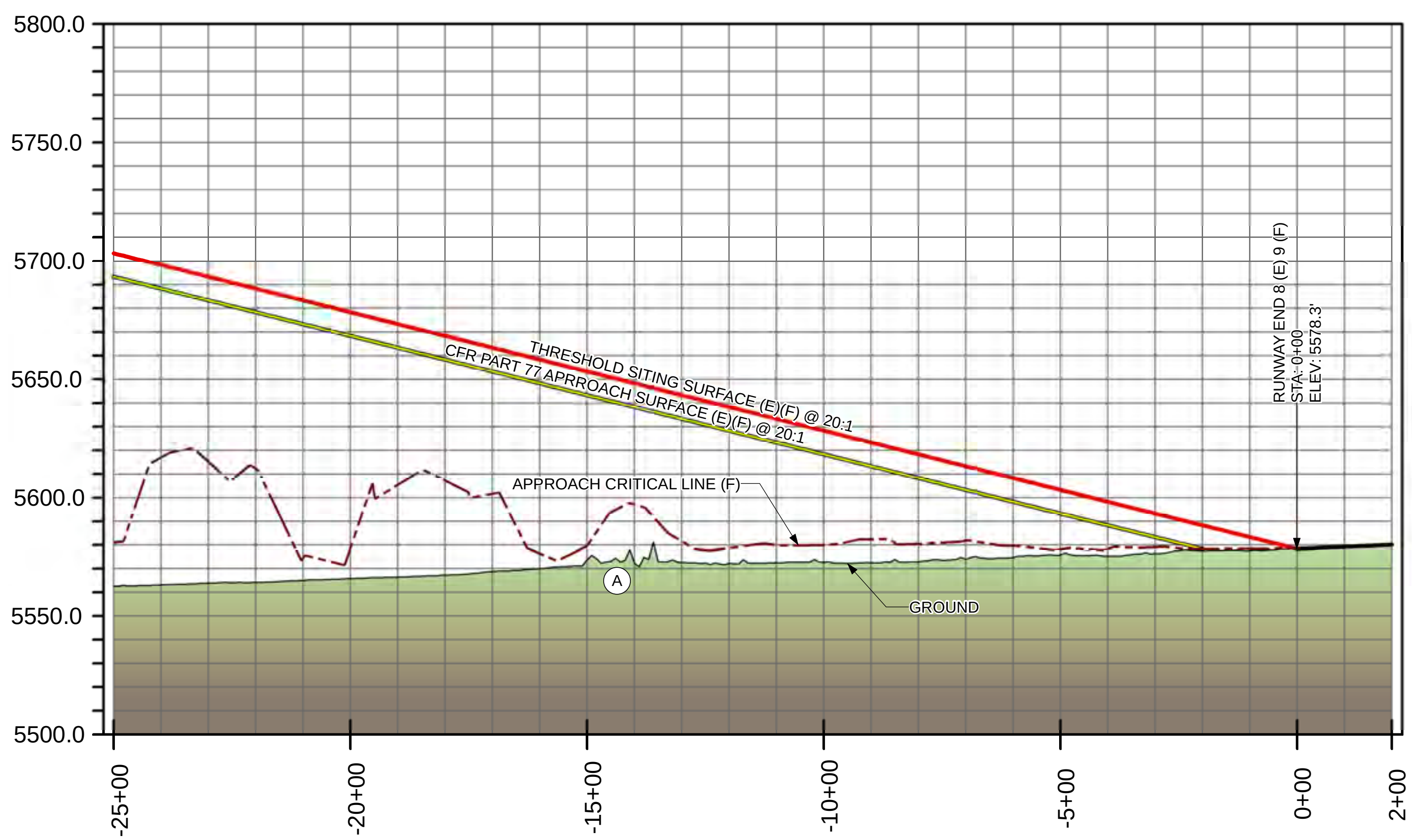
LEGEND

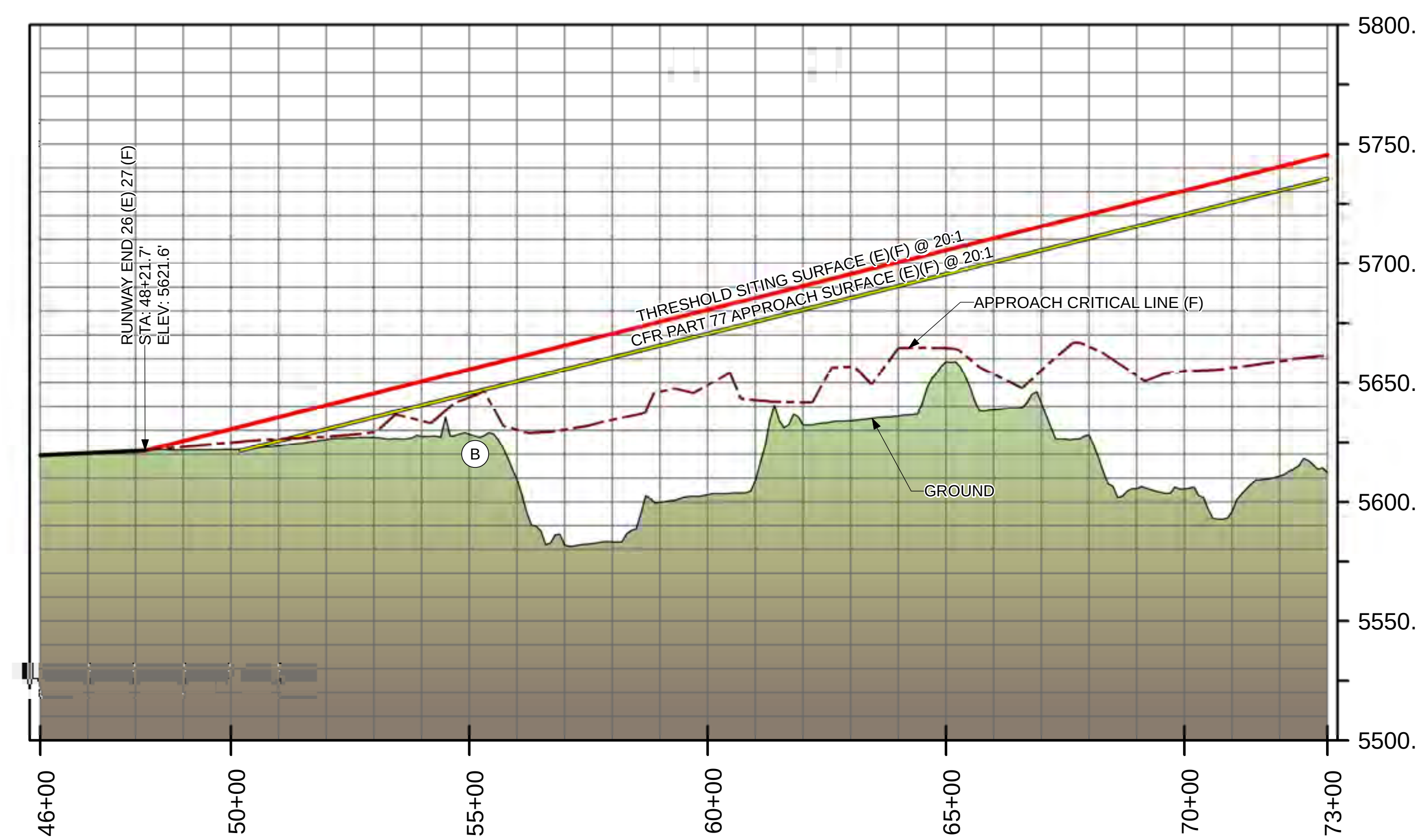
ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
	APPROACH CRITICAL LINE	RSA	RSA	*10-FOOT CONTOURS*	
	THRESHOLD SITING SURFACE	ROFA	ROFA		MAJOR CONTOUR (WHITE LINE)
	PROJECTED RUNWAY CENTERLINE	RPZ	RPZ		MINOR CONTOURS
	AIRPORT BOUNDARY	ROFZ	ROFZ	*PART 77 SURFACES*	
					APPROACH



SIGNIFICANT OBJECTS

REF #	DESCRIPTION	BUFFER	APPROACH SURFACE IMPACT	DISPOSITION
A	N LUND HWY (N 3100 W)	15'	CLEARS: 52.4'	NO ACTION
B	N AIRPORT RD	15'	CLEARS: 16.6'	NO ACTION





DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

GDA ENGINEERS

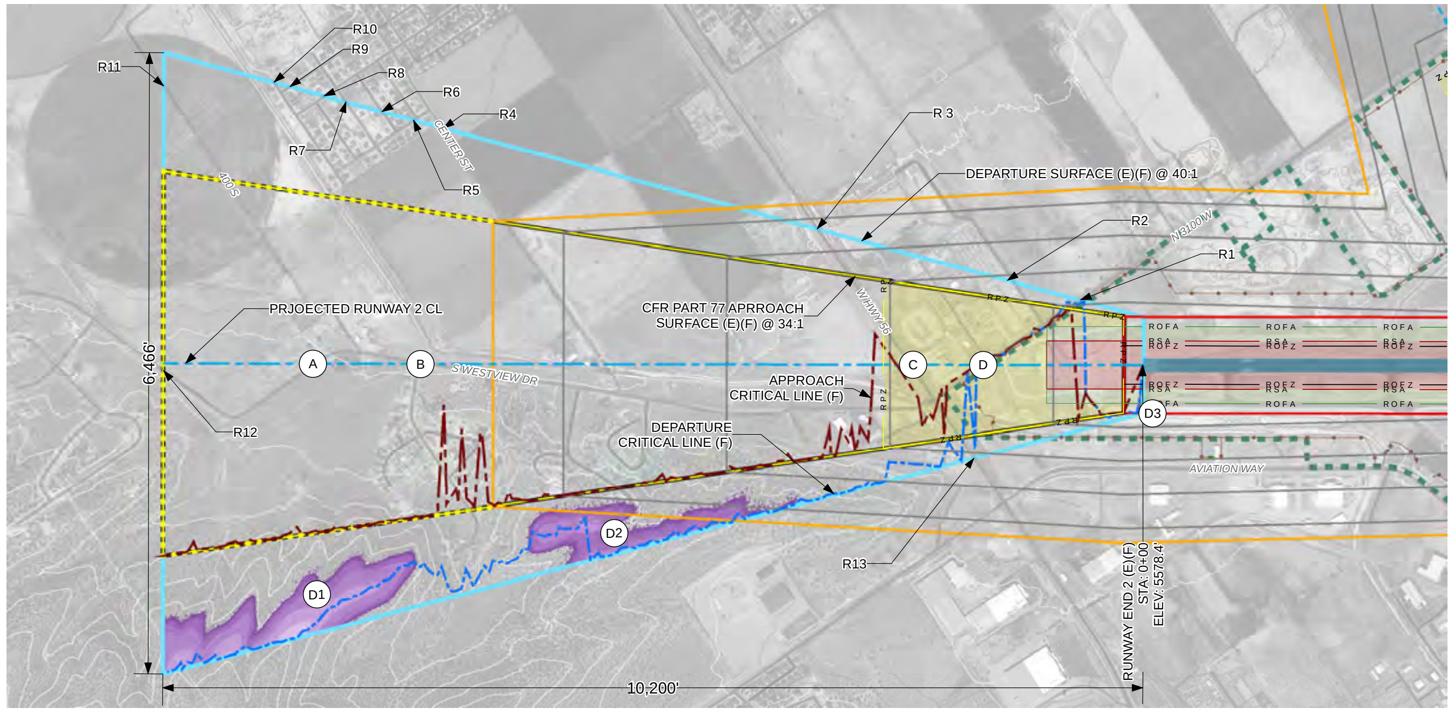
NO.	DESCRIPTION	DATE:	BY:

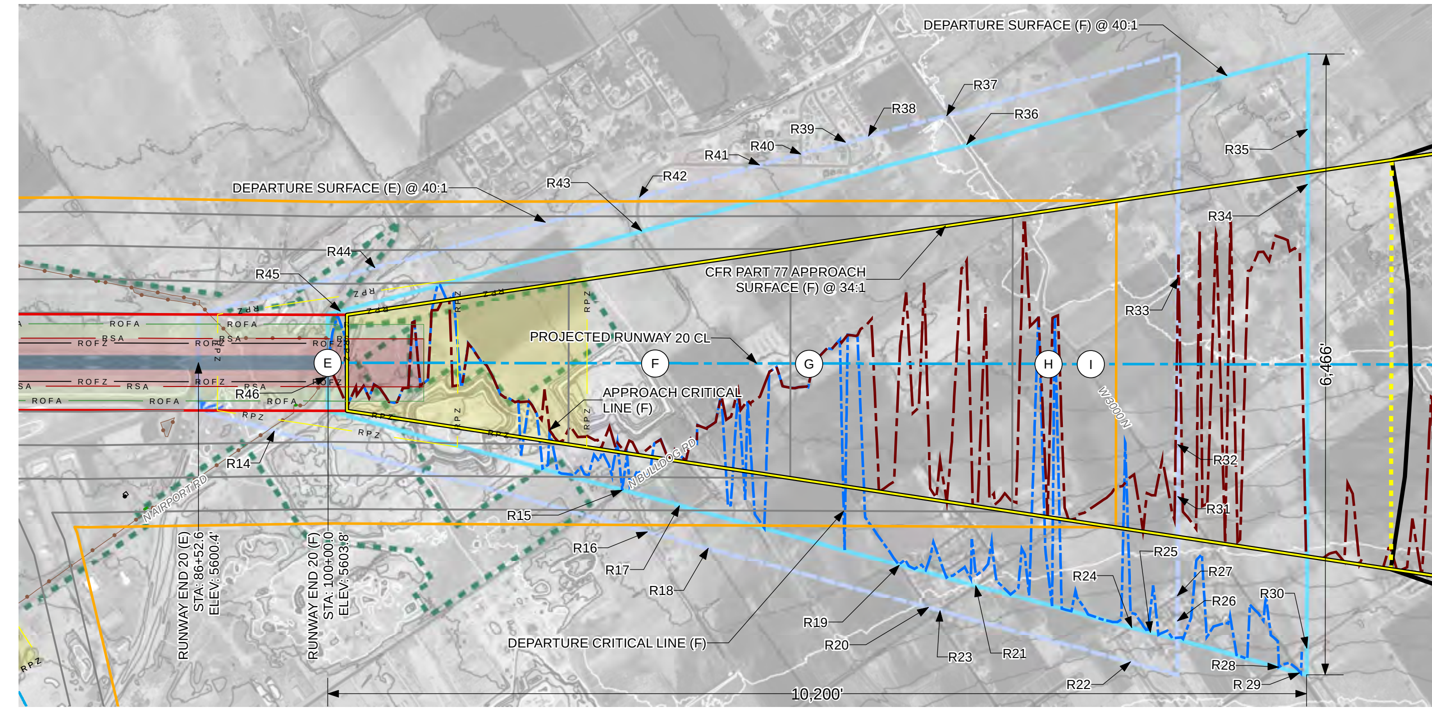
REVISIONS

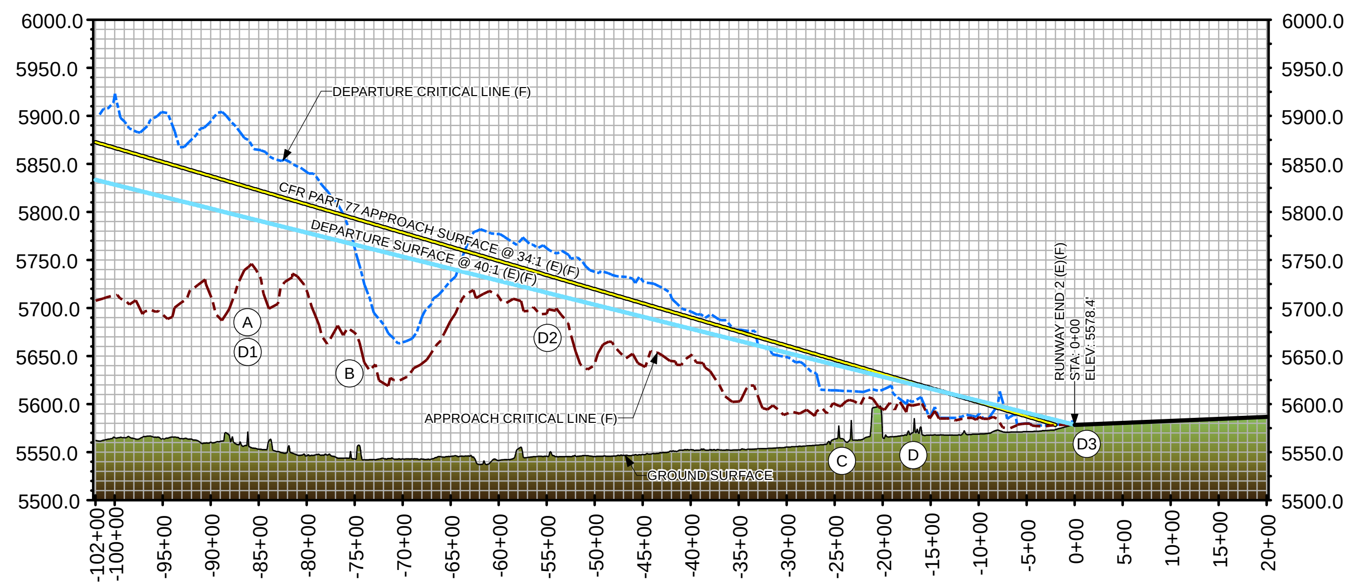
A.I.P. PROJECT # 3-49-0005-029-2015

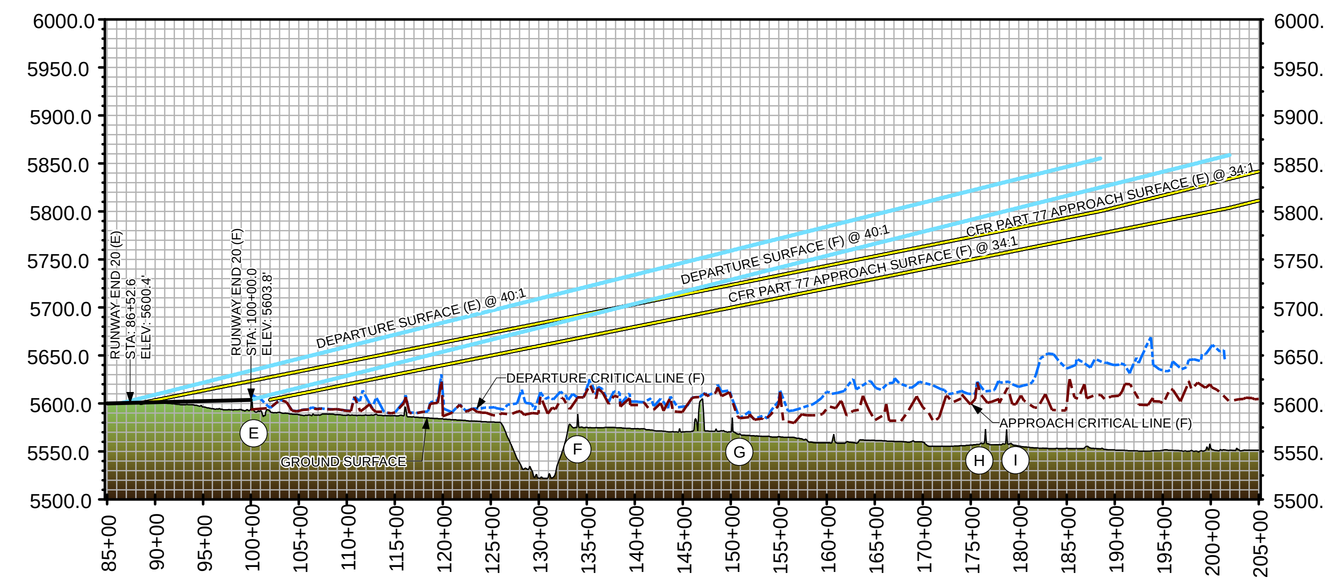
INNER PORTION OF THE APPROACH SURFACE
RUNWAY 9/27
CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER
5D
8 OF 17 SHEETS









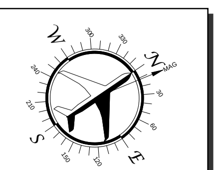
LEGEND			
ITEM	**DESCRIPTION**	**ITEM**	**DESCRIPTION**
	AIRPORT BOUNDARY	***10-FT CONTOURS***	
	APPROACH CRITICAL LINE		MAJOR CONTOUR (WHITE LINE)
	CHAINLINK FENCE (8')		MINOR CONTOURS
	DEPARTURE CRITICAL LINE	***SAFTEY AREAS***	
	PROJECTED RUNWAY CENTERLINE	RSA	RSA
	RUNWAY (F)	ROFA	ROFA
PART 77 SURFACES		ROFZ	ROFZ
	CFR PART 77 APPROACH	**EXISTING** / **FUTURE**	**DESCRIPTION**
	PRIMARY	RPZ / RPZ	RPZ
	TRANSITIONAL		DEPARTURE SURFACE
	50' CONTOURS		

DEPARTURE SURFACE OBSTRUCTIONS

REF #	OBJECT DESCRIPTION	MAXIMUM OBJECT ELEVATION	AREA OF PENETRATION (SQ. FT.)	PENETRATION NOT TO EXCEED	DISPOSITION
D1	TERRAIN	5798.9'	1269192	95.5'	TO REMAIN
D2	TERRAIN	5734.1'	823848	36.4'	TO REMAIN
D3	TERRAIN	5578.9'	17680	2.0'	TO REMAIN

SIGNIFICANT OBJECTS

REF #	DESCRIPTION	BUFFER	EXISTING DEPARTURE SURFACE IMPACT	FUTURE DEPARTURE SURFACE IMPACT	DISPOSITION
A	S WESTVIEW DR	15'	CLEARS: 237.4'	N/A	NO ACTION
B	HIDDEN HILLS DR	15'	CLEARS: 223.4'	N/A	NO ACTION
C	W HWY 56 (STATE RTE 56)	17'	CLEARS: 75.5'	N/A	NO ACTION
D	N LUND HWY	17'	CLEARS: 49.8'	N/A	NO ACTION
E	N AIRPORT RD	15'	CLEARS: 10.8'	CLEARS: 41.3'	NO ACTION
F	2400 N	15'	CLEARS: 99.4'	CLEARS: 143.7'	NO ACTION
G	N BULLDOG RD	15'	CLEARS: 158.6'	CLEARS: 189.2'	NO ACTION
H	775 W	15'	CLEARS: 235.9'	CLEARS: 266.8'	NO ACTION
I	SECOND LN W	15'	CLEARS: 243.4'	CLEARS: 273.9'	NO ACTION



MAGNETIC DECLINATION
11°31' E NOVEMBER 2015
0 1,000 2,000
Feet

DEPARTURE OBSTRUCTIONS

0.1' - 5' | 5.1' - 10' | 10.1' - 25' | 25.1' - 50' | 50.1' - 75' | 75.1' - 103.5'

R1	ROAD CROSSING (E)(F)	ELEV: 5584.6' PENETRATES: 2.8'
R2	ROAD CROSSING (E)(F)	ELEV: 5578.8' CLEARS: 18.5'
R3	ROAD CROSSING (E)(F)	ELEV: 5567.2' CLEARS: 96.0'
R4	ROAD CROSSING (E)(F)	ELEV: 5546.5' CLEARS: 214.6'
R5	ROAD CROSSING (E)(F)	ELEV: 5543.4' CLEARS: 224.6'
R6	ROAD CROSSING (E)(F)	ELEV: 5542.7' CLEARS: 219'
R7	ROAD CROSSING (E)(F)	ELEV: 5539.8' CLEARS: 231.2'
R8	ROAD CROSSING (E)(F)	ELEV: 5539.6' CLEARS: 237.2'
R9	ROAD CROSSING (E)(F)	ELEV: 5538.5' CLEARS: 248.4'
R10	ROAD CROSSING (E)(F)	ELEV: 5537.2' CLEARS: 252.5'
R11	ROAD CROSSING (E)(F)	ELEV: 5533.5' CLEARS: 299.9'
R12	ROAD CROSSING (E)(F)	ELEV: 5581' CLEARS: 252.4'
R13	ROAD CROSSING (E)(F)	ELEV: 5595.8' CLEARS: 26.5'
R14	ROAD CROSSING (E)	ELEV: 5615.7' PENETRATES: 10.5'
R15	ROAD CROSSING (F)	ELEV: 5604.7' CLEARS: 75.8'
R16	ROAD CROSSING (E)	ELEV: 5600.7' CLEARS: 116.6'
R17	ROAD CROSSING (F)	ELEV: 5579.2' CLEARS: 116.5'
R18	ROAD CROSSING (E)	ELEV: 5598.7' CLEARS: 134.3'
R19	ROAD CROSSING (F)	ELEV: 5605.7' CLEARS: 147.1'
R20	ROAD CROSSING (E)	ELEV: 5618.9' CLEARS: 171.7'
R21	ROAD CROSSING (F)	ELEV: 5615.2' CLEARS: 142.3'
R22	ROAD CROSSING (E)	ELEV: 5649.7' CLEARS: 193.4'
R23	ROAD CROSSING (E)	ELEV: 5620.5' CLEARS: 165.3'
R24	ROAD CROSSING (F)	ELEV: 5636.9' CLEARS: 161.4'
R25	ROAD CROSSING (F)	ELEV: 5638' CLEARS: 164.3'
R26	ROAD CROSSING (E)	ELEV: 5637.4' CLEARS: 218.0'
R27	ROAD CROSSING (E)	ELEV: 5629.2' CLEARS: 211.2'
R28	ROAD CROSSING (F)	ELEV: 5651.6' CLEARS: 200'
R29	ROAD CROSSING (F)	ELEV: 5655.5' CLEARS: 201.5'
R30	ROAD CROSSING (F)	ELEV: 5644.5' CLEARS: 214.4'
R31	ROAD CROSSING (E)	ELEV: 5599.5' CLEARS: 241.0'
R32	ROAD CROSSING (E)	ELEV: 5584.3' CLEARS: 271.0'
R33	ROAD CROSSING (E)	ELEV: 5565.8' CLEARS: 283.6'
R34	ROAD CROSSING (F)	ELEV: 5556.5' CLEARS: 302.2'
R35	ROAD CROSSING (F)	ELEV: 5554.2' CLEARS: 289.5'
R36	ROAD CROSSING (F)	ELEV: 5566.6' CLEARS: 188.4'
R37	ROAD CROSSING (E)	ELEV: 5567' CLEARS: 213.0'
R38	ROAD CROSSING (E)	ELEV: 5570.2' CLEARS: 204.5'
R39	ROAD CROSSING (E)	ELEV: 5571.7' CLEARS: 182.1'
R40	ROAD CROSSING (E)	ELEV: 5571.6' CLEARS: 170.5'
R41	ROAD CROSSING (E)	ELEV: 5574.7' CLEARS: 156.8'
R42	ROAD CROSSING (E)	ELEV: 5579.8' CLEARS: 120.5'
R43	ROAD CROSSING (F)	ELEV: 5581.7' CLEARS: 103.6'
R44	ROAD CROSSING (E)	ELEV: 5601.2' CLEARS: 45.1'
R45	ROAD CROSSING (F)	ELEV: 5604.4' PENETRATES: 12.5'
R46	ROAD CROSSING (F)	ELEV: 5609.9' PENETRATES: 5.9'

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

NO.	DESCRIPTION	DATE:	BY:
	REVISIONS		

A.I.P. PROJECT # 3-49-0005-029-2015

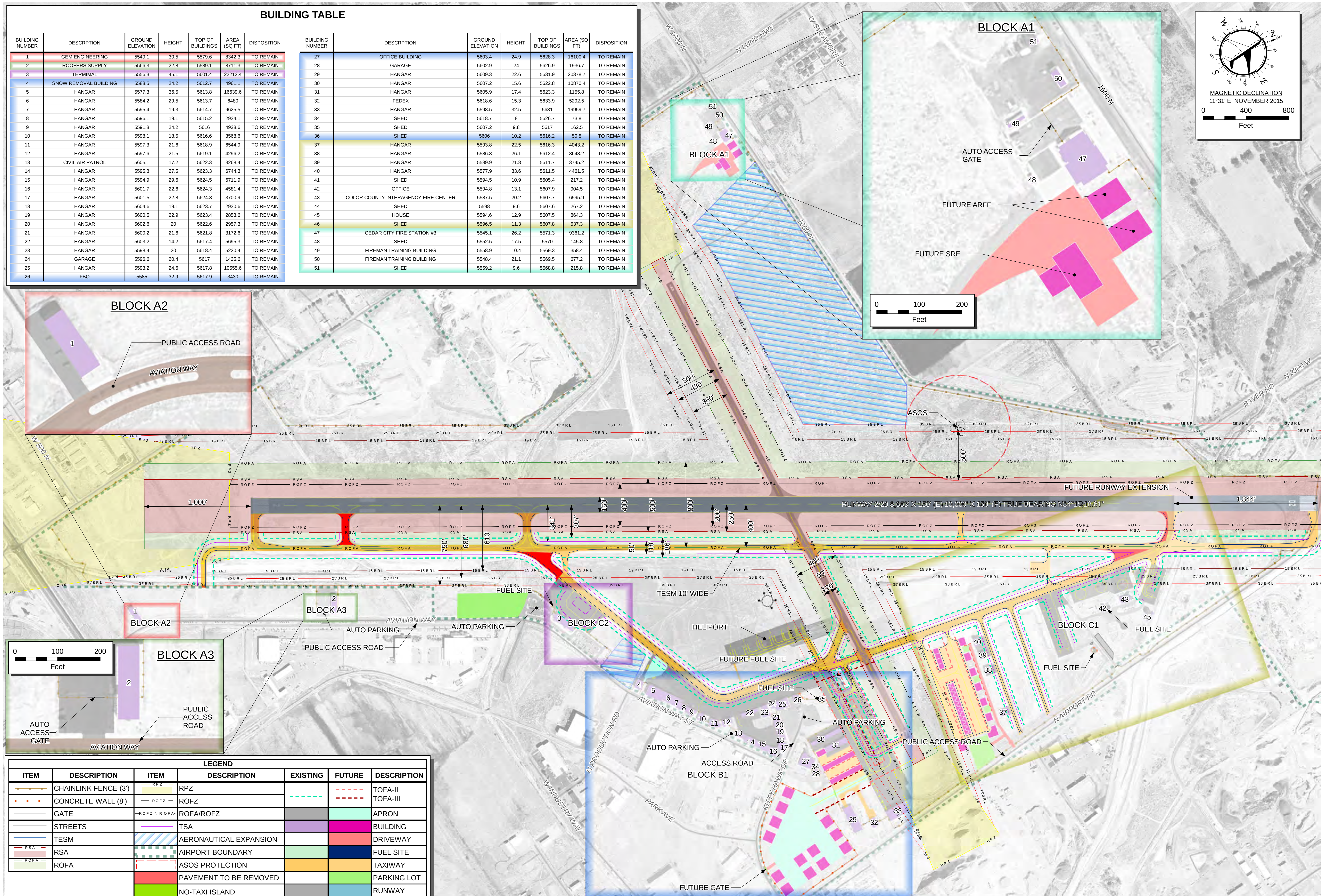
RUNWAY DEPARTURE SURFACE
RUNWAY 2/20
CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER
6
9 OF 17 SHEETS

BUILDING TABLE

BUILDING NUMBER	DESCRPTION	GROUND ELEVATION	HEIGHT	TOP OF BUILDINGS	AREA (SQ FT)	DISPOSITION
1	GEM ENGINEERING	5549.1	30.5	5579.6	8342.3	TO REMAIN
2	ROOFERS SUPPLY	5566.3	22.8	5589.1	8711.3	TO REMAIN
3	TERMIMAL	5556.3	45.1	5601.4	22212.4	TO REMAIN
4	SNOW REMOVAL BUILDING	5588.5	24.2	5612.7	4961.1	TO REMAIN
5	HANGAR	5577.3	36.5	5613.8	16639.6	TO REMAIN
6	HANGAR	5584.2	29.5	5613.7	6480	TO REMAIN
7	HANGAR	5595.4	19.3	5614.7	9625.5	TO REMAIN
8	HANGAR	5596.1	19.1	5615.2	2934.1	TO REMAIN
9	HANGAR	5591.8	24.2	5616	4928.6	TO REMAIN
10	HANGAR	5598.1	18.5	5616.6	3568.6	TO REMAIN
11	HANGAR	5597.3	21.6	5618.9	6544.9	TO REMAIN
12	HANGAR	5597.6	21.5	5619.1	4296.2	TO REMAIN
13	CIVIL AIR PATROL	5605.1	17.2	5622.3	3268.4	TO REMAIN
14	HANGAR	5595.8	27.5	5623.3	6744.3	TO REMAIN
15	HANGAR	5594.9	29.6	5624.5	6711.9	TO REMAIN
16	HANGAR	5601.7	22.6	5624.3	4581.4	TO REMAIN
17	HANGAR	5601.5	22.8	5624.3	3700.9	TO REMAIN
18	HANGAR	5604.6	19.1	5623.7	2930.6	TO REMAIN
19	HANGAR	5600.5	22.9	5623.4	2853.6	TO REMAIN
20	HANGAR	5602.6	20	5622.6	2957.3	TO REMAIN
21	HANGAR	5600.2	21.6	5621.8	3172.6	TO REMAIN
22	HANGAR	5603.2	14.2	5617.4	5695.3	TO REMAIN
23	HANGAR	5598.4	20	5618.4	5220.4	TO REMAIN
24	GARAGE	5596.6	20.4	5617	1425.6	TO REMAIN
25	HANGAR	5593.2	24.6	5617.8	10555.6	TO REMAIN
26	FBO	5585	32.9	5617.9	3430	TO REMAIN

BUILDING NUMBER	DESCRPTION	GROUND ELEVATION	HEIGHT	TOP OF BUILDINGS	AREA (SQ FT)	DISPOSITION
27	OFFICE BUILDING	5603.4	24.9	5628.3	16100.4	TO REMAIN
28	GARAGE	5602.9	24	5626.9	1936.7	TO REMAIN
29	HANGAR	5609.3	22.6	5631.9	20378.7	TO REMAIN
30	HANGAR	5607.2	15.6	5622.8	10870.4	TO REMAIN
31	HANGAR	5605.9	17.4	5623.3	1155.8	TO REMAIN
32	FEDEX	5618.6	15.3	5633.9	5292.5	TO REMAIN
33	HANGAR	5598.5	32.5	5631	19959.7	TO REMAIN
34	SHED	5618.7	8	5626.7	73.8	TO REMAIN
35	SHED	5607.2	9.8	5617	162.5	TO REMAIN
36	SHED	5606	10.2	5616.2	50.8	TO REMAIN
37	HANGAR	5593.8	22.5	5616.3	4043.2	TO REMAIN
38	HANGAR	5586.3	26.1	5612.4	3648.2	TO REMAIN
39	HANGAR	5589.9	21.8	5611.7	3745.2	TO REMAIN
40	HANGAR	5577.9	33.6	5611.5	4461.5	TO REMAIN
41	SHED	5594.5	10.9	5605.4	217.2	TO REMAIN
42	OFFICE	5594.8	13.1	5607.9	904.5	TO REMAIN
43	COLOR COUNTY INTERAGENCY FIRE CENTER	5587.5	20.2	5607.7	6595.9	TO REMAIN
44	SHED	5598	9.6	5607.6	267.2	TO REMAIN
45	HOUSE	5594.6	12.9	5607.5	864.3	TO REMAIN
46	SHED	5596.5	11.3	5607.8	537.3	TO REMAIN
47	CEDAR CITY FIRE STATION #3	5545.1	26.2	5571.3	9361.2	TO REMAIN
48	SHED	5552.5	17.5	5570	145.8	TO REMAIN
49	FIREMAN TRAINING BUILDING	5558.9	10.4	5569.3	358.4	TO REMAIN
50	FIREMAN TRAINING BUILDING	5548.4	21.1	5569.5	677.2	TO REMAIN
51	SHED	5559.2	9.6	5568.8	215.8	TO REMAIN



LEGEND						
ITEM	DESCRIPTION	ITEM	DESCRIPTION	EXISTING	FUTURE	DESCRIPTION
	CHAINLINK FENCE (3')	RPZ	RPZ			TOFA-II
	CONCRETE WALL (8')	ROFZ	ROFZ			TOFA-III
	GATE	ROFZ \ ROFA	ROFA/ROFZ			APRON
	STREETS		TSA			BUILDING
	TESM		AERONAUTICAL EXPANSION			DRIVEWAY
RSA	RSA		AIRPORT BOUNDARY			FUEL SITE
ROFA	ROFA		ASOS PROTECTION			TAXIWAY
			PAVEMENT TO BE REMOVED			PARKING LOT
			NO-TAXI ISLAND			RUNWAY

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

NO.	DESCRIPTION	DATE:	BY:

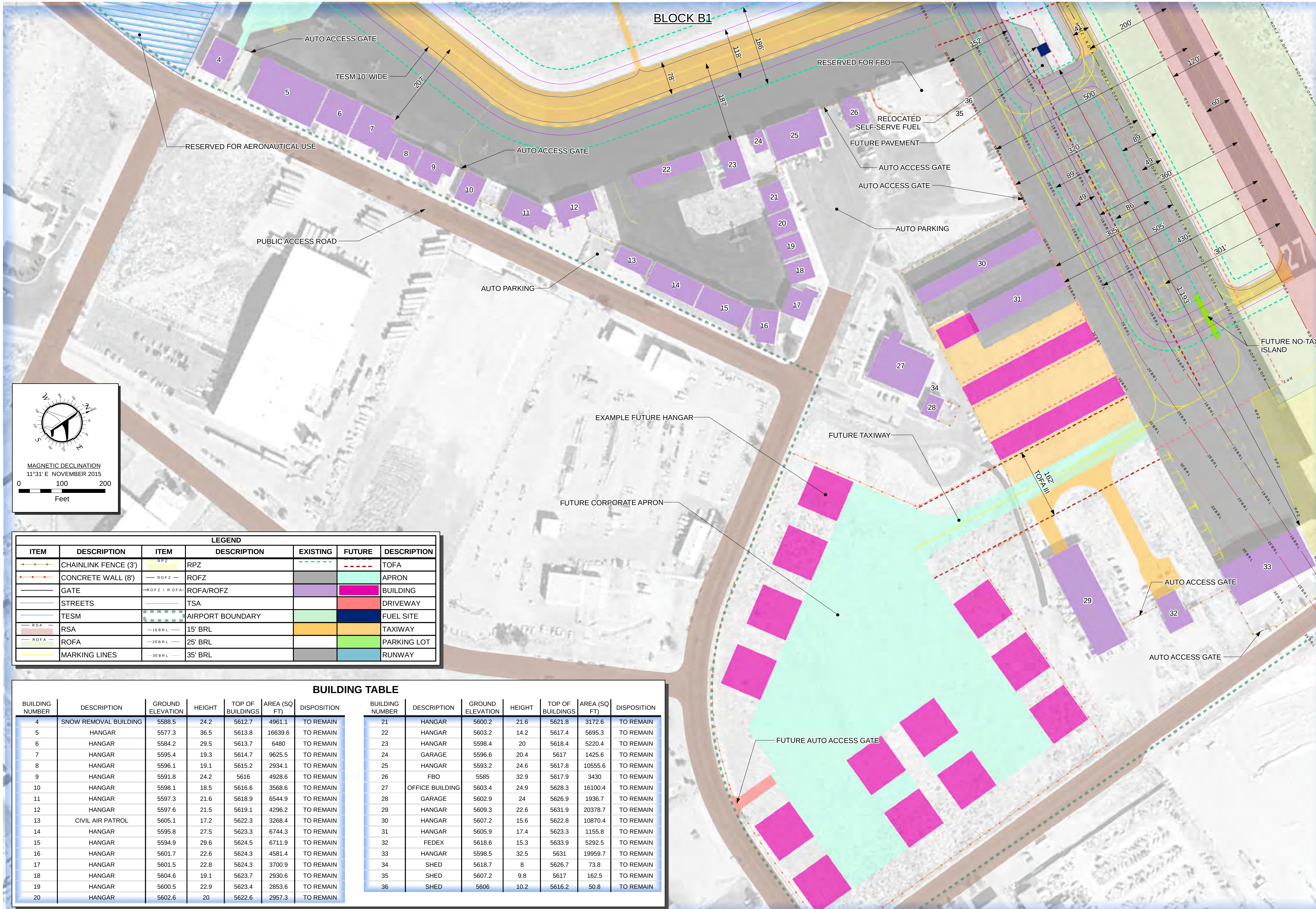
REVISIONS

A.I.P. PROJECT # 3-49-0005-029-2015

TERMINAL AREA

CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER
7A
10 OF 17 SHEETS



LEGEND						
ITEM	DESCRIPTION	ITEM	DESCRIPTION	EXISTING	FUTURE	DESCRIPTION
	CHAINLINK FENCE (3')	RPZ	RPZ			TOFA
	CONCRETE WALL (8')	ROFZ	ROFZ			APRON
	GATE	ROFZ \ ROFA	ROFA/ROFZ			BUILDING
	STREETS		TSA			DRIVEWAY
	TESM		AIRPORT BOUNDARY			FUEL SITE
RSA	RSA	15 BRL	15' BRL			TAXIWAY
ROFA	ROFA	25'BRL	25' BRL			PARKING LOT
	MARKING LINES	35'BRL	35' BRL			RUNWAY

BUILDING TABLE

BUILDING NUMBER	DESCRIPTION	GROUND ELEVATION	HEIGHT	TOP OF BUILDINGS	AREA (SQ FT)	DISPOSITION
4	SNOW REMOVAL BUILDING	5588.5	24.2	5612.7	4961.1	TO REMAIN
5	HANGAR	5577.3	36.5	5613.8	16639.6	TO REMAIN
6	HANGAR	5584.2	29.5	5613.7	6480	TO REMAIN
7	HANGAR	5595.4	19.3	5614.7	9625.5	TO REMAIN
8	HANGAR	5596.1	19.1	5615.2	2934.1	TO REMAIN
9	HANGAR	5591.8	24.2	5616	4928.6	TO REMAIN
10	HANGAR	5598.1	18.5	5616.6	3568.6	TO REMAIN
11	HANGAR	5597.3	21.6	5618.9	6544.9	TO REMAIN
12	HANGAR	5597.6	21.5	5619.1	4296.2	TO REMAIN
13	CIVIL AIR PATROL	5605.1	17.2	5622.3	3268.4	TO REMAIN
14	HANGAR	5595.8	27.5	5623.3	6744.3	TO REMAIN
15	HANGAR	5594.9	29.6	5624.5	6711.9	TO REMAIN
16	HANGAR	5601.7	22.6	5624.3	4581.4	TO REMAIN
17	HANGAR	5601.5	22.8	5624.3	3700.9	TO REMAIN
18	HANGAR	5604.6	19.1	5623.7	2930.6	TO REMAIN
19	HANGAR	5600.5	22.9	5623.4	2853.6	TO REMAIN
20	HANGAR	5602.6	20	5622.6	2957.3	TO REMAIN

BUILDING NUMBER	DESCRIPTION	GROUND ELEVATION	HEIGHT	TOP OF BUILDINGS	AREA (SQ FT)	DISPOSITION
21	HANGAR	5600.2	21.6	5621.8	3172.6	TO REMAIN
22	HANGAR	5603.2	14.2	5617.4	5695.3	TO REMAIN
23	HANGAR	5598.4	20	5618.4	5220.4	TO REMAIN
24	GARAGE	5596.6	20.4	5617	1425.6	TO REMAIN
25	HANGAR	5593.2	24.6	5617.8	10555.6	TO REMAIN
26	FBO	5585	32.9	5617.9	3430	TO REMAIN
27	OFFICE BUILDING	5603.4	24.9	5628.3	16100.4	TO REMAIN
28	GARAGE	5602.9	24	5626.9	1936.7	TO REMAIN
29	HANGAR	5609.3	22.6	5631.9	20378.7	TO REMAIN
30	HANGAR	5607.2	15.6	5622.8	10870.4	TO REMAIN
31	HANGAR	5605.9	17.4	5623.3	1155.8	TO REMAIN
32	FEDEX	5618.6	15.3	5633.9	5292.5	TO REMAIN
33	HANGAR	5598.5	32.5	5631	19959.7	TO REMAIN
34	SHED	5618.7	8	5626.7	73.8	TO REMAIN
35	SHED	5607.2	9.8	5617	162.5	TO REMAIN
36	SHED	5606	10.2	5616.2	50.8	TO REMAIN

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

NO.	DESCRIPTION	DATE:	BY:

REVISIONS

A.I.P. PROJECT # 3-49-0005-029-2015

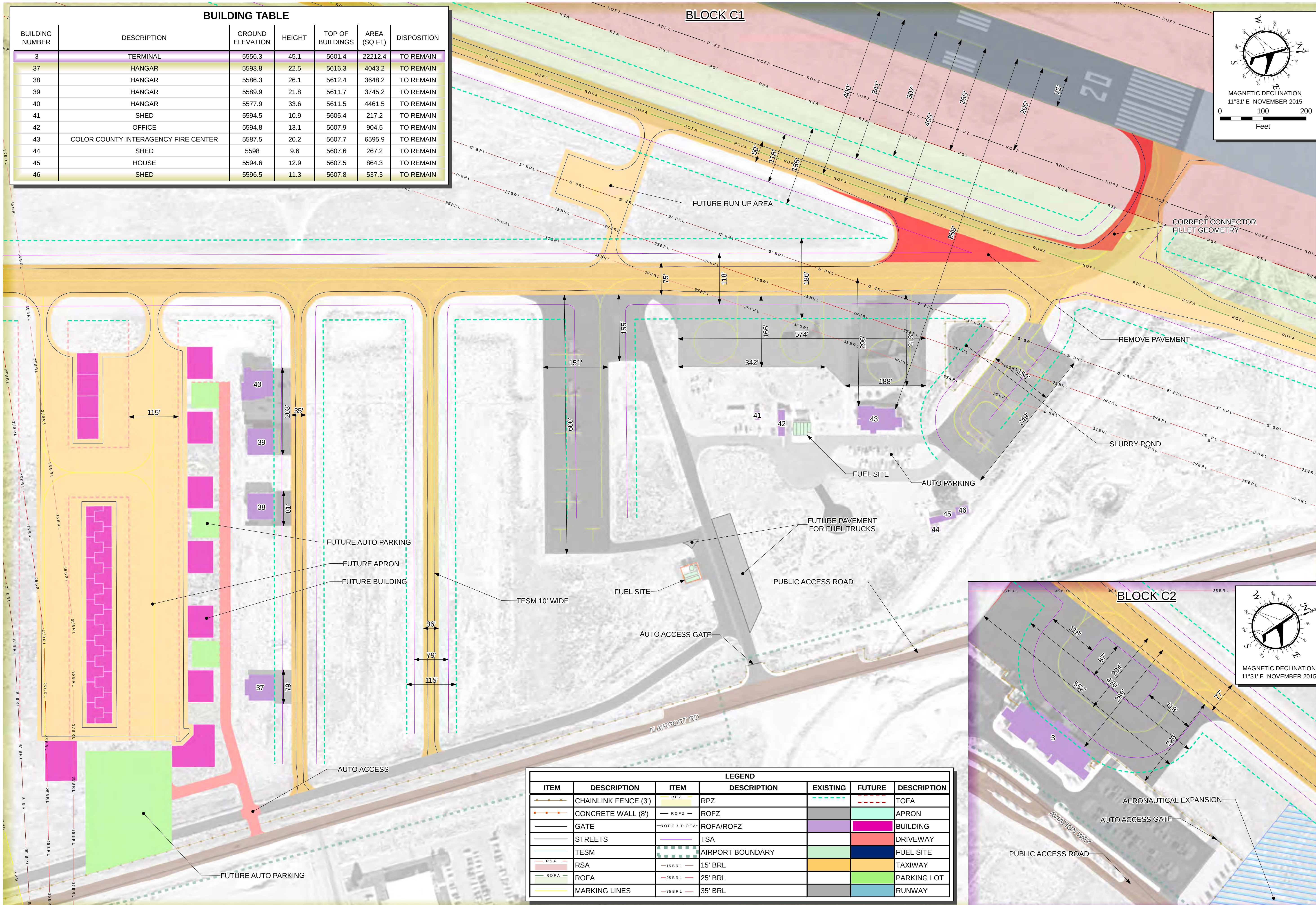
TERMINAL AREA

CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER
7B
11 OF 17 SHEETS

BUILDING TABLE

BUILDING NUMBER	DESCRIPTION	GROUND ELEVATION	HEIGHT	TOP OF BUILDINGS	AREA (SQ FT)	DISPOSITION
3	TERMINAL	5556.3	45.1	5601.4	22212.4	TO REMAIN
37	HANGAR	5593.8	22.5	5616.3	4043.2	TO REMAIN
38	HANGAR	5586.3	26.1	5612.4	3648.2	TO REMAIN
39	HANGAR	5589.9	21.8	5611.7	3745.2	TO REMAIN
40	HANGAR	5577.9	33.6	5611.5	4461.5	TO REMAIN
41	SHED	5594.5	10.9	5605.4	217.2	TO REMAIN
42	OFFICE	5594.8	13.1	5607.9	904.5	TO REMAIN
43	COLOR COUNTY INTERAGENCY FIRE CENTER	5587.5	20.2	5607.7	6595.9	TO REMAIN
44	SHED	5598	9.6	5607.6	267.2	TO REMAIN
45	HOUSE	5594.6	12.9	5607.5	864.3	TO REMAIN
46	SHED	5596.5	11.3	5607.8	537.3	TO REMAIN



LEGEND

ITEM	DESCRIPTION	ITEM	DESCRIPTION	EXISTING	FUTURE	DESCRIPTION
	CHAINLINK FENCE (3')	RPZ	RPZ			TOFA
	CONCRETE WALL (8')	ROFZ	ROFZ			APRON
	GATE	ROFZ \ ROFA	ROFA/ROFZ			BUILDING
	STREETS		TSA			DRIVEWAY
	TESM		AIRPORT BOUNDARY			FUEL SITE
RSA	RSA	15 BRL	15' BRL			TAXIWAY
ROFA	ROFA	25'BRL	25' BRL			PARKING LOT
	MARKING LINES	35'BRL	35' BRL			RUNWAY

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

NO.	DESCRIPTION	DATE:	BY:

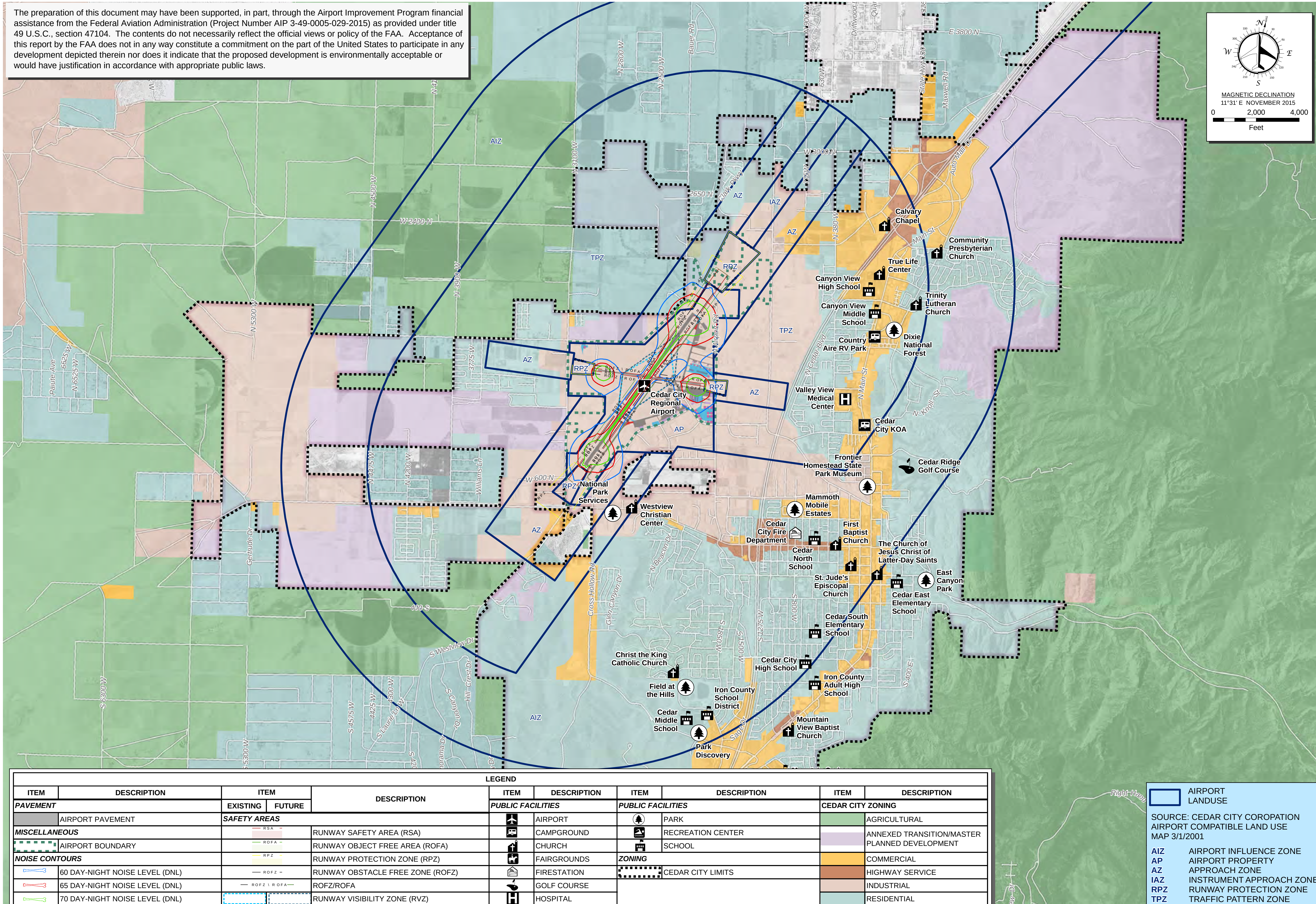
REVISIONS

A.I.P. PROJECT # 3-49-0005-029-2015

TERMINAL AREA
CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER
7C
12 OF 17 SHEETS

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 AIP 3-49-0005-029-2015) as provided under title 49 U.S.C., 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 or would have justification in accordance with appropriate public laws.



LEGEND

ITEM	DESCRIPTION	ITEM EXISTING	ITEM FUTURE	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
PAVEMENT					*PUBLIC FACILITIES*		*PUBLIC FACILITIES*		*CEDAR CITY ZONING*	
	AIRPORT PAVEMENT	*SAFETY AREAS*				AIRPORT		PARK		AGRICULTURAL
MISCELLANEOUS		RSA		RUNWAY SAFETY AREA (RSA)		CAMPGROUND		RECREATION CENTER		ANNEXED TRANSITION/MASTER PLANNED DEVELOPMENT
	AIRPORT BOUNDARY	ROFA		RUNWAY OBJECT FREE AREA (ROFA)		CHURCH		SCHOOL		
NOISE CONTOURS		RPZ		RUNWAY PROTECTION ZONE (RPZ)		FAIRGROUNDS	*ZONING*			COMMERCIAL
	60 DAY-NIGHT NOISE LEVEL (DNL)	ROFZ		RUNWAY OBSTACLE FREE ZONE (ROFZ)		FIRESTATION		CEDAR CITY LIMITS		HIGHWAY SERVICE
	65 DAY-NIGHT NOISE LEVEL (DNL)	ROFZ \ ROFA		ROFZ/ROFA		GOLF COURSE				INDUSTRIAL
	70 DAY-NIGHT NOISE LEVEL (DNL)			RUNWAY VISIBILITY ZONE (RVZ)		HOSPITAL				RESIDENTIAL

AIRPORT LANDUSE

SOURCE: CEDAR CITY COROPATION AIRPORT COMPATIBLE LAND USE MAP 3/1/2001

AIZ	AIRPORT INFLUENCE ZONE
AP	AIRPORT PROPERTY
AZ	APPROACH ZONE
IAZ	INSTRUMENT APPROACH ZONE
RPZ	RUNWAY PROTECTION ZONE
TPZ	TRAFFIC PATTERN ZONE

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

ENGINEERING • SURVEYING • PLANNING

Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

GDA ENGINEERS

NO.	DESCRIPTION	DATE:	BY:

REVISIONS

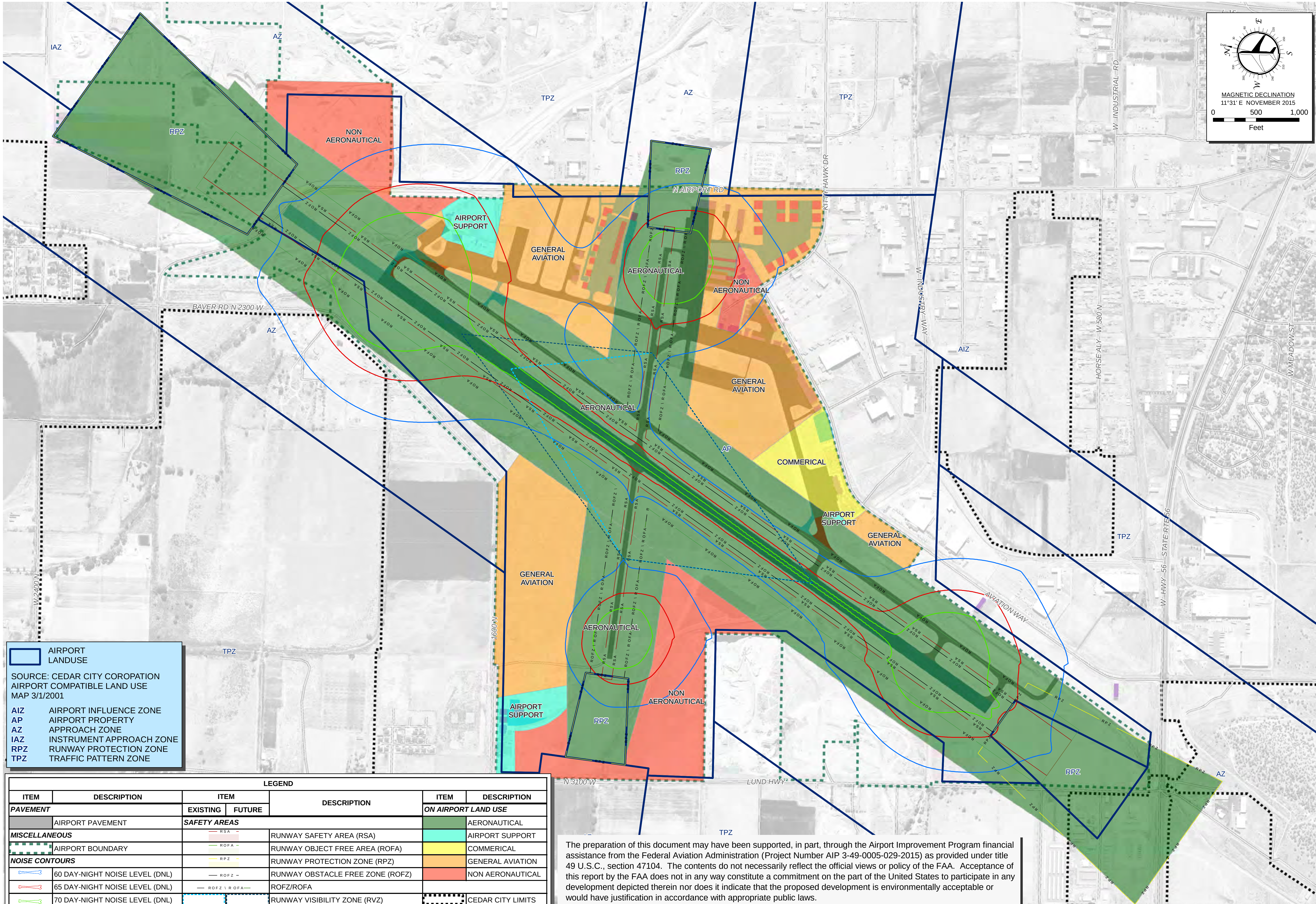
A.I.P. PROJECT # 3-49-0005-029-2015

LAND USE

CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER 8A

13 OF 17 SHEETS



LEGEND

ITEM	DESCRIPTION	ITEM: EXISTING	ITEM: FUTURE	DESCRIPTION	ITEM	DESCRIPTION
PAVEMENT					***ON AIRPORT LAND USE***	
	AIRPORT PAVEMENT	***SAFETY AREAS***				AERONAUTICAL
MISCELLANEOUS		RSA		RUNWAY SAFETY AREA (RSA)		AIRPORT SUPPORT
	AIRPORT BOUNDARY	ROFA		RUNWAY OBJECT FREE AREA (ROFA)		COMMERICAL
NOISE CONTOURS		RPZ		RUNWAY PROTECTION ZONE (RPZ)		GENERAL AVIATION
	60 DAY-NIGHT NOISE LEVEL (DNL)	ROFZ		RUNWAY OBSTACLE FREE ZONE (ROFZ)		NON AERONAUTICAL
	65 DAY-NIGHT NOISE LEVEL (DNL)	ROFZ \ ROFA		ROFZ/ROFA		
	70 DAY-NIGHT NOISE LEVEL (DNL)			RUNWAY VISIBILITY ZONE (RVZ)		CEDAR CITY LIMITS

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 AIP 3-49-0005-029-2015) as provided under title 49 U.S.C., 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 or would have justification in accordance with appropriate public laws.

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

NO.	DESCRIPTION	DATE:	BY:

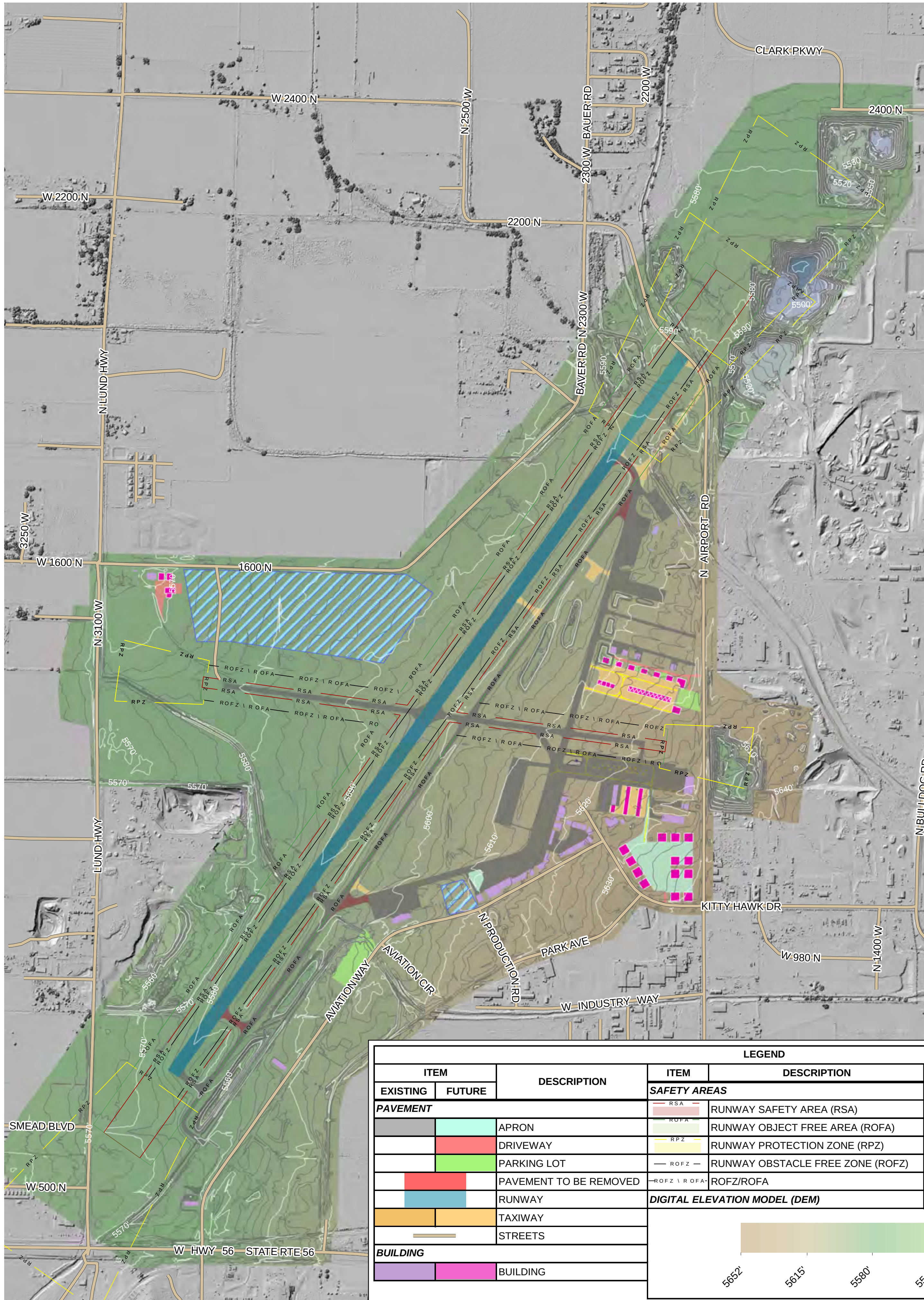
REVISIONS

A.I.P. PROJECT # 3-49-0005-029-2015

ON AIRPORT LAND USE

CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER
8B
14 OF 17 SHEETS



LEGEND

ITEM: EXISTING	ITEM: FUTURE	DESCRIPTION	ITEM	DESCRIPTION	ITEM	DESCRIPTION
PAVEMENT			***SAFETY AREAS***		***2FT CONTOURS***	
		APRON	RSA	RUNWAY SAFETY AREA (RSA)		MAJOR CONTOUR (WHITE LINE)
		DRIVEWAY	ROFA	RUNWAY OBJECT FREE AREA (ROFA)		MINOR CONTOUR
		PARKING LOT	RPZ	RUNWAY PROTECTION ZONE (RPZ)	***MISCELLANEOUS***	
		PAVEMENT TO BE REMOVED	ROFZ	RUNWAY OBSTACLE FREE ZONE (ROFZ)		AIRPORT BOUNDARY
		RUNWAY	ROFZ \ ROFA	ROFZ/ROFA		AERONAUTICAL EXPANSION
		TAXIWAY	***DIGITAL ELEVATION MODEL (DEM)***			
		STREETS	5652' 5615' 5580' 5540' 5505' 5470'			
BUILDING						
		BUILDING				

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 AIP 3-49-0005-029-2015) as provided under title 49 U.S.C., 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 or would have justification in accordance with appropriate public laws.

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

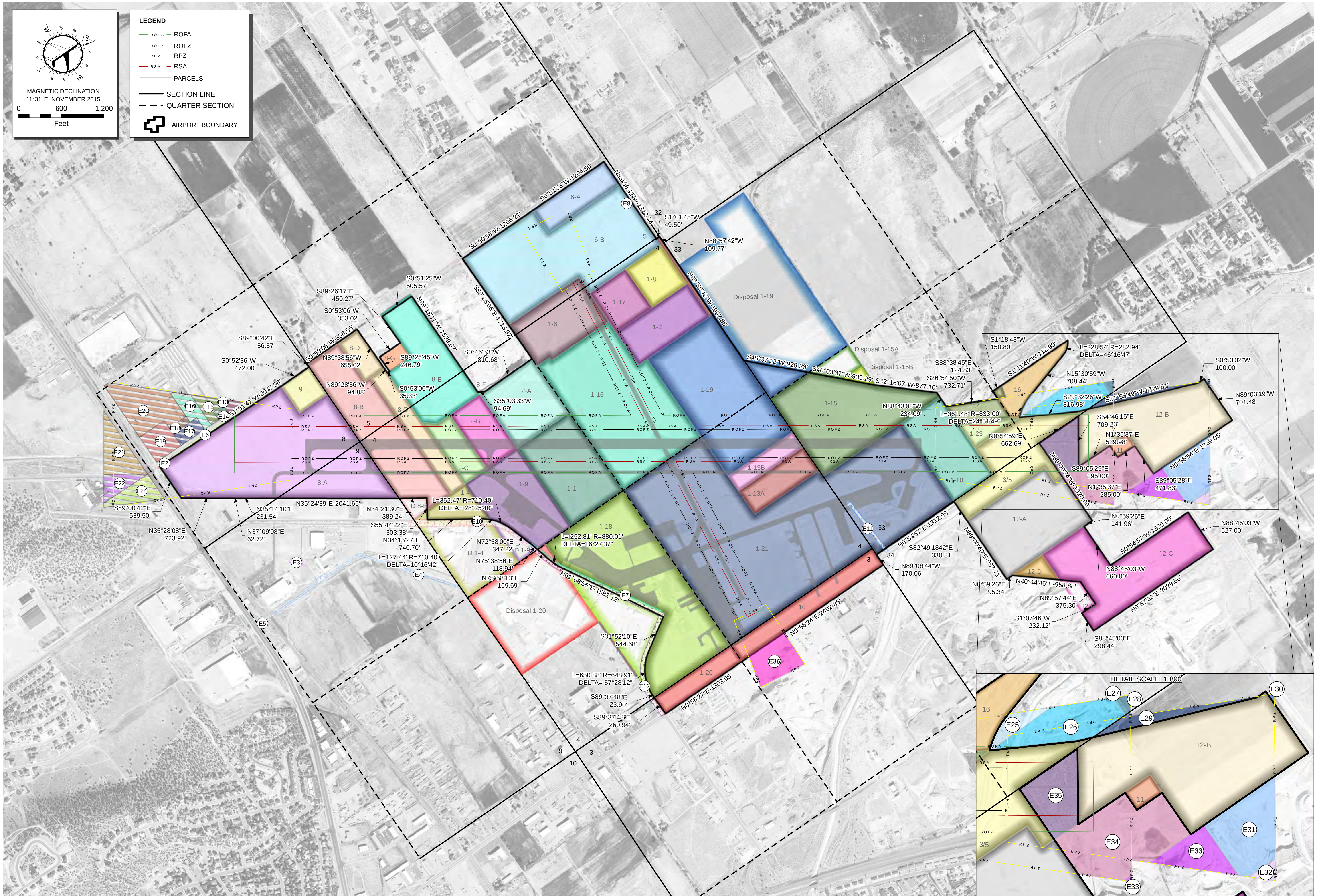
GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

NO.	DESCRIPTION	DATE:	BY:
	REVISIONS		

A.I.P. PROJECT # 3-49-0005-029-2015

AIRPORT PHOTO AND CONTOURS
CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER
9



DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

NO.	DESCRIPTION	DATE:	BY:
	REVISIONS		

A.I.P. PROJECT # 3-49-0005-029-2015

EXHIBIT 'A'
CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER
10A
16 OF 17 SHEETS

PARCEL DESIGNATIONS

PARCEL	DESCRIPTION	GRANTOR	GRANTEE	DATE	RECORDING INFROMATION	INTEREST	AREA	FED PROJECT INFO	PURPOSE
1-1	A PARCEL OF LAND IN THE SW1/4 OF SECTION 4, T.36S., R.11W., SALT MERDIAN, IN UTAH	D.C. BULLOCH	CEDAR CITY	SEPTEMBER 10, 1941	DOC. NO. 79731	FEE SIMPLE	26.5 ±AC	NONE	AERONAUTICAL USE
1-2	A PARCEL OF LAND IN LOT 4, SECTION 4, T.36S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	GEORGE E. PORTER AND RUTH S. PORTER	CEDAR CITY	AUGUST 9, 1941	DOC. NO. 70237	FEE SIMPLE	15.2 ±AC	NONE	AERONAUTICAL USE
1-4	A PARCEL OF LAND IN THE SE1/4 OF THE SW1/4 OF SECTION 4, T.36S., R.11W., SALT MERIDIAN, IN UTAH.	ANGUS BULLOCH AND MARY N. BULLOCH	CEDAR CITY	AUGUST 4, 1941	DOC. NO. 70288	FEE SIMPLE	26.5 ±AC	NONE	AERONAUTICAL USE
DISPOSAL 1-4	A PARCEL OF LAND IN THE SE1/4 OF THE SW1/4 OF SECTION 4, T.36S., R.11W., SALT MERIDIAN, IN UTAH.	CEDAR CITY	N/A	N/A	N/A	N/A	21.22 ±AC	NONE	DISPOSED FOR NON AERONAUTICAL USE
1-6	A PARCEL OF LAND IN THE SW1/4 OF THE NE 1/4 OF SECTION 4 AND THE SE1/4 OF THE NE1/4 OF SECTION 5 , T. 36 S., R. 11 W., SALT LAKE MERIDIAN IN UTAH.	RUEK ROLLO AND BESSIE M. ROLLO	CEDAR CITY	AUGUST 30, 1941	DOC. NO. 70233	FEE SIMPLE	20 ±AC	NONE	AERONAUTICAL USE
1-8	A PARCEL OF LAND IN THE NW1/4 OF THE NW1/4 OF SECTION 4, T. 35 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	JANET ROLLO	CEDAR CITY	AUGUST 9, 1941	DOC. NO. 70234	FEE SIMPLE	9.12 ±AC	NONE	AERONAUTICAL USE
1-9	A PARCEL OF LAND IN THE E1/2 OF THE SW1/4 OF SECTION 4, T. 36 S., R. 11 W., SALT MERIDIAN, IN UTAH.	MARY JANE BULLOCH	CEDAR CITY	AUGUST 9, 1941	DOC. NO. 70238	FEE SIMPLE	27.00 ±AC	NONE	AERONAUTICAL USE
DISPOSAL 1-9	A PARCEL OF LAND IN THE E1/2 OF THE SW1/4 OF SECTION 4, T. 36 S., R. 11 W., SALT MERIDIAN, IN UTAH.	N/A	N/A	N/A	N/A	N/A	3.37 ± AC	NONE	DISPOSED FOR NON AERONAUTICAL USE
1-10	A PARCEL OF LAND IN THE NE1/4 OF THE SE1/4 OF SECTION 33, T. 33 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	J. CARLOS BAUER AND AURELIA BAUER	CEDAR CITY	OCTOBER 17, 1941	DOC. NO. 70239	FEE SIMPLE	20 ±AC	NONE	AERONAUTICAL USE
1-13A	A PARCEL OF LAND IN LOT 2, SECTION 4, T. 36 S., R. 11 W., CEDAR CITY, COUNTY OF IRON, UTAH.	ALEX H. ROLLO AND CATHERINE S. ROLLO	CEDAR CITY	FEBRUARY 20, 1929	DOC. NO. 51741	FEE SIMPLE	10 ±AC	NONE	AERONAUTICAL USE
1-13B	A PARCEL OF LAND IN LOT 2, SECTION 4, T. 36 S., R. 11 W., CEDAR CITY, COUNTY OF IRON, UTAH.	LEE RASMUSSEN AND VEOLA RASMUSSEN	CEDAR CITY	SEPTEMBER 10, 1971	BK 155-PG 520	FEE SIMPLE	6.54 ±AC	NONE	AERONAUTICAL USE
1-15	A PARCEL OF LAND IN THE W1/2 OF THE SE1/4 SECTION 33, T. 35 S., R. 11 W., SALT LAKE MERIDIAN, UTAH.	WILLIAM H. WOOD AND RHODA M. WOOD	CEDAR CITY	AUGUST 22, 1941	DOC. NO. 75407	FEE SIMPLE	14.40 ±AC	NONE	AERONAUTICAL USE
DISPOSAL 1-15A	A PARCEL OF LAND IN THE W1/2 OF THE SE1/4 SECTION 33, T. 35 S., R. 11 W., SALT LAKE MERIDIAN, UTAH	CEDAR CITY	S. ALVA AND ZELIA B. MATHSON	NOVEMBER 2 1972	BK 177-PG 523	FEE SIMPLE	3.79 ±AC	NONE	DISPOSED FOR NON AERONAUTICAL USE
DISPOSAL 1-15B	A PARCEL OF LAND IN THE W1/2 OF THE SE1/4 SECTION 33, T. 35 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH	CEDAR CITY	ELMER RASMUSSEN & OLIVE MATHESON	NOVEMBER 2,1972	BK 177-PG 525	FEE SIMPLE	1.0 ±AC	NONE	DISPOSED FOR NON AERONAUTICAL USE
1-16	A PARCEL OF LAND IN THE NE1/4 OF SECTION 4, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	CLARENCE I. HAIGHT	CEDAR CITY	AUGUST 9, 1940	DOC. NO. 67905	FEE SIMPLE	59.91 ±AC	NONE	AERONAUTICAL USE
1-18	A PARCEL OF LAND IN THE N1/2 OF THE SE1/4 OF SECTION 4, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	LEWIS W. ROOT AND MARY E. ROOT	CEDAR CITY	MARCH 4, 1940	DOC. NO. 67212	FEE SIMPLE	80 ±AC	NONE	AERONAUTICAL USE
DISPOSAL 1-18	A PARCEL OF LAND IN THE N1/2 OF THE SE1/4 OF SECTION 4, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	CEDAR CITY	N/A	N/A	N/A	FEE SIMPLE	14.5 ±AC	NONE	DISPOSED FOR NON AERONAUTICAL USE
1-19	A PARCEL OF LAND IN THE SE1/4 OF THE SE1/4 OF SECTION 33 T.35S., R.11 W., SALT LAKE MERIDIAN, IN UTAH AND A PARCEL OF LAND IN THE N1/2 OF SECTION 4, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	EZRA ROLLO AND LULA ROLLO	CEDAR CITY	OCTOBER 3, 1941	DOC. NO. 70051	FEE SIMPLE	123.5 ±AC	NONE	AERONAUTICAL USE
DISPOSAL 1-19	A PARCEL OF LAND IN THE SE1/4 OF THE SE1/4 OF SECTION 33 T.35S., R.11 W., SALT LAKE MERIDIAN, IN UTAH AND A PARCEL OF LAND IN THE N1/2 OF SECTION 4, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	CEDAR CITY	H. WEBSTER AND WILFORD W. LEIGH	DECEMBER 30,1947	DOC. NO. 81914	FEE SIMPLE	69.0±AC	NONE	DISPOSED FOR NON AERONAUTICAL USE
1-20	A PARCEL OF LAND IN THE NE1/4 OF THE SE1/4 OF SECTION 4, AND THE NW1/4 OF THE SW1/4 SECTION T. 36 S., R.11 W., SALT LAKE MERIDIAN, IN UTAH.	LEWIS W. ROOT AND MARY E. ROOT	CEDAR CITY	AUGUST 9, 1941	DOC. NO. 70471	FEE SIMPLE	48.18 ± AC	NONE	AERONAUTICAL USE
DISPOSAL 1-20	A PARCEL OF LAND IN THE NE1/4 OF THE SE1/4 OF SECTION 4, AND THE NW1/4 OF THE SW1/4 SECTION T. 36 S., R.11 W., SALT LAKE MERIDIAN, IN UTAH.	CEDAR CITY	N/A	N/A	N/A	N/A	39.9 ±AC	NONE	DISPOSED FOR NON AERONAUTICAL USE
1-21	SE1/4 OF THE SE1/4 OF SECTION 33, T. 35 S., R. 11 W., LOT 1 AND THE S1/2 OF THE NE1/4 OF SECTION 4, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	THE UNITED STATES OF AMERICA	CITY OF CEDAR CITY	JULY 20, 1951	DOC. NO. 92971	FEE SIMPLE	152.88 ±AC	NONE	AERONAUTICAL USE
1-17	A PARCEL OF LAND IN THE NW1/4 OF SECTION 32, T. 35 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	DAVID C. DIX AND FAY D. DIX	CEDAR CITY	AUGUST 9, 1941	DOC. NO. 70235	FEE SIMPLE	9.12 ±AC	NONE	AERONAUTICAL USE
10	A PARCEL OF LAND IN THE W1/2 OF THE NW1/4 OF SECTION 3, T. 36 S., R. 11 W., CEDAR CITY, COUNTY OF IRON, UTAH.	LEWIS W. ROOT AND MARY E. ROOT	CEDAR CITY	AUGUST 9, 1941	DOC. NO. 70471	FEE SIMPLE	14.9 ±AC	NONE	AERONAUTICAL USE

PARCEL	DESCRIPTION	GRANTOR	GRANTEE	DATE	RECORDING INFROMATION	INTEREST	AREA	FED PROJECT INFO	PURPOSE
1-23	A PARCEL OF LAND IN THE SE1/4 OF THE NE1/4 OF SECTION 33, T. 35 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	WESLEY BAUER AND TIA L. BAUER	CEDAR CITY	JUNE 21, 1963	BK 105-PG 596	FEE SIMPLE	3.81 ±AC	NONE	AERONAUTICAL USE
2-C	A PARCEL OF LAND IN THE SW1/4 OF THE SW1/4 OF SECTION 4, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	HOWARD W. URIE	CEDAR CITY	AUGUST 12, 1963	BK 105-PG 599	FEE SIMPLE	8.46 ±AC	NONE	AERONAUTICAL USE
2-A	A PARCEL OF LAND IN THE W1/2 OF THE SW1/4 OF SECTION 4, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	VILDA BULLOCH RONNON	CEDAR CITY	AUGUST 12, 1963	BK 106-PG 1	FEE SIMPLE	18.55 ±AC	9-24-024-C404	AERONAUTICAL USE
2-B	A PARCEL OF LAND IN THE W1/2 OF THE SW1/4 OF SECTION 4, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	CHESTER PARRY AND MAURINE H. PARRY	CEDAR CITY	JUNE 21, 1963	BK 106-PG 3	FEE SIMPLE	10.72 ±AC	NONE	AERONAUTICAL USE
3/5	A PARCEL OF LAND IN THE E1/2 OF THE E1/2 OF SECTION 33 AND THE W1/2 OF THE W1/2 OH SECTION 34, T. 35 S., R.11 W., SALT LAKE MERIDIAN, IN UTAH.	VEGAS VALLEY INVESTMENT COMPANY	CEDAR CITY	JULY 8, 1963	BK 105-PG 496	FEE SIMPLE	24.06 ±AC	NONE	AERONAUTICAL USE
6-B	A PARCEL OF LAND IN THE NE1/4 OF SECTON 5 AND THE NW1/4 OF SECTION 4,T.36 S., R.11 W. SALTLAKE MERIDIAN IN UTAH	JUNE F. BULLOCH	CEDAR CITY CORPORATION	APRIL 19, 1968	DOC. NO. 140738	FEE SIMPLE	60.1 ±AC	NONE	AERONAUTICAL USE
6-A	A PARCEL OF LAND IN THE NE1/4 OF SECTION 5, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	JUNE F. BULLOCH	CEDAR CITY CORPORATION	APRIL 19, 1968	BK 137-PG 568	FEE SIMPLE	10.75 ±AC	NONE	AERONAUTICAL USE
8-A	A PARCEL OF LAND IN THE NW1/4 OF THE NW1/4 OF SECTION 8 AND IN THE NE1/4 OF SECTION 9 , T.36S., R.11W., SALT LAKE BASE LINE AND MERIDIAN, IN UTAH.	THELMER STRATTON AND THELMA STRATTON	CEDAR CITY	JUNE 22, 1970	BK 154-PG 345	FEE SIMPLE	75.75 ±AC	NONE	AERONAUTICAL USE
8-B	A PARCEL OF LAND IN THE SW1/4 OF THE SW1/4 OF SECTION 4 AND THE SE1/4 OF THE SE1/4 ODF SECTION 5, AND IN THE SE1/4 OF THE SE1/4 OF SECTION 5, T.36S., R.11W., SALT MERIDIAN, IN UTAH.	THE STATE ROAD COMMISSION OF UTAH	CEDAR CITY	JUNE 5, 1963	BK 105-PG 499	FEE SIMPLE	37.06 ±AC	NONE	AERONAUTICAL USE
DISPOSAL 8-B	A PARCEL OF LAND IN THE SW1/4 OF SECTION 4, T.36S., R.11W., SALT MERIDIAN, IN UTAH.	CEDAR CITY CORPORATION	N/A	N/A	N/A	N/A	1.75 ±AC	N/A	DISPOSED FOR NON AERONAUTICAL USE
8-C	A PARCEL OF LAND IN THE SW1/4 OF SECTION 4 AND THE SE 1/4 OF SECTION 5, T.36S., R.11W., SALT MERIDIAN, IN UTAH.	THE STATE ROAD COMMISSION OF UTAH	CEDAR CITY	JUNE 5, 1963	BK 105-PG 498	FEE SIMPLE	10.94 ±AC	NONE	AERONAUTICAL USE
8-D	A PARCEL OF LAND IN THE SE 1/4 OF SECTION 5, T.36S., R.11W., SALT MERIDIAN, IN UTAH.	ANGUS BULLOCH AND MARY N. BULLOCH	CEDAR CITY	FEBRUARY 11, 1947	DOC. NO. 80174	FEE SIMPLE	5.00 ±AC	NONE	AERONAUTICAL USE
8-E	A PARCEL OF LAND IN THE SW1/4 OF SECTION 4 AND THE SE 1/4 OF SECTION 5, T.36S., R.11W., SALT MERIDIAN, IN UTAH.	CHESTER PARRY AND MAURINE H. PARRY	CEDAR CITY CORPORATION	APRIL 25, 1972	BK 171-PG 421	FEE SIMPLE	28.4 ±AC	NONE	AERONAUTICAL USE
8-F	A PARCEL OF LAND IN THE NW1/4 OF THE SW 1/4 OF SECTION 4, T.36S., R.11W., SALT MERIDIAN, IN UTAH.	ROENE BULLOCH MORRIS AND VILDA BULLOCH RONNOW	CEDAR CITY CORPORATION	JUNE 1, 1972	BK 172-PG 526	FEE SIMPLE	0.048 ±AC	NONE	AERONAUTICAL USE
8-G	A PARCEL OF LAND IN THE SE1/4 OF SECTION 5,T.36S., R.11W., SALT MERIDIAN, IN UTAH.	STATE ROAD COMMISION OF UTAH	CEDAR CITY CORPORATION	DECEMBER,18 1975	BK 193-PG65	FEE SIMPLE	2.0 ±AC	NONE	AERONAUTICAL USE
9	A PARCEL OF LAND IN THE N1/2 OF THE NE1/4 OF SECTION 8, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	ARIL STRATTON, LOCKEY STRATTON, GERALD A. STARTTON, PATRICIA A. STRATTON, DERRAL DREW STRATTON, KAREN P. STRATTON, MARYDON STRATTON YATES, L. DARLY YATES, CLOYD NEIL STRATTON AND DEON J. STRATTON	CEDAR CITY CORPORATION	FEBRUARY 1, 1976	BK 215-PG 806	FEE SIMPLE	5.00 ±AC	NONE	AERONAUTICAL USE
11	A PARCEL OF LAND IN THE NE1/4 OF SECTION 34, T. 35 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	ROBERT S. CLARK, DONNA JEAN W. CLARK, RICHARD Q. CLARK AND PATRICIA H. CLARK	CEDAR CITY CORPORATION	AUGUST 7, 1995	BK 538-PG 895	FEE SIMPLE	1.27 ±AC	NONE	AERONAUTICAL USE
12-A	A PARCEL OF LAND IN THE W1/2 OF SECTION 31 34, T. 35 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	JACK E. WHITING, TRUSTEE	CEDAR CITY CORPORATION	MAY 13, 1985	BK 332-PG 204	FEE SIMPLE	32.3 ±AC	NONE	AERONAUTICAL USE
12-B	A PARCEL OF LAND IN THE NW1/4 SECTION 34, T. 35 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	BLACKBURN FAMILY PARTNERSHIP LTD., CHARLES H. BLACKBURN AND MARJORIE B. BLACKBURN	CEDAR CITY CORPORATION	MAY 17, 1985	BK 332-PG 391	FEE SIMPLE	36.6 ±AC	NONE	AERONAUTICAL USE
12-C	A PARCEL OF LAND IN THE NW1/4 OF SECTION 34, T. 35 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	V.C. MENDENHALL CO., INC.	CEDAR CITY CORPORATION	DECEMBER 3, 1971	DOC. NO. 161539	FEE SIMPLE	37.4 ±AC	NONE	AERONAUTICAL USE
DISPOSAL12-C (PART OF 12-A)	A PARCEL OF LAND IN THE NW1/4 OF THE SW1/4 OF SECTION 34, T. 35 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	CEDAR CITY CORPORATION	V.C.MERNDENH-ALL CO.	DECEMBER 3, 1971	DOC. NO. 161539	FEE SIMPLE	2.5 ±AC	NONE	DISPOSED FOR NON AERONAUTICAL USE
12-D	A PARCEL OF LAND IN THE SW1/4 OF SECTION 34,T. 35 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	WESTERN ROCK CORPORATION	CEDAR CITY CORPORATION	OCTOBER,11 1973	BK 198-PG 533	FEE SIMPLE	2.5 ±AC	NONE	AERONAUTICAL USE
14	A PARCEL OF LAND IN THE NE1/4 SECTION 33, T. 35 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	CEDAR CITY CORPORATION	BAUER IRRIGATION COMPANY	JANUARY 10, 2001	BK 738-PG 495	FEE SIMPLE	4.75 ±AC	3-49-0005-12	AERONAUTICAL USE
DISPOSAL OF PART OF 16	A PARCEL OF LAND NE1/4 SECTION 33, T. 35 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	BAUER IRRIGATION COMPANY	CEDAR CITY CORPORATION	FEBRUARY 13, 2001	BK 738-PG 497	FEE SIMPLE	0.5 ±AC	NONE	DISPOSED FOR NON AERONAUTICAL USE
16	A PARCEL OF LAND IN THE NE1/4 OF SECTION 33, T. 35 S., R. 11 W., SALT LAKE MERIDIAN, IN UTAH.	SANDRA CONDIE AND RITCHIE KEITH BAUER, LARREN J. CONDIE AND SANDRA B. CONDIE	CEDAR CITY CORPORATION	JUNE 1, 1998	BK 641-PG 859	FEE SIMPLE	8.3 ±AC	3-49-0005-12	AERONAUTICAL USE

FUTURE EASEMENTS

FUTURE PARCELS	OWNERSHIP	PURPOSE
E25	BAUER IRRIGATION CO.	CLEAR ZONE EASEMENT
E26	BLACKBURN FAMILY PARTNERSHIP	CLEAR ZONE EASEMENT
E27	BLACKBURN FAMILY PARTNERSHIP	CLEAR ZONE EASEMENT
E28	MATTHEWS BETTY MARIE TISDIAL (1/2 INT);GRAVES KATHRYN ROSE TISDIAL (1/4 INT);TISDIAL FREDERICK PAUL (1/4 INT)	CLEAR ZONE EASEMENT
E29	BLACKBURN FAMILY PARTNERSHIP LTD	CLEAR ZONE EASEMENT
E30	CLARK ROBERT S/DONNA JEAN W; CLARK ROBERT S/DONNA JEAN W J/T; CLARK DONNA JEAN W J/T; CLARK RICHARD Q J/T; CLARK PATRICIA H J/T	CLEAR ZONE EASEMENT
E31	CLARK ROBERT S/DONNA JEAN W; CLARK ROBERT S/DONNA JEAN W J/T; CLARK DONNA JEAN W J/T; CLARK RICHARD Q J/T; CLARK PATRICIA H J/T	CLEAR ZONE EASEMENT
E32	RICHARD & PATRICIA CLARK LLC.;ROBERT S /DONNA JEAN CLARK LLC	CLEAR ZONE EASEMENT
E33	STAKER & PARSON COMPANIES	CLEAR ZONE EASEMENT
E34	STAKER & PARSON COMPANIES	CLEAR ZONE EASEMENT
E35	CEDAR CITY CORP.	CLEAR ZONE EASEMENT
E36	CEDAR CITY CORP.	CLEAR ZONE EASEMENT

EASEMENTS OF RECORD

	DESCRIPTION	GRANTEE	DATE	BK/PG	MISC	PURPOSE
E1	A STRIP OF LAND WITHIN THE NW1/4 OF THE SW1/4 OF SECTION 3, NE1/4 OF THE SE1/4 OF SECTION 4, T.36S., R.11W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	THE MOUNTAIN STATES TELEPHONE AND TELEGRAPH COMPANY	MAY 20, 1981	BK 286-PG 867	5 FEET WIDE	RIGHT-OF-WAY
E2	A STRIP OF LAND WITHIN THE SE1/4 OF THE NE1/4 OF SECTION 8, T.36S., R.11W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	PACIFICORP	OCTOBER 26, 1994	BK 525-PG 85	10 FEET WIDE	INGRESS AND EGRESS EASEMENT
E3	A STRIP OF LAND WITHIN THE SE CORNER OF THE SW1/4NW1/4 OF SECTION 9, T.36S., R.11W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	MORTON METALCRAFT	DECEMBER 17, 1973	BK 192-PG 139	STRIP OF LAND	RIGHT-OF-WAY
E4	A STRIP OF LAND WITHIN THE SE CORNER OF THE SW1/4NW1/4 OF SECTION 9, T.36S., R.11W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	THELMER STRATTON AND THELMA STRATTON	DECEMBER 10, 1973	BK 191-PG 370	STRIP OF LAND	RIGHT-OF-WAY
E5	A STRIP OF LAND WITH THE SE CORNER OF THE SW1/4NW1/4 OF SECTION 9, T.36S., R.11W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	VERNON ELDEAN CONDIE AND NADINE H. CONDIE	SEPTEMBER 24, 1973	BK 188-PG 494	STRIP OF LAND	RIGHT-OF-WAY
E6	A STRIP OF LAND WITHIN THE SE1/4 OF THE NE1/4 OF SECTION 8, T.36S., R.11W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	SOUTH CENTERAL UTAH TELEPHONE ASSOCIATION	SEPTEMBER 19, 2014	BK 1298-PG 1788	10 FEET WIDE	UTILITY EASEMENT
E7	A STRIP OF LAND WITHIN NW CORNER OF LOT 1, BLOCK 2, CEDAR INDUSTRIAL PARK SUBDIVISION, UNIT II, IRON COUNTY, CEDAR CITY, UTAH.	CEDAR CITY CORPORATION	NOVEMBER 13, 2002	BK 830-PG 842	15 FEET WIDE	PUBLIC UTILITY EASEMENT
E8	A STRIP OF LAND WITHIN THE NE CORNER OF SECTION 5, ALONG THE TOWNSHIP LINE, T.36S., R.11W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	PACIFICORP	JANUARY 1, 2001	BK 1209-PG 1803	20 FEET WIDE	UTILITY EASEMENT
E9	AN EASMENT WITHIN NW1/4 OF THE SE1/4 OF SECTION 4, T.36S., R.11W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	THE MOUNTAIN STATES TELEPHONE AND TELEGRAPH COMPANY	MARCH 28, 1972	BK 172-PG 350	BLANKET	UTILITY EASEMENT
E10	A STRIP OF LAND WITHIN SW CORNER OF SECTION 4, T.36S., R.11W., SALT LAKE MERIDIAN, CEDAR CITY UTAH.	ARMBRUST CONSTRUCTION, LLC.	OCTOBER 26, 2005	BK 1002-PG 894	STRIP OF LAND	UTILITY EASEMENT
E11	A STRIP OF LAND WITHIN THE NE CORNER OF SECTION 4, T.36S., R.11W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	CEDAR CITY CORPORATION	APRIL 10, 2002	BK 797-PG 60	40 FEET WIDE	PUBLIC UTILITY EASEMENT
E12	N/A	N/A	N/A	N/A	ROW	RIGHT-OF-WAY

	DESCRIPTION	GRANTEE	DATE	BK/PG	MISC	PURPOSE
E13 (10-A)	A PARCEL OF LAND WITHIN THE SW CORNER OF THE NW1/4NE1/4 OF SECTION 8, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	ANGUS NELSON BULLOCH, HAZEL BULLOCH, JOHN MELVEN BULLOCH AND GLENNA BULLOCH	MAY 30, 1978	BK 240-PG 241	0.77 ±AC	CLEAR ZONE EASEMENT
E14 (10-B)	A PARCEL OF LAND WITHIN THE NW CORNER OF THE SW1/4NE1/4 OF SECTION 8, T.36S., R.11W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	ALTHEA L. BROWN	SEPTEMBER 24, 1976	BK 240-PG 243	0.50 ±AC	CLEAR ZONE EASEMENT
E15 (10-C)	A PARCEL OF LAND WITHIN THE NW CORNER OF THE SW1/4NE1/4 OF SECTION 8, T.36S., R.11W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	CELESTIA A. NICHOLS	SEPTEMBER 20, 1976	BK 240-PG245	2.03 ±AC	CLEAR ZONE EASEMENT
E16 (10-D)	A PARCEL OF LAND WITHIN THE S1/4 CORNER OF SECTION 8, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	VICTOR K. ISBELL AND CELIE A. ISBELL	JULY 11, 1978	BK 241-PG 222	2.64 ±AC	CLEAR ZONE EASEMENT
E17 (10-E)	A PARCEL OF LAND WITHIN THE S1/4 CORNER OF SECTION 8, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	VICTOR K. ISBELL AND CELIE A. ISBELL	JUNE 3, 1979	BK 251-PG 563	1.82 ±AC	CLEAR ZONE EASEMENT
E18 (10-F)	A PARCEL OF LAND WITHIN THE S1/4 CORNER OF SECTION 8, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, CEDAR CITY UTAH.	CLYDE F. HARDING AND ARTHUR G. HARDING OF HARDING BROTHER CONSTRUCTION COMPANY	SEPTEMBER 28, 1976	BK 240-PG 249	0.65 ±AC	CLEAR ZONE EASEMENT
E19 (10-G)	A PARCEL OF LAND WITHIN THE S1/4 CORNER OF SECTION 8, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	BRENDA GLEAVE REBER	SEPTEMBER 12, 1977	BK 240-PG 251	4.01 ±AC	CLEAR ZONE EASEMENT
E20 (10-H)	A PARCEL OF LAND WITHIN THE S1/4 CORNER OF SECTION 8, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	CELESTIA A. NICHOLS	SEPTEMBER 20, 1976	BK 240-PG 253	10.89 ±AC	CLEAR ZONE EASEMENT
E21 (10-I)	A PARCEL OF LAND WITHIN THE NW CORNER OF THE NW1/4SE1/4 OF SECTION 8, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	ALTHEA L. BROWN	SEPTEMBER 24, 1976	BK 240-PG 255	6.31 ±AC	CLEAR ZONE EASEMENT
E22 (10-J)	A PARCEL OF LAND WITHIN THE NE CORNER OF NW1/4SE1/4 OF SECTION 8, T.36S., R.11W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	C. KAY STURDEVANT AND NORMA D. STURDEVANT	MARCH 14, 1979	BK 248-PG 741	2.81 ±AC	CLEAR ZONE EASEMENT
E23 (10-J)	A PARCEL OF LAND WITHIN THE NE CORNER OF NW1/4SE1/4 OF SECTION 8, T.36S., R.11 W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	C. KAY STURDEVANT AND NORMA D. STURDEVANT	SEPTEMBER 21, 1976	BK 240-PG 257	2.81 ±AC	CLEAR ZONE EASEMENT
E24 (10-K)	A PARCEL OF LAND WITH THE NW CORNER OF THE NWE1/4SE1/4 OF SECTION 8, T. 36 S., R. 11 W., SALT LAKE MERIDIAN, CEDAR CITY, UTAH.	CEDAR LIVESTOCK ASSOCIATION	JANUARY 14, 1977	BK 240-PG 259	4.20 ±AC	CLEAR ZONE EASEMENT

DRAWN BY: BRC
CHECKED BY: BWC
APPROVED BY: REP
PROJECT # 141314

GDA ENGINEERS
ENGINEERING • SURVEYING • PLANNING
Cody, Wyoming PH: 307.587.3411
Heber City, Utah PH: 435.315.3168
www.gdaengineers.com

NO.	DESCRIPTION	DATE:	BY:

REVISIONS

A.I.P. PROJECT # 3-49-0005-029-2015

EXHIBIT 'A' TABLES
CEDAR CITY REGIONAL AIRPORT MASTER PLAN

SHEET NUMBER
10B