2022 Airport Master Plan Study
South Valley Regional Airport / U42

Facility Requirements Version 2.0

DATE

RS&H

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CHAPTER 3

FACILITY REQUIREMENTS

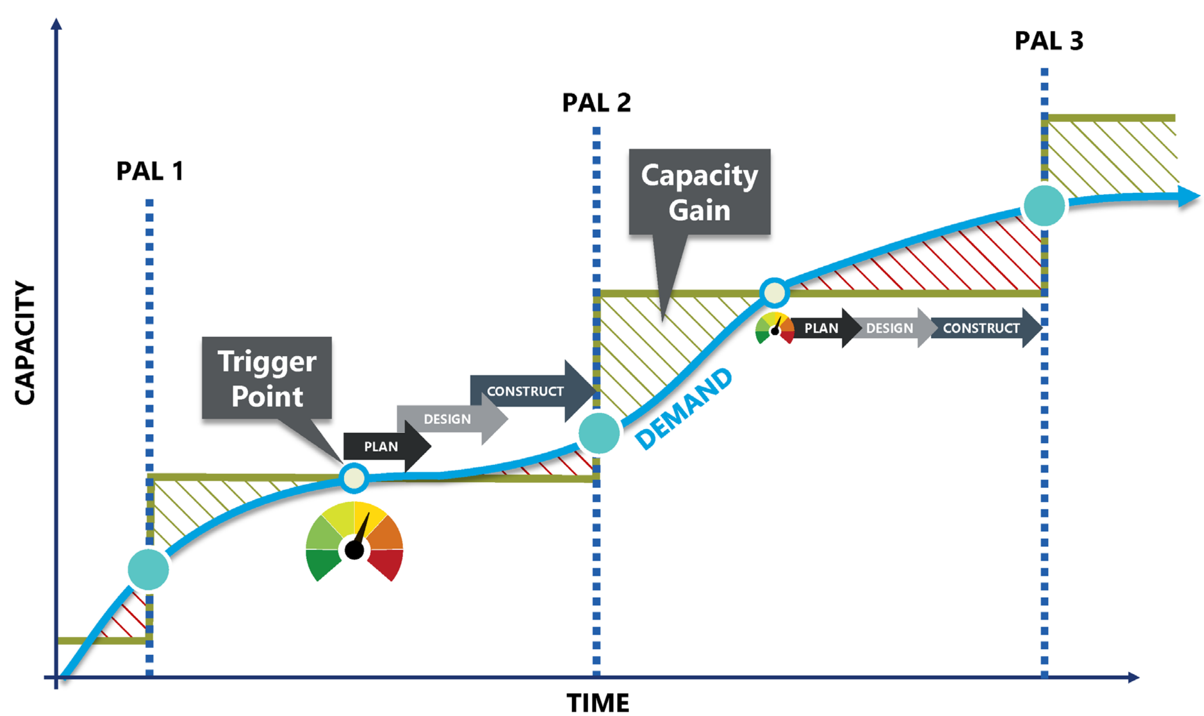
3.1 INTRODUCTION

Airport facility requirements, including the type, size, and quantity, are in large part dependent upon the future aviation activity levels projected in the aviation demand forecasts discussed in **Chapter 2, Aviation Demand Forecasts**. New additions, expansions, or elimination of facilities can be driven by many factors including capacity constraints, updates to regulatory standards, or adjustments in U42's strategic vision. Replacement of outdated or inefficient facilities that are cost prohibitive to maintain or modernize also inform facility needs.

The South Valley Regional Airport (U42) aviation demand forecast used demographic, economic, and geographic statistical analysis to derive a preferred forecast scenario tied to real-world factors in the Greater Salt Lake City area. From this analysis, aviation activity was forecast out for a twenty-year period (2020 – 2040). Although the forecast defines aviation activity milestones for the years 2025, 2030, and 2040, it is important to understand that facility requirements at U42 are driven by levels of user demand, which may or may not coincide with those specific years. Therefore, to eliminate associations between demand levels and specific years, the levels of demand triggering facility improvements will be referred to from this point forward as Planning Activity Levels (PALs).

PALs correlate with operational levels in each respective forecast year and, subsequently, are divided into three activity levels: PAL 1, PAL 2, and PAL 3. **Figure 3-1** diagrams how and when PALs trigger the need for project planning, design, and implementation at certain demand levels, and the effect on overall facility capacity to meet user needs.

FIGURE 3-1
PLANNING ACTIVITY LEVEL TRIGGERING POINTS



Source: RS&H, 2022.

The facility requirements analysis begins with a review of current FAA design standards, industry trends, emerging challenges, and innovations requiring consideration in facility planning. While EONS (economic viability, operational efficiency, natural resource conservation, social responsibility) considerations will be a critical part of the upcoming Alternatives analysis in Chapter 4, facility requirement determinations are more quantitative and objectively determined by way of modern industry guidance, best practices, and regulatory standards. This chapter is devoted to assessments in each of the following topics and functional areas of U42:

- Emerging Trends
- Airfield Capacity
- Airfield Design Standards
- Navigational, Visual, and Meteorological Aids
- Airspace Requirements
- Aircraft Parking and Storage
- Aviation Support Facilities
- Vehicle Parking and Access
- Zoning and Land Use
- Utilities

This chapter concludes with a section summarizing the key findings of the facility requirement assessments which will be used to guide identification and evaluation of future development alternatives.

3.2 EMERGING TRENDS

In planning for the future of U42, it is important to consider the emerging trends of the general aviation industry, as well as operational trends at U42 and practices of Salt Lake City Department of Airports (SLCDA) as a whole. The aviation industry is always evolving, and history demonstrates that technological innovations often precede industry transformations. The rapid pace of development in aviation is anticipated to continue and airports will be expected to adapt quickly.

U42 acts as a reliever airport for Salt Lake City International Airport (SLC). SLC has a high amount of general aviation tenants and traffic for a large hub airport, which creates congestion and can cause interference commercial air carrier operations. To remedy this, the SLCDA has begun an effort to fully utilize its reliever airports, U42 and TVY, to be able to maintain and grow both general aviation and air carrier operations in the Greater Salt Lake City area.

One of the most impactful trends in aviation includes the changing demographics of pilots. Over the past decade, a decline in the number of pilots in the 40 to 60-year-old range has occurred. Historically, this has been an age group involved in recreational flying. Statistics show an ongoing corresponding decline in recreational flying is being experienced. Simultaneously, a sharp increase in the amount of flight training has occurred. This trend is associated with both regulatory changes and a strong demand for commercial airline pilots.

The types of general aviation aircraft flying have also been changing. Flights by aircraft more than 20 years old is slightly down over the past five years. New types of general aviation aircraft, such as the Cirrus SR-22 and Pilatus PC-12, have been introduced and these specific aircraft are becoming two of the most popular general aviation aircraft of their kind.

Other trends occurring in the general aviation industry include:

- Demand for small aircraft is decreasing due to the decreasing number of people pursuing pilot certificates for recreational purposes.
- The cost of flying has sharply increased. This is especially true with relation to cost of retail aviation gasoline, which has more than quadrupled in the last 20 years.
- Operations by private jet aircraft are increasing as a share of total operations, which results in greater demand for additional, stronger pavement and Jet A fuel availability at airports. While it might appear that jet aircraft would increase negative externalities such as noise and emissions, in fact, they operate cleaner and quieter due to engine technological advancements. Simultaneously, new aircraft often replace older, louder, and less fuel-efficient aircraft, which reduces overall noise and emission impacts on communities around airports.

Aviation trends like electric aircraft development, environmental stewardship, and new aircraft designs will influence airport facility requirements. Electric aircraft have the potential to usurp traditional internal combustion powered small aircraft currently used in flight training and recreational flying. Electric aircraft engines can simultaneously reduce operational costs as well as noise and carbon dioxide emissions, making small aircraft operations more affordable and environmentally friendly. This shift effects airport facilities by requiring improvements like electric charging ports and it could affect airport capacity and storage needs if small aircraft operations increase. Necessary upgrades or extension of electrical lines serving U42 should be considered as well as strategic locations for battery charging stations, timing to implement improvements, and adjustments to financial policies which recapture operating revenues lost by decreasing fuel sales.

3.3 AIRFIELD REQUIREMENTS

Airport and airfield design standards related to the construction of airfield infrastructure are established in FAA Advisory Circular 150/5300-13B, *Airport Design*. Each airport has a design aircraft, which is the largest, most demanding aircraft that regularly uses the airfield. Regular use is defined as at least 500 annual operations, not counting touch-and-go operations.

Three parameters are used to classify the critical aircraft: Aircraft Approach Category (AAC) Airplane Design Group (ADG), and Taxiway Design Group (TDG) shown in **Figure 3-2.** The AAC, depicted by a letter, relates to aircraft speed as it on final approach to the runway. The ADG, depicted by a Roman numeral, relates to airplane wingspan and tail height. The TDG, classified by number, relates to the outer-to-outer main gear width and the distance between the cockpit and main gear. These parameters serve as the basis of the design and construction of airport infrastructure.

FIGURE 3-2
AIRPORT DESIGN CATEGORIES

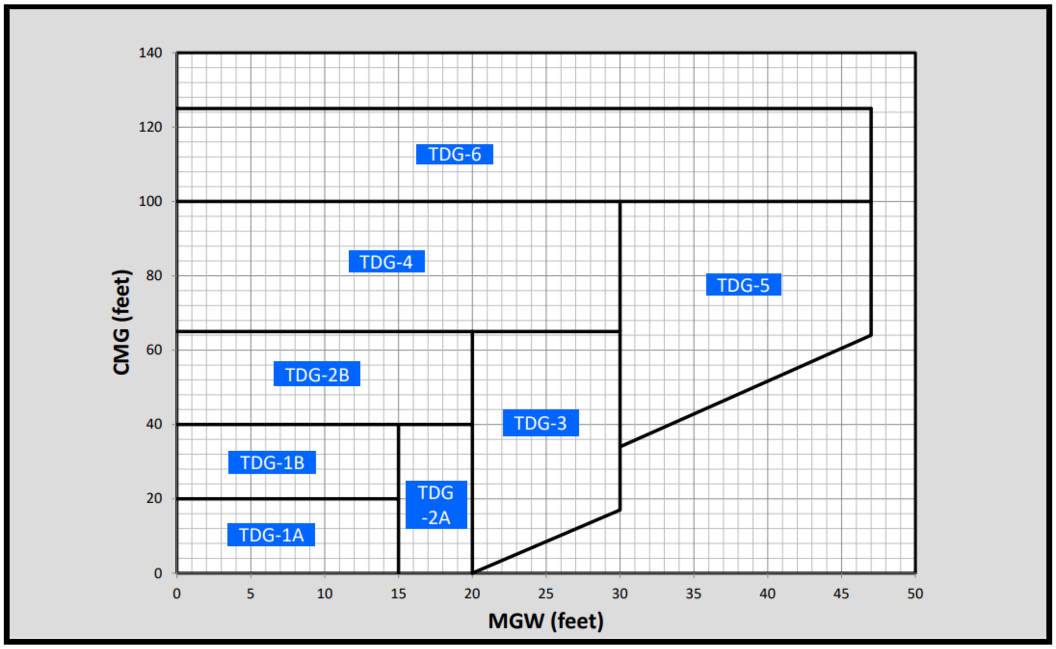
AIRCRAFT APPROACH CATEGORY

AAC	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

AIRCRAFT DESIGN GROUP

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

TAXIWAY DESIGN GROUP



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

As identified in the **Chapter 2, Aviation Activity Forecasts** of this Master Plan, the design aircraft for U42 is the Beech King Air B-200. The Citation X/X+ is listed as the future critical aircraft. **Table 3-1** denotes the corresponding airport design standards for these existing and future critical aircraft. Based on the evaluation of existing and future critical aircraft, a composite critical aircraft is recommended for future alternatives analysis.

TABLE 3-1
EXISTING AND FUTURE AIRPORT DESIGN CRITERIA

	Aircraft	AAC	ADG	TDG
Existing Critical Aircraft	Beechcraft Super King Air	B	II	2A
	Beechcraft Super King Air	B	II	2A
Future Critical Aircraft	Cessna Citation X+	C	II	1B
	Composite	**C**	**II**	**2A**

Source: FAA AC 150/5300-13B, Airport Design; RS&H Analysis, 2022.

3.3.1 Wind Analysis and Meteorological Conditions

Weather plays a significant role in influencing airport facility needs and design requirements. Ambient temperature, precipitation, wind, visibility, cloud ceiling, and atmospheric pressure are all climate factors that affect operational parameters and future facility needs at U42. The warmest month on average for U42 is July, with average high temperature of 94.0 degrees Fahrenheit from 1991 to 2020. Predominant winds arrive from the north-northwest.

Runway wind coverage analysis was conducted using the FAA's ADIP Windrose Tool. Data for this tool was supplied by the NOAA's Integrated Surface Database (ISD)[1]. Between 2016 and 2020, 107,362 hourly observations of winds occurred. 3,034 of these observations occurred in instrument meteorological conditions, equating to three percent of all observations occurring during instrument meteorological conditions (IMC), which are poor weather conditions where cloud ceilings are below 1,000 feet above ground level and/or there is less than three statute mile visibility.

FAA runway design standards recommend an airport's runway system provide a minimum of 95 percent wind coverage. The 95 percent wind coverage is computed on the basis of the crosswind component not exceeding the set value based on the Runway Design Code (RDC)[2]. If a single runway cannot provide this level of coverage, then a crosswind runway is warranted. The smaller an aircraft is, the less allowable crosswind component is allowed. For the smallest aircraft, such as A-I and B-I, 10.5 knots of crosswind

[1] Information supplied on FAA ADIP through "A00028 SALT LAKE CITY MUNI 2 ARPT ANNUAL PERIOD RECORD 2016 2017 2018 2019 2020"

[2] The RDC is a design standard specific to a single runway, and per FAA Advisory Circular AC 150/5300-13B, *Airport Design*, "runway standards are related to aircraft approach speed, aircraft wingspan, and designated or planned approach visibility minimums." This practice properly configures runways to meet necessary physical and operational characteristics for the most demanding aircraft operating at the airport.

component is allowed. For B-II aircraft, the crosswind component allowed is 13 knots, with C-II aircraft the allowable component is 16 knots. the current runway provides sufficient wind coverage. In all-weather and instrument meteorological conditions, U42 exceeds 95 percent wind coverage in even the most restrictive aircraft types. **Table 3-2** shows the runway wind coverage percentages for all-weather and instrument meteorological conditions at U42.

TABLE 3-2
RUNWAY WIND DATA

	ALL-WEATHER WIND DATA			IMC WIND DATA		
Runway	**Crosswind Component**			**Crosswind Component**		
	10.5 Knots	**13 Knots**	**16 Knots**	**10.5 Knots**	**13 Knots**	**16 Knots**
Runway 16-34	99.05%	99.63%	99.90%	98.98%	99.70%	99.97%
Runway 16	67.75%	67.97%	68.08%	46.73%	46.83%	46.87%
Runway 34	54.07%	54.42%	54.58%	87.19%	87.80%	88.04%

Source: NOAA Integrated Surface Database (ISD), All Weather Observations: 107,362; IMC Weather Observations: 3,034 ,Station: South Valley Regional Airport – AWOS III, Data Range: 2016-2020

3.3.2 Runway Design

Analysis of the runway addresses its ability to meet both current and forecast demand. At a minimum, runways must have the proper length, width, and strength to meet FAA recommended design standards to safely accommodate the critical aircraft. This section analyzes specific runway criteria and makes recommendations based on the forecast. Elements to be examined in this section include runway designation, length, width, strength, runway protection zones, and capacity.

3.3.2.1 Runway Designation

Runway designations provided on each runway indicate the runway orientation according to the magnetic compass bearing. Runway designations can change due to the slow drift of the magnetic poles on the Earth's surface, which over time change the runway's magnetic bearing. Magnetic declination relates to the degree of magnetic drift that must be accounted for. Depending on an airport's location and how much drift takes place, it may be necessary to change the runway designation. It is recommended that runway designations be changed if there is more than a five-degree difference from the runway's magnetic heading to its designation.

As of July 1, 2022, the magnetic declination at U42 is 11° 3' E and changing annually by 0° 6' W. As illustrated in **Table 3-3**, all runway designations are anticipated to remain the same throughout the planning period.

TABLE 3-3
MAGNETIC DECLINATION

			Existing		Future (2040)		
Runway Designation	True Alignment	True Bearing	Magnetic Bearing	Runway Heading	Magnetic Bearing	Runway Heading	Runway Designation
Runway 16	172°	172° 26' 16.08"	161° 23' 16.08"	161°	159° 35' 16.8"	159°	Runway 16
Runway 34	352°	352° 26' 22.56"	341° 23' 22.56"	341°	339° 35' 24"	339°	Runway 34

Source: National Centers for Environmental Information Magnetic Declination Calculator, RS&H Analysis 2022

3.3.2.2 Runway Length

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

Guidance A **FAA Recommended Runway Length:** General runway length guidance based on FAA computer modeling software and Advisory Circular performance graphs for composite aircraft groups, as adjusted for U42 mean maximum temperature (94.0°F), field elevation (4,606 feet above mean sea level), difference in runway centerline elevations (5 feet for Runway 16-34) and aircraft flight range of 500 nautical miles.

Guidance B **Critical Aircraft Planning Manual (Performance Curves):** Determines runway length for specific aircraft models and engines based on data from the aircraft manufacturer, as adjusted for U42 to the extent possible based on aircraft operating (payload) weights, flight range, non-standard temperatures, and field elevation.

Table 3-4 provides recommended runway length requirements based on the FAA computer modeling software.

TABLE 3-4
RUNWAY LENGTH REQUIREMENTS

Aircraft Category	FAA Recommended Runway Length (Feet)
Existing Runway 16-34 Length	5,862'
Small airplanes with <30 knot approach speed	440'
Small airplanes with <50 knot approach speed	1,170'
Small airplanes (12,500 lbs) with <10 passenger seats	
75% of Fleet	4,440'
95% of Fleet	5,870'
100% of Fleet	6,120'
Small airplanes (12,500 lbs) with 10 or more passenger seats	6,120'
Large airplanes (12,501 lbs - 60,000 lbs)	
75% of Fleet at 60% useful load	6,670'
75% of Fleet at 90% useful load	8,650'
100% of Fleet at 60% useful load	10,780'
100% of Fleet at 90% useful load	11,050'

Source: FAA Advisory Circular 150/5325-4, *Runway Length Requirements for Airport Design,* using FAA Airport Design Microcomputer Program 4.2D.

The results of the FAA modeling software indicated the existing runway length at U42 is sufficient for most small aircraft 12,500 pounds or less, but additional runway length is needed to accommodate those aircraft between 12,500 and 60,000 pounds. The 2007 Utah Continuous Airport System Plan has planned that U42 would eventually have a runway length sufficient to accommodate 75 percent of the large airplane fleet with 60 percent useful load, equating to a runway roughly 6,600 feet long. That is the length currently planned and shown on the existing airport layout plan (ALP).

As part of this study, detailed runway length analysis was conducted to determine the usefulness of the current runway and to validate the ALP's planned future runway length. The analysis focused on turboprop and business jet aircraft that have historically and consistently operated at U42. Using each aircraft's Aircraft Flight Manual (AFM) and Pilot Operating Handbook (POH) with standard flying conditions assumed, as well as consideration of AC 150/5325-4, *Runway Length Requirements for Airport Design*, supplemental aircraft runway length requirements were generated based on 90 percent useful payload. **Table 3-5** contains these runway length requirements.

TABLE 3-5
AIRCRAFT REQUIRED RUNWAY LENGTH ANALYSIS

Aircraft	Required Runway Length	Current Runway Length 5,862 Feet
Turboprop		
Pilatus PC-12NG	4,123'	✓
Cessna 208 Caravan	4,045'	✓
SOCATA TBM 850	3,882'	✓
Mitsubishi MU-2	4,750'	✓
Cessna 441 Conquest II	3,883'	✓
Beechcraft King Air 200	4,820'	✓
Business Jet		
Cessna Citation X	6,557'	×
Eclipse 500	4,297'	✓
Cessna Sovereign	3,645'	✓
Cessna CJ2+	5,337'	✓
Falcon 900EX	5,836'	✓
Cessna 560XLS	6,248	×

Source: Analysis from LEAN Engineering using aircraft AFM and POH for landing performance data, 2022, FAA Advisory Circular 150/5325-4, *Runway Length Requirements for Airport Design.*

Overall, the runway length at U42 is sufficient for many aircraft to operate, including the business jet fleet. However, to fully accommodate the future critical aircraft and maximize the utility of the runway, the existing ALP's planned future runway length of 6,600 feet is carried forward in this study. The Alternatives chapter details options explored and the preferred solution of how best to accommodate a future extension of Runway 16-34 to 6,600 feet.

3.3.3 Runway Width and Blast Pads

Runway 16-34 is currently 100 feet wide and has approximately 22' foot paved shoulders. This is sufficient for B-II and C-II criteria, as denoted in **Table 3-6**. The existing width of 100 feet should be maintained through the planning period to support future upgrade to C-II critical aircraft design.

Runway 34 has a blast pad that meets and exceeds B-II and C-II requirements. Runway 16 has no blast pad. Only runways that support ADG IV critical aircraft are required to have blast pads. However, blast pads are helpful in improving pilot visual cues to runway ends, and help mitigate soil erosion at the ends of a runway. In the future, it is recommended that a blast pad be considered for Runway 16, especially if a future RNAV GPS approach is implemented on that runway in effort to increase pilot visual cues to the runway end.

TABLE 3-6
RUNWAY WIDTH REQUIREMENTS

Runway Criteria	Current Runway	B-II Criteria	C-II Criteria	Meets Standard (✓)
Runway Pavement Width	100'	75'	100'	✓
Paved Shoulder Width	22'	10'	10'	✓
Runway 34 Blast Pad Length	260'	150'	150'	✓
Runway 34 Blast Pad Width	147'	95'	120'	✓

Source: FAA AC 150/5300-13B, *Airport Design;* RS&H Analysis, 2022

3.3.3.1 Runway Strength

Pavement strength is an important criterion in determining the usability of the airfield, as an aircraft that weighs more than the pavement surface's strength using the runway for takeoff or landing runs the risk of damaging the runway. General aviation aircraft weights that range between 2,000 to 50,000 pounds may often have a single wheel gear (SWG) configuration. Aircraft with a maximum takeoff weight (MTOW) over 20,000 pounds typically have a dual wheel gear (DWG) configuration.

The U42 runway's strength currently allows a single wheel weight capacity of 30,000 pounds and a dual wheel weight capacity of 43,000 pounds. There is no forecasted need to increase runway strength, as the MTOW of the aircraft that use U42, including the existing and future critical aircraft, are within these strengths. **Table 3-7** details typical maximum takeoff weights for general aviation aircraft, air taxi aircraft, and the current and future critical aircraft at U42.

TABLE 3-7
TYPICAL AIRCRAFT MINIMUM TAKEOFF WEIGHTS

Aircraft	Aircraft Size (Passengers)	ARC	Gear Type	Maximum Take-Off Weight
General Aviation Aircraft				
Light/Small Business Jet	4 to 6 Passengers	B-I to B-II	Single-Wheel	8,000 to 20,000 lbs.
Medium Business Jet	6 to 10 Passengers	B-II to C-II	Dual-Wheel	20,000 to 50,000 lbs.
Large Business Jet	10 to 16 Passengers	C-II to D-III	Dual-Wheel	45,000 to 95,000 lbs.
Boeing Business Jet	up to 150 Passengers	C-III	Dual-Wheel	up to 188,000 lbs.
Boeing 767-300	up to 290 Passengers	D-IV	Dual-Tandem Wheel	up to 400,000 lbs.
Boeing 747-400	up to 524 passengers	D-V	Dual-Tandem Wheel	up to 900,000 lbs.
Air Carrier/Air Taxi Aircraft				
Turboprop	19 to 40 Passengers	B-II to A-III	Dual-Wheel	26,000 to 65,000 lbs.
Regional Jet	50 to 90 Passengers	C-II	Dual-Wheel	53,000 to 85,000 lbs.
Current/Future Critical Aircraft				
Beechcraft Super King Air	10-11 Passengers	B-II	Dual-Wheel	12,500 lbs.
Cessna Citation X+	8 Passengers	C-II	Dual-Wheel	36,600 lbs.

Sources: FAA Aircraft Characteristics Database, FAA; RS&H Analysis, 2022.

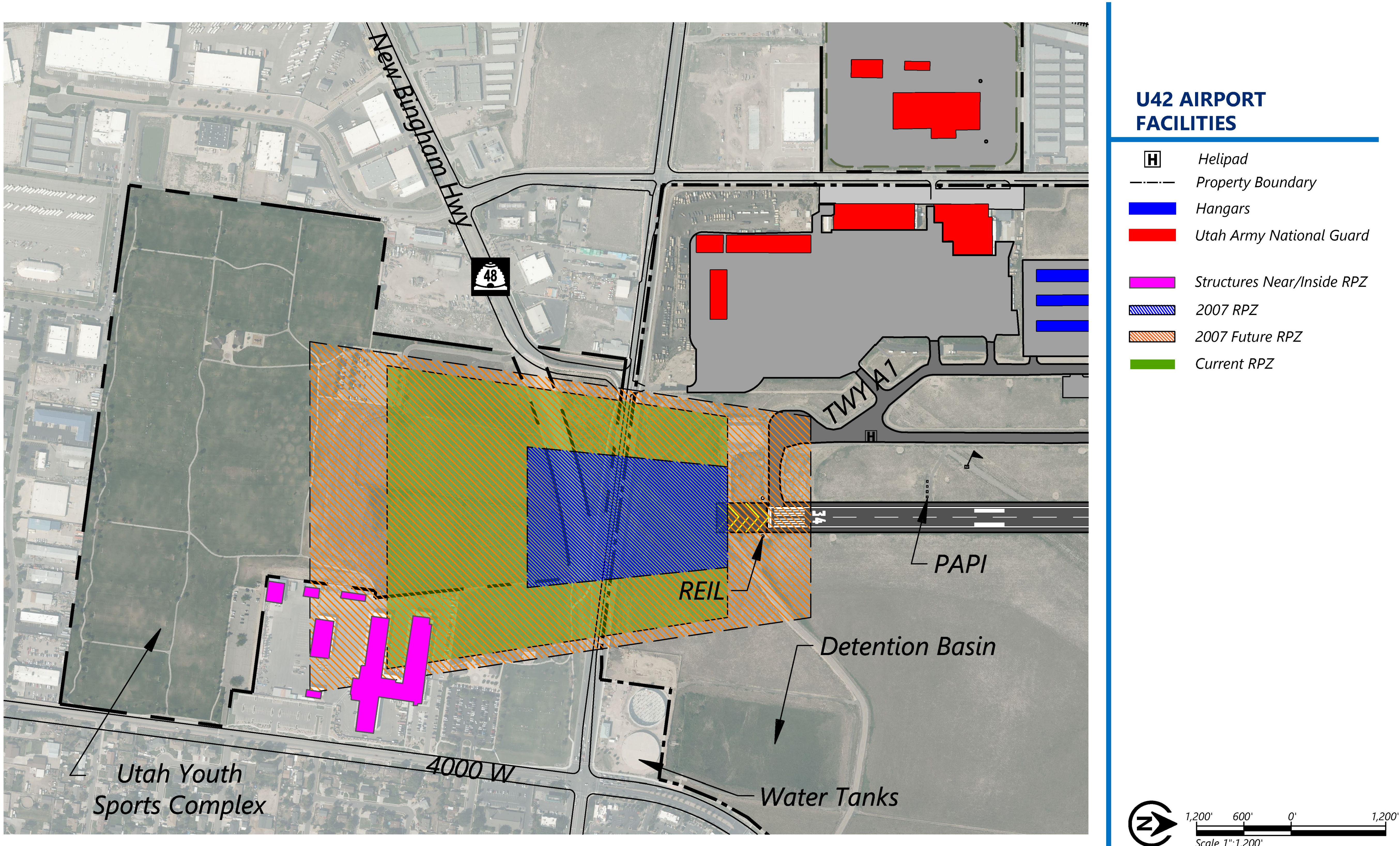
3.3.3.2 Runway Protection Zones

For the protection of people and property on the ground, the FAA has identified an area of land located off each runway end as the Runway Protection Zone (RPZ) that should be under airport control and free of incompatible objects and activities. The size of these zones varies according to the critical aircraft characteristics and the lowest instrument approach visibility minimum defined for each runway.

The FAA desires that airports own in fee all land within the RPZ. The northern RPZ is completely contained on airport property and has no structures or obstructions. The southern RPZ is not fully contained by airport property, and is partially contained in a non-airport "no build" area that is bisected by 7800 S Street. The "no build" area is currently partially used as a soccer field complex with support facilities and West Jordan Department of Public Works. Soccer fields, as an area of public gathering, have been determined to be an incompatible use with the RPZ[3]. In regard to the public works building, a Notice of Proposed Construction for this building issued in 2017 resulted in a Determination of No Hazard to Air Navigation. Thus, the building does not affect approaches to U4. The building is not a gathering place for the public, thus it does not conflict directly with approved land use within an RPZ. This area is depicted in **Figure 3-3**.

[3]FAA Memorandum, *Interim Guidance on Land Uses Within a Runway Protection Zone, 2012.* https://www.faa.gov/airports/planning_capacity/media/interimLandUseRPZGuidance.pdf

FIGURE 3-3
RUNWAY PROTECTION ZONE



Source: AC 150/5300-13B, *Airport Design*, RS&H Analysis, 2022.
Note: 2007 ALP Future RPZ is displaced 415' due to the 2007 ALP anticipating the runway threshold being moved 415' north.

3.3.3.3 Runway Geometric Standards

This section analyzes the existing runway geometric and separation distances against the dimensional standards that arise from the critical aircraft category designated for each runway. Compliance with FAA airport geometric and separation standards, without modification to standards, is intended to meet a minimum level of airport operational safety and efficiency. Runway 16-34 was evaluated for geometric deficiencies using B-II/C-II runway design criteria. **Table 3-8** compares current FAA 150,5300-13B airport design standards to existing conditions.

TABLE 3-8
RUNWAY GEOMETRY STANDARDS

Airfield Components	Existing 16	Existing 34	B-II	Adequate (✓)	C-II	Adequate (✓)	B-II Precision	Adequate (✓)	C-II Precision	Adequate (✓)
Runway Protection										
Runway Safety Area (RSA)										
Length beyond departure end	700'	1,000'	300'	✓	1,000'	×	600'	✓	1,000'	×
Length prior to threshold	1,000'	700'	300'	✓	600'	✓	600'	✓	600'	✓
Width	600'		150'	✓	500'	✓	300'	✓	500'	✓
Runway Object Free Area										
Length beyond departure end	700'	1,000'	300'	✓	1,000'	×	600'	✓	1,000'	×
Length prior to threshold	1,000'	700'	300'	✓	600'	✓	600'	✓	600'	✓
Width	600'		500'	✓	800'	×	800'	×	800'	×
Runway Obstacle Free Zone										
Length	200'		200'	✓	200'	✓	200'	✓	200'	✓
Width	400'		400'	✓	400'	✓	400'	✓	400'	✓
Runway Separation										
Runway Centerline to:										
Holding Position	200'		200'	✓	250	×	250'	×	250'	×
Parallel Taxiway/Taxilane Centerline	400'		240'	✓	300'	✓	300'	✓	400'	✓
Aircraft parking area	590'		250'	✓	400'	✓	400'	✓	400'	✓
Building Restriction Line	840'		495'	✓	495'	✓	745'	✓	745'	✓

Source: FAA AC 150/5300-13B, *Airport Design;* RS&H Analysis, 2022
Note: Only Runway 34 can support instrument approaches with visibility minima down to one mile visibility currently.

To have the airfield components meet standards for C-II operations, changes to the Runway Safety Area and Runway Object Free Area must be made to accommodate these operations.

3.3.3.4 Runway Capacity

A detailed study of capacity was not needed for this study, as sufficient analysis was achieved using assumptions and guidance provided in FAA AC 150/5060-5, *Airport Capacity and Delay*.

U42 is a single runway system, depicted by No. 1 configuration in AC 150/5060-5, shown in **Table 3-9**. The annual service volume (ASV) of a runway depends on the mix index associated with that runway. Mix index is related to the percentage of heavier aircraft operations compared to total annual operations. Because small aircraft flight training is a large contributor of operations at U42, and can decrease or increase substantially year over year, it is estimated the mix index is and will remain between 0 and 50, which equates to an ASV of 195,000 to 230,000 operations.

TABLE 3-9
RUNWAY MIX AND ANNUAL SERVICE VOLUME

Runway Configuration	Mix Index %(C+3D)	Hourly Capacity in Operations Per Hour		Annual Service Volume
		VFR	IFR	
	0 - 20	98	59	230,000
	21 - 50	74	57	195,000
1. 	51 - 80	63	56	205,000
	81 - 120	55	53	210,000
	121 - 130	51	50	240,000

Source: FAA AC 150/5060-5, *Airport Capacity and Delay;* RS&H Analysis, 2022

Comparing the forecasted operations to the ASV at the airport provides insight into existing and future capacity constraints. The generally accepted industry benchmark to begin planning for additional airfield capacity is when demand reaches 60 percent of the ASV, and building needed upgrades when demand reaches 80 percent ASV. Sixty percent of the estimated 230,000 ASV equates to 138,000 annual operations. The high growth forecast estimates PAL 3 reaching approximately 125,000 annual operations. Thus, the airport is not expected to reach the 60 percent threshold of ASV within the planning period.

3.3.4 Taxiway Design

This taxiway analysis addresses specific requirements relative to FAA design criteria and the ability of the existing taxiways to accommodate the current and projected demand. At a minimum, taxiways must provide efficient circulation, have the proper strength, and meet FAA design standards to safely accommodate the design aircraft. Airport runways should be supported by a system of taxiways that provide access between the runways and the aircraft parking and hangar areas.

The goal of an effective taxiway system is to maintain traffic flow using taxi routing with a minimum number of points requiring a change in the airplane's taxiing speed. At U42, the runway is supported by a dual parallel taxiway system, consisting of Taxiway A and Taxiway B. Taxiway A provides access across the apron, while Taxiway A1, A2, A3, and A4 provide access to the runway along various points. Taxiway A1 and A4 are runway entrance taxiways. Taxiway B is the inboard parallel taxiway sitting between Taxiway A and the runway.

The Airport's critical aircraft determines taxiway design standards and dimensional criteria. Taxiway pavement width is determined by the TDG of the design aircraft. Separation standards are determined by the ADG of the design aircraft. To accommodate the Airport's design aircraft, it is recommended that critical airfield taxiways be designed and built to ADG II/TDG 2A standards. **Table 3-10** illustrates the FAA standards and how each taxiway meets the specified criteria.

TABLE 3-10
TAXIWAY COMPONENT CRITERIA

Taxiway Components	Taxiway Width	Taxiway Shoulder Width	Taxiway Safety Area Width	Taxiway Object Free Area Width	Centerline to Parallel Taxiway	Centerline to Fixed or Movable Object
ADG II, TDG 2A Requirements	35'	15'	79'	131'	105'	65.5'
TWY A	✓	✓	✓	✓	✓	✓
TWY A1	✓	✓	✓	✓	✓	✓
TWY A2	✓	✓	✓	✓	✓	✓
TWY A3	✓	✓	✓	✓	✓	✓
TWY A4	✓	✓	✓	✓	✓	✓
TWY B	✓	✓	✓	✓	✓	✓

Source: FAA Advisory Circular 150/5300-13B, *Airport Design;* RS&H Analysis, 2022.

Analysis of the taxiways was conducted to determine if airfield compliance deficiencies existed as measured to the new standards. The deficiencies that were found are described below and are referenced to specific paragraphs within AC 150/5300-13B (herein called the AC). Other deficiencies, that effect nearly all the taxiways at U42, are related to changes in general design, such as the design of taxiway fillets. All deficiencies described are referenced to their location in the current AC. The following bullets address taxiway deficiencies found at U42.

- **Taxiway A2 and A3:** These taxiways provide a direct connection between the apron and the runway. Section 4.3.5.1 of the AC states the taxiway must have at least one turn between 75 and 90 degrees before the aircraft would reach a runway hold line. That type of configuration is proven to help prevent pilots from losing situational awareness and inadvertently taxing onto the runway by accident.
- **Taxiway A4:** This taxiway intersects the end of the runway at a 50 degree angle, which reduces a pilot's ability to detect if aircraft are operating on the runway and maintain general situational awareness. Section 4.8.2 in the AC states entrance taxiways should be designed as right-angle intersections with the runway.
- **All existing taxiway fillets**, except Taxiway A1, are not designed to current FAA design standards. These are not safety critical design items and should be addressed during future pavement rehabilitation projects.
- **Apron South of Taxiway A2:** The connections of this apron to Taxiway A are not aircraft rated or designed to FAA standard. Additionally, the apron concrete extends into the TOFA of Taxiway A2.
- **Dual Taxiway Configuration:** While not a deficiency, a dual taxiway configuration is not required for serving airports with operational levels of U42. However, U42 accommodates a wide range of operations, including military and private helicopter training, fixed wing training, and business aircraft operations. The mix of these aircraft operations creates risk of congestion on the airfield, which is further increased due to the lack of airport traffic control tower personnel controlling

ground movements. The dual taxiway configuration provides significant benefit in providing flexibility for operators and preventing head-to-head conflicts between aircraft. As such, the dual taxiway configuration should be maintained.

3.4 NAVAID AND LIGHTING REQUIREMENTS

Navigational aids and lighting, often referred to as NAVAIDs, consist of equipment to help pilots locate the airport. NAVAIDs can provide information to pilots about the aircraft's horizontal alignment, height above the ground, location of airport facilities, and the aircraft's position on the airfield. U42 features all three types of navigational aids (visual, electronic, and metrological), as detailed in **Chapter 1, Inventory of Existing Conditions**. The following narrative describes the three types of NAVAIDs as well as any deficiencies that currently exist at U42.

3.4.1 Visual Aids and Electronic Aids

Visual aids at U42 include those specific to each approach, and those that serve the entire airport. Electronic aids include devices and equipment used for aircraft instrument approaches. Visual and electronic aids at U42 are listed in **Table 3-11**. As shown, existing visual and electronic aids are adequate to support current flight operations.

TABLE 3-11
VISUAL AND ELECTRONIC NAVIGATIONAL AIDS

NAVAID	Runway 16 Visual	Adequate (✓) or Deficient (X)	Runway 34 RNAV GPS	Adequate (✓) or Deficient (X)
Visual Aids				
Approach Lighting	REIL	✓	REIL	✓
Lighting System	MIRL	✓	MIRL	✓
Runway Markings	Basic	✓	Non-Precision	✓
Runway Windcone	Yes	✓	Yes	✓
Touchdown Zone Lighting	No	✓	No	✓
Visual Slope Indicator	PAPI (P4L)	✓	PAPI (P4L)	✓
Rotating Beacon	Yes	✓	Yes	✓
Segmented Circle	Yes	✓	Yes	✓
Electronic Aids (Approaches)				
Glideslope	No	✓	No	✓
LOC / DME	No	✓	No	✓
RNAV (GPS)	No	✓	Yes	✓
VOR/DME	No	✓	No	✓

Source: FAA Chart Supplements, FAA.gov, RS&H Analysis, 2022.
Notes: REIL = Runway End Indicator Lights, PAPI = Precision approach path indicator, LOC = Localizer, DME = distance measuring equipment, RNAV = Area navigation, VOR/DME = VHF omnidirectional range / distance measuring equipment.

Many of the challenges associated with retaining or enhancing flight operations at U42 are related to the ability to safely deconflict traffic operating into U42 from arrivals and departures at SLC. One method to potentially enhance this capability is through the installation of a MALSR or Runway Lead-In Light System (RLLS) to one or both ends of Runway 16-34, which would allow for new airspace procedures.

The installation of a MALSR on either end of Runway 16-34 will enable the existing RNAV (GPS) Runway 34 approach to potentially achieve decreased visibility and enhance the safety of pilots on approach to safely separate the runway from a dense urban environment. This will be significant for the existing approach and to provide for future approach designs.

Limitations in current FAA runway design categories may prevent the ability of a new MALSR from effectively decreasing the required visibility, but the safety benefit and visual identification of the runway environment for potential simultaneous dependent operations with SLC runways may soon be a requirement. It is recommended that land be protected for future implementation of an 1,800 to 2,400 foot MALSR on Runway 34 and Runway 16.

In addition to MALSRs, the installation of one or more Runway Lead-In Light System (RLLS) to Runway 16 may be considered. The installation of a RLLS may enable aircraft to execute instrument approaches to Runway 16 at nighttime. Pilots would follow the RLLS (installed as clusters of three flashing lights, every 6,000 feet) along the intermediate and final approach path to Runway 16, permitting flight crews to safely navigate along the sequenced flashing path of lights towards the runway while staying visually or procedurally separated from SLC arrivals and departures. The footprint of a potential RLLS at U42 would likely involve an 1,800-foot MALS connecting to clusters of off-airport RLLS installation (similar to ODALS or RAILS) that would extend in three to four clusters for approximately three miles away from the airport. The Alternatives Chapter details the analysis of airspace enhancement options paired with these equipment upgrades, and describes the evaluation process conducted considering practicality, cost and usefulness.

3.4.2 Meteorological Aids

Meteorological aids consist of equipment that reports weather conditions to users and tenants at an airport. U42 has an Automated Weather Observing System III (AWOS III) to provide weather information such as temperature, pressure, wind direction/intensity, cloud and ceiling height, and visibility. With the anticipated increase in traffic and aircraft fleet size, there is value in upgrading the AWOS III to an AWOS III P/T to improve safety and operational efficiency. An AWOS III P/T improves upon the AWOS III in two ways; first, the system possesses the ability to identify general precipitation falling on the airport (rain, snow, drizzle), and second, it can detect if a thunderstorm is nearby the airport.

During periods of forecasted precipitation, pilots must assume U42 to have a runway condition code (RCC) of 3 or below. Because the U42 airport is non-towered, pilots rely solely on current and historical information from the AWOS to determine if the runway may be wet or contaminated either prior to departure or as a part of their in-flight landing distance assessment. The current length of Runway 16-34 is sufficient for dry and wet landing performance. However, it is not long enough to accommodate jet operations on RCC 3 or below. Therefore, to ensure the safety of landing operations, and to maximize the utility of the Airport, an upgrade from the AWOS III to a AWOS III P/T is recommended.

3.4.3 Airport Traffic Control Tower

A future FAA staffed Airport Traffic Control Tower (ATCT) has long been considered at U42. The 2006 Master Plan discussed the potential of an ATCT and preserved an area for a future ATCT development site on the Airport Layout Plan. For an airport such as u42 to qualify for an ATCT, the FAA has established certain qualifiers that must be met before ATCT construction will be considered. First, the airport must be in compliance with *14 CFR § 170.13 - Airport Traffic Control Tower (ATCT) Establishment Criteria*[4]**.** U42 already qualifies in many of these criteria, such as being part of the NPIAS, however a benefits/cost analysis must be conducted and submitted to the FAA before the FAA would make a consideration. These qualifiers being met also do not guarantee the airport an ATCT.

Overall, the primary benefit of an ATCT at U42 would be the ability to enhance approaches in instrument weather conditions (IMC), increase arrival and departure capacity, and add another level of safety when the airspace is congested. However, the cost to build an ATCT and staff the facility is significant, and benefits must outweigh those costs.

It is anticipated that new remote tower capabilities will be available in the future to allow SLC TRACON (S56), SLC ATCT, or an offsite team to provide air traffic control services for U42. Nevertheless, this master plan continues to preserve a location for a future onsite ATCT tower to ensure the Airport is ready if needs change.

3.5 LAND USE COMPATIBILITY AND ZONING

U42 sits within the City of West Jordan and abuts Kearns Township on the north side. Both West Jordan and Kearns Township have municipal codes addressing land uses permitted within areas surrounding U42. Deficiencies were found with both codes as noted below.

West Jordan code deficiencies:

- The defined clear zone (Acl) appears to be based off a runway protection zone (RPZ) sizing. The clear zone has smaller dimensions than the required RPZ for Runway 16 and 34.
- The defined approach zone (Aa) and horizontal zone (Ah) have similar dimensions to a Part 77 visual only approach surfaces. However, because Runway 34 is now a non-precision instrument approach runway, the dimensions of the approach surface (Aa) and horizontal zone (Ah) must be increased in size.
- The defined conical zone (Ac) is in accordance with Part 77, but does not define what the slope should be.
- No specific height limitations are defined in the code to adequately protect Part 77 surfaces.

Kearns Township code deficiencies:

- The code describes an airport overlay zone but no mapping is provided. It is estimated the code intends to reference the West Jordan airport overlay zone, but this is not mentioned in the code.
- A map that correlates with code shows a Zone F which is not described in the code.

[4] 14 CFR § 170.13 - Airport Traffic Control Tower (ATCT) Establishment Criteria, FAA. https://www.law.cornell.edu/cfr/text/14/170.13

It is recommended the West Jordan Airport Overlay zone be updated to align with FAR Part 77. The update should at a minimum, describe specific height limitations that will protect Part 77 surfaces from penetration, should protect for current and future approach and departure surfaces, and be mapped with the accuracy afforded modern GIS tools. Similarly, it is recommended the Kearns Township code be updated with a corresponding map and/or be revised to reference the West Jordan Airport Overlay Zone. As part of the updates, both codes should be reviewed in further detail to determine any other elements that need revision and modernization.

3.6 AIRCRAFT PARKING AND STORAGE

This section outlines the requirements for the general aviation (GA) facilities during the planning period for parking and storage of based and transient aircraft. The areas evaluated in this section include aircraft hangars, aircraft tie-downs, and apron space. The analysis divides aircraft storage needs between based and transient aircraft.

3.6.1 Based Aircraft Storage Requirements

This section outlines requirements for tie-downs, shade hangars, T-hangars, box hangars, and corporate hangars. These hangar types are terms for different sized hangars. The following definitions describe how each hangar space is programmed within the context of this Master Plan.

- **Tie-Downs** – Uncovered defined locations on the apron with anchors to secure aircraft while parked at the Airport. These spaces are typically leased to based aircraft with some being reserved for use by itinerant aircraft.
- **Shade Hangars** – Similar to tie-downs, but the defined location is covered with a roof to shelter from sun exposure and inclement weather and does not include side walls.
- **T-Hangars** – Small hangars that are typically arranged so aircraft are "nested" next to each other in alternating directions.
- **Box Hangars** – Hangars that are larger than a T-hangar, most often used to house large corporate turboprop and jet aircraft. Some are large enough to store multiple smaller aircraft.
- **Corporate Hangars** – The largest type of hangar which can contain multiple aircraft. They often are built with ancillary space for other uses such as offices, crew lounge, reception, restrooms, and other needs of business travelers.

The tenant survey that was used for developing the high growth forecast, as described in the **Chapter 2 Aviation Forecasts**, provided data regarding the potential demand for specific hangar types. Survey results indicated that roughly 2 percent of respondents desired tie-down space at U42 and the rest desired hangars. Of the potential hangar demand indicated in the survey, 66 percent was for T-hangars, 32 percent was for box hangars, and 2 percent was for corporate hangars. These percentages were used to estimate hangar area requirements.

Table 3-12 summarizes the estimated amount of hangar space needed based on the high-growth forecast of based aircraft. For planning purposes, it was assumed that every new based aircraft would require a hangar. Thus, the analysis is conservative as box and corporate hangars will often be used to store multiple based aircraft. Overall, the analysis indicated a need to preserve approximately 1,500,000 square feet, or 35 acres, of land for future hangar development.

TABLE 3-12
HANGAR REQUIREMENTS

Hangar Type	Existing	Planning Activity Level (PAL)		
		PAL 1 (2025)	PAL 2 (2030)	PAL 3 (2040)
Shade Hangar Units				
Hangars	42	42	42	42
Hangar Surplus / (Deficit)		0	0	0
Square Footage Deficit		0	0	0
T-Hangar Units				
Hangar Bays	113	215	224	243
Hangar Surplus / (Deficit)		(102)	(111)	(130)
Square Footage Deficit		(561,000)	(610,500)	(715,000)
Box Hangars				
Hangars	2	51	55	65
Hangar Surplus / (Deficit)		(49)	(53)	(63)
Square Footage Deficit		(347,900)	(376,300)	(447,300)
FBO				
Hangars	2	2	2	2
Hangar Surplus / (Deficit)		0	0	0
Square Footage Deficit		0	0	0
Corporate Hangars				
Hangars	2	6	6	7
Hangar Surplus / (Deficit)		(4)	(4)	(5)
Square Footage Deficit		(100,000)	(100,000)	(125,000)
Total Hangars	161	316	329	359
Total Hangar Surplus / (Deficit)		(155)	(168)	(198)
Total SF Deficit		(1,109,790)	(1,195,480)	(1,544,760)

Notes: Additional hangar units are sized to include apron area and/or taxilane immediately adjacent to the hangar door. T-Hangars units calculated at 5,500sf, box hangar units at 7,100sf, and corporate hangars at 25,000sf. Total SF Deficit includes total hangar area as well as 20% extra to account for general circulation variances of hangar size and parking requirements.
Source: RS&H Analysis, 2022

3.6.1.1 Apron and Hangar Configuration

The existing configuration of the apron and tie-downs presents operational challenges. Today, Hangar 20 is blocked from accommodating larger aircraft when aircraft to the south are parked on existing tie-downs. Additionally, the tie-downs on the apron in front of the Aeronautical Service Hangar (are not efficiently placed due to the need to maintain aircraft access to the hangar.

Overall, the configuration of the existing tie-down parking, transient parking, and hangar layout requires further analysis to determine a more efficient layout. The alternatives chapter will validate plans in the prior ALP and determine solutions to solve current issues that have arisen since that plan was made.

3.6.2 Apron Pavement Requirements

The 2019 Pavement Condition Index Map indicates the majority of taxilane and apron pavement is at best in fair condition. The taxilanes used for access to the T-hangar and shade hangars on the north side of the airport are listed as being in very poor and/or serious condition. There is also a pavement section for tie-downs south of the Aeronautical Service Hangar that has failed. These pavement sections must be rehabilitated in the near-term to continue to provide a safe operating environment for airport users.

3.7 SUPPORT FACILITIES REQUIREMENTS

Support facilities at an airport encompass a broad set of functions that exist to ensure the airport can fulfill its primary role and mission in a safe and operationally efficient manner. The following sections outline the requirements for various supporting facilities at U42.

3.7.1 Fixed Based Operator (FBO)

The FBO at U42 is currently run by SLCDA. The facility overall meets the needs of SLCDA staff, is in good condition and is optimally located. Deficiencies found are related to the configuration of apron and other facilities adjacent to the FBO transient apron. The aviation fuel storage/self-serve tanks create an area of unusable space on the apron and can create congestion.

The current FBO transient apron is roughly 30,000 square feet and is sized adequately to support current operations. Long range planning concepts must determine the following elements:

- How the apron can expand to roughly double its current size. This ability will ensure flexibility in the future if U42 is used more by business jets with wider wingspans.
- Where electrical eVTOL and other electrical airport can be parked and charged.
- An ultimate configuration that deconflicts the self-serve fuel tanks from the apron area.

3.7.2 Airport Maintenance and Snow Removal Equipment

Roughly half of the Aeronautical Service Hangar and the area adjacent is used as the airport maintenance facility. The interior space used is approximately 13,000 square feet and is where SLCDA staff perform maintenance on equipment as needed. Most of the maintenance and snow removal equipment (SRE) is stored outdoors in an area roughly 45,000 square feet. Within that area are also two fuel storage tanks for diesel and gasoline are also located.

In discussions with SLCDA management, the airport and SRE maintenance facility and storage areas are adequate. However, the location of this facility uses a portion of a hangar that could otherwise be used for aircraft storage. Similarly, the outdoor storage of equipment is in an area that is ripe for conversion to apron or hangar storage for aircraft. A new location for airport and SRE maintenance and storage must be determined and land reserved for the future relocation of the facility.

3.7.3 Flight School Office Space

Flight schools at U42 mostly operate out of a portion of the Aeronautical Service Hangar that is configured with two floors of office space. The offices take up roughly a quarter of the northern portion of the building, with an estimated 11,000 sf of floor space split between two floors. The interior configuration includes restrooms, stairwell corridors, and is made up of small office spaces leased to various tenants.

The office space is deficient and cannot accommodate today's operators. Randon Aviation has moved its offices into an offsite office building across Airport Road as they required more room than was available onsite at the Airport. Additionally, the vehicle parking area is limited, and the grass area to the west of the Aeronautical Service Area is often used for overflow for up to 15 vehicles.

Future facility planning must account for new areas for office space to be built. This must include consideration for all types of facilities that are traditionally used for flight training including: modular units, larger hangars with office space built in, and office buildings. New office facilities should be located in close proximity to the apron area and/or hangars where flight school aircraft are stored, and provide adequate vehicle parking space.

3.7.4 Aircraft Wash Facilities

A coin-operated plane wash is available for use at the airport. This facility allows aircraft operators and owners to clean their aircraft of dust, dirt, and debris. Tenant comments show the wash facility is an important part of the airport and is used extensively.

The wash facility is located off a non-standard taxilane that serves a row of T-hangars. Aircraft can access the wash facility via that taxilane or by traversing the apron area to the south. Though this facility works well for tenants today, alternatives for ultimate build-out of the Airport must consider a new location for the wash facility based on an optimized configuration of the apron and tie-down areas.

3.7.5 Aircraft Fuel Storage

The airport's FBO currently has two above ground 10,000-gallon fuel tanks, one for 100LL and one for Jet A fuel. These tanks are positioned and equipped to also provide self-serve fueling. In addition to the tanks, the FBO has one 100LL and one Jet A fuel truck which are stored in between the FBO's building and adjacent T-hangars when not in use. The Utah Army National Guard also has its own underground fuel storage facility beneath an apron on their property.

The FBO fuel storage tanks are nearing the end of their useful life and will be planned for replacement in the near-term. Their current location is poorly suited for fueling operations as it blocks hangar access, and there is no room for expansion. A new location for fuel storage is required. That location must be double in size to support additional fuel tanks to support SLCDA's desired storage amounts. The new site should provide easy access for tanker truck deliveries, while also being secured within the airport property.

SLCDA desires to maintain self-serve fueling for 100LL and Jet A at U42. As such, new self-serve tanks must be provided, or the new fuel storage area must be sited to allow aircraft to taxi to and fuel from the new tanks.

3.8 LANDSIDE ROADWAYS AND PARKING

The Airport is flanked on all sides by vehicle roadways, with Airport Road providing access to the airport's landside facilities. Alternatives examining ultimate build-out of the airport must consider roadway connections to the current roadways on the east side of the airport. Additionally, warehouse developments along the northwest side of Airport Road have added considerable truck traffic to that area. This must be considered when planning for new roads into currently undeveloped areas of the west side of the airport's property.

3.8.1 Parking

There are approximately 143 existing public parking spaces at U42 utilized by flight schools, the FBO, hangar tenants, and other visitors to the airport. The quantity of parking spaces is adequate to meet the needs of the current based aircraft tenant base but will need to increase with future growth. The flight schools and businesses operating out of the Aeronautical Service Hangar don't have adequate parking, and often overflow into a grass area adjacent to the building.

Table 3-13 details parking requirements for the various facilities at U42. Ratios of spaces per hangar were used to determine vehicle parking requirements for t-hangars, box hangars, and corporate hangars. The FBO and the viewing area parking areas were found to be sufficient through the planning period. Flight schools and businesses operating in the Aeronautical Service hangar are deficient by an estimated 20 parking spaces today. Note no new flight school or business is considered in the future in this analysis. When new businesses do start up at U42, additional parking beyond what is figured in this analysis will be required. The alternatives for ultimate build out of the airport considers areas for future flight schools and business. Parking requirements of roughly .005 spaces per 1,000 square feet of office space is recommended as a baseline for planning purposes.

As part of the analysis of vehicle parking, requirements were determined for vehicle charging stations. The popularity of electric vehicles (EVs) has dramatically increased during the time of this writing, and sales of EVs doubled in 2021 from the previous year and continue to rise in 2022. For EVs to run, they need to be recharged. With more EVs on the road, facilities need to think about installing EV charging stations to accommodate this growing trend. Conversations with the airport determined that U42 should plan to dedicate 10 percent of parking spaces to EVs. This equates to a total need of 42 spaces being equipped with charging stations at PAL 3.

TABLE 3-13
PARKING REQUIREMENTS

Functional Area	Existing	Planning Activity Level (PAL) PAL1 (2025)	PAL 2 (2030)	PAL 3 (2040)
T-Hangars/Shade Hangars				
Hangar Bays	155	259	268	288
Parking Spaces	0	26	27	29
Parking Surplus / (Deficit)		(26)	(27)	(29)
EV Station Requirement @ 10%		*(3)*	*(3)*	*(3)*
Box Hangars				
Hangars	2	52	56	66
Parking Spaces	5	156	168	198
Parking Surplus / (Deficit)		(151)	(163)	(193)
EV Station Requirement @ 10%		*(16)*	*(17)*	*(20)*
Corporate Hangars				
Hangars	2	6	6	7
Parking Spaces	0	30	30	35
Parking Surplus / (Deficit)		(30)	(30)	(35)
EV Station Requirement @ 10%		*(3)*	*(3)*	*(4)*
Flight Schools/Businesses				
Parking Spaces	33	53	53	53
Parking Surplus / (Deficit)		(20)	(20)	(20)
EV Station Requirement @ 10%	0	*(5)*	*(5)*	*(5)*
FBO				
Parking Spaces	95	95	95	95
Parking Surplus / (Deficit)		0	0	0
EV Station Requirement @ 10%		*(10)*	*(10)*	*(10)*
Viewing Area				
Parking Spaces	10	10	10	10
Parking Surplus / (Deficit)		0	0	0
EV Station Requirement @ 10%		*(1)*	*(1)*	*(1)*
Total Hangars	162	319	332	363
Total Parking	143	370	383	420
Total Parking Surplus / (Deficit)		(227)	(240)	(277)
Total EV Station Requirement @ 10%		*(37)*	*(38)*	*(42)*

Notes: Parking spaces per hangar were planned on the following ratios: 0.1 spaces per new T-hangar; 3 spaces per new box hangar; 5 spaces per new corporate hangar.
Source: RS&H Analysis, 2022

3.9 UTILITY INFRASTRUCTURE REQUIREMENTS

The existing utilities supporting the operations at the airport are generally adequate with room to grow. Relatively minor utility improvements are necessary to accommodate future expansion at the airport. These utilities include sanitary sewer, potable water, storm water, electrical power, natural gas, and communications.

The airport's sanitary sewer mains serving the main airport area runs at 9 percent capacity. The system serving the north area of the airport runs at less than 1 percent capacity. These capacities are based on usage records and a review of the as-built sewer construction drawings. The water system was found to be adequate for both existing buildings and any future buildings similar in size to the largest buildings on site. Larger buildings could also be accommodated with the installation of fire sprinklers or increasing the size of the primary water main connection. For domestic water usage, the water system is currently using 3 percent of its maximum capacity.

The storm water system that serves the majority of the existing airport area is over capacity for the design storm event and in need of improvement to prevent flooding. The north area of the airport has a separate storm water system with capacity to serve the existing development. Some improvements may be necessary if the impervious area at the north end of the airport doubles the existing impervious area.

Natural gas utilities are managed by Dominion Energy. Their engineers have reviewed the airport facilities and confirmed that the natural gas utility is adequate for existing needs and could support double the existing demand at the airport. If improvements are necessary, they would be handled by Dominion Energy.

The SLCDA completed an inventory and improvement update to the security and data communications systems in 2020. The SLCDA and CenturyLink have confirmed that the existing infrastructure is adequate to meet existing needs and projected needs over the next 10-15 years.

Electrical power utilities are managed by Rocky Mountain Power. Their engineers have reviewed the airport facilities and confirmed that the existing system is adequate for existing usage with room for growth. If peak demands increase greater than 1 MW over any 2-to-3-year period, then the Airport may bear some of the financial responsibility to increase the capacity of the system. Below that benchmark, the gradual capacity increases due to expansion on the airport site are covered by the power company.

3.10 OTHER AIRPORT REQUIREMENTS AND CONSIDERATIONS

The following lists other requirements and/or considerations documented for this master plan study.

- **Perimeter Fencing**: The current perimeter fence at U42 currently has sections of 6-foot high fence on the east side of Airport property. The standard at U42 is 8-foot high with barbed wire. Upgrading the 6-foot will increase security of the airport.

- **Fire Response Access**: The headquarters of the West Jordan Fire Department, Station #53, is located less than a ½ mile east of the threshold of Runway 34. A small, paved road on the east side of the airport connects the intersection of S Jordan Landing Boulevard and S Plaza Center Drive with the blast pad behind Runway 34. This provides the fire station with direct access to the airfield. The gate to this access road currently is pad-locked. A break-away gate system is recommended so fire response personnel can gain immediate access to the airfield without having to take time to unlock and open the fence.

3.11 CONCLUSION

Table 3-14 is a summary of the requirements determined in this study for U42. This next chapter of the master plan details the alternatives analysis conducted for those facilities that needed further study, indicated with a blue box in the table below. The alternatives chapter details the conclusions of the alternatives analysis and provides a comprehensive concept that integrates all chosen preferred alternatives.

TABLE 3-14
SUMMARY OF FACILITY REQUIREMENTS

	Elements	Description of Need and/or Recommendation
Runways		
■	Runway Length	The runway is currently planned for ultimate extension to 6,600 feet. Alternatives will determine a preferred solution for the extension that integrates future RPZ and safety area requirements.
■	Runway Protection Zones	Runway 34 runway protection zone is not owned outright by the SLCDA. Public soccer fields are within a portion of the RPZ, which is not compatible as they are considered a public gathering place.
■	Runway Safety Areas	An upgrade to future C-II critical aircraft will require a 1,000-foot safety area beyond the runway ends. Alternatives will examine solutions to accommodate the 1,000-foot safety area on the end of Runway 16.
	Object Free Areas	To support future precision approaches and/or an upgrade to C-II, the segmented circle and windcones must be relocated outside of the associated wider object free area.
Taxiways and Taxilanes		
■	Direct Connections from Apron to Runway	Taxiway A2 and A3 connect the apron directly to the runway. Alternatives will determine a preferred future configuration that adheres to FAA standards.
■	Non-Standard Taxiway A4 Angle	Taxiway A5 connects to the runway at a non-standard angle.
	Taxiway Fillets	All taxiways except Taxiway A1 do not have fillets that meet FAA design standards.
■	Apron South of Taxiway A2	Connections to Taxiway A are not built to FAA standard, and apron concrete is inside of TOFA of Taxiway A2.
NAVAIDs and Lighting		
■	Approach Lighting System	A MALSR, RLLS, or other approach lighting system may improve safety and enable the airport to pursue lower visibility minimums for approaches in inclement weather and at night.
	Meteorological Aids	Upgrading current AWOS III to AWOS III P/T is recommended as it would give more detailed weather information to air crews.
	Air Traffic Control Tower	An Air Traffic Control Tower (ATCT) or remote technologies is recommended for consideration in conjunction with airspace enhancements.
Land Use, Hangar and Support Facilities, and Landside Access		
	Land Use Compatibility and Zoning	The West Jordan Airport Overlay Zone and associated zoning code and the Kearns Township code are recommended to be updated.
■	Aircraft Parking and Storage	A minimum of 35 acres of land must be reserved for new hangar infrastructure. Additional land preservation may be needed for new business and flight school entrants. Alternatives will examine layout concepts to validate land use preservation.
■	Airport Maintenance and Snow Removal Equipment Building	Airport maintenance and snow removal equipment facilities should be considered for relocation long-term. Alternatives will determine a preferred ultimate location.
■	Aircraft Wash Facilities	The aircraft wash facilities should be considered for eventual relocation. Alternatives will determine a preferred ultimate location.
■	Aircraft Fuel Storage	The aircraft fuel storage tanks are approaching the end of their useful life and are currently in a poor location. Alternatives will determine a new location for aircraft fuel storage that can allow for expansion and maintain self-serve functions.
■	Landside Access and Vehicle Parking	Additional vehicle parking is required to support existing flight school operations. Additionally, vehicle parking must be added to support future hangar developments.
Utilities		
	Water / Sanitary / Storm	Current sanitary and potable water systems are adequate to support anticipated future demand. The storm water system is over capacity for the design storm event and in need of improvement. Additional impervious surfaces may also require additional capacity upgrades.
	Natural Gas	Current natural gas infrastructure is expected to meet future demand requirements.
	Electricity	Electrical capacity can meet expected future demand of hangars and buildings. Electrical aircraft and vehicles may require additional capacity then is currently provided.

■ Elements that will be addressed in the alternatives analysis