

CHAPTER 1

INVENTORY OF EXISTING CONDITIONS

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1.1 INTRODUCTION

The purpose of crafting the Salt Lake City International Airport Master Plan is to assess the ability of airport facilities to accommodate user needs at existing and forecast demand levels. In addition, the Master Plan provides recommendations regarding additional facilities that are needed to meet the forecasted demand. In the broadest sense, this involved collecting relevant data of existing conditions, forecasting aviation user demand levels, determining the capacities of existing facilities, analyzing facility requirements based on the demand and capacity relationships, generating alternative development options which meet that demand, and developing a financially feasible implementation plan to achieve those facility improvements. The study is comprehensive in nature, with the objective of creating a thorough list of airport projects, known as the Capital Improvement Program (CIP), that are recommended for future development. Finally, the Master Plan proposes an Implementation Plan that suggests the sequence of execution to achieve it. The Implementation Plan takes into account available funding, stakeholder needs, FAA safety and design standards, operational efficiencies, and overall impact to user level of service experience.

Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-6B Change 2, *Airport Master Plans*, outlines FAA required and recommended steps in the development of an airport master plan. The initial recommended step in documenting the master planning process is the identification of existing conditions at an airport. This involves the collection of data germane to an airport and the area it serves. The objective of the existing condition inventory task for Salt Lake City International Airport (SLCIA) is to provide background information used during subsequent phases of the study. In addition to gathering baseline quantitative inventory data, empirical and qualitative data was gathered by way of observation, tenant surveys, and stakeholder input collected during on-site interviews.

At the time of this writing, SLCIA was in the process of redeveloping its terminal, concourse, and landside environment, a plan 20 years in the making, resulting from the preferred development path identified in the *1998 Salt Lake City Airport Master Plan*. This program is known as the Airport Redevelopment Program (ARP) (previously known as the Terminal Redevelopment Program). As economic development and demand for aviation services matured over time, the Salt Lake City Department of Airports (SLCDA) began taking the steps required to meet passenger demand and maintain optimal customer service levels. The construction of these new facilities is a massive undertaking, costing upwards of \$3 billion and requiring a complex coordination effort between the SLCDA and the contracted construction firms which are helping make the plans happen.

Much like the 1998 Master Plan did before, the current master planning process ensures that the proper steps are being taken to maintain, improve, and build upon the foundation created through the implementation of the ARP, in a strategic and coordinated fashion. The unique aspect of this master planning effort is that it must establish a baseline of existing conditions as if passenger facilities under construction in 2018 are completed, and then identify the facility requirements necessary to meet user demand for the 20 years following their completion. This Master Plan will develop a baseline inventory under the future "as-built" conditions, according to design and construction documents being used to create the new terminal and landside facilities.

1.2 HISTORIC CONTEXT AND BACKGROUND

The SLCIA is operated and managed by the SLCDCA, a department of Salt Lake City (SLC) Corporation. In addition to SLCIA, the SLCDCA operates and manages South Valley Regional Airport (U42) and Tooele Valley Airport (TVY). These three airports serve unique roles in the national airspace system, the State of Utah, and the greater Salt Lake Valley region.

SLCIA is located approximately five miles west of Salt Lake City's downtown business district in Salt Lake County, Utah. SLCIA provides service for most of the commercial passenger activity in the intermountain region. The primary counties served by SLCIA include Davis, Salt Lake, Tooele, Utah, and Weber. Beyond those five counties, SLCIA is also an important link to the nation's air transportation network for the rest of Utah and even draws users from as far as Idaho, Wyoming, Nevada, and western Colorado. SLCIA serves an estimated 23 million passengers per year and ranks as the 25th busiest airport in North America¹. SLCIA is currently served by ten airlines and their affiliates, and is a major hub for Delta Air Lines. Additionally, SLCIA is an important center of economic activity for the State of Utah, contributing approximately \$1.9 billion annually to Utah's gross domestic product (GDP)².

The SLCIA originated in 1911 as a cinder-covered landing strip in a marshy pasture called "Basque Flats". This area was originally used for training and acrobatic flights and was the host of the 1911 "Great International Aviation Carnival". Following the success of the carnival and a nationwide increase in aviation activity, Salt Lake City purchased an additional 100 acres of land surrounding the existing landing strip. This allowed for the expansion of airport infrastructure by adding hangars and other buildings to support the United States Postal Service, which began air mail service to Salt Lake City in 1920. That same year, the airfield was named "Woodward Field" in honor of local aviator, John P. Woodward. Six years after the purchase and development of additional land at Woodward Field, Western Air Express initiated the first commercial passenger flight out of Woodward Field. This company eventually grew into Western Airlines, which later established its primary hub operation in Salt Lake City.

In 1930, Woodward Field changed its name to "Salt Lake City Municipal Airport" and acquired an additional 300 acres of land to add a second runway. Shortly after, the Airport built the first terminal and airport administration building on Airport property to support increases in airport operations. The expansion of airport facilities allowed Salt Lake City Municipal Airport to become a training base and replacement depot for the U.S. Air Force.

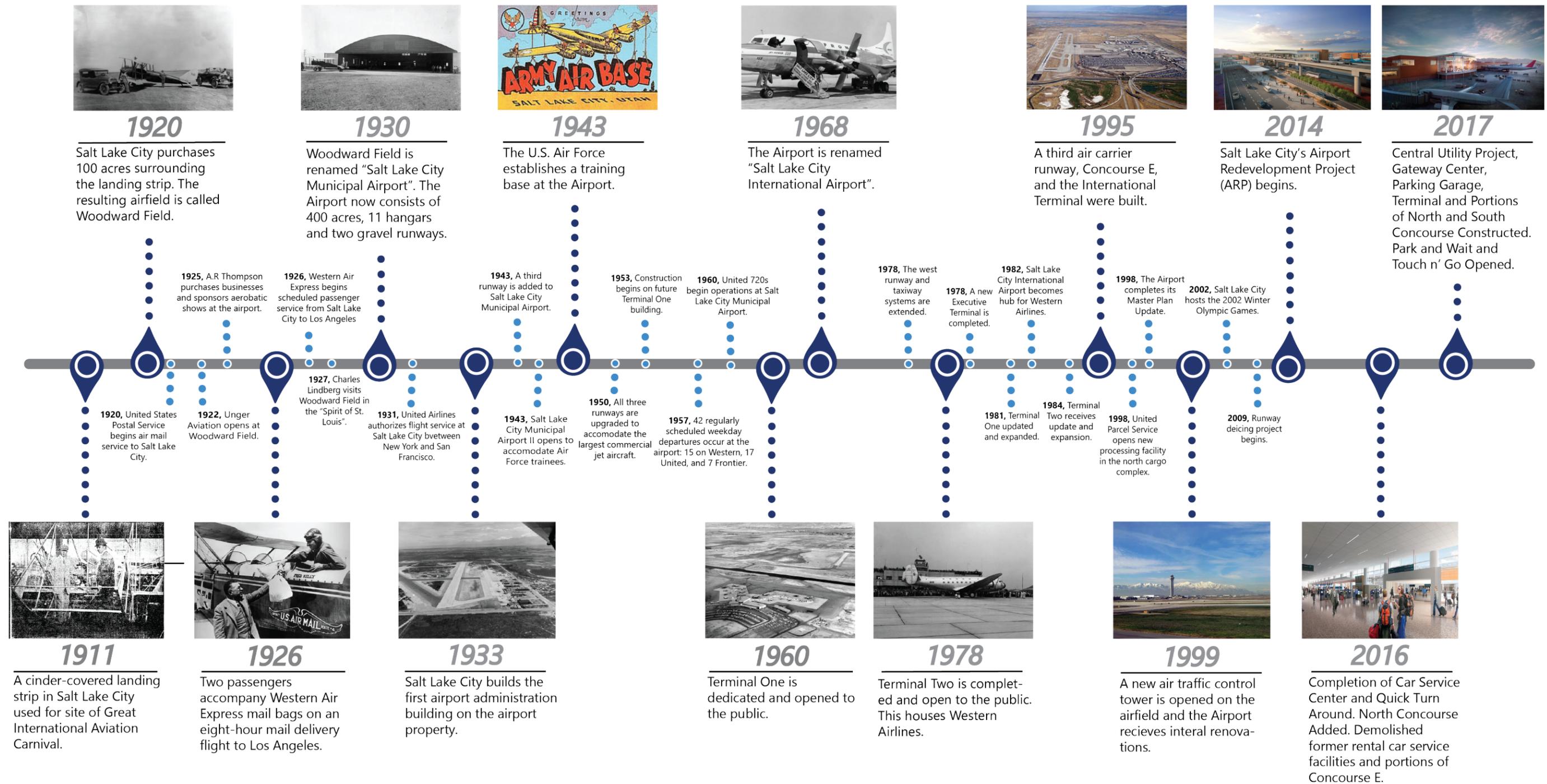
Due to the continued growth of the aviation industry, an additional terminal building was constructed in 1960 and Salt Lake Municipal Airport was renamed "Salt Lake City International Airport" eight years later. As SLCIA continued to experience increased activity, additional concourses and airport facilities were constructed to support the growth. In 1978, Terminal Two was constructed to host Western Airlines. The west runway and taxiway systems were extended that same year. SLCIA became a Western Airlines operational hub in 1982 and Terminal Two was expanded two years later to accommodate an additional concourse.

Over the course of the next decade, growth in user demand continued to necessitate further improvements to the airfield and support facilities. Ground access improvements, parking facilities, support facilities, and a golf course were all developed on SLCIA property from the late 1980s into the early 1990s.

1 SLC Airport Fast Facts, Retrieved from <https://www.slcairport.com/about-the-airport/airport-overview/fast-facts>, 2018

2 Salt Lake City International Airport Economic Impact Analysis, 2013

FIGURE 1-1 SLCIA HISTORICAL TIMELINE



Source: SLCDCA; Delta Flight Museum; SLC Chamber; Prepared by RS&H, 2018

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An additional air carrier runway, Concourse E, and an International Terminal were added to SLCIA by 1995. These, coupled with other passenger and support facility improvements, enabled SLCIA to accommodate the passenger activity levels experienced during the 2002 Olympic Winter Games hosted by Salt Lake City.

Since the 2002 Olympic Winter Games, SLCIA has made various improvements required to accommodate steadily increasing demand levels and prepare SLCDA for implementation of the preferred development path identified in the 1998 Salt Lake City International Airport Master Plan. Advanced planning for the terminal and landside elements of the 1998 Master Plan have evolved over time through a number of Airport Redevelopment Program iterations, which ultimately honed the preferred development plan into a comprehensive and implementable project. **FIGURE 1-1** details SLCIA’s history from its inception through the anticipated completion of the terminal area investments by 2024. The ARP will ultimately extend beyond 2024 as projects are developed to support the overall initiative.

1.2.1 Airport Redevelopment Program

The previous Master Plan, completed in 1998, identified the need for additional terminal space to accommodate increased passenger activity over a 20-year period. In 2009, the SLCDA approved plans to redevelop the existing terminal facilities to accommodate forecasted growth and to replace aging terminal facilities. This plan, referred to as the Airport Redevelopment Program (ARP), includes over \$3 billion worth of improvements through 2024 as detailed in **FIGURE 1-2**.

Originally constructed in the 1960s, the existing terminal facility is aging and has become costly to maintain. The aging terminal building suffered from energy inefficiencies and levels of service became unsatisfactory based on current industry standards. From an airside perspective, the concourse layout contributed to airfield congestion, ultimately increasing aircraft fuel consumption and emissions output. In order to accommodate increasing passenger activity and combat the negative impacts of an aging terminal facility, the ARP proposed removing the three existing terminal buildings and replacing them with one centrally located terminal building which serves a system of attached and satellite concourses. The new terminal complex consists of two concourses, one of which is a satellite concourse connected by passenger tunnels. **FIGURE 1-3** shows the construction images taken during the Airport Redevelopment Program. In addition to the new terminal, concourses, and airfield improvements, the ARP also includes implemen-

FIGURE 1-2 AIRPORT REDEVELOPMENT PROGRAM TIMELINE (2018 - 2024)



Source: SLCDA; Prepared by RS&H, 2018

tation of a variety of facilities which improve the airport user experience. Additional projects proposed in the ARP include a passenger service gateway with sky bridges connecting to the terminal, expanded parking facilities, new dual-level curb facilities, and consolidated rental car services.

The following is an abbreviated list of major ARP improvements:

- » Multistory central terminal building serving three new concourses with a total of 78 concourse level (second story) gates served by passenger boarding bridges.
 - Concourse A - East with 22 gates (formerly known as South Concourse East).
 - Concourse A - West with 25 gates (formerly known as South Concourse West).
 - Concourse B with 31 gates (formerly known as North Concourse).
- » Simplified airfield taxiway and taxilane system with dual taxilanes between concourses.
- » Gateway building accessing passenger sky bridges over the terminal curb roads serving the terminal, ground transportation, and parking facilities.
- » Five-story, approximately 1.7 million square foot parking garage facility serving public parking and rental car ready-return. This space accomodates roughly 3,600 parked vehicles.
- » Consolidated rental car service facility comprised of three buildings and a two-story quick turn-around facility with capacity for roughly 1,650 stacked cars, 72 fuel nozzles, and 16 wash bays.
- » Economy parking lots with 10,463 parking space capacity.

FIGURE 1-3 ARP CONSTRUCTION PHOTOGRAPHS (SUMMER 2018)

North Tunnel Opening - June 2018



Terminal Area Looking West - June 2018



Terminal Area Looking North - July 2018



Terminal Plaza - July 2018



Source: SLCD, 2018

- » Two-level curb road with separated arrivals, departures, and commercial vehicle traffic lanes.
- » Central Utility Plant

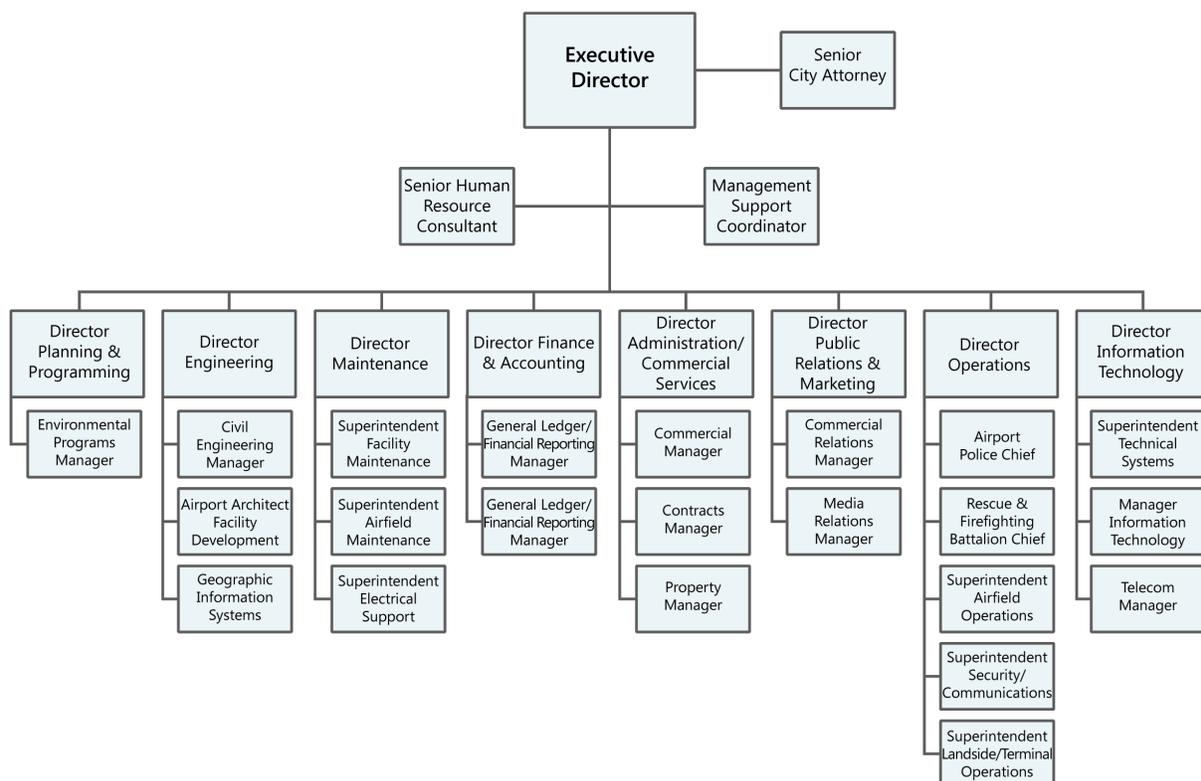
These are the baseline “as-built” conditions which are used in this Master Plan as existing conditions of terminal, terminal area apron, and landside facilities.

1.2.2 Ownership, Management, and Oversight

The SLCIA is owned by Salt Lake City Corporation. As an enterprise department of Salt Lake City Corporation, the Department of Airports requires no funding from property taxes, local government funds, or special district taxes. Rather, all capital requirements are met from a variety of sources, including: earned airport operational revenues, revenue bonds, FAA approved passenger facility charges (PFCs), rental car customer facility charges (CFCs), and FAA Airport Improvement Program grants.

Salt Lake City’s mayor, the City Council, and a nine-member advisory board of citizen volunteers oversee SLCIA’s affairs. The Advisory Board provides a citizen and business perspective for SLCDA staff and makes recommendations to the Mayor regarding airport rules and regulations, airport staff, construction and expansion, airport policy, and airport financial matters. Airport board members are appointed by the Mayor to serve a four-year term. In addition to SLCIA, the SLCDA operates and manages South Valley Regional Airport (U42) and Tooele Valley Airports (TVY). The organizational structure of SLCDA’s administrative leadership is shown in **FIGURE 1-4**.

FIGURE 1-4 SLCDA ORGANIZATIONAL CHART



Source: SLCDA; Prepared by RS&H, 2018

1.3 AIRPORT SETTING AND ROLE

The following section describes the setting in which SLCIA operates and its role within the local, regional, and national aviation system.

1.3.1 Airport Setting

SLCIA is located in north-central Utah, five miles west of the Salt Lake City business district, near the junction of Interstate 80 and Interstate 215. SLCIA is an integral element of the overall Salt Lake Valley transportation network, which also includes robust road and rail systems. **FIGURE 1-5** shows the regional

FIGURE 1-5 SALT LAKE VALLEY INTERMOUNTAIN REGION



Source: SLCD; Prepared by RS&H, 2018

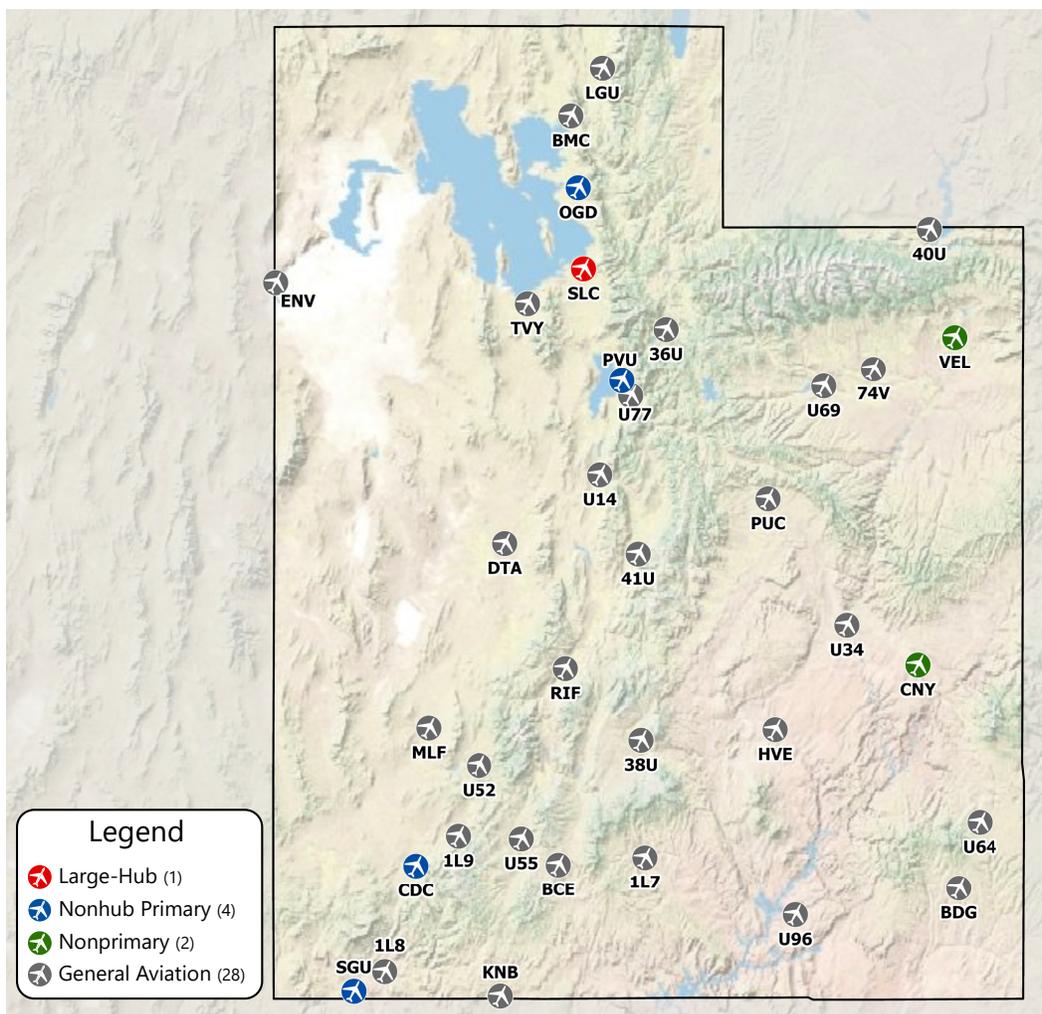
location of Salt Lake City International Airport relative to the Salt Lake City urban areas.

SLCIA is located within Salt Lake County, part of the Salt Lake City metropolitan area and the Wasatch Front. The SLCIA service area, however, covers most of the State of Utah as well as extending into portions of neighboring states, including Colorado, Idaho, Nevada, and Wyoming. SLCIA is one of five airports in Utah that provide commercial air transportation services. **FIGURE 1-6** illustrates SLCIA’s location and the relative location of other commercial service airports in the State of Utah.

1.3.2 Airport Role

SLCIA plays an important role within the local and national aviation system. It serves more than one percent of the total commercial passengers in the nation and serves a full range of operation types. The Utah Continuous Airport System Plan defines SLCIA as an international airport, which provides essential national and international commercial airline access. SLCIA is the only airport defined with this role in the state.

FIGURE 1-6 UTAH NPIAS AIRPORTS



Source: FAA 2017-2021 NPIAS Report; Prepared by RS&H, 2018

1.3.2.1 Commercial Passenger Service

The FAA has identified in the National Plan of Integrated Airports Systems (NPIAS) approximately 3,400 airports in the United States that are significant to national air transportation and are eligible to receive federal grants under the Airport Improvement Program (AIP). Salt Lake City International Airport is a Large-Hub Primary Commercial Service airport within the NPIAS. Large-hub airports are defined as airports that enplane one percent or more of total U.S. passenger enplanements. With 11,143,738 enplanements, SLCIA ranked 24th in the nation, enplaning approximately 1.34% of all U.S. passengers for calendar year 2016 (the most recent year for which data is available). SLCIA is one of nine airports in the U.S. that serve as a hub for Delta Air Lines.

SLCIA holds an FAA issued 14 CFR 139 - Airport Certification, which is required for airports serving scheduled air carrier operations. There are four different classes of airports under Part 139 which differ in the type of commercial aircraft they can serve. SLCIA is certificated as a Class I airport, which allows it to serve scheduled operations of large (30+ seats) and small (10-30 seats) air carrier aircraft, and unscheduled passenger operations of large air carrier aircraft.

Currently, the following airlines provide service at SLCIA:

- » AeroMexico
- » Alaska Airlines
- » American Airlines
- » Delta Air Lines
- » Frontier Airlines
- » JetBlue Airways
- » KLM Royal Dutch Airlines
- » SkyWest Airlines
- » Southwest Airlines
- » United Airlines

Service by these airlines was provided to a total of 94 domestic and international non-stop locations. As of March 2018, the most frequent departure destinations from SLCIA include Denver International Airport (DEN), Los Angeles International Airport (LAX), and Phoenix – Sky Harbor International Airport (PHX). Airlines at SLCIA use a variety of regional jets and passenger jets; among the largest used include the Airbus 330-300 and Boeing 787-900.

1.3.2.2 General Aviation

SLCIA, and the two Fixed-Base Operators (FBOs) providing service, serve a wide variety of general aviation aircraft users including both aviation hobbyists and private businesses. These include corporate flying, law enforcement, fire suppression, aircraft rescue, medical air evacuation, flight training, air charters, transport of mail, government aviation, and the Utah Air National Guard operations. General aviation services are located along the eastern side of Airport property. The total number of based general aviation aircraft at SLCIA is 290, of which most are single-engine aircraft. However, SLCIA is experiencing strong corporate aviation growth and demand.

As part of the SLCDAs, SLCIA operates within an airport system, including South Valley Regional Airport, Tooele Valley Airport, and several non-SLCDAs airports, that provide aviation services to the metropolitan area. The SLCDAs *General Aviation Strategic Plan*, updated as part of the master planning process, identifies the role of SLCIA as a primary commercial service airport with supporting general aviation facilities and services. General aviation operations are accommodated as a secondary activity to SLCIA's primary purpose of serving commercial air carrier operations. Future general aviation activities at SLCIA will focus on those most compatible with commercial services.

1.3.2.3 Adjacent Airports and Services

One important element when detailing the issues and existing conditions at an airport is the examination of neighboring airports and the services they offer. Understanding the services offered at surrounding airports aids in understanding how SLCIA fits into the local and regional aviation systems.

There are six NPIAS airports within an approximate one hour drive time from SLCIA. There is also one privately owned public-use airport. **TABLE 1-1** lists those airports along with their role within the FAA NPIAS, based aircraft numbers, and estimated drive time from Salt Lake City International Airport. The majority of these airports have sizable amounts of based aircraft, which is an indicator of an active general aviation community along the Wasatch Front.

Two airports, Ogden-Hinckley Airport and Provo Airport, also provide commercial service. However, as non-hub primary service airports, they perform substantially different roles than SLCIA as a large-hub airport. The closest hub airport to SLCIA is Boise Airport (BOI), which is a small-hub airport located an estimated five-hour drive time from Salt Lake City.

TABLE 1-1 AIRPORTS WITHIN ONE HOUR DRIVE TIME OF SLCIA

ICAO	Airport	Town	Primary Runway Length	Pavement	Instrument Approaches	NPIAS Role	Based Aircraft	Approximate Drive Time from SLC
BTF	Skypark Airport	Bountiful, UT	4,700'	Asphalt	None	N/A ¹	217	19 Minutes
U42 ²	South Valley	Salt Lake City, UT	5,862'	Asphalt	RNAV	Regional	272	26 Minutes
TVY ²	Tooele Valley	Tooele, UT	6,100'	Asphalt	ILS, RNAV	Local	16	33 Minutes
OGD	Ogden-Hinckley	Ogden, UT	8,103	Asphalt	ILS, RNAV, VOR	Non-hub Primary	241	43 Minutes
HCR	Heber City	Heber City, UT	6,898'	Asphalt	RNAV	Regional	78	55 Minutes
PVU	Provo Airport	Provo, UT	8,599'	Asphalt	ILS, RNAV, VOR	Non-hub Primary	111	61 minutes
BMC	Brigham City	Brigham City, UT	8,900'	Asphalt	RNAV	Regional	68	62 Minutes

Source: FAA 5010, Airnav.com, Google Maps

Note: (1) BTF is a privately owned public-use airport. (2)U42 and TVY are part of SLCDA system of airports.

1.3.3 Meteorological Conditions

A review of the prevailing meteorological conditions is necessary to assist in the evaluation of aircraft performance characteristics. Temperature, precipitation, winds, visibility, and cloud ceiling heights are elements used to analyze an area's climate for airport planning purposes. National Weather Service (NWS), a division of the National Oceanic and Atmospheric Administration (NOAA), provides historic climate, weather, and precipitation information. The following information was derived from the NWS.

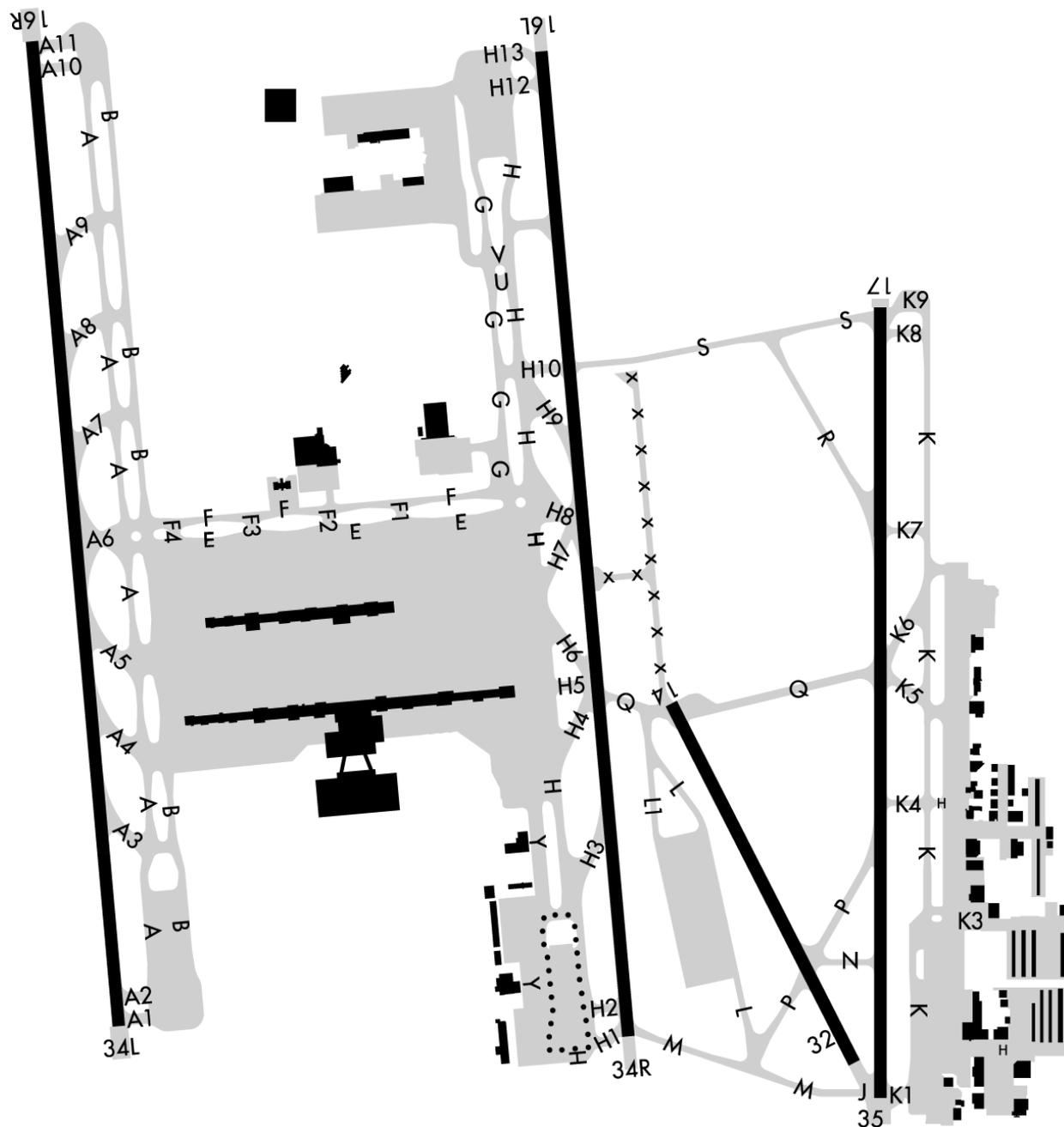
Salt Lake City is situated between the Wasatch Mountains to the east, the Oquirrh Mountains to the west, and Great Salt Lake to the northwest. The configuration of these ranges creates a typically moderate climate with moderate rainfall for the region. With the exception of the summer months, precipitation falls evenly throughout the year. Salt Lake City typically receives approximately 16.1 inches of annual precipitation. On average, there is measurable snowfall in Salt Lake City 35 days per year.

Temperatures during cooler months have average highs of 30 and 40 degrees Fahrenheit with average lows of 20 to 30 degrees Fahrenheit. Summer time highs usually average from 80 degrees to low 90 degrees. According to NOAA records, between 2000 and 2018 the Salt Lake City area averaged eight days above 100 degrees during the summer months, with most occurring in July. On average, the hottest month of the year is July with an average maximum temperature of 92.6 degrees, and the coldest month is January with average minimum temperature of 29.5 degrees.

1.4 AIRFIELD FACILITIES

This section provides an inventory of airside facilities at SLCIA, which includes the runway and taxiway systems as well as aprons and helipads. Additionally, this section will discuss airfield hot spots, existing pavement condition, navigational aids, and lighting. **FIGURE 1-7** provides a graphical depiction of the airfield facilities.

FIGURE 1-7 SLC AIRFIELD DIAGRAM



Note: Not intended to be used for navigational purposes. FAA Airport Diagram modified to include completed ARP footprint.
 Source: FAA Airport Diagram retrieved July 2018, Prepared by RS&H, 2018

1.4.1 Runway System

The runway system at SLCIA consists of two parallel runways oriented in the north-south direction (16R-34L and 16L-34R), a third nearly-parallel runway oriented north-south (17-35), and a northeast-southwest runway (14-32).

Runway 16L-34R is a 12,002-foot-long, 150-foot-wide grooved asphalt runway with precision markings and a High Intensity Runway Lighting (HIRL) system. Runway 16R-34L is a 12,000-foot-long, 150-foot-wide Portland Cement Concrete runway with precision markings and HIRL lighting. The two runway centerlines are separated by a distance of 6,155 feet. This separation distance allows air traffic control (ATC) to conduct independent operations on both runways simultaneously without intersecting the flight patterns. These two runways accommodate the majority of commercial airline activity at SLCIA.

Runway 17-35 is a 9,597-foot-long and 150-foot-wide grooved asphalt runway. This runway is equipped with precision runway markings and a HIRL system. Runway 14-32 is a 4,892-foot-long and 150-foot-wide grooved asphalt runway with visual markings and HIRL lighting system. Due to their proximity to the existing general aviation facilities along the east side of SLCIA, these two runways accommodate a majority of SLCIA's general aviation and military traffic, with Runway 14-32 used primarily for cargo aircraft operations. The runway characteristics for SLCIA are summarized in **TABLE 1-2**.

TABLE 1-2 RUNWAY SYSTEM

Runway	16L-34R	16R-34L	17-35	14-32
Orientation	NNW-SSE	NNW-SSE	N-S	NW-SE
Length (feet)	12,002'	12,000'	9,597'	4,892'
Width (feet)	150'	150'	150'	150'
AAC	D	D	D	B
Design Group	V	V	V	III
Surface Type	Grooved Asphalt	Grooved Concrete	Grooved Asphalt	Grooved Asphalt
Markings	Precision	Precision	Precision	Visual
Lighting	HIRL	HIRL	HIRL	HIRL
Distance Remaining Signs	Yes	Yes	Yes	No

Source: FAA 5010 Master Record Effective 3/1/2018, Airport Facilities Directory Effective 2/1/2018 to 3/29/2018

Declared distances are established for the runways and are summarized in **TABLE 1-3**. Declared distances, established in AC 150/5300-13A, *Airport Design*, represent the maximum distances available and suitable for meeting takeoff, rejected takeoff, and land distance requirements for aircraft.

For Runway 35, the Takeoff Run Available (TORA), Takeoff Distance Available (TODA), and the Accelerate Stop Distance Available (ASDA) is the full length of the runway (9,597 feet). However, the Landing Distance Available (LDA) is reduced to 9,273 feet due to the displaced landing threshold caused by the intersection between the Runway 14-32 Runway Obstacle Free Area (ROFA) and the approach end of Runway 35. The remaining runways have full runway length for TORA, TODA, ASDA, and LDA.

Runways are designed based on a Runway Design Code (RDC), which is determined using a combination of the aircraft approach speed category (AAC), airplane design group (ADG), and the approach visibility

minimums, all of which are based on the critical aircraft using the runway. The AAC and ADG definitions are shown in **TABLE 1-4** and **TABLE 1-5**. The visibility minimums, shown in **TABLE 1-6** are expressed by Runway Visual Range (RVR) values.

The RDC provides the information needed to determine certain design standards that apply to the runway system to allow unrestricted operations of the design aircraft. The RDC for Runway 16L-34R, Runway 16R-34L, and Runway 17-35 is D-V-1200, meaning the runways can accommodate aircraft with approach speeds up to 166 knots, wingspans up to 214 feet, tail heights up to 66 feet tall, and visibility minimums below 1/4 mile. The RDC for Runway 14-32 is B-III-VIS, meaning the runway can accommodate aircraft with approach speeds up to 121 knots, wingspans up to 118 feet, and tail heights up to 45 feet.

The Runway Safety Area (RSA) is a defined surface surrounding the runway specifically prepared to reduce the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway. The RSA is based on the RDC. The RSA for Runways 16L-34R, 16R-34L, and 17-35 extend 1,000 feet beyond the runway end (or 600 feet prior to the threshold where the runway end is equipped with vertical guidance) and is 500 feet wide centered on the runway centerline. The RSA for Runway 14-32 extends 600 feet beyond the runway end (or 600 feet prior to the threshold where the runway end is equipped with vertical guidance) and is 300 feet wide centered on the runway centerline.

The Runway Object Free Area (ROFA) is 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 which are “fixed by function” and need to be located within the object free area for air navigation or aircraft ground maneuvering purposes. The ROFA for Runways 16L-34R, 16R-34L, and 17-35 extends 1,000 feet beyond the runway end and is 800 feet wide centered on the runway centerline. The ROFA for Runway 14-32 extends 600 feet beyond the runway end and is 800 feet wide centered on the runway centerline.

The Runway Protection Zones (RPZ) are areas at ground level prior to the threshold and beyond the

TABLE 1-3 DECLARED DISTANCES

Runway	Existing Runway Length	TORA	TODA	ASDA	LDA
Runway 16L-34R	12,002'				
16L		12,002'	12,002'	12,002'	12,002'
34R		12,002'	12,002'	12,002'	12,002'
Runway 16R-34L	12,000'				
16R		12,000'	12,000'	12,000'	12,000'
34L		12,000'	12,000'	12,000'	12,000'
Runway 17-35	9,597'				
17		9,597'	9,597'	9,597'	9,597'
35		9,597'	9,597'	9,597'	9,273'
Runway 14-32	4,892'				
14		4,892'	4,892'	4,892'	4,892'
32		4,892'	4,892'	4,892'	4,892'

Source: FAA 5010 Master Record Effective 3/1/2018, Airport Facilities Directory Effective 2/1/2018 to 3/29/2018

runway end to enhance the safety and protection of people and property on the ground. The RPZ dimensions for each runway are based on the visibility minimums, AAC, and ADG of the runway. For the 16L, 16R, 34R, 34L, 17, and 35 runway ends, the approach RPZ dimensions are 1,000 feet (inner width) by 1,750 feet (outer width) by 2,500 feet (length). For the 14 and 32 runway ends, the approach RPZ dimensions are 500 feet (inner width) by 700 feet (outer width) by 1,000 feet (length). The departure RPZ dimensions for Runway 17 are 500 feet (inner width) by 1,010 feet (outer width) by 1,700 feet (length). The departure RPZ dimensions for all other runway ends, excluding Runway 17, are 500 feet (inner width) by 1,010 feet (outer width) by 1,700 feet (length).

Runway pavement bearing strengths are defined in **SECTION 1.4.4, Airfield Pavement**.

TABLE 1-4 AIRCRAFT APPROACH CATEGORIES

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

Source: FAA AC 150/5300-13A, *Airport Design*

TABLE 1-5 AIRPLANE DESIGN GROUPS

Group	Tail Height	Wingspan
I	< 20'	< 49'
II	20' ≤ 30'	49' ≤ 79'
III	30' ≤ 45'	79' ≤ 118'
IV	45' ≤ 60'	118' ≤ 171'
V	60' ≤ 66'	171' ≤ 214'
VI	66' ≤ 80'	214' ≤ 262'

Source: FAA AC 150/5300-13A, *Airport Design*

TABLE 1-6 VISIBILITY MINIMUMS

RVR	Instrument Flight Visibility Category (statute mile)
5000'	Not lower than 1 mile
4000'	Lower than 1 mile but not lower than 3/4 mile
2400'	Lower than 3/4 mile but not lower than 1/2 mile
1600'	Lower than 1/2 mile but not lower than 1/4 mile
1200'	Lower than 1/4 mile

Source: FAA AC 150/5300-13A, *Airport Design*

1.4.2 Helipads

SLCIA has two helipad facilities located on the general aviation apron. Helipad “B” (HB) is located in the south portion of the general aviation apron within the TAC Air leasehold area. Helipad “F” (HF) is located on the general aviation apron in front of Aircraft Rescue and Fire Fighting (ARFF) Station #11, just outside the movement area adjacent Taxiway K4. Information about the two helipads are detailed in **TABLE 1-7**.

TABLE 1-7 HELIPAD SYSTEM

Helipads	HB	HF
Length (ft)	60'	60'
Width (ft)	60'	60'
Surface Type	Grooved Asphalt	Grooved Asphalt
Lighting	None	None
Markings	General Aviation	General Aviation

Source: Airport Data Collection, Prepared by RS&H, 2018

1.4.3 Taxiway System

SLCIA has an extensive taxiway system that provides access to four runways from numerous aprons, as previously shown in **FIGURE 1-7**. A list of the key taxiways at SLCIA is shown in **TABLE 1-8**. Runway 16L-34R is serviced by Taxiway H, which is a full-length parallel taxiway located west of the runway with a centerline separation of 600 feet. The position of this taxiway allows aircraft access to the terminal area, as well as the north and south cargo aprons. The runway is also serviced by a partial-length parallel taxiway, Taxiway G, which provides access to the terminal and north cargo apron from the Runway 16L end. Taxiway G and Taxiway H are separated 267 feet from taxiway centerline to taxiway centerline.

Runway 16R-34L is serviced by two full-length parallel taxiways, Taxiway A and Taxiway B located east of the runway. These taxiways are separated from the runway centerline by a distance of 600 feet and 867 feet respectively. The two taxiways provide access to Runway 16R-34L from the terminal and apron areas, and vice versa. Dual parallel Taxiway E and Taxiway F connect the east and west sides of the airfield. Located north of the terminal area, these taxiways are separated 267 feet from taxiway centerline to

TABLE 1-8 TAXIWAY SYSTEM

Taxiway Designator	Width	Type
A	75'	Parallel (Rwy 16R-34L)
B	75'	Parallel (Rwy 16R-34L)
E	75'	Crossfield Taxiway (Rwy 16L-34R and Rwy 16R-34L)
F	75'	Crossfield Taxiway (Rwy 16L-34R and Rwy 16R-34L)
G	75'	Parallel (Rwy 16L-34R)
H	100'	Parallel (Rwy 16L-34R)
J	100'	Connector (Rwy 14-32)
K	75'	Parallel (Rwy 17-35)
L	75'	Deicing Pad Taxiway
M	90'	Connector (Rwy 14-32 and Rwy 16L-34R)
P	90'	Mid-Field Angled Taxiway (Rwy 17-35 and Rwy 14-32)
Q	100'	Rwy 17-35 and Rwy 14-32 Connector / Rwy 16L-34R Mid-Field Angled Taxiway
R	75'	Mid-Field Angled Taxiway (Rwy 17-35)
S	75'	Rwy 17-35 Connector / Rwy 16L-34R Mid-Field Connector
Y	75'	Parallel (Rwy 16L-34R)

Source: Airport Data Collection, Prepared by RS&H, 2018

taxiway centerline.

Runway 17-35 is serviced by a full-length parallel taxiway, Taxiway K, with a centerline separation of 570 feet, with the exception of the first 1,800 feet at the approach end of Runway 35. The centerline separation in this area is reduced to 400 feet. This taxiway provides access to the general aviation facilities located along the east side of airfield. Access between the departure end of Runway 17 and the terminal area is provided primarily by Taxiway S.

Taxiway M is the main taxiway connector between the south end of Runway 34R and the departure ends of Runway 35 and Runway 32. This taxiway provides an east and west connection to both sides of the airfield.

1.4.4 Airfield Pavement

SLCIA has approximately 4,075,000 square yards of paved airfield surfaces which are made up of either Asphalt Concrete (AC) or Portland Cement Concrete (PCC). These paved surfaces consist of runways, taxiways, and aprons as shown in **FIGURE 1-9**. It is important to note that a portion of the airfield pavements are installed, managed, and maintained by various SLCIA tenants.

To determine the condition of the SLCDCA-owned and maintained paved airfield surfaces, the SLCDCA conducts a Pavement Condition Index (PCI) survey every year as part of an ongoing Pavement Management Program (PMP) using the criteria contained in ASTM D5340 *Standard Test Method for Airport Pavement Condition Index Surveys*.³

The purpose of the PCI survey is to determine a PCI value for each contiguous pavement section having uniform construction, maintenance, usage history (traffic volume/load intensity), and condition. The PCI value provides a measure of the present condition of the pavement based on the distresses observed on the surface of the pavement. This indicates the structural integrity and surface operational condition. The PCI values correspond with a pavement condition rating, shown in **FIGURE 1-8**, which provides more detailed description of pavement condition as a function.

The following is a summary of each pavement condition rating:

- » Pavement rated as "Good" condition, between 100 to 86 PCI, has minor or no distresses and will require only routine maintenance.
- » Pavement rated as "Satisfactory" condition, between 85 to 71 PCI, has scattered low-severity distresses and very few, if any, medium-severity distresses that should need only routine maintenance.
- » Pavement rated as "Fair" condition, between 70 to 56 PCI, has a combination of generally low- and medium-severity distresses. Maintenance and repair needs should be routine to major in the near term.
- » Pavement rated as "Poor" condition, between 55 and 41 PCI, has low-, medium-, and high-severity distresses that probably cause some operational problems. Maintenance and repair needs should range from routine to reconstruction in the near term.
- » Pavement rated as "Very Poor" condition, between 40 and 26 PCI, has predominantly medium- and high-severity distresses causing considerable maintenance and operational problems. Near-

³ The 2017 update was the most recent survey at this time and data contained in this section is from that survey.

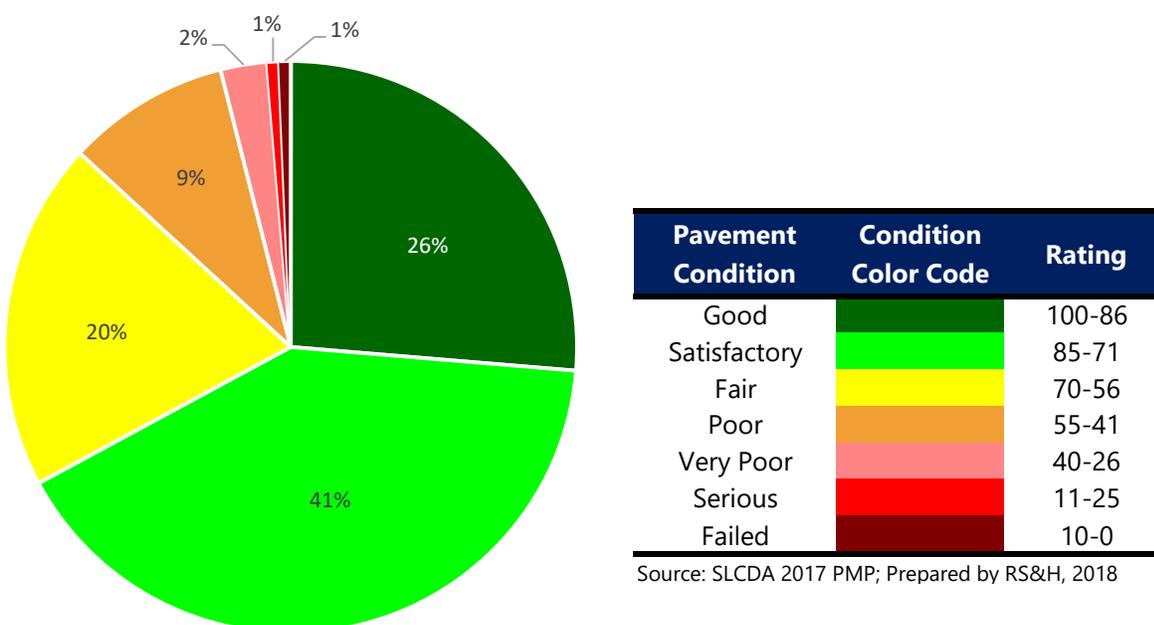
term maintenance and repair needs will be intensive.

- » Pavement rated as “Serious” condition, between 25 and 11 PCI, has mainly high-severity distresses that cause operational restrictions. Repair needs are immediate.
- » Pavement rated as “Failed” condition, between 10 and 0 PCI, is pavement that deteriorated and progressed to the point that safe aircraft operations are no longer possible. Complete reconstruction is required.

The airfield pavement condition rating at SLCIA from the 2017 PCI survey ranges from Good to Failed with most of the airfield pavements in either good or satisfactory condition as illustrated in **FIGURE 1-8** and **FIGURE 1-10**. The airfield pavement condition ratings serve as the baseline to determine airfield pavement CIP projects over the course of the next five years.

In addition to the Pavement Condition Index, the runways also have an associated pavement bearing strength that define the weight limit at or below which an aircraft may operate on the runways. The weight bearing capacity for a runway is determined by the configuration of the aircraft landing gear system and is shown in **TABLE 1-9**.

FIGURE 1-8 PAVEMENT CONDITION BY PAVEMENT RATING



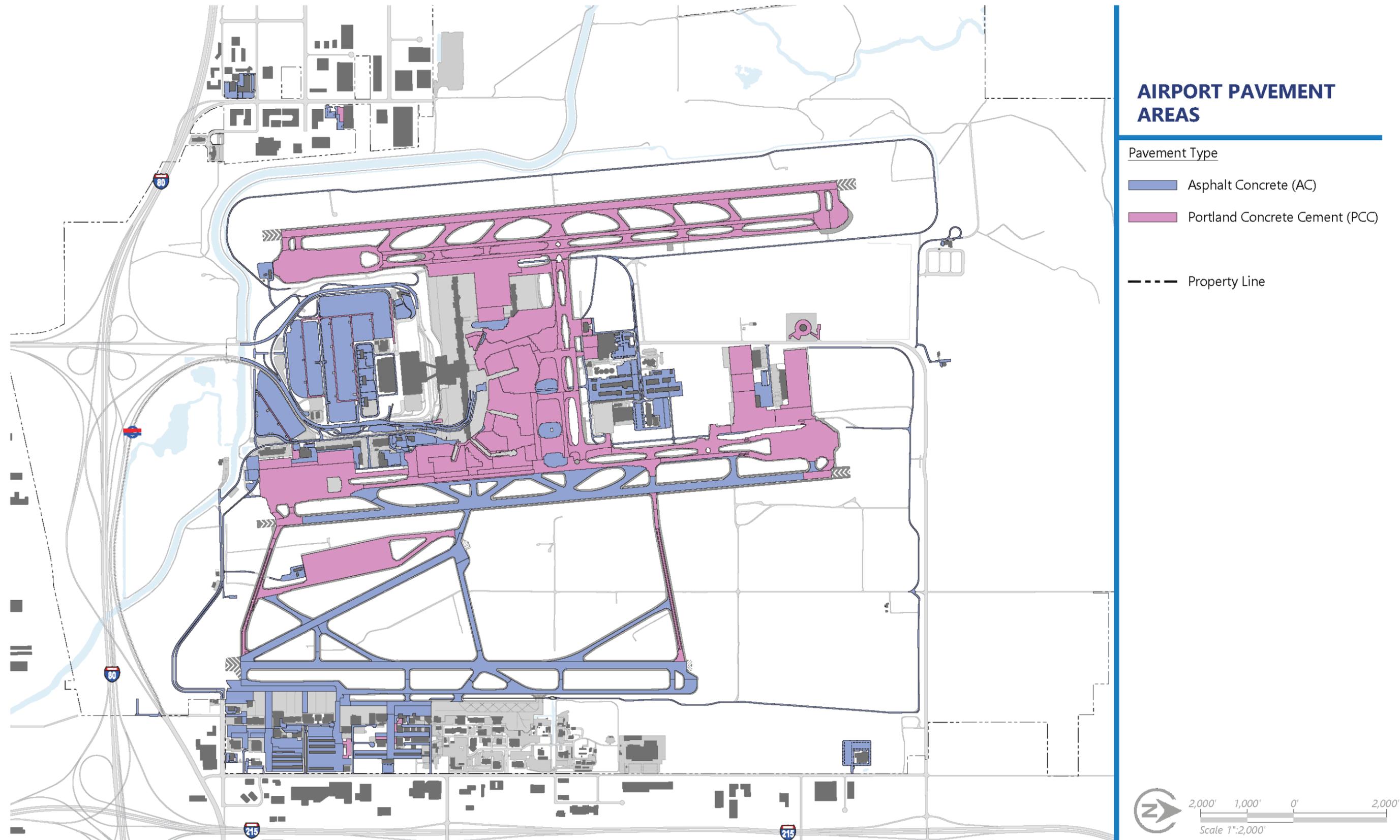
Source: SLCD A 2017 Pavement Management Plan, Prepared by RS&H, 2018

TABLE 1-9 RUNWAY PAVEMENT BEARING STRENGTH

Landing Gear	Runway			
	16L-34R	16R-34L	17-35	14-32
Single (S)	60,000 lbs	60,000 lbs	60,000 lbs	60,000 lbs
Dual (D)	200,000 lbs	200,000 lbs	200,000 lbs	200,000 lbs
Two-Dual (2D)	350,000 lbs	350,000 lbs	350,000 lbs	350,000 lbs
Two-Dual/Double-Dual Tandem (2D/2D2)	850,000 lbs	850,000 lbs	850,000 lbs	850,000 lbs

Source: Airport Facilities Directory Effective 9/13/2018 to 11/7/2018

FIGURE 1-9 AIRPORT PAVEMENT



Source: SLCIA pavement data, 2017; Prepared by RS&H, 2018

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FIGURE 1-10 AIRFIELD PAVEMENT CONDITION (2017)



Source: SLCIA pavement data, 2017; Prepared by RS&H, 2018

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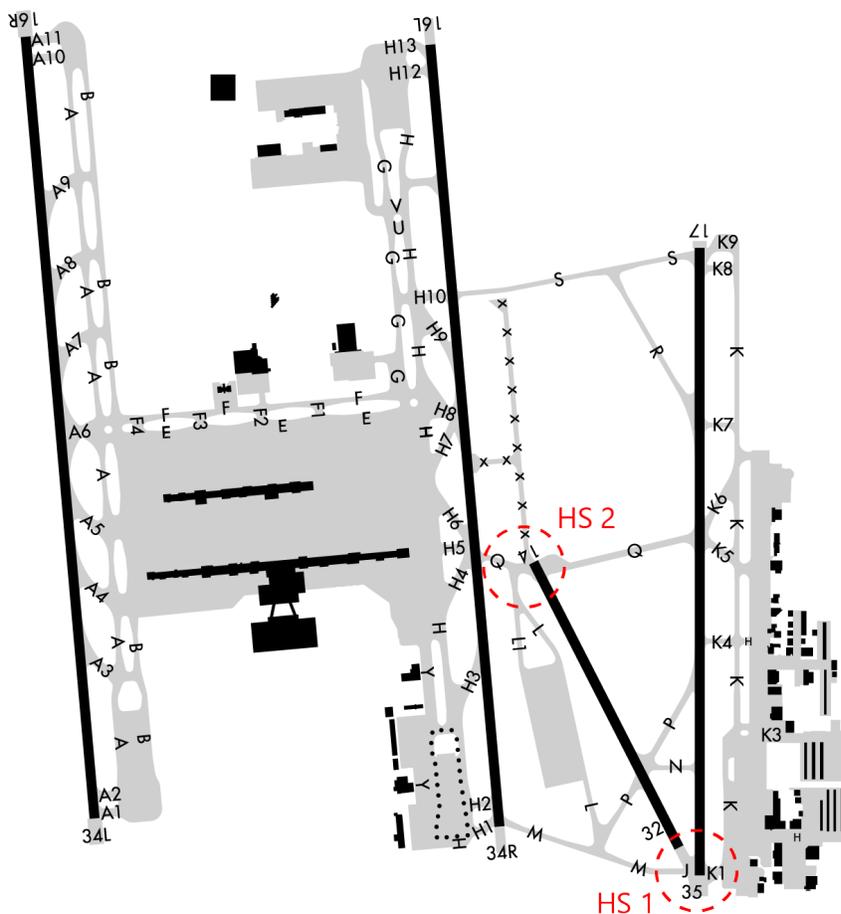
1.4.5 Airfield Hot Spots

The FAA has defined specific locations at airports as hot spots to help alert airport users to locations on the airfield that are confusing and have a history of runway incursions or potential risk of collision. SLCIA has two designated hot spots. The first is located near the thresholds of Runway 32 and Runway 35. This location is designated by the FAA as “HS1”. The second hot spot is located at the intersection of Taxiway Q and Taxiway L, near the approach end of Runway 14. This location is designated by the FAA as “HS2”. FAA Airport Diagram publications provide a description of why these locations are listed as hot spots, as shown in **FIGURE 1-11**.

The following is a list of hot spots at SLCIA with a brief description:

- » **HS1** – Wrong runway departure risk. Hold lines for Runway 32 and Runway 35 are at the same location at Taxiway K1 and Taxiway M with short taxi distance to either runway.
- » **HS2** – High risk of runway incursions at Runway 14-32 on Taxiway Q due to short taxi distance between runways.

FIGURE 1-11 SLC AIRFIELD HOTSPOTS



Note: Not intended to be used for navigational purposes. FAA Airport Diagram modified to include completed ARP footprint.

Source: FAA Airport Diagram retrieved July 2018, Prepared by RS&H, 2018

In 2015, the FAA initiated a pilot program to improve runway safety at airports. The Runway Incursion Mitigation (RIM) program, allows the FAA to focus on reducing the risk of runway incursions at specific airfield intersections at an airport. The following subsections provide an overview of the RIM program along with the historic runway incursions that have occurred at SLCIA.

1.4.5.1 Runway Incursion Mitigation Program

In an effort to improve the safety of the NPIAS, the FAA evaluated runway incursion data at airports across the United States. At the time of this writing, the national RIM program has compiled a list of incursions occurring between 2008 and 2016, and has identified airports where geometry risk factors may have contributed to these incursions. The FAA initiated the multi-year RIM program

to identify, prioritize, and develop strategies to mitigate risk at these locations. SLCIA locations where three or more incursions occurred in a given year, or more than nine cumulative incursions occurred over the evaluation period, were identified for further study. FAA continually collects and updates the RIM inventory list on an annual basis.

Both HS1 and HS2 are listed on the Preliminary Inventory List of Airport Locations in the RIM program. Intersections on the RIM inventory list need to be studied and evaluated to determine an effective solution to reduce runway incursions. The configuration of the taxiways in these particular areas will be further assessed in the Facility Requirements and Alternatives chapters of this master plan.

1.4.5.2 Historic Runway Incursions

A Runway Incursion (RI), as defined by the FAA is “any occurrence at an Aerodrome involving the incorrect presence of an aircraft, vehicle, or pedestrian on the protected area of a surface designated for the landing and takeoff of aircraft.” There are three different classifications of runway incursions. These include operational incidents, pilot deviations, and vehicle/pedestrian deviations. Runway incursions may be the result of multiple factors such as a breakdown in communications, pilot error, Air Traffic Control Tower (ATCT) error, vehicle driver error, and/or airfield design factors. The three classifications of runway incursion are defined below:

- » **Operational Incident (OI)** – A surface event attributed to ATC action or inaction.
- » **Pilot Deviation (PD)** – An action of a pilot that violates any Federal Aviation Regulation.
- » **Vehicle / Pedestrian Deviation (VPD)** – Any entry or movement in the movement area or safety area of a vehicle or pedestrian that has not been authorized by ATC.

Between the periods of June 1st, 2013 and June 30th, 2018, 62 runway incursions⁴ were documented at various locations at SLCIA. Of the 62 recorded runway incursions, 18 took place at HS1 and 9 took place at HS2. A large majority of runway incursions took place east of the Terminal building. A complete summary of the 62 runway incursions can be found in **Appendix XX** of the report.

1.4.6 Navigational Aids

Navigational Aids, known as NAVAIDS, are visual, electronic, and meteorological air navigation equipment that facilitate flight operations and enhance flight safety at an airport during instances of inclement weather and/or darkness. Visual aids include pavement markings, signage, and airfield lighting systems. Electronic aids are devices used for aircraft instrument approaches. Meteorological aids provide the SLCIA with real-time weather updates for air traffic control personnel and pilots. **FIGURE 1-12** displays the locations of the various NAVAIDS found at SLCIA.

1.4.6.1 Visual Aids

Visual aids and airfield lighting are necessary to facilitate flight operations and enhance safety during periods of inclement weather and/or darkness by providing guidance to pilots in the air and on the ground. Visual aids at SLCIA are listed in **TABLE 1-10**.

The Approach Lighting Systems (ALS) provide a means of transition from instrument flight to visual flight

⁴ FAA Aviation Safety Information Analysis and Sharing (ASIAS) – Runway Incursion (RWS), 2018

for pilots on final approach. The approach lighting systems installed at SLCIA are the Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) and Approach Light System with Sequenced Flashing Lights (ALSF-2). The MALSR consists of a combination of threshold lights providing runway alignment information, height perception, and horizontal references for Category I instrument precision approaches. The ALSF-2 is a high intensity approach light system for operations under Category II or Category III conditions. (Instrument approaches are discussed in more detail in **SECTION 1.5, Airspace**). Runways 17 and 35 are equipped with MALSR systems. Runways 16L, 16R, 34L, and 34R are equipped with ALSF-2 systems.

The Precision Approach Path Indicators (PAPI) assist in providing visual glide slope guidance to pilots on approach. The PAPIs are designed to visually inform the pilots during the approach when the descent is too high or low from the runway threshold or on proper angle of approach. Each runway at SLCIA is equipped with four-box PAPIs located on the approach end.

Runways 17-35, 16L-34R, and 16R-34L have precision instrument markings which provide pilots with landing and takeoff guidance during periods of inclement weather or poor visibility. These markings consist of threshold markings at the end of the runway, five sets of touchdown zone markings, and one set of aiming points. The markings are in accordance with 14 CFR 139.311(a) and AC 150/5340-1, Standards for Airport Markings. Runway 14-32 contains visual markings including threshold and touchdown markings.

Various types of airfield signs are present at SLCIA to assist pilots with identifying their location on the airfield and directing them to their intended destination. Such signs include taxiway and runway location signs, directional signs, and assorted informational signs. All runways, except for Runway 14-32, are equipped with runway distance remaining signs.

1.4.6.2 Electronic Aids

Electronic Aids include devices and equipment used for aircraft instrument approaches, which are listed in **TABLE 1-10**. Some approaches rely on Very High Frequency Omni-Directional Range (VOR) aids, which is a ground-based facility that transmits high frequency radio signals 360 degrees in azimuth from the station. These signals help the pilot turn at a given point above the ground or fly along a radial to/from the station. VORTAC is a combination VOR and tactical air navigation system (TACAN), which also provides omni-directional azimuth bearing information for military aircraft. Four VORTACs currently operate near SLCIA: Wasatch (TCH), Ogden (OGD), Fairfield (FFU), and Provo (PVU) VORTACs.

SLCIA is also equipped with Distance Measuring Equipment (DME) which allows pilots to determine their distance from a land-based transponder. TACANs are generally more accurate than a combined VOR/DME, but they can also be used with VOR and DME facilities.

Runways 16L, 34R, 16R, 34L, 17, and 35 feature Instrument Landing Systems (ILS), which is an approach path that provides horizontal and vertical alignment for an aircraft under Instrument Flight Rules (IFR) or poor weather and visibility conditions that typically contains three components: approach lights, a localizer, and a glide slope. Guidance information is provided through the combination of a localizer and a glide slope. Localizers provide horizontal runway centerline guidance whereas glide slopes provide vertical guidance.

SLCIA's Area Navigation (RNAV) and Global Positioning System (GPS) approaches rely on the space-based

TABLE 1-10 NAVIGATIONAL AIDS

	Runway		Runway		Runway		Runway	
	16L	34R	16R	34L	17	35	14	32
Visual Aids								
Lighting System	HIRL							
Approach Lighting	ALSF-2	ALSF-2	ALSF-2	ALSF-2	MALSRL	MALSRL	-	-
Touchdown Zone Lighting	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Visual Slope Indicator	PAPI (P4L)	PAPI (P4L)	PAPI (P4L)	PAPI (P4L)	PAPI (P4R)	PAPI (P4L)	PAPI (P4L)	PAPI (P4L)
Runway Markings	Precision	Precision	Precision	Precision	Precision	Precision	Visual	Visual
RWY Centerline Lights	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Electronic Aids (Approaches)								
ILS or LOC DME	Yes	Yes	Yes	Yes	Yes	Yes	No	No
ILS CAT II-III	Yes	Yes	Yes	Yes	Yes	No	No	No
RNAV RNP	No							
RNAV GPS	Yes	Yes	Yes	Yes	Yes	Yes	No	No
VOR/DME	No							

Source: FAA Chart Supplements, FAA.gov, Prepared by RS&H, 2018

Notes: ALSF-2 = High intensity approach light system with sequenced flashers, MALSRL = Medium intensity approach light system with runway alignment indicator lights, PAPI = Precision approach path indicator.

GPS satellite system to provide position and time information. GPS satellites are owned by the United States Government and controlled by the Department of Defense.

SLCIA also features Runway Visual Range (RVR) equipment on Runway 16L-34R and Runway 16R-34L. This system consists of three sensors, one on each end of the runway and one in the center, which work to determine real-time visibility conditions. Additionally, Runway 17-35 is equipped with an RVR consisting of two sensors, one on each end of the runway.

The SLCIA ATCT hosts the terminal radar approach control (TRACON) facility for SLCIA. The TRACON facility provides radar air traffic control service throughout the terminal area. Additionally, to support the TRACON, an Airport Surveillance Radar (ASR) is stationed southeast of the Runway 34R end. The ASR is used by the FAA air traffic controllers to track aircraft moving through the airspace they are controlling.

1.4.6.3 Meteorological Aids

SLCIA has two Automatic Surface Observing Systems (ASOS) operating on the airport. The ASOS provides real time weather updates to air traffic control personnel and pilots, as well as recording data used by the National Weather Service. Additionally, SLCIA has a Runway Weather Information System (RWIS) which provides real time data used by SLCDA operations personnel. The ASOS system is located near the end of Runway 32.

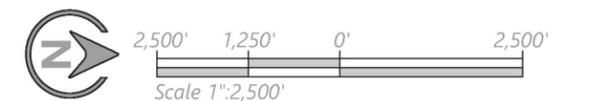
SLCIA also has a Low Level Wind Shear Alert System (LLWAS) with ground-based detection facilities located around airport. A LLWAS system generates warnings associated with the detection of wind shear and microburst events which are especially dangerous to aircraft operating in the arrival and departure phases of flight.

FIGURE 1-12 SLC NAVIGATIONAL AID LOCATIONS



NAVIGATIONAL AIDS (NAVAIDS)

- Precision Approach Path Indicator (PAPI)
- Runway Visual Range (RVR)
- Glideslope (GS)
- Approach Light System with Sequenced Flashing Lights (ALSF-2)
- Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR)
- Distance Measuring Equipment (DME)
- Localizer (LOC)
- Localizer Directional Aid (LDA)
- Low Level Windshear Alert System (LLWAS)
- Automated Surface Observing System (ASOS)
- Airport Surveillance Radar (ASR)



Note: Only on-airport navigational aids are shown in graphic.
 Source: Prepared by RS&H, 2018

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1.5 AIRSPACE

The airspace system for Salt Lake City International Airport, and the rest of the United States, is regulated by the FAA. In establishing and regulating the National Airspace System (NAS), the FAA's goal is the safe and efficient use of navigable airspace. The NAS is comprised of air navigation facilities, ATC facilities, airports, and the governing rules and regulations under which the system operates.

The following sections describe the SLCIA airspace system, the responsibilities of various air traffic control facilities, as well as flight path limitations imposed by the regional geography, local communities, and the structure of the airspace system itself. In addition, this section will describe preferred runway uses, aircraft approaches and departures, special air traffic rules, and noise mitigation strategies.

1.5.1 National Airspace Structure

Airspace can be categorized as either controlled or uncontrolled. The area over and surrounding SLCIA is in controlled airspace. Controlled airspace is defined as positive navigational control, meaning the pilot is communicating with a controller on the ground, providing either directions to takeoff, land or transition through the airspace. The different classes of controlled airspace are defined as follows:

- » **Class A Airspace** – Generally includes all airspace between 18,000 feet mean sea level (MSL) and Flight Level (FL) 600. In order to fly in this class of airspace both the pilot and the aircraft must be instrument rated and obey instrument flight rules (IFR).
- » **Class B Airspace** – Generally consists of airspace from the surface to 10,000 feet MSL, although SLCIA Class B airspace extends to 12,000 feet MSL. The dimensions of this type of airspace are tailored to specific airport conditions based on operational needs and topographic constraints. Class B airspace is associated with airports that experience large numbers of IFR operations and/or passenger enplanements. Class B airspace is supported by a 30 nautical mile (NM) radius which is defined as the terminal area. ATC clearance is required to enter Class B airspace and all aircraft within it receive separation services, therefore a Mode C transponder is required.
- » **Class C Airspace** – Class C airspace typically surrounds medium sized airports. Dimensions of Class C airspace typically exist from the surface to 4,000 feet above the airport's elevation, usually extending in a 5 NM to 10 NM radius. Two-way radio communication with ATC is required prior to entering Class C airspace and must be continually maintained. Mode C transponders are also required in Class C airspace.
- » **Class D Airspace** – Class D airspace typically extends from the surface to 2,500 feet above the airport's elevation at airports with an operational ATCT. Each configuration is tailored to the specific airport but usually Class D airspace spans a 5 NM radius. Unless otherwise authorized and published, aircraft must establish two-way radio communication with ATC prior to entering Class D and maintain communication while in the airspace.
- » **Class E Airspace** – Generally, all controlled airspace that is not defined as A, B, C, or D is Class E. Class E airspace is often provided to transition aircraft from the terminal to the en route environment. Class E also typically surrounds many non-towered airports. In most cases, Class E airspace either begins at the surface, 700 feet above ground level (AGL), or 1,200 feet AGL. Class E extends up to, but not including, 18,000 MSL and all airspace above FL600 is categorized as Class E.

1.5.2 Salt Lake City Airspace Structure

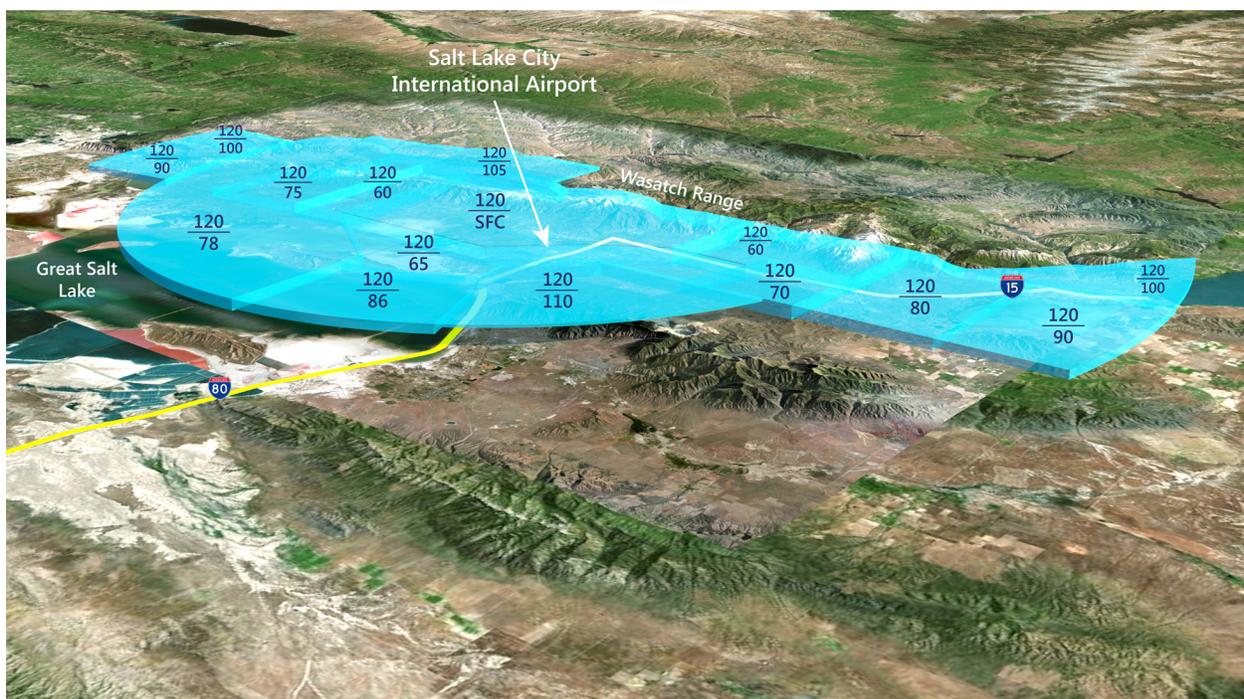
The airspace over SLCIA is Class B, which is the most restrictive class of controlled airspace. All aircraft entering the SLCIA Class B Mode C Veil (Terminal Area) are required to obtain ATC clearance prior to

entering, establish and maintain two-way radio communication with ATC, and have operational, all navigational equipment required of Class B and the authorized published flight procedures to be flown. Class B airspace is designed to enhance safe operations in and around the airport by restricting uncontrolled traffic. In general, Class B airspace restrictions enable larger and faster flying aircraft, such as the commercial airline jets operating at SLCIA, to operate unimpeded by what are typically smaller and slower general aviation aircraft. At the very minimum, pilots are required to have a private pilot’s license or meet the student pilot requirements outlined in 14 CFR 61 to fly in Class B airspace. Helicopters are not required to have special equipment or a transponder, if they operate at or below 1,000 feet above the elevation of an airport.

In recent years, as part of the FAA NextGen program, the FAA has rolled out an initiative which mandates aircraft operating in most controlled airspace classes, including those at SLCIA, to be equipped with, at a minimum, Automatic Dependent Surveillance – Broadcast (ADS-B) Out by January 1, 2020. ADS-B equipment is designed with two functions, the ability to broadcast data to (ADS-B Out) and receive data from (ADS-B In) other ADS-B equipment. ADS-B Out equipment broadcasts information such as position, identification, and velocity as well as other details specific to the individual aircraft, which are capable of being received by ADS-B In equipment. At the time of this writing, installation of ADS-B In equipment has not yet been mandated by FAA. Ultimately, the new ADS-B equipment is designed to increase pilot situational awareness by displaying the locational data about nearby aircraft. Though pilots flying in the Salt Lake City terminal area are required to have a Mode C transponder today, all aircraft that continue to fly in the area once the ADS-B mandate goes into effect, will need to be fitted with this new technology.

Three public airports lie under the SLCIA Class B airspace. Although the SLCIA Class B airspace exists

FIGURE 1-13 SLC CLASS B AIRSPACE



Source: Google Earth; FAA Sectional Chart; Prepared by RS&H, 2018

above these airports and restricts certain operations above them, other less restrictive airspace lies between the airfield surface and the beginning of the Class B floors which provides corridors for controlled and uncontrolled aircraft operations, including general aviation. The first is a non-towered public airport, Skypark Airport (BTF), located within the immediate vicinity of SLCIA, approximately five miles to the northeast. The Class B airspace floor begins at 7,500 MSL above BTF. The second airport under the SLCIA Class B airspace is South Valley Regional Airport (U42) which is located about 10 statute miles (SM) directly south of SLCIA. SLCIA Class B airspace floor begins at 6,000 MSL above U42. The third airport located under SLCIA Class B airspace is Ogden-Hinckley Airport, which is a towered airport roughly 26 SM north of SLCIA. Additionally, there is one military airport, Hill Air Force Base (HIF), located under SLCIA Class B airspace approximately 20 SM north of SLCIA. SLCIA Class B airspace floor begins at 7,800 MSL above HIF. A three dimensional graphic showing vertical limits of SLCIA Class B airspace in the Salt Lake Valley is shown in **FIGURE 1-13** and **FIGURE 1-14**.

There are other airports located within the 30 NM SLCIA Terminal Area. Tooele Valley Airport (TVY) is a non-towered public airport located approximately 22 SM southwest of SLCIA. Morgan County Airport (42U) is a non-towered public airport positioned roughly 26 SM miles northeast of SLCIA. There are also a couple of private airstrips falling within the SLCIA 30 NM radius, including Cedar Valley 30 SM to the south, and Hoytsville, in the mountains about 30 SM to the east.

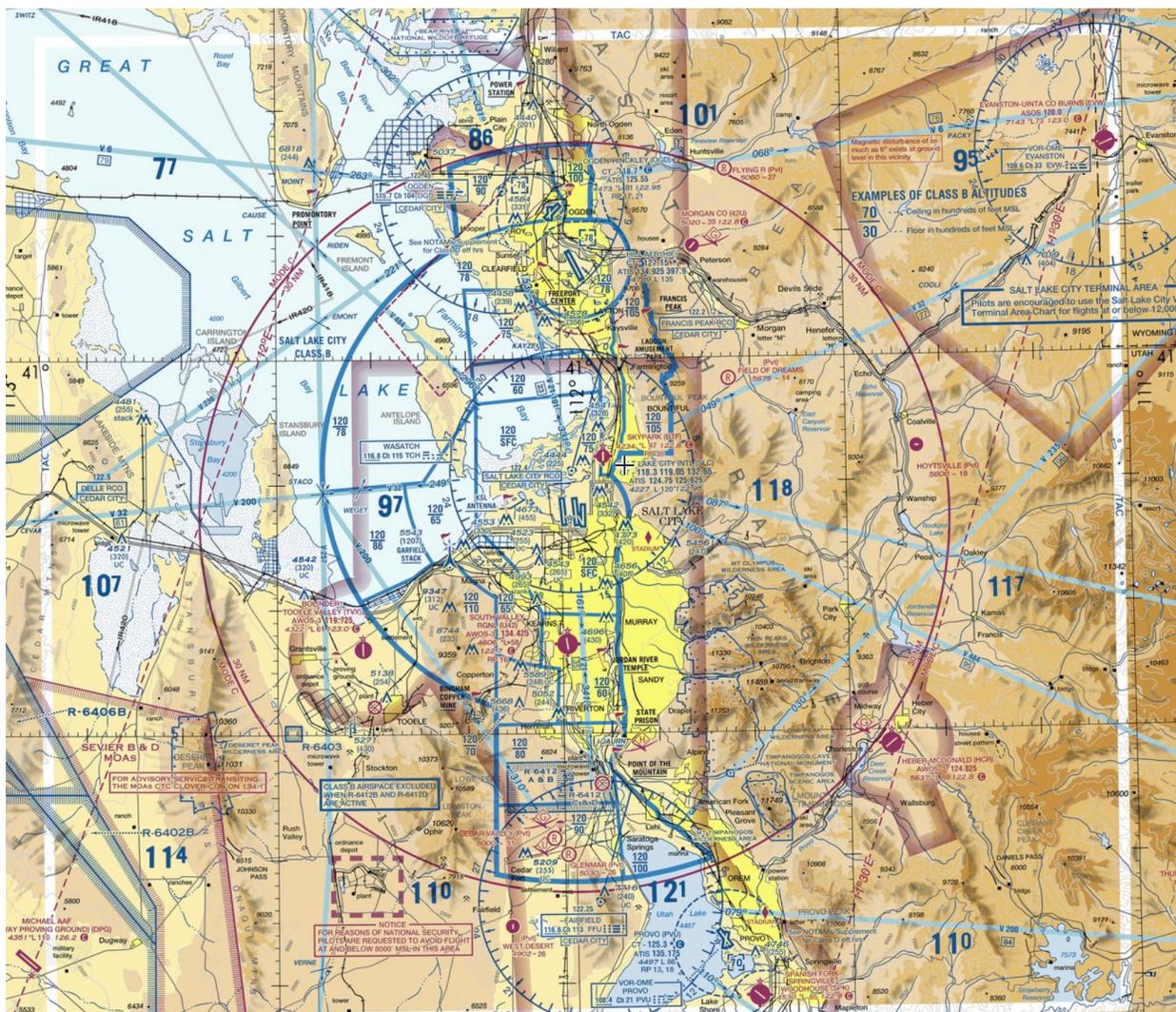
In terms of special use airspace, the terminal area for SLCIA contains five restricted areas to the south and southwest. Restricted areas are zones where operations are hazardous to nonparticipating aircraft and contain airspace within which the flight of aircraft, while not wholly prohibited, is subject to restrictions. Unusual, often invisible hazards to aircraft (such as artillery firing, aerial gunnery, or guided missiles) can

FIGURE 1-14 U42 UNDER SLC CLASS B AIRSPACE CROSS SECTION



Source: Google Earth; FAA Sectional Chart; Prepared by RS&H, 2018

FIGURE 1-15 SLC SECTIONAL CHART



Source: www.faa.gov/air_traffic/flight_info/aeronav/digital_products/vfr, Retrieved July 31, 2018

exist in restricted areas. The first restricted area is R-6403. It is a relatively small area approximately 29 miles southwest of SLCIA. Restrictions on aircraft flight exist up to 9,000 feet MSL from 8:00am to 8:00pm Monday through Thursday. There are no air to ground communication radio frequencies to monitor for R-6403. The last four restricted areas (R-6412 A, B, C, and D) exist roughly 24 miles south of SLCIA over the Camp Williams State Military Reservation, which is a Utah National Guard training site. For R-6412 A and C, restrictions exist up to 9,000 feet MSL. For R-6412 B and D, restrictions exist from 9,000 feet MSL to 10,000 feet MSL. Times of restrictions are posted by Notice to Airmen (NOTAM) for all four areas and Salt Lake TRACON is the controlling agency.

A Military Operations Area (MOA) contains airspace designated and used for military operations. The closest MOA is located approximately 52 miles east of SLCIA, over the Great Salt Lake Desert. Restricted airspaces are also located over the desert. Shape and sizes of both the MOAs and restricted airspaces vary. **FIGURE 1-15** shows the SLCIA Terminal Area.

1.5.3 Airport Traffic Control Procedures

The FAA controls airspace through several layers of air traffic control facilities. In broad terms, the National Airspace System is broken out into two categories: Air Route Traffic Control Centers (ARTCC) and Air Traffic Control (ATC) facilities. The following sections describe these facilities as they relate to SLCIA airspace management.

1.5.3.1 Air Route Traffic Control Center

The Salt Lake City Air Traffic Control Center (ZLC) (referred to as “Salt Lake Center”) serves as one of 22 FAA ARTCCs for the NAS. Salt Lake Center services are provided from a secure facility located on the east side of SLCIA, adjacent the Utah Air National Guard Base. Salt Lake Center provides separation and sequencing of arriving and departing aircraft as well as control over en route traffic flying over the SLCIA airspace under IFR. ZLC controls aircraft within one of the largest service areas, covering 350,000 square miles. The ZLC service area covers the majority of Utah and Montana, the western half of Wyoming, the southern portion of Idaho, the far eastern section of Oregon, the northeast area of Nevada, and small regions of the western Dakotas. The ZLC service area is shown in **FIGURE 1-16**.

1.5.3.2 Air Traffic Control

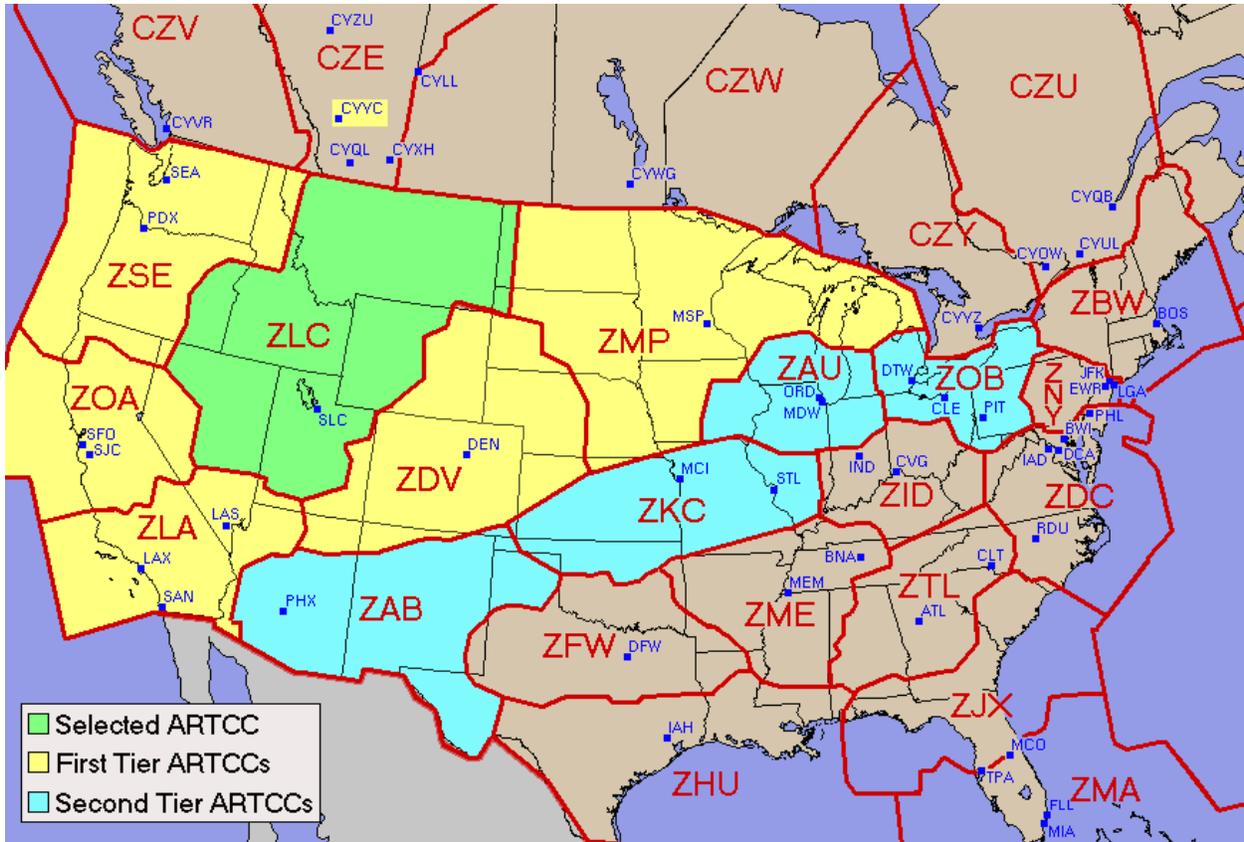
The Salt Lake City ATCT is responsible for controlling the movement of aircraft within the 30 NM SLCIA Terminal Area. The SLCIA ATC service area extends from Plain City in the north to the city of Provo in the south, covering a range of approximately 70 miles. Due to topographic constraints, primarily the Wasatch Mountain Range, the service area only extends approximately 30 miles from east to west. SLCIA Class B airspace is centered on the airport. SLCIA ATCT provides two services, housed in a single facility including, local Salt Lake City Air Traffic Control (referred to as Salt Lake Tower) and Salt Lake City Terminal Radar Approach Control (referred to as Salt Lake TRACON). These two divisions are defined below:

- » **Salt Lake Tower** – Provides clearances and instructions to aircraft and ground vehicles.
- » **Salt Lake TRACON** – Controls airspace within the terminal area.

Salt Lake Tower is operated continuously, meaning air traffic controllers are on duty actively managing traffic all day, every day. The tower is staffed with at least one controller at all times and operations are managed by an operations supervisor. Staff counts can vary throughout the day, depending upon demand levels. Pilots contact the applicable ATC service through assigned radio frequencies which can be found in the most current published FAA Airport/Facility Directory⁵. Salt Lake Tower divides control services into Approach Control, Departure Control, Tower, Ground control, Pre-taxi Clearance, Pre-departure Clearance, and Clearance Delivery. For the most part, ATC services are intuitive since each serves the flight action associated with its title, i.e., aircraft approaching to land at the airport contact “Approach Control”, aircraft seeking ground movement taxi clearances contact “Ground Control”, etc. The “Tower” frequency manages clearing aircraft traffic on and off the active runways. Based on the large amount of operations experienced annually by SLCIA, each runway has a separate ATC frequency, with the exception of Runway 14-32. These separate frequencies help controllers better manage workload by dividing work into designated sectors. Ground communications are also divided into two separate ground frequencies based on whether the activity is on the east portion and or west portion of the airfield. Pilots or vehicle operators on the airport are required contact the appropriate controller to obtain clearance and/or instructions based

⁵ The FAA Airport/Facility Directory is updated and published in 56 day cycles.

FIGURE 1-16 FAA ARTCC ZONES WITHIN THE CONTINENTAL UNITED STATES



Source: www.fly.faa.gov, Retrieved July 24, 2018

on their location.

The second division of air traffic control is the Salt Lake TRACON facility, designated with the code "S56". The TRACON is overseen by an operations manager. The TRACON Operations Manager directs a team of supervisors, each of whom manage a staff of air traffic controllers. The primary role of the TRACON facility is to provide safe separation of aircraft operating within the SLCIA Terminal Area. Salt Lake TRACON controllers provide air surveillance radar service for instrument approaches to SLCIA and for U42. In addition to this, TRACON controllers handle and direct IFR arrivals to other local airports extending as far south as Provo Airport. This facility, like the SLCIA ATCT, is actively operated continuously.

1.5.4 VFR and IFR Procedures

Air traffic operations generally fall within two categories: aircraft flying under Visual Flight Rules (VFR) and those flying under IFR. Under VFR, aircraft operate during good visibility conditions at the required distance from clouds using "see and avoid" practices. Specific VFR visibility and clearance requirements are described under 14 CFR 91.155 – Basic VFR Weather Minimums.

All transport category aircraft⁶, as well as many charter aircraft and high performance general aviation

⁶ All airline operations use transport category aircraft and are conducted under IFR, therefore, IFR flight plans are required for all commercial airline flights.

aircraft with proper equipment and crew ratings, operate under IFR. IFR weather conditions are those with cloud ceilings less than 1,000 AGL and or/visibility less than three statute miles. IFR conditions occur when aircraft are required to fly through clouds or inclement weather conditions which restrict or eliminate visibility outside the aircraft. Aircraft flying under IFR are required to file an IFR flight plan. These flight plans can be approved as requested or altered by ATC dependent upon air traffic circumstances. Pilots are required to read back and comply with all assigned IFR routes and altitudes given by air traffic controllers during all phases of flight. Air traffic controllers then monitor aircraft flying filed flight plans to ensure adequate separation from other aircraft.

1.5.4.1 VFR Flight Procedures

Aircraft operating under VFR flight procedures are controlled either by Salt Lake Tower or Salt Lake TRACON. Aircraft departing under VFR flight procedures are assigned a departing runway based on their current location on the airfield, destination, current wind direction, and the volume of traffic at the time of their request. Aircraft depart from the runway on an ATC assigned heading. Aircraft transitioning in and out of the SLCIA Class B airspace must comply with local airspace restrictions.

VFR aircraft requesting to land at SLCIA must contact and receive authorization from Salt Lake TRACON prior to entering SLCIA Class B airspace. Arrival procedures will vary depending upon the location of the aircraft in relation to SLCIA, current wind direction, and volume of traffic at the time of the request. Pilots must obtain current weather information from the Automatic Terminal Information Service (ATIS) before a landing request can be made.

1.5.4.2 IFR Arrival Procedures

Salt Lake TRACON controllers will typically clear aircraft to land using a Standard Terminal Arrival Route (STAR). A STAR is a standardized set of instructions used to shorten clearance deliveries between an air traffic controller and the pilot. A STAR defines a specific flight route, altitudes, speed restrictions, and fixes used to arrive into the Terminal Area. STARs use a combination of published VHF omni-directional range (VOR⁷) radials and intersections, along with assigned vectors, altitudes, and speeds to standardized aircraft arrival flows, terminating at the initial approach fix of the Instrument Approach Procedure (IAP) to be flown. Aircraft are typically assigned a STAR based on the location they are coming from. SLCIA has five published STARs that use VOR technology⁸. These procedures are as follows:

- » BEARR – Aircraft arriving from the northwest
- » BONNEVILLE – Aircraft arriving from the west
- » BRIGHAM CITY – Aircraft arriving from the northeast
- » JAMMN – Aircraft arriving from the south/southwest
- » SPANE – Aircraft arriving from the south/southeast

Since the completion of the 1998 SLCIA Master Plan, the FAA has implemented a new technology into developing STARs. Area navigation, also referred to as RNAV, allows aircraft to choose a course within a network of navigational beacons rather than flying on a radial to and from a VOR. Navigational beacons serves as a GPS waypoint for pilots to ensure they are on the correct course. This change in technology

⁷ Very High Frequency (VHF) Omni-Directional Range (VOR) is a type of fixed ground-based navigational equipment that allows properly equipped aircraft to use short range radio signals to determine position based on relative direction to/from that facility.

⁸ Current as of August 1st, 2018.

allows aircraft to take more direct and precise routes as opposed to the old method of “bouncing” from one VOR to another. The RNAV improvement creates arrival flow efficiencies which save valuable time and fuel, and reduce the environmental impacts of each flight. With this change in technology and arrival procedures, a trend has been set into motion. NDB and VOR facilities across the nation are being decommissioned and replaced with RNAV (GPS) technology to serve aircraft during all phases of flight.

In addition to the five VOR based STARS, SLCIA has six RNAV STARS. These procedures are listed below:

- » DELTA – Aircraft arriving from the northeast
- » LEEHY – Aircraft arriving from the southeast
- » NORDK – Aircraft arriving from the north
- » QWENN – Aircraft arriving from the south/ southwest
- » SKEES – Aircraft arriving from the north / northwest
- » WAATS – Aircraft arriving from the west

1.5.4.3 IFR Approach Procedures

Aircraft approaching SLCIA during IFR conditions fly through the airspace to land on runways using predetermined routes called Standardized IAPs. The ability of a pilot to land without actually seeing the runway landing zone is determined by a number of factors, including pilot qualifications, aircraft equipment, available navigational aids, and airport approach lighting systems. A critical point of emphasis for pilots flying IAPs is the requirement to adhere to procedural restrictions regarding the decision altitude/decision height (DA/DH) or minimum decent altitudes (MDA). Generally speaking, pilots are prohibited from continuing the approach procedure below these altitudes unless they meet airfield environment visual reference requirements. Specific regulations regarding takeoff and landing under IFR are available in 14 CFR 91.175. **TABLE 1-11** summarizes the instrument approaches available at SLCIA and the minimum visibility and DA/DH associated with each approach.

1.5.4.4 IFR Departure Procedures

There are two forms of IFR departure procedures (DP) available at SLCIA: Obstacle Departure Procedures (ODP) and Standard Instrument Departures (SID)⁹. The key difference between the two is that ODPs are not required of pilots flying under 14 CFR 91 but exist to assist pilots in obstruction avoidance; whereas, SIDs, while also providing protection from obstacles, assist in meeting environmental, capacity, and air traffic control requirements. Overall, DPs help to alleviate the controller’s workload and improve communication between the pilot and the controller while providing aircraft a safe route to exit the terminal environment. This helps the controller to sequence aircraft with standardized heading and altitude assignments for aircraft taking off. DPs ensure that aircraft receive proper separation from obstacles and other aircraft that may be in the area.

ODPs are developed to provide takeoff minimums when obstructions penetrate the 40:1 departure obstacle clearance surface (OCS)¹⁰. The primary goal of an ODP is to provide standard takeoff minimums with a standard climb gradient to a determined altitude at a designated fix. Each available ODP is specific to a particular runway.

⁹ FAA Order 8260.46F describes the specific distinctions between ODPs and SIDs.

¹⁰ OCS is described in FAA Order 8260.3 – U.S. Standard for Terminal Instrument Procedures (TERPS).

TABLE 1-11 INSTRUMENT APPROACHES

Instrument Approaches	Minimum Visibility	Decision Altitude (AGL)(ft)
Runway 16L-34R		
Runway 16L		
ILS or LOC	1/2 SM	200'
CAT II / III	1,000 ft RVR / 0-700 ft RVR	100' / N/A
RNAV (GPS)	1/2 SM	600'
Runway 34R		
ILS or LOC	1/2 SM	200'
SA CAT I	1,400 ft RVR	150'
CAT II / III	1,200 ft RVR / 300 ft RVR	100' / N/A
RNAV (GPS)	1/2 SM	200'
Runway 16R-34L		
Runway 16R		
ILS or LOC	1/2 SM	200'
SA CAT I	1,400 ft RVR	150'
CAT II / III	1,200 ft RVR / 0-700 ft RVR	100' / N/A
RNAV (GPS)	1/2 SM	600'
Runway 34L		
ILS or LOC	1/2 SM	200'
SA CAT I	1,400 ft RVR	150'
CAT II / III	1,200 ft RVR / 0-700 ft RVR	100' / N/A
RNAV (GPS)	1/2 SM	200'
Runway 17-35		
Runway 17		
ILS or LOC	1/2 SM	200'
SA CAT I / II	1,400 ft RVR / 1,200 ft RVR	150' / 100'
RNAV (GPS)	1/2 SM	200'
Runway 35		
RNAV (GPS)	1/2 SM	400'
LDA	1/2 SM	300'

Source: FAA Facility Directory, FAA.gov, 2018

Notes: All approaches listed are best approach available.

Definitions: AGL - Above Ground Level, GPS - Global Positioning System, ILS - Instrument Landing System, LDA - Localizer-type Directional Aid, LOC - Localizer, RNAV - Area Navigation, SM - Statute Mile, SA - Special Aircrew and Aircraft Certification Required

SIDs are assigned by ATC and provide pilots with specific routing, altitude requirements, speed restrictions, and other relevant flight instructions following takeoff as aircraft climb out of the terminal environment. SIDs may require certain aircraft equipment in order to be flown. SLCIA has eight SIDs, five of which require RNAV capabilities. These are listed as follows:

- » ARCHZ (RNAV) – Destination to the south / southwest of SLCIA.
- » CGULL (RNAV) – Destination to the northwest of SLCIA.
- » DEZERT (RNAV) – Destination to the west of SLCIA.
- » FAIRFIELD – Destination to the south / southeast of SLCIA.

- » RUGGED (RNAV) – Destination to the north / northeast of SLCIA.
- » SALT LAKE – Destination to the north / south of SLCIA.
- » SEVYR – Destination to the southwest of SLCIA.
- » ZIONZ (RNAV) – Destination to the south of SLCIA.

1.5.5 Local Airspace

The airfield geometry plays a crucial role in determining the traffic patterns for an airport. SLCIA is served by two parallel runways, Runway 16L-34R and Runway 16R-34L and two non-parallel runways, Runway 17-35 and Runway 14-32. The parallel runways are predominately used by commercial service and large/heavy aircraft. This is primarily based on takeoff and landing runway length requirements and the location of nearby commercial terminal and air cargo facilities.

In 2014, the FAA released a capacity study conducted at SLCIA which concluded that roughly one in every ten aircraft operating at SLCIA is categorized as a general aviation aircraft. Runway 17-35 is the primary runway serving general aviation traffic but it is also used for commercial operations. Training operations, such as touch-and-go's, are isolated to this runway. The alignment for Runway 17-35 is not parallel to the middle runway (Runway 16L-34R) which results in impacts to the configuration of the airspace system, specifically for traffic arriving from the south on Runways 34L, 34R, and 35. These impacts affect aircraft sequencing and separation requirements, ultimately limiting airfield capacity.

Based on this type of airfield configuration, traffic patterns should never cross over another runway. Runway 17 has a right hand traffic pattern to avoid the runways to the west. Runway 16L also has a right hand traffic pattern to avoid the runways to the east. Runways 35 and 16R have standard left hand traffic patterns. Aircraft take off and land into the wind to maximize performance and, due to predominant wind patterns in the area, the Airport often experiences a north traffic flow. Under these conditions, Runways 34L, 34R and 35 are used for departing and arriving aircraft.

At the regional level, South Valley Regional Airport Runway 16-34 lies south of SLCIA within less than a mile of being in direct alignment with Runway 16R-34L at SLCIA. The alignment and relative proximity of these runways has significant impacts and constraints on ATC procedures and the sequencing of aircraft at both airports.

1.5.6 14 CFR 77 - Objects Affecting Navigable Airspace

The airspace surrounding SLCIA should be kept clear of obstructions to the furthest extent possible. 14 CFR 77, Objects Affecting Navigable Airspace (often referred to as "Part 77") is the framework by which the FAA attempts to keep essential airspace free and clear of obstructions that could prove hazardous to aircraft flying an approach or departure from an airport. For an object to be deemed an obstruction, it must penetrate one of the five imaginary airspace surfaces defined under Part 77. These surfaces are as follows: Primary Surface, Approach Surface, Transitional Surface, Horizontal Surface, and Conical Surface. A description of each surface along with their dimensions are listed below:

- » **Primary Surface** – This surface is centered on the runway, extending 200 feet beyond the edge of the runway. The width of the surface is dependent upon the approach to the runway. With the exception of Runway 14-32, the width of the primary surface is 1,000 feet. Runway 14-32 has a primary surface width of 250 feet.

- » **Approach Surface** - This surface is a sloped plane that begins at the edge of the Primary Surface and extends horizontal in the shape of a trapezoid. The slope, horizontal length, and the width of the surface are dependent upon the approach to the runway. All runway ends at SLCIA, with the exception of Runway 14-32, are precision instrument runways with an approach surface length of 50,000 feet and a width at the end of the surface of 16,000 feet. The first 10,000 feet of the approach surface have a slope of 50:1, the remaining 40,000 feet have a slope of 40:1. Runway 14-32 is a visual approach runway with an approach surface length of 5,000 feet and a width at the end of a surface of 1,250 feet and an approach slope of 20:1.
- » **Transitional Surface** – This surface is a plane sloped at 7:1 from the primary surface and approach surfaces. The surface terminates when it intersects with the horizontal surface. 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 from the edge of the approach surface and at right angles to the runway centerline.
- » **Horizontal Surface** – This surface is a horizontal plane 150 feet above the airport elevation. The geometry of the surface is created by arcs centered on the edge of the primary surface with defined radii and then connected by tangents. The radius of the horizontal surface, based on the approaches at SLCIA, is 10,000 feet.
- » **Conical Surface** – This surface is a plane sloped at 20:1 extending upward from the periphery of the horizontal surface to 4,000 feet.

A graphical sectional view of 14 CFR 77 imaginary surfaces is shown in **FIGURE 1-17**. A detailed illustration of the Part 77 surfaces which includes a three dimensional graphic, is shown in **Chapter X, Airport Layout Plan**.

1.5.7 Obstructions

Understanding the location of ground objects relative to moving aircraft is critical to ensuring safe flight operations. In order for the FAA to preserve navigable airspace and promote safe flight operations, any object with potential to penetrate a Part 77 surface requires notice be provided to the FAA through the Notice or Proposed Construction or Alternation (Form 7460-1) process in order to allow for evaluation of potential impacts to flight safety. An obstruction analysis¹¹ performed in May 2017 identified over 100 objects as obstructions to air navigation under SLCIA Part 77 surfaces. Most of the objects penetrating a Part 77 surface were defined as fixed by function. Fixed by function objects are intentionally sited with the sole purpose of aiding safe flight navigation and providing situational awareness for landings, takeoffs and ground maneuvers. These fixed by function objects range from airfield edge lights, to signs and in some instances, navigational aids. Other obstructions documented in the 2017 obstruction analysis occur naturally, such as trees, while others are man-made. **TABLE 1-12** shows the objects determined to be an obstruction. The table lists object descriptions, identifies heights in feet (MSL), and the impacted surface. It should be noted that the obstructions listed below do not include objects that could be categorized as fixed by function.

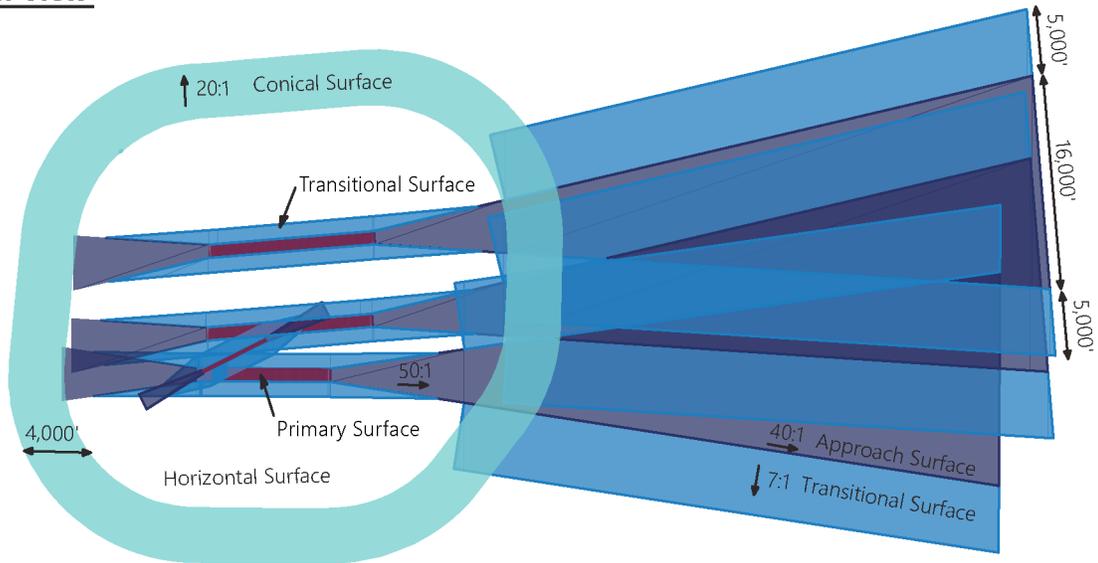
1.5.8 Noise Abatement

The SLCDA has adopted a Noise Compatibility Program (NCP) as a result of having a completed Federal Aviation Regulations (FAR) Part 150 study. One of the main objectives of the program is to mitigate the impact of noise in non-compatible land uses, such as residential areas. The program outlines several FAA approved policies and procedures introduced by SLCDA to reduce noise in these sensitive areas. These

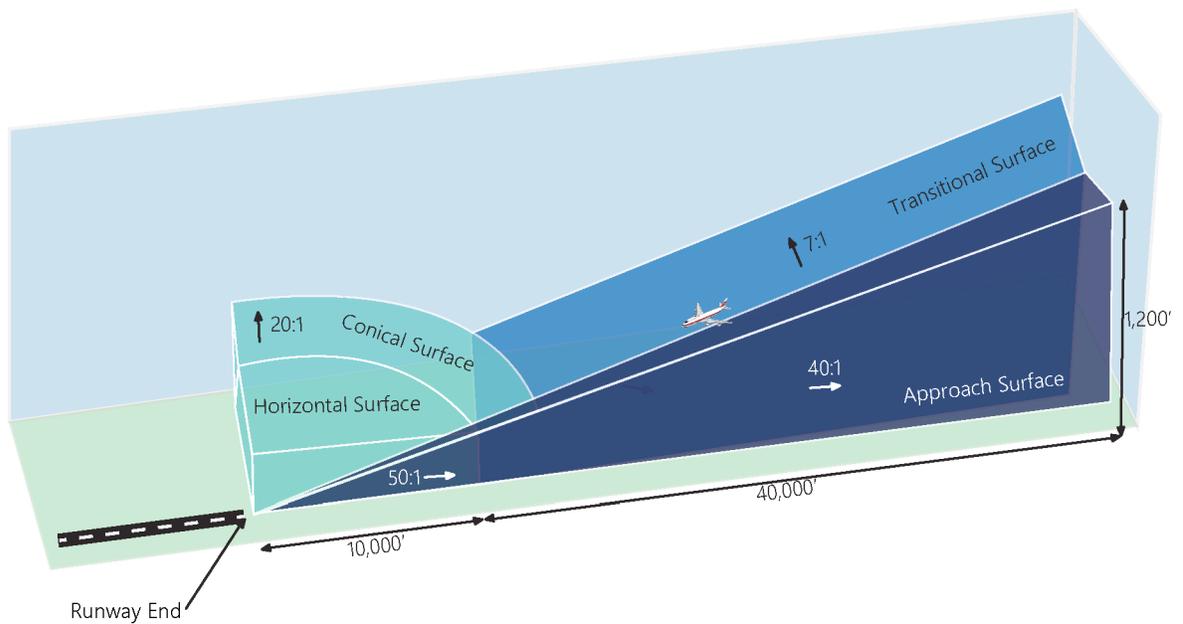
¹¹ Obstruction analysis performed by Woolpert, Inc., 2017

FIGURE 1-17 14 CFR 77 IMAGINARY SURFACES

Plan View



Profile View



Legend	
	Primary Surface
	Approach Surface
	Transitional Surface
	Conical Surface

Notes:

- 1) Full extent of Approach and Transitional Surface for Runways 34L, 34R and 35 is not shown.
- 2) Profile view depicts a precision instrument approach runway.
- 3) Horizontal Surface has no assigned color



Source: 14 CFR 77; Prepared by RS&H, 2018

procedures are listed along with a brief description as follows:

- » **Nighttime Operations** – Between the hours of 11:00pm and 7:00am SLCIA will utilize a north flow for departures and a south flow for arrivals.
- » **Runways 16R, 16L and 17 Departures** – All jet aircraft and large piston-powered aircraft are to turn west as soon as practical.
- » **Runways 34R, 34L, and 35 Departures** – Restricts all traffic heading eastbound until they are one-half mile from SLCIA.
- » **Runways 34R, 34L, and 35 Arrivals** – Aircraft flying in visual meteorological conditions (VMC) to fly as short a downwind leg as practical.
- » **Runway 17-35 Traffic Pattern** – Traffic pattern east of SLCIA is restricted to aircraft weighting 19,000 pounds or less.

Aircraft are classified, for noise purposes, into four different stage groups and assigned a stage number based on the noise levels they produce. In 2013, the FAA adopted a provision in the FAA Modernization and Reform Act of 2012 which required jets, regardless of weight, to be Stage 3 noise compliant. This provision prohibits all non-compliant Stage 3 aircraft from flying in the United States. All non-compliant Stage 3 aircraft were required to be modified into compliance or sold by the year 2016.

TABLE 1-12 AIRSPACE OBSTRUCTIONS

Object	Height (MSL')	Impacted Surface
Runway 16L-34R		
Light Pole	4,293'	Transitional Surface
Tree	4,254'	Transitional Surface
Pole	4,268'	Transitional Surface
Airfield Drive	4,231'	Primary Surface
Runway 16R-34L		
Tree	4,227'	Primary Surface
Utility Pole	4,267'	Transitional Surface
Runway 17-35		
Bush	4,222'	Primary Surface
Utility Pole	4,227'	Primary Surface
Road	4,240'	Transitional Surface
Interstate	4,270'	Runway 35 Approach
Runway 14-32		
N/A		
Horizontal/Conical Surfaces		
Transmission Lines	4,387'	Horizontal Surface

Source: Analysis performed by Woolpert, Inc.; Prepared by RS&H, 2018

Notes: All roadway elevations include traverseway adjustment (23' Railroads, 17' Highways, 15' Public Roads, and 10' Private Roads.)

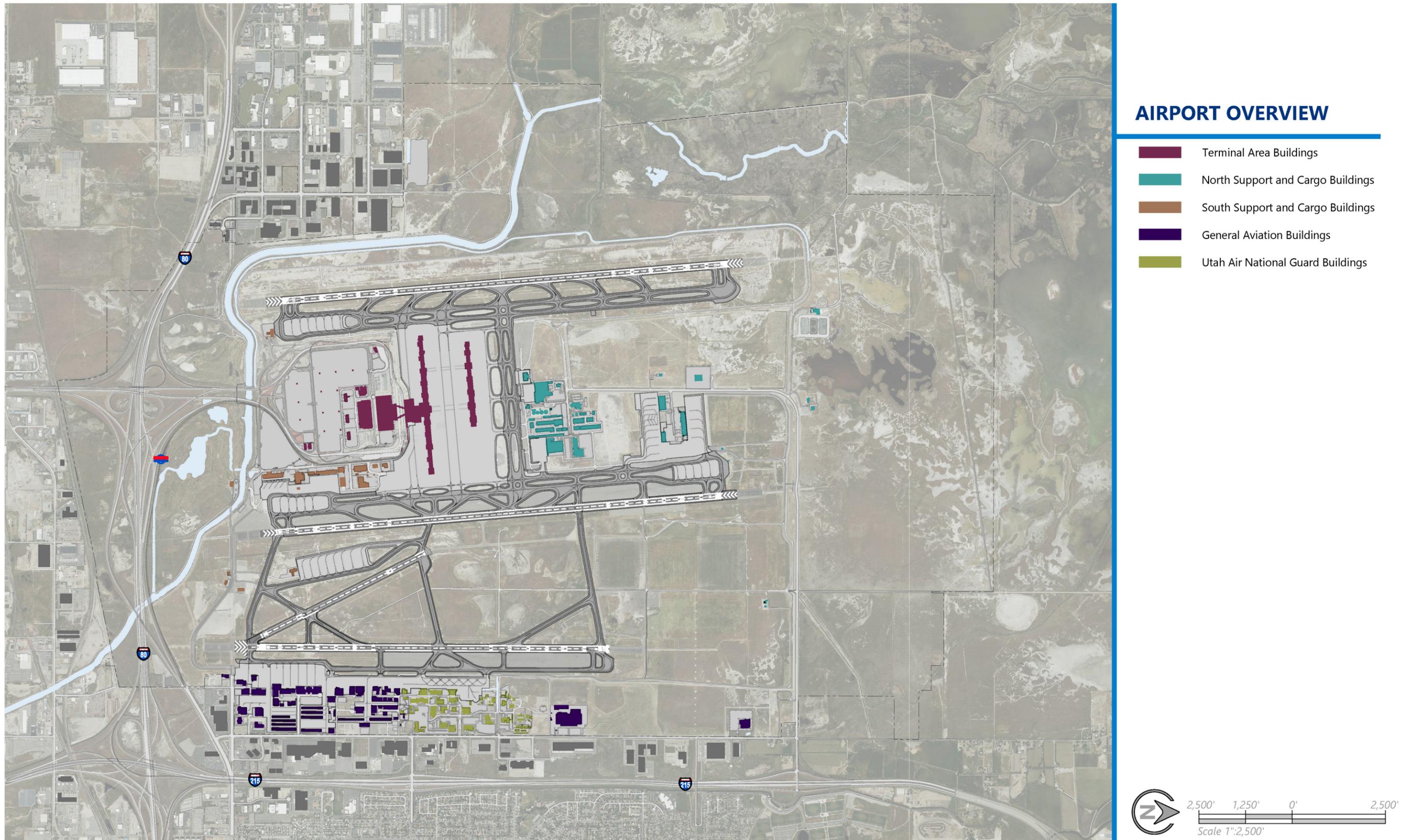
1.6 AIRPORT FACILITIES OVERVIEW

Salt Lake City International Airport facilities can best be organized into five functional areas as follows:

1. Terminal Area
2. North Support and Cargo Area
3. South Support and Cargo Area
4. General Aviation Area
5. Utah Air National Guard Area

Buildings for these areas are identified and color coded in **FIGURE 1-18**. The following inventory sections are structured within this facility organizational framework.

FIGURE 1-18 AIRPORT FACILITIES OVERVIEW



AIRPORT OVERVIEW

- Terminal Area Buildings
- North Support and Cargo Buildings
- South Support and Cargo Buildings
- General Aviation Buildings
- Utah Air National Guard Buildings



Source: Prepared by RS&H, 2018

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1.7 AIRLINE TERMINAL AND GATES

The previous SLCIA Master Plan, completed in 1998, provided a plan for developing a new terminal, concourses, airfield taxiway system, and landside roads and parking facilities. **FIGURE 1-19** shows a diagram of the ARP terminal area. In 2008, SLCDA began the process of implementing that plan through the development of a Terminal Area Program (subsequently referred to as the Airport Redevelopment Program or ARP) which laid out the framework for an ultimate two concourse terminal complex and the supporting apron and taxiway system. At the time, various economic factors put project development and construction on hold.

In 2012, SLCDA validated the 2008 ARP documents with the Program Validation and Preliminary Planning Update study, further refining previous development scenarios based on the most current available information, and combining them with new information from SLCDA and airline stakeholders. Shortly thereafter, SLCDA initiated the first phase of program implementation by advancing construction of the Terminal and South Concourse (subsequently known as Concourse A). In 2016, the North Concourse Program (subsequently known as Concourse B) produced an updated version of the 2012 Program Validation and Preliminary Planning Update. The final version of this report was published in February 2017, at which time, SLCDA approved the North Concourse Program for final design and construction. Throughout the remainder of this Master Plan, the South Concourse will be referred to as Concourse A and the North Concourse will be referred to as Concourse B.

This inventory of terminal and aircraft gate facilities was finalized prior to the completion of ARP construction, however, it is written from the perspective that all ARP projects including terminal, concourse, airfield, and landside facilities have been completed. Since these projects were already well underway at the time of beginning the Master Plan, ARP completion is considered the existing condition for all terminal and concourse facilities within this inventory chapter.

1.7.1 Terminal Overview

The footprint of the new ARP facilities is roughly 300 acres, with the following elements (approximated):

- » Terminal - 908,000 square feet
- » South Concourse – 3,700 linear feet (including 400 feet of the terminal building) with 455,000 square feet in the west area and 375,000 square feet in the east area
- » North Concourse – 2,250 linear feet with 385,000 square feet included in Phase 1 development and 200,000 square feet in Phase 2 development
- » Roadways – 11.9 miles of at grade road and 2.1 miles of elevated road
- » West Tunnel – Tunnel length of 1,000 feet with an area of 62,500 square feet
- » Center Tunnel – Tunnel length of 1,000 feet with an area of 147,000 square feet

SLCDA's goal for the new buildings is LEED Gold Certification with a focus on energy efficiency through use of natural light. Construction of facilities within the ARP began in 2014 with large scale enabling projects such as the addition of a new economy parking lot, and later in 2016, the construction of the new Rental Car Service Center and Quick Turn Around facility. Terminal tunnel excavation also began at this time.

Ground was broken for construction of the new terminal on July 18, 2014 . The new terminal is located

west of the former terminal facility site and is scheduled for completion in 2020. This was the first of three major terminal development phases that transformed SLCIA's terminal area into a safer and more efficient model. The new format meets high customer level of service expectations, contains approximately 908,000 square feet of space and includes functional areas programmed for the following uses:

- » Airline space
 - Airline ticketing and service counters
 - Preferred customer check-in
 - Airline ticket office space
 - Self-serve check-in
 - Inbound baggage delivery
 - Airline operations areas
 - Departure lounges
 - Preferred customer lounges
- » Domestic passenger security screening
 - Transportation Security Administration (TSA) passenger security screening checkpoints
 - Bomb detection screening
 - TSA offices
 - Baggage make-up and return
- » Federal Inspection Services (FIS)
 - Customs and Border Protection (CBP) primary space and secondary space
 - CBP support and administrative space
 - Immigration and passport control
 - Sterile corridor
 - International baggage claim
 - International arrivals support space
- » Concessions
 - News, food, and retail
 - Kitchens and food storage
 - Beverage lounges
- » Ground Transportation
 - Rental car counters
 - Rental car offices
 - Additional ground transportation counters and offices
- » Administrative Space
 - SLCDCA administrative offices
 - FAA administrative offices
- » Other space
 - Public spaces and circulation area
 - Restrooms

- Janitorial
- Secure delivery locations
- Mechanical and utility

1.7.2 Terminal Level 1

Level 1 of the new terminal building houses many of SLCIA's support functions. Sized at approximately 260,000 square feet of programmed space, a significant portion of Level 1 is used for Federal Inspection Services and is occupied by Customs and Border Protection. This includes areas for international arrival document control (passport control), two international baggage carousels, and customs inspection services. The FIS facility is designed to simultaneously handle passenger loads of 400 passengers per hour from two international arrivals, one jumbo and one wide-body aircraft.

The security checkpoint on this level is reserved for employees but also used for connecting international passengers. This security checkpoint has five lanes. Terminal Level 1 also contains mechanical/electrical rooms, offices, and general circulation space. The northern area of Level 1 is occupied by baggage processing equipment and conveyors. Secure and non-secure loading docks are also located on Level 1.

1.7.3 Terminal Level 2

Terminal Level 2 contains approximately 255,000 square feet of programmed space. Terminal Level 2 holds the primary TSA security screening checkpoint, which accommodates 14 security screening lanes, and includes a large passenger queuing area. TSA administrative offices are conveniently located adjacent to the security checkpoint. The south end of Terminal Level 2 contains eight sloped bed baggage claim units and an additional two baggage claim units for oversized items. Airline baggage services offices are located in this area near the baggage claim devices. Delta leases the four westernmost bag claim units and the remaining devices are shared-use by all other airlines. The bag claim area on Terminal Level 2 provides direct access to the pedestrian sky bridge that serves the Gateway Building and the parking garage.

Terminal Level 2 also contains a variety of other amenities including an arrivals hall for greeters awaiting arriving passengers, and two restrooms, one on each side of the terminal. Concessions programmed for food and retail offerings are located adjacent to this area for airport user convenience. Public seating is also available in this area.

1.7.4 Terminal Level 3

Terminal Level 3 has a total of approximately 167,000 square feet of programmed space. This level primarily supports departing passenger services including passenger ticketing and check-in facilities. Airline support offices are located behind ticket counters and baggage handling services.

Level 3 of the terminal contains airline support offices and passenger check-in facilities. The check-in counters are divided into two sections, one is located on the east half of the terminal and one is located on the west half. Each section has 38 counters for a combined total of 76 check-in counters. Oversized bag drops are available on the east and west ends of this level. Self-check-in kiosks are also available. Terminal Level 3 features large open areas for circulation and open space which overlooks the central core of Terminal Level 2. Building support areas for mechanical and electric systems are also housed on this level. Two curbside check-in locations are also available along the terminal curb road at this level. These positions are currently programmed for shared-use and do not have a single airline lessee.

SLCDA administrative offices are also located on Terminal Level 3 in space north of the airline ticketing offices. SLCDA activities housed in this area include planning, administration, finance, and engineering. In the northeast quadrant of Terminal Level 3 is the Delta Sky Club which occupies 18,000 square feet and offers lounge areas with views and an outdoor SkyDeck.

Terminal Level 3 also contains a 20-foot wide sterile corridor that connects all international gates to the US Customs and Border Protection passenger screening area. No flights other than international arrivals access this area.

1.7.5 Terminal Rail Station

The TRAX/Light Rail Service station at SLCIA is located to the east of the new terminal building. This facility is located on the ground level and has storage space for 9 bicycles.

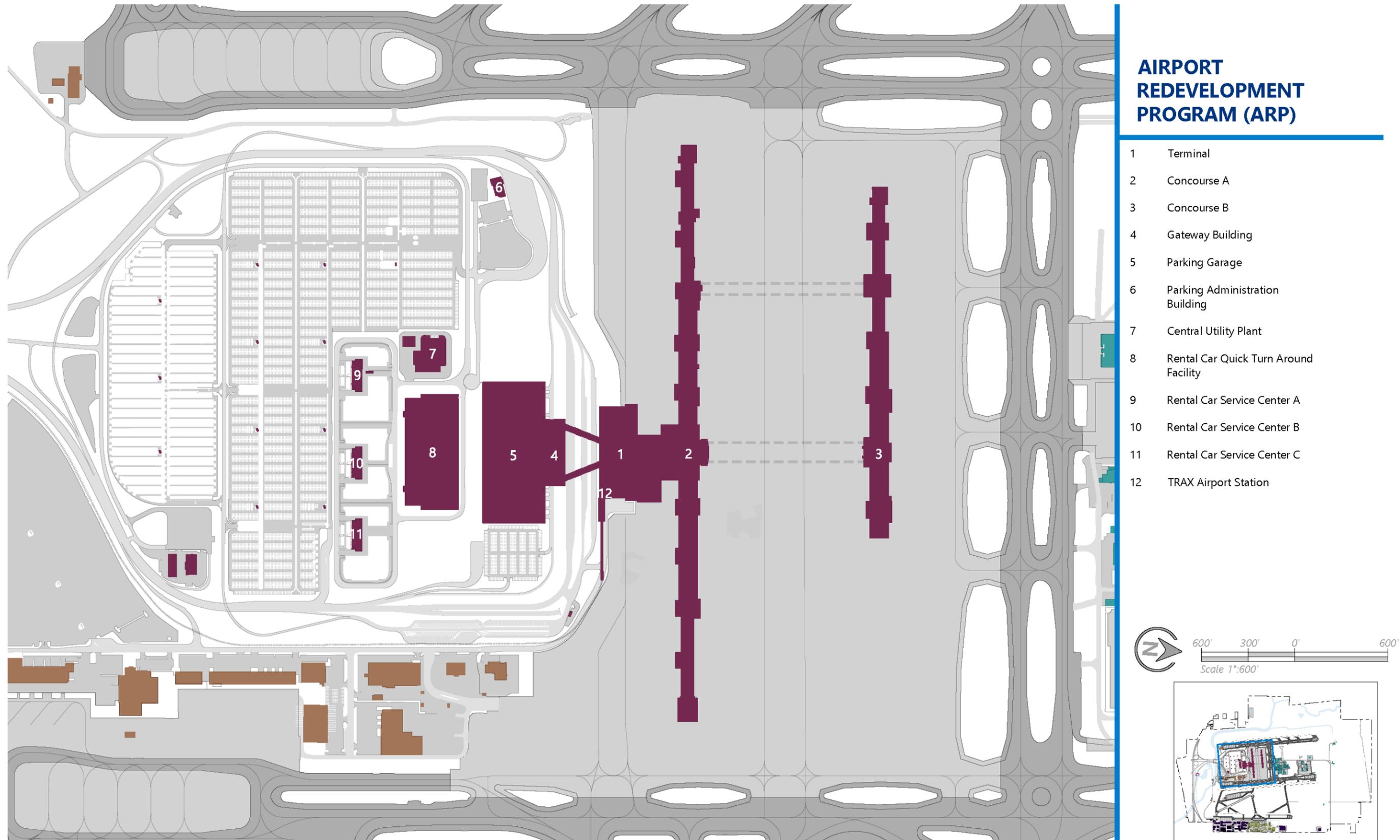
1.7.6 Terminal Gateway Building

The Gateway Building is a two-story accessory structure attached to the parking garage and connected to the terminal building via two 35 foot wide pedestrian sky bridges. The sky bridges allow movement between the Terminal and Gateway buildings and completely remove the need for passengers to cross any curb roads. Level 1 of the Gateway Building houses rental car customer services and includes rental car counters and queuing space, rental car offices, public circulation, and restrooms. Level 2 of the Gateway Building offers departing passengers the opportunity to perform self-check-in (ticketing) and remote bag drop (baggage processing) functions prior to entering the terminal building. 16 shared use check-in kiosks are available at Gateway Building Level 2. At the time of this writing, it is unknown whether any airline has leased this space exclusively or these facilities will be operated by a third-party service provider. Level 2 of the Gateway Building also provides public restrooms. **Pay on Foot (POF) parking kiosks in here or garage??** Both levels of the facility provide parking garage access, although rental car ready return is programmed on the ground level (Level 1).

1.7.7 Terminal Concourses and Aircraft Gates

There are two concourses at SLCIA; Concourse A and Concourse B (formally known as the South Concourse and the North Concourse respectively). Concourse A is generally 90 feet wide and 3,700 feet long, containing "bump out nodes" located at roughly 350 foot intervals (on center) to provide additional space for vertical circulation, terminal support functions, and public restrooms, depending on the building level. Concourse A is oriented linearly in an east-west configuration and directly connected to the terminal at its mid-point where it is divided into east and west halves. The western half of Concourse A has 25 gates, all occupied by Delta Air Lines. Four of the gates on the north side of the concourse closest to the terminal building are also designated for international flights. Three of the four international gates can accommodate wide-body aircraft. The eastern half of Concourse A has 22 gates, bringing the total Concourse A gates to 47. The central area of Concourse A, immediately beyond the TSA security screening re-composure area, is dedicated to food service and retail concessions. Concourse A and Concourse B are connected by a system of tunnels. The primary connecting access between the terminal building, Concourse A, and Concourse B is called the "Center Tunnel" and is located at the north end of the terminal building at the midpoint of Concourse A. Adjacent tunnels running parallel to the Central Tunnel provide dedicated access routes for baggage processing and terminal support functions. In total, the Center tunnel covers 147,000 square feet. Located 1,000 feet west of the Center Tunnel, a 62,500 square foot secondary access tunnel labeled the "West Tunnel" connects Concourse A and Concourse B. The

FIGURE 1-19 AIRPORT REDEVELOPMENT PROGRAM



Source: Prepared by RS&H, 2018

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tunnel is located between Gates 13 and 15 on Concourse A and between Gates 10 and 12 on Concourse B. This secondary tunnel serves both passenger circulation and terminal support functions within segregated spaces dedicated to each use. The following sections describe approximate square footage of programmed functional uses within each concourse.

1.7.7.1 Concourse A

Concourse A is divided into east and west halves because it is bisected by the north end of the terminal building. Concourse A East exclusively serves Delta Air Lines and international arrivals traffic. Concourse A East Level 1 includes 55,000 square feet of space located immediately adjacent to the terminal building for outbound baggage processing. 71,000 square feet of Level 1 space is programmed for terminal support functions, 39,000 square feet serves airline support functions, and 5,600 square feet is devoted to concession needs such as food storage. All functional areas of Level 1 are served by a generally centralized corridor. Ground Service Equipment (GSE) access to the outbound baggage area and through Concourse A East is provided by Vehicle Service Roads (VSRs) at Level 1. Concourse A East Level 1 has a total space of 172,000 square feet.

Concourse A East Level 2 serves passenger needs with 67,000 square feet is dedicated to departure lounges for airline gates and with 86,000 square feet dedicated to public circulation or other public functions. Fifty foot wide circulation corridors run through the center of the concourse with multiple 160 foot long, 4 foot wide, moving walkways traveling each direction through the center in series. Concession lease space accounts for 26,000 square feet and approximately 3,000 square feet is split between airline support and terminal support use. Concourse A East Level 2 has a total space of 182,000 square feet.

Concourse A East Level 3 is dedicated to terminal support functions including 25,000 square feet for building mechanical systems and vertical circulation corridors. 25,000 square feet is the total space for Concourse A East Level 3. Combined with Levels 1 and 2, total area is approximately 375,000 square feet.

Generally speaking, Concourse A West Level 1 is a mirror of the eastern half of the concourse. Like Concourse A East Level 1, Concourse A West Level 1 includes a central area for outbound baggage processing (69,000 square feet) and hosts a variety of terminal and airline support functions in addition to providing other mechanical and utility space. The floor plan allocates 13,000 square feet for airline support, whereas 8,000 square feet are programmed for concessions (storage), and 49,000 square feet are programmed for terminal support functions. A small amount of airport support space is also provided and there is a centrally located Canine Relief Area. Concourse A West Level 1 provides 141,000 square feet of space.

Passenger services are located on Concourse A West Level 2. Functional space on this level primarily consists of departure lounges, concessions space, and circulation corridors. Public restrooms are also located at 350 foot intervals in the building bump out nodes. A series of moving walkways assist passengers traversing the concourse. Concourse A West Level 2 has a total of 202,000 square feet, with 99,000 square feet dedicated to public circulation and other public functions, 29,000 square feet programmed for concessions, 60,000 square feet used as departure lounges, and 6,000 square feet devoted to terminal support facilities. A small amount of airline support space is also provided on Concourse A West Level 2.

The sterile corridor that serves international arrival gates on Concourse A West (Gates 19, 21, 23, and 25)

begins on the northern exterior of Level 2. Arriving international passengers use this corridor to ascend to Level 3 (Mezzanine) and continue following the sterile corridor leading to the terminal building prior to descending to the FIS located on Level 1 of the terminal building. The sterile corridor for international arrivals accounts for 8,000 square feet on Concourse A East Level 2 and another 9,000 square feet on Concourse A West Level 3. Concourse A West Level 3 also contains 17,000 square feet worth of terminal support function space within the concourse bump out nodes. Total programmed space on Concourse A West Level 3 is 26,000 square feet. Total programmed space for Concourse A West is 475,000 square feet.

1.7.7.2 Concourse B

The Concourse B Phase 1 is a satellite concourse located approximately 1,100 feet north of the terminal building, in an east-west orientation parallel to Concourse A. The first phase of Concourse B development is 1,550 feet long, 90 feet wide, and features four bump out nodes at 350 foot intervals (on center). Similar to Concourse A, the bump outs provides additional space for vertical circulation, terminal support functions, and public restrooms, depending on the building level. Concourse B Phase 2 extends the concourse eastward by an additional 700 feet with two additional bump out nodes.

Generally speaking, the Concourse B is a mirror image of Concourse A, with the exception of direct integration into the terminal and the lack of swing gates with a sterile corridor to support international arrivals facilities. Instead, Concourse B is connected to Concourse A through the Center Tunnel and the West Tunnel. Concourse B Phase 1 includes a total of 23 gates.

Concourse B Phase 1 Level 1 serves terminal support functions (67,000 square feet), outbound baggage processing (51,000 square feet), and to a much lesser extent, airport support (1,000 square feet) and concessions functions (6,500 square feet). A central corridor runs through the center of Concourse B Phase 1 Level 1 providing access to a variety of rooms allocated to airline operations, break-rooms, and ground crew restrooms. There is also an airline club. This space is currently unused and was constructed as a shell. The total space provided on Concourse B Phase 1 Level 1 is 168,000 square feet.

Concourse B Phase 1 Level 2 houses passenger facilities such as departure lounges (56,000 square feet), concessions (20,000 square feet), and general public circulation space (86,000 square feet). Terminal support functions occupy 13,000 square feet and roughly 3,000 square feet is not programmed. Moving walkways are provided through the center of the circulation corridor and restrooms are located within the bump out nodes. Total space provided in Concourse B Phase 1 Level 2 is 178,000 square feet.

Concourse B Phase 1 Level 3 is mezzanine space serving terminal support functions such as vertical circulation and mechanical space. This accounts for 38,000 square feet within the total Concourse B Phase 1 space. Total space for Concourse B Phase 1 is 384,000 square feet.

Concourse B Phase 2 is the final completed stage of the ARP, accommodating an additional eight gates. This Concourse B addition features a central station connecting Concourse A and Concourse B via the Center Tunnel and creating a confluence zone for passenger amenities including food service and retail concessions. This section of Concourse B is designed to allow future expansion of Concourse B Phase 2 east beyond the 2024 completion of the ARP.

Level 1 of Concourse B Phase 2 supports an additional 10,000 square feet of airport operations space, 23,000 square feet of terminal support space, and 54,000 square feet of outbound baggage processing

space. The central movement corridor is continued from Concourse B Phase 1 and is used to access rooms including airline offices, ground crew restrooms, and six additional outbound baggage carousels. Total space provided in Concourse B Phase 2 Level 1 is 90,000 square feet.

Concourse B Phase 2 Level 2 again supports passenger services including departure lounges (32,000 square feet), concessions (16,000 square feet), terminal support functions (5,000 square feet), and public space such as circulation (45,000 square feet). Total space provided on Concourse B Phase 2 Level 2 is 99,000 square feet.

Concourse B Phase 2 Level 3 consists of mezzanine space for vertical circulation and mechanical uses and accounts for 14,000 square feet. Total program space provided in Concourse B Phase 2 is 203,000 square feet.

Total combined square footage of the North Concourse (Phase 1 and Phase 2) is:

- » Concourse B Level 1 – 258,000 square feet
- » Concourse B Level 2 – 277,000 square feet
- » Concourse B Level 3 – 52,000 square feet
- » Total Concourse B All Levels – 587,000 square feet

1.7.7.3 Potential Future Expansions

Future expansions beyond 2024 are programmed for Concourse B to extend facilities in the same linear pattern to the east. At the time of this writing, future expansions anticipated for Concourse B extend the concourse east an additional 1,200 feet.

Other plans created prior to the completion of the ARP and this Master Plan also anticipated constructing a third parallel satellite concourse north of Concourse B. This new east-west oriented concourse would again mirror Concourse A and Concourse B, be connected via tunnel extensions, and would be located 1,800 feet north of Concourse B. This concourse has yet to be fully programmed or designed. Further analysis in this Master Plan will address the need and preferred location of any potential third concourse.

1.8 LANDSIDE FACILITIES

SLCIA's landside facilities provide commercial passengers access to the terminal building and, ultimately, commercial aircraft, through a variety of available ground transportation connections. Additionally, the landside system provides ground access to all airport facilities for airport employees, tenants, and other airport users. The landside system at SLCIA begins at numerous regional access points stemming from roads, rail, and pedestrian/bicycle paths. These regional access points connect to on-airport circulation roadways, the terminal building, an SLCIA TRAX station, parking facilities, and rental car services. The location of these facilities are shown in **FIGURE 1-20**.

Like the terminal building and concourse inventory, the airport landside facilities inventory was finalized prior to the completion of ARP construction and is written from the perspective that all ARP projects including terminal, concourse, airfield, and landside facilities have been completed. Since these projects were already well underway at the time of beginning the Master Plan, ARP completion is considered the existing condition for all landside facilities within this inventory chapter. The following are the landside elements which will be documented in the inventory:

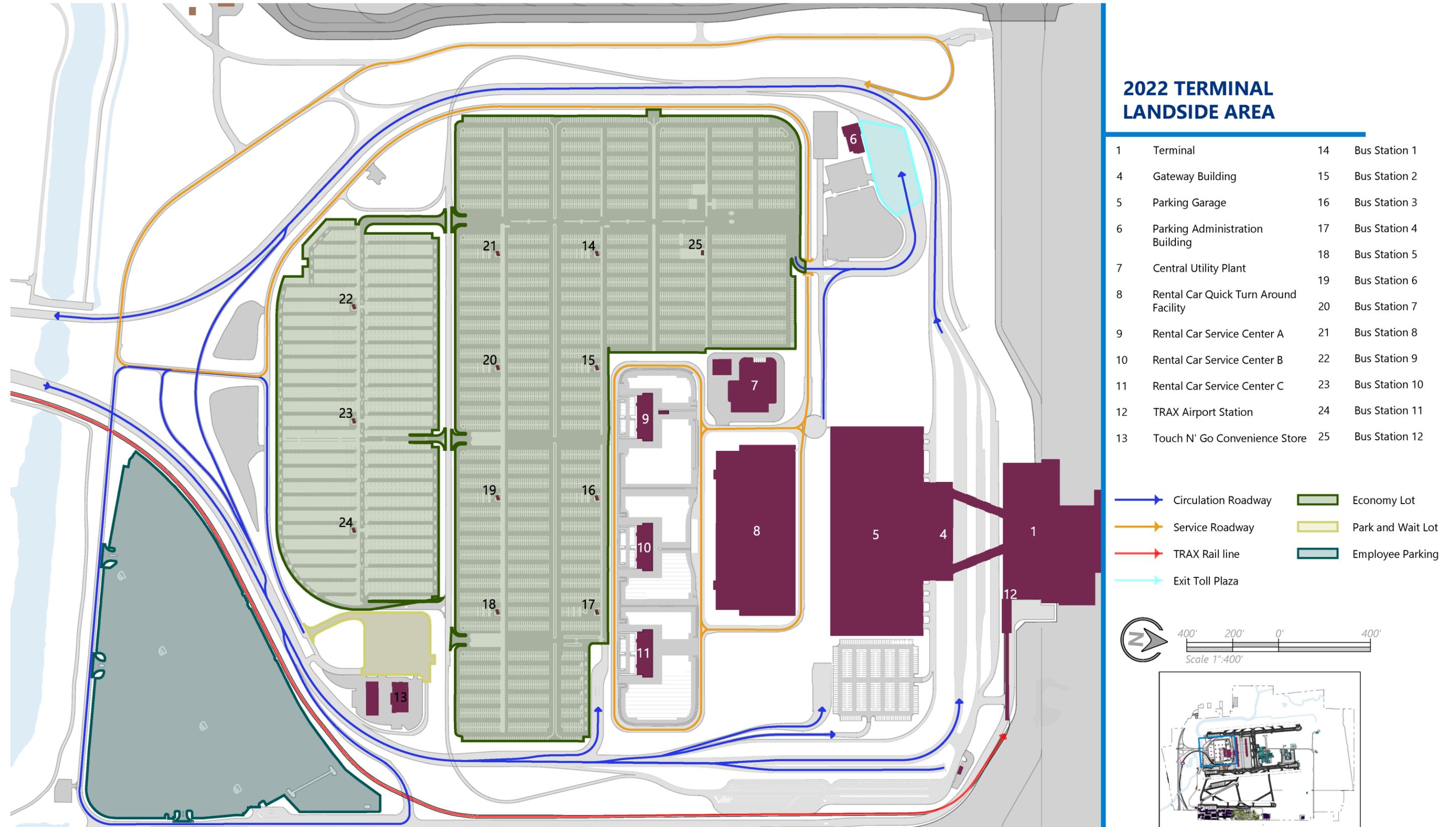
- » SLCIA connections to the regional transportation network.
- » On-airport access and circulation roadways, including sections south of the Economy Lot entrance (on the inbound) and south of the Parking Exit Plaza (on the outbound), and all service roadways.
- » Access and circulation roads serving the new terminal, parking garage, and rental car facilities.
- » Surface parking lots including public, employee, and the park 'n' wait lot.
- » Rental car service and Quick Turn Around (QTA) areas.
- » Off-airport commercial vehicle staging area.
- » Access/egress roadways to non-terminal portions of the airport, including the air cargo area, general aviation areas, the Utah Air National Guard complex, and the Boeing facility.
- » Utah Transit Authority (UTA) TRAX service to SLCIA.

In order to align landside demand forecasting with passenger demand forecasting, data were collected on-site during existing conditions at busy times in 2018. Vehicle counts were taken using pneumatic tube counters and video capturing equipment, over a one week period from June 4th, 2018 through June 10th, 2018, on main access and circulation roadways serving the terminal campus. Using Peak Hour Average Day Peak Month (PHADPM) analysis, these data will be adjusted/factored in the Facility Requirements Chapter of this Master Plan using passenger activity data to forecast traffic volumes during the common planning hour. **APPENDIX X** shows the data that was collected during that period of time.

1.8.1 Airport Access

Landside access modes for SLCIA include roadways, the TRAX light rail transit system, and a shared use pedestrian/bicycle path. Roadways access a variety of parking facilities including garage parking, economy parking, employee parking, and a park 'n' wait cell phone lot. The access and circulation roadways also connect to the terminal curb roadways where passengers can be picked up or dropped off by private vehicles or commercial vehicles. A TRAX light rail station is located on the east side of the terminal building. The pedestrian/bicycle path leads to the TRAX light rail station where bicycle parking facilities are also offered.

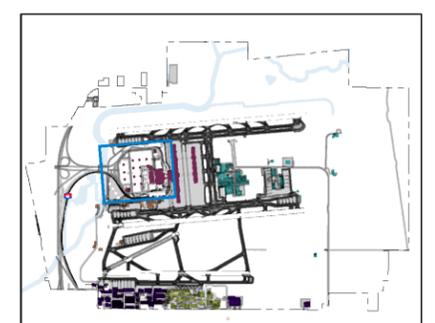
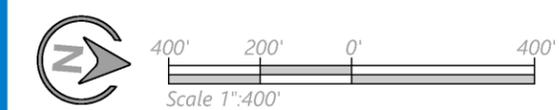
FIGURE 1-20 TERMINAL AREA LANDSIDE FACILITIES



2022 TERMINAL LANDSIDE AREA

1	Terminal	14	Bus Station 1
4	Gateway Building	15	Bus Station 2
5	Parking Garage	16	Bus Station 3
6	Parking Administration Building	17	Bus Station 4
7	Central Utility Plant	18	Bus Station 5
8	Rental Car Quick Turn Around Facility	19	Bus Station 6
9	Rental Car Service Center A	20	Bus Station 7
10	Rental Car Service Center B	21	Bus Station 8
11	Rental Car Service Center C	22	Bus Station 9
12	TRAX Airport Station	23	Bus Station 10
13	Touch N' Go Convenience Store	24	Bus Station 11
		25	Bus Station 12

- Circulation Roadway
- Service Roadway
- TRAX Rail line
- Exit Toll Plaza
- Economy Lot
- Park and Wait Lot
- Employee Parking



Source: Prepared by RS&H, 2018

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1.8.1.1 Regional Access

The primary form of access for most airport users is the roadway system. The commercial terminal area of SLCIA is served by a highway interchange where Interstate 80 (I-80) meets Bangerter Highway (Utah Route 154). This interchange also provides connections between I-80, SLCIA, and North Temple Street. The primary access/egress point for the commercial terminal and associated landside facilities is Terminal Drive, which begins at the northern end of this interchange as the northern extension of the Bangerter Highway. SLCDA owned right-of-way begins on Terminal Drive where the Terminal Drive/Bangerter Highway bridges cross the canal.

General aviation facilities, the Utah Air National Guard complex, Boeing, and other facilities located on the east side of SLCIA are primarily served by access from Interstate 215 (I-215) and 2200 W Street. Access is also provided via North Temple from the south and 2100 N Street to the north. 2100 N is also the only access road for facilities at the north end of SLCIA property. At its westernmost point at SLCIA, this road bends 90 degrees to turn south, changing into 4000 W Street, and is a critical access route for major air cargo facilities, the ATCT, SLCDA maintenance facilities, and ARFF Station #12. This road also provides access to the SkyWest hangar and the Delta hangar and reservation facilities.

The Utah Department of Transportation (UDOT) is the state agency responsible for Utah's multi-modal transportation system. UDOT's focus is on the roadways and has varying roles for all modes which use their public right-of-way, including autos, trucks, pedestrians, bicyclists, and public transit systems. UDOT has a regional structure with SLCIA located in UDOT Region 2 which covers Salt Lake, Summit, and Tooele Counties. Policy, project priorities, and funding decisions are governed by the Utah Transportation Commission (UTC), an independent advisory committee consisting of seven members appointed by the governor, four of whom represent a UDOT region.

The Utah Transit Authority (UTA) operates the TRAX light rail transit (LRT) system and bus service to SLCIA. The TRAX and bus services to/from SLCIA connect with UTA's other services, including commuter rail, to enable communities as far south as Provo, Utah to access SLCIA via public transportation.

The TRAX rail system is one component of a larger network of public transportation provided by the UTA. The TRAX Green Line provides rail transit access to the SLCIA Train Station located at the eastern side of the terminal building. TRAX trains arrive and depart from the SLCIA Train Station daily at 15 minute intervals roughly between 5am and midnight. The SLCIA Train Station is the westernmost stop in the city for the train on the Green Line, which runs east-west parallel to I-80 until reaching Temple Square when it turns south through downtown Salt Lake City and then branches southwest at Central Point Station. Through the SLC downtown area, the TRAX Green line stops at a variety of stations which provide transfer opportunities to the larger transit network, including the TRAX Red Line, TRAX Blue Line, S-Line Streetcar, and the FrontRunner. The TRAX Green Line also provides rider options to connect to local and regional bus routes including inter-county, express, and flex routes. **FIGURE 1-21** shows the UTA network map.

1.8.1.2 On-Airport Circulation

Terminal Drive (terminal loop road) is the primary loop roadway serving the commercial terminal area. Terminal Drive is a one-way street which creates a loop beginning at the northbound lanes from the interchange of I-80 and Bangerter Highway, continuing and splitting into two levels serving arrivals and departures at the terminal curb, and reconnecting beyond the terminal curb to exit SLCIA property where it becomes the southbound lanes of Bangerter Highway just north of its interchange with I-80. Terminal

Drive is designed for high traffic volumes. The loop road has four dedicated lanes as you enter the terminal area, splits to two levels at the terminal curb, reconnects at ground level as you exit the curb area, and becomes three dedicated lanes as you approach the economy parking exit plaza and exit the terminal area. Speeds slow as you enter the loop road environment and begin gradually increasing again once you pass the terminal curb roads. Terminal Drive also provides access other areas of SLCIA including 3700 W Street which serves cargo, support, and parking facilities at the south end of SLCIA. There is no traffic signalization on the main Terminal Drive loop road, however, there is a TRAX light rail crossing with gates and signalization on the Terminal Drive exit to 3700 W.

Access to the following facilities is provided from Terminal Drive:

- » 3700 W Street
- » Park 'n' Wait cell phone lot
- » Economy parking lots
- » Parking garage
- » Rental car ready/return
- » Crossbar Road
- » 4000 W Street

Crossbar Road provides a route for users of facilities at the south end of SLCIA to pass over Terminal Drive and exit the terminal area without requiring them to drive past the terminal curb. Crossbar Road is a two-way, two lane road with relatively low traffic volumes. There is a traffic signal at the intersection of Crossbar Road and Terminal Drive. Additionally, 3700 W connects with North Temple and provides access along the south end of the airfield from the terminal area to the east side of SLCIA. This road is a two-way, two-lane road with very low traffic volumes.

Various service roads limited to airport service vehicles and rental car companies are located strategically within the Terminal Drive loop road footprint to separate and limit conflicts between public traffic and airport operations. These roads are two-way, two-lane, low volume roads.

On the east side of SLCIA in the general aviation campus, 2200 W Street is the primary arterial road providing north-south travel to access points. Additionally, I-215 parallels 2200 W one block east with on/off ramp locations at 700 N Street, 1700 N Street, and 2100 N Street. Extending west of 2200 W, 2100 N provides entry to the northern half of SLCIA. This is a 50 mile per hour, two-way, four lane road with shoulders designated as bicycle lanes.

1.8.1.3 Terminal Curb Roadway

The terminal curb roadway is split into two levels, three at-grade roads and one elevated road, each providing approximately 1,000 feet of curb length. The elevated road is programmed for drop-off of departing passengers. The associated terminal curb is immediately adjacent to airline ticketing and check-in facilities which are located inside the terminal building. The departures curb road is five lanes wide. The two innermost lanes closest to the curb are for vehicles maneuvering and unloading passengers and baggage. The middle lane (Lane 3) is a transitional lane where vehicles pull in and out of the two drop-off lanes. The two outermost lanes (Lanes 4 and 5) are intended for use by through traffic.

There are three lower-level, at grade roads along the terminal curb. The outermost road is five lanes wide and dedicated to arriving passenger pick ups. Similar to the elevated departures curb road, the two innermost lanes closest to the curb are for vehicles pulling over and load passengers and baggage, the middle lane (Lane 3) is a transitional lane for privately owned vehicles (POVs) to pull in and out of the two drop-off lanes, and the two outermost lanes (Lanes 4 and 5) are intended for use by through traffic. There is no access from the terminal building to the arrivals curb at grade level. Instead, access to the arrivals curb is made possible by way of the pedestrian sky-bridge which allows passengers to pass from the terminal building to the arrivals curb without ever crossing at road grade. Vertical circulation is then provided from the sky bridge to the arrivals curb via elevators, escalators, and stairs to descend to the curb.

Two at-grade roads between the arrivals road and the terminal building are dedicated to commercial vehicle use. Both roads are three lanes wide. These roads are dedicated to commercial vehicles picking up arriving passengers at the terminal. At the time of this writing, it is not known what space will be dedicated to specific commercial vehicle activities. **Pedestrians using the outermost commercial vehicles curb cross the innermost commercial vehicle road at specific crosswalk locations.** In order to access the commercial vehicle roads, vehicles must pass through a gates with Automated Vehicle Identification (AVI) equipment, meaning the necessary Radio-frequency Identification (RFID) tags must be present in the vehicle. **Transportation Network Company (TNC) vehicles (such as Uber or Lyft) are the exception to this rule, acting as commercial vehicles, but not being required to have an AVI device or use the dedicated commercial vehicle lanes. Instead, TNCs use the arrivals and departures curbs just like a POV.** **FIGURE 1-22** shows a conceptual rendering of the completed SLCIA terminal curb roads. **NEED TO UPDATE ONCE FINAL CURB OPERATIONS DECISIONS ARE MADE.**

FIGURE 1-22 CONCEPTUAL RENDERING OF SLC TERMINAL CURB ROADS



Source: SLCD, 2018

1.8.2 Ground Transportation Services and Facilities

Salt Lake City International Airport is served by a number of commercial ground transportation providers which make use of road and rail facilities. Additionally, facilities are provided for pedestrian and bicycle use. Observations and stakeholder interviews noted that employees are the primary users of pedestrian/bicycle trails and bicycle storage facilities.

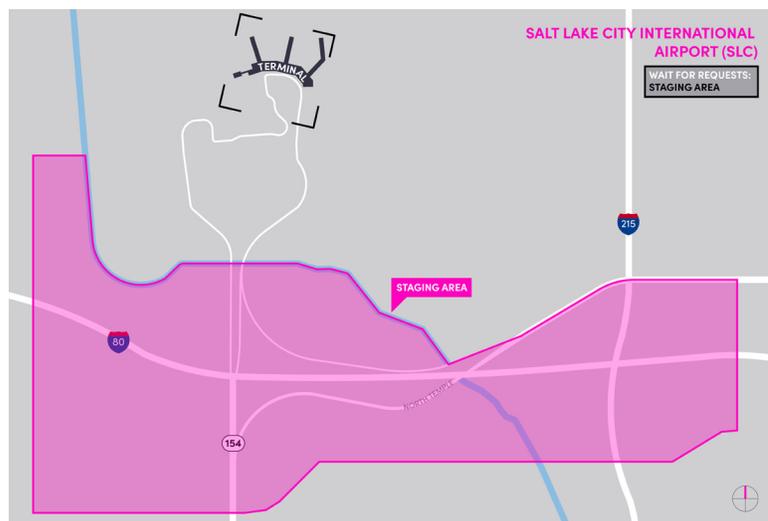
One unique element of Utah is that, in 2017, the state deregulated the taxi industry, meaning that a person was no longer required to have a taxi endorsement on their driver's license in order to legally drive a taxi within Utah. Any ground transportation provider registered with the state can now perform taxi services. However, in order to perform those services, specifically related to operations at SLCIA, all commercial vehicles must register with Salt Lake City, undergo vehicle inspections, and meet a minimum standards code. Additionally, at SLCIA, drivers must be vetted through the same badging process as SLCDA and tenant employees. TNC drivers are regulated by the State. TNC drivers are managed through a permitting process which allows SLCDA to ensure security and collect fees. For all intents and purposes, there is very little distinction between taxis, TNCs, and any other form of commercial ground transportation providing for-hire services in the State of Utah.

Modes of commercial vehicles performing ground transportation at SLCIA include:

- » Taxi cab companies
- » TNCs
- » UTA buses
- » Charter buses
- » TRAX light rail
- » Limousines
- » Courtesy shuttles
- » Resort shuttles

Commercial vehicle staging takes place at an SLCDA-owned and operated staging lot off of the main SLCIA campus. The lot is located at 2400 W Street immediately south of North Temple. This lot covers slightly more than one acre with 79 parking spaces, three of which are oversized for buses.

FIGURE 1-23 SLC TNC GEO-FENCE AREA



Source: <https://help.lyft.com/hc/en-us/articles/115012928467-Utah-airport-information-for-drivers>, Retrieved August 30, 2018.

TNC operations at SLCIA are regulated by SLCDA and drivers are required to enter the First In-First Out (FIFO) TNC queuing area shown in **FIGURE 1-23**. The queuing area is defined by a geo-fence boundary that triggers the TNC driver application to allow ride requests from the SLCIA terminal. When TNC drivers are dropping off passengers at the terminal curb, they are allowed a five minute period to accept new ride requirements from the terminal area through a process known as “rematching”.

1.8.3 Vehicle Parking

Parking is provided at SLCIA for the traveling public, SLCDA and tenant employees, and various other users including air cargo, military, general aviation, and airport support services. Public parking for commercial terminal users is provided in two facilities, each with an associated pricing structure. The program capacity and rate structure is shown below.

Economy Lot: 10,463 spaces

- » 0-60 minutes = \$2.00
- » Additional hour = \$1.00
- » 24 hour max = \$9.00

Parking garage: 3,600 spaces

- » 0-30 minutes = \$2.00
- » Additional 20 minutes = \$1.00
- » 24 hour max = \$32.00

The closest available parking to the terminal building is in the parking garage. The garage is a five story, cast-in-place, post-tensioned concrete structure providing a total of 3,600 spaces and direct access to the Gateway Building on the second level via the pedestrian sky-bridge. The structure covers approximately 11 acres including the helical ramps. All vehicle parking levels are covered. The garage first level is dedicated to rental car ready/return vehicle parking. The second story is programmed for short-term parking spaces with posted "No Overnight Parking" signs and wayfinding signage directs long-term parkers to levels three, four, and five. The parking operator enforces the "No Overnight Parking" policy according to SLCDA direction. Two helical ramps allow vertical vehicle access and egress from the different garage levels. This avoids the requirement for vehicles to circulate past parked vehicles. The helical ramp exterior diameters are 90 feet. The entry ramp is dedicated to one-way upward movement and the egress ramp is dedicated to one-way downward movement.

Economy surface parking lots are available on the interior of the Terminal Drive loop road. Combined with vehicle circulation routes, approximately 10,500 spaces are provided over 86 acres of land. Two lanes which exit from Terminal Drive provide public access to the lots. These feed three access lanes with gated ticketing systems which control entry into the lots.

Payment systems for public parking can be performed through the "Hub Parking Technology" parking system. This system allows payment by cash, credit, credit in/credit out, validation, badges, and AVI. Pay-on-foot kiosks are also available in the parking garage. Final egress from the parking garage and economy parking lots takes place through the parking exit plaza where payment can be taken, confirmed, or waived.

Terminal tenant employee parking takes place on a gated 22 acre lot with 3,355 spaces located outside the southeast portion of the Terminal Drive loop road. The gates are activated by a current airport employee badge. Badged employees are shuttled to and from the airport, or can walk or bike to the terminal using a path along 3700 W. SLCDA employee parking is provided near the terminal building and employee parking for other individual businesses/facilities is provided on-site adjacent to the building.

1.8.4 Rental Car Facilities

Rental car facilities are structured and located to prioritize customer convenience and efficient operational flows. Customer service and administrative functions take place in the Gateway Building on Level 1. This space includes customer service counters with agents, queuing, circulation, and administrative offices. The proximate locations of all rental car customer services eliminates any need for customer shuttling.

Rental car ready/return is located immediately adjacent on Level 1 of the parking garage. This is where rental car customers pick up and drop off rented vehicles. Spaces hold vehicles ready for rental and returned vehicles are parked nose-to-tail in return lanes for employee handling.

Rental car servicing and light maintenance is performed in the QTA service center structure immediately south of the parking garage. This facility serves fueling, washing, and storage purposes. Fencing and barriers separate access between leased spaces for different rental car agencies.

Three rental car service centers are located immediately south of the QTA service center structure. These buildings are where light maintenance such as oil changes, tire rotations, and small repairs are performed. Space around these buildings supplies additional nose-to-tail parking storage.

Several off-airport rental car agencies serving SLCIA also exist. Inventory of these company assets is not included in this Master Plan since SLCDA leases no land to them and holds no control over managing their future facility needs. **HOW DO CUSTOMERS GET SHUTTLED TO OFF-AIRPORT LOTS? FROM GATEWAY BUILDING?**

1.8.5 Stakeholder Interviews and 2018 Terminal Curb Road Observations

In order to better understand the SLCIA landside system, existing terminal curb road demand, and how the curb roads are operated, quantitative and qualitative data were collected during two two-hour peak demand times in June 2018, a relatively busy month. Note that this data was collected prior to the completion of the ARP, which made major improvements to the airports landside operating environment. On Wednesday June 27, 2018, data were collected during an evening arrival peak from 8:00pm to 10:00pm. Data collected on June 28, 2018 were gathered during the afternoon mixed peak from 12:15pm to 2:15pm. These data can be seen in **Appendix X** and will be used to quantify landside demand in the Facility Requirements Chapter. Empirical study during these two events revealed the following challenges with the terminal curb.

- » Demand on terminal curbs caused recurrent congestion for a variety of reasons, with concurrent queuing traffic along Terminal Drive as a result.
- » While active unloading predominated on the departures curb, "active loading only" rules by the public were not well observed on the arrivals curb. Curb management staff takes a variety of approaches to encourage users to obey the regulation, stepping up their encouragement and enforcement as needed when the curb gets most severely congested.
- » Airport user confusion existed and appeared to be caused by a mix of ongoing construction, curb design (June 2018 curb), and inconsistent and/or confusing wayfinding signing.
- » When the parking garage (June 2018 garage) is full and parkers are manually redirected to economy parking, this traffic is required to drive past the terminal curb in order to reach other parking/waiting locations.

It is important to reiterate that the data collected at this time was related to operations on the terminal curb as it existed in June 2018. This was prior to the completion of the ARP which creates an entirely new curb road environment. The intent of performing this study and providing this data is to inform SLCDCA of operational challenges in order to assist in avoiding them under the new curb road configuration.

In addition to recording observations during peak events, interviews were conducted with key landside stakeholders including SLCDCA staff, the parking operations company, and on-airport rental car agencies. The following areas requiring attention during the planning process were noted:

- » On-airport parking
 - Capacity constraints for all locations (garage, economy, employee)
 - Economy parking shuttle routes, fleet size, and shelter configurations
 - Enforcement of parking and curb policies
 - Parking exit plaza, specifically oversize lanes, bypass lanes, and shelter design
 - Growing presence of off-airport parking companies
 - Parking program effectiveness and pricing rate structure
- » Terminal curb roads
 - Arrivals and Departures curb programming
 - TNC pick up/drop-off locations and “pre-match and re-match” policies
 - Curb management and active loading/unloading policy enforcement
- » Rental car
 - Capacity of new facilities
- » TNCs
 - Impacts of TNC increased use on rental car and parking are uncertain
- » TRAX
 - Hours of operation limit usefulness for some airport/tenant employees
- » Park ‘n’ Wait lot
 - User confusion created by location and access/egress paths
- » Airport roadway safety
 - Adequacy of shoulders for Airport Police use
 - Diversion paths for traffic during Code Red emergency operations

FIGURE 1-24 ARRIVALS CURB ROAD QUEUEING TRAFFIC (JUNE 2018)



Source: RS&H, 2018

FIGURE 1-26 DEPARTURES CURB ROAD (JUNE 2018)

Source: RS&H, 2018

One important consideration when planning landside and terminal facilities at SLCIA is the need to accommodate short-term parking for greeting and well-wisher crowds during missionary arrivals or departures. These occur in short, concentrated time-frames, when missionaries from local church groups depart for, or arrive home from trips. Family and friends of the missionaries arrive in large groups to show support for and welcome home the missionaries, creating significant peaks of demand for hourly or short-term parking spaces. Additionally, these events trigger the need for designated meeting space within the terminal arrivals hall just outside of the exit location from the sterile area.

Ensuring high levels of customer service are provided and sustained during the ARP and beyond is an important element of the landside portion of the Master Plan study. This can be done by providing safe, efficient, and adequately sized facilities; determining how, when, and where landside facilities can expand to meet demand growth, and programming the facilities to meet the unique needs of airport users at SLCIA. Therefore, consideration will be given to these areas during facility requirements and alternatives analyses in later chapters.

FIGURE 1-25 GREETERS AWAITING MISSIONARY ARRIVALS (JUNE 2018)

Source: RS&H, 2018

1.9 GENERAL AVIATION FACILITIES

Salt Lake City International Airport serves a wide variety of general aviation aircraft users including corporate flying, law enforcement, fire rescue, medical air evacuation, recreational flying, flight training, air charters, government aviation, military aviation, and the transport of mail. General aviation facilities at SLCIA are located along the east side of the airfield, extending north from North Temple Road, between 2200 W Street and Taxiway K. 2200 W Street provides landside access to the east side general aviation area. General aviation facilities have developed parallel to Runway 17-35 and Taxiway K, and are the primary users of this portion of the airfield. The location of general aviation facilities are identified in **FIGURE 1-27**.

SLCDA also manages two additional general aviation airports, South Valley Regional Airport (U42) and Tooele Valley Airport (TVY). A General Aviation Strategy Plan (GASP), which is being prepared at the time of this writing, provides analysis and a recommended action plan for the entire general aviation system managed by SLCDA, which includes U42 and TVY.

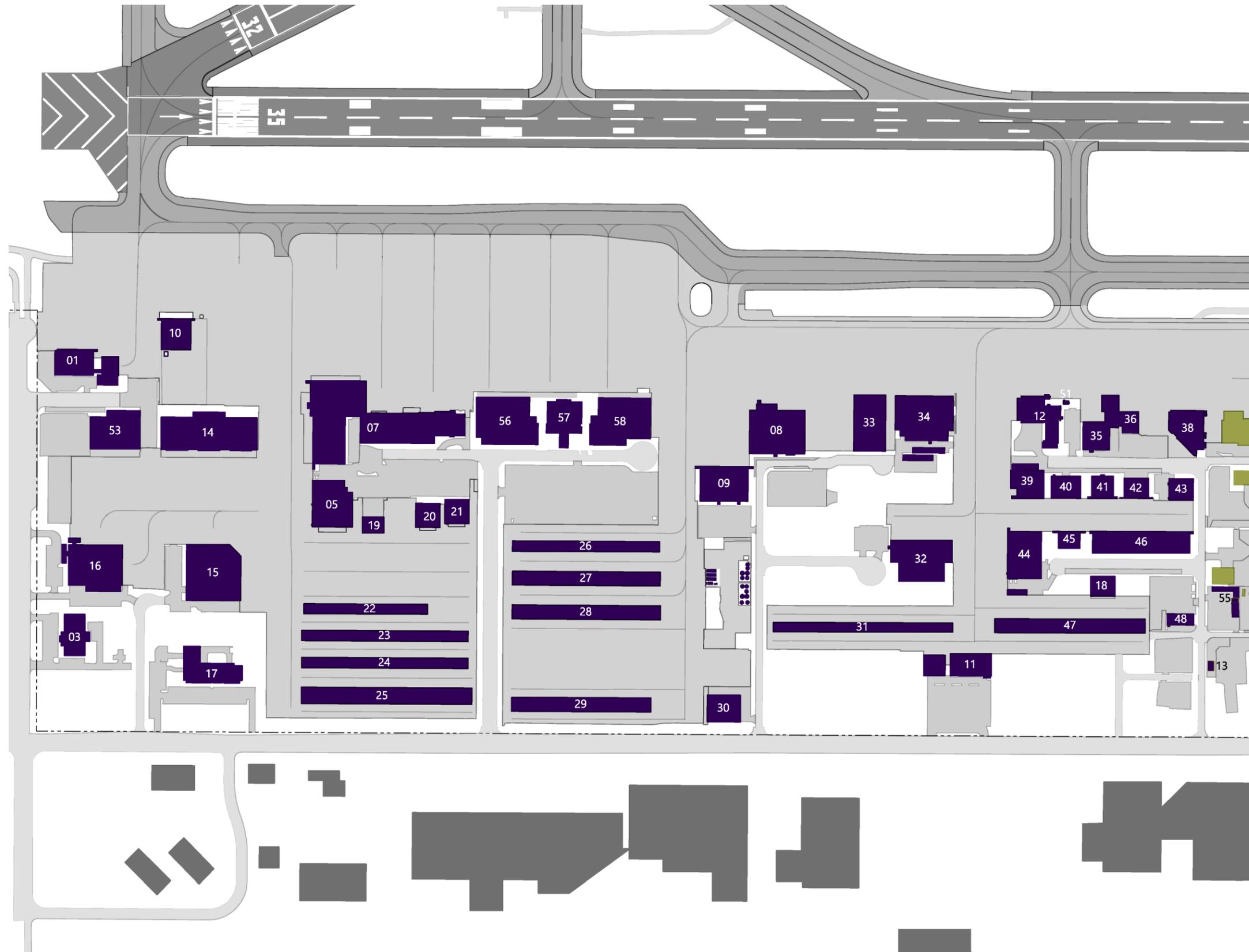
1.9.1 Leasehold Zones

In 2015, SLCDA began a transition within the general aviation area to program zones of control between SLCDA and the FBOs serving SLCIA. This transition split control of facilities into three zones managed by TAC Air, Atlantic Aviation, and SLCDA. Zone 1, at the south end of the general aviation area, is managed by TAC Air. Atlantic Aviation manages Zone 2 and SLCDA controls Zone 3, which is located north of the taxiway nearest to Taxiway K4. This system of control ultimately reduces the involvement of SLCDA in the overall management and future development of general aviation hangars at SLCIA. At an undetermined future date, all leases will be conveyed to the managing organization. At the time of this writing, approximately 74 percent of based aircraft are in a location that is managed by SLCDA, 24 percent are based with TAC Air, and two percent are managed by Atlantic Aviation. The area managed by SLCDA primarily consists of corporate hangars but also includes an ARFF facility and a T-hangar row. The future programmed areas of control are graphically depicted in **FIGURE 1-28**.

1.9.2 SLCDA T-Hangar Facilities

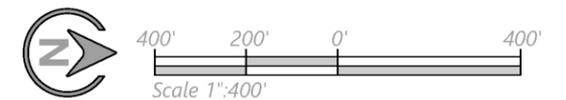
SLCDA owns and maintains 226 total T-hangars at SLCIA, mostly located in the southeast sector of the general aviation area. These hangars include 145 single-engine T-hangar bays, 27 twin-engine T-hangar bays, and 54 shade hangars, located in eight T-hangar rows and two shade hangar rows. However, 19 of the single-engine T-hangar bays are un-rentable due to structural deficiencies. The hangars were built between 1970 and 1984, making them between 34 and 48 years old. It is expected that most, if not all, T-hangars will need to be replaced within the planning horizon of this Master Plan. The T-hangar facilities available at SLCIA are included in **TABLE 1-13**. As of March 2018, 75 interested parties are on the waiting list for single-engine aircraft hangars, and 20 are waiting for twin-engine aircraft hangar availability. The historically estimated waiting time on the hangar waiting list is over 500 days.

FIGURE 1-27 EAST SIDE GENERAL AVIATION BUILDINGS



GENERAL AVIATION BUILDINGS

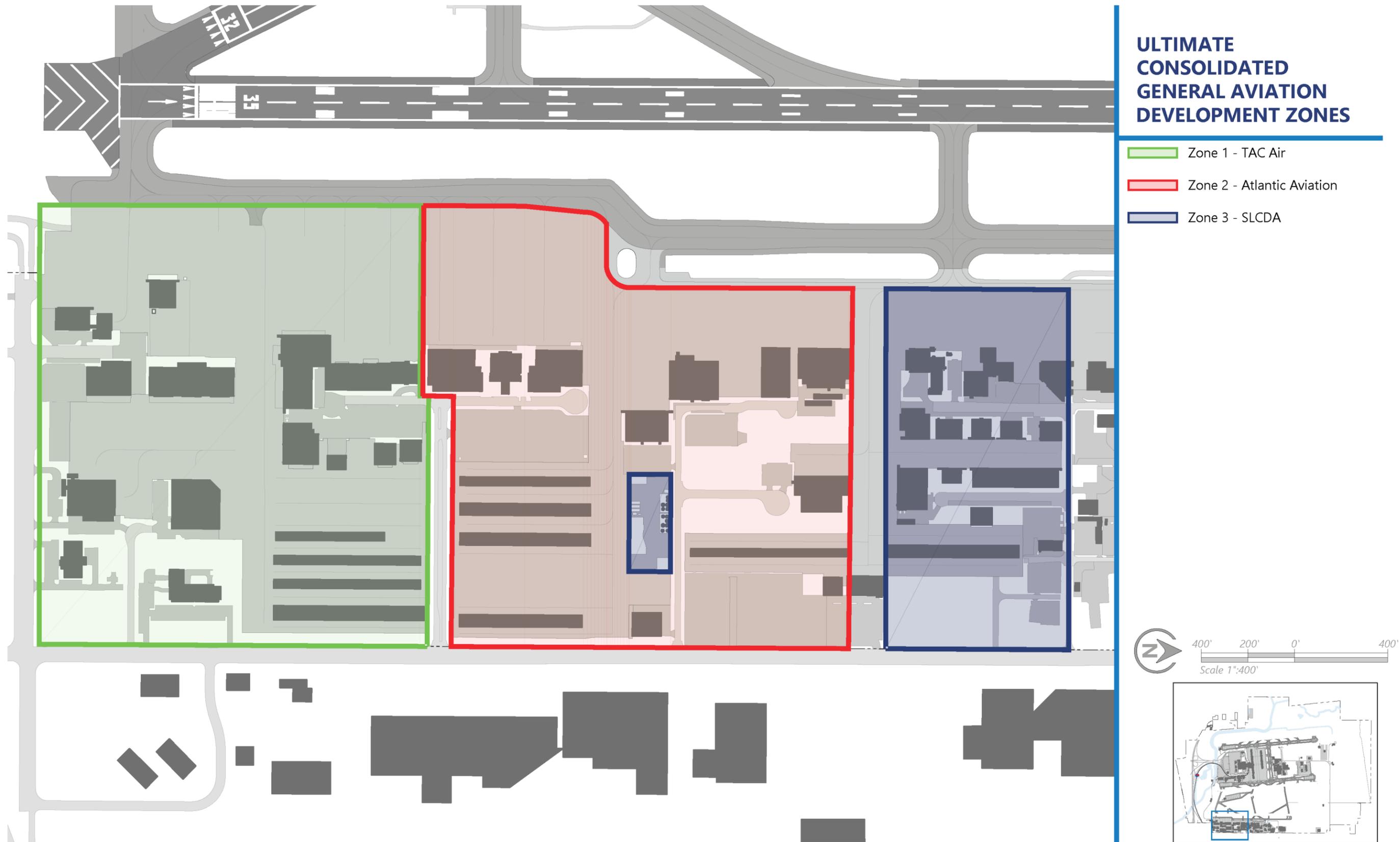
- | | |
|--------------------------------|----------------------------|
| 1 Utah Division of Aeronautics | 29 T-Hangar Row 15 |
| 2 Technical Systems Building | 30 Harper Companies, Inc. |
| 3 National Weather Service | 31 T-Hangar Row 21 |
| 5 Life Flight TAC Air 5 | 32 TAC Air 19 |
| 7 TAC Air 1, 2, 3, 4 | 33 TAC Air 18 |
| 8 Atlantic Aviation | 34 Leucadia Aviation |
| 9 Atlantic Aviation | 35 Butler Hughes Hangar |
| 10 TAC Air 17 | 36 Upper Limit TAC Air 21 |
| 11 SLCC Training Facility | 38 TAC Air 23 |
| 12 Fire Station #11 | 39 ALSCO |
| 13 Ballpark Rest Rooms | 40 TAC Air 20 |
| 14 TAC Air 14, 15, 16 | 41 Terra Diamond |
| 15 TAC Air 10 | 42 TAC Air 22 |
| 16 TAC Air 11 | 43 Civil Air Patrol |
| 17 Flight Safety International | 44 DKH Services |
| 18 Flightline, LLC | 45 YESCO Hangar |
| 19 TAC Air 12 | 46 Hangar 4 Associates |
| 20 TAC Air 6 | 47 T-Hangar Row 28 |
| 21 TAC Air 7 | 48 FAA Field Maintenance |
| 22 T-Hangar Row 6 | 51 Communications Building |
| 23 T-Hangar Row 7 | 53 TAC Air 13 |
| 24 T-Hangar Row 8 | 55 FAA Maintenance |
| 25 T-Hangar Row 9 | 56 Atlantic Aviation |
| 26 T-Hangar Row 10 | 57 Atlantic Aviation |
| 27 T-Hangar Row 11 | 58 Atlantic Aviation |
| 28 T-Hangar Row 12 | |



Source: Prepared by RS&H, 2018

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FIGURE 1-28 ULTIMATE GENERAL AVIATION DEVELOPMENT ZONES



Source: Prepared by RS&H, 2018

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TABLE 1-13 SLCDA T-HANGAR FACILITIES

Building	T-Hangar	Type	Year Built	Units	Area	Ultimate Zone of Control
GA-22	Row 6	Single	1970	15	944 sf	1 - TAC Air
GA-23	Row 7	Single	1970	20	944 sf	1 - TAC Air
GA-24	Row 8	Single	1970	20	944 sf	1 - TAC Air
GA-25	Row 9	Twin	1978	27	1,228 sf	1 - TAC Air
GA-26	Row 10	Single	1978	18	944 sf	2 - Atlantic Aviation
GA-27	Row 11	Shade	1981	27	995 sf	2 - Atlantic Aviation
GA-28	Row 12	Shade	1980	27	995 sf	2 - Atlantic Aviation
GA-29	Row 15	Single	1978	24	944 sf	2 - Atlantic Aviation
GA-31	Row 21	Single	1978	22	944 sf	2 - Atlantic Aviation
GA-37	Row 28	Single	1984	26	944 sf	3 - SLCDA

Source: SLCDA; Prepared by RS&H, 2018

1.9.3 SLCDA Corporate Tenants

SLCDA leases corporate hangars in the general aviation area to 12 organizations. Through the implementation of transitioning into zones, some of these leases will ultimately be transferred to Atlantic Aviation or TAC Air control. **TABLE 1-14** provides a breakdown of the corporate hangars leased by SLCDA.

1.9.3.1 Utah Division of Aeronautics

The Utah Division of Aeronautics, a division of the UDOT, leases 86,444 square feet, including ramp access, hangar facilities, and office space for operations. The Utah Division of Aeronautics operates a Beechcraft King Air B200, Beechcraft King Air C90, and a Cessna 206 from SLCIA.

1.9.3.2 Flightline, LLC

Flightline, LLC bases a Mitsubishi MU-2B-25 at SLCIA in a 6,768 square feet hangar. Their total lease area is 11,040 square feet.

1.9.3.3 Harper Companies, Inc.

Harper Companies, Inc., dealing in custom precast products, bases a Cessna 550 aircraft and a Beechcraft King Air B300 in a 12,500 square feet hangar at SLCIA. The total lease area for Harper Companies, Inc. is 25,562 square feet.

1.9.3.4 Leucadia Hangar

This hangar lease has been assigned to American Investment from Leucadia Aviation. Aircraft based at SLCIA for use by this company includes a Gulfstream G450, a Gulfstream G-IV, a Cessna Citation 525B, a Pilatus PC12, and a Cessna Sovereign 680.

1.9.3.5 Hughes & Hughes Investment Corporation

Hughes & Hughes Investment Corporation develops and manages commercial real estate projects. The company leases 32,160 total square feet from SLCDA, including a 17,694 square foot hangar. Based aircraft at SLCIA include a Cessna LC41-550FG Corvallis, Cessna 510 Citation Mustang, and a Cessna 525C Citation.

TABLE 1-14 SLCDA CORPORATE HANGAR TENANTS

Building	Tenant	Approx. Apron Area	Hangar/Office Area	Total Lease Area
GA-01	Utah Division of Aeronautics	38,869 sf	21,865 sf	86,889 sf
GA-11	Salt Lake City Community College	- sf	24,507 sf	85,550 sf
GA-18	Flightline, LLC	900 sf	6,768 sf	11,040 sf
GA-30	Harper Companies, Inc.	2,538 sf	12,500 sf	25,562 sf
GA-34	Leucadia Aviation	39,939 sf	35,877 sf	91,028 sf
GA-35	Hughes & Hughes Investment Corp.	11,033 sf	17,694 sf	32,160 sf
GA-39	ALSCO	10,107 sf	13,961 sf	35,970 sf
GA-41	Terra Diamond	698 sf	6,933 sf	12,675 sf
GA-43	Civil Air Patrol	- sf	7,110 sf	16,172 sf
GA-44	DKH Services	5,948 sf	24,188 sf	52,830 sf
GA-45	Young Electric Sign Company	1,414 sf	5,163 sf	17,368 sf
GA-46	Hangar 4 Associates	5,837 sf	29,176 sf	47,804 sf

Source: SLCDA; Prepared by RS&H, 2018

1.9.3.6 ALSCO

ALSCO provides linen rentals, employee uniform and workwear services. A Gulfstream G450 aircraft is based at SLCIA in a 13,961 square foot hangar, part of a 35,970 square foot total lease area.

1.9.3.7 Terra Diamond

Terra Diamond is an independent company specializing in manufacturing tools and accessories. They lease a total of 12,675 square feet including a 6,933 square foot hangar where a Cessna 441 is based.

1.9.3.8 Civil Air Patrol

The Civil Air Patrol – Salt Lake City Senior Squadron (CAP), is a volunteer program, funded as a United States Air Force Auxiliary, with missions for emergency services, cadet training, and aerospace education. The CAP leases a total of 16,172 square feet including hangar space. Ten Cessna 182s, a Cessna 206, and a Gippsland GA8 are based at SLCIA.

1.9.3.9 DKH Services

DKH Services operates a Bombardier Global 5000. Bombardier BD-700-1A11, Dassault Mystère-Falcon 50, Quest Kodiak 100, and an Aviat A-1B. DKH Services leases a total of 52,830 square feet of space.

1.9.3.10 Young Electric Sign Company

Young Electric Sign Company, or YESCO, is a private manufacturer of signs, lighting, and display systems. The company bases a Beechcraft Baron 58 and Beech Bonanza V35B aircraft from SLCIA, stored in a 5,163 square foot hangar. Total area included in the YESCO lease is 17,368 square feet.

1.9.3.11 Hangar 4 Associates

This building includes a total of four hangars, some of which are leased to private individuals. Aircraft in this 29,176 square foot facility include an Embraer EMB-500, Pilatus PC 12/45, Cessna 320, Cirrus SR22, Cessna 210T, and Beech B200 King Air.

1.9.4 Fixed Base Operators

Two FBOs serve the general aviation community at SLCIA. Services provided include aircraft sales and leasing, air charter service, aircraft parts and maintenance, fuel sales, and aircraft storage.

Atlantic Aviation began operations at SLCIA in April 2016. After assuming possession of the company's leased area, improvements were made including apron renovations and new hangar construction. In April 2018, Atlantic Aviation opened a new executive terminal. The FBO has more than 100,000 square feet of aircraft storage split between four hangars. A total of five aircraft are based with Atlantic Aviation including four multi-engine aircraft and one single-engine aircraft. Atlantic Aviation has capacity for growth in based aircraft, with substantial additional room available in their newly constructed hangars. The Atlantic Aviation total leasehold area is 866,208 square feet. Atlantic Aviation buildings are shown in **TABLE 1-15**.

TABLE 1-15 ATLANTIC AVIATION BUILDINGS

Building	Type	Approx. Apron Area	Hangar/Office Area	Total Lease Area
GA-08	Office	149,800 sf	34,463 sf	463,782 sf
GA-09	Hangar	149,800 sf	24,421 sf	35,250 sf
Atlantic Aviation Executive Terminal	Office	275,378 sf	17,747 sf	367,176 sf
Atlantic Aviation Hangar 1	Hangar	275,378 sf	38,525 sf	367,176 sf
Atlantic Aviation Hangar	Hangar	275,378 sf	36,261 sf	367,176 sf

Source: SLCDA; Prepared by RS&H, 2018

Atlantic Aviation offers full fueling service with Jet A and 100LL fuel available for purchase. Between July 2017 and April 2018, Atlantic Aviation fuel flowage data shows approximately 209,355 gallons per month on average. Additional fuel capacity details are included in **SECTION 1.11.5, Aviation Fuel Storage**.

Non-aeronautical services provided by Atlantic Aviation include office space rental, "snooze rooms", and rental car services provided through partnership with Go Rentals, a rental car company based in the Atlantic Aviation executive terminal.

TAC Air also provides FBO service at SLCIA. This FBO includes subsidiary company Keystone Aviation, as well as Million Air, a former FBO at SLCIA which was acquired by TAC Air in May 2012. TAC Air manages 18 total buildings, ranging in size from 7,500 square feet to over 45,000 square feet. A total of 75 aircraft are based at TAC Air including 19 single-engine, 15 multi-engine aircraft, 35 jet-engine aircraft, and six helicopters. The demand for aircraft storage fluctuates seasonally, spiking during the winter months. In 2016, TAC Air completed construction of an additional 39,200 square feet box hangar and, according to TAC Air, is receiving inquiries for additional growth. The total TAC Air leasehold area is 1,319,297 square feet. An overview of facilities managed by TAC Air is shown in **TABLE 1-16**.

TAC Air offers full fueling service with Jet A and 100LL fuel available for purchase. In addition to sales, fuel is provided for transient military operations as well as fuel pumping for commercial airlines. Between July 2017 and April 2018 the TAC Air fuel flowage data shows approximately 297,413 gallons per month on average. Additional fuel capacity details are included in **SECTION 1.11.5, Aviation Fuel Storage**.

TABLE 1-16 TAC AIR BUILDINGS

Building	Type	Approx. Apron Area	Hangar/Office Area	Total Lease Area
TAC Air 1, 2	Office	330,796 sf	40,004 sf	463,782 sf
TAC Air 5	Hangar	6,728 sf	24,156 sf	35,250 sf
TAC Air 6	Hangar	- sf	8,217 sf	8,217 sf
TAC Air 7	Hangar	20,822 sf	8,217 sf	31,983 sf
TAC Air 10	Hangar	40,014 sf	39,200 sf	112,989 sf
TAC Air 11	Office	21,502 sf	30,804 sf	140,267 sf
TAC Air 12	Hangar	3,198 sf	4,614 sf	13,709 sf
TAC Air 13	Hangar	- sf	39,200 sf	N/A ¹ sf
TAC Air 14, 15, 16	Office	181,186 sf	45,908 sf	246,891 sf
TAC Air 17	Hangar	2,273 sf	13,132 sf	26,342 sf
TAC Air 18	Hangar	39,972 sf	25,200 sf	95,760 sf
TAC Air 19	Hangar	12,173 sf	30,640 sf	83,060 sf
TAC Air 20	Hangar	352 sf	8,360 sf	15,000 sf
TAC Air 22	Hangar	447 sf	7,520 sf	13,032 sf
TAC Air 23	Office	8,203 sf	18,152 sf	33,015 sf

Note: (1) Information not available.

Source: SLCDA; Prepared by RS&H, 2018

TAC Air provides a wide range of services at SLCIA. Aircraft sales and leasing are available through a partnership with SOCATA TBM and Honda Jet aircraft. Air charter operations are available through a fleet of 20 aircraft including a variety of team charters. Additionally, aircraft maintenance is available for five of the airlines that utilize SLCIA and private aircraft.

1.9.5 Military Facilities

The Utah Air National Guard (UANG) leases approximately 135 acres for the Roland R. Wright Air National Guard Base. In 2018, this lease agreement was extended for an additional term through 2068. The 151st Air Refueling Wing is the host unit at this base charged with the mission of aerial refueling operations utilizing Boeing KC-135R Stratotankers. As of 2016, nearly 1,500 personnel are involved in the operation of the base. **FIGURE 1-29** illustrates the UANG facilities on SLCIA.

1.9.6 Non-Airside Facilities

SLCDA also leases non-airside facilities within the general aviation footprint on the east side of SLCIA. These vary in function, as described in the following sections, and are shown in **FIGURE 1-30**.

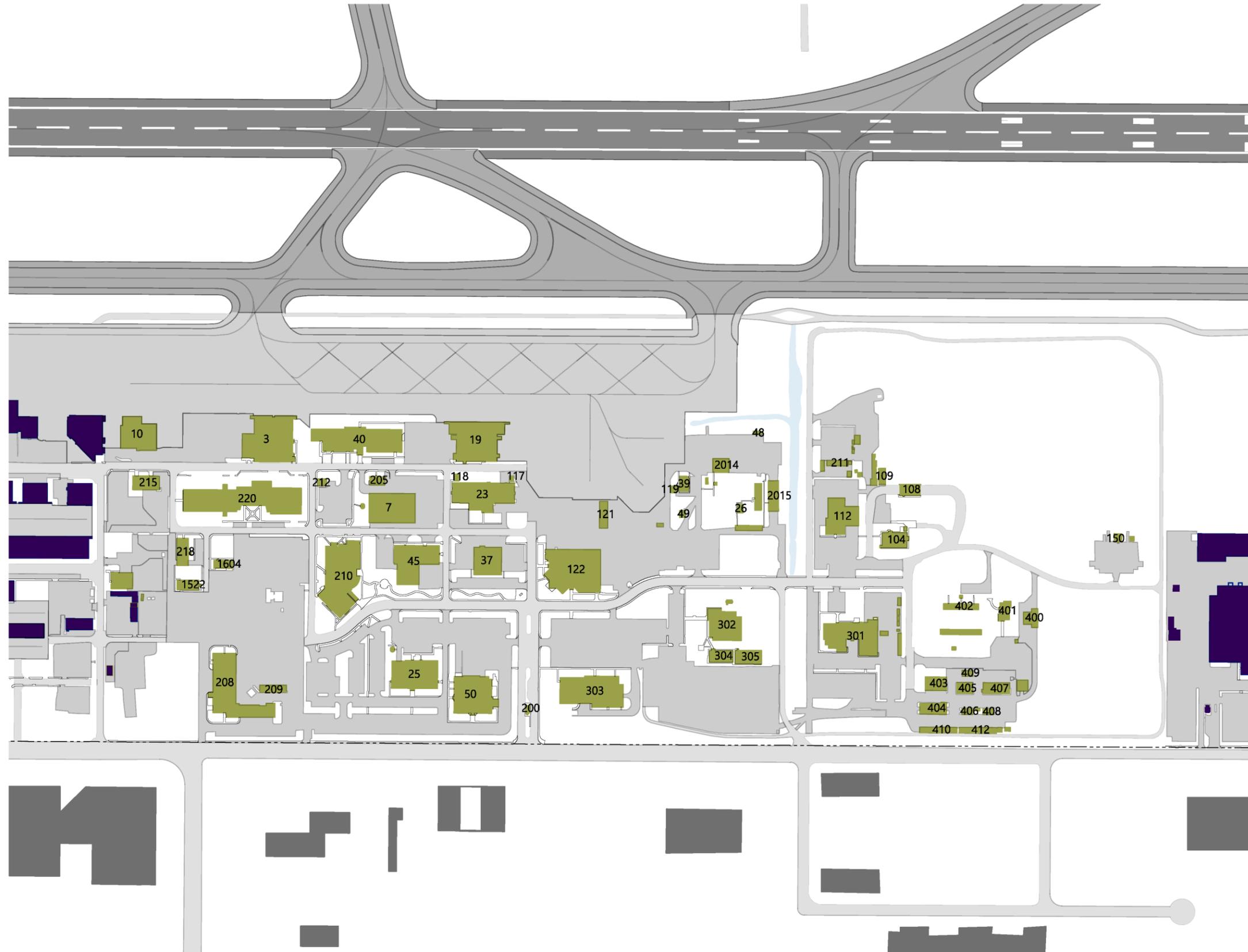
1.9.6.1 National Weather Service

The NWS leases a 55,617 square foot office facility for the Salt Lake City NWS Forecast Office on W North Temple.

1.9.6.2 Flight Safety International

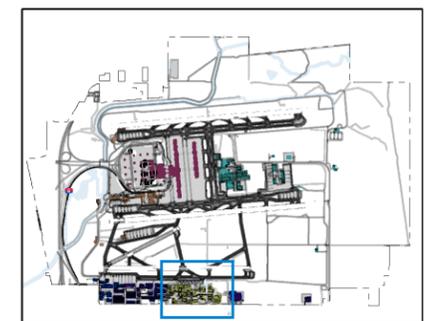
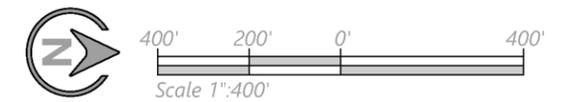
Flight Safety International offers flight training for the Bombardier CRJ200 and Bombardier CRJ700. The company leases a 173,889 of square foot facility along 2200 W.

FIGURE 1-29 UTAH AIR NATIONAL GUARD BUILDINGS



UTAH AIR NATIONAL GUARD BUILDINGS

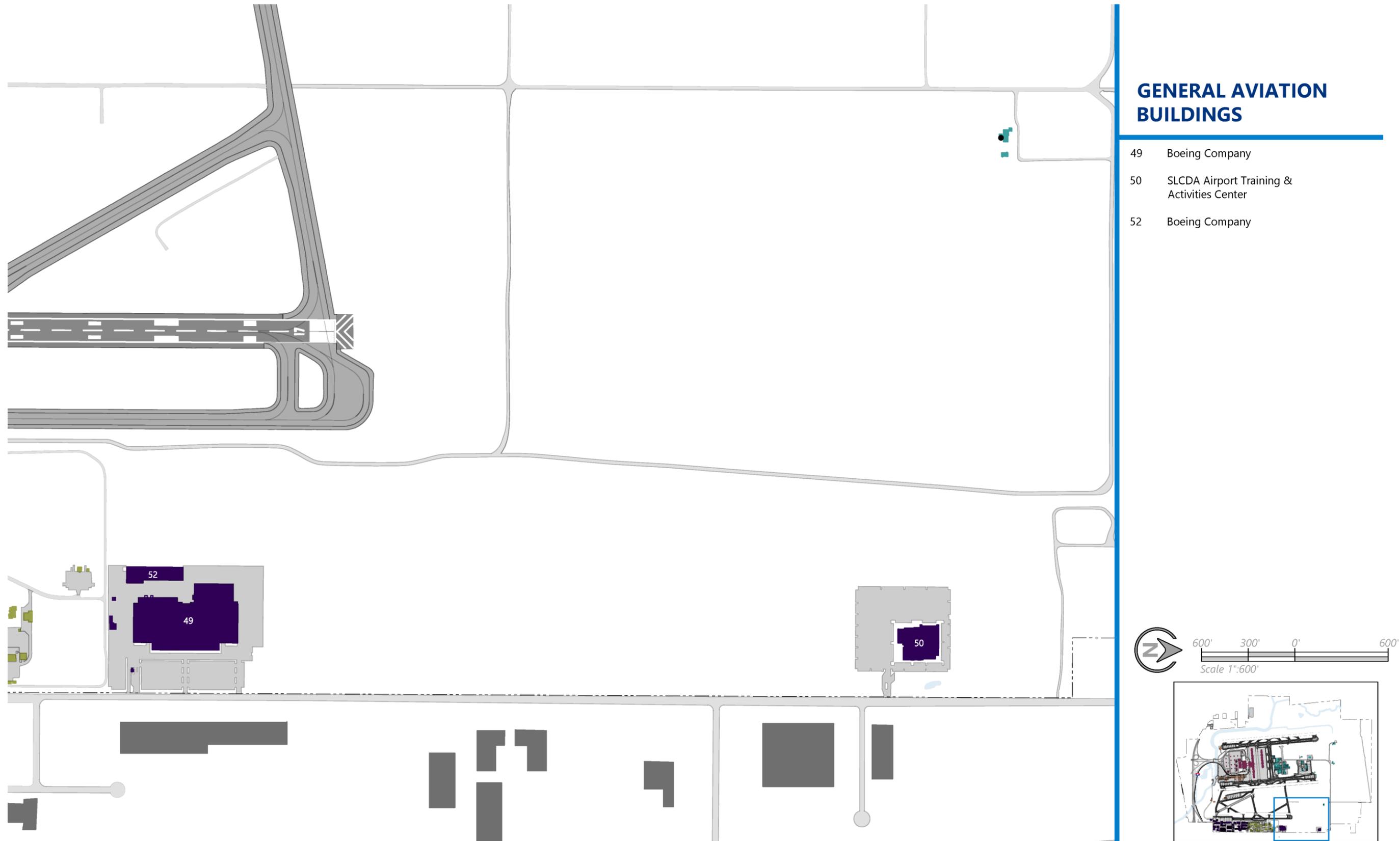
3	UANG	205	UANG
7	UANG	208	UANG
10	UANG	209	UANG
19	UANG	210	UANG
23	UANG	211	UANG
25	UANG	212	UANG
26	UANG	215	UANG
37	UANG	218	UANG
39	UANG	220	UANG
40	UANG	301	UANG
45	UANG	302	UANG
47	UANG	303	UANG
48	UANG	304	UANG
49	UANG	305	UANG
50	UANG	400	UANG
108	UANG	401	UANG
109	UANG	402	UANG
110	UANG	403	UANG
111	UANG	404	UANG
112	UANG	405	UANG
114	UANG	407	UANG
117	UANG	408	UANG
118	UANG	409	UANG
119	UANG	410	UANG
121	UANG	412	UANG
122	UANG	1522	UANG
150	UANG	1604	UANG
152	UANG	2014	UANG
200	UANG	2015	UANG



Source: Prepared by RS&H, 2018

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FIGURE 1-30 OTHER GENERAL AVIATION BUILDINGS WITHOUT AIRFIELD ACCESS



Source: Prepared by RS&H, 2018

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1.9.6.3 Boeing Facility

Boeing Company operates an aircraft subassembly plant north of the east general aviation area in buildings GA-49 and GA-52. As shown in **TABLE 1-17** and on **FIGURE 1-30**, the lease includes 800,000 square feet of land on the east side with no airfield access. Additionally, Boeing Company is given right of first refusal for leasing the property to the north of their existing footprint.

TABLE 1-17 NON-AIRSIDE BUILDINGS

Building	Tenant	Building Area	Total Lease Area
GA-03	National Weather Service	13,148 sf	31,983 sf
GA-17	Flight Safety International	31,140 sf	173,889 sf
GA-49	Boeing Company	24,156 sf	800,000 sf
GA-52	Boeing Company	32,139 sf	800,000 sf

Source: SLCDA, Prepared by RS&H, 2018

1.10 AIR CARGO FACILITIES

Air cargo at SLCIA includes the movement of freight and mail. In 2017, 382.2 million pounds of total cargo was handled by the tenants of SLCIA. Cargo facilities at SLCIA are located in two areas, the South Cargo Area, located near the approach end of Runway 34R, and the North Cargo Area, located near the approach end of Runway 16L. The South Cargo Area is accessed via N 3700 W. Landside access for the North Cargo Area facilities is provided via 1580 N. **FIGURE 1-31** and **FIGURE 1-32** visually depict cargo facilities.

1.10.1 South Cargo Area

1.10.1.1 United States Postal Service

The United States Postal Service (USPS) occupies a 45,000 square foot building situated between Joint Cargo Building #2 and the Airport Operations Center. This facility offers typical Post Office services with 23 vehicle parking spaces available for public use and another 64 parking spaces inside a fenced area for employee parking and USPS vehicles. This facility has a total of eight truck docks. The 84,000 square feet apron is used for GSE only. Mail and packages are shipped/received via United Parcel Service (UPS) or Delta Air Lines.

1.10.1.2 Joint Cargo Building #1

Located between Joint Cargo Building #2 and #3, Joint Cargo Building #1 previously served as the main location for cargo operations but currently serves mostly belly cargo handling for airlines. Companies that lease sections of this building include G-2 Secure, which is a contractor that handles American Airlines cargo operations, SkyWest Cargo, and Southwest Airlines. The building includes 34,095 square feet of space with 22 truck dock spaces and a total of 35 vehicle parking spaces.

1.10.1.3 Joint Cargo Building #2

Joint Cargo Building #2, the southernmost building of the Joint Cargo buildings, is a 10,424 square foot facility with three truck dock spaces and 23 vehicle parking spaces. SkyWest Airlines leases space in this building for cargo operations.

Five aircraft parking positions are located to the east of Joint Cargo Building #1 and #2. These are designated for remain-overnight (RON) parking. There are four aircraft parking positions to the east of SLCIA Operations Center which are also designated for RON parking. SkyWest does park Embraer 175 aircraft in this location using the taxi-in and taxi-out method.

1.10.1.4 Consolidated Cargo Facility

The Consolidated Cargo Facility has a total of 37,168 square feet and accommodates 10 truck dock spaces and an additional 21 vehicle parking spaces. Perimeter Gate 11, staffed by an airport security officer, is located southeast of Joint Cargo Building #2 to allow for secured side access.

Air General provides cargo handling operations out of the Consolidated Cargo building. Several airlines, including Alaska Air, United Cargo, and American Cargo contract with Air General to handle their cargo services. Combined, these airlines handled 1.3 million pounds of cargo in 2017.

1.10.1.5 Delta Air Cargo

Delta Air Cargo leases a 202,413 square foot facility to handle their cargo operations. This includes a 22,646 square foot building with nine truck dock spaces and a total of 64 vehicles parking spaces. In 2017 Delta Air Cargo handled 31.2 million pounds of cargo.

1.10.2 North Cargo Area

1.10.2.1 United Parcel Service

The UPS cargo operations in the North Cargo Area began after construction of a 26,211 square foot facility constructed after the completion of the previous Airport Master Plan. The facility has the capacity to accommodate a total of 25 trucks through five truck dock locations. There are 130 vehicle parking spaces available northwest of the facility. The UPS apron in the North Cargo Area is approximately 787,000 square feet. The existing apron layout is marked to accommodate a maximum of four large jets and nine smaller aircraft.

In 2017, UPS handled 117.4 million pounds of cargo at SLCIA. Aircraft in the UPS fleet at SLCIA include the Airbus A300-600, the Boeing 757-200, the Boeing 767-300, and the McDonnell Douglas MD-11. Cargo flights for UPS typically occur daily approximately in the range of 4:00 am and 5:30 am as well as 5:00 pm and 8:00 pm. Daily flights from Louisville, KY to SLCIA occur, with most days seeing several flights between these destinations. Multiple cargo flights occur weekly to SLCIA from Ontario, CA and Boise, ID as well.

1.10.2.2 Federal Express

Federal Express (FedEx) relocated its cargo operations to the North Cargo Area in 2015 after completing the construction of a new 70,908 square foot building. The new building has the ability to accommodate a total of 25 trucks. There are 109 vehicle parking spaces available southeast of the facility. The FedEx apron in the North Cargo Area is approximately 608,000 square feet. The existing apron layout is marked to accommodate a maximum of four large jets and 14 aircraft that are ADG II or smaller.

In 2017, FedEx handled 192.2 million pounds of cargo at SLCIA. Aircraft utilized in the FedEx fleet at SLCIA include the Cessna 208 Caravan, Airbus A300-600, Boeing 757-200, McDonnell Douglas DC-10, and McDonnell Douglas MD-11. FedEx cargo operations time slots at SLCIA are clustered around 5:00 am and 6:00 pm, every day except Monday. Several daily flights typically occur from Memphis International

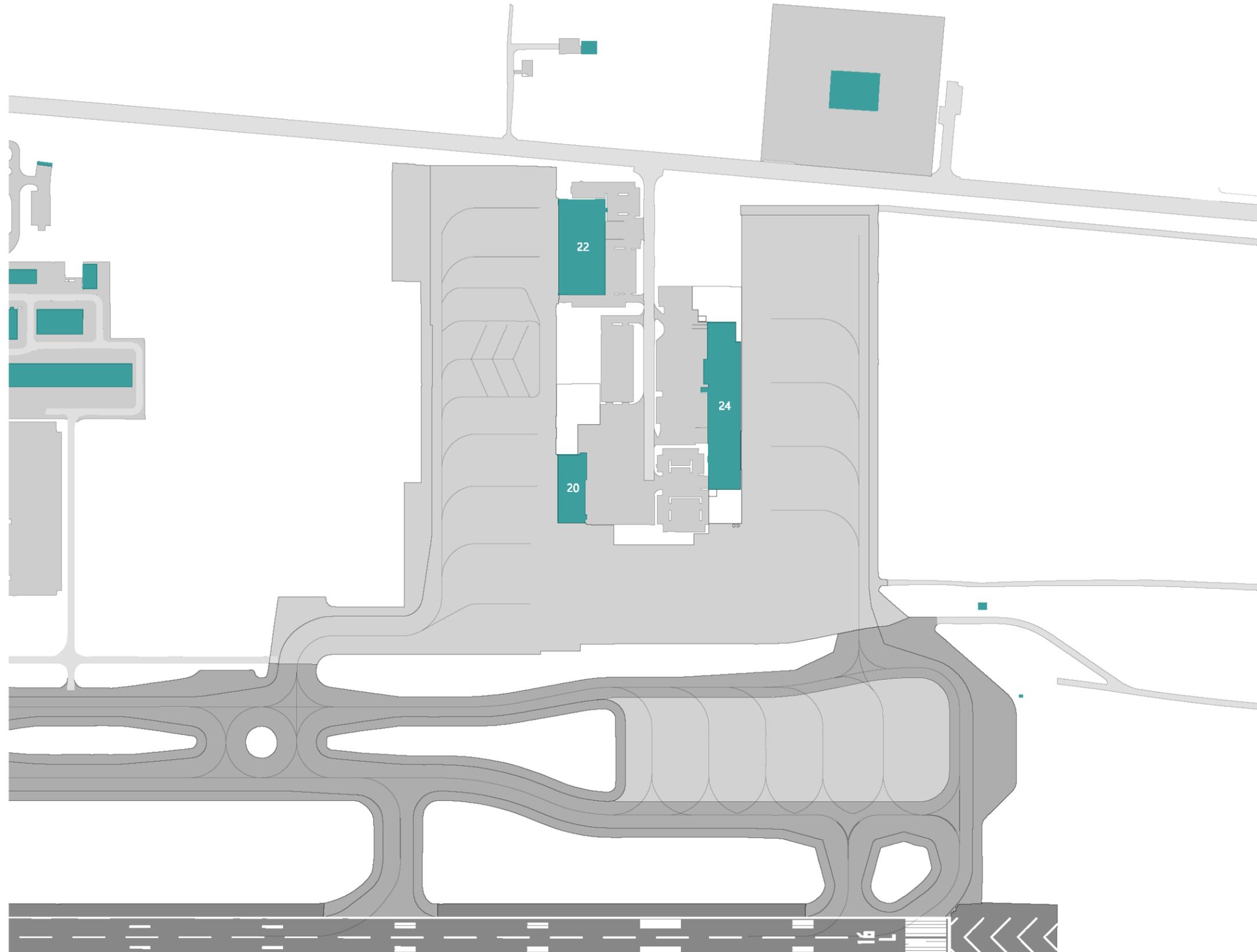
FIGURE 1-31 SOUTH CARGO AND SUPPORT BUILDINGS



Source: Prepared by RS&H, 2018

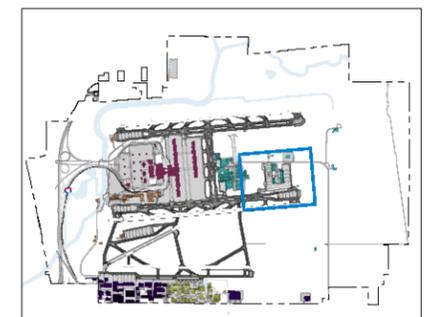
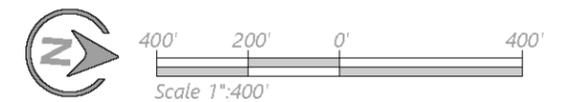
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FIGURE 1-32 NORTH CARGO AND SUPPORT BUILDINGS



NORTH SUPPORT - NORTH CARGO BUILDINGS

- 20 UPS Facility
- 22 DHL Cargo
- 24 FedEx



Source: Prepared by RS&H, 2018

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Airport (MEM) to SLCIA. Flights originating from Indianapolis, IN and Oakland, CA occur approximately four days a week. Other FedEx flight locations include Grand Junction, CO and Boise, ID.

1.10.2.3 DHL Express

DHL Express located cargo facilities in the North Cargo Area in 2006 after constructing a new 62,000 square foot facility. Before construction for the new facility was completed, DHL managed cargo coming into SLCIA through ramp operations. The new DHL cargo building has a total of five truck docks and an overall capacity for 15 trucks. A total of 132 vehicle parking spaces are available. The DHL apron in the North Cargo Area is approximately 278,000 square feet and the existing apron layout is marked to accommodate a maximum of two large jets and four smaller aircraft.

In 2017, DHL handled 4.5 million pounds of cargo at SLCIA. Air service for DHL is provided by Southern Air, who operate Boeing 737-400 aircraft for cargo operations at SLCIA. Flights occur near the 8:00 am hour from Cincinnati Monday through Friday, and near the 5:00 am hours on Sunday. Flights from Sacramento arrive near the 8:00 pm hour every day except for Saturdays.

1.11 AVIATION SUPPORT FACILITIES

The aviation support facilities area is located south of the Air Cargo facilities. This describes the location and condition of various support facilities important to the overall operation of SLCIA. These facilities include FAA facilities, aircraft rescue and firefighting facilities, fuel facilities, de-icing, airport maintenance facilities, snow removal equipment facilities, and security related facilities. A graphical representation of all the support facilities are shown in **FIGURE 1-31**, **FIGURE 1-32**, **FIGURE 1-33**, and **FIGURE 1-34**.

1.11.1 FAA Facilities

The ATCT, as shown in **FIGURE 1-33**, is located off of 1200 N on SLCIA property. The ATCT facility was built in the late 1990s and handles over 300,000 operations per year. An operation is defined as either a takeoff or a landing. Therefore, if an aircraft lands, drops off, and picks up passengers, and then departs to a new destination, two operations have occurred. The tower operates continuously under the control of FAA personnel. When the ATCT is in operation, air traffic controllers provide clearance to pilots and vehicle operators on the movement area. They also provide takeoff clearance and instructions, along with providing pertinent weather information.

Although not located on SLCIA property, an ARTCC is located adjacent to SLCIA. This ARTCC, known as ZLC, is one of 22 FAA Area Control Centers in the United States. It covers one of the largest areas of any other control center. The ARTCC facility also contains the Salt Lake TRACON.

1.11.2 Aircraft Rescue and Fire Fighting

Aircraft Rescue and Fire Fighting (ARFF) involves hazard mitigation, as well as fire prevention, firefighting, rescue, and medical response in the event of an aircraft incident or accident. All Part 139 airports serving scheduled and unscheduled air carriers are required to provide ARFF services at an FAA-established appropriate level. This level, known as an index, is defined in 14 CFR 139.315 and characterizes the level of service for the ARFF facility.

Using the index set forth in 14 CFR 139.315, SLCIA's ARFF index to serve commercial aircraft is Index E. Index E is based on the potential for an average of five or more daily departures of B767-400 air carrier

aircraft. Although the average daily departures may lower on a seasonal basis, SLCIA will continue to staff and equip for the higher index value. **TABLE 1-18** details the ARFF equipment at SLCIA.

There are two ARFF stations supporting SLCIA. The first is located east of Runway 17-35 (Fire Station #11), shown in **FIGURE 1-28**. The second is located in the North Support Area between Runway 16L-34R and Runway 16R-34L (Fire Station #12), shown in **FIGURE 1-33**. Fire Station #12 is the site of the original facility that supported the airfield prior to the construction of Runway 16R-34L in 1995. These facilities are staffed 24 hours a day, 7 days a week with appropriately trained fire personnel as required to maintain SLCIA’s Index E.

Since 1997, SLCIA had been the site of the first FAA approved ARFF Training Center in the Western United States, located on the west side of SLCIA property. Due to the high cost of maintenance and operation of an aging facility, the training center closed on June 30th, 2018.

1.11.3 Aircraft Deicing Facilities

SLCIA has five de-icing pads on the airfield; one near Runway 34L, one near the end of Runway 34R, one between Runways 16L-34R and 14-32, one at Taxiway K3, and one near the end of Runway 16L. There are two additional deice locations on the North Cargo Ramp for UPS, FedEx, and DHL. The locations of the aircraft deicing pads are shown in **FIGURE 1-35** and detailed in **TABLE 1-19**.

The deicing pads at the ends of Runway 34L, Runway 34R, and Taxiway L-Runway 34R are the primary facilities for commercial service aircraft deicing. The deicing pad located at K3 taxiway is used for general and business aviation aircraft. Additionally, the deicing pads located at the North Cargo Ramp include one near the UPS/DHL Ramp and one near the FedEx ramp. These facilities provide deicing services for any cargo aircraft that parks on these ramps. The newest deicing pad, located at the end of Runway 16L was completed in 2017.

The Airport exclusively uses propylene glycol-based fluids for deicing and anti-icing. All deicing fluids must be approved by the Airport Executive Director who is notified of the type and manufacturer of each fluid prior to the winter season. The deicing pads have been designed to capture residual deicing fluid

TABLE 1-18 AIRCRAFT RESCUE AND FIREFIGHTING EQUIPMENT

Vehicle	Capacity (gallons)	
	Water	Foam
GMC 1-Ton 4x4	300 g	40 g
GMC 1-Ton 4x4	300 g	40 g
Oshkosh Striker 3000	3000 g	420 g
Rosenbauer Panther 300	3000 g	400 g
Oshkosh Striker 3000	3000 g	420 g
Oshkosh TB3000	3000 g	420 g
Oshkosh Striker 3000 ¹	3000 g	420 g
Oshkosh Striker 3000 ¹	3000 g	420 g

Source: SLC Airport Certification Manual, 2018

Note: (1) Indicates vehicle assigned to ARFF training facility.

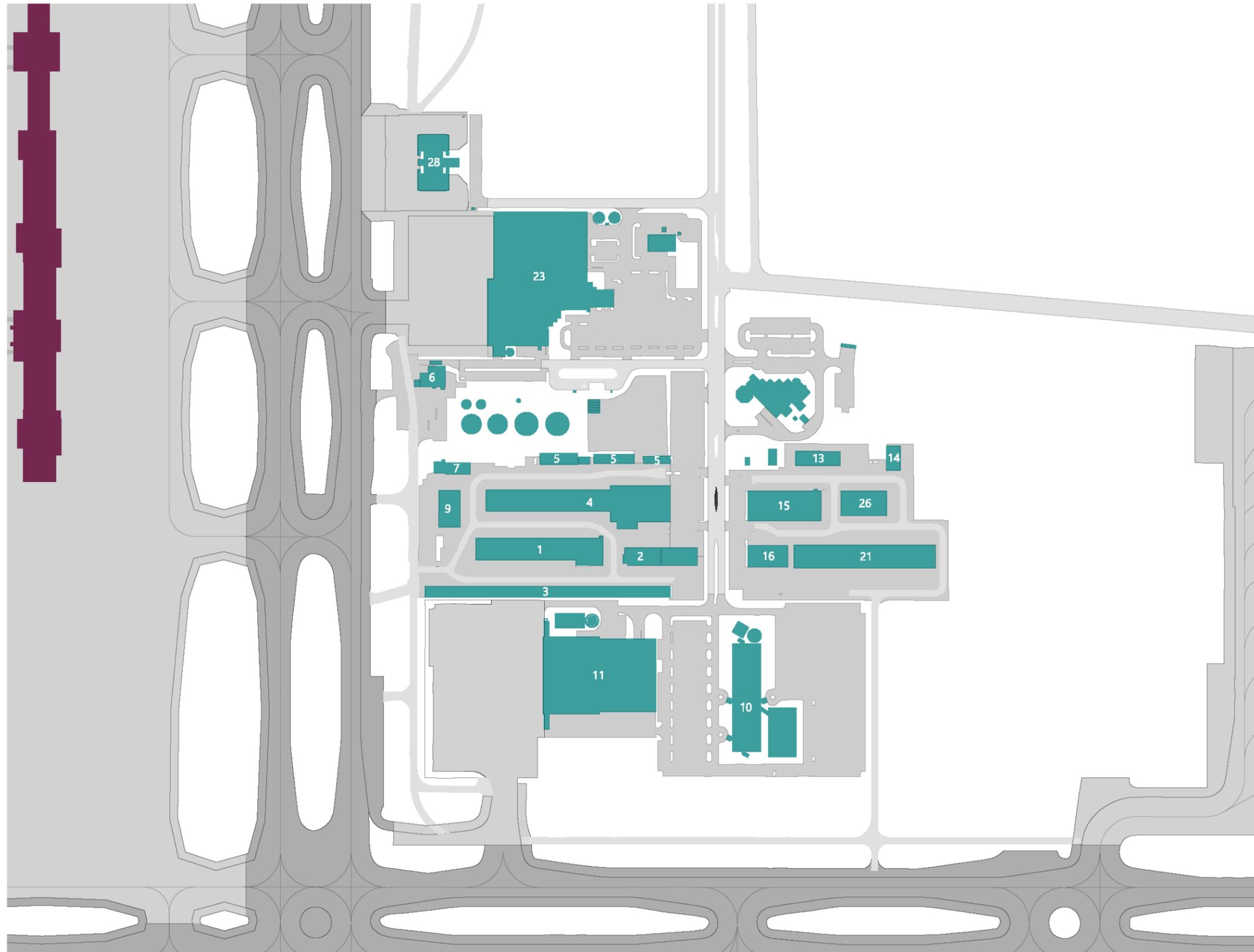
TABLE 1-19 DEICING PADS

Location	Aircraft Service Positions
34L Runway End	8
34R Runway End	6
Taxiway L-Runway 34R End	8
Taxiway K3	1
Runway 16L	5

Note: 2 additional deicing locations on cargo ramps for cargo aircraft.

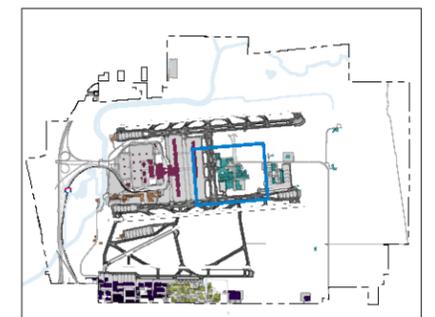
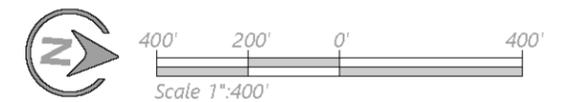
Source: SLC ACM (FAA Approved 2014), Prepared by RS&H, 2018

FIGURE 1-33 NORTH SUPPORT BUILDINGS



NORTH SUPPORT BUILDINGS

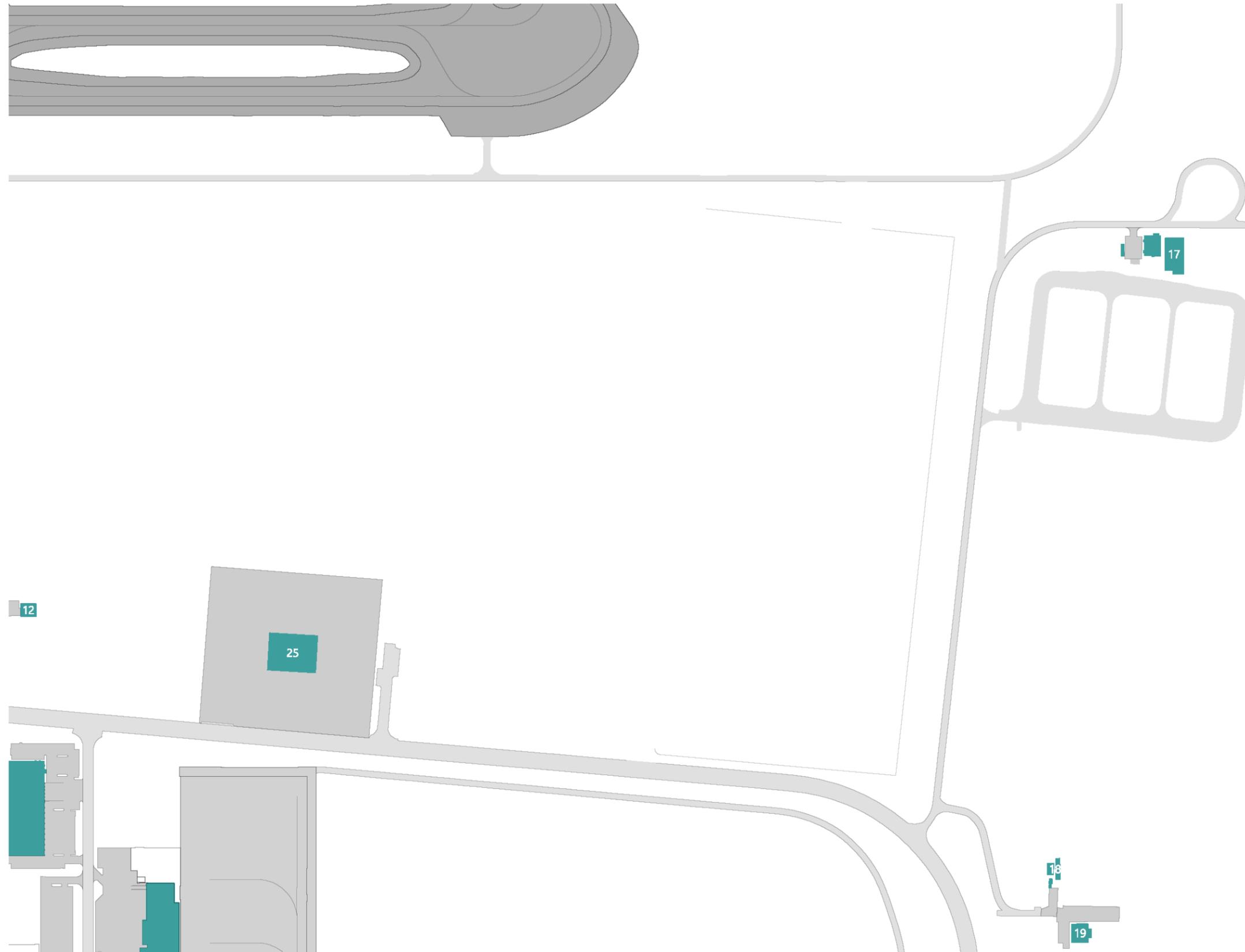
1	Airfield Maintenance	16	Cold Storage #2
2	Sand, Salt, & Urea Building	21	SRE Storage
3	Vehicle Storage East	23	Skywest Hangar
4	Vehicle Maintenance	26	Snow Chemical Storage
5	Maintenance Cold Storage	28	Fire Station 12
6	Menzies Fuel Farm		
7	Airfield Paint Storage		
9	Fuel Island		
10	Delta Air Lines Reservation Center		
11	Delta Air Lines Hangar		
13	North Electrical Vault		
14	Airport Greenhouse		
15	Facility Maintenance #2		



Source: Prepared by RS&H, 2018

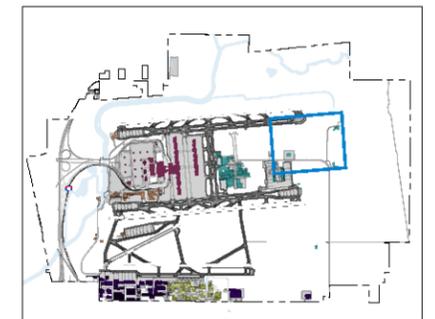
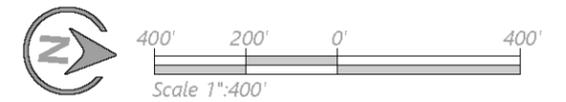
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FIGURE 1-34 ADDITIONAL NORTH SUPPORT BUILDINGS



NORTH SUPPORT BUILDINGS

- 12 Motorola Building
- 17 Glycol EQ Influent Facility
- 18 Firing Range
- 19 Canine Training Facility
- 25 Former ARFF Training/Burn Pit



Source: Prepared by RS&H, 2018

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as it is being used on the aircraft for recycling purposes. Aircraft deicing fluid captured from the drainage system in the deicing pads is then transferred to a deicing fluid reclamation plant and processed back into glycol. The glycol collected in this process is able to be reused and resold, simultaneously conserving airport resources and generating additional airport revenue. Since 2016, SLCIA has processed over 3 million gallons of fluid and recovered more than 100,000 gallons of glycol¹².

1.11.4 Airport Snow and Ice Control Plan

Frequently, SLCIA experiences heavy periods of snow and ice which can impact airport operations. The SLCIA pavement de-icing and snow removal plans allow for safe and efficient removal of snow and ice from pavement surfaces..

1.11.4.1 Snow Removal

The SLCDA removes ice and snow from almost all areas of the airport including runways, taxiways, aprons, cargo areas, roads, and sidewalks that access the terminal area. The Snow Removal Team at SLCIA is composed of two individual groups referred to as “elements”. Each element on the airfield includes the necessary snow removal equipment required to maintain an operational airfield during periods of snow and ice. Each element is under the control of an Airfield Maintenance Supervisor, with the exception of the ramp snow removal element. One runway and taxiway element is referred to as “Snow Command One” and the other element is “Snow Command Two”. Ramp clearing elements are referred to as “Snow Command Ramp”.

TABLE 1-20 SNOW CLEARANCE TIMES

Annual Operations (including cargo)	Clearance Time (Hours)
40,000 or greater	1/2
10,000 to less than 40,000	1
6,000 to less than 10,000	1 1/2
Less than 6,000	2

Source: SLC ACM (FAA approved 2014), Prepared by RS&H, 2018

SLCDA maintains appropriate equipment levels and staffing to comply with the recommended snow clearance times for commercial service airports, described in **TABLE 1-20**. A list of SLCIA Snow Removal Equipment (SRE) is shown in **TABLE 1-21**.

1.11.4.2 Pavement Deicing

When forecasted to experience winter weather conditions, SLCDA will pre-treat the airfield with an EPA and FAA approved solution composed of biodegradable potassium acetate. This deicing solution can be used concurrently with sand and solid runway deicer to improve runway and taxiway conditions.

1.11.5 Aviation Fuel Storage

Aviation fuel storage can be found in two locations on SLCIA, as shown in **FIGURE 1-36**. The first area is in the North Support Area and the second is in the General Aviation Area in the southeast portion of the airport. The UANG also has its own fuel storage area. The UANG uses JP-8 fuel that is delivered by truck. Aircraft are fueled using a hydrant fueling system.

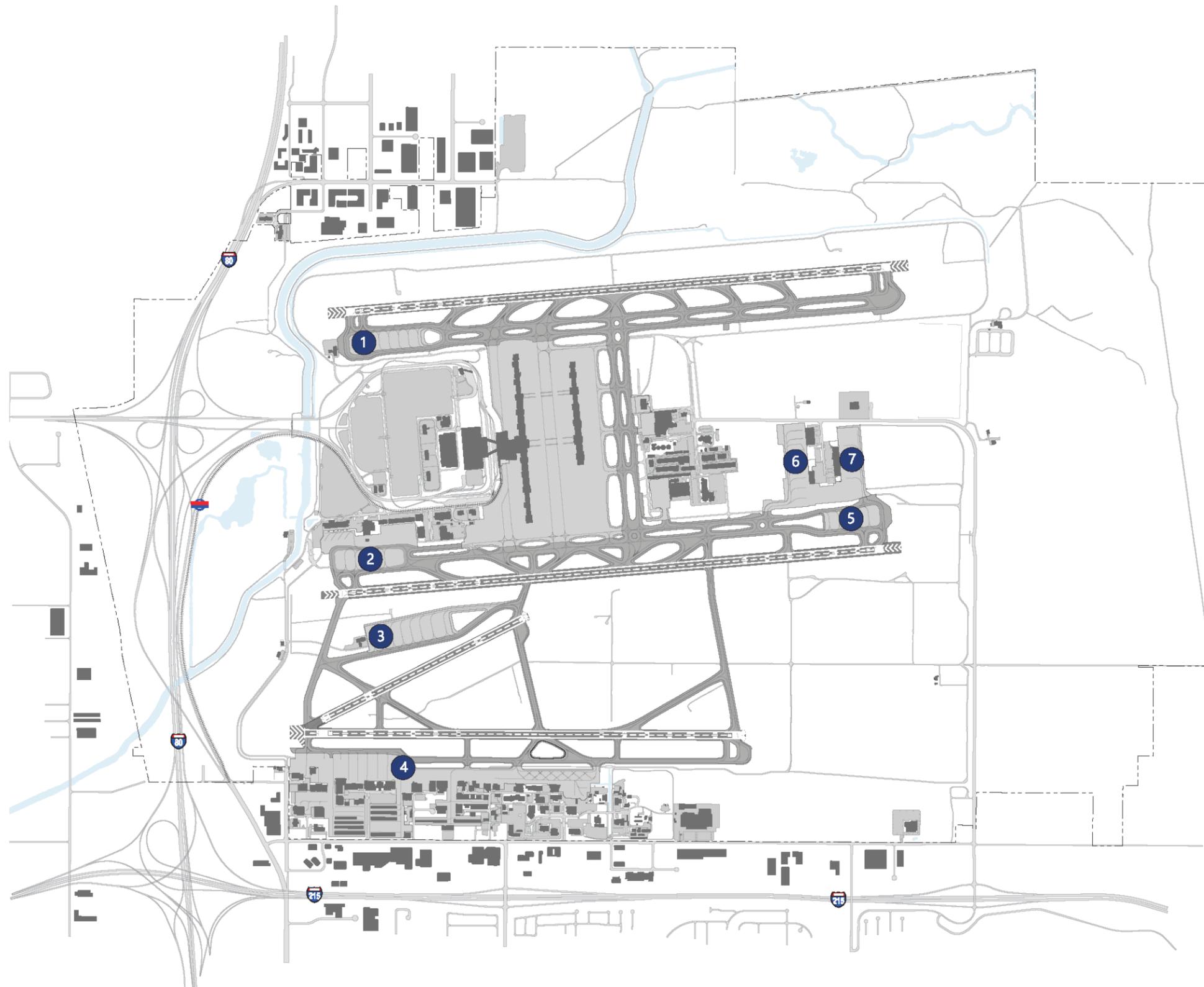
¹² SLCIA, November 17, 2017, <https://slcairport.com/blog/2017/11/airport-works-to-preserve-resources-by-recycling-deicing-fluid>, Retrieved August 28, 2018

TABLE 1-21 SNOW REMOVAL EQUIPMENT

Type	Year	Make	Quantity	Type	Year	Make	Quantity
ATV			2	Sander			23
	2010	Club Car	2		1991	Henderson Chief	1
Deicer Truck			2		1995	Henderson Chief	2
	1984	Mack	1		1997	Henderson Chief	4
	1995	Mack	1		1998	Henderson Chief	2
Dump Truck			27		1999	Warren	1
	1987	Mack	2		2000	Warren	1
	1992	Mack	1		2003	Swenson	2
	1995	Mack	2		2004	Monroe	1
	1998	Mack	1		2006	Swenson	1
	2003	International	2		2009	Swenson	2
	2004	Mack	4		2010	Meyer	1
	2005	Mack	1		2010	Swenson	5
	2006	International	1	Snow Blower			12
	2008	International	2		1994	Schmidt	1
	2009	International	9		1995	Kodiak	3
	2012	International	2		1998	Stewart Stevenson	1
Field Tractor			4		2004	Kodiak	1
	2001	John Deere	2		2008	Oshkosh	1
	2002	John Deere	2		2009	Oshkosh	3
Grader			1		2010	Oshkosh	1
	1995	Dresser	1		2012	Oshkosh	1
Loader			8	Snow Cat			1
	1995	Kawasaki	1		1998	Tucker	1
	1998	Kawasaki	2	Snow Plow			49
	1999	Kawasaki	1		1970	Frink	2
	2003	Kawasaki	2		1970	Meyer	2
	2005	Kawasaki	2		1970	Unknown Make	1
Mower			2		1995	Champion	2
	1999	Kubota	2		1995	Kodiak	1
Plow Blade			2		1995	Root	1
	1997	Wausau	2		1995	Wausau	1
Push Plow			2		1996	Jensen	1
	2006	Volvo	2		1998	Wausau	3
Roadway Plow			3		2000	Western	1
	1996	Wausau	2		2002	Western	1
	1999	Western	1		2003	Henke	2
Runway Broom			20		2004	Wausau	1
	1995	Stewart Stevenson	2		2005	Wausau	2
	1998	Stewart Stevenson	2		2006	Boss	8
	2003	MB	1		2006	Henke	2
	2008	MB	3		2009	Wausau	11
	2009	MB	7		2010	Arctic	2
	2010	MB	5		2010	Boss	1
Runway Friction Tester			2		2010	Wausau	2
	2004	Saab	2		2011	Wausau	2
Runway Plow			7	Utility Truck			1
	1995	Wausau	7		1995	International	1
Runway Sander			2	Wrecker			1
	1998	Mack	2		1992	Mack	1
Runway Truck			7				
	1995	Mack	7				

Source: SLCDA, Prepared by RS&H, 2018

FIGURE 1-35 SLC DEICING LOCATIONS



PRIMARY DEICING LOCATIONS

- Location 1 34L Runway End Deice Facility
- Location 2 34R Runway End Deice Pad
- Location 3 L Taxiway Runway End Deice Facility
- Location 4 K3 Taxiway Deice Location
- Location 5 16L Runway End Deice Pad
- Location 6 North Cargo Ramp Deice Location
- Location 7 North Cargo Ramp Deice Location



Source: SLC 2016-17 Deice Plan; Prepared by RS&H, 2018

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1.11.5.1 North Fuel Storage Area

The North Fuel Storage Area is located between the SkyWest Hangar (NS-23) and airport maintenance buildings along the east side of 3950 W Street. Jet A fuel is stored in six above ground tanks (two 40,000 barrel tanks, two 30,000 barrel tanks, and two 5,000 barrel tanks) with a total capacity of 150,000 barrels (or 6.45 million gallons). This fuel is supplied to the tanks via a dedicated pipeline from the tanks where it is then supplied to the terminal hydrant system. Menzies Aviation provides fuel to the aircraft at the passenger terminal for Delta Air Lines and American Airlines. TAC Air provides fuel to Southwest Airlines from the tanks in this area via truck. In addition to the Jet A fuel tanks, there is one 18,000 gallon tank storing gasoline. The gasoline is supplied by truck. It is offloaded to underground pipes at a location just northwest of the fuel storage tanks where the gasoline is then transferred to the storage tank. **DO WE KNOW HOW MANY DAYS OF SUPPLY THIS IS?**

1.11.5.2 General Aviation Fuel Storage Area

The General Aviation Fuel Storage Area is located between the Atlantic Aviation Hangar (GA-09) and the Harper Construction Hangar (GA-30) along the south side of 470 N Street. Fuel storage for Atlantic Aviation is provided by three 30,000 gallon tanks of Jet A, one 10,000 gallon tank of 100LL, and one 2,000 gallon diesel fuel tank.

For TAC Air, fuel is stored in two 30,000 gallon tanks, two 28,800 gallon tanks, and two 28,200 gallon tanks, resulting in a total Jet A storage capacity of 174,000 gallons. Additional fuel storage is provided by two 16,800 gallon tanks storing 100LL and one 16,800 gallon diesel tank. Four 16,800 gallon fuel tanks are currently not in service. TAC Air provides fuel to Frontier Airlines, FedEx and DHL from the tanks in the general aviation area via fuel trucks.

A summary of the aviation fuel stored on SLCIA can be found in **TABLE 1-22**.

TABLE 1-22 AVIATION FUEL STORAGE

Aviation Fuel Storage	Size (Gallons)	Fuel Type
Airport Group International	6,450,000 g	Jet A
Atlantic Aviation	90,000 g	Jet A
TAC Air	174,000 g	Jet A
TAC Air	33,600 g	100LL AvGas
Atlantic Aviation	10,000 g	100LL AvGas
Fuel Trucks	N/A	Jet A /100LL AvGas

Note: AIG storage data provided in crude oil barrels (bbl) of 150,000 bbl. 43 gallons estimated per barrel.

Source: SLCIA Master Plan, 1998; Atlantic Aviation & TAC Air records, 2018; Prepared by RS&H, 2018

1.11.6 Airport Police and Security Facilities

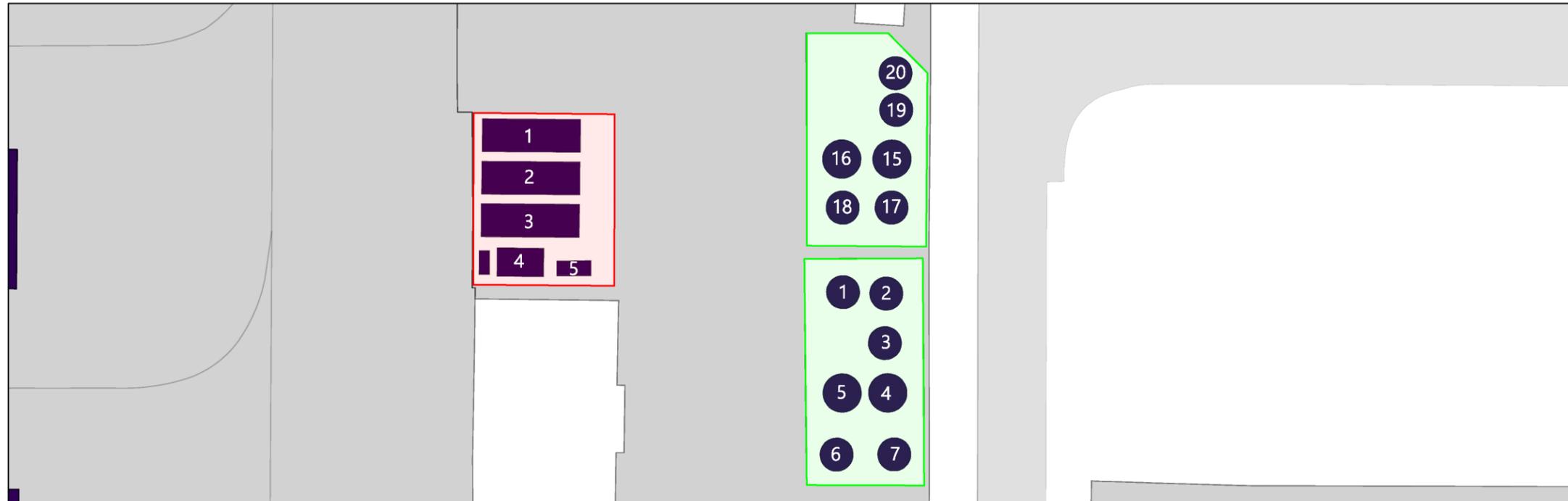
Police protection at SLCIA is provided by the Salt Lake City Police Department, with full police authority granted by the State of Utah. Airport Police have multiple divisions including patrol (and bicycle patrol), detectives, K-9 explosive detection teams, SWAT, Explosive Ordnance Disposal (EOD), and training. Management of the department is performed by the airport police chief, a captain, and two lieutenant officers.

Police operations are conducted out of the Airport Operations Center. A police training facility and police dog training facility are located on the northern portion of SLCIA property in a 4,225 square foot facility. The facility also includes an exterior police dog training course and a firing range.

SLCIA has security facilities typical of large commercial airports. The airfield is secured through a perimeter fence and a hierarchy of controlled access areas requiring specific levels of badging. SLCIA access to secure areas of the airport including the Secure Identification Display Area (SIDA), is vetted through the Airport Security badging program which includes an FBI fingerprinting criminal history background check and a TSA security threat assessment.

FIGURE 1-36 FUEL FARMS

GENERAL AVIATION FUEL FARM

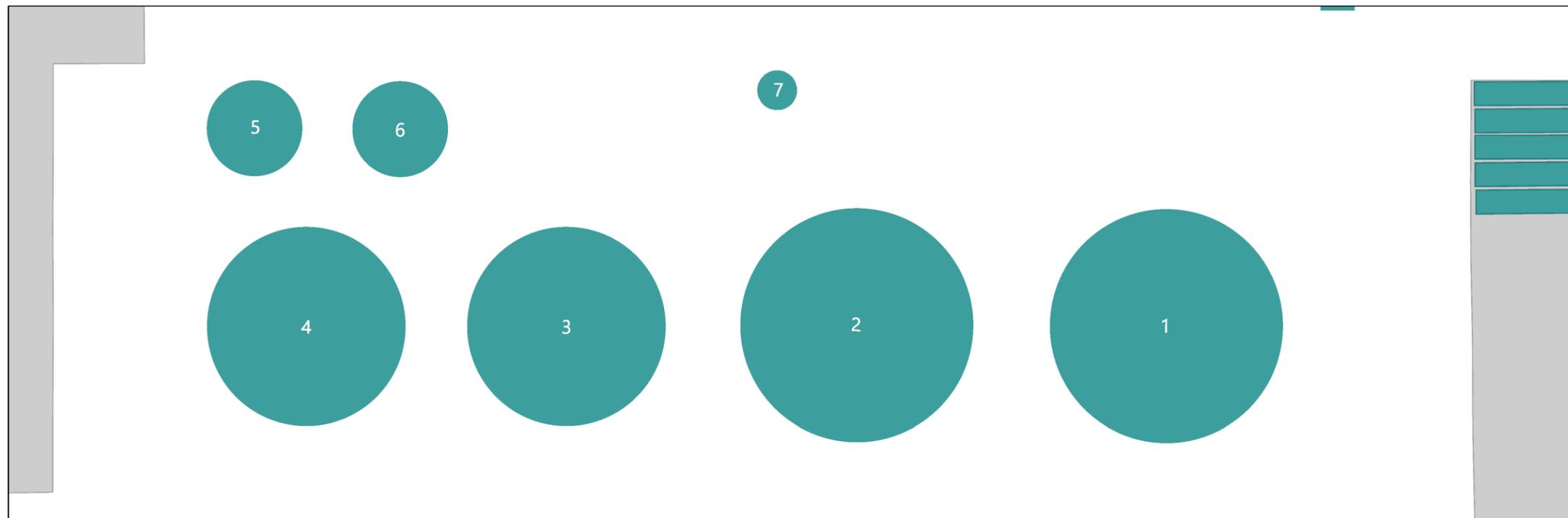


AIRPORT FUEL TANKS

General Aviation Fuel Farm

- | | |
|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| TAC Air | Atlantic Aviation |
| 1 - 16,800 Gallon 100LL | 1 - 30,000 Gallon Jet A |
| 2 - 16,800 Gallon 100LL | 2 - 30,000 Gallon Jet A |
| 3 - 16,800 Gallon Diesel | 3 - 30,000 Gallon Jet A |
| 4 - 28,800 Gallon Jet A | 4 - 10,000 Gallon 100LL |
| 5 - 28,800 Gallon Jet A | 5 - 2,000 Gallon Diesel |
| 6 - 30,000 Gallon Jet A | |
| 7 - 30,000 Gallon Jet A | |
| 15 - 28,200 Gallon Jet A | |
| 16 - 28,200 Gallon Jet A | |
| 17 - 16,800 Gallon
(Not in Service) | |
| 18 - 16,800 Gallon
(Not in Service) | |
| 19 - 16,800 Gallon
(Not in Service) | |
| 20 - 16,800 Gallon
(Not in Service) | |

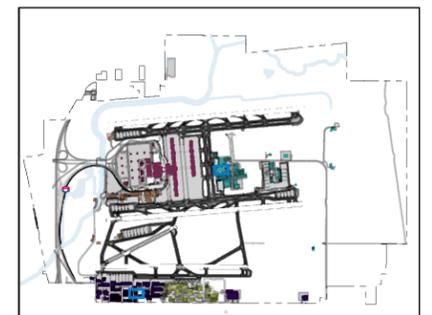
NORTH SUPPORT FUEL FARM



North Support Fuel Farm

Aircraft Service International Group

- 1 - 40,000 Barrel Jet A
- 2 - 40,000 Barrel Jet A
- 3 - 30,000 Barrel Jet A
- 4 - 30,000 Barrel Jet A
- 5 - 5,000 Barrel Jet A
- 6 - 5,000 Barrel Jet A
- 7 - 18,000 Gallon Gasoline



Source: Prepared by RS&H, 2018

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1.12 UTILITIES

Utilities provide an essential service that tenants, passengers and users need in order to operate on a day-to-day basis. Utilities can enhance user experience at a facility, for example, through offering complimentary WiFi connectivity via a fiber network connection or supplying water to an aircraft wash rack. SLCIA serves its tenants and users by providing a multitude of utilities at various locations on the airport. Available utilities include electrical power, stormwater and sanitary sewer, water, natural gas, communication, and glycol and fuel lines. The following sections describe each of the utilities found at SLCIA along with a brief description of the provider, location of trunk lines, and details about the utility.

1.12.1 Electrical Power Lines

The primary source of electrical power at SLCIA is Rocky Mountain Power. Several trunk lines feed power to the airport. About one and a half miles north of the Runway 16L approach end are overhead electrical power lines. These power lines generally run in an east-west direction on the northwest side of SLCIA. These electrical lines supply power to a large portion of the airfield systems and feed electrical energy into an underground duct bank system that enters the airfield at the middle portion of Runway 16L-34R.

On the east side of SLCIA the primary electrical trunk line is located along the right-of-way for 2200 W. This trunk line is buried underground and supplies power to support facilities in the east portion of the airfield.

FIGURE 1-37 shows the electrical utility lines found at SLCIA.

1.12.2 Water, Sewer, and Stormwater Lines

SLCIA has several storm drain lines of various sizes which all feed into detention basins. The existing storm water system has the ability to retain all stormwater on site as necessary, but can also release water into the Surplus Canal and city stormwater drainage system, also known as the "City Drain", as required. Both the Surplus Canal and stormwater drainage system are owned and operated by Salt Lake County. All stormwater that is discharged into the county's infrastructure is done so mechanically through lift stations¹³. SLCIA has one outfall¹⁴ that discharges to the city's stormwater system and four outfalls that discharge into the Surplus Canal. A majority of the storm drain pipes are reinforced with concrete or with high-density polyethylene (HDPE) and polyvinyl chloride (PVC) materials.

The southeast side of SLCIA has 18-inch and 24-inch sanitary sewer lines that flow into a lift station. This lift station is owned and operated by the Salt Lake City Department of Public Utilities (SLCDPU). On the north side of SLCIA, a 12-inch sanitary sewer line runs along the west side of the air cargo apron, towards 2100 N. These lines feed two additional lift stations located just south of the terminal parking garage and the west end of the terminal building. The majority of the sewer pipe is made of PVC material, with some reinforced concrete, vitrified clay, cast iron, ductile iron, asbestos cement, and HDPE pipe.

The water demand at SLCIA is supplied by SLCDPU and used for culinary/drinking water, fire suppression

¹³ Wastewater lift stations are facilities designed to move wastewater from lower to higher elevation through pipes. – Collection Systems Technology Fact Sheet Sewers, Lift Station https://www3.epa.gov/npdes/pubs/sewers-lift_station.pdf

¹⁴ A point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer system discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United States – EPA https://www3.epa.gov/region10/pdf/npdes/stormwater/msgp_faq_aug2015.pdf

sprinklers, and fire hydrants. Two main trunk lines supply SLCIA with water. Two 12-inch water lines enter the airport from the southeast and supply the terminal and surrounding facilities through a loop system. One 12-inch line supplies water to the northern portion of SLCIA which terminates in a loop system as well. Most of the water lines are PVC, but there are also some segments made of steel, cast iron, ductile iron, and asbestos cement.

FIGURE 1-38 shows the stormwater, sewer, and water lines found at SLCIA.

1.12.3 Other Airport Utilities

Dominion Energy supplies SLCIA with natural gas through a 6-inch high pressure line on the south end of the airport and a 6-inch intermediate high pressure line on the north end. Two intermediate high pressure gas loops are installed around the terminal building. In addition to the major supply lines, there are also gas lines that supply each of the buildings at SLCIA.

Century Link and MCI/Verizon own various communications lines that serve all major facilities at SLCIA. A major communications trunk line is located on the north side of Interstate 80. This line supplies communication service to the terminal building and surrounding facilities. In addition, the FAA owns and operates several fiber-optic communication lines buried underneath the airfield. The FAA-owned lines support various navigational aids maintained by the FAA.

On the north side of SLCIA there are two 16-inch glycol lines that direct glycol contaminated stormwater to glycol retention ponds where it is held until being treated/recycled at the treatment plant. There are several glycol pump stations strategically located around SLCIA. These lines are either gravity-feed or supplemented with a pump to aid the flow of glycol. The main glycol lines are made of an HDPE material and reinforced concrete, while the channel drain pipes are made of concrete. The glycol pipelines were installed **YEARS XXXX and are in good condition.**

Approximately four miles northeast of SLCIA is the Big West Oil Refinery. This oil refinery supplies the airport with fuel through two underground pipelines that supply the tanks on the north end of SLCIA. From those storage tanks, fuel is distributed via ground piping to the terminal apron. The pipes are made of steel and coated with a caprolactam (CPL) material. Transfer of fuel through the buried lines is aided by two pump stations. The first pump station is located west of the Air National Guard Base and the second is located further west, near 2200 N.

FIGURE 1-39 shows the natural gas, communication, glycol, and fuel lines at SLCIA.

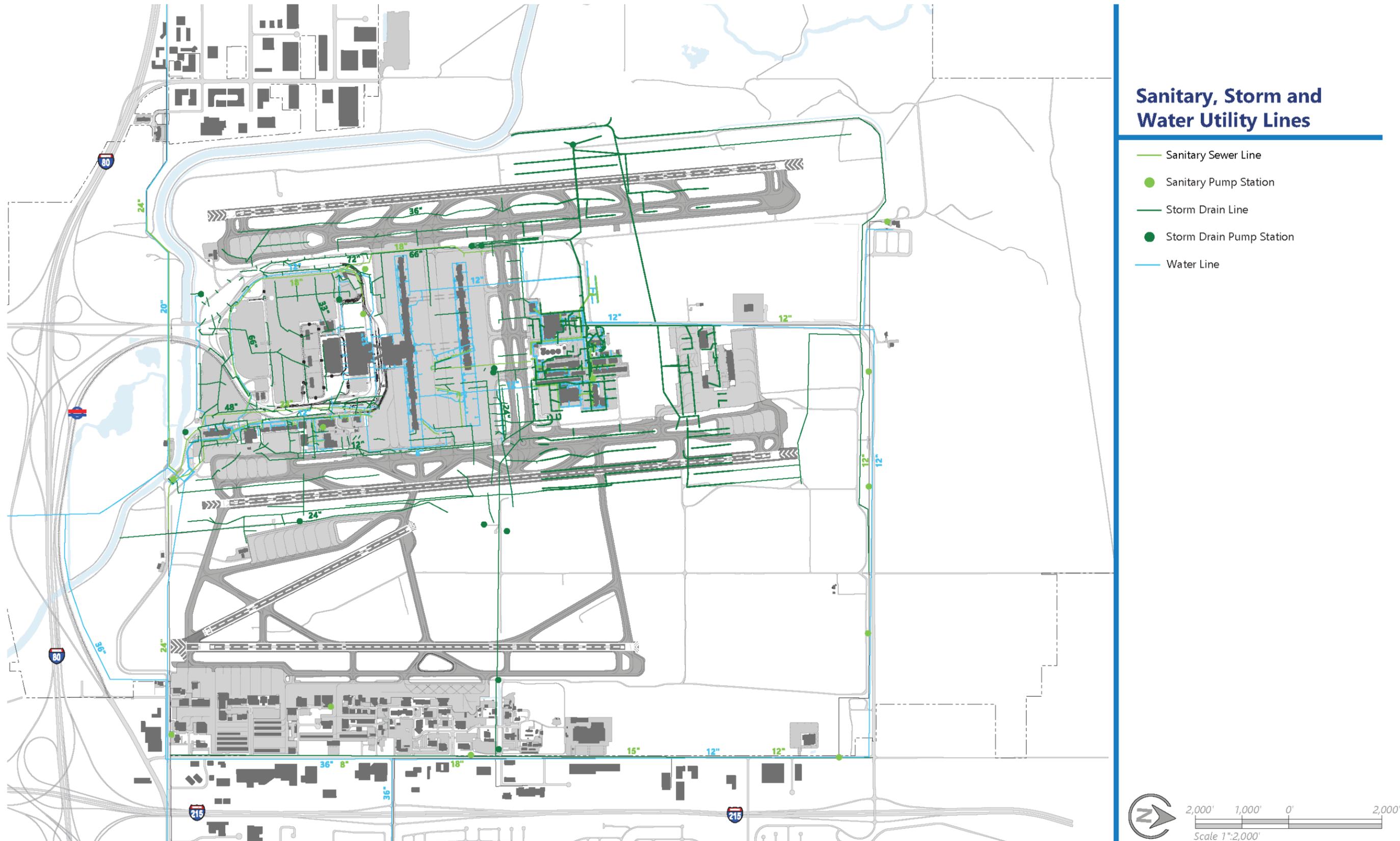
FIGURE 1-37 SLC ELECTRICAL UTILITIES



Source: Prepared by Bowen Collins & Associates and RS&H, 2018

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FIGURE 1-38 SLC WATER AND STORMWATER LINES



Source: Prepared by Bowen Collins & Associates and RS&H, 2018

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1.13 FINANCIAL OVERVIEW

Salt Lake City Department of Airports comprises a single enterprise fund and operates as a self-sustaining department within Salt Lake City Corporation. This means that SLCDCA is not supported by any general tax revenues from Salt Lake City. The other airports within the SLCDCA system, U42 and TVY, are also included in the enterprise fund but constitute only a small amount of the financial total.

This section provides a high-level overview of the SLCDCA revenues, expenses, capital expenditures, and FAA grants received to date at SLCIA. The Financial Feasibility chapter of this Master Plan provides a deeper analysis of the overall financial standing and capacity to undertake future capital projects.

1.13.1 Revenues

TABLE 1-23 shows the revenues generated by SLCDCA from Fiscal Years (FY) 2013 to 2017. Revenues are generated from a variety of sources and are grouped into the following categories: airline aeronautical revenues, non-airline aeronautical revenues, non-aeronautical revenues, and non-operating revenues. Historically, non-aeronautical revenues have been the largest source of revenue, averaging 39.2 percent of total revenue. Non-operating revenues have provided the second largest source of revenue at 35.3 percent of total revenue.

The single largest revenue producing item is the Passenger Facility Charge (PFC). This FAA program allows airports to collect PFC fees of up to \$4.50 for every enplaned passenger at commercial airports. The program caps PFC fees 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. FAA allows airports to use the proceeds from this fee to fund FAA-approved projects that enhance safety, security, or capacity; reduce noise; or increase air carrier competition.

Two other charges are determined by Salt Lake City Ordinance. Customer facility charge (CFC) is a user fee that is imposed on each rental car transaction. CFCs are charged each rental transaction day, up to a maximum of 12 days. As of 2018, SLCDCA charges \$5 per day, however the ordinance allows for a maximum charge of up to \$10 per day. Landing fees are also determined by Salt Lake City Ordinance. SLCDCA charges landing fees for air carriers at a rate of \$2.22 per 1,000 pounds of landing weight for aircraft landing on SLCIA runways.

1.13.2 Expenses

Operating expenses for SLCDCA are shown in **TABLE 1-24**. Expenses have been broken into three categories: salaries and benefits, services and supplies, and depreciation of assets. Depreciation has historically been the largest operating expense for SLCDCA.

TABLE 1-23 SLC OPERATING REVENUES

Revenue Source	Fiscal Year				
	2013	2014	2015	2016	2017
Airline Aeronautical Revenues	\$41,453,348	\$41,611,480	\$42,432,331	\$45,486,027	\$48,975,280
Landing Fees	21,678,296	23,134,600	21,249,240	24,937,798	27,918,254
Terminal Fees	19,775,052	18,476,880	18,297,944	17,237,510	17,025,166
Other	0	0	2,885,147	3,310,719	4,031,860
% of Total Revenues	21.08%	20.64%	20.65%	21.06%	21.41%
Non-Airline Aeronautical Revenues	\$9,033,742	\$9,273,277	\$9,469,644	\$9,387,469	\$9,966,291
Landing Fees	1,772,877	1,865,607	1,949,362	2,085,132	2,102,056
Cargo and Hangar Rental	3,477,585	3,676,266	3,557,959	2,947,769	2,762,696
Fuel Sales/Tax	2,577,391	2,590,460	2,820,921	3,238,061	4,149,614
Other	1,205,889	1,140,944	1,141,402	1,116,507	951,925
% of Total Revenues	4.59%	4.60%	4.61%	4.35%	4.36%
Non-Aeronautical Revenues	\$73,368,360	\$76,111,470	\$80,368,137	\$86,159,092	\$95,864,566
Parking	30,772,861	31,135,131	33,132,598	35,770,084	37,173,006
Car rentals	17,481,940	18,063,577	19,340,855	22,142,192	27,186,247
Terminal Fees	14,404,168	15,519,388	16,015,649	16,636,679	18,119,889
Land Leases	7,707,867	8,127,502	8,100,139	7,561,390	7,745,774
Other	3,001,524	3,265,872	3,778,896	4,048,747	5,639,650
% of Total Revenues	37.30%	37.75%	39.11%	39.89%	41.92%
Non-Operating Revenues	\$72,822,299	\$74,607,698	\$73,244,381	\$74,942,710	\$73,894,648
PFC	37,534,715	38,437,248	40,976,537	42,805,519	45,750,397
CFC	14,308,670	14,848,663	15,606,695	15,613,155	16,157,076
Interest	366,516	3,530,345	2,067,467	2,782,668	8,006,030
Grants	22,558,966	17,916,389	15,148,122	14,230,033	17,793,909
Non-Operating Expenses	-1,946,568	-124,947	-554,440	-488,665	-13,812,764
% of Total Revenues	37.03%	37.01%	35.64%	34.70%	32.31%
Total Revenues	\$196,677,749	\$201,603,925	\$205,514,493	\$215,975,298	\$228,700,785

Source: Salt Lake City Comprehensive Annual Financial Reports; Prepared by RS&H, 2018

TABLE 1-24 SLC OPERATING EXPENSES

Source	Fiscal Year				
	2013	2014	2015	2016	2017
Operating Expenses	\$144,598,329	\$146,642,549	\$136,203,788	\$151,721,992	\$163,124,845
Salaries and Benefits	42,347,684	44,916,215	33,880,463	45,096,185	49,350,124
Services and Supplies	45,123,042	42,698,885	42,328,220	44,968,911	50,109,735
Depreciaton	57,127,603	59,027,449	59,995,105	61,656,896	63,664,986

Source: Salt Lake City Comprehensive Annual Financial Reports; Prepared by RS&H, 2018

1.13.3 Capital Investments

As discussed previously, the ARP is the most prominent capital investment project occurring at SLCIA, with costs totalling over \$3 billion. Other capital projects, such as pavement management programs, include capital investment projects that are also underway at SLCIA.

At the time of this writing, to fund ARP construction costs, SLCDA has borrowed \$2 billion through issuance of General Airport Revenue Bonds (GARB). Additional borrowing is expected to as necessary to completely fund the ARP. Bonds were issued on February 23, 2017 through two different series of bonds with interest rates of 5 percent and a final maturity date of July 1, 2047. General obligations for repayment of the GARBs lie entirely with SLCDA and do not extend to Salt Lake City and the taxing power of the City.

The total capital expenditures in progress for SLCDA has grown substantially due to ARP construction. The cost of projects in progress in 2017 was seven times the level it was in 2013 due to the project phase and level of construction activity. A yearly financial breakdown of capital expenditures in progress is included in **TABLE 1-25**

TABLE 1-25 SLC CAPITAL EXPENDITURES

Source	Fiscal Year				
	2013	2014	2015	2016	2017
Capital Expenditures in Progress	\$44,334,139	\$73,841,130	\$126,461,001	\$138,812,583	\$310,347,987

Source: FAA Airport Financial Reporting System; Prepared by RS&H, 2018

1.13.4 Airport Grants

SLCDA receives grant money from the FAA in the form of AIP entitlement funding, which equate to yearly allocated federal funds based on the role of the airport. Additionally, SLCIA can receive AIP discretionary grants, which are special awards for priority projects as determined by FAA processes. **TABLE 1-26** lists the total AIP grant receipts from 2000 to 2017. As shown in the table, some projects are funded in multiple consecutive years, while other projects may require one large investment. Often, the cost of these projects requires discretionary funding from the FAA. In those instances, funding levels are typically reduced the following year so that the FAA can balance funding allocation to all airports in the region. Between 2007 and 2017, SLCIA averaged \$6,117,684 annually in federal AIP funding.

TABLE 1-26 AIP GRANT HISTORY

Year	Grant Sequence	AIP Federal	Entitlement	Discretionary	ARRA	Description
2000	57	\$ 4,435,443	\$ -	\$ -	\$ -	- Extend Runway; Install Fencing
2000	58	\$ 9,000,000	\$ -	\$ -	\$ -	- Construct Apron (Phase II)
2001	59	\$ 7,247,706	\$ -	\$ -	\$ -	- Rehabilitate A Portion of Runway 16L/34R, Portion of Taxiway H and H13; Expand North Cargo Apron (Phase I); Construct Taxiway F4; Install Runway Guard Lighting (Phase II); Improve Deicing Apron Drainage
2001	60	\$ 2,000,000	\$ -	\$ -	\$ -	- Acquire Security Equipment
2001	61	\$ 4,989,700	\$ -	\$ -	\$ -	- Expand North Cargo Apron (Phase II)
2001	62	\$ 9,000,000	\$ -	\$ -	\$ -	- Pursuant to Letter of Intent ANM-98-01: Construct a Portion of Terminal Apron
2001	63	\$ 1,268,820	\$ -	\$ -	\$ -	- Acquire Security Equipment
2002	64	\$ 919,810	\$ -	\$ -	\$ -	- Rehabilitate Taxiway
2002	65	\$ 1,688,543	\$ -	\$ -	\$ -	- Expand Apron
2002	66	\$ 2,270,720	\$ -	\$ -	\$ -	- Improve Runway Safety Area
2002	67	\$ 1,706,063	\$ -	\$ -	\$ -	- Security Enhancements
2002	68	\$ 7,000,000	\$ -	\$ -	\$ -	- Construct Apron
2002	69	\$ 900,000	\$ -	\$ -	\$ -	- Rehabilitate Apron
2002	69	\$ 901,632	\$ -	\$ -	\$ -	- Security Enhancements
2002	70	\$ 2,200,000	\$ -	\$ -	\$ -	- Extend Taxiway
2002	70	\$ 2,000,000	\$ -	\$ -	\$ -	- Rehabilitate Apron
2003	71	\$ -	3,977,366	\$ -	\$ -	- Rehabilitate Taxiway; Construct Service Road
2003	72	\$ -	\$ -	10,875,000	\$ -	- Security Enhancements
2003	73	\$ -	\$ -	7,000,000	\$ -	- Construct Apron
2003	74	\$ -	\$ -	2,720,000	\$ -	- Rehabilitate Apron
2003	75	\$ -	\$ -	1,075,000	\$ -	- Rehabilitate Apron
2003	U42-010	\$ 950,000	\$ -	\$ -	\$ -	- Rehabilitate Runway 16-34
2004	76	\$ 5,680,024	\$ -	\$ -	\$ -	- Rehabilitate Taxiway
2004	77	\$ 4,587,360	\$ -	\$ -	\$ -	- Construct Apron
2004	78	\$ 3,945,443	\$ -	\$ -	\$ -	- Rehabilitate Runway 16-34
2005	79	\$ 3,710,427	\$ -	\$ -	\$ -	- Rehabilitate Taxiway (Taxiway M)
2005	80	\$ 8,000,000	\$ -	\$ -	\$ -	- Rehabilitate Taxiway (Taxiway H H2-H4)
2005	81	\$ 939,752	\$ -	\$ -	\$ -	- Acquire Land for Noise Compatibility within 65 - 69 DNL
2006	82	\$ 3,193,192	\$ -	\$ -	\$ -	- Rehabilitate Taxiway
2006	83	\$ 787,097	\$ -	\$ -	\$ -	- Rehabilitate Taxiway
2007	84	\$ 2,200,000	\$ -	\$ -	\$ -	- Improve Airport Drainage
2007	85	\$ 6,800,000	\$ -	\$ -	\$ -	- Rehabilitate Runway - 17/35, Rehabilitate Taxiway
2007	86	\$ 2,530,287	\$ -	\$ -	\$ -	- Rehabilitate Apron
2008	87	\$ 3,132,868	\$ -	\$ -	\$ -	- Rehabilitate Taxiway
2008	88	\$ 5,900,000	\$ -	\$ -	\$ -	- Rehabilitate Apron
2008	89	\$ 399,650	\$ -	\$ -	\$ -	- Conduct Environmental Study
2008	90	\$ 1,051,186	\$ -	\$ -	\$ -	- Rehabilitate Taxiway
2009	91	\$ 1,403,851	\$ -	\$ -	\$ -	- Rehabilitate Taxiway
2009	92	\$ 8,930,651	\$ -	\$ -	\$ -	- Construct Taxiway
2009	93	\$ 1,914,296	\$ -	\$ -	\$ -	- Rehabilitate Taxiway
2009	94	\$ 7,809,035	\$ -	\$ -	\$ -	- Construct Taxiway
2010	95	\$ 11,066,676	\$ 3,566,676	\$ 7,500,000	\$ -	- Construct Apron
2011	96	\$ 8,697,207	\$ 3,378,889	\$ 5,318,318	\$ -	- Construct Apron
2011	97	\$ 6,161,619	\$ 661,619	\$ 5,500,000	\$ -	- Construct Apron
2011	98	\$ 9,005,892	\$ 33,549	\$ 8,972,343	\$ -	- Construct Apron
2012	99	\$ 9,938,163	\$ 3,938,163	\$ 6,000,000	\$ -	- Construct Apron
2012	100	\$ 9,000,000	\$ -	\$ 9,000,000	\$ -	- Construct Apron
2012	101	\$ 10,000,000	\$ -	\$ 10,000,000	\$ -	- Rehabilitate Runway - 16L/34R
2012	102	\$ 500,000	\$ -	\$ 500,000	\$ -	- Sustainable Management Plan
2013	103	\$ 11,894,887	\$ 3,894,887	\$ 8,000,000	\$ -	- Construct Apron
2014	104	\$ 2,175,000	\$ -	\$ 2,175,000	\$ -	- Rehabilitate Apron
2014	105	\$ 12,290,476	\$ 3,890,476	\$ 8,400,000	\$ -	- Construct Apron
2015	106	\$ 13,938,351	\$ 3,938,351	\$ 10,000,000	\$ -	- Construct Apron
2015	107	\$ 1,000,000	\$ -	\$ 1,000,000	\$ -	- Conduct Airport Master Plan Study
2015	108	\$ 3,100,000	\$ -	\$ 3,100,000	\$ -	- Rehabilitate Taxiway
2016	109	\$ 6,910,000	\$ 2,982,308	\$ 3,927,692	\$ -	- Rehabilitate Runway - 17/35, Rehabilitate Runway Lighting - 17/35
2016	110	\$ 10,000,000	\$ 1,073,976	\$ 8,926,024	\$ -	- Rehabilitate Apron
2017	111	\$ 2,900,000	\$ 1,305,110	\$ 1,594,890	\$ -	- Rehabilitate Runway - 14/32, Rehabilitate Runway Lighting - 14/32
2017	112	\$ 2,880,428	\$ 2,880,428	\$ -	\$ -	- Conduct Airport Master Plan Study
2017	113	\$ 10,000,000	\$ -	\$ 10,000,000	\$ -	- Rehabilitate Apron

Source: Federal Aviation Administration, 2018

1.14 AIRPORT ENVIRONS

The following section discusses existing land use and zoning policies for Salt Lake City International Airport and the surrounding region. The specific sections include a discussion of area land uses surrounding the Airport as well as an inventory of land use controls and future land use actions in the vicinity of SLCIA. Additionally, to ensure SLCIA Master Plan alignment with regional planning efforts, a review of local and regional vision plans, land use plans, and transportation plans has been performed.

1.14.1 Land Use and Zoning

Airport land development policies can influence the characteristics of the Salt Lake Valley region. That is why it's important to ensure development land surrounding SLCIA, especially that underlying primary navigational corridors, is compatible with existing and future airport development plans. Effective December 2000, Utah has established a set of standards for compatible land use development at the State's 54 airports enrolled in the Statewide Airport System. These standards provide methods and tools for airport administrators and local planning and zoning officials to ensure safe and efficient access to the state, region, and national air transportation systems.

The responsible development of land and the preservation of open space are very important to the people of Utah and Salt Lake City. As such, Chapter 21A of the Salt Lake City Code (SLC Code) describes land use policies with the purpose of promoting the "health, safety, morals, convenience, order, prosperity and welfare of the present and future inhabitants of Salt Lake City." In order to guide development in a way which promotes these goals, Salt Lake City has established a series of zoning districts as follows: Residential, Commercial, Form Based, Manufacturing, Downtown, Gateway, Special Purpose, and Overlay.

Salt Lake City International Airport land use regulations are also governed under SLC Code Title 21A – Zoning. SLCIA land is categorized under Special Purpose District rules, and specifically sub-categorized as an "Airport District". SLC Code 21A.32.060 defines the purpose of the Airport District code as to "provide a suitable environment for the Salt Lake City International Airport and private uses that function in support of the airport facility. This district is appropriate in areas of the city where the applicable master plans support this type of land use." Permitted and conditional uses within the Airport District area is defined under SLC Code 21A.33.070. Airport District zoning ultimately preserves the land for airport uses and provides a buffer to minimize conflicts with surrounding uses.

City codes also delineate an Airport Flight Path Protection (AFPP) Overlay District under SLC Code 21A.34.040 to protect land uses below aircraft navigation routes and the airborne aircraft flying them. The AFPP Airport Flight Path Protection Overlay District provides "supplemental regulations or standards pertaining to specific geographic features or land uses, wherever these are located, in addition to 'base' or underlying zoning district regulations applicable within a designated area." SLC Code recognizes that "hazard[s] to the operation of the airport endangers the lives and property of users of the Salt Lake City International Airport, and the health, safety and welfare of property or occupants of land in its vicinity. If the hazard is an obstruction or incompatible use, such hazard effectively reduces the size of the area available for landing, takeoff and maneuvering of aircraft, thus tending to destroy or impair the utility of the Salt Lake City International Airport and the public investment. Accordingly, it is declared:

- » That the creation or establishment of an airport hazard is a public nuisance and an injury to the region served by the Salt Lake City International Airport;
- » That it is necessary in the interest of the public health, public safety, and general welfare that the

creation or establishment of airport hazards be prevented; and

- » That the prevention of these hazards should be accomplished, to the extent legally possible, by the exercise of the police power without compensation.

This Overlay District serves to protect development occurring under regular navigation routes to and from SLCIA from “impacts [that] may interfere with the use and enjoyment of adjacent property and use” by “minimiz[ing] them where possible.” This distinction establishes four “Airport Influence Zones” that restrict or establish requirements on the type of development in each area. These influence zones include:

- » Airport Influence Zone A: Area is exposed to very high levels of aircraft noise and has specific height restrictions. The following uses are incompatible in this zone and are prohibited
 - Residential uses;
 - Commercial uses, except those constructed with air circulation systems and at least twenty five (25) dBs of sound attenuation;
 - Institutional uses such as schools, hospitals, churches and rest homes;
 - Hotels and motels, except those constructed with air circulation systems and at least thirty (30) dBs of sound attenuation in sleeping areas and at least twenty five (25) dBs of sound attenuation elsewhere.
- » Airport Influence Zone B: Area is exposed to high levels of aircraft noises and has specific height restrictions. The following uses are incompatible in this zone and are prohibited:
 - Residential uses, except residences in agricultural zones with air circulation systems and at least twenty five (25) dBs of sound attenuation;
 - Institutional uses such as schools, hospitals, churches and rest homes, except those constructed with air circulation systems and at least twenty five (25) dBs of sound attenuation;
 - Hotels and motels except those constructed with air circulation systems, and at least twenty five (25) dBs of sound attenuation, in sleeping areas.
- » Airport Influence Zone C: Area is exposed to moderate levels of aircraft noises and has specific height restrictions. The following uses are incompatible uses in this zone and are prohibited:
 - Residential uses, except those constructed with air circulation systems;
 - Mobile homes, except those constructed with air circulation systems and at least twenty (20) dBs of sound attenuation;
 - Institutional uses such as schools, hospitals, churches and rest homes, except those constructed with air circulation systems.
- » Airport Influence Zone H: Uses shall be the same as the underlying city zone.

FIGURE 1-40 shows the Salt Lake City zoning districts. Further applications of the SLC Code related to the Airport Flight Path Protection (AFPP) Overlay District, such as aviation easement requirements and use restrictions, can be found in SLC Code 21A.34.040. A table of land uses falling within the Airport Influence Zone are shown in **TABLE 1-27**. Detailed and updated information specific to individual parcels is made available through the Salt Lake City Planning Department website.

Title 16 of the SLC Code governs airport operations and restrictions. This section contains operational requirements for aircraft, ground transportation, tenants, and all supporting activities. Airport property leasing requirements are also codified within SLC Code 16.56. Airport use restrictions limit landing and taking off aircraft to Stage 2 or 3 to control noise disturbances, according to the federal requirements

TABLE 1-27 ZONED LAND USES WITHIN SLC AIRPORT INFLUENCE AREA

Zoning District	Description
AG	Agricultural
AG-2	Agricultural 2 Acre Minimum
BP	Business Park
CB	Community Business
CC	Commercial Corridor
CN	Neighborhood Commercial
CS	Community Shopping
M-1	Light Manufacturing
M-2	Heavy Manufacturing
OS	Open Space
PL	Public Lands
R1	Single Family Residential
RMF-30	Low Density Multifamily Residential
RMF-45	Moderate/High Density Multifamily Residential
TSA-MUEC	Mixed Use Employment Center Transit Station

Source: Salt Lake City Zoning Ordinance, 2018

found within the Airport Noise and Capacity Act of 1990 (ANCA). More information regarding aircraft noise can be found in **SECTION 1.15, Environmental Conditions**.

1.14.2 Coordination with Existing Local and Regional Plans

Salt Lake City and the surrounding metropolitan area have many land use and transportation plans in place to guide community development and the regional transportation system. Utah State Code Title 10, Chapter 9a – Municipal Land Use, Development, and Management Act, outlines regulations granting local entities authority to “enact all ordinances, resolutions, and rules... appropriate for the use and development of land within the municipality.” In order to ensure coordinated development in the region, a review of existing plans has been performed. The following list outlines important local and regional plans along with an analysis of how they relate to the Salt Lake City Master Plan.

1.14.2.1 Salt Lake City Comprehensive Plan – Plan Salt Lake (Adopted 2015)

Plan Salt Lake, the comprehensive plan for the Salt Lake City metropolitan area, was created to establish “a shared Vision for the future of Salt Lake City for the next 25 years.” “The Plan outlines the overarching ‘umbrella’ policies related to managing growth and change that are best identified on a citywide level.” This plan provides direction to policy makers by identifying commonly held community values, establishing a framework for future community plans, and setting targets and metrics to measure success over time. Planning efforts included the coordination of dozens of community organizations.

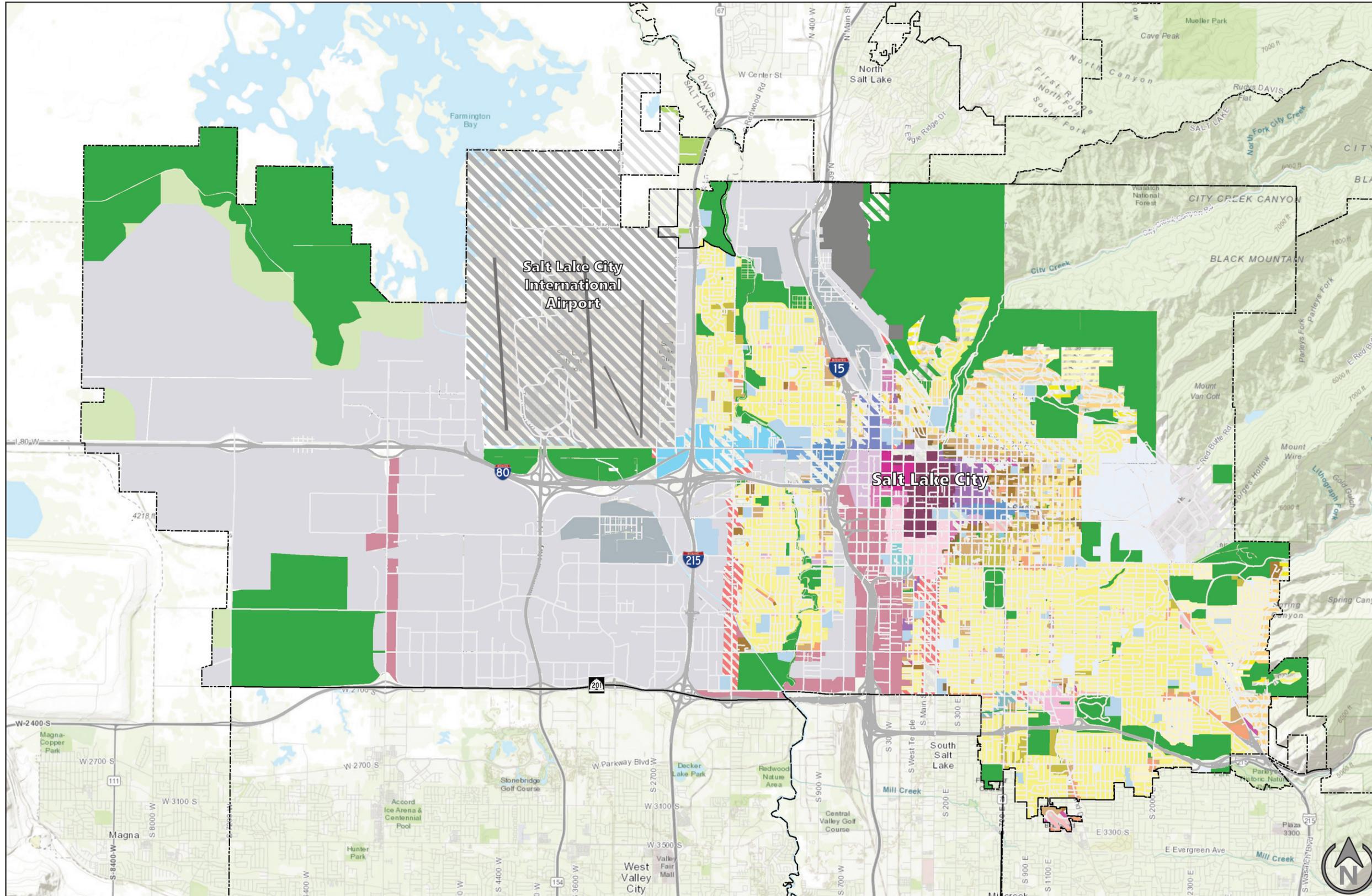
Promoting the goals of efficient and sustainable land use across the rural and urban spectrum, the SLCIA Master Plan works in harmony with Plan Salt Lake. The planning goals promoted within Plan Salt Lake serve to emphasize zoning policies which are compatible with SLCIA and protect the surrounding environs from sprawling and incompatible development.

One specific goal of Plan Salt Lake is to provide “a transportation and mobility network that is safe, accessible, reliable, affordable, and sustainable, providing real choices and connecting people with places.” The

Zoning Map Legend

 AG: Agriculture	 NOS: Natural Open Space
 AG-2: Agriculture 2 Acre Minimum	 OS: Open Space
 AG-5: Agriculture 5 Acre Minimum	 PL: Public Lands
 Airport	 PL2: Public Lands Library
 BP: Business Park	 R-1-12000: Single Family Residential
 CB: Community Business	 R-1-5000: Single Family Residential
 CC: Commercial Corridor	 R-1-7000: Single Family Residential
 CG: General Commercial	 R-2: Single and Two Family Residential
 CN: Neighborhood Commercial	 R-MU: Residential Mixed Use
 CS: Community Shopping	 R-MU-35: Residential Mixed Use
 CSHBD1: Sugar House Business District 1	 R-MU-45: Residential Mixed Use
 CSHBD2: Sugar House Business District 2	 RB: Residential Business
 D-1: Central Business District	 RMF-30: Multifamily Residential
 D-2: Downtown Support District	 RMF-35: Multifamily Residential
 D-3: Downtown Warehouse/Residential District	 RMF-45: Multifamily Residential
 D-4: Secondary Central Business District	 RMF-75: Multifamily Residential
 EI: Extractive Industry	 RO: Residential Office
 FB-SC: Form Based Special Purpose Corridor Core	 RP: Research Park
 FB-SE: Form Based Special Purpose Corridor Edge	 SNB: Small Neighborhood Business
 FB-UN1: Form Based Urban Neighborhood 1	 SR-1: Special Development Pattern Residential
 FB-UN2: Form Based Urban Neighborhood 2	 SR-1A: Special Development Pattern Residential
 FP: Foothills Protection	 SR-3 Special Development Pattern Residential
 FR-1: 43560 Foothills Estates Residential	 TSA-MUEC-C: Mixed Use Transit Station
 FR-2: 21780 Foothills Estates Residential	 TSA-MUEC-T: Mixed Use Transit Station
 FR-3: 20000 Foothills Estates Residential	 TSA-SP-C: Special Purpose Transit Station
 GMU: Gateway Mixed Use	 TSA-SP-T: Special Purpose Transit Station
 I: Institutional	 TSA-UC-C: Urban Center Transit Station
 M-1: Light Manufacturing	 TSA-UC-T: Urban Center Transit Station
 M-2: Heavy Manufacturing	 TSA-UN-C: Urban Neighborhood Transit Station
 MH: Mobile Home Park	 TSA-UN-T: Urban Neighborhood Transit Station
 MU: Mixed Use	 UI: Urban Institutional

FIGURE 1-40 SALT LAKE CITY ZONING MAP



Source: <http://gis-slcgov.opendata.arcgis.com/datasets>, Retrieved March 29, 2018; Prepared by RS&H, 2018

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City’s transportation network has become increasingly multi-modal, with SLCIA being the primary regional link to the nation’s air transportation network. Mobility and economic initiatives within the plan “support and enhance the Salt Lake City International Airport as a regional and international amenity” for passenger and freight activity.

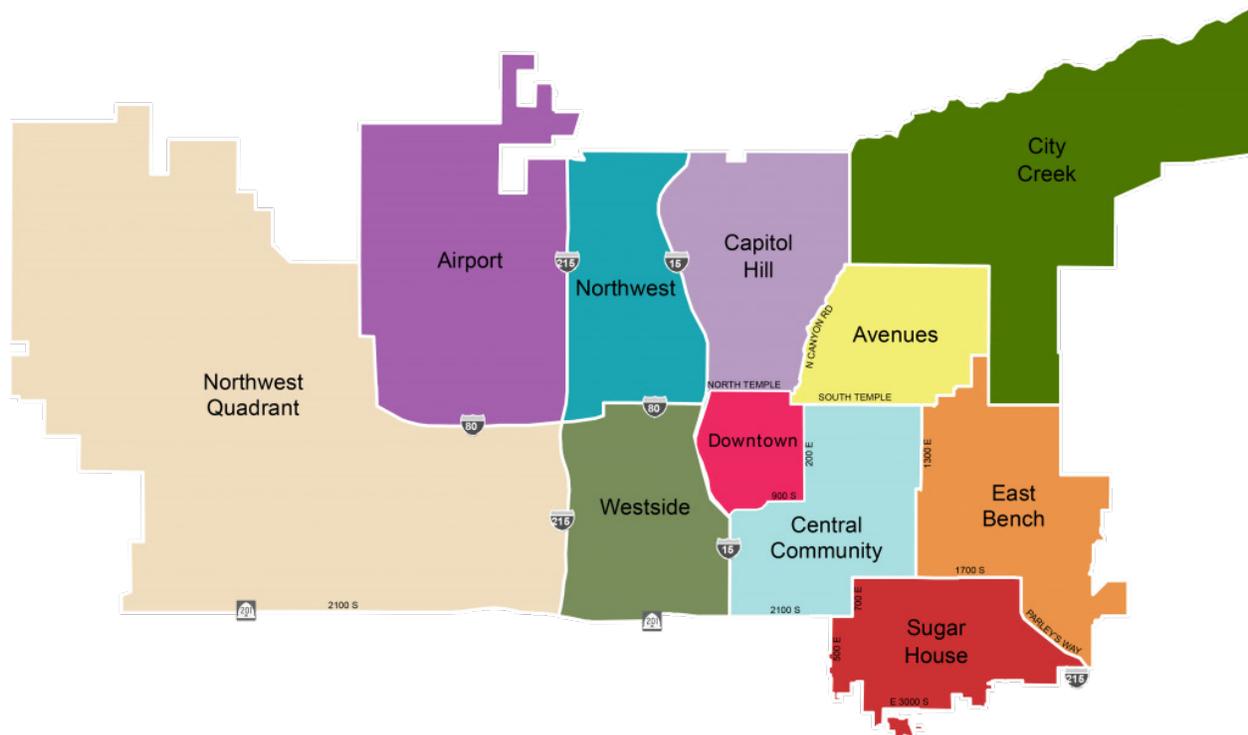
Beyond progressing proper social policies surrounding airport development and its associated impacts, Plan Salt Lake explicitly promotes economic development surrounding airport activities through economic initiatives that “support for the redevelopment of Salt Lake City International Airport.” This may be achieved through the support of the ongoing Airport Redevelopment Program, which is expected to bring additional revenue in for the city.

1.14.2.2 Northwest Community Master Plan (Adopted 1992, amended 2000 and 2004)

The Salt Lake City metropolitan area is divided into distinct community boundaries and the Northwest Community Master Plan includes SLCIA. Adjacent communities include the “Northwest Quadrant”, “West Salt Lake”, and “Capitol Hill”. **FIGURE 1-41** shows SLCIA in relation to the Northwest Quadrant and other surrounding communities.

he Northwest Community Master Plan guides land use planning to meet future growth needs within the community boundary. The policy direction in the plan is based on the community’s vision coupled with the City’s land use code, and is intended to address the needs and desires of the Northwest Community residents. The plan integrates with SLCIA by creating a study area called the “Jordan River/Airport Area” that encompasses the east side of the airport and the associated residential areas. This plan examines

FIGURE 1-41 COMMUNITY MASTER PLAN AREAS



Source: www.sl.gov/planning/master-plans, Retrieved August 18, 2018

the existing mix of land uses surrounding SLCIA and concludes a future development strategy that would benefit the community while preserving the aeronautical necessity of SLCIA.

The Northwest Community Master Plan specifically recognizes the economic and transportation benefits that SLCIA provides to its community. The airport is identified as an economic asset and the plan encourages development that supports airport expansion while keeping in mind the surrounding community desires. To that effect, the plan suggests changes in zoning policies for Airport Influence Zone B (see **Section 1.14.1, Land Use and Zoning**) to allow for the expansion of residential uses in the area. Residential uses are allowed within Airport Influence Zone B only if they have air circulation systems and a specified degree of soundproofing.

1.14.2.3 Northwest Quadrant Master Plan (Adopted 2016)

Additionally, the Northwest Quadrant is another Salt Lake City community master plan identified in the County's Master Plan Boundaries (see **FIGURE 1-41**). Although this community does not encompass SLCIA directly, the community is affected by long-term aviation development at the airport. Representing a large portion of the County's undeveloped land, the goal of the Northwest Quadrant Master Plan is to support sustainable growth experienced in the region by providing a long-term community approach. The plan is coordinated at a community level in order to preserve the needs and desires of the community.

The Northwest Quadrant Master Plan also acknowledges the impacts airport development has upon surrounding land uses and the regional transportation network. Specifically, the plan suggests new, practical ways to connect the relatively undeveloped land encompassed by the community boundaries to the future development at SLCIA by tapping in to the existing light rail lines and bus routes.

The plan addresses the 2006 Airport Layout Plan Update that identified the future need for an additional runway that would enter the Northwest Quadrant Boundary. The plan takes into consideration that SLCIA development may expand into this territory and establishes a goal of preservation of existing Northwest Quadrant lands for future airport business and accommodation of that expansion.

The Northwest Quadrant Master Plan encourages the vision articulated by Plan Salt Lake in its support and enhancement of SLCIA's future development as regional and international amenity. This Master Plan presents various policies to achieve that goal that include:

- » Policy DA-2.1: Coordinate with SLCIA on future expansion plans.
- » Policy DA-2.2: Continue to support land uses that benefit from being adjacent to SLCIA.
- » Policy DA-2.3: Encourage the continuation of the Salt Lake City International Airport and airport related industry by maintaining the high level of compatible land uses that exist around the airport today.
- » Policy T-1.4: Connect the Northwest Quadrant with a public transit network to provide transportation choices. Preserve a corridor for future transit to connect to the airport TRAX line. Extend airport light rail incrementally west as a critical mass of jobs are located along I-80.
- » Policy T-4.1: Support the expansion of the short line railroad west of the International Center to boost the economic advantage of that area.

Recent changes to land use within the Northwest Quadrant include the development of an inland port on approximately 20,000 acres west and southwest of SLCIA. Under 2018 Utah Senate Bill 234, the Utah

Inland Port Authority was established with responsibility for governing development of the land as a logistics hub. The location leverages proximity to highways, railroad, and SLCIA for development of facilities supporting freight handling logistics.

1.14.2.4 Regional Transportation Plan

The Regional Transportation Plan (RTP) is a plan created in partnership with UDOT, UTA, and the local communities to address long-term transportation needs in the region. According to the Wasatch Front Regional Council, which is the local Metropolitan Planning Organization (MPO) accountable for programming federal transportation funding dollars in the region, the RTP is “a fiscally constrained plan for roadway, transit, and other transportation facility improvements over the next 20-30 years.” Designed with the intent of meeting the travel demands of a growing population, the RTP meets federal guidelines. This “includes roadway, transit, and active transportation facilities paired with the appropriate land use that is identified, modeled, selected, and phased, with the help of region-wide transportation partners; local communities including planners, engineers, and elected officials; stakeholders; and the general public through an extensive planning process.” This process helps determine the best transportation investments under funding constraints. The RTP incorporates high degrees of consideration to SLCIA air transportation including coordination of freight networks, roadway networks, and transit services.

1.14.2.5 UDOT Long Range Transportation Plan

The 2015-2040 Long Range Transportation Plan is developed by UDOT and updated every four years to identify anticipated transportation system needs for the next 25 to 30 years in Utah’s rural areas. This plan recognizes the importance of providing safe mobility connections to regional airports through proactive preservation of transportation infrastructure. The plan is a collaborative planning effort between Salt Lake City staff, residents, and a technical committee comprised of members of Utah transit authorities. Projects within this plan improve access to SLCIA at a regional level and have minimal or no direct impact on facilities within the SLCIA boundary. UDOT maintained roadways do connect to roadways on SLCIA property and any future airport expansion decisions impacting roads beyond the airport boundary need to be coordinated with UDOT.

1.14.2.6 Utah's Unified Transportation Plan

Utah’s Unified Transportation Plan is unique in that it is a “collaborative effort between transportation agencies across the state of Utah including UDOT, Wasatch Front Regional Council, Mountainland Association of Governments, Dixie Metropolitan Planning Organization, Cache Metropolitan Planning Organization and UTA.” The goal of establishing this statewide coordination is to share information and enhance returns on infrastructure investments for the public good. Through statewide coordination, common goals are developed, financial plans can be made, and performance can be measured. Capital projects within this plan ultimately impact the connectivity to SLCIA from the statewide transportation network, but only those improvement found within the Wasatch Front Regional Council project lists have noticeable impacts to development of SLCIA. The most impactful project on record requiring coordination between the SLCDA, UDOT, and UTA, is the planned extension of the TRAX line to the west and south of the Airport. This transit project is long-term, slated for 2035-2040.

1.15 ENVIRONMENTAL CONDITIONS

Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5070-6B Change 2, *Airport Master Plans*, provides guidance for the preparation of master plans for airports. The purpose of considering environmental factors in airport master planning is to help the Airport Sponsor thoroughly evaluate airport development alternatives and to provide information that will help expedite subsequent environmental processing. For a comprehensive description of the existing environmental conditions at SLCIA, environmental resource categories outlined in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, were used as a guide that help identify potential environmental effects during the planning process.

FAA Order 1050.1F and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, require the evaluation of airport development projects as they relate to specific environmental resource categories by outlining impacts and thresholds at which the impacts are considered significant. For some environmental resource categories, this determination can be made through calculations, measurements, or observations. However, other environmental resource categories require that the determination be established through correspondence with appropriate federal, state, and/or local agencies. A complete evaluation of the environmental resource categories identified in FAA Orders 1050.1F and 5050.4B is required during a categorical exclusion, environmental assessment, or environmental impact statement.

Future development plans at SLCIA take into consideration environmental resources that are known to exist in the vicinity of the airport. Early identification of these environmental resources help avoid impeding development plans in the future.

This section provides an overview of resource categories defined in FAA Order 1050.1F, Chapter 4, as it applies to the environs at, and surrounding, SLCIA. **TABLE 1-28** provides a summary of the environmental resource categories studied for the Master Plan.

1.15.1 Air Quality

The U.S. Environmental Protection Agency (USEPA) sets National Ambient Air Quality Standards (NAAQS) for certain air pollutants to protect public health and welfare through Section 109 of the Clean Air Act (CAA). The USEPA has identified the following six criteria air pollutants and has set NAAQS for them: Carbon Monoxide (CO), Lead (Pb), Nitrogen Dioxide (NO₂), 8-Hour Ozone (O₃), Particulate Matter (PM₁₀ and PM_{2.5}), and Sulfur Dioxide (SO₂).

Areas found to be in violation of one or more NAAQS of these pollutants are classified as “non-attainment areas.” States with non-attainment areas must develop a State Implementation Plan (SIP) demonstrating how the areas will be brought back into attainment of the NAAQS within designated time-frames. Areas where concentrations of the criteria pollutants are below (i.e., within) these threshold levels are classified as “attainment areas.” Areas with prior non-attainment status that have since transitioned to attainment are known as “maintenance areas.”

According to the USEPA, SLCIA, located in Salt Lake County, is in a maintenance area for CO, and in a non-attainment area for PM₁₀, PM_{2.5}, O₃, and SO₂.¹⁵

¹⁵ U.S. Environmental Protection Agency, Air Quality Green Book, Utah. Accessed: https://www3.epa.gov/airquality/greenbook/anayo_ut.html, August 2018

TABLE 1-28 ENVIRONMENTAL RESOURCE CATEGORIES SUMMARY

Environmental Resource	Description
Air Quality	The Airport is in a maintenance area for Carbon Monoxide (CO), and in a nonattainment area for Particulate Matter-10 (PM ₁₀), Particulate Matter-2.5 (PM _{2.5}), 8-Hour Ozone (O ₃), and Sulfur Dioxide (SO ₂). See Section 1.15.1 for details.
Biological Resources	There are federal- and state-threatened and –endangered species, and migratory birds in the Airport area. There is no critical habitat at the Airport. See Section 1.15.2 for details.
Climate	There are greenhouse gas (GHG) emissions produced at the Airport. See Section 1.15.3 for details.
Coastal Resources	The Airport is not within a coastal zone and there are no Coastal Barrier Resource System (CBRS) segments within Airport property. See Section 1.15.4 for details.
Department of Transportation Act, Section 4(f)	There is one Section 4(f) property on Airport property. See Section 1.15.5 for details.
Farmlands	The Airport contains farmland of statewide importance and prime farmland soil types. See Section 1.15.6 for details.
Hazardous Materials, Solid Waste and Pollution Prevention	The Airport is considered a hazardous waste site. The Airport’s Utah Pollutant Discharge Elimination System (UPDES) permit was approved in March 2014, Stormwater Pollution Prevention Plan (SWPPP) certified in XXX , and Spill Prevention and Countermeasure Plan (SPCC) last prepared in June 2015. See Section 1.15.7 for details. Salt Lake County Landfill is the only municipal solid waste landfill in Salt Lake County.
Historical, Architectural, Archaeological and Cultural Resources	There are no known historic resources located at the Airport. See Section 1.15.8 for details.

Environmental Resource	Description
Land Use	Future development plans would [or would not] occur entirely on Airport property; therefore, would be compatible with surrounding land uses. See Section 1.15.9 for details.
Natural Resources and Energy Supply	Electricity is supplied to the Airport by Rocky Mountain Power, natural gas is supplied by Dominion Energy, and water is supplied by the Salt Lake City Department of Public Utilities. None of the natural resources or energy supplies used at the Airport are in rare or short supply. See Section 1.15.10 for details.
Noise and Noise-Compatible Land Use	[PLACEHOLDER FOR NOISE CONTOUR INFORMATION]. See Section 1.15.11 for details.
Socioeconomics, Environmental Justice, Children’s Environmental Health and Safety Risks	The Airport is located within the Salt Lake City, Utah Metropolitan Area, as defined by the U.S. Census Bureau. See Section 1.15.12 for details.
Visual Effects	Light emissions at the Airport currently result from airfield, building, access roadway, parking, and apron area lighting fixtures required for the safe and secure movement of people, vehicles, and aircraft. The visual resources and visual character of the Airport currently includes the terminal building, fixed base operators, hangars, and maintenance buildings. See Section 1.15.13 for all Visual Effects details.
Water Resources	The Airport property does contain wetlands. There are 100-year floodplains located on Airport property. The Airport property does contain water bodies and streams. The Airport property is within the Crystal Creek and Jordan River watersheds. The Airport property does not contain any wild and scenic rivers. See Section 1.15.14 for all Water Resources details.

Prepared by RS&H, 2018

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1.15.2 Biological Resources

Biological resources include terrestrial and aquatic plant and animal species; game and non-game species; special status species; and environmentally sensitive or critical habitats. The following are relevant federal laws, regulations, Executive Orders (EOs), and guidance¹⁶ that protect biotic communities:

- » Endangered Species Act (ESA) (16 U.S.C. §§ 1531-1544);
- » Bald and Golden Eagle Protection Act (16 U.S.C. §§ 668 et seq.);
- » Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. § 1801 et seq.);
- » Fish and Wildlife Coordination Act (16 U.S.C. § 661-667d);
- » Executive Order (EO) 13112, Invasive Species (64 FR 6183);
- » Marine Mammal Protection Act (16 U.S.C. § 1361 et seq.);
- » Migratory Bird Treaty Act (MBTA) (16 U.S.C. §§ 703 et seq.);
- » EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (66 FR 3853);
- » Council on Environmental Quality (CEQ) Guidance on Incorporating Biodiversity Considerations into Environmental Impact Analysis under NEPA; and
- » Memorandum of Understanding to Foster the Ecosystem Approach.

Although the Endangered Species Act does not protect state-protected species or habitats, NEPA documentation ensures that environmental analysis prepared for airport actions addresses the potential effects to state-protected resources. **TABLE 1-29** lists the 28 federally- and state-threatened and- endangered species that have the potential to be found in Salt Lake County¹⁷. According to the U.S. Fish and Wildlife Service (USFWS), there is no designated critical habitat at SLCIA¹⁸.

The Migratory Bird Treaty Act (MBTA) prohibits the taking of any migratory birds, their parts, nests, or eggs except as permitted by regulations, and does not require intent to be proven. **TABLE 1-30** lists the 22 migratory bird species that have the potential to be found at SLCIA¹⁹.

Essential Fish Habitat (EFH) are those waters and substrate necessary for fish spawning, breeding, feeding, and growth to maturity as defined under the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The MSA also requires federal agencies to consult with NOAA Fisheries about actions that could damage EFH. There are no fish species currently protected under the MSA in Salt Lake County²⁰.

An SLCIA Wildlife Hazard Assessment (WHA) was completed by SLCDCA in 2004 and revised in 2018. SLCDCA continues to consult with the United States Department of Agriculture (USDA) Wildlife Services on a regular basis in order to reduce wildlife hazards. During the 2004 WHA, 60 bird species and seven mam-

¹⁶ Due to the number of federal laws and EOs applicable to the future development plans, this section presents only the legal citations or references for those requirements in lieu of summarizing their requirements. See FAA Order 1050.1F Desk Reference for more information.

¹⁷ State of Utah Natural Resources, Division of Wildlife Resources, Utah Sensitive Species List.

Accessed: <https://dwr.cdc.nr.utah.gov/ucdc/ViewReports/sscounty.pdf>, August 2018

¹⁸ U.S. Fish and Wildlife Service, Information for Planning and Conservation (IPaC), Salt Lake County.

Accessed: <https://ecos.fws.gov/ipac/location/HPRQ53L6KFCCPNQX6POUGXVLDA/resources>, August 2018

¹⁹ U.S. Fish and Wildlife Service, Information for Planning and Conservation (IPaC), Salt Lake County.

Accessed: <https://ecos.fws.gov/ipac/location/HPRQ53L6KFCCPNQX6POUGXVLDA/resources#migratory-birds>, August 2018

²⁰ National Marine Fisheries Service, Essential Fish Habitat Mapper.

Accessed: <http://www.habitat.noaa.gov/protection/efh/efhmapper/index.html>, August 2018

TABLE 1-29 FEDERALLY AND STATE LISTED SPECIES

Species Common Name	Species Scientific Name	Listing Status ¹
Birds		
American Three-toed Woodpecker	<i>Picoides dorsalis</i>	SPC
American White Pelican	<i>Pelecanus erythrorhynchos</i>	SPC
Bald Eagle	<i>Haliaeetus leucocephalus</i>	SPC
Black Swift	<i>Cypseloides niger</i>	SPC
Bobolink	<i>Dolichonyx oryzivorus</i>	SPC
Burrowing Owl	<i>Athene cunicularia</i>	SPC
Ferruginous Hawk	<i>Buteo regalis</i>	SPC
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	SPC
Greater Sage-grouse	<i>Centrocercus urophasianus</i>	SPC
Lewis's Woodpecker	<i>Melanerpes lewis</i>	SPC
Long-billed Curlew	<i>Numenius americanus</i>	SPC
Northern Goshawk	<i>Accipiter gentilis</i>	CS
Short-eared Owl	<i>Asio flammeus</i>	SPC
Yellow-billed Cuckoo ²	<i>Coccyzus americanus</i>	FT
Fish		
Bonneville Cutthroat Trout	<i>Oncorhynchus clarkii</i>	CS
June Sucker	<i>Chasmistes liorus</i>	FE
Least Chub	<i>lotichthys phlegethontis</i>	CS
Mollusk		
California Floater	<i>Anodonta californiensis</i>	SPC
Lyrate Mountainsnail	<i>Oreohelix haydeni</i>	SPC
Western Pearlshell	<i>Margaritifera falcata</i>	SPC
Amphibian		
Columbia Spotted Frog	<i>Rana luteiventris</i>	CS
Western Toad	<i>Bufo anaxyrus</i>	SPC
Mammal		
Canada Lynx	<i>Lynx canadensis</i>	FT
Kit Fox	<i>Vulpes macrotis</i>	SPC
Spotted Bat	<i>Euderma maculatum</i>	SPC
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	SPC
Reptile		
Smooth Green Snake	<i>Opheodrys vernalis</i>	SPC
Flowering Plants		
Ute Ladies'-tresses	<i>Spiranthes diluvialis</i>	FT

Notes: (1) FE – Federally Endangered, FT – Federally Threatened, SPC – State Species of Concern, CS – Species receiving special state management to preclude Federal Listing. (2) Includes the Western Yellow-Billed Cuckoo Subspecies.

Source: USFWS, 2018; Utah DNR, 2018; Prepared by RS&H, 2018

TABLE 1-30 POTENTIAL MIGRATORY BIRDS IN AIRPORT AREA

Species Common Name	Species Scientific Name
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Black Rosy-finch	<i>Leucosticte atrata</i>
Black Swift	<i>Cypseloides niger</i>
Brewer's Sparrow	<i>Spizella breweri</i>
Brown-capped Rosy-finch	<i>Leucosticte australis</i>
Burrowing Owl	<i>Athene cunicularia</i>
Clark's Grebe	<i>Aechmophorus clarkia</i>
Golden Eagle	<i>Aquila chrysaetos</i>
Green-tailed Towhee	<i>Pipilo chlorurus</i>
Lesser Yellowlegs	<i>Tringa flavipes</i>
Lewis's Woodpecker	<i>Melanerpes lewis</i>
Long-Billed Curlew	<i>Numenius americanus</i>
Long-eared Owl	<i>Asio otus</i>
Marbled Godwit	<i>Limosa fedoa</i>
Olive-sided Flycatcher	<i>Contopus cooperi</i>
Pinyon Jay	<i>Gymnorhinus cyanocephalus</i>
Rufous Hummingbird	<i>Selasphorus rufus</i>
Sage Thrasher	<i>Oreoscoptes montanus</i>
Virginia's Warbler	<i>Vermivora virginiae</i>
Willet	<i>Tringa sempipalmata</i>
Williamson's Sapsucker	<i>Sphyrapicus thyroideus</i>
Willow Flycatcher	<i>Empidonax traillii</i>

Source: USFWS, 2018; Prepared by RS&H, 2018

mal species were observed in and around SLCIA. As a result of the WHA, a Wildlife Hazard Management Plan (WHMP) was prepared. The WHMP prescribes wildlife management techniques for preventing and reducing wildlife hazards at SLCIA.²¹

1.15.3 Climate

Relevant federal laws, regulations, and EOs that relate to climate include:

- » CAA (42 U.S.C. §§ 7408, 7521, 7571, 7661 et seq.);
- » EO 13514, Federal Leadership in Environment Energy and Economic Performance (74 FR 52117);
- » EO 13653, Preparing the United States for the Impacts of Climate Change (78 FR 66817); and
- » EO 13693, Planning for Federal Sustainability (80 FR 15869).

²¹ Salt Lake City International Airport, Wildlife Hazard Management Plan.

Accessed: https://www.slcairport.com/assets/pdfDocuments/Wildlife_Plan.pdf, August 2018

Greenhouse gases (GHG) are gases that trap heat in the earth's atmosphere. Both naturally occurring and man-made GHGs primarily include water vapor, carbon dioxide, methane, nitrous oxide, hydro-fluorocarbons, perfluorocarbons, and sulfur hexafluoride. Activities that require fuel or power are the primary stationary sources of GHGs at airports. Aircraft and ground access vehicles that are not under the control of an airport, typically generate more GHG emissions than airport controlled sources.

Research has shown there is a direct correlation between fuel combustion and GHG emissions. In terms of U.S. contributions, the Government Accountability Office (GAO) reports that "domestic aviation contributes about three percent 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%)²². The International Civil Aviation Organization (ICAO) estimates that GHG emissions from aircraft account for roughly three percent of all anthropogenic GHG emissions globally²³.

1.15.4 Coastal Resources

The primary statutes, regulations, and EOs that protect coastal resources include:

- » Coastal Barrier Resources Act (16 U.S.C. § 3501 et seq.);
- » Coastal Zone Management Act (CZMA) (16 U.S.C. § 1451-1466);
- » National Marine Sanctuaries Act (16 U.S.C. §1431 et seq.);
- » EO 13089, Coral Reef Protection (63 FR 32701); and
- » EO 13547, Stewardship of the Ocean, Our Coasts, and the Great Lakes (75 FR 43021-43027).

Utah is not a coastal state. As such, SLCIA is not within a coastal zone. Additionally, there are no Coastal Barrier Resource System (CBRS) segments within SLCIA property.²⁴ The closest CBRS segment is over 1,200 miles southeast of the airport.

1.15.5 Department of Transportation, Section 4(f)

Relevant federal laws, regulations, and EOs that protect Section 4(f) resources include:

- » U.S. Department of Transportation (USDOT) Act, Section 4(f) (49 U.S.C. § 303.);
- » Land and Water Conservation Fund Act of 1965 (16 U.S.C. §§ 4601-4604 et seq.);
- » Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) – Section 6009 (49 U.S.C. § 303.); and
- » U.S. Department of Defense Reauthorization (Public Law (P.L.) 105-185, Division A, Title X, Section 1079, November 18, 1997, 111 Stat. 1916).

The USDOT Act, Section 4(f) provides that no project that requires the use of any land from a public park or recreational area, wildlife and waterfowl refuge, or historic site be approved by the Secretary of Trans-

²² U.S. Government Accountability Office, Report to Congressional Committees, *Aviation and Climate Change*, June 2009.

Accessed: <http://www.gao.gov/new.items/d09554.pdf>, May 2016

²³ Melrose, Alan, *European ATM and Climate Adaptation: A Scoping Study*, ICAO Environmental Report, 2010.

Accessed: http://www.icao.int/environmental-protection/Documents/EnvironmentReport-2010/ICAO_EnvReport10-Ch6_en.pdf, May 2016.

²⁴ U.S. Fish and Wildlife Service, Coastal Barrier Resources System Mapper.

Accessed: <https://www.fws.gov/cbra/Maps/Mapper.html>, August 2018.

portation unless there is no viable alternative and provisions to minimize any possible harm are included in the planning. Similarly, the Land and Water Conservation Fund (LWCF) Act prevents the conversion of lands purchased or developed with Land and Water Conservation funds to non-recreation uses, unless the Secretary of the Interior, through the National Park Service, approves the conversion. Conversion may only be approved if it is consistent with the comprehensive statewide outdoor recreation plan when the approval occurs. Additionally, the converted property must be replaced with other recreation property of reasonably equivalent usefulness and location, and at least equal fair market value.

The closest Section 4(f) property to SLCIA is the Airport Trail bike path, a 2.8-mile bike path that runs through the southern portion of SLCIA property.²⁵ The closest LWCF site to SLCIA is the Red Butte Canyon Research Area, located about six miles east of the airport²⁶.

1.15.6 Farmlands

The following statutes, regulations, and guidance pertain to farmlands:

- » Farmland Protection Policy Act (FPPA) (7 U.S.C. §§ 4201-4209); and
- » CEQ Memorandum on the Analysis of Impacts on Prime or Unique Agricultural Lands in Implementing the National Environmental Policy Act (45 FR 59189).

The FPPA of 1981 regulates federal actions that have the potential to convert farmland to non-agricultural uses. The FAA requires consideration of “important farmlands,” which it defines to include “all pasture-lands, croplands, and forests considered to be prime, unique, or statewide or local important lands.”²⁷

According to the Natural Resource Conservation Service (NRCS), portions of SLCIA property contain farmland of statewide importance and prime farmland, as defined above.²⁸ However, according to Section 523.10(B) of the FPPA, lands identified as urbanized areas by the U.S. Census Bureau are not subject to the provision of the FPPA. Further, Section 658.29(a) of the FPPA states that, “farmland does not include land already in or committed to urban development.” According to the U.S. Census Bureau, SLCIA property is identified as an urban area.²⁹ Additionally, airports can be considered urban land uses. Therefore, the soils on SLCIA property are not protected by the FPPA.

1.15.7 Hazardous Materials, Solid Waste, and Pollution Prevention

Federal laws, regulations, and EOs that relate to hazardous materials, solid waste, and pollution prevention include:

- » Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. §§ 9601-9765);

25 Salt Lake City Government, Transportation, Urban Trails.

Accessed: https://www.slairport.com/assets/pdfDocuments/bike_map.pdf, September 2018.

26 Land Water Conservation Fund, Utah.

Accessed: <https://static1.squarespace.com/static/58a60299f7c508c3c05f2e1/t/5b29566eaa4a99e30737b026/1529435758782/Utah+fact+sheet+6.13.18.pdf>, August 2018.

27 Federal Aviation Administration, Order 1050.1F Desk Reference, July 2015. Accessed: https://www.faa.gov/about/office_org/headquarters_offices/apl/enviro_policy_guidance/policy/faa_nepa_order/desk_ref/media/desk-ref.pdf, August 2018.

28 Natural Resources Conservation Service, Web Soil Survey.

Accessed: <https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>, August 2018.

29 U.S. Census Bureau, Urbanized Areas and Urban Clusters: 2010. Accessed: https://www2.census.gov/geo/maps/dc10map/UAUC_RefMap/ua/ua78499_salt_lake_city--west_valley_city_ut/DC0UA78499.pdf, September, 2018.

- » Emergency Planning and Community Right to Know Act (42 U.S.C. §§ 11001-11050);
- » Federal Facilities Compliance Act (42 U.S.C. § 6961);
- » Hazardous Materials Transportation Act (49 U.S.C. §§ 5101-5128);
- » Oil Pollution Prevention Act of 1990 (33 U.S.C. §§ 2701-2762);
- » Pollution Prevention Act (42 U.S.C. §§ 13101-13109);
- » Toxic Substances Control Act (TSCA) (15 U.S.C. §§ 2601-2697);
- » Resource Conservation and Recovery Act (RCRA) (42 U.S.C. §§ 6901-6992k);
- » EO 12088, Federal Compliance with Pollution Control Standards (43 FR 47707);
- » EO 12580, Superfund Implementation (52 FR 2923), (63 CFR 45871), and (68 CFR 37691);
- » EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management (72 FR 3919); and
- » EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance (74 FR 52117).

1.15.7.1 Hazardous Materials

In a regulatory context, the terms “hazardous wastes,” “hazardous substances,” and “hazardous materials” have very precise and technical meanings:

Hazardous Wastes. Subpart C of the RCRA defines hazardous wastes (sometimes called characteristic wastes) as solid wastes that are ignitable, corrosive, reactive, or toxic. Examples include waste oil, mercury, lead or battery acid. In addition, Subpart D of the RCRA contains a list of specific types of solid wastes that the USEPA has deemed hazardous (sometimes called listed wastes). Examples include degreasing solvents, petroleum refining waste, or pharmaceutical waste.

Hazardous Substances. Section 101(14) of the CERCLA defines hazardous substances broadly and includes hazardous wastes, hazardous air pollutants, or hazardous substances designated as such under the Clean Water Act and TSCA and elements, compounds, mixtures, solutions, or substances listed in 40 CFR Part 302 that pose substantial harm to human health or environmental resources. Pursuant to the CERCLA, hazardous substances do not include any petroleum or natural gas substances and materials. Examples include ammonia, bromine, chlorine, or sodium cyanide.

Hazardous Materials. According to 49 CFR Part 172, hazardous materials are any substances commercially transported that pose unreasonable risk to public health, safety, and property. These substances include hazardous wastes and hazardous substances, as well as petroleum and natural gas substances and materials. As a result, hazardous materials represent hazardous wastes and substances. Examples include household batteries, gasoline, or fertilizers.

Aircraft fuel constitutes the largest quantity of hazardous substances stored and consumed at SLCIA. Fuel is stored on Airport property within a 261,491 square foot fuel farm. **SECTION 1.11.5, Aviation Fuel Storage** describes the fuel type and quantity within the fuel farm.

The USEPA identifies SLCIA (Handler ID: UTD982595662) as a hazardous waste site under the RCRA.³⁰ The

³⁰ U.S. Environmental Protection Agency, Envirofact, Hazardous Waste (RCRA info). Accessed: <https://www3.epa.gov/enviro/facts/rcrainfo/search.html>, September 2018.

USEPA also identified two additional hazardous waste sites on SLCIA property:

- » SLC Department of Airports, Deicing Fluid Reclamation Plant (Handler ID: UTR000005397); and
- » SLCC Public Utilities Lab (Handler ID: UTD982586703).

There are no CERCLA superfund sites on SLCIA property, however there are two superfund sites within three miles of the airport.³¹ Portland Cement Kiln Dust 2 & 3 (Site EPA ID: UTD980718670) is located 1.75 miles southeast of SLCIA, and Utah Power & Light/American Barrel Co. (Site EPA ID: UTD980667240) is located 2.3 miles east of the airport.

1.15.7.2 Solid Waste

The Salt Lake County Landfill is the only municipal solid waste landfill located in Salt Lake County.³² This landfill is located two miles southwest of SLCIA. This landfill is not expected to reach capacity until 2077, and recently received permission to increase its slope and height, prolonging the lifespan of the landfill.³³

1.15.7.3 Pollution Prevention

SLCIA is required under the airport's Utah Pollutant Discharge Elimination System (UPDES) stormwater discharge permit (UPDES Permit #UT0024988, approved on March 14, 2014) to have a Stormwater Pollution Prevention Plan (SWPPP), which was certified in XXXXXXXXXXXX. The Airport's Spill Prevention and Countermeasure Plan (SPCC) was prepared in June, 2015. The SPCC is required to satisfy the federal requirements for facilities that have above ground oil storage tanks with a capacity greater than 1,320 gallons.

1.15.8 Historical, Architectural, Archaeological, and Cultural Resources

The National Historic Preservation Act (NHPA) (54 U.S.C. §§300101 et seq.) establishes the Advisory Council on Historic Preservation (ACHP). The ACHP oversees federal agency compliance with the NHPA. The NHPA also established the National Register of Historic Places (NRHP) that the National Park Service (NPS) oversees. Other applicable statutes and EOs include:

- » American Indian Religious Freedom Act (42 U.S.C. § 1996);
- » Antiquities Act of 1906 (54 U.S.C. §§320301-320303);
- » Archaeological and Historic Preservation Act (54 U.S.C. §§ 312501-312508);
- » Archaeological Resources Act (16 U.S.C. §§ 470aa-470mm);
- » USDOT Act, Section 4(f) (49 U.S.C. § 303);
- » Historic Sites Act of 1935 (16 U.S.C. §§ 461-467);
- » Native American Graves Protection and Repatriation Act (25 U.S.C. §§ 3001-3013);
- » Public Building Cooperative Use Act (40 U.S.C. §§ 601a, 601a1, 606, 611c, and 612a4);
- » EO 11593, Protection and Enhancement of the Cultural Environment (36 FR 8921);
- » EO 13006, Locating Federal Facilities on Historic Properties in Our Nation's Central Cities (61 FR

31 U.S. Environmental Protection Agency, Superfund, National Priorities List, Utah.

Accessed: <https://www.epa.gov/superfund/search-superfund-sites-where-you-live#map>, September 2018.

32 Salt Lake County, Utah, Public Works & Municipal Services Department, Landfill.

Accessed: <https://slco.org/landfill/>, September 2018.

33 Office of the Salt Lake County Auditor, *A Performance Audit of The Salt Lake Valley Solid Waste Management Facility*.

Accessed: https://slco.org/uploadedFiles/depot/fAuditor/2015_audit_reports/15_07_solid_waste_management.pdf, September, 2018.

26071);

- » EO 13007, Indian Sacred Sites (61 FR 26771);
- » EO 13175, Consultation and Coordination with Indian Tribal Governments (65 FR 67249);
- » Executive Memorandum, Government-to-Government Relations with Native American Tribal Governments (April 29, 1994);
- » Executive Memorandum on Tribal Consultation (Nov. 5, 2009) (65 FR 67249); and
- » USDOT Order 5650.1, Protection and Enhancement of the Cultural Environment.

The closest National Register of Historic Places (NRHP)-listed historic site is the Fisher, Albert, Mansion and Carriage House located approximately 1.75 miles southeast of the SLCIA.³⁴ Additionally, the Fisher, Albert, Mansion and Carriage House is the closest Salt Lake City Historic Site.³⁵

1.15.9 Land Use

Various statutes, regulations, and EOs relevant to land use include:

- » The Airport and Airway Improvement Act of 1982, and subsequent amendments (49 U.S.C. 47107(a)(10));
- » The Airport Improvement Program (49 U.S.C. 47106(a)(1));
- » The Airport Safety, Protection of Environment, Criteria for Municipal Solid Waste Landfills (40 CFR § 258.10); and
- » State and local regulations

SLCIA is within Salt Lake County, zoned as a Special Purpose District (specifically an “Airport District”) under the Salt Lake Municipal Code Title 21A – Zoning. SLC Code 21A.32.060 defines the purpose of the Airport District code is to “provide a suitable environment for the Salt Lake City International Airport and private uses that function in support of the Airport facility. This district is appropriate in areas of the City where the applicable master plans support this type of land use.”

The City also delineates an Airport Flight Path Protection (AFPP) Overlay District under SLC Code 21A.34.040³⁶ (see **FIGURE 1-42**) to protect land uses below aircraft navigation routes. The AFPP Overlay District rules declare:

- » That the creation or establishment of an airport hazard is a public nuisance and an injury to the region served by the Salt Lake City International Airport;
- » That it is necessary in the interest of the public health, public safety, and general welfare that the creation or establishment of airport hazards be prevented; and
- » That the prevention of these hazards should be accomplished, to the extent legally possible, by the exercise of the police power without compensation.

Land uses within the immediate vicinity of SLCIA include open space, commercial, mixed use transit

34 U.S. Environmental Protection Agency, NEPAassist.

Accessed: <https://nepassisttool.epa.gov/nepassist/nepamap.aspx?wherestr=salt+lake+city+airport>, August 2018.

35 Salt Lake City, Historic Districts and Buildings, Landmark Sites.

Accessed: <https://www.slc.gov/historic-preservation/historic-districts-and-buildings>, September 2018.

36 Salt Lake City, Salt Lake City Code, Chapter 21A.34, *Overlay Districts*.

Accessed: www.sterlingcodifiers.com/codebook/index.php?book_id=672, September 2018.

station, single family and multifamily residential, and agricultural.³⁷ Less than a mile east of SLCIA is mainly residential, along with various commercial developments. Immediately south of SLCIA is open space, and west of the airport is open space as well as agricultural land. North of the airport is Farmington Bay, a section of the Great Salt Lake, including wetlands and open salt water.

1.15.10 Natural Resources and Energy Supply

Statutes and EOs that are relevant to natural resources and energy supply include:

- » Energy Independence and Security Act (42 U.S.C. § 17001 et seq.);
- » Energy Policy Act (42 U.S.C. § 15801 et seq.);
- » EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management (72 FR 3919); and
- » EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance (74 FR 52117).

Natural resources (e.g., water, asphalt, aggregate, etc.) and energy use (e.g., fuel, electricity, etc.) at an airport is a function of the needs of aircraft, support vehicles, airport facilities, support structures, and terminal facilities.

Water is the primary natural resource used at the Airport on a daily basis (see the **SECTION 1.15.14, Water Resources** for further details). Asphalt, aggregate, and other natural resources have also been used in various construction projects at SLCIA. None of the natural resources that the airport uses, or has used, are in rare or short supply. Energy use at SLCIA is primarily in the form of electricity required for the operation of airport-related facilities (e.g., terminal building, hangars, airfield lighting) and fuel for aircraft, aircraft support vehicles/equipment, and Airport maintenance vehicles/equipment. Rocky Mountain Power supplies electricity to SLCIA, Dominion Energy provides natural gas services, and the Salt Lake City Department of Public Utilities provides water.

1.15.11 Noise and Noise-Compatible Land Use

Statutes and EOs relevant to noise and noise-compatible land use include:

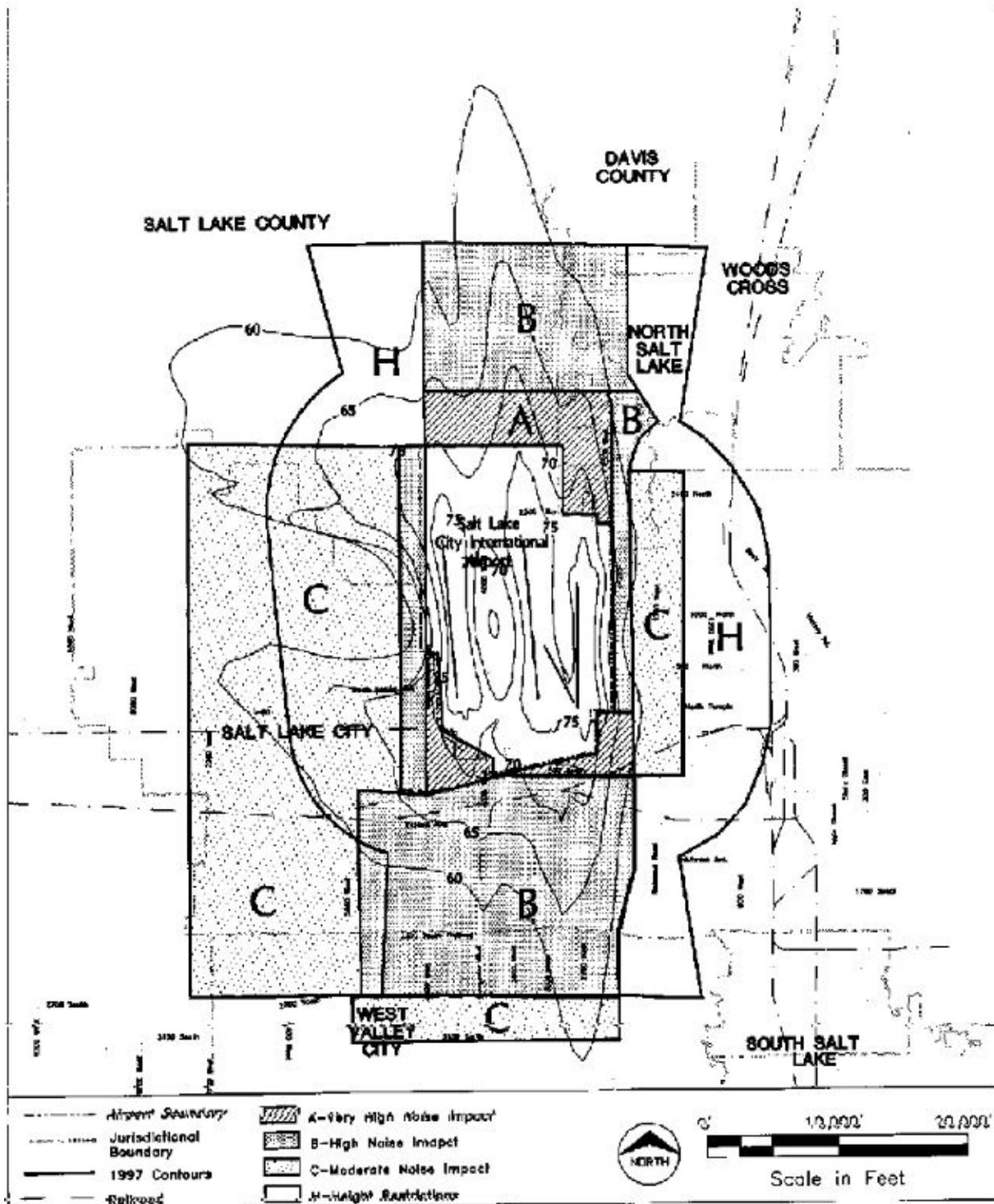
- » The Control and Abatement of Aircraft Noise and Sonic Boom Act of 1968 (49 U.S.C. § 44715);
- » The Noise Control Act of 1972 (42 U.S.C. §§ 4901-4918);
- » Aviation Safety and Noise Abatement Act of 1979 (49 U.S.C. § 47501 et seq.);
- » Airport and Airway Improvement Act of 1982 (49 U.S.C. § 47101 et seq.);
- » Airport Noise and Capacity Act of 1990 (49 U.S.C. §§ 47521-47534, §§ 106(g));
- » Section 506 of the FAA Modernization and Reform Act of 2012, Prohibition on Operating Certain Aircraft Weighting 75,000 Pounds of Less Not Complying with Stage 3 Noise Levels (49 U.S.C. §§ 47534); and
- » State and local noise laws and ordinances.

The measurement of aircraft noise impacts on land uses is prescribed by the FAA as a Day-Night Sound Level (DNL). The DNL is based on sound levels measures in relative intensity of sound, (decibels or dB) on the "A-weighted scale" or dBA over a time-weighted average normalized to a 24-hour period.³⁸ DNL has

³⁷ Salt Lake City, Salt Lake City Maps, Zoning. Accessed: <http://maps.slcgov.com/mws/zoning.htm>, September 2018.

³⁸ Federal Aviation Administration, *Technical Support for Day/Night Average Sound Level (DNL) Replacement Metric Research*, Final

FIGURE 1-42 SLC AIRPORT FLIGHT PATH PROTECTION OVERLAY DISTRICT



Source: Salt Lake City, 1995

been widely accepted as the best available method to describe aircraft noise exposure. The USEPA identifies the DNL as the principal metric for airport noise analysis. The FAA requires DNL as the noise descriptor for use in aircraft noise exposure analysis and noise compatibility planning. DNL levels are commonly shown as lines of equal noise exposure, similar to terrain contour maps, referred to as noise contours. All residential areas are considered compatible with cumulative noise level below DNL 65 dBA.

As **SECTION 1.15.9, Land Use** describes, there are residential land uses near SLCIA. These areas may be sensitive to aircraft noise associated with the Airport. The Airport's aviation noise contours have been updated as part of this Master Plan (see **FIGURE 1-45**). **There are (or are not)** noise-sensitive land uses within the updated noise contours, such as **PLACEHOLDER TEXT**.

As mentioned in **SECTION 1.5.8, Noise Abatement**, SLCDA adopted a Noise Compatibility Program (NCP) for SLCIA in January 1999 as a result of their completed Part 150 Study. The Part 150 Study outlines procedures to mitigate the impact of aircraft noise on non-compatible land uses, such as residential areas. Additionally, SLCDA actively implements mitigation measures at SLCIA from the FAA-approved NCP, such as reducing night-time activity, utilizing departure tracks which avoid residential areas, etc.

1.15.12 Socioeconomic, Environmental Justice, and Children's Environmental Health and Safety Risks

The primary considerations of socioeconomic analysis are the economic activity, employment, income, population, housing, public services, and social conditions of the area. The Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970 (42 U.S.C. § 61 et seq.), implemented by 49 CFR Part 24, is the primary statute related to socioeconomic impacts. Statutes, EOs, memorandums, and guidance that are relevant to environmental justice and children's environmental health and safety risks include:

- » Title VI of the Civil Rights Act, as amended (42 U.S.C. §§ 2000d-2000d-7);
- » EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 FR 7629);
- » Memorandum of Understanding on Environmental Justice and EO 12898;
- » USDOT Order 5610.2(a), Environmental Justice in Minority and Low-Income Populations (77 FR 27534);
- » CEQ Guidance: Environmental Justice: Guidance Under the National Environmental Policy Act;
- » Revised USDOT Environmental Justice Strategy (77 FR 18879); and
- » EO 13045, Protection of Children from Environmental Health Risks and Safety Risks (62 FR 19885).

SLCIA is entirely within Census Tract 9800, Block Group 1, which has a population of zero. Therefore, the Salt Lake City, Utah Metropolitan Area, as defined by the U.S. Census Bureau, was used to describe the socioeconomic and environmental justice characteristics in the airport area compared to Utah (see **TABLE 1-31**). Census data for the Salt Lake City, Utah Metropolitan Area is from the U.S. Census Bureau 2012-2016 American Community Survey, and census data for Utah is from 2017 American Community Survey.

With regard to children's environmental health and safety risks, the closest school to SLCIA is Meadowlark Elementary, approximately 1,500 feet east of the airport.³⁹ The school serves students in kindergarten

Report, June 14, 2011.

³⁹ U.S. Environmental Protection Agency, NEPAAssist, Places, Schools.

PLACEHOLDER PAGE FOR NOISE CONTOURS MAP

TABLE 1-31 SOCIOECONOMIC AND ENVIRONMENTAL JUSTICE CHARACTERISTICS

Characteristic	Salt Lake City, Utah Metro Area	Utah
Total Population	1,154,504	3,101,833
Percent Minority	18.34%	14.34%
Percent Living Below the Poverty Level	11.14%	9.70%
Percent of the population below 18 Years of Age	28.65%	29.82%
Percent Unemployed (above 16 years of Age)	5.15%	3.60%
Total Housing Units	397,381	1,084,685
Vacant Housing Units	22,254	109,237

Source: U.S. Census Bureau, 2012-2016; Prepared by RS&H, 2018

through sixth grade. The closest child care center to SLCIA is the Sunshine House, located approximately 1,200 feet east of the airport.⁴⁰ The closest child friendly recreational area is Westpointe Park, a city park with tennis courts, basketball courts and playground area located 1,700 feet east of the Airport.⁴¹ The closest children's health clinic is the Children's Center, a children's mental health clinic located approximately 3.9 miles east of SLCIA.⁴²

1.15.13 Visual Effects

There is no federal statutory or regulatory requirement for adverse effects resulting from light emissions or visual impacts. FAA Order 1050.1F describes factors to consider within light emissions and visual resources/visual character. Potential impacts from light emissions include the annoyance or interference with normal activities, as well as effects to the visual character of the area due to light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources.

1.15.13.1 Light Emissions

Various lighting features currently illuminate SLCIA facilities, such as the airfield (e.g., runways and taxiways), buildings, access roadways, automobile parking areas, and apron areas for the safe and secure movement of people and vehicles (e.g., aircraft, passenger cars, etc.).

1.15.13.2 Visual Resources and Visual Character

Structures at SLCIA include, but are not limited to, the terminal building, the FAA Air Traffic Control Tower, fixed base operators, hangars, and maintenance buildings. As previously mentioned, SLCIA is zoned as an Airport District and is developed in a manner that is consistent with this zoning.

Residential land uses to the east have a direct line of sight to SLCIA. Vegetation (e.g., trees and shrubs) help to reduce both the light emissions and visual effects to SLCIA for residential areas.

Accessed: <https://nepassisttool.epa.gov/nepassist/nepamap.aspx?wherestr=salt+lake+city+airport>, September 2018.

40 Sunshine House Early Learning Academy, Salt Lake City. Accessed: <https://sunshinehouse.com/center/salt-lake>, September 2018.

41 Salt Lake City Government, Parks and Public Lands. Accessed: <http://slcgov.maps.arcgis.com/apps/webappviewer/index.html?id=85ef343352c8495ba0cdfd0504610a92>, September 2018.

42 The Children's Center, Salt Lake City. Accessed: <https://childrenscenterutah.org>, September 2018.

1.15.14 Water Resources

Water resources are considered wetlands, floodplains, surface waters, groundwater, and wild and scenic rivers. These resources typically function as a single, integrated natural system that are important in providing drinking water in supporting recreation, transportation and commerce, industry, agriculture, and aquatic ecosystems.

1.15.14.1 Wetlands

Statutes and EOs that are relevant to wetlands include:

- » EO 11990, Protection of Wetlands (42 FR 26961);
- » Clean Water Act (33 U.S.C. §§ 1251-1387);
- » Fish and Wildlife Coordination Act (16 U.S.C. § 661-667d) ; and
- » USDOT Order 6660.1A, Preservation of the Nation's Wetlands.

The Clean Water Act defines wetlands as "...those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions."⁴³

Wetlands have three necessary characteristics:

- » Water: Presence of water at or near the ground surface for a part of the year;
- » Hydrophytic Plants: A preponderance of plants adapted to wet conditions; and
- » Hydric Soils: Soil developed under wet conditions.

An SLCIA airport-wide wetlands inventory was conducted in 2004 (see **FIGURE 1-43**). Wetlands were identified during the site survey and mapped for future development considerations, but no jurisdictional determinations were made for the identified wetlands.

⁴³ U.S. Environmental Protection Agency, Section 404 of the Clean Water Act.

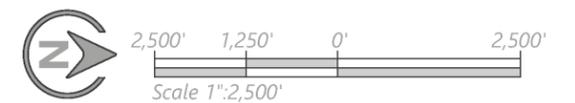
Accessed: <https://www.epa.gov/cwa-404/section-404-clean-water-act-how-wetlands-are-defined-and-identified>, September 2018.

FIGURE 1-43 WETLANDS



WETLANDS

Wetlands



Source: SLCDCA wetlands data, 2004; Prepared by RS&H, 2018

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1.15.14.2 Floodplains

Statutes and EOs that are relevant to floodplains include:

- » EO 11988, Floodplain Management (42 FR 26951);
- » National Flood Insurance Act (42 U.S.C. § 4001 et seq.); and
- » U.S. Department of Transportation (USDOT) Order 5650.2, Floodplain Management and Protection.

Floodplains are "...lowland areas adjoining inland and coastal water which are periodically inundated by flood waters, including flood-prone area of offshore islands." Floodplains are often referred to in terms of the 100-year floodplain, rather, the one percent chance of a flood occurring in any given year. The USDOT Order 5650.2 outlines the policies and procedures for ensuring that proper consideration is given to the avoidance and mitigation of adverse floodplain impacts in agency actions, planning programs, and budget requests. Therefore, the objective is to avoid, to the extent practicable, any impacts within the 100-year floodplain.

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) for the SLCIA area, there are floodplains within the airport property.⁴⁴ The floodplains are located in the northwestern, western, and southern portions of SLCIA property (see **FIGURE 1-44**). **THESE LOOK LIKE THEY WERE NEVER UPDATED AFTER CONSTRUCTION OF RWY 16R-34L AND CANAL REALIGNMENT EVEN THOUGH DATA IS DATED 2001 and 2009. ADD NOTE ABOUT THIS? PREFERRED RESOLUTION?**

1.15.14.3 Surface Waters

Statutes that are relevant to surface water include:

- » Clean Water Act (33 U.S.C. §§ 1251-1387);
- » Fish and Wildlife Coordination Act (16 U.S.C. § 661-667d); and
- » Rivers and Harbors Act (33 U.S.C. § 401 and 403).

Surface waters include areas where water collects on the surface of the ground, such as streams, rivers, lakes, ponds, estuaries, and oceans. There is one unnamed stream running through SLCIA property (see **FIGURE 1-45**).⁴⁵ This stream runs through the southern and western portions of SLCIA property. Additionally, there are two unnamed ponds in the southern portion the property (see **FIGURE 1-45**).

1.15.14.4 Groundwater

Statutes relevant to groundwater include:

- » Safe Drinking Water Act (42 U.S.C. §§ 300(f)-300j-26).

⁴⁴ Federal Emergency Management Agency, Flood Map Service Center, Flood Insurance Rate Maps 49035C0140E (effective 9/21/2001), 49035C0137E (effective 9/21/2001), 49035C0139E (effective 9/21/2001), 49035C0120E (effective 9/21/2001), 49035C0150G (effective 9/25/2009), 49035C0125G (effective 9/25/2009), and 49035C0129G (effective 9/25/2009). Accessed: <https://msc.fema.gov/portal/search#searchresultsanchor>, September 2018.

⁴⁵ U.S. Environmental Protection Agency, NEPAAssist, Water Features, Streams. Accessed: <https://nepassisttool.epa.gov/nepassist/nepamap.aspx?wherestr=salt+lake+city+airport>, September 2018.

Groundwater is described as the “subsurface water that occupies the space between sand, clay, and rock formations.”⁴⁶ SLCIA property intersects two hydrologic units.⁴⁷ The western portion of airport property is within the Crystal Creek watershed (HUC 12 ID: 160202040404) and the eastern portion of airport property is within the Jordan River watershed (HUC 12 ID: 160202040405).

1.15.14.5 Wild and Scenic Rivers

Statutes relevant to wild and scenic rivers include:

- » Wild and Scenic Rivers Act (16 U.S.C. §§ 1271-1278).

Wild and scenic rivers are defined as “outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations.”⁴⁸ There are no wild and scenic rivers or river segments within the SLCIA area.⁴⁹ The closest wild and scenic river, the Snake River, is over 170 miles northeast of SLCIA.⁵⁰

46 Federal Aviation Administration, 1050.1F Desk Reference, Section 14.4 *Groundwater*. July 2015.

47 U.S. Environmental Protection Agency, NEPAAssist, Water Features, Watersheds (HUC 12).

Accessed: <https://nepassisttool.epa.gov/nepassist/nepamap.aspx?wherestr=salt+lake+city+airport>, September 2018.

48 National Wild and Scenic Rivers System, About the WSR Act. Accessed: <https://www.rivers.gov/wsr-act.php>, September 2018.

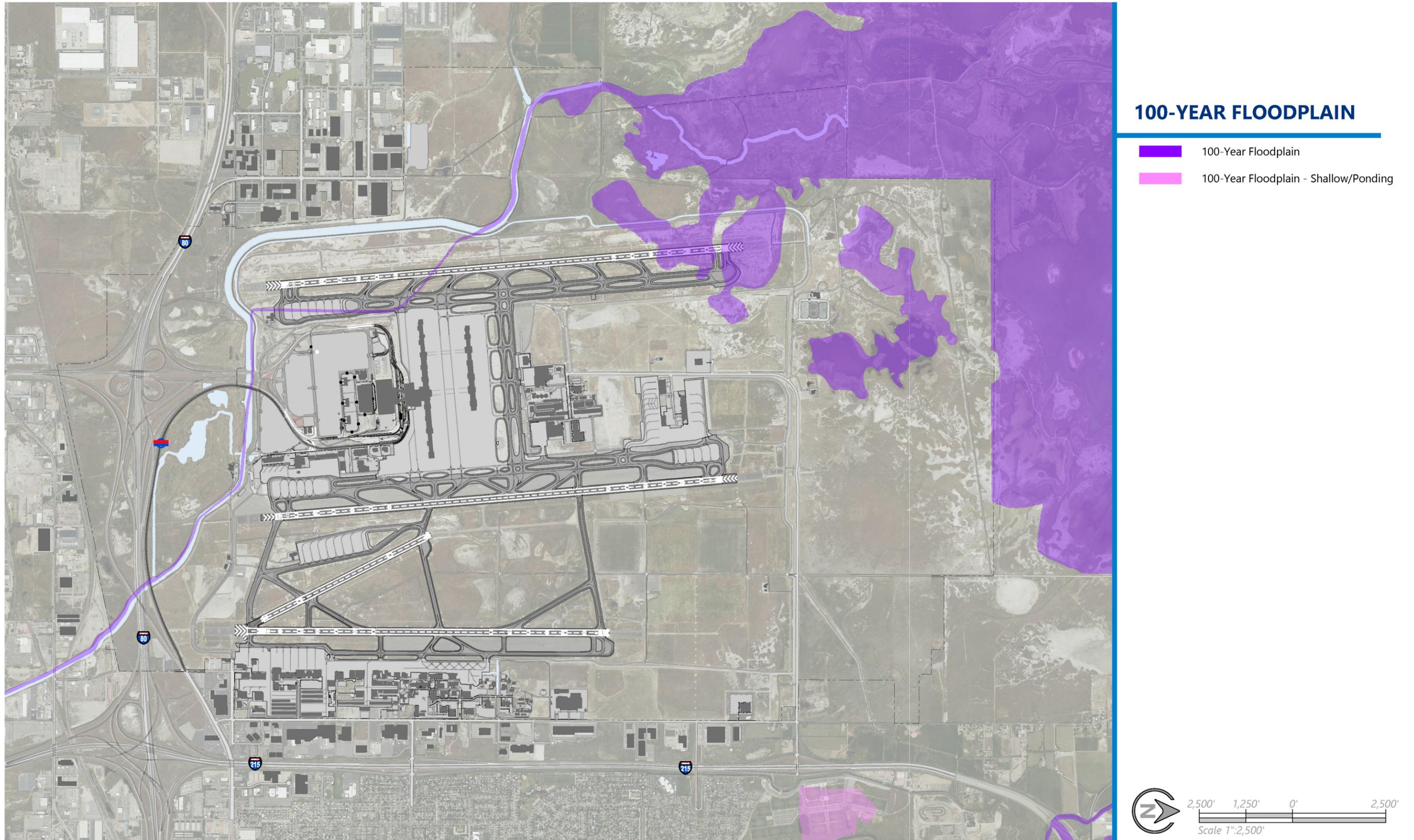
49 U.S. Environmental Protection Agency, NEPAAssist, Water Features, Wild and Scenic Rivers.

Accessed: <https://nepassisttool.epa.gov/nepassist/nepamap.aspx?wherestr=salt+lake+city+airport>, September 2018.

50 U.S. National Park Service, Wild and Scenic Rivers Program, Interactive Map of NPS Wild and Scenic Rivers.

Accessed: <https://www.nps.gov/orgs/1912/plan-your-visit.htm>, September 2018.

FIGURE 1-44 FLOODPLAINS



Source: FEMA; Prepared by RS&H, 2018

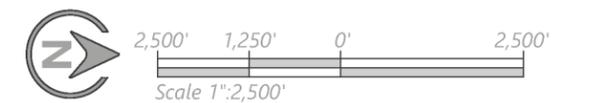
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FIGURE 1-45 SURFACE WATERS



SURFACE WATERS

Surface Waters



Source: Esri; Prepared by RS&H, 2018

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