NOTICE OF MEETING OF THE GOVERNING BODY OF THE CITY OF BURNET

Notice is hereby given that a **City Council Workshop Meeting** will be held by the governing body of the above named City on the **12th day December, 2023** at **5:00** p.m. at City Council Chambers, located at 2402 S. Water Street (HWY 281 South, Burnet Municipal Airport) Burnet, TX at which time the following subjects will be discussed, to-wit:

This notice is posted pursuant to the Texas Government Code, Chapter §551-Open Meetings.

1. **CALL TO ORDER:**

2. **CONSIDERATION ITEMS:**

   2.1) Discuss and consider: Burnet Municipal Airport Layout Plan Review: A. Feild

3. **ADJOURN:**

Dated this 8th day, of December, 2023

CITY OF BURNET
GARY WIDEMAN, MAYOR

I, the undersigned authority, do hereby certify that the above NOTICE OF MEETING of the governing body of the above named City, BURNET, is a true and correct copy of said NOTICE and that I posted a true and correct copy of said NOTICE on the bulletin board, in the City Hall of said City, BURNET, TEXAS, a place convenient and readily accessible to the general public at all times, and said NOTICE was posted on December 8th, 2023 at or before 6 o'clock p.m. and remained posted continuously for at least 72 hours preceding the scheduled time of said Meeting.

Kelly Dix
Kelly Dix, City Secretary

NOTICE OF ASSISTANCE AT THE PUBLIC MEETINGS:
The City of Burnet Council Chambers is wheelchair accessible. Persons with disabilities who plan to attend this meeting and who may need auxiliary aids or services, such as interpreters for persons who are deaf or hearing impaired, readers, or large print, are requested to contact the City Secretary's office (512.756.6093) at least two working days prior to the meeting. Requests for information may be faxed to the City Secretary at 512.756.8560.

RIGHT TO ENTER INTO EXECUTIVE SESSION:
The City Council for the City of Burnet reserves the right to adjourn into executive session at any time during the course of this meeting to discuss any of the matters listed above, as authorized by Texas Government Code Sections 551.071 (Consultation with Attorney), 551.072 (Deliberations about Real Property), 551.073 (Deliberations about Gifts and Donations), 551.074 (Personnel Matters), 551.076 (Deliberations about Security Devices) and 551.087 (Economic Development).

BURNET MUNICIPAL AIRPORT
KATE CRADDOCK FIELD

Airport Layout Plan with Narrative

FINAL REPORT
June 2023

Prepared for:
Burnet Municipal Airport
Kate Craddock Field
Burnet, Texas

&

Texas Department of Transportation (TxDOT)
Aviation Division
Austin, TX

Prepared by:
KSA
A DYNAMIC PERSPECTIVE
McKinney, TX

This document was funded by the Texas Department of Transportation Aviation Division and the City of Burnet. It was prepared in accordance with Federal Aviation Administration Advisory Circular AC 150/5070-6B Airport Master Plans. The contents do not necessarily reflect the official views or policies of the TXDOT or Federal Aviation Administration. Acceptance of this report by the TXDOT or FAA does not in any way constitute a commitment on the part of the State of Texas or United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable or would have justification in accordance with appropriate public laws.

TABLE OF CONTENTS

01 INVENTORY OF EXISTING CONDITIONS

02 AVIATION DEMAND FORECAST

03 FACILITY REQUIREMENTS

06 AIRPORT PLANS

07 APPENDIX A: SWOT SUMMARY

1

Inventory of Existing Conditions

KSA

01 INVENTORY OF EXISTING CONDITIONS

1.1 OVERVIEW

The following Airport Layout Plan (ALP) Update with Narrative will define a concept for development at Burnet Municipal Airport – Kate Craddock Field (BMQ) to facilitate the growing aviation demands of the Texas Hill Country and the overall region. This plan will feature a 20-year planning period and has been prepared in collaboration with airport management, federal and state agencies, local officials, businesses, and interested airport users/stakeholders. A vital goal of this study is to identify needs and evaluate alternatives concepts to guide the future development of the Airport. The plan recommends improvements in accordance with Federal Aviation Administration (FAA) criteria, taking into consideration anticipated changes in aviation activity and development opportunities at the local, regional, and national levels.

The primary objective of this planning effort is to produce a comprehensive planning guide for the continued development of a safe, efficient, and successful aviation facility that meets the goals of the City of Burnet, Burnet County, airport users, tenants, and the surrounding regional market area. The plan must also satisfy FAA guidelines for the development of airport plans and facilities while incorporating characteristics unique to the area. This study focuses on aeronautical forecasts, economic development opportunities, need and justification improvements, and a staged plan for recommended development. Specifically, the Burnet Municipal Airport (ALP) Update and Narrative Report will consist of the following elements:

- Inventory of Existing Conditions
- Forecasts of Aviation Activity
- Facility Requirements
- Airport Development Alternatives
- Airport Layout Plan Update and Exhibit A property map.
- Implementation Plan
- Capital Improvement Plan

Typically, the staged plan looks at planning horizons of 0-5 (short-term), 6-10 (intermediate-term), and 11-20 (long-term) years, with the first phase addressing existing facility deficiencies or non-compliance to airport design standards as outlined in FAA Advisory Circular (AC) 150/5300-13B, *Airport Design*.

The first step in the planning process includes collecting data about the Airport and its environment. The information gathered during this phase will provide the foundation for subsequent phases. The Inventory of Existing Conditions for Burnet Municipal Airport will include the following:

- Physical facilities: runways, taxiways, parking aprons, navigational aids, and facilities associated with general aviation, corporate, and airport support.
- The Airport’s role, including development history, location, and access relationship to other transportation modes.
- Socioeconomic and business trends within the Airport’s service area.
- A review of the existing airport, community, and regional plans and studies that contain information pertinent to developing and implementing the plan's overall recommendations.

The data for this phase was obtained from various sources, including airport management and the City of Burnet. The data collected is current as of April 2022 and will serve as a baseline for the remainder of the study. Additional sources of information referenced include:

- FAA 5010-1, *Airport Master Record*
- FAA Operational Data
- Texas Department of Transportation (TxDOT) Aviation Division, *State of Texas Airport System Plan*

1.2 AIRPORT LOCATION AND ACCESS

Burnet Municipal Airport is owned and operated by the City of Burnet and is in the southern part of the city along US Highway 281. It is 55 miles west of Austin and nearly 100 miles northwest of San Antonio. Burnet is located on the northern edge of the Texas Hill Country and is the county seat of Burnet County. The Texas Hill Country is known for rolling, rugged and scenic hills, which contain several large state parks and lakes, with the Colorado River adding additional scenic relief. The region has an established wine industry, Camp Longhorn, and is seen as an overall destination for tourism and a very desirable place to live. The Airport is named after Kate Craddock, a life-long resident of Burnet that was exceptionally active in civic activities. She was the first woman on the Burnet city council, and in 1961 the Airport was named for her.

TABLE 1.1 – EXISTING CONDITIONS

Airport Name	Burnet Municipal Airport – Kate Craddock Field
FAA Designation	BMQ
Associated City	Burnet, Texas
Airport Owner/Sponsor	City of Burnet
Airport Management	Airport Manager and city staff as needed
Date Established	1959
Airport Roles	TxDOT – Business/Corporate; FAA NPIAS – General Aviation/Local
Commercial Air Service	None
Airport Acreage	272
Airport Reference Point (ARP)	30°44’20.138” N / 98°14’18.99” W
Airport Elevation	1284.10
Area Mean Max Temperature	98° (August)

Source: Burnet Airport Administration, FAA Form 5010-1 Data, TxDOT TASP, NOAA

THIS SECTION INTENTIONALLY LEFT BLANK

EXHIBIT 1.1 – AIRPORT LOCATION MAP

1.3 AIRPORT PROJECT HISTORY

The FAA provides funding through the Airport Improvement Program (AIP) to assist in ongoing capital improvements. The TxDOT Aviation Division oversees grant funding for General Aviation and Reliever Airports in the state of Texas, known as a block grant state. Texas is one of 10 Block Grant states that allocate funding on behalf of the FAA. Funding is eligible for cities and counties to obtain and disburse federal and state funds for the airports included in the 292-airport Texas Airport System Plan (TASP). **Table 1.2** summarizes BMQ capital improvement projects since 2001 that have been received through TxDOT. TxDOT administers the Routine Airport Maintenance Program (RAMP), which matches local government grants up to $50,000 for airside and landside maintenance needs. Projects that received this funding are identified as such in **Table 1.2.** Airports that apply for and accept TxDOT grants must adhere to all FAA grant assurances (included in the appendix), which include maintaining the airport facility in a safe and efficient capacity in accordance with specific conditions. The duration of the assurances depends on the type of airport, the useful life of the facility being developed, and other factors. Typically, the useful life of an airport development project is a minimum of 20 years. Thus, when an airport accepts TxDOT grant funding, the airport is obligated to maintain that facility in accordance with FAA standards for the useful life expected. The project history at BMQ, totaling over $14 million, highlights the importance of the Airport to the state and surrounding community, as well as continued support from the Texas Department of Transportation (TxDOT).

TABLE 1.2 – AIRPORT PROJECT HISTORY (2001-2021)

Year	Description	Project Cost
2001	Clear trees, brush, and hazards in RSA/approaches RW 1/19	$78,560
2001	Rehab and mark 1/19, taxiways, aprons, install PAPI, WILs, radio controller, compass rose; require electrical equipment; relocate rotating beacon; improve drainage	$1,181,110
2004	RAMP: Repair game-proof fence	$4,006
2005	Design and construct hangar and hangar access pavement	$633,023
2005	RAMP: City to contract for repair/replacement of FBO hangar and adjacent hangar	$24,680
2007	Airport Master Plan	$210,844
2007	RAMP: Sponsor to contract for security gates and additional security cameras; repairs to hangars and signs to be added to hangars	$5,854
2008	RAMP: Sponsor to contract for trimming trees, grading around PAPI labs, purchase lighting supplies/maintenance	$14,150
2009	RAMP: Purchase and installation of security gates and surveillance equipment	$14,380
2010	Acquire land for RWY 1 and 19 end TSS; environmental review; clear TSS obstructions; acquire land for TW OFA; acquire land for terminal development expansion	$1,676,575
2010	RAMP: Sponsor to contract for auto parking lot improvements; airfield lighting and security fencing repairs, terminal building repairs, and fiber connectivity	$15,060
2011	Airport Drainage Study	$135,270
2011	RAMP: Sponsor to perform general maintenance	$15,352
2012	RAMP: Sponsor to contract for general maintenance	$44,194
2012	Engineering/design for RW/TW, Terminal Apron Expansion/Fuel Farm Relocation	$641,509
2013	RAMP: Sponsor to perform general maintenance	$14,716
2014	RAMP: Sponsor to perform general maintenance	$18,468
2014	Relocate utilities; Install/remove fencing; Relocate fuel farm/reconfigure terminal area; Relocate road RW 19 RPZ; Expand apron; Repair & overlay WR 1/19; Mark RW 1/19; Replace MIRLs; relocate wind cone/segmented circle; Reconstruct/relocate TW & connecting stubs	$8,463,125
2015	RAMP: Sponsor to perform general maintenance	$39,056
2016	RAMP: Sponsor to perform general maintenance	$14,698
2017	RAMP: Sponsor to perform general maintenance	$57,324
2018	RAMP: Sponsor to perform general maintenance	$60,000
2018	Land acquisition – north property 85 acres. Environmental review	$500,000
2019	RAMP: Sponsor to perform general maintenance	$96,024
2020	RAMP: Sponsor to perform general maintenance	$100,000
2021	RAMP: Sponsor to perform general maintenance	$100,000
2001-2021	Total Project Amount	$14,157,978

Source: TxDOT Aviation Division

1.4 AIRPORT SYSTEM ROLE

Burnet Municipal Airport is a general aviation airport serving the aviation needs of the City of Burnet, Burnet County, and the region as a whole. All airports play a variety of functional roles and contribute at varying levels to meet the transportation and economic needs on a national, state, and local level. Identifying and understanding an airport's various roles is essential for any airport in a system, so it can continue developing facilities and services that appropriately fulfill its respective role.

1.4.1 TEXAS AIRPORT SYSTEM PLAN

The primary planning document for the Texas Department of Transportation, Aviation Division is the *Texas Airport System Plan* (TASP) 2010, which is currently being updated. The TASP focuses on General Aviation needs and helps the Aviation Division determine the timing, location, and degree of airport facilities required over a 20-year time frame. The TASP provides minimum facility requirements for the state's 292 airports and two heliports. Within the TASP, Burnet Municipal is one of 67 Business-Corporate General Aviation airports serving the state.

As defined in the TASP, Business-Corporate airports are airports that provide primary business access to communities throughout the state, adding capacity to many of the metropolitan areas and providing access to agricultural and mineral production areas. Those airports should meet turboprop and business jet use needs and provide capacity to large metropolitan areas. Additionally, they should be capable of meeting most facility and service requirements. **Table 1.3** details the minimum design standards in the TASP for Business-Corporate General Aviation airports.

In addition to service level and role, the TASP defines nine functional categories explicitly related to the type of use the airport receives or is expected to receive. BMQ is one of the 134 Multipurpose airports supporting diversified operations, such as general aviation aircraft bringing tourists to weekend getaways, leisure activities, and hunting reserves, and corporate jets transporting people for business.

1.4.2 NATIONAL PLAN OF INTEGRATED AIRPORT SYSTEMS (NPIAS)

The system of airports that exists today is due in part to federal policy that promotes the development of civil aviation. As part of the ongoing effort to develop a National Airport System (NAS), the U.S. Congress maintains a national plan for the development and upkeep of airports, referred to as the *National Plan of Integrated Airport Systems (NPIAS).*

The NPIAS is a repository of airports that are eligible for AIP funding and is used by the FAA in administering the AIP, which is the source of federal funds for airport improvement projects nationwide. The AIP is funded exclusively by user fees and taxes, such as aviation fuel and airline tickets. An airport must be included in the NPIAS to qualify for federal assistance through the AIP.

The most current plan available is the NPIAS 2021-2025, which identified 3,304 public-use airports that are important and necessary to the national air transportation system. The plan estimates that approximately $43.6 billion in AIP-eligible airport projects will require financial assistance between 2021 and 2025. This is an increase of $8.5 billion (24 percent) from the NPIAS issued two years ago. The NPIAS categorizes airports by type of activities that occur at an airport – commercial service (primary and non-primary), air cargo, reliever operations, and general aviation. Burnet Municipal Airport is currently classified as a Local General Aviation airport in the FAA's NPIAS, with an approximate 2021-2025 development need of $13,531,014.

Local airports are a critical component of our general aviation system, providing communities with access to local and regional markets. Typically, local airports are located near larger population centers but not necessarily in metropolitan areas. They also accommodate flight training and emergency services. Regional airports average about 32 total based propeller-driven aircraft and no jets. The 1,213 local airports currently listed in the NPIAS account for 13 percent of the total development reported in the 2021-2025 report.

TABLE 1.3 – TASP BUSINESS/CORPORATE AIRPORT REQUIREMENTS

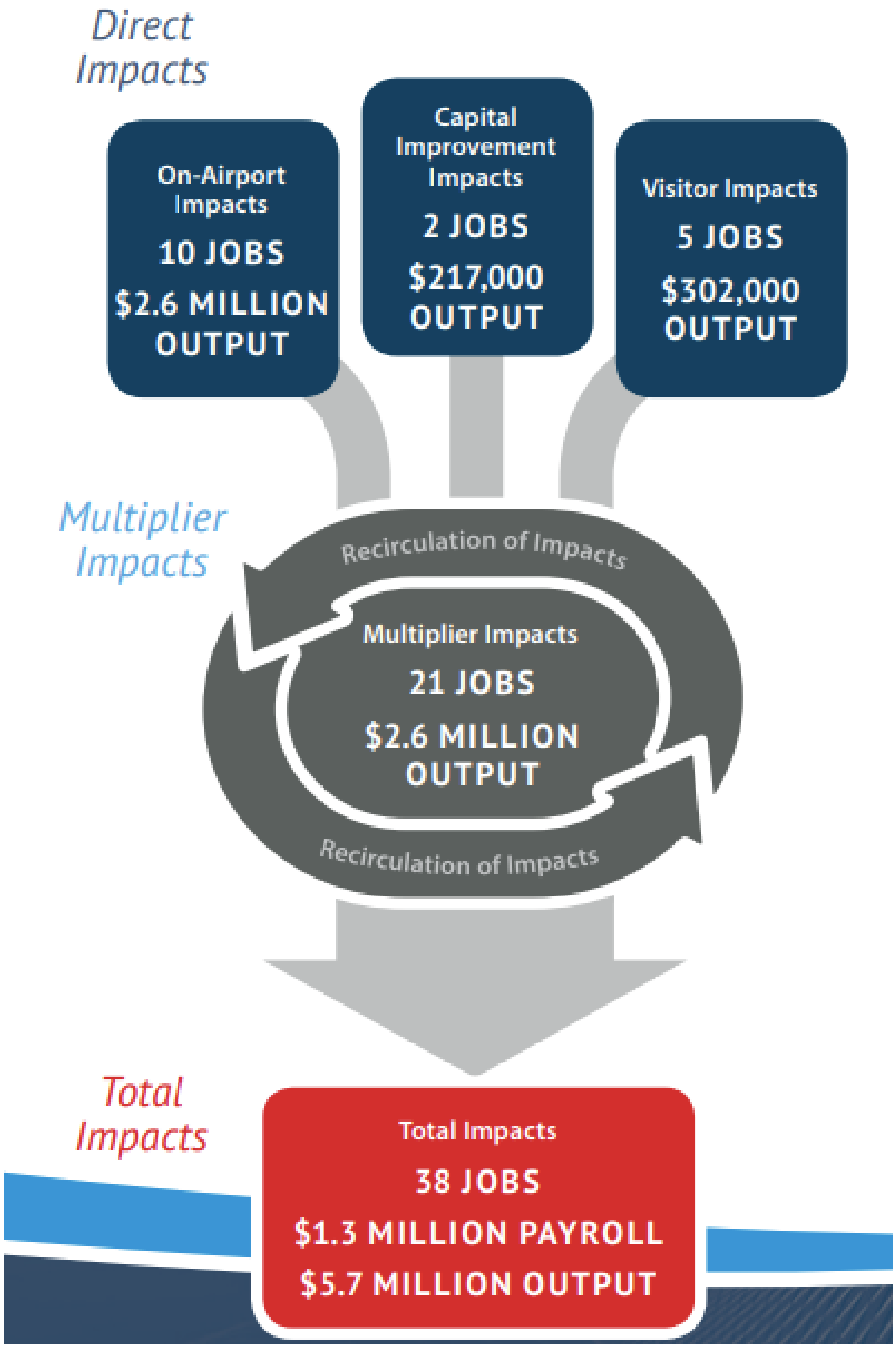
Airport Design	ARC C-II thru C-IV, D-II thru D-IV
Design Aircraft	Turboprop, light business jet
Runway Safety Area	240 to 600 feet beyond each runway end, 120 to 300 feet wide
Runway Protection Zone	1,000 to 2,500 feet long, 700 to 1,750 feet wide at the outer edge
Landside Development	24 acres
Runway Length	5,001'
Runway Width	75'
Runway Strength	30,000 lb.
Runway Lighting	MIRL
Taxiways	Full parallel
Approach Type	Non-precision
Visibility Minimums	250’ – 3/4 mile LPV
Services	Terminal, restrooms, telephone, avgas, Jet A, attended 18 hrs.

Source: TASP, 2010, TxDOT Aviation Division

1.4.3 ECONOMIC IMPACT

In 2018, TxDOT Aviation Division updated the *Texas Aviation Economic Impact Study*, a vital component of the overall system planning effort. This study assists the Aviation Division in determining what capital improvements best serve the state’s aviation needs. Based on the information in the summary brochure for BMQ, the Airport is directly involved in providing approximately $2.6 million for on-airport impacts and $302,000 output in visitor impacts. Overall, the Airport plays an integral part in the local and regional economy, witnessed by the overall economic impact of 38 jobs, $1.3 million in payroll, and $5.7 million in total output.

THIS SECTION INTENTIONALLY LEFT BLANK


Direct Impacts
On-Airport Impacts
10 JOBS
$2.6 MILLION OUTPUT
Capital Improvement Impacts
2 JOBS
$217,000 OUTPUT
Visitor Impacts
5 JOBS
$302,000 OUTPUT
Multiplier Impacts
Recirculation of Impacts
Multiplier Impacts
21 JOBS
$2.6 MILLION OUTPUT
Recirculation of Impacts
Total Impacts
Total Impacts
38 JOBS
$1.3 MILLION PAYROLL
$5.7 MILLION OUTPUT

1.4.4 SURROUNDING AIRPORTS

Table 1.4 details public-use airports within the Burnet Municipal Airport Market Area (30-nautical mile radius) with at least one paved runway. Identifying and comparing these facilities will help the Airport distinguish other types of service within the region and consider the capabilities and limitations of these airports when planning for future improvements.

TABLE 1.4 – LOCAL AIRPORT CHARACTERISTICS

Airport Name	ID	Paved Runway(s)	Based AC / Ops	NPIAS Role	State Role
Burnet Municipal	**BMQ**	**01/19 – 5,001' x 75'**	**52 / 22,300**	**Local – General Aviation**	**Business/ Corporate**
Horseshoe Bay	DZB	17/35 – 5,977' x 100'	27 / 8,400	Non-NPIAS	NA
Spicewood	88R	17/35 – 4,185' x 38'	134 / 16,500	Non-NPIAS	NA
Lago Vista Rusty Allen Airport	RYW	15/33 – 3,808' x 50'	61 / 38,000	Local – General Aviation	Community Service
Llano Municipal	AQO	17/35 – 4,202' x 75' 13/31 – 3,209 x 150' turf	39 / 10,024	Local – General Aviation	Community Service
Lampasas Municipal	LZZ	16/34 – 4,202' x 75'	11 / 10,800	Basic – General Aviation	Community Service
Lakeway Airport	3R9	16/34 – 3,930' x 70'	58 / 9,000	Non-NPIAS	NA
Killeen–Fort Hood Regional Airport	GRK	15/33 – 9,997' x 200'	7 / 11,043*	Nonhub – Primary	Commercial Service
Georgetown	GTU	18/36 – 5,004' x 100' 11/29 – 4,099' x 75'	284 / 97,346	Regional – Reliever	Reliever

*Includes only commercial service and general aviation operations and based aircraft
Source: FAA Form 5010-1 Data, CY 2021
National Plan of Integrated Airport Systems (NPIAS), 2021-2025
TxDOT Aviation Division, *Texas Airport System Plan (TASP)*, 2010

1.5 AIRPORT ACTIVITY

Burnet Municipal Airport supports general aviation activities, including corporate flights, recreational flights, and flights bringing tourists to the area. The Airport provides easy access to nearby state parks, Texas Hill Country, and regional commerce. The Airport sees a high percentage of local operations due to robust flight training activity. According to flight tracking records and airport personnel, common aircraft types that frequently operate at the Airport are Cessna 172s, Cirrus SR-22s, Piper Malibus, Learjets, and Cessna Citation jets. There are currently 52 aircraft based at the Airport, including two jets. Reviewing historical activity helps provide a barometer of operational conditions and a necessary baseline for future demand activity. The following **Table 1.5** summarizes activity at the Airport since the year 2011.

Activity is segregated into specific categories:

- Military – operations conducted by aircraft or helicopters with military designations
- General Aviation – all other activity not classified as air carrier, air taxi, or military
- Local – operations within 20 nm of the airfield. Consists mainly of flight training and touch-and-go activity
- Itinerant – operations that are not local and have an origin and/or destination

TABLE 1.5 – HISTORICAL AVIATION ACTIVITY

Year	Itinerant General Aviation	Local General Aviation	Military	Total	Based Aircraft
2011	15,200	15,400	600	31,200	33
2012	15,200	15,400	600	31,200	33
2013	15,200	15,400	600	31,200	41
2014	5,200	10,400	600	16,200	44
2015	5,200	10,400	600	16,200	43
2016	5,100	15,300	600	21,000	37
2017	5,100	15,300	600	21,000	35
2018	5,100	15,300	600	21,000	35
2019	5,100	15,300	600	21,000	35
2020	5,100	15,300	600	21,000	31
2021	5,650	16,000	650	22,300	52

Source: FAA Terminal Area Forecasts, Burnet Municipal Airport personnel

1.5.1 SOCIOECONOMIC CHARACTERISTICS

The various demographic and socioeconomic characteristics of the local area that an airport serves typically affect its demand for aviation services and are collected to derive and assess the dynamics of growth within the study area. The demographic characteristics of an airport's service area often influence the level, type, and growth in aircraft operations. Whereas population activity (positive or negative) has been a simple and essential measure of the potential demand for air services, income levels are a standard predictor of the propensity of the population to travel, the level of use of existing based general aviation aircraft, and services at the Airport. Additionally, this information is essential in forecasting activity at the Airport. It helps examine the ability of the region to sustain a solid economic base over an extended period. **Table 1.6** provides a historical summary and forecast of the socioeconomic indicators for Burnet County, while **Table 1.7** provides a historical summary and forecast of the socioeconomic indicators for the Austin/Red Rock Metropolitan Statistical Area (MSA). While Burnet is not part of the Austin MSA, it adjoins the area and is influenced by its activity.

THIS SECTION INTENTIONALLY LEFT BLANK

TABLE 1.6 – BURNET COUNTY SOCIOECONOMIC CHARACTERISTICS

Historical						Projected				
1980	1990	2000	2010	2021	AAGR (1980-2021)	2026	2031	2036	2041	AAGR (2021-2041)
POPULATION										
17,911	22,654	34,505	42,762	49,245	2.49%	52,080	55,077	58,248	61,600	1.13%
PER CAPITA INCOME (in 2012 dollars)										
$21,623	$25,642	$30,941	$36,225	$47,382	1.93%	$52,772	$58,587	$64,794	$71,394	2.07%
MEDIAN HOUSEHOLD INCOME (in 2012 dollars)										
$54,636	$63,193	$78,671	$91,850	$119,029	1.92%	$131,024	$145,057	$160,844	$177,909	2.03%
EMPLOYMENT										
7,293	10,305	19,204	22,672	29,159	3.44%	31,983	34,929	37,993	41,188	1.74%

Source: Woods and Poole Complete Economic and Demographic Data, 2021; Burnet County
AAGR = Average Annual Growth Rate

TABLE 1.7 – AUSTIN/ROUND ROCK MSA SOCIOECONOMIC CHARACTERISTICS

Historical						Projected				
1980	1990	2000	2010	2021	AAGR (1980-2021)	2026	2031	2036	2041	AAGR (2021-2041)
POPULATION										
589,651	851,898	1,264,950	1,727,502	2,310,526	3.39%	2,542,828	2,791,970	3,057,337	3,338,128	1.86%
PER CAPITA INCOME (in 2012 dollars)										
$23,332	$28,802	$42,223	$42,554	$58,916	2.28%	$64,578	$70,667	$77,199	$84,228	1.80%
HOUSEHOLD INCOME (in 2012 dollars)										
$61,711	$72,605	$109,197	$110,105	$158,938	2.33%	$172,567	$188,751	$207,219	$227,505	1.81%
EMPLOYMENT										
332,226	512,913	849,744	1,082,192	1,651,905	3.99%	1,881,738	2,133,179	2,407,464	2,706,447	2.50%

Source: Woods and Poole Complete Economic and Demographic Data, 2021; Austin/Round Rock MSA
AAGR = Average Annual Growth Rate

1.6 AIRSIDE FACILITIES AND SERVICES

Burnet Municipal Airport operates with a single runway and full-length parallel taxiway, which provides access to the terminal and other facilities at the Airport. **Exhibit 1.2** provides a graphic representation of the existing airport airside facilities.

1.6.1 RUNWAYS

The primary runway at the Airport has a designation of 01/19 and is 5,001 feet in length and 75 feet in width. It is constructed of asphalt and is in good condition. The runway is equipped with LED Medium Intensity Runway Lights (MIRL), non-precision approach runway markings (NPI), and LED Runway End Identifier Lights (REIL) at both runway ends. The runway features a four-light LED Precision Approach Path Indicator (PAPI-4L) on the left side of each runway end, as viewed on approach. **Table 1.8** outlines the existing runway data for the Airport.

TABLE 1.8 – EXISTING RUNWAY DATA

Category	Runway	
	01	19
Length	5,001	
Width	75'	
Surface Composition (Condition)	ASPH (GOOD)	
Runway Bearing (True)	016	196
Runway End Elevations	1,259.2'	1,284.1'
Runway Lighting	MIRL, REIL	MIRL, REIL
Runway Marking	NPI-G	NPI-G
Navigational Aids	RNAV (GPS)	RNAV (GPS)
Visual Aids (Lighting)	PAPI-4L	PAPI-4L

Source: FAA Form 5010-1 Data, FAA eNASR

1.6.2 TAXIWAYS

The taxiway system at Burnet Municipal Airport consists of a full-length parallel taxiway and five connector taxiways servicing Runway 01/19. **Table 1.9** provides detail of each taxiway and its physical characteristics. Taxiways are designed to route aircraft quickly and efficiently between the runway and various locations around the Airport. The two northern interior connectors provide access to the T-hangars, FBO ramp, and the fueling area. These taxiways are 35 feet wide.

A review of the Federal Aviation Administration's (FAA) "hotspot" database reveals no current areas on the airfield designated as "hotspots," which are defined as areas of increased risk or having a history or potential for runway incursions.

TABLE 1.9 – EXISTING TAXIWAY DATA

Type	Width	Lights/Reflectors	Pavement
Full-Length Parallel	35	None	Asphalt - Good
Connectors	35	None	Asphalt - Good

Source: Burnet Municipal ALP, 2010

1.6.3 WEATHER REPORTING SYSTEM

The Airport is served by an Automated Surface Observing System (ASOS) accessible on frequency 119.925 and via phone at 512-756-7277. An AWOS unit is a suite of automated sensors that measure, collect, and disseminate minute-by-minute weather data to help aircrews and flight dispatchers monitor weather conditions and plan routes for navigation to or from the Airport. The AWOS facility is located approximately 350 feet east of the FBO hangar and near the main entrance to the Airport.

1.6.4 AIRFIELD LIGHTING AND VISUAL AIDS

Beacon – Operating from sunset to sunrise, the beacon is a visual navigation aid displaying white and green flashes to indicate a lighted airport or white flashes only for an unlighted airport. The Airport beacon is situated just south of the Terminal Building.

Visual Approach Aids – Assist aircraft on final approach by providing vertical situational awareness in relation to the runway threshold. Runway 01/19 is equipped with four light Precision Approach Path Indicators (PAPI-4L) on the left side of each runway end. PAPIs primarily assist by providing visual glideslope guidance in non-precision approach environments. These systems have an effective visual range of at least three miles during the day and up to 20 miles at night. The row of light units is usually installed on the left side of the runway. The glide path indications are two red and two white (• • • •) when on the proper glide path angle of approach. Other light combinations indicate when the aircraft is above the glideslope or below the glideslope.

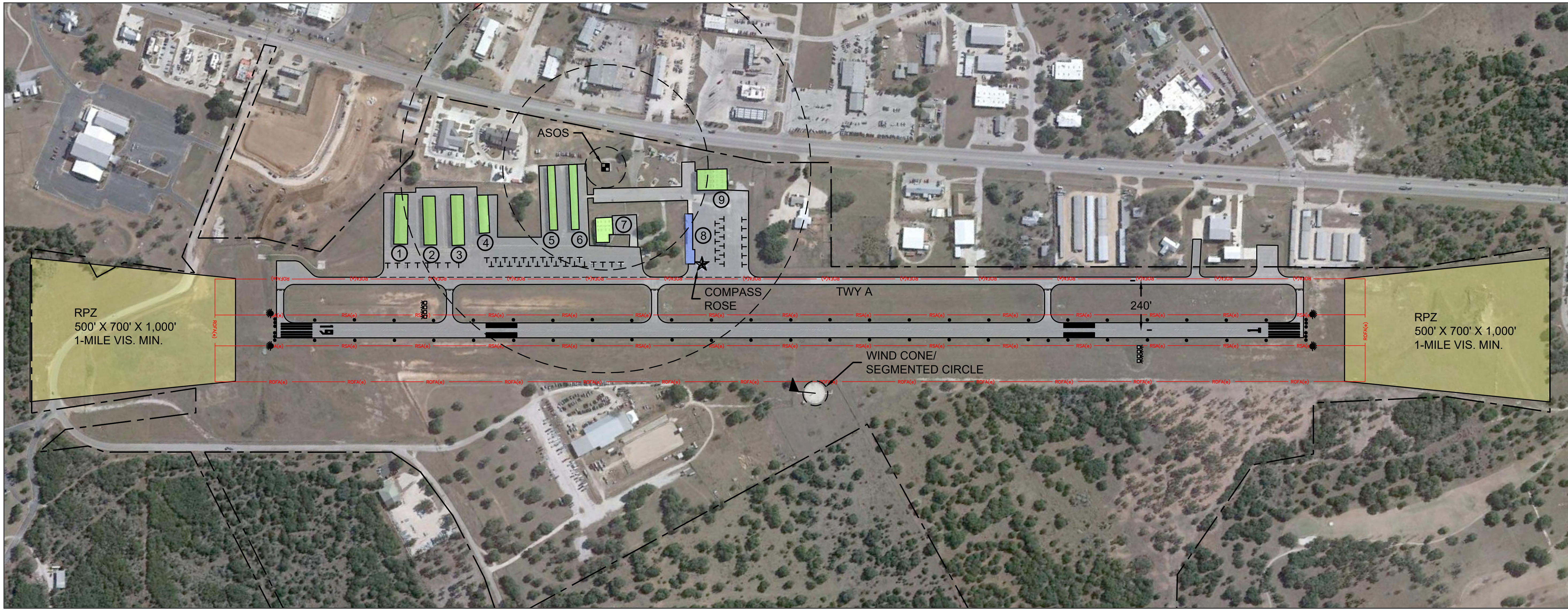
Additional aids to navigation include a lighted wind cone and segmented circle. At BMQ, the primary lighted wind cone and segmented circle are located west of the midpoint of Runway 01/19. Windcones are free rotating, truncated cones that indicate wind direction and velocity. The segmented circle aids pilots in locating the Airport and provides traffic pattern information. This is especially helpful at airports with non-standard right-hand traffic patterns, as BMQ has for Runway 01.

1.6.5 COMPASS ROSE

A compass rose is painted on the apron just west of the self-fuel area of the Airport. According to FAA Advisory Circular (AC) 43-215, a properly surveyed compass calibration pad, also called a compass rose, constructed to applicable FAA standards may be used to determine alignment of an aircraft compass with the Earth's magnetic field. This is helpful to aircraft technicians who have altered an aircraft so that the aircraft's compass must be recalibrated and new deviations due to interference determined.

1.7 LANDSIDE FACILITIES

The aviation development area at Burnet Municipal Airport is entirely along the east side of the Airport. Over time, the east has developed almost to its maximum capacity for facilities, making it necessary to look to other parts of the Airport for future development. Currently, various aviation facilities include a city-owned FBO building, shade hangar facilities, T-hangars, fuel storage tanks, and the Commemorative Air Force (CAF) hangar and museum. **Exhibit 1.2** graphically illustrates the Airport's terminal landside facilities. The city owns all structures on the Airport. There are three "thru the fence" hangar facilities that are toward the south end of the Airport.



EXISTING BUILDING TABLE		
BLDG. #	DESCRIPTION	TOP ELEV.
1	HANGAR "C"	1,293.4'
2	HANGAR "B"	1,293.4'
3	HANGAR "A"	1,297.7'
4	T-HANGAR	1,290.3'
5	SHADE HANGAR	1,289.4'
6	SHADE HANGAR	1,289.9'
7	FBO	1,288.1'
8	ABOVE GROUND FUEL STORAGE AND SELF SERVE	-
9	2402 CAF MUSEUM HANGAR	1,291.7'

LEGEND

- AIRPORT PROPERTY
- EXISTING PAVEMENT
- EXISTING RPZ
- EXISTING BUILDINGS
- EXISTING FUEL AREA
- RUNWAY END IDENTIFIER LIGHTS
- HOLDING MARKING
- THRESHOLD LIGHTS
- PRECISION APPROACH PATH INDICATORS

Exhibit 1.2 - EXISTING FACILITIES

1.7.1 TERMINAL BUILDING/FBO AND AUTO PARKING

The Airport's Terminal Building provides approximately 1,900 square feet of amenities, including a visitor/crew area, public restrooms, administration offices, and 7,000 SF of shop/hangar space. The terminal auto parking area includes parking for 25 vehicles near the FBO, and 65 vehicles along the perimeter of the fenced area, used largely for seasonal parking.

1.7.2 APRONS

The Airport currently has approximately 20,000 SY of apron area, with 14,000 SY associated with the Terminal Building/FBO and 6,000 SY fronting the CAF Hangar and adjacent to the fuel facility. This apron provides space for approximately 50 aircraft tie-downs.

1.7.3 HANGAR FACILITIES

Currently, all hangar facilities at Burnet Municipal Airport are located east of Runway 01/19. These facilities consist of a mixture of T-hangars, shade hangars, conventional hangars (FBO and CAF), and corporate hangars (thru the fence). This area includes the general aviation FBO, the Commemorative Air Force Hangar and Museum, and several on-airport businesses. According to airport management, the city owns the FBO and CAF hangars, the four multiple T-hangar structures providing a total of 29 units, and the two shade hangars totaling 20 units.

1.7.4 FUEL STORAGE FACILITIES

Currently, the Airport's fuel storage area(s) are located south of the FBO Building and adjacent to the CAF apron area. The fuel system is owned by the city and is stored in two above-ground storage tanks. Tanks consist of one 12,000-gallon AVGAS/100LL and one 12,000-gallon Jet-A tank. Full service is provided via one 1,000-gallon AVGAS/100LL mobile unit and one 3,000-gallon Jet-A truck. All tanks comply with Environmental Protection Agency (EPA) guidelines including associated spill containment requirements. **Table 1.10** details fuel sales for FY 2017 thru 2021. Overall, 100LL has accounted for approximately 38.6% of total flowage, while Jet-A makes up the remaining 61.4% of the flowage.

TABLE 1.10 – ANNUAL FUEL SALES IN GALLONS

Year	100LL	Jet-A	Total
2017	62,348	98,353	160,701
2018	60,892	90,992	151,854
2019	44,377	80,899	125,276
2020	44,585	59,346	103,931
2021	62,392	106,410	168,802
Average	54,919	87,200	142,113

Source: Airport Administration

1.7.5 SECURITY / PERIMETER FENCING

The Airport is entirely fenced along the perimeter by an 8-foot security and game fence with barbed wire. Several access points have a keypad to allow vehicular access.

1.8 AIRSPACE SYSTEM / NAVIGATION AND COMMUNICATION AIDS

Burnet Municipal Airport operates within the larger National Airspace System (NAS), which comprises a wide array of services, systems, and requirements for the airports and the pilots that function within it. The following sections provide an overview of the Airport's key considerations with respect to navigating and operating within the NAS.

- Air Traffic Service Areas
- National Airspace System
- Navigational Aids
- Part 77 Airspace Surfaces

1.8.1 AIR TRAFFIC SERVICE AREA AND AVIATION COMMUNICATIONS

FAA Order 7110.65Y, *Air Traffic Control* (ATC), established that the mission of ATC is safety by stating that the "primary purpose of the ATC system is to prevent a collision between aircraft operating in the system and to organize and expedite the flow of traffic." ATC is how aircraft are directed and separated within controlled airspace.

Within the United States, ATC jurisdiction over airspace has been split into 22 geographic areas that are under ATC jurisdiction. Air traffic services within each area are provided by air traffic controllers in Air Route Traffic Control Centers (ARTCCs). The ARTCCs provide air traffic service to aircraft operating on Instrument Flight Rules (IFR) flight plans within controlled airspace, and primarily during the enroute phase of flight. Those aircraft operating under Visual Flight Rules (VFR) that depend primarily on the "see and avoid" principle for separation, may also contact the ARTCC or other ATC services to request traffic advisory services. Traffic advisory service is used to alert pilots of other known aircraft in the vicinity or within the flight path of the aircraft. The airspace overlying BMQ is contained within the Houston (ZHU) ARTCC jurisdiction, which has a coverage area of airspace in southern portions of Texas, Louisiana, Mississippi, and Alabama, as well as the Gulf of Mexico.

Aircraft operating on instrument flight plans that are approaching or departing an airport are also subject to airspace and ATC. At BMQ, clearance delivery, approach, and departure services are provided by Houston ARTCC on frequency 132.35. The primary means of controlling aircraft employed by air traffic controllers is computerized radar systems that are supplemented with two-way radio communications. Altitude assignments, speed adjustments, and radar vectors are examples of techniques used by controllers to ensure that aircraft maintain proper separation. The specified lateral and vertical separation criteria for aircraft used by controllers are as follows.

- Lateral Aircraft Separation: three miles (radar environment)
- Lateral Aircraft Separation: five miles (non-radar environment)
- Vertical Aircraft Separation: 1,000 feet (below 29,000 feet) and 2,000 feet (29,000 feet and above)

1.8.2 NATIONAL AIRSPACE SYSTEM

To ensure a safe and efficient airspace environment for all aspects of aviation, the FAA has established an airspace structure, through the Federal Aviation Regulations (FAR), that regulates and establishes procedures for aircraft that use the NAS. This airspace structure essentially provides two basic categories of airspace: controlled (classified as A, B, C, D, and E) and uncontrolled (classified as G).

Further, FAR Parts 71 and 73 established these classifications of airspace with the following characteristics.

- **Class A** airspace is generally the airspace from 18,000 feet mean sea level (MSL) up to Flight Level 600 (or 60,000 feet MSL). Unless otherwise authorized, all operations in Class A airspace are conducted under instrument flight rules (IFR).
- **Class B** airspace is generally airspace from the surface to 10,000 feet MSL surrounding the nation's busiest airports in terms of operations or passenger enplanements. An ATC clearance is required for all aircraft to operate within Class B airspace, and all aircraft that are so cleared receive separation services within the airspace. Clearance into Class B airspace can only be received when the controller specifically calls the tail number of the aircraft and grants explicit clearance to enter the airspace (e.g., "N1234, you are cleared to enter the Class B airspace").
- **Class C** airspace is generally airspace from the surface up to 4,000 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by radar approach control, and have a certain number of IFR operations or passenger enplanements. Each aircraft must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and, thereafter, maintain those communications while in the airspace.
- **Class D** airspace is generally from the surface up to 2,500 feet above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower. Unless otherwise authorized, each aircraft must establish two-way radio communications with the ATC facility providing air traffic services prior to entering the airspace and maintain those communications while in the airspace.
- If the airspace is not classified as A, B, C, or D, and is controlled airspace, then it is Class E airspace. **Class E** airspace extends upward from either the surface or designated altitude to the overlying or adjacent controlled airspace. Only aircraft operating under IFR are required to be in contact with ATC when operating within Class E airspace.
- **Class G** or uncontrolled airspace is the portion of airspace that has not been designated with any of the above classifications. It extends from the surface to the base of the overlying Class E airspace. Although ATC has no authority or responsibility to control air traffic, pilots must still abide by visual flight rule (VFR) minimums in Class G airspace.

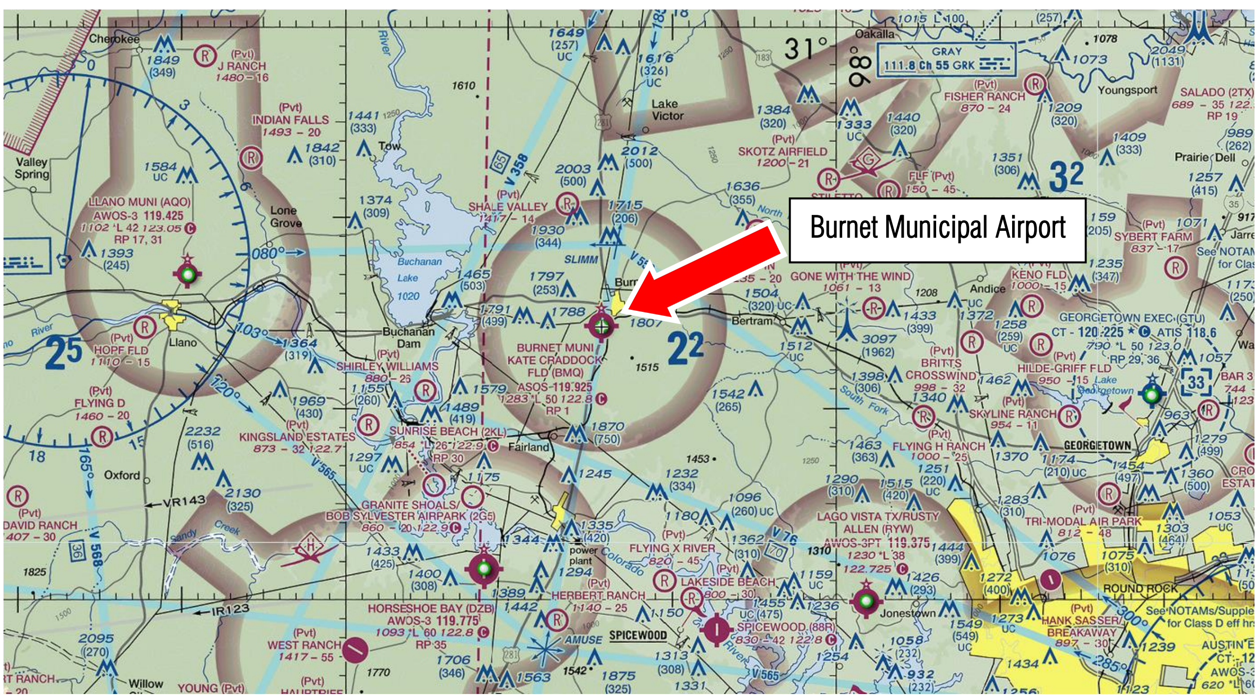
Burnet Municipal Airport lies under Class E airspace which is controlled airspace not classified as A, B, C, or D airspace. A large amount of the airspace over the United States is designated as Class E airspace. In most areas, the Class E airspace base is either 1,200 or 700 feet AGL. Class E airspace typically extends up to, but not including, 18,000 feet MSL (the lower limit of Class A airspace). **Exhibits 1.3** and **1.4** show airspace classifications and the portion of the sectional chart published by the FAA's National Aeronautical Charting Office for the immediate regional airspace around BMQ.

THIS SECTION INTENTIONALLY LEFT BLANK

EXHIBIT 1.3 – FAA AIRSPACE CLASSIFICATION

Source: Federal Aviation Administration

EXHIBIT 1.4 – FAA SECTIONAL CHART



Source: SkyVector, 20 July 2022

1.8.3 NAVAIDS / COMMUNICATIONS

In 2003, the FAA implemented Wide Area Augmentation System (WAAS) availability to public airports. Pilots are now benefiting from the large number of Area Navigation (RNAV) Global Positioning System (GPS) approaches and lower minimums provided by WAAS-enabled systems. These systems are greatly more abundant than Instrument Landing Systems (ILS) and other ground-based systems from the 20th century. As of December 2, 2021, there are 4,099 Wide Area Augmentation System (WAAS) Localizer Performance with Vertical Guidance (LPV) approach procedures serving 1,979 airports; 1,209 of these airports are non-ILS facilities. Currently, there are also 734 Localizer Performance (LP) approach procedures in the U.S. serving 537 airports; 434 of which are non-ILS facilities.

A variety of navigational facilities are currently available to pilots around BMQ, whether based at the field or at other locations in the region. Many of these navigational aids (NAVAIDs) are available to en-route air traffic as well. The NAVAIDs available for use by pilots in the vicinity of BMQ are VORTAC facilities.

A VORTAC is a Very High Frequency Omnidirectional Range / Tactical Air Navigation station transmitting very high frequency signals, 360 degrees in azimuth oriented from magnetic north, with equipment used to measure, in miles, the slant range distance of an aircraft from that navigation aid. A VORTAC provides VOR azimuth, TACAN azimuth, and TACAN distance measuring equipment (DME) at one site. The VORTAC located nearest Burnet Municipal Airport is the GOOCH SPRINGS VORTAC (AGJ, 112.5), located 27 miles north of the field.

There are two published instrument approach procedures that serve BMQ. **Table 1.11** summarizes each published approach and associated visibility minimums.

TABLE 1.11 – INSTRUMENT APPROACH PROCEDURES

Lowest Straight-In Minimums		
Instrument Approach	Ceiling	Visibility
RNAV (GPS) Runway 01	1,660'	1 -1/4 Mile
RNAV (GPS) Runway 19	1,940	1 Mile

Source: FAA Terminal Procedures, 19 May 2022– 16 June 2022

1.8.4 SPECIAL USE AIRSPACE

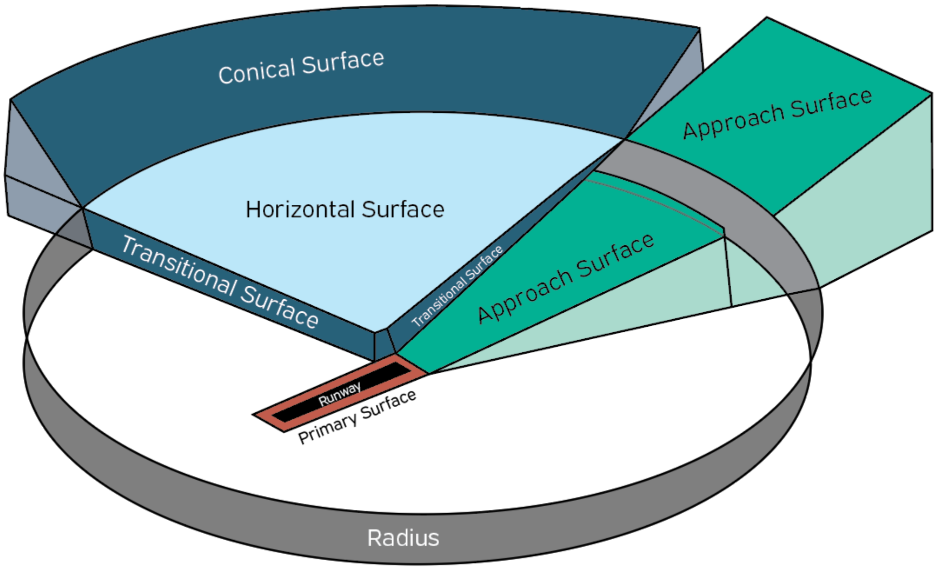
ATC designates certain areas of airspace as special-use airspace, which is designed to segregate flight activity related to military and national security needs from other airspace users. There are currently six classifications of special-use airspace – prohibited areas, restricted areas, Military Operations Areas (MOAs), alert areas, warning areas, and controlled firing areas. The nearest MOA to BMQ is the Brady MOA to the northwest. This area sees operations by a variety of military aircraft and is operated by Naval Air Station Fort Worth Joint Reserve Base. The nearest restricted area, as well as another MOA, are located to the north of BMQ, in the vicinity of Fort Hood.

1.8.5 PART 77 / IMAGINARY SURFACES

Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace, is a tool used to protect the airspace over and around a given airport, and each of its runway approaches, from potential obstructions to air navigation. It is important to note that as a federal regulation, all airports included in the NAS are subject to the requirements of Part 77. To determine whether an object is an obstruction to air navigation, Part 77 establishes several imaginary surfaces in relation to an airport and each runway end. The dimensions and slopes of these surfaces depend on the configuration and approach categories of each airport's runway system. The size of the imaginary surfaces depends largely on the type of approach to the runway. The principal imaginary surfaces are described in **Exhibit 1.5**.

- **Primary Surface:** Longitudinally centered on the runway at the same elevation as the nearest point on the runway centerline.
- **Horizontal Surface:** Located 150 feet above the established airport elevation, the perimeter of which is established by swinging arcs of specified radii from the center of each primary surface end and connected via tangent lines.
- **Conical Surface:** Extends outward and upward from the periphery of the horizontal surface at a slope of 20:1 for a horizontal distance of 4,000 feet.
- **Approach Surface:** Longitudinally centered on the extended centerline and extending outward and upward from each runway end at a designated slope (e.g., 20:1, 34:1, 40:1, and 50:1) based on the runway approach.
- **Transitional Surface:** Extends outward and upward at a right angle to the runway centerline at a slope of 7:1 up to the horizontal surface.

EXHIBIT 1.5 – PART 77 / IMAGINARY SURFACES



Known obstructions to the Part 77 surfaces described above will be illustrated on the ALP set being prepared alongside this planning effort. It is important to note that updated obstruction information for the Airport and its surrounding should be collected through an aerial photogrammetry/survey effort prior to any physical changes to the runway of modifications to approaches serving either runway end.

1.9 AIRPORT ENVIRONS

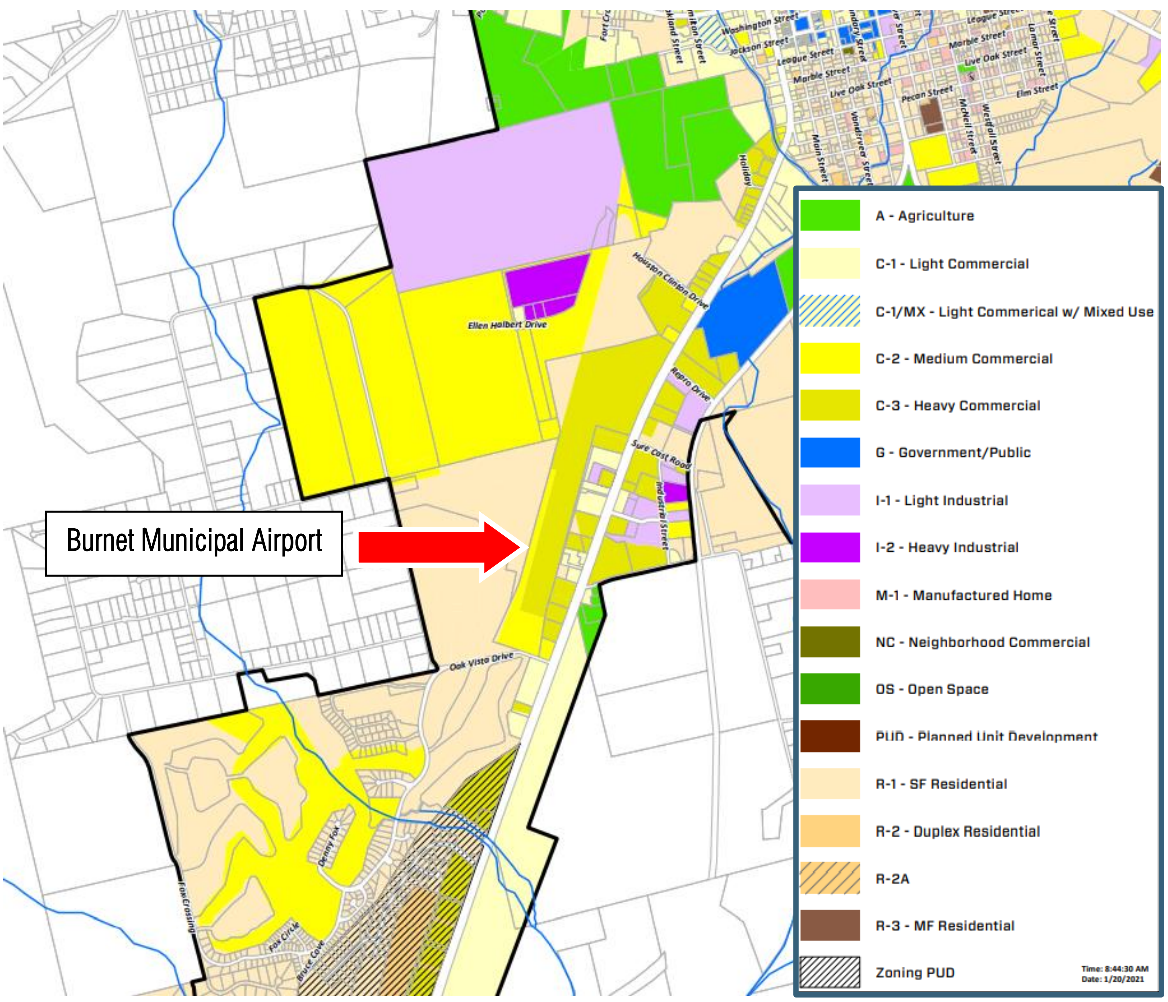
This section addresses and examines the regional setting of the Airport and land uses that surround it. This task is critical to the future development of the Airport because local land-use patterns will ultimately affect the potential for expansion and capital improvements. Due to encroachment nationwide, it is imperative airport sponsors be proactive in preserving potential future development areas as well as protect the overlying airspace and imaginary surfaces of the Airport.

1.9.1 EXISTING ZONING AND FUTURE LAND USE

The Airport lies entirely within the city limits of Burnet, Texas, which has adopted a current zoning map and a future land use plan. Portions of these are depicted below as **Exhibits 1.6** and **1.7.** The City's zoning code pertains to the area within its corporate limits and is intended to enable the City to uniformly and consistently evaluate, improve, and approve, as appropriate, development, changes to existing uses, and future uses and activities and to promote the health, safety, and general welfare of the citizens and residents of the City. Portions of the Airport itself are zoned as light, medium, and heavy commercial, with adjacent areas zoned as light industrial and single-family residential.

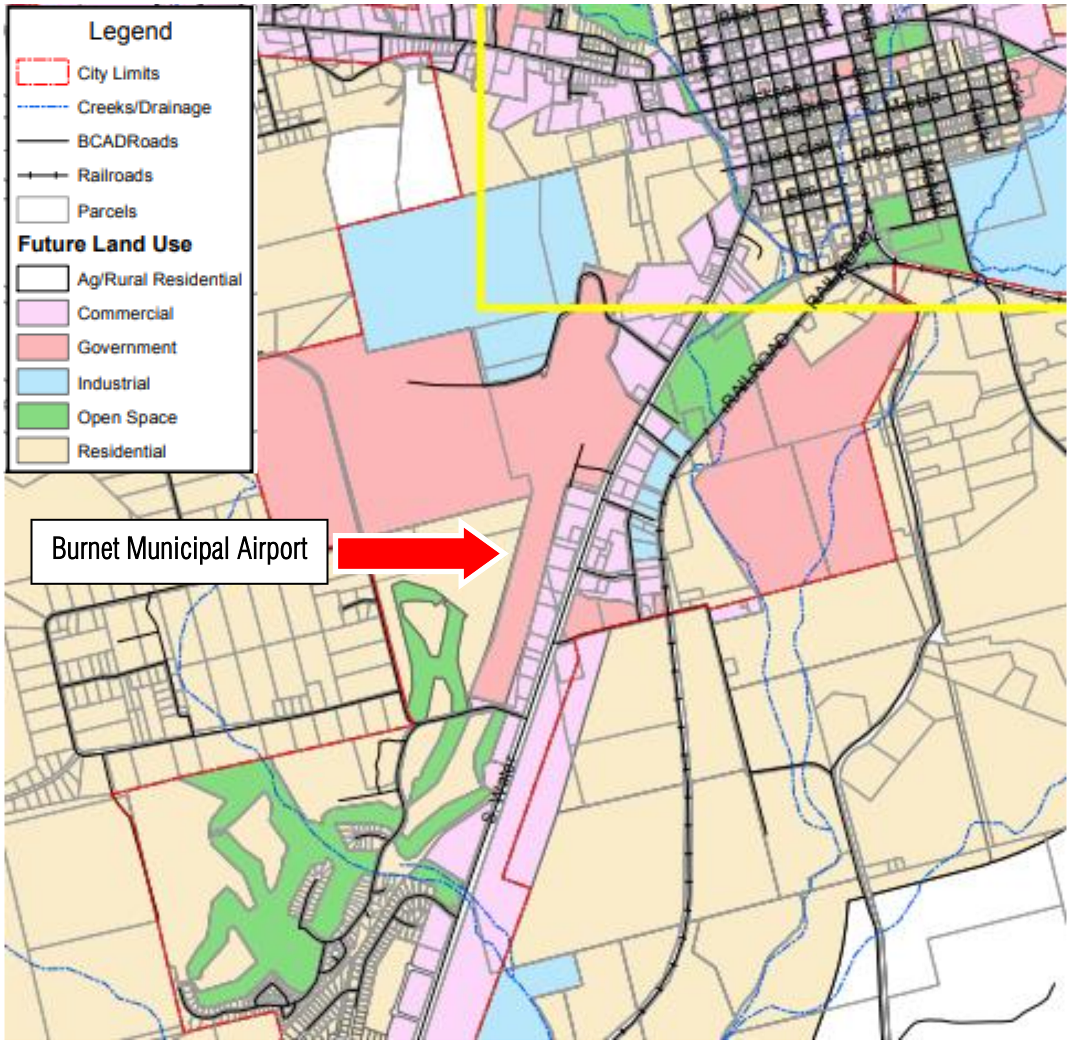
The City's future land use map is intended to guide future development of land in Burnet. It depicts the Airport as government use, with adjacent areas as commercial, residential, and open space. Further development of the Airport could be limited by the presence of a golf course and single-family residential zoned areas to the south and a church, a road, and a manufacturing company to the north. A significant amount of associated airspace is above the unincorporated areas of Burnet County.

EXHIBIT 1.6 – EXISTING ZONING



Source: City of Burnet

EXHIBIT 1.7 – FUTURE LAND USE



Source: City of Burnet

1.9.2 HEIGHT HAZARD ZONING

Although the Federal Aviation Administration (FAA) has the authority to regulate the flight of aircraft, it has only limited authority to ensure that areas surrounding airports are free of hazards. Without regulatory authority at the federal level of government, the responsibility for ensuring that areas surrounding an airport are free from hazards is left to the local government.

The implementation of Avigation Easements may give the Airport further control over future land uses that might be hazardous to flight operations. An avigation easement protects the surrounding airspace, above a specific height, from future obstructions by retaining those rights to a property from a landowner to limit the use of the land subject to the easement.

The City of Burnet has adopted Height and Hazard zoning. It is recommended the council reviews the currently adopted height hazard zoning standards to protect the future development of Burnet Municipal Airport.

1.10 SUMMARY

This inventory chapter represents a consolidated resource containing the Airport's data that will be referenced during the completion of the Burnet Municipal Airport Layout Plan (ALP) Update. When necessary, the data presented in this chapter will be expanded upon for the completion of specific planning tasks. In addition, as the development plan progresses, new and/or updated data related to facilities and infrastructure examined in this chapter may become available. New data will be incorporated into this chapter and the entire ALP Update narrative when appropriate.

The inventory data presented in this chapter provides a framework from which analysis of the Airport will proceed. Some inventory data provides general background knowledge. Other types of inventory data, such as airport role and existing airport facilities, are used to help determine future facility requirements. Subsequent chapters, especially the Forecast of Aviation Demand, will also be critical components to the development of facility requirements.

Much of the data presented in this chapter is used to conduct numerous analyses as the development planning process works towards identifying a recommended development plan for BMQ. The next step in the planning process is to formulate forecasts for the quantity and type of future aviation activity expected to occur at the Airport during the 20-year planning period.

Aviation Demand Forecast

KSA

02 AVIATION DEMAND FORECAST

2.1 OVERVIEW

The demand forecast element of the planning process is used to determine the need for future capital development, as well as investment in the airport facility itself. Essential to this determination is the generation of forecasts and projected increases in airport activity. Demand forecasts provide a means of determining the type, extent, size, location, timing, and financial feasibility of future capital improvements. Consequently, demand forecasts influence the remaining phases of the planning process.

Forecasting aviation activity requires more than an extrapolation of past trends; it involves the application of statistical measures to correlate future demand with population projections, economic performance, and demographic data. Because demand forecasting is not an exact science, it requires the application of professional judgment and experience, and an understanding of the market forces that promote or limit aviation growth.

Demand forecasts have been prepared and are presented in this chapter to assist the sponsor in evaluating the performance-based needs of the Airport during the next 20 years. Additionally, the Federal Aviation Administration (FAA) will review and accept the forecasts to ensure they are reasonable compared to current FAA forecasting projections. The forecasts are organized to include a range of activity including based aircraft, operational fleet mix, annual operations (itinerant and local), and ultimate critical aircraft.

2.2 DATA SOURCES

The forecasting process begins by obtaining recorded data pertinent to the operation and administration of Burnet Municipal Airport. Generally, aviation activity forecasting commences by utilizing the present time as an initial point, supplemented with historical trends obtained from previous years' activity and recorded information. This data has evolved from a comprehensive examination of historical airport records provided by airport personnel, FAA Form 5010-1, *Airport Master Record*, *FAA Terminal Area Forecast*s, and the *FAA Aerospace Forecasts Fiscal Years 2022-2042*. Supplemental publications providing trends and conditions of the aviation industry include the General Aviation Manufacturers Association (GAMA) *General Aviation Statistical Databook Industry Outlook, 2019* and National Business Aviation Association (NBAA) *Business Aviation Fact Book, 2021*. These documents were assembled in different years, making the base year data quite variable and emphasizing the need for establishing a well-defined and well-documented set of historical information from which to project future aviation activity trends.

2.3 FACTORS AFFECTING FUTURE AVIATION DEMAND

Before examining future activity, several assumptions and conditions that help form the basis or foundation for the development of forecasts should be noted. These statements cover a wide variety of physical, operational, industry, and socioeconomic considerations.

2.3.1 DEMOGRAPHICS

The existing socioeconomic condition of a particular region historically impacts aviation within an area and is often analyzed in the forecasts of aviation activity. Provided by Woods and Poole, the most current demographic data for Burnet County shows average annual increases to the year 2041 for the population at 1.1%, per capita income at 2.1%, and employment at 1.7%.

2.3.2 COMMUNITY SUPPORT

Burnet Municipal Airport benefits from the support of the surrounding community and government, local industry, strategic partnerships, and citizens. The Airport is recognized as a vital asset to Burnet County and the surrounding region, contributing to the stability and future of the area's economy. Additionally, much of the region benefits from the proximity of a regional aviation facility and, in turn, provides an economic base that can attract additional based aircraft and industrial/business development to the airport.

2.3.3 COVID-19

Nothing has impacted the global or national aviation industry since the 2008/09 recession to the extent that the COVID-19 pandemic has. This virus outbreak has led to major declines in demand for air carrier and general aviation activity and led those in the industry to announce severe cost-cutting measures, request government funding assistance, and/or ground fleets. Spread of the virus has created a concern for both short- and long-term effects within the aviation industry nationally and globally.

Similar to the well-known and stated declines with airlines, the general aviation sector has not been immune to similar impacts. General Aviation provides more than one percent of $247 billion of the GDP in the U.S. and accounts for over 1.3 million jobs. Typically, the GA sector strength is based on sales and aircraft deliveries to various purchasers across the globe. When analyzing details provided by GAMA, 2020 started strong and was on par to replicate or exceed 2019; however, when health and safety restrictions were put into place to respond to COVID-19, supply chains and deliveries were shut down and negatively impacted.

However, more recent GAMA data, as well as statements by the NBAA, suggest the general aviation industry has mostly recovered. Fractional aircraft owner shares have witnessed significant increases in customer base who understand the "inherent advantages of business aviation: going more places in less time, reaching destinations they didn't think they could reach, and flying in a safe, secure, and healthy manner" and "clients see business aviation as an option to eliminate concerns about airlines cabins packed with people". These statements, along with the approval and dissemination of COVID-19 vaccines, are providing the framework to help put general aviation back on course for growth and potential record-breaking activity. The following Table 2.1 compares general aviation aircraft sales and deliveries in 2019, 2020, and 2021. There are clear increases across all categories in this dataset.

THIS SECTION INTENTIONALLY LEFT BLANK

TABLE 2.1 – GAMA SALES COMPARISON 2019-2021

Aircraft Type	2019	2020	2021	% Change 20-21
Piston Airplanes	1,366	1,332	1,409	+5.8%
Turboprop Airplanes	525	443	527	+19.0%
Business Jets	809	644	710	+10.2%
Total Airplanes	2,670	2,419	2,747	+9.4%
Total Airplane Billings	\$23.5B	\$20.0B	\$21.6B	+7.6%
Piston Helicopters	179	142	181	+27.5%
Turbine Helicopters	698	567	679	+19.8%
Total Helicopters	877	709	860	+21.3%
Total Helicopter Billings	\$3.8B	\$3.4B	\$4.2B	+22.6%

Source: General Aviation Manufacturers Association (GAMA).

2.4 GENERAL AVIATION TRENDS

At the national level, fluctuating trends related to general aviation usage and economic uncertainty resulting from the national and international business cycles all have significant impacts on general aviation demand levels. General aviation aircraft are classified as all aircraft not flown by commercial airlines or the military. This includes an incredibly diverse array of flying that ranges from a personal vacation getaway in a small single-engine plane to overnight package delivery to an emergency medical evacuation to a morning sightseeing flight to flight instruction that trains new pilots to helicopter traffic reports that keep drivers informed of rush-hour delays. Simply stated, general aviation encapsulates all those individual unscheduled aviation activities that enrich, enhance, preserve, and protect our lives.

As defined by the FAA, general aviation activities are divided into six use categories:

- Personal – About a third of all private flying in the United States is for personal reasons, including practicing flight skills, personal or family travel, personal enjoyment, or personal business.
- Instructional – All private flight instruction for purposes ranging from private pilot to airline pilot is conducted through general aviation.
- Corporate – About 12 percent of the total private flying in the U.S. is done in aircraft owned by a business and piloted by a professional. Many of these flights are in jets and cover long distances, with some flying to intercontinental and international destinations. Businesses elect to fly these trips to save time and expand their geographic and operational networks.
- Business – About 11 percent of the total private flying in the U.S. is done by business individuals flying themselves to meetings or other events, primarily in piston or turboprop aircraft. Most pilots own or work for relatively small businesses and use the aircraft to accomplish missions that would otherwise take more time or be infeasible.
- Air Taxi – When scheduled air service either is unavailable or inconvenient, businesses and individuals use charter aircraft from air taxi service providers. These flights save time and make it possible to fly directly to those places that cannot be reached by scheduled service. (Note that "air taxi" is also utilized

as a charter or on-demand commercial air service classification).

- Other – All other activities are classified as being "other." Given the diverse nature of general aviation, this includes disaster relief, search and rescue, police operations, news reporting, border patrol, forest firefighting, aerial photography and surveying, crop dusting, and tourism activities, among many others.

2.4.1 BUSINESS USE OF GENERAL AVIATION

Business and corporate aviation are the fastest-growing facets of general aviation. Companies and individuals use aircraft as tools to improve the efficiency and productivity of their business and personnel. The use of general aviation aircraft affords businesses direct control of their travel itineraries and destinations and significantly reduces travel times and inconveniences often associated with scheduled airline service.

According to the NBAA's Business Aviation Fact Book, only 3 percent of the approximately 15,000 business aircraft registered in the U.S. are flown by large, Fortune 500 companies. The remaining 97 percent are operated by a broad cross-section of organizations, including governments, universities, charitable organizations, and businesses of all sizes. Many of the small and mid-sized businesses that utilize aircraft are based in the dozens of communities across the country where the airlines have reduced or eliminated service. The benefits of corporate general aviation are evidenced by the significant growth that business/corporate general aviation has recently experienced.

Business use of general aviation ranges from small, single-engine aircraft rentals to corporate aircraft fleets supported by dedicated flight crews and mechanics. Business aircraft usage by smaller companies has also escalated dramatically as various chartering, leasing, fractional ownership, interchange agreements, partnerships, and management contracts have emerged.

Of particular note is the immense popularity of fractional ownership operations, which began in 1986 with the creation of a program that offered aircraft owners increased flexibility in the ownership and operation of aircraft. The program uses current aircraft acquisition concepts, including shared or joint aircraft ownership, and provides for the management of the aircraft by an aircraft management company. The aircraft owners participating in the program agree not only to share their own aircraft with others having a shared interest but also to lease their aircraft to others in the program. The aircraft owners use a common management company to provide aviation management services, including maintenance of the aircraft, crew training and assignment, and leasing management.

Even in an unsteady economy, fractional operators say business has continued to improve as existing customers re-enter the market or increase their fractional aircraft usage. In addition, they say an increasing number of new prospects are making a move to fractional ownership as an alternative to flying commercially or owning a business jet outright. Fractional-share ownership makes up 15% of business aviation flights.

Growing segments of the business aircraft fleet mix include business liners and very light jets (VLJ). Business liners are large business jets, such as the Boeing Business Jet (BBJ) and Airbus ACJ, reconfigured versions of passenger aircraft flown by large commercial airlines. Labeled as "personal jets", VLJs are small, six-seat jets costing substantially less than typical business jet aircraft. Popular aircraft models in this category include the Eclipse 500 and 550, Embraer Phenom 100, Cessna Mustang, HondaJet, and the Cirrus Vision Jet.

2.4.2 GENERAL AVIATION OUTLOOK

National general aviation activity trends are monitored and forecasted by the FAA on an annual basis in the *FAA Aerospace Forecasts* publication. The most current edition covers Fiscal Years 2022-2042.

Single- and multi-engine piston aircraft experienced a decline in the number of total aircraft between 2010 and 2020. Although still the largest portion of aircraft in the active fleet, the number of single-engine aircraft fell from 139,500 in 2010 to 127,920 in 2020, a 0.9 percent average annual decline. During that same period, multi-engine piston aircraft had a much steeper decline, falling from 15,900 aircraft to 12,395, a 2.5 percent annual decrease. In total, active piston aircraft decreased at 1.0 percent annually over the last ten years. In its annual aviation forecast, the FAA expects the number of active piston general aviation aircraft to continue to decline, but at a lower rate than in the past decade. The decrease in the number of piston aircraft is expected to be 0.8 percent per year over the next two decades. The result of these predictions shows total piston aircraft (combined single and multi-engine) falling from 143,396 in 2019 to 116,790 in 2041. These declines are the result of "unfavorable pilot demographics, overall increasing cost of aircraft ownership, [and] availability of much lower cost alternatives for recreational usage". Additionally, the rate at which new piston aircraft are being delivered is not keeping up with the rate that the aging fleet is being retired.

Conversely, turboprop and jet aircraft experienced substantial growth between 2010 and 2020, increasing from approximately 20,853 to 25,450 aircraft, a 2 percent average annual increase over that period. One of the most important trends identified by the FAA in their forecasts is the growth anticipated in active general aviation jet aircraft. The active general aviation turboprop and jet aircraft fleet is anticipated to continue to increase dramatically over the projection period, to 47,790 aircraft in 2041, with jet aircraft almost doubling in numbers within this same time period.

The FAA also tracks and projects a valuable metric known as active general aviation and air taxi hours flown. This measurement captures a number of activity-related data, including aircraft utilization, frequency of use, and duration of use. Hours flown in general aviation piston aircraft experienced a decrease of 1.0 percent annually from 2010 to 2020, while turboprop and jet aircraft hours flown reflected a 2.0 percent average annual growth for the same period. Combined, general aviation hours flown are expected to grow at a rate of 1.0 percent per year through 2041.

2.4.3 SUMMARY

The aviation industry has navigated significant challenges (9/11 and 2008 global financial crisis), after which passenger numbers flatlined for 2-3 years before continuing the upward trajectory. Following these crises, many companies and their supply chains emerged and restructured to thrive. While there is no crystal ball on predicting when the turnaround will be realized, the International Air Transport Association (IATA) is postulating full recovery not occurring until at least 2023; with a worst-case scenario of 2025, assuming vaccine implementation continues, restrictions for international travel have relaxed, the global economy rebuilds, and passenger confidence increases. This sentiment is echoed by the airline data analytics firm OAG, which states, "several years of industry growth has been lost, and it could take until 2022 or 2023 before the volume of fliers returns to levels expected in 2020".

Additionally, it is anticipated general aviation will witness the same rebound as the airlines, with a more expedited time frame. Increases in general aviation activity have already shown signs of starting to rebound and are expected to hit pre-COVID levels sooner than anticipated. Based on this information, the forecasting outcomes for BMQ in the following sections will be based on a combination of industry trends pre- and post-COVID. Ultimately, the forecasts will be based on lower baseline numbers or reflect slower demand in the short-term while the long-term will be unaffected.

2.5 AVIATION FORECAST METHODOLOGY

2.5.1 DEMAND FORECAST APPROACH

In an effort to garner FAA approval and acceptance of aviation forecasts, certain methods of forecast development are necessary for evaluation. Choosing the appropriate forecasting methodology is as important as developing forecasting scenarios to properly plan for the future. Forecast scenarios developed for BMQ will consider historical operational data but will also rely largely upon expert judgment. It is important to emphasize the fact that aviation forecasting is not an "exact science" so experienced aviation judgment and practical considerations will influence the level of detail and effort required to establish a reasonable forecast and the development of decisions that result from them.

A qualitative forecast will give an explanation, understanding, or interpretation of current airport conditions and also explain why future development scenarios are justifiable. Forecasting scenarios for BMQ will be developed by examining the meaningful and symbolic content of qualitative data, coupling it with available historical data. Sources and methods for forecasting are provided by several FAA documents, including Federal Aviation Administration Advisory Circular 150/5070-6B, *Airport Master Plans*, FAA Office of Aviation Policy and Plans, *Forecasting Aviation Activity by Airport, Review, and Approval of Aviation Forecasts, 2008*.

Projections of aviation demand incorporate local and national industry trends in assessing current and future demand. Therefore, socioeconomic factors, such as local population, income, and employment, are also analyzed for the effect they may have on historical and future levels of activity. The comparison of relationships among these various indicators provides the initial step in the development of realistic forecasts of aviation demand. Methodologies used to develop forecasts described in the section include:

- Time-Series Methodologies
- Market Share Methodologies
- Socioeconomic Methodologies

2.5.2 TIME SERIES METHODOLOGY

Historical trend lines and linear extrapolation are widely used methods of forecasting. These techniques utilize time-series types of data and are most useful for a pattern of demand that demonstrates a historical relationship with time. Linear extrapolation establishes a linear trend by fitting a straight line using the least-squares method to known historical data. Historical trend lines used in this chapter examine historical compounded annual growth rates (CAGR) and extrapolate future data values by assuming a similar compounded annual growth rate for the future.

2.5.3 MARKET SHARE METHODOLOGY

Market share, ratio, or top-down models compare local levels of activity with a larger entity. Such methodologies imply that the proportion of activity that can be assigned to the local level is a regular and predictable quantity. This method has been used extensively in the aviation industry to develop forecasts for the local level. It is most commonly used to determine the share of total national traffic activity that will be captured by a particular region or airport. Historical data is examined to determine the ratio of local traffic to total national traffic. The FAA develops national forecasts annually in its FAA Aerospace Forecasts document. This data source is compared with historical levels of activity reported by Burnet Municipal Airport.

2.5.4 SOCIOECONOMIC METHODOLOGY

Though trend line extrapolation and market share analysis may provide mathematical and formulaic justification for demand projections, there are many factors beyond historical levels of activity that may identify trends in aviation and impact on aviation demand locally. Socioeconomic or correlation analysis examines the direct relationship between two or more sets of historical data. Local conditions that are examined in this chapter include population and per capita income. Based upon the observed and projected correlation between historical aviation activity and the socioeconomic data sets, future aviation activity projections are developed.

2.6 GENERAL AVIATION ACTIVITY FORECASTS

2.6.1 BASED AIRCRAFT

Based aircraft are defined as those aircraft that are permanently stored at an airport either in a hangar or on an aircraft parking apron. Estimating the number and types of aircraft expected to be based at BMQ over the 20-year study period will impact the planning for its future facility and infrastructure requirements. As the number of aircraft based at an airport increases, so do the aircraft storage requirements at the facility.

There are many factors that determine the number of general aviation aircraft that can be expected to be based at an airport, such as available facilities and services, proximity and access to the airport, amenities, and facilities at adjacent, nearby airports. General aviation aircraft owners and operators are particularly sensitive to both the quality and location of their basing facilities. Owners would rather be in close proximity to their home and/or work and typically weigh this need as primary when considering aircraft storage needs. According to airport personnel, a total of 52 aircraft are stored on the field.

According to *FAA Aerospace Forecasts, Fiscal Years 2022-2042*, between 2010 and 2020, the active general aviation aircraft in the U.S. decreased at a Compound Annual Growth Rate (CAGR) of -0.9 percent. During this same time frame, the number of piston aircraft (single-engine and multi-engine) in the U.S. fleet decreased at an average annual rate of 1.0 percent, while turbine (turboprop and jet) aircraft increased at an average CAGR of 2.0 percent. As has been the trend, piston aircraft continue to see year over year decreases while turbine aircraft remain in a positive growth mode. Conversely, for the projected years 2021-2041, the FAA predicts a negative growth rate of 0.8 percent for piston aircraft and a positive rate of 1.9 percent for turbine aircraft. Overall, the total general aviation fleet (including rotorcraft, experimental, and light sport aircraft) is projected with a positive CAGR of 0.1 percent.

THIS SECTION INTENTIONALLY LEFT BLANK

2.6.2 MARKET SHARE METHODOLOGY

Burnet Municipal Airport's market share of the total U.S. general aviation fleet between 2010 and 2021 has fluctuated from a low of 0.0148% to a high of 0.0254%, with the average calculated at 0.0181%. For the constant market share, the 2021 value of 0.0254% will be utilized for the 20-year planning period. Using these percentages, based aircraft growth calculates the constant market share with a CAGR of 0.1 percent, and 2.0% for the increasing market share. **Table 2.2** shows both market share scenarios, resulting in a total of 53 based aircraft for the constant market share and 78 based aircraft for the increasing market share.

TABLE 2.2 – MARKET SHARE BASED AIRCRAFT FORECASTS

Year	BMQ Based Aircraft	Total U.S. Active Aircraft	BMQ Market Share
2010	33	223,370	0.0148%
2011	33	220,453	0.0150%
2012	33	209,034	0.0158%
2013	41	199,927	0.0205%
2014	44	204,408	0.0215%
2015	46	210,031	0.0219%
2016	37	211,794	0.0175%
2017	35	211,757	0.0165%
2018	35	211,749	0.0165%
2019	35	210,981	0.0166%
2020	31	204,140	0.0152%
2021	52	204,405	0.0254%
Constant Market Share Projection			
2026	52	204,905	0.0254%
2031	52	205,085	0.0254%
2036	52	205,995	0.0254%
2041	53	208,215	0.0254%
CAGR (2021-2041) = 0.1%			
Increasing Market Share Projection			
2026	57	204,905	0.0270%
2031	63	205,085	0.0300%
2036	73	205,995	0.0350%
2041	78	208,215	0.0374%
CAGR (2021-2041) = 2.0%			

Source: KSA; *FAA Aerospace Forecasts, 2022-2042*.

2.6.3 SOCIOECONOMIC – INCOME METHODOLOGY

Income can often be a strong indicator of one's propensity to own an aircraft. The socioeconomic income variable methodology compares historical-based aircraft at BMQ to per capita income in Burnet County. According to data obtained by Woods and Poole, Inc. per capita income in Burnet County has increased steadily from 2010 to 2021 and is anticipated to increase to $71,394 by 2041. The 2021 figure of 0.0011 based aircraft per $1 income is applied to projections of per capita income and shown in **Table 2.3**. This forecast posits a CAGR of 2.1 percent for a total of 78 based aircraft by the end of the planning period.

TABLE 2.3 – SOCIOECONOMIC – INCOME VARIABLE BASED AIRCRAFT FORECASTS

Year	BMQ Based Aircraft	Burnet County Per Capita Income	Based A/C per $1 Income
2010	33	$36,225	0.0009
2011	33	$37,729	0.0009
2012	33	$40,952	0.0008
2013	41	$39,166	0.0010
2014	44	$41,434	0.0011
2015	46	$42,423	0.0011
2016	37	$41,947	0.0009
2017	35	$42,581	0.0008
2018	35	$44,549	0.0008
2019	35	$45,271	0.0008
2020	31	$47,592	0.0007
2021	52	$47,382	0.0011
Socioeconomic – Income Variable			
2026	58	$52,772	0.0011
2031	64	$58,587	0.0011
2036	71	$64,794	0.0011
2041	78	$71,394	0.0011

CAGR (2021-2041) = 2.1%

Source: KSA; Woods and Poole Socioeconomic Data, Burnet County

2.6.4 SOCIOECONOMIC – POPULATION METHODOLOGY

The socioeconomic population variable methodology compares historical-based aircraft at the Airport with the population of Burnet County. Between 2010 and 2021, the population of Burnet County increased from 42,762 to approximately 49,245. Data suggests that the county's population could increase to 61,600 by 2041. The 2021 figure of 0.0011 based aircraft per capita is applied to the population projections of Burnet County and reflected in **Table 2.4**.

TABLE 2.4 – SOCIOECONOMIC – POPULATION VARIABLE BASED AIRCRAFT FORECASTS

Year	BMQ Based Aircraft	Burnet County Population	Based A/C per capita
2010	33	42,762	0.0008
2011	33	43,216	0.0008
2012	33	43,377	0.0008
2013	41	43,580	0.0009
2014	44	43,954	0.0010
2015	46	44,734	0.0010
2016	37	45,917	0.0008
2017	35	46,600	0.0008
2018	35	47,344	0.0007
2019	35	48,155	0.0007
2020	31	48,697	0.0006
2021	52	49,245	0.0011
Socioeconomic – Population Variable			
2026	55	52,080	0.0011
2031	58	55,077	0.0011
2036	62	58,248	0.0011
2041	65	61,600	0.0011
CAGR (2021-2041) = 1.1%			

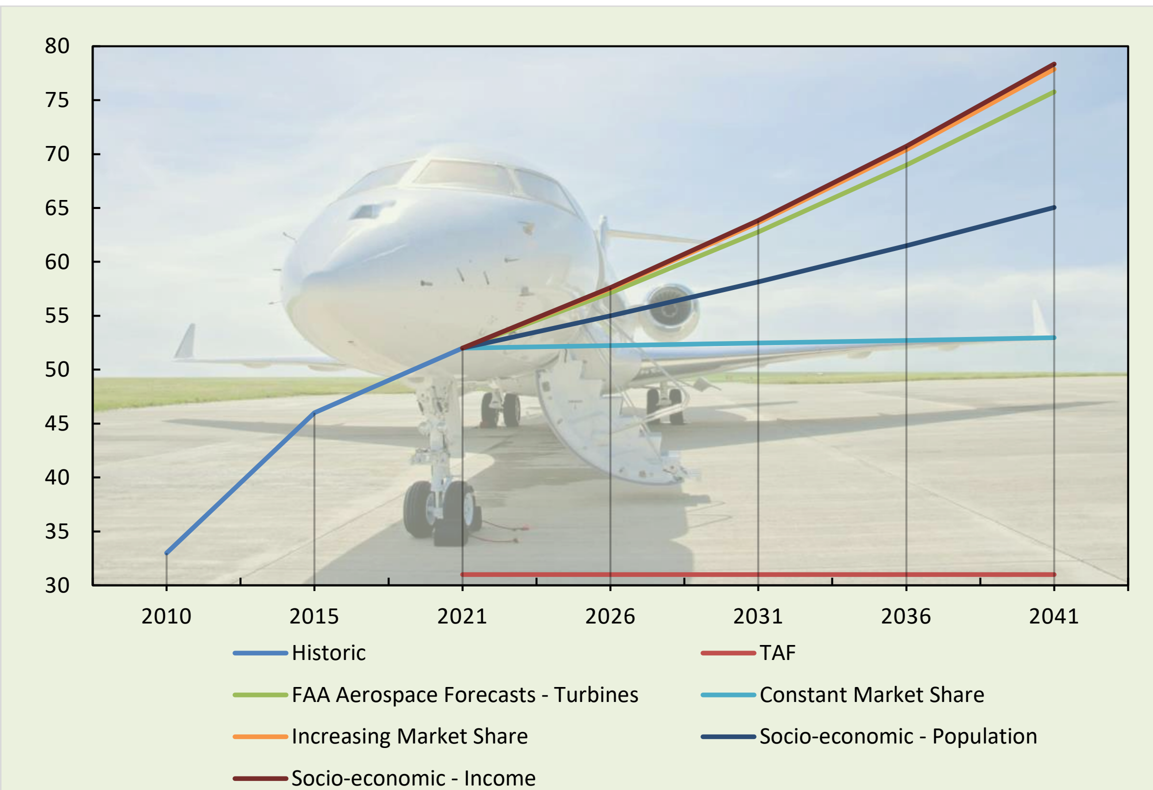
Source: KSA; Woods and Poole Socioeconomic Data, Burnet County

TABLE 2.5 – PREFERRED BASED AIRCRAFT FORECAST, 2021-2041

Year	FAA TAF Summary	FAA Aerospace Forecasts	Constant Market Share	Increasing Market Share	Socioeconomic Income	Socioeconomic Population
2021	31	52	52	**52**	52	52
2026	31	57	52	**58**	58	55
2031	31	63	52	**64**	64	58
2036	31	69	53	**70**	71	62
2041	31	76	53	**78**	78	65
CAGR	0.0%	1.9%	0.1%	2.0%	2.1%	1.1%

Source: KSA

EXHIBIT 2.1 – PREFERRED BASED AIRCRAFT FORECAST



2.6.5 PREFERRED BASED AIRCRAFT FORECAST

A comparison of projected based aircraft using the methodologies described in previous sections is shown above in **Table 2.5** and **Exhibit 2.1**. All the methodologies anticipate either retention of existing or an increase in based aircraft demand over the next 20 years. Linear extrapolation of historical trends over the last 10 years did produce a negative growth rate, but this is unlikely to occur and is accordingly not included. The preferred based aircraft forecast follows course with the increasing market share model. This scenario increases based aircraft from the current level of 52 to 78 by 2041, an approximate CAGR of 2.0 percent.

2.7 BASED AIRCRAFT FLEET MIX

The current based aircraft fleet mix at BMQ consists of 42 single-engine piston aircraft, four multi-engine piston aircraft, two single-engine turboprop aircraft, two business jets, one helicopter and one glider. FAA's anticipated average annual growth rates for various components of the national general aviation fleet were considered when determining a projected based aircraft fleet mix for the airport. As reflected in **Table 2.6**, it is anticipated the number of piston aircraft (single and multi-engine) based at the airport as a percent of total will decrease over the 20-year forecast period. Additionally, based turbine aircraft will continue to increase during the planning period.

TABLE 2.6 – GENERAL AVIATION BASED AIRCRAFT FLEET MIX, 2021-2041

Aircraft Type	2021	2026	2031	2036	2041
Single-Engine Piston	42	47	51	56	62
Multi-Engine Piston	4	4	4	4	3
Single-Engine Turboprop	2	2	3	3	4
Multi-Engine Turboprop	0	0	1	1	2
Jet	2	2	3	4	4
Helicopter	1	1	1	1	2
Glider	1	1	1	1	2
Total	52	58	64	70	78

Source: KSA; totals may not equal sum of rows due to rounding

2.8 GENERAL AVIATION OPERATIONS FORECASTS

General aviation operations are those which are not categorized as commercial or military. Several forecast scenarios were developed to appropriately reflect current general aviation operational activity and provide realistic projections for the 20-year planning period. The forecast scenarios generated assume, for the most part, straight-line growth. While it is recognized that straight-line (consistent) growth never occurs year after year, average annual growth methodologies often serve to illustrate intermediate- and long-range planning. It should be noted that it is not actual numbers that are most important but the reasoning, assumptions, and trends the numbers represent. The following methodologies were considered in determining projections of general aviation demand.

- FAA Terminal Area Forecasts (TAF) – Data from the May 2021 *FAA Terminal Area Forecast* (TAF) is shown (0.0 percent).
- FAA Aerospace Forecasts – As indicated in this projection and according to the *FAA Aerospace Forecasts,*

Fiscal Years, 2021-2041, general aviation operations nationwide are expected to increase at an average annual rate of 1.0 percent.

- FAA Aerospace Forecasts (turbine growth) – As reflected in the *FAA Aerospace Forecasts, Fiscal Years, 2021-2041*, turbine-type aircraft are anticipated to grow at an average annual growth rate of 2.5%. This growth reflects increased flying by business and corporate aircraft overall. This rate is the preferred option for anticipated general aviation operations for the planning period.
- Operations Per Based Aircraft – Generally, there is a relationship between aviation activity and based aircraft, stated in terms of *Operations Per Based Aircraft (OPBA)*. The national trend has been changing, with more aircraft being used for business purposes and less for leisure. This impacts the OPBA in that business aircraft are usually flown more often than recreational or leisure aircraft. It is anticipated the OPBA will provide a CAGR of 1.6 percent.
- Demographics (Population and Income) – As previously mentioned, socioeconomic conditions of a particular area or region can affect aviation activity. This methodology utilizes the combined average annual population and income growth for Burnet County of 1.6 percent.

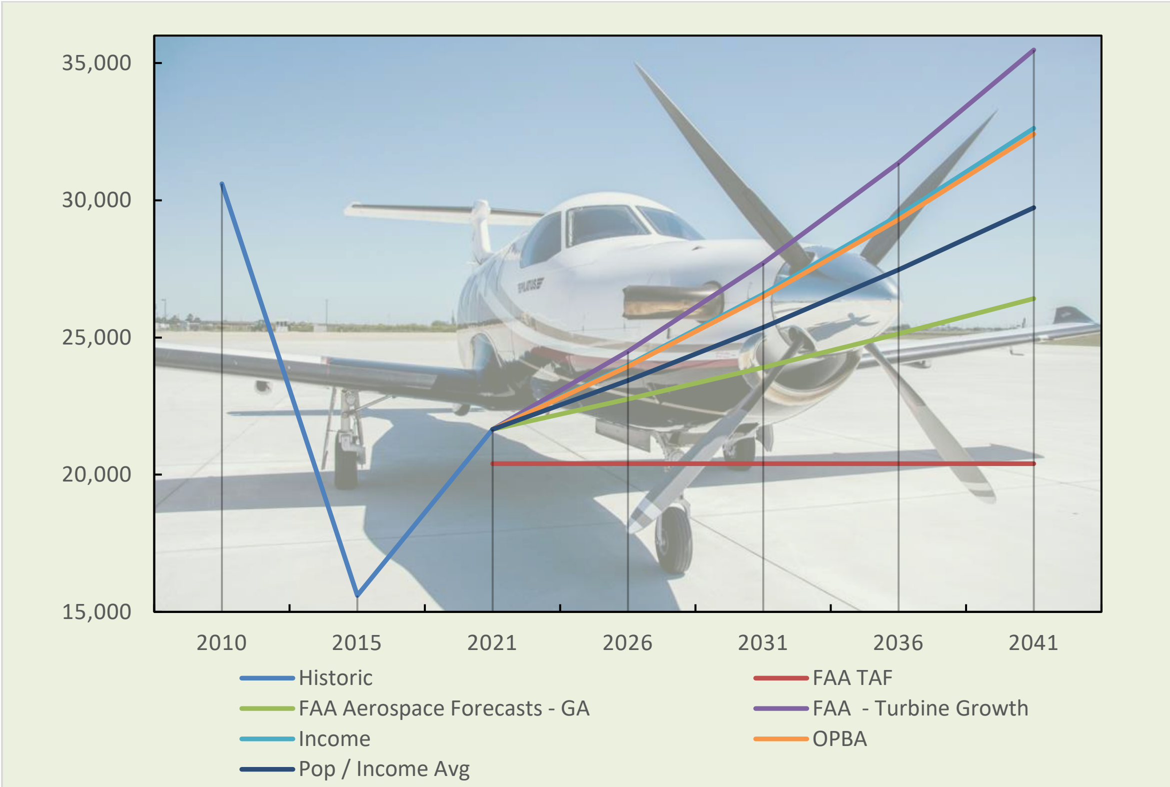
Table 2.7 shows the results of the various general aviation operations forecasts. Based on the long-term trends previously mentioned for the general aviation industry, as well as the opportunity to attract additional business to the area, it is anticipated, at a minimum, the Airport is capable of achieving operational growth similar to national trend levels for general aviation at 1.0 percent annually. However, as previously shown, data for the general aviation fleet and operations is increasing at a more rapid pace within the turbine sector of aviation. This factor, coupled with the previously described increases in income for Burnet County, postulate a CAGR of 2.5 percent as the preferred general aviation operations forecast.

TABLE 2.7 – PREFERRED GENERAL AVIATION FORECASTS, 2021-2041

Year	FAA TAF Summary	FAA Aerospace Forecasts (Total GA)	FAA Aerospace Forecasts (Turbine Growth)	Burnet County Income	Burnet County Population / Income Avg.	OPBA
2021	20,400	21,650	**21,650**	21,650	21,650	21,650
2026	20,400	22,754	**24,495**	23,987	23,436	23,438
2031	20,400	23,915	**27,714**	26,576	25,370	25,374
2036	20,400	25,135	**31,356**	29,444	27,463	27,470
2041	20,400	26,417	**35,476**	32,622	29,729	29,739
CAGR	0.0%	1.0%	2.5%	2.1%	1.6%	1.6%

Source: KSA

EXHIBIT 2.2 – PREFERRED GENERAL AVIATION OPERATIONS FORECAST



2.9 OPERATIONS FORECAST BY AIRCRAFT TYPE

The Airport saw 22,300 operations in 2021, with approximately 1,338 of these being conducted by jets and 2,453 by turboprop aircraft. According to the FAA's Traffic Flow Management System Counts (TFMSC), some of the most commonly seen jets at BMQ were Learjet 35/36s, Cessna Citation 525s, and Cessna Citation Excels. Other aircraft with frequent operations included Beechcraft 36 Bonanzas, Piper Malibus, and Cirrus SR-20s and SR-22s. Fuel sale records indicate that approximately 106,410 gallons of Jet-A fuel and 62,392 gallons of AVGAS/100LL were sold in 2021. As indicated in the following **Table 2.8**, total aircraft movements and operations are expected to increase an average of 2.4% annually from the current level of 22,300 to approximately 36,126 by the end of the planning period, with general aviation operations representing the major percentage of activity through the planning period. Due to Burnet's proximity to the rapidly growing Austin Metropolitan Area and popular outdoor recreational areas like Buchanan Lake, jet traffic is expected to more than double over the planning period.

THIS SECTION INTENTIONALLY LEFT BLANK

TABLE 2.8 – SUMMARY OF OPERATIONS BY AIRCRAFT TYPE, 2021-2041

Aircraft Type	2021	2026	2031	2036	2041
Single-Engine Piston	15,610	17,476	19,571	21,924	24,566
Multi-Engine Piston	1,115	1,132	1,135	1,120	1,084
Turbo-prop (SE)	892	1,132	1,418	1,760	2,168
Turbo-prop (ME)	1,561	1,886	2,269	2,720	2,529
Business Jet	1,338	1,509	1,985	2,240	2,890
Helicopter	892	1,006	1,135	1,280	1,806
Military	650	650	650	650	650
Other (Glider)	223	251	284	320	361
Total	22,300	25,145	28,364	32,006	36,126

Source: KSA; totals may not equal sum of rows due to rounding

2.10 LOCAL / ITINERANT OPERATIONS FORECAST

The FAA defines a local operation as any operation performed by an aircraft operating in the local traffic pattern or within sight of the tower, or aircraft known to be operating in local practice areas, or aircraft executing practice instrument approaches. All other operations are defined as itinerant operations, which usually involve an aircraft departing from one airport and arriving at another. According to airport records, itinerant operations constituted approximately 28 percent of the overall operations total, with local operations contributing the remaining 72 percent. As the airport continues to serve as a center for business and tourism, it is anticipated itinerant operations will increase over the planning period to 38 percent and local operations decrease to 62 percent. **Table 2.9** reflects total local and itinerant operations for the planning period.

TABLE 2.9 – LOCAL AND ITINERANT OPERATIONS FORECAST, 2021-2041

Year	Itinerant Operations	Local Operations	Total Operations
2021	6,300	16,000	22,300
2026	7,669	17,476	25,145
2031	9,360	19,004	28,364
2036	11,362	20,644	32,006
2041	13,728	22,398	36,126

Source: KSA; FAA *Terminal Area Forecasts*; Airport Master Record 5010-1

2.11 CRITICAL AIRCRAFT

The development of airport facilities is impacted by both the demand for those facilities, typically represented by total based aircraft and operations at an airport, and the type of aircraft that will use those facilities. In general, airport infrastructure components are designed to accommodate the most demanding aircraft, referred to as the critical aircraft, which will utilize the infrastructure on a regular basis. The factors used to determine an airport's critical aircraft are the approach speed and wingspan/tail height of the most demanding class of aircraft that is anticipated to perform at least 500 annual operations at the airport during the planning period. These 500 operations can be conducted by a single aircraft type or composite aircraft representing a collection of aircraft with similar qualities. It is important for airport facilities to be constructed in accordance with their critical aircraft to avoid aircraft that are too large for existing airport infrastructure operating frequently at the airport.

2.12 RUNWAY DESIGN CODE (RDC)

The RDC is a three-component code that defines the applicable design standards that apply to a specific runway. The first component, depicted by a letter (A-E), is the Aircraft Approach Category (AAC) and relates to the approach speed of the design aircraft. Generally, the AAC applies to runways and runway-related facilities, such as runway width, runway safety area (RSA), runway object free area (ROFA), runway protection zone (RPZ), and separation standards. The second component, Airport Design Group (ADG), depicted by a Roman numeral (I-VI), relates to the greatest wingspan or tail height of the design aircraft, whichever is most restrictive. The ADG influences design standards for taxiways, aircraft wingtip clearances, and separation distances. The third component relates to runway visibility minimums as expressed in Runway Visual Range (RVR) equipment measurements. RVR-derived values represent feet of forward visibility that have statute mile equivalents (e.g., 2400 RVR = 1/2-mile). RDC classifications are summarized in **Table 2.10**.

THIS SECTION INTENTIONALLY LEFT BLANK

TABLE 2.10 – RUNWAY DESIGN CODE

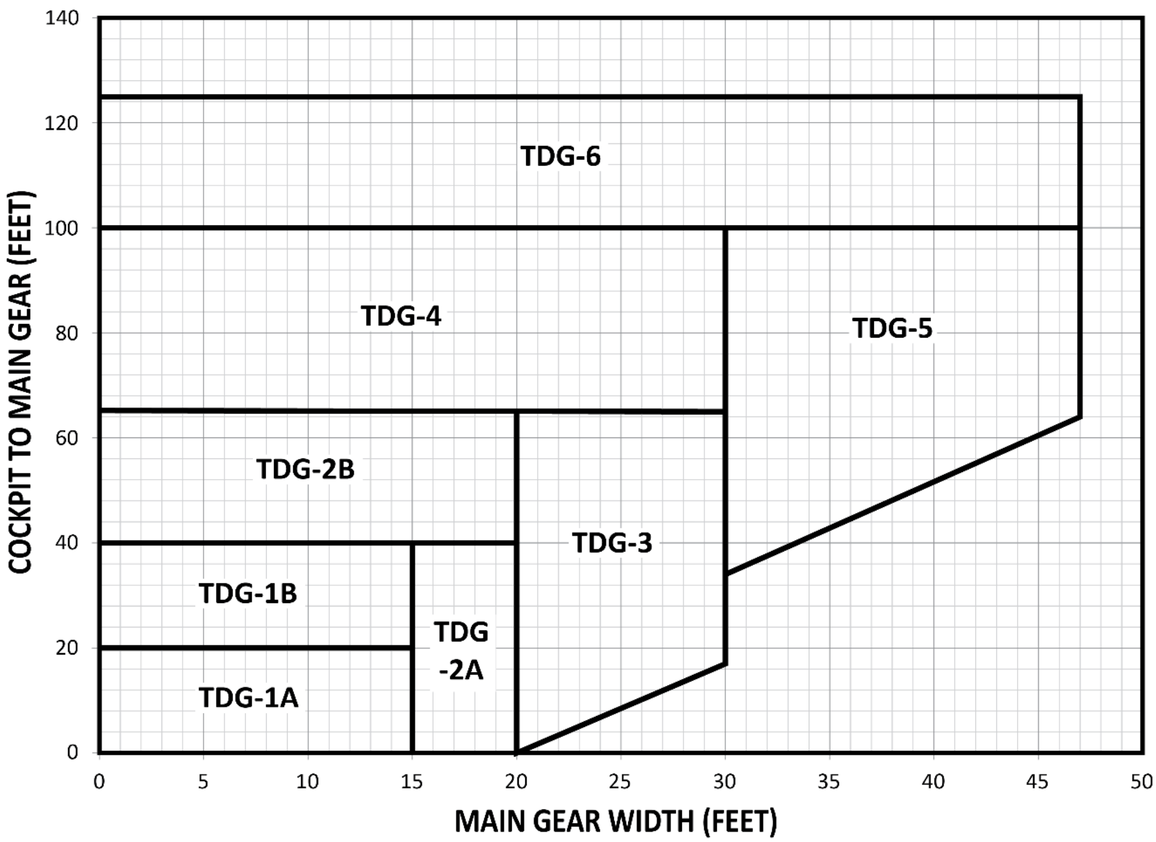
Aircraft Approach Category (AAC)		
AAC	**Approach Speed**	
A	Less than 91 knots	
B	91 knots or more but less than 121 knots	
C	121 knots or more but less than 141 knots	
D	141 knots or more but less than 166 knots	
E	166 knots or more	
Airplane Design Group (ADG)		
Group	**Tail Height (ft)**	**Wingspan (ft)**
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’
Approach Visibility Minimums		
RVR (ft)	**Flight Visibility Category (statute mile)**	
5000	Not lower than 1-mile	
4000	Lower than 1-mile but not lower than ¾-mile	
2400	Lower than ¾-mile but not lower than ½-mile (CAT-I)	
1600	Lower than ½-mile but not lower than ¼-mile CAT-II)	
1200	Lower than ¼-mile (CAT-III)	

RVR – Runway Visual Range. The approximate visibility (in feet) as measured by the RVR light transmission/reception equipment or equivalent weather observer report.

2.13 TAXIWAY DESIGN CODE (TDG)

Separation between runways, taxiways, taxilanes, and objects is related to the aircraft characteristics encompassed by the ADG wingspan or tail height restriction. The Taxiway Design Group (TDG) considers the dimensions of the aircraft undercarriage or landing gear to determine taxiway widths and pavement fillets to be provided at taxiway intersections. Other taxiway elements such as taxiway safety and object free areas (TSA and TOFA), taxiway/taxilane separation standards, and taxiway/taxilane wingtip clearances are based solely on ADG.

EXHIBIT 2.3 – TAXIWAY DESIGN GROUP DETERMINATIONS



Source: FAA A/C 150/5300-13B, *Airport Design*
Cockpit to Main Gear Distance (CMG) = The distance from the pilot's eye to the man gear.
Main Gear Width (MGW) = The distance from outer edge to outer edge of the widest set of main gear tires.

2.14 AIRPORT REFERENCE CODE (ARC)

The Airport Reference Code (ARC) is a coding system used to relate and compare airport design criteria to the operational and physical characteristics of the aircraft intended to operate at the airport. The ARC is similar in scope to the RDC, minus the third element of visibility. **Table 2.11** summarizes the critical aircraft and design aircraft components for Runway 1/19 at Burnet Municipal Airport.

TABLE 2.11 – CRITICAL AIRCRAFT PARAMETERS

Existing				
Runway	Critical Design Aircraft	RDC	ARC	TDG
1 / 19	Cessna Citation 550	B-II-5000	B-II	2A
Ultimate				
Runway	Critical Design Aircraft	RDC	ARC	TDG
1 / 19	TBD	TBD	TBD	TBD

Source: KSA, FAA A/C 150/5300-13B, *Airport Design*

2.15 SUMMARY

Aircraft activity at Burnet Municipal Airport has increased steadily in recent history. Despite rapid volatility in fuel cost, and impacts and uncertainty associated with COVID-19, the forecasts developed for this Airport Layout Plan (ALP) Update suggest positive growth in the number of based aircraft and total aircraft operations at the Airport over the next 20 years.

The following tables summarize the forecasts of aviation activity that have been presented in this chapter. This information will be utilized in the next chapter, Facility Requirements, to document, analyze, and quantify airside and landside needs. Therefore, the forecasts of aviation activity are an important part of the information base which will be used to develop ultimate plans for the airport and formulate implementation decisions relating to airport development.

To secure approval for these projections, the FAA requires a comparison of forecasts to the annually produced TAF, which are completed for each airport in the NPIAS and updated each year. The FAA prefers that airport planning forecasts not vary significantly from the TAF and looks for forecasts to be within 10 percent of their five-year forecasts and 15 percent of their ten-year forecasts. The FAA templates for summarizing and documenting airport planning forecasts and for comparing projections with the FAA TAF Forecasts are presented in **Tables 2.12** and **2.13**. The final **Table 2.14** provides a final summary of the forecast aviation demand.

TABLE 2.12 – COMPARISON OF ACTIVITY AND TAF FORECASTS, 2021-2041(FAA FORMAT)

Year	Airport Forecasts	TAF Forecast	AF / TAF % Difference
Operations			
Base Year (2021)	22,300	21,000	6.2%
2026	25,145	21,000	19.7%
2031	28,364	21,000	35.1%
2036	32,006	21,000	52.4%
2041	36,126	21,000	72.0%
Based Aircraft			
Base Year (2021)	52	31	67.7%
2026	58	31	87.1%
2031	64	31	106.5%
2036	70	31	125.8%
2041	78	31	151.6%

Source: KSA, FAA

TABLE 2.13 – SUMMARY OF OPERATIONS BY AIRCRAFT TYPE, 2021-2041

Operations	2021	2026	2031	2036	2041
Single-Engine Piston	15,610	17,476	19,571	21,924	24,566
Multi-Engine Piston	1,115	1,132	1,135	1,120	1,084
Turbo-prop (SE)	892	1,132	1,418	1,760	2,168
Turbo-prop (ME)	1,561	1,886	2,269	2,720	2,529
Business Jet	1,338	1,509	1,985	2,240	2,890
Helicopter	892	1,006	1,135	1,280	1,806
Military	650	650	650	650	650
Other (Glider)	223	251	284	320	361
TOTAL OPERATIONS	22,300	25,145	28,364	32,006	36,126
Local Operations	16,000	17,476	19,004	20,644	22,398
Itinerant Operations	6,300	7,669	9,360	11,362	13,728
Based Aircraft					
Single-Engine Piston	42	47	51	56	62
Multi-Engine Piston	4	4	4	4	3
Single-Engine Turboprop	2	2	3	3	4
Multi-Engine Turboprop	0	0	1	1	2
Jet	2	2	3	4	4
Helicopter	1	1	1	1	2
Gliders	1	1	1	1	2
TOTAL	52	58	64	70	78

Source: KSA; totals may not equal sum of rows due to rounding

THIS SECTION LEFT BLANK INTENTIONALLY

TABLE 2.14 – SUMMARY OF AIRCRAFT PLANNING FORECASTS, 2021-2041 (FAA FORMAT)

						Average Annual Compound Growth Rate			
	2021	2026	2031	2036	2041	2026	2031	2036	2041
Operations – Itinerant									
General Aviation	5,650	6,981	8,591	10,504	12,771	4.32%	4.28%	4.22%	4.16%
Military	650	650	650	650	650	0.00%	0.00%	0.00%	0.00%
Operations – Local									
General Aviation	16,000	17,514	19,123	20,852	22,705	1.82%	1.80%	1.78%	1.77%
Military	0	0	0	0	0	N/A	N/A	N/A	N/A
TOTAL OPERATIONS	**22,300**	**25,145**	**28,364**	**32,006**	**36,126**	**2.43%**	**2.43%**	**2.44%**	**2.44%**
Peak Hour Operations	3	4	5	6	7	4.01%	4.04%	4.01%	3.97%
Based Aircraft									
Single-Engine Piston	42	47	51	56	62	2.27%	2.00%	1.94%	1.94%
Multi-Engine Piston	4	4	4	4	3	0.30%	-0.41%	-0.89%	-1.23%
Turbo-prop (SE)	2	2	3	3	4	3.01%	2.50%	3.07%	3.40%
Turbo-prop (ME)	0	0	1	1	2	N/A	N/A	N/A	N/A
Jet	2	2	3	4	4	3.01%	3.71%	3.80%	3.89%
Helicopter	1	1	1	1	2	3.01%	2.50%	2.27%	2.25%
Glider	1	1	1	1	2	3.01%	2.50%	2.27%	2.25%
TOTAL BASED AIRCRAFT	**52**	**58**	**64**	**70**	**78**	**2.21%**	**2.05%**	**2.00%**	**2.02%**

Source: KSA; totals may not equal sum of rows due to rounding

3

Burnet Municipal Airport
Kate Craddock Field
Airport Layout Plan (ALP) Update

Facility Requirements

KSA

03 FACILITY REQUIREMENTS

3.1 OVERVIEW

A key step in the planning process is developing requirements of airport facilities, which will allow for airside and landside evolution over the term of the planning period. By comparing the existing conditions of the Airport to forecast aviation activity based upon both existing and future aircraft usage, the requirements for runways, taxiways, aprons, terminal, and other related facilities to accommodate growth over the short, intermediate, and long-term planning periods can be determined. Demand-capacity analyses aid in the identification of airport deficiencies, surpluses, and opportunities for future development.

This chapter of the Airport Layout Plan (ALP) Update narrative will analyze the ability of the current facilities at Burnet Municipal Airport (BMQ) to meet the forecast planning activity shown in Chapter 2, *Aviation Demand Forecast*. Using Federal Aviation Administration (FAA) methodologies and typical sizing factors, the aviation projections are converted into facility requirements over the 20-year planning period.

An essential step in the process of estimating airport needs is the determination of an airport's current capacity to accommodate anticipated demand. Demand-capacity analysis yields information that is ultimately used to design the airport layout plan and state facility development. This chapter will examine the ability of BMQ to accommodate anticipated aviation demand and outline specific facility requirements necessary to address any deficiencies in the existing airport system. Specifically, this analysis will extend into the following areas:

- Airfield Capacity, Runway Orientation, Design Standards including Runway and Taxiway System
- Approach and Navigational Aids
- Airfield Lighting, Signage, and Pavement Markings
- Aircraft Parking Aprons
- Aircraft Storage Hangars
- Aircraft Fuel Storage
- Public Automobile Parking
- Ground Access
- Airport Security and Fencing

3.2 AIRFIELD DEMAND AND CAPACITY

The major components of the airfield system to be considered when determining capacity include runway orientation and configuration, runway length, and runway exit locations. Additionally, the capacity of a given system is affected by operational characteristics such as fleet mix, climatology, and air traffic control (ATC) procedures. Each of these components has been examined as part of the airside capacity analysis. Runway orientation and the degree to which it meets wind coverage requirements influence how the runway system is utilized. Design standards established by the FAA set geometric clearance guidelines for airfield components. Upon completion of analysis of these elements, a review of existing facilities is performed, and any additional requirements necessary to meet the forecasted demand are identified.

FAA guidance for airfield capacity is contained in AC 150/5060-5, *Airport Capacity and Delay*. According to the FAA, airfield capacity is generally defined as the number of aircraft operations that can be safely accommodated on both the runway and taxiway system at a given point in time before an unacceptable level of delay is experienced. The method of analysis for determining airside capacity is Annual Service Volume (ASV). The ASV identifies the maximum number of annual operations that can be accommodated at the Airport without excessive delay. To determine ASV, the following determinate specific to BMQ need to be identified.

- Predominant Meteorological Conditions
- Runway Use Configuration
- Aircraft Mix (based on existing aircraft group demand)
- Percentage of Arrival Operations
- Touch and Go Operations

3.2.1 ANNUAL SERVICE VOLUME

Using the guidance from FAA AC 150/5060-5, the ASV for the existing runway layout at BMQ is calculated to be approximately 230,000, with VFR capacity of 98 operations per hour and an IFR capacity of 59 operations per hour. For the base year 2021, the recorded operations at the Airport were calculated at 22,300, with a forecast of 36,126 by 2041. This number accounts for approximately 16 percent of the current ASV. Based on the current level and forecast level of demand at BMQ, no capacity enhancement projects will be needed during the planning period.

By using this measure, it is easy to compare current and projected annual operations numbers and analyze capacity. Although not always viable for hourly capacity or delay peak periods, this guideline is helpful for long-range 20-year planning horizons. Planning guidelines typically assume that when an airport meets 60 percent capacity, planning for capacity enhancements should begin. At 80 percent capacity, construction for those projects should begin. If 100 percent capacity is reached, serious impacts to airport operations may occur, resulting in increased delay.

3.3 AIRFIELD REQUIREMENTS

The Critical Aircraft is defined as the largest aircraft family or single aircraft anticipated to utilize an airport on a regular basis. A "regular basis" is defined by the FAA as conducting at least 500 annual itinerant operations, with an operation classified as either a take-off or landing. The selection of the Critical Aircraft allows for the identification of the Airport Reference Code (ARC).

3.3.1 RUNWAY DESIGN CODE

The RDC is a coding system developed by the FAA to relate airport design criteria to the operational and physical characteristics of the airplane types that will operate at a particular airport. The RDC has three components relating to the airport design aircraft. The first component, depicted by a letter (A-E), is the Aircraft Approach Category (AAC) and relates to the approach speed of the design aircraft. The second component, Airport Design Group (ADG), depicted by a Roman numeral (I-VI), relates to the greatest wingspan or tail height of the design aircraft, whichever is most restrictive. The third component relates to runway visibility minimums as expressed in Runway Visual Range (RVR) equipment measurements.

Generally, aircraft approach speed applies to runways and runway length-related features. Airplane wingspan primarily relates to separation criteria and width-related features. Airports expected to accommodate single-engine airplanes normally fall into Airport Reference Code A-I or B-I. Airports serving larger general aviation and commuter-type planes are usually Airport Reference Code B-II or B-III. Small to medium-sized airports serving air carriers are usually Airport

Reference Code C-III, while larger air carrier airports are usually Airport Reference Code D-VI or D-V. As established in the forecast chapter of this study, the RDC at Burnet Municipal Airport is B-II-5,000. **Table 3.1** details the FAA Runway Design Code guidelines. Based on existing and ultimate operations at the Airport and the existing and ultimate critical aircraft, the current B-II ARC is deemed appropriate for the 20-year planning period.

3.3.2 TAXIWAY DESIGN GROUP (TDG)

Similar to runways, taxiways are also required to be designed to certain limitations and offer a set of criteria referred to as Taxiway Design Group (TDG). TDG is based on guidance that established requirements based on overall Main Gear Width (MGW) and the Cockpit to Main Gear Distance (CMG) for all aircraft operating at the Airport. This criterion helps establish design standards for fillets and edge safety margins to help limit pilot error and use a consistent taxi method throughout the Airport. FAA Advisory Circular 150/5300-13B, *Airport Design* provides the essential requirements for taxiway design and the associated groups, which are depicted in **Table 3.2.**

TABLE 3.1 – RUNWAY DESIGN CODE

Aircraft Approach Category (AAC)		
AAC	**Approach Speed**	
A	Less than 91 knots	
B	91 knots or more but less than 121 knots	
C	121 knots or more but less than 141 knots	
D	141 knots or more but less than 166 knots	
E	166 knots or more	
Airplane Design Group (ADG)		
Group	**Tail Height (ft)**	**Wingspan (ft)**
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’
Approach Visibility Minimums		
RVR (ft)	**Flight Visibility Category (statute mile)**	
5000	Not lower than 1-mile	
4000	Lower than 1-mile but not lower than ¾-mile	
2400	Lower than ¾-mile but not lower than ½-mile (CAT-I)	
1600	Lower than ½-mile but not lower than ¼-mile CAT-II)	
1200	Lower than ¼-mile (CAT-III)	

RVR – Runway Visual Range. The approximate visibility (in feet) as measured by the RVR light transmission/reception equipment or equivalent weather observer report.

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

EXHIBIT 3.1 – AIRCRAFT CHARACTERISTICS

AIRPLANE DESIGN GROUP (ADG)

A-I

CESSNA 182 - SINGLE ENGINE AIRCRAFT (2 - 6 SEATS)

Maximum Take-off Weight (MTOW): 3,100 lbs. Length: 29' Wingspan: 36'
Similar Aircraft: Beechcraft Bonanza, Cessna 172, Cirrus SR-22

B-I

BEECH KING AIR C90 - SMALL CABIN AIRCRAFT (4 - 10 SEATS)

Maximum Take-off Weight (MTOW): 10,100 lbs. Length: 35' 6" Wingspan: 50' 3" Tail Height: 14' 3"
Similar Aircraft: Citation Mustang, Eclipse 500, HondaJet

B-II

CITATION XLS - SMALL CABIN AIRCRAFT (6 -12 SEATS)

Maximum Take-off Weight (MTOW): 20,200 lbs. Length: 52' 6" Wingspan: 56' 4" Tail Height: 17' 2"
Similar Aircraft: Citation II/III/VII, Citation M2, Phenom 300

C-II / D-II

GULFSTREAM G-IV - COMMERCIAL/BUSINESS JET (14 -70 SEATS)

Maximum Take-off Weight (MTOW): 73,200 lbs. Length: 88' 4" Wingspan: 77' 10" Tail Height: 24' 5"
Similar Aircraft: Bombardier Challenger 600, Embraer E-175

C-III / D-III

BOEING 737-800 - LARGE COMMERCIAL/BUSINESS JET (14 TO 160 SEATS)

Maximum Take-off Weight (MTOW): 174,200 lbs. Length: 129' 6" Wingspan: 112' 7" Tail Height: 41'2"
Similar Aircraft: Bombardier BD-700 Global Express, Boeing 757, Airbus A320

TABLE 3.2 – TAXIWAY DESIGN GROUP (TDG) CRITERIA

Item	Taxiway Design Group							
	1A	1B	2A	2B	3	4	5	6
Taxiway Width	25'	25'	35'	35'	50'	50'	75'	75'
Taxiway Edge Safety Margin	5'	5'	7.5'	7.5'	10'	10'	14'	14'
Taxiway Shoulder Width	10'	10'	15'	15'	20'	20'	30'	30'

Source: FAA Advisory Circular 150/5300-13B, *Airport Design*

3.3.3 RUNWAY ORIENTATION / WIND ANALYSIS

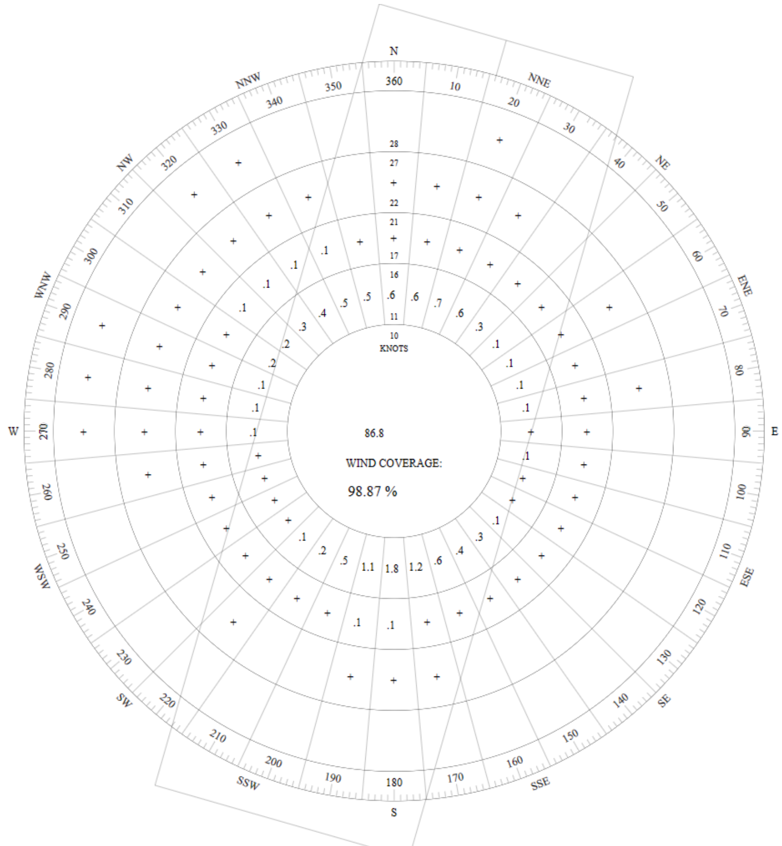
Surface wind conditions have a direct effect and impact on airport functionality. Runways that are not oriented to take the fullest advantage of prevailing winds will restrict the capacity of the Airport to varying degrees. When landing and taking off, aircraft are able to operate on a runway properly and safely as long as the wind velocity perpendicular to the direction of flight (i.e., crosswind) is not excessive. The wind coverage analysis translates the crosswind velocity and direction into a "crosswind component." Smaller aircraft are more easily affected by crosswinds than larger aircraft; thus, they have a smaller crosswind component.

The determination of the appropriate crosswind component is dependent upon the RDC, as described above, which is B-II for Runway 1/19 at BMQ. According to AC 150/5300-13B, *Airport Design*, the maximum crosswind component used for RDC's A-I and B-I is 10.5-knots, a 13-knot crosswind component is used for RDC A-II and B-II, and for RDC's C-I and C-II, a 16-knot maximum crosswind component is used.

Accurate wind velocity and directional data during all weather conditions were obtained from the National Climate Data Center (NCDC), which compiles the data provided by the on-field Automated Weather Observing System (AWOS-3). Using the data, an all-weather wind rose was constructed and is presented in the following **Exhibit 3.2**.

THIS SECTION INTENTIONALLY LEFT BLANK

EXHIBIT 3.2 – ALL-WEATHER WIND ROSE



Source: National Climate Data Center, Station 722542, Burnet Municipal Cradock Field, Period 2011-2020

The desirable wind coverage for an airport is 95%, meaning the runway system should be oriented so that the maximum crosswind component is not exceeded by more than 5% of the time annually. Based on the all-weather wind analysis for Burnet Municipal Airport, Runway 1/19 provides 99.67% wind coverage for the 16-knot crosswind component, 98.87% for the 13-knot crosswind component, and 97.63% for the 10.5-knot crosswind component. **Table 3.3** quantifies the wind coverage provided by Runway 1/19 during all weather conditions at the Airport.

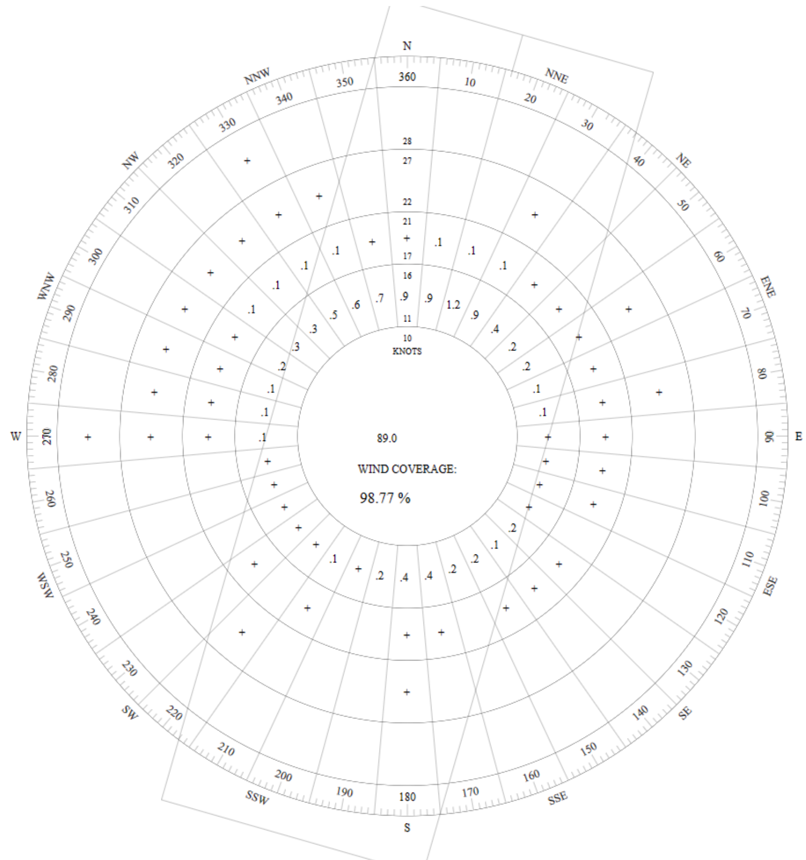
TABLE 3.3 – ALL-WEATHER WIND COVERAGE

	10.5-Knot	13-Knot	16-Knot
Runway 1	72.23%	73.12%	73.8%
Runway 19	82.84%	83.5%	83.98%
Runway 1/19	**97.63%**	**98.87%**	**99.67%**

Source: National Climate Data Center, Station 722542, Burnet Municipal Cradock Field, Period 2011-2020

To analyze the effectiveness of the existing instrument procedures and the need for placement of improved or additional procedures, an Instrument Flight Rules (IFR) wind rose has been constructed and is presented in the following **Exhibit 3.3**.

EXHIBIT 3.3 – IFR WIND ROSE



Source: National Climate Data Center, Station 722542, Burnet Municipal Cradock Field, Period 2011-2020

Table 3.4 presents wind coverage analysis provided during IFR meteorological conditions (i.e., weather conditions having a ceiling less than 1,000 feet, but equal to or greater than 200 feet and/or visibility less than 3-miles, but equal to or greater than 1/2-mile). The table quantifies the wind coverage provided by Runway 1/19 and the individual ends. From this analysis, it can be concluded that Runway 1 provides the best wind coverage for all crosswind components.

TABLE 3.4 – IFR WIND COVERAGE

	10.5-Knot	13-Knot	16-Knot
Runway 1	83.27%	84.24%	82.90%
Runway 19	74.38%	74.89%	75.30%
Runway 1/19	97.58%	98.77%	99.55%

Source: National Climate Data Center, Station 722542, Burnet Municipal Cradock Field, Period 2011-2020

3.3.4 RUNWAY LENGTH

As outlined in FAA AC 150/5325-4B, *Runway Length Requirement for Airport Design*, the runway length necessary for an airport is dependent on several factors, including airport elevation, temperature, wind velocity, aircraft operating weight and configurations, runway surface condition (wet or dry), obstructions present in the vicinity of the Airport, and departure/arrival procedures.

Burnet Municipal Airport's primary runway, Runway 1/19 is 5,001 feet in length. This runway length allows the Airport to serve a wide variety of aircraft in the general aviation fleet, including a variety of large business jets.

The method for determining the recommended runway length is based on examining the Airport's critical aircraft (ARC B-II) and the characteristics of aircraft included in that design category. In order to determine the ultimate required length of a runway, several factors must be considered, including the characteristics of the critical aircraft that will use the runway, the typical stage length being flown by the critical aircraft, as well as common atmospheric conditions at the Airport. In general, longer stage lengths require aircraft to carry more fuel, thereby increasing the aircraft's weight at takeoff, and subsequently, the runway length required for takeoff. Similarly, warmer air temperatures (and the corresponding impact on air density) result in increased runway takeoff length requirements for most aircraft.

FAA runway length requirements are based on small aircraft with weights of 12,500 pounds or less, large aircraft between 12,500 and 60,000 pounds, and large aircraft weighing greater than 60,000 pounds. For comparison, the Citation 550 has a maximum takeoff weight (MTOW) of 15,100 lbs.

The results of the runway length analysis conducted for Burnet Municipal Airport indicate that the current runway length is sufficient to accommodate operations by all small airplanes. Runway length requirements for large aircraft between 12,500 and 60,000 pounds are calculated based on the percentage of aircraft in that category that can be accommodated as well as the useful load of those aircraft. As shown in **Table 3.5**, the runway length analysis indicates a runway length of 5,100 feet is sufficient to accommodate approximately 75% of large airplanes (less than 60,000 pounds) when operating at 60% of their average useful load, and 7,600 feet would be required for 75% of large aircraft at 90% useful load. A runway length of approximately 6,450 feet would be required to accommodate 100% of the aircraft at 60% useful load, while 9,950 feet would be needed to accommodate 100% of large aircraft at 90% useful load. The runway length should be planned to accommodate 100% of large aircraft at 60% useful load unless a specific aircraft that requires a length longer than this is identified.

It is important to note that some aircraft greater than 60,000 pounds may be able to safely operate at the Airport under certain conditions with its current runway length; however, some aircraft may have to fly at less than 100 percent of their useful load and may not be able to fly the maximum range of their aircraft when temperatures are high. Again, aircraft performance characteristics determine the required runway length.

Table 3.5 presents the recommended FAA design standard lengths for runways using various categories of aircraft at standard useful loads.

TABLE 3.5 – RUNWAY LENGTH ANALYSIS SUMMARY

Airport and Runway Data	
Airport Elevation (MSL)	1,283.4'
Mean daily maximum temperature of the hottest month	98.6°
Maximum difference in runway centerline elevation	24.8'
Existing Runway Condition: Runway 1/19	5,001'
Small aircraft $\leq$ 12,500 pounds with less than 10 seats	
95% of the fleet	3,600'
100% of the fleet	4,300'
Small aircraft with more than 10 seats	4,650'
Aircraft between 12,500 pounds and 60,000 pounds	
75% of Fleet – 60% useful load	5,100'
75% of Fleet – 90% useful load	7,600'
100% of Fleet – 60% useful load	6,450'
100% of Fleet – 90% useful load	9,950'
Large Aircraft > 60,000 pounds	Refer to individual aircraft manufacturer's planning manual

Source: FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design.* Lengths based on 1,283.4' MSL, 98.6 degrees F Mean Max Temperature, 500 NM stage length, and maximum difference in runway centerline elevation of 24.8'.

As the runway length analysis indicates, the existing runway length at Burnet Municipal Airport is sufficient to accommodate a significant portion of the active general aviation fleet, including all small aircraft. Again, in certain scenarios, larger aircraft may have to take weight and range penalties. As the number of corporate general aviation jets in the national fleet increases and the number of operations conducted by these aircraft at the Airport increases, a runway extension resulting in an ultimate runway length of 6,450 feet, in order to accommodate 100% of the fleet at 60% useful load, may be warranted at the Airport.

3.3.5 BALANCED FIELD LENGTH

While the FAA runway analysis provides an overview for categories of aircraft, balanced field length is a more precise calculation to determine the runway length needs for a certain aircraft. Specific to each aircraft and determined by the aircraft manufacturer, balanced field length is defined as "*distance required to stop an accelerating aircraft in exactly the same distance as that required to reach take-off speed*." As with those distances presented in **Table 3.5**, balanced field length requirements are based on airport elevation, temperature, MTOW, and stage length. **Table 3.6** details a cross-section of the largest corporate aircraft that currently operate at the field or within the national fleet.

TABLE 3.6 – BALANCED FIELD LENGTH ANALYSIS SUMMARY

Aircraft	MTOW	Approximate Length		RDC
		Standard Day (59°)	Mean Max Temp (98.6°)	
Beechcraft King Air 350	15,000 lbs.	4,466'	4,639'	B-II
Embraer Phenom 300	17,968 lbs.	4,259'	4,423'	B-II
Learjet 35/36	**18,300 lbs.**	**5,822'**	**6,901'**	**C-I**
Cessna Citation 550	15,100 lbs.	6,102'	6,341'	B-II
Cessna Citation CJ3+	13,870 lbs.	4,312'	4,479'	B-II
Cessna Citation Sovereign	30,775 lbs.	5,118'	5,317'	B-II
Challenger 604	47,600 lbs.	7,617'	7,919'	C-II
Gulfstream G450	71,780 lbs.	7,406'	7,699'	D-II
Gulfstream G600	91,600 lbs.	7,534'	7,832'	D-III
Global Express 5500	92,500 lbs.	7,074'	7,353'	B-III
Global Express 6500	99,500 lbs.	8,103'	8,424'	B-III
Global Express 7500	106,250 lbs.	7,611'	7,912'	B-III

Source: Flight Planning Guides, Airport Planning Manuals, Manufacturer websites
Learjet 35/36 is the Airport's identified critical aircraft

These lengths provide a general overview of the approximate requirements for larger corporate aircraft to operate at the field. There are several larger corporate jets that cannot operate at their maximum capacity or to their maximum range with BMQ's current runway length. A runway extension would allow larger aircraft to take greater advantage of their capabilities and fly more passengers to and from more distant destinations.

As the Airport continues to grow and it is determined local demand justifies the implementation of a runway extension, this project could be completed in conjunction with other runway or taxiway improvements that may be planned at the Airport over the study period. Justification for a runway extension would be required to determine eligibility for funding. Such justification could include letters from operators requesting an extension for a specific aircraft or type of aircraft.

3.3.6 RUNWAY WIDTH

The required width of a runway is determined by the critical aircraft and the instrumentation available for the Airport. Based on FAA design criteria and existing instrument approach procedures, the existing width of 75 feet provided by Runway 1/19 is adequate for meeting the existing and proposed operational levels during the 20-year planning period.

3.3.7 PAVEMENT STRENGTH

Runway pavement strength is typically expressed by common landing gear configurations. Example aircraft for each type of gear configuration are as follows:

- Single Wheel: each landing gear unit has a single tire; example aircraft include light aircraft and some business jet aircraft.
- Dual Wheel: each landing gear unit has two tires; example aircraft are the King Air 350, Citation

Longitude, and Gulfstream 500.
- Dual-Tandem: main landing gear unit has four tires arranged in the shape of a square; i.e., Boeing 757.

The aircraft gear type and configuration dictate how aircraft weight is distributed to the pavement and determines the pavement response to loading. As previously mentioned in the *Inventory of Existing Conditions*, the current runway pavement strength is 30,000 pounds for single-wheel loaded aircraft (S).

The strength rating of a runway does not preclude aircraft weighting more than the published strength rating from utilizing the airfield, it simply provides the ability to support a high volume of aircraft at or below the published weight. While aircraft weighing more than the published weight could potentially damage the runway in severe conditions, it more commonly reduces the life cycle of the pavement over time.

3.3.8 TAXIWAYS

The FAA recently updated taxiway design requirements to aid in the appropriate design for spacing and size of taxiway. It is important to note that the FAA lists seven conditions which should be addressed to reduce the potential for runway incursions:

- Increase Pilot Situational Awareness: Keep taxiways simple, "three-node" concept.
- Avoid Wide Expanses of Pavement: Requires signage placed away from the pilot's line of sight.
- Limit Runway Crossings: Reduces the number of occurrences and ATC workload.
- Avoid "High-Energy" Intersections: Intersections in the middle third of the runway create the potential for a high speed/energy collision.
- Increase Visibility: Using right-angle intersections, both between taxiways and between taxiways and runways, provides the best visibility for pilots.
- Avoid "Dual Purpose" Pavements: Dual purpose runways/taxiways can lead to confusion.
- Indirect Access: Taxiways leading directly from an apron to a runway without requiring a turn increase the possibility for incursions.

Per AC 150/5300-13B, the FAA required a full-length parallel taxiway for runways configured with instrument approach procedures with visibility minimums below one mile and recommended for all other conditions. Runway 1/19 at BMQ is served by a full-length parallel taxiway. No additional taxiways are recommended for construction at this time.

3.4 NAVIGATIONAL AIDS

Navigational Aids (NAVAIDs) are any visual or electronic devices, airborne or on the ground, that provide point-to-point guidance information or position data to aircraft in flight. Airport NAVAIDs provide guidance to a specific runway end or to an airport. An airport is equipped with precision, non-precision, or visual capabilities in accordance with design standards that are based on safety considerations and airport operational needs. The type, mission, and volume of activity used in association with meteorological, airspace, and capacity considerations determine an airport's eligibility and need for various NAVAIDs.

3.4.1 INSTRUMENT NAVAIDS

Instrument navigational aids (NAVAIDs) assist aircraft performing instrument approach procedures to an airport. An instrument approach procedure is defined as a series of predetermined maneuvers for guiding an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing can be made visually.

Burnet Municipal Airport currently has no instrument NAVAIDs, but is served by RNAV instrument approaches, which do not consist of physical equipment. The minimum visibility for these approaches is currently one statute mile on approach to Runway 19 and one and one-quarter statute miles on approach to Runway 1. The opportunity to have lower approach minimums will be examined in the alternatives section. There would need to be an aeronautical obstruction analysis if changes to approach minimums were made.

3.4.2 AUTOMATED WEATHER

The Airport is served by an on-site Automated Surface Observing System (ASOS), which can be tuned on frequency 119.925 or by phone at (512) 756.7277. An ASOS unit provides pilots with a computer-generated voice message which is broadcast via radio frequency in the vicinity of the Airport. The message contains pertinent weather information including wind speed and direction, visibility, temperature, dew point, and cloud ceiling heights.

Federal Standard FCM-S4-2019, *Federal Standard for Siting Meteorological Sensors at Airports*, establishes siting criteria for observation systems that provide weather information at airports and heliports. The standard applies to all Federally-owned and Federally-funded systems, as well as non-Federal systems that are to be approved by the Department of Transportation's (DOT) Federal Aviation Administration (FAA) or the Department of Commerce's (DOC) National Weather Service (NWS). At airports supporting Visual and/or Non-Precision Instrument Runways, the preferred siting of the cloud height, visibility, and wind sensors is adjacent to the primary runway, or runway with the lowest minimums.

This sensor should be located between 1,000 to 3,000 feet down the runway from the threshold at a minimum distance perpendicular from the runway centerline of 500 feet, with a maximum distance from the runway centerline not to exceed 1,000 feet. If the elevation of the wind sensor site is above the runway centerline elevation, a positive adjustment of seven (7) feet for every one (1) foot of elevation difference is required. There are also several requirements listed for each of the specific sensors that make up an ASOS system. Based on these criteria, the ASOS at BMQ does not appear to be sited in accordance with FCM-S4-2019, and options to correct this will be included in the Alternatives section of this report. Even though this standard applies primarily to new systems, options to relocate the Airport's ASOS system will be evaluated in the alternatives section of this narrative.

3.5 DIMENSIONAL STANDARDS

Dimensional standards include measurements that account for physical runway and taxiway characteristics as well as safety-related areas. These standards, contained in FAA AC 150/5300-13B, are shown in **Table 3.7** as they pertain to BMQ. As established in previous sections, the design aircraft is within the ARC B-II group category for Runway 1/19 and the supporting airfield infrastructure.

The following dimensional standards are important to the design of the runway and taxiway system at BMQ as well as the safety of the aircraft operating within the airport environment.

TABLE 3.7 – FAA DESIGN CRITERIA SUMMARY

Design Item	Existing Conditions	Runway 1/19 (B-II); Not lower than 1-mile vis. minimums
Runway		
Width	75'	75'
Safety Areas (SA)		
Width	150'	150'
Length Beyond Departure End	300' / 300'	300' / 300'
Length Prior to Threshold	300' / 300'	300' / 300'
Object Free Areas (OFA)		
Width	500'	500'
Length Beyond Departure End	300' / 300'	300' / 300'
Length Prior to Threshold	300' / 300'	300' / 300'
Obstacle Free Zone (OFZ)		
Width	400'	400'
Length Beyond Departure End	200' / 200'	200' / 200'
Length Prior to Threshold	200' / 200'	200' / 200'
Taxiway		
Width	35'	35'
Safety Area	79'	79'
Object Free Area	124'	124'
Centerline to Fixed or Movable Object	62'	62'
Runway Centerline to:		
Holdline	200'	200'
Parallel Taxiway Centerline	240'	240'

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

3.5.1 RUNWAY SAFETY AREA

The Runway Safety Area (RSA) is the surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft in the event of an undershoot, overshoot, or excursion from the runway. Based on FAA RDC B-II design standards for existing conditions, the RSA should extend beyond the departure end of the runway for 300 feet, prior to the runway threshold for 300 feet, and be 150 feet wide. Runway 1/19 meets the necessary dimensional criteria.

3.5.2 OBJECT FREE AREA

The Object Free Area (OFA) is an area on the ground centered on a runway, taxiway, or taxilane centerline provided to enhance the safety of aircraft operations by having the area free of objects except for objects that need to be located in the OFA for the purpose of air navigation or aircraft ground maneuvering.

RDC B-II standards indicate requirements for the OFA to be 500 feet wide, extending 300 feet beyond the departure end of the runway, and 300 feet prior to the runway threshold. Currently, there are no objects that need to be removed from the OFA.

3.5.3 RUNWAY OBSTACLE FREE ZONE

The Runway Obstacle Free Zone (ROFZ) is a 3D volume of airspace above the established airport elevation, which protects the operational transition of aircraft to and from the runway. The length of the ROFZ is fixed at 200 feet beyond the associated runway end, but the width is dependent upon the pavement strength, RDC, and visibility minimums associated with the instrument approach procedures associated with the runway. The ROFZ width requirement at BMQ is 400 feet, and the elevation of the ROFZ is equal to the closest perpendicular point along the runway edge.

3.5.4 BUILDING RESTRICTION LINE

The FAA no longer has fixed-distance standards for the Building Restriction Line (BRL) location. Rather, the BRL is a line that identifies suitable building area locations on airports. It considered such things as runway protection zones, the appropriate OFAs and OFZs, NAVAID critical areas, areas required for TERPS, and air traffic control (ATCT) line of sight (at airports where ATCTs exist). Typically, the closer development is to the Aircraft Operations Area (AOA), the more impact it will have on future expansion capabilities of the Airport. One aspect of the BRL at Burnet Municipal Airport is the Transitional Surface, as defined by Part 77. This requires that a structure at BMQ be located at least 250 feet plus seven times its height away from the runway centerline. Future considerations will be examined in the alternatives section of this study.

3.5.5 RUNWAY PROTECTION ZONES

A **Runway Protection Zone (RPZ)** is an area off the runway end intended to enhance the protection of people and property on the ground. This is achieved through airport control of the RPZ areas. The RPZ is trapezoidal in shape, centered on the extended runway centerline, and begins 200 feet beyond the end of the area usable for take-off or landing. RPZ dimensions are a function of the RDC, aircraft size, and the lowest visibility minimums associated with a runway's end.

Because RPZ's often extend beyond airport property and overlap with property specifically owned and operated by the airport, the FAA has produced a memorandum to provide policy guidance on compatible land uses within an RPZ, entitled, *Interim Guidance on Land Uses within a Runway Protection Zone* (September 2012). While "it is desirable to clear all objects from the RPZ, some uses are permitted with conditions and other land uses prohibited". Airport owner control over the RPZ land is emphasized to achieve the desired protection of people and property on the ground. Although the FAA recognizes that in certain situations the airport sponsor may not fully control land within the RPZ, the FAA expects airport sponsors to take all possible measures to protect against and remove or mitigate incompatible land uses.

While the following land uses are permissible within an RPZ without further scrutiny or evaluation:

- Farming that meets airport design standards,
- Irrigation channels that do not attract wildlife, or birds in general,

- Airport service roads, as long as they are not public roads or directly controlled by the airport operator,
- Underground facilities, as long as they meet other design criteria, such as RSA requirements, as applicable, and
- Unstaffed NAVAIDs and facilities, such as equipment for airport facilities that are considered fixed-by-function in regard to RPZ,

There are certain trigger points or actions that could alter incompatibility land uses within an RPZ as a result of:

- An airfield project (e.g., runway extension, runway shift),
- Change in the critical design aircraft that increases the RPZ dimension,
- A new or revised instrument approach procedure that increases the RPZ dimensions, and
- A local development proposal in the RPZ (either new or reconfigured).

Should such trigger points revise the limits of an RPZ that include the following land uses, then additional evaluation and approval from the FAA would be necessary and mandatory.

- Buildings and structures (Examples include, but are not limited to: residences, schools, churches, hospitals, or other medical care facilities, commercial / industrial buildings, etc.),
- Recreational land use (Examples include, but are not limited to: golf courses, sports fields, amusement parks, other places of public assembly, etc.),
- Transportation facilities. Examples include, but are not limited to:
    - Rail facilities – light or heavy, passenger, or freight
    - Public roads / highways
    - Vehicular parking facilities
- Fuel storage facilities (above and below ground),
- Hazardous material storage (above and below ground),
- Wastewater treatment facilities, and
- Above-ground utility infrastructure (i.e. electrical substations), including any type of solar panel installations.

It should be noted, these new criteria do not apply to existing RPZ's, only those which are new or modified. While it is still incumbent of the airport sponsor to take all reasonable action to meet RPZ design standards, FAA funding priority for certain actions will be addressed and determined on a case-by-case basis.

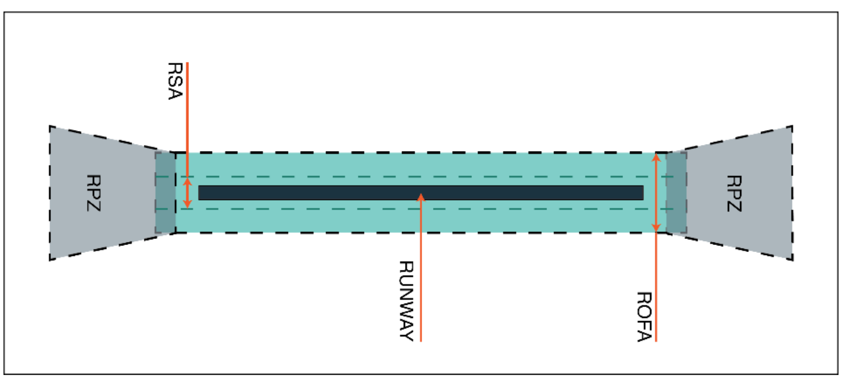


Table 3.8 presents the RPZ dimensions for each runway end and whether the Airport owns and controls the entire area contained within the RPZ.

TABLE 3.8 – RUNWAY PROTECTION ZONE (RPZ) DIMENSIONS

Item	Width at Inner Edge	Length	Width at Outer Edge	Airport Control
Existing RPZ Dimension				
Runway 1	500'	1,000'	700'	Yes
Runway 19	500'	1,000'	700'	Yes
Required RPZ Dimension				
Visual and not lower than 1-mile, small aircraft only	250'	1,000'	450'	
Visual and not lower than 1-mile, approach categories A & B	500'	1,000'	700'	
Visual and not lower than 1-mile, approach categories C & D	500'	1,700'	1,010'	
Not lower than ¾-mile, all aircraft	1,000'	1,700'	1,510'	
Lower than ¾-mile, all aircraft	1,000'	2,500'	1,750'	

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

3.5.6 *TAXIWAYS*

As depicted in **Table 3.7**, taxiways also have dimensional criteria set by FAA AC 150/5300-13B, *Airport Design.* This advisory circular sets minimum widths for taxiways, their associated Taxiway Safety Areas (TSAs) and Taxiway Object Free Areas (TOFAs), and the distance between a taxiway centerline and the nearest fixed or movable object. These standards are based on ADG, which for BMQ is ADG II. The taxiways at BMQ meet these dimensional criteria.

3.5.7 *AIRFIELD MARKING*

FAA AC 150/5340-1M, *Standards for Airport Markings*, provides guidance for establishing uniform airfield markings for runways, taxiways, and aprons. Runway markings typically coincide with the level of instrument capability provided by the runway. Runways 1/19 should continue to maintain non-precision approach markings until approaches to either runway end are changed. It is recommended that all runway markings be maintained in accordance with FAA AC 150/5340-1M.

3.5.8 *AIRFIELD LIGHTING AND SIGNS*

The Runway is recommended to retain its Medium Intensity Runway Lights (MIRL) and Runway End Identifier Lights (REIL). These features enhance safety along maneuvering areas, maintain consistency across the airfield, and increase or enhance pilot awareness.

3.6 LANDSIDE REQUIREMENTS

This section describes the landside requirements needed to accommodate BMQ's general aviation activity throughout the planning period. Areas of particular focus include the hangars, aprons, tie-down areas, automobile parking, as well as the various associated support facilities.

3.6.1 HANGARS

Hangars are the preferred method for based aircraft storage at Burnet Municipal Airport to protect aircraft from high temperatures, sun exposure, and severe weather. Currently, there are four (4) T-hangar structures providing 29 storage units, and two (2) conventional (corporate) hangars. In addition to closed hangars, there are two open shade hangar structures, providing cover from the sun for parked aircraft. There is approximately 51,866 square feet of T-hangar space and 21,600 square feet of conventional hangar space.

Approximately 90% of aircraft based at BMQ are stored in hangars. This is assumed for the future based aircraft at BMQ and used in determining the demand for additional hangars. The aircraft type influences the type of storage required for based aircraft. Taking this into consideration, the projected based aircraft fleet mix was used to identify the number of additional hangars by type projected over each phase of the planning period. For the end of the planning period (2041), hangar space requirements were calculated as follows in **Table 3.9**.

TABLE 3.9 – AIRPORT HANGAR SPACE REQUIREMENTS

Percent of Aircraft Type	Type of Storage
100% of Jet and Turbine Aircraft	Corporate/Executive Hangar
50% of Multi Engine Aircraft	Corporate Hangar/Box Hangar
50% of Multi Engine Aircraft	T-Hangar
75% of Single Engine Aircraft	T-Hangar
25% of Single Engine Aircraft	Corporate Hangar/Box Hangar

Conventional hangar space requirements assumed 10,000 square feet per based jet aircraft, 2,500 square feet per turboprop, and 1,500 square feet per helicopter. T-hangar units assumed 1,200 square feet per single-engine piston and 1,500 square feet per multi-engine piston-based aircraft. Applying these standards to the forecasted based aircraft yielded the following hangar needs for the year 2041.

- Corporate/Conventional Box Hangar Space: 79,716 square feet
- T-Hangar Units: 57,798 square feet

3.6.2 AIRCRAFT PARKING APRONS

Aircraft parking area requirements were calculated on the assumption that 90 percent of based aircraft at BMQ will continue to be stored in hangars, and therefore apron space was allocated to accommodate 10 percent of forecasted based aircraft. Transient apron space required to meet itinerant general aviation demand was estimated using an approach outlined by the FAA in AC 150/5300-13B, *Airport Design*. This approach indicates that the area needed for transient aircraft parking will differ by airport, but principals should include an allowance for an appropriate amount of apron per transient aircraft. For this analysis, it was assumed that 50 percent of the daily itinerant operations on a busy day (a busy day is 10 percent busier than the average day) would represent aircraft on the ground at any one time. Transient apron requirements for general aviation aircraft at BMQ indicated that 2,065 to 10,000 square feet per itinerant aircraft, depending on aircraft size, was a reasonable distribution. This will permit the accommodation of aircraft ranging from single-engine piston aircraft to large corporate jets. Based on the forecast demand, a total of 39,595 square yards will be needed by the year 2041. The current apron area of approximately 20,000 square yards should be increased during the planning period.

TABLE 3.10 – SUMMARY OF APRON AND HANGAR REQUIREMENTS

	2021 (existing)	2026	2031	2041
Itinerant (sq yds.)				
ADG-I	--	3,871	4,725	6,930
ADG-II	--	14,951	18,247	26,762
ADG-III	--	2,343	2,860	4,195
Based Aircraft				
Apron (sq. yds.)	--	1,277	1,402	1,709
Tie-down parking spots	*8*	6	6	7
Total Apron (sq. yds).	***20,000***	**22,443**	**27,234**	**39,595**
Hangar Area Requirements				
T-Hangars (sq. ft.)	*51,866*	45,327	48,960	57,798
Conventional Hangar Area (sq. ft.)	*21,600*	47,879	56,960	79,716
Total Hangar Need (sq. ft.)	*73,466*	93,206	105,920	137,514
Additional Hangar Requirement (sq. ft.)		19,740	32,454	64,048
Number of Aircraft in T-Hangars	*29*	37	40	48
Number of Aircraft in Conventional Hangars	*18*	14	15	17

KSA

3.6.3 TERMINAL SPACE

The existing general aviation terminal building at BMQ provides 1,900 square feet of amenities, including a pilot lounge, meeting/training room, and restrooms. Based on the forecast demand, a terminal building with an area of 2,794 square feet will be necessary by the end of the planning period. The potential for a new larger terminal building will be discussed in the alternatives section.

3.6.4 AUTO PARKING

Auto space requirements are a function of the number of passengers, employees, and pilots expected to use an airport during the daily peak hour. At medium activity general aviation airports, planning standards indicated that roughly 2.5 auto parking spaces per total number of peak day general aviation pilots and passengers are adequate. The shared parking area between BMQ's FBO facility and the Commemorative Air Force Museum currently accommodates approximately 65 vehicles, although the sponsor has indicated that this is not a sufficient parking area to meet demand.

TABLE 3.11 – SUMMARY OF GENERAL AVIATION TERMINAL REQUIREMENTS

	2021 (existing)	2026	2031	2041
Peak Hour Passengers	--	7	11	22
GA Terminal Requirement (sq. ft.)	--	873	1,342	2,794
Auto Parking Spaces	*65*	17	27	56

3.6.5 FUEL STORAGE FACILITIES

Burnet Municipal Airport is equipped with an above-ground 12,000-gallon Jet-A tank and an above-ground 12,000-gallon AVGAS/100LL tank. This is in addition to one 3,000-gallon Jet-A fuel truck and one 1,000-gallon AVGAS/100LL fuel truck. Given the demand forecast, it is anticipated that the Airport will require approximately 13,663-gallons of Jet-A and 6,538-gallons of AVGAS/100LL every two (2) weeks. Current tank and truck capacity will be sufficient to accommodate this demand, but options for additional fuel storage facilities will be explored in the alternatives section, particularly for Jet-A fuel.

TABLE 3.12 – SUMMARY OF AIRCRAFT FUEL REQUIREMENTS

Operational Activity	*2021 (existing)*	2026	2031	2041
100LL				
Average Day of Peak Month Ops	*56*	62	69	85
14 days of operation	*781*	868	966	1,197
Gallons per operation	*3.7*	4.1	4.5	5.5
Fuel Storage (gallons)	*2,912*	3,563	4,362	6,538
Jet-A				
Average Day of Peak Month Ops	*19*	22	26	35
14 days of operation	*260*	305	357	489
Gallons per operation	*19.1*	21.0	23.1	27.9
Fuel Storage (gallons)	*4,966*	6,406	8,254	13,663

Source: Airport records; KSA

3.6.6 FENCING

Airport security and fencing is an important part of airfield infrastructure. Tenants, users, and businesses count on airport management to provide secure and safe facilities to help protect their investments. Various types of fencing are used for wildlife and security and vary in height and type, depending on local security needs. These fences are low-maintenance and provide clear visibility for security sweeps and may include chain link, barbed wire, razor wire, or other elements to increase intrusion difficulty. The Airport currently provides sufficient security fencing and controlled access surrounding the full perimeter of the airfield. It is important to ensure any future development areas at the Airport include security measures of fencing and / or controlled access gates.

3.7 SUMMARY OF FACILITY REQUIREMENTS

The information provided in this chapter provides the basis for understanding what facility improvements at the airport might help in the effort to accommodate future demands in an efficient and safe manner. Following are development issues and improvement considerations from the narrative above:

- Maximize runway length in support of anticipated operational growth, driven by regional economic development
- Proper siting for weather reporting equipment (ASOS)
- Landside development areas programmed for small/large general aviation facilities and operators
- Areas programmed for terminal parking and terminal building expansion
- Construct additional T-hangars and conventional hangars in support of the anticipated increase in based aircraft at the Airport
- Construct additional apron area in support of the anticipated increase in based and itinerant aircraft at the Airport
- Increase the capacity of fuel storage facilities, particularly for Jet-A fuel and MOGAS
- The following chapter, *Alternatives Analysis*, will examine the proposed needs assessment from this chapter with a focus on airside and landside layouts and concepts for consideration of a final airfield footprint and vision for the planning period.

Development Alternatives

KSA

04 DEVELOPMENT ALTERNATIVES

4.1 OVERVIEW

The previous chapter identified the airside and landside facility requirements needed to satisfy the forecast demand throughout the entirety of the 20-year planning period. Using the identified requirements, the following recommendations have been made to address how those requirements will be met using various development alternatives. This chapter will analyze the benefits and weaknesses associated with each alternative and provide a strategy for selecting a preferred airport development plan. Once selected, the preferred alternative will be implemented into the Airport Layout Plan (ALP) drawings.

The objective of this effort is to develop a balanced airside infrastructure (runways, taxiways, apron) and appropriate landside (FBO/Terminal, aircraft storage, auto parking) to best serve the forecast aviation demands. Assessment of each alternative is grounded primarily in local, state, and federal planning standards; however, technical judgement must also be applied to determine the appropriate course of action, factors surrounding the development and evaluation of design options should be assessed. These factors include:

- Develop a safety oriented and efficient aviation facility through compliance with Federal Aviation Administration (FAA) airport design standards and airspace criteria as defined in FAA Advisory Circular (AC) 150/5300-13B, *Airport Design*.
- Compatibility with the short- and long-range goals of the City of Burnet, TxDOT Aviation, and the Federal Aviation Administration.
- The impacts of potential alternatives.
- Compatibility with existing and proposed land uses, with respect given to zoning ordinances and neighboring off-airport uses.
- Minimization of environmental impacts on and off-airport.

Alternatives to be considered will include 3 options for both airside and landside development.

4.2 FACILITY REQUIREMENTS SUMMARY

Facility requirements are intended to compare existing facilities with current safety standards as well as the demand for new or expanded facilities. The facilities previously outlined in Chapter 3 have provided the baseline to determine the feasibility to accommodate various alternatives. In addition, airfield demand/capacity, airside facility requirements, and landside capacity have all been evaluated during the selection of alternatives. Two primary standards are considered when evaluating facility requirements. First, alternatives must meet the design requirements established by the current and future Airport Reference Code (ARC) and second, standards identified in FAA Advisory Circular 150/5300-13B, *Airport Design* must be met.

To meet future facility requirements, Burnet Municipal Airport must make provisions to accommodate future operations. The demand for additional facilities was calculated in the previous chapter and can be summarized by examining forecast-based aircraft and operations.

1. Based Aircraft: BMQ currently accommodates 52 based aircraft; this number is expected to increase to as much as 78 by 2041. **(Table 4.1)**
2. Operations: In 2021, BMQ has 22,281 operations; this is expected to rise to as much as 35,954 by 2041. **(Table 4.1)**

TABLE 4.1 – RUNWAY DESIGN CODE

Operations	2021	2026	2031	2036	2041
Single-Engine Piston	15,610	17,476	19,571	21,924	24,566
Multi-Engine Piston	1,115	1,132	1,135	1,120	1,084
Turbo-prop (SE)	892	1,132	1,418	1,760	2,168
Turbo-prop (ME)	1,561	1,886	2,269	2,720	2,529
Business Jet	1,338	1,509	1,985	2,240	2,890
Helicopter	892	1,006	1,135	1,280	1,806
Military	650	650	650	650	650
Other (Glider)	223	251	284	320	361
Total Operations	22,281	25,042	28,337	32,014	35,954
Local Operations	16,000	17,476	19,004	20,644	22,398
Itinerant Operations	6,300	7,669	9,360	11,362	13,728
Based Aircraft					
Single-Engine	42	47	51	56	62
Multi-Engine	4	4	4	4	3
Turbo-prop (SE)	2	2	3	3	4
Multi-prop	0	0	1	1	2
Jet	2	2	3	4	4
Helicopter	1	1	1	1	2
Glider	*1*	*1*	*1*	*1*	*2*
Total	52	58	64	70	78

Source: KSA

4.2.1 AIRSIDE REQUIREMENTS

Airside facilities include infrastructure that interacts with the arrival and departure of aircraft as well as their subsequent movement around the airfield to parking and storage areas. Areas of focus include runway/taxiway dimensions, aprons, navigational aids (NAVAIDS), landing aids, and dimensional standards. These criteria are considered during the development of the airside alternatives.

The following airside improvements outlined in **Table 4.2** were recommended in the previous chapter and are intended to meet future design requirements as well as enhance the efficiency of the airfield. Each of the proposed alternatives will incorporate these improvements while ensuring compliance with FAA Airport Design standards.

TABLE 4.2 – SUMMARY OF FACILITY REQUIREMENTS

Facility	Planning Considerations	Justification
Airport Reference Code	B-II – existing and ultimate time frame unless change in fleet mix dictates	Safety and Capacity
Runway 01/19	Maintain existing 5,001' x 75'	Capacity
Parallel Taxiway	Maintain existing 35'	Capacity
Pavement Strength	30,000 lbs. Single Wheel Gear	Capacity
Runway / Taxiway Lighting	Maintain existing LED MITL and MIRL	Safety and Capacity
Hangar Space	A variety of hangars will be necessary during the planning period and will vary depending on size and market needs.	Airport revenue enhancement (FAA grant assurances).
Aircraft Parking Apron	Aircraft parking expansion	Capacity
Terminal Building Space	Maintain existing (Expand if market dictates)	Capacity
Auto Parking	Pave and define specific area	Access
Fuel	Maintain existing (Expand if market dictates)	Capacity
Security Fencing	8-foot security/wildlife fencing,	Safety/Security

Source: KSA

4.2.2 LANDSIDE REQUIREMENTS

Various landside improvements are recommended to accommodate current and forecast aviation activity throughout the planning period at Burnet Municipal Airport. As stated in Chapter 3, *Facility Requirements*, areas of particular focus include:

- Provide additional aircraft storage hangars of various size,
    - Conventional Hangars
    - T-hangars
- New Terminal Facility
- New and expanded Automobile Parking
- New Aircraft Parking Apron areas
- Additional Security Fencing and Controlled Access
- Utilize adjacent Land for aviation expansion
- Utilize nearby land for aviation compatible development

These facility requirements are developed from the analysis of the demand capacity and capacity requirements and based on standards established by FAA Advisory Circular 150/5300-13B, *Airport Design*. Each of these proposed alternatives will incorporate these improvements while following compliance with FAA Airport Design Standards with regards to the following landside development.

4.2 DEVELOPMENT ALTERNATIVES EVALUATION

The following section will evaluate three development alternatives representing a variety of airside and landside options. As outlined in the Inventory chapter, Burnet Municipal Airport is based on a single runway system. Runway 01/19 is 5,001' by 75' and is served by full-length parallel taxiway "A".

To help determine terminal support area facilities for future planning periods, landside capacity and future demand were evaluated for itinerant and based aircraft parking aprons, aircraft storage facilities, automobile parking, fuel storage, and support area requirements. Both conventional and T-hangars are needed during all phases of the planning period.

Development strategies were explored at Burnet Municipal Airport based on the following criteria:

- Market Position
- Regional economic development opportunities
- SWOT analysis results from stakeholders

Burnet Municipal Airport is successful as a ARC B-II airport service small jets, turbo props, and light general aviation aircraft. The airport is positioned well to provide high quality aviation service to the city at large but also the Texas Hill Country. The challenge is planning for an appropriate level of services and associated airside facilities to meet the likely demand. Landside concerns stem from availability of land for terminal development on the east side which is nearly full. The city does own property to the west of the runway but ground access and utilities for development are currently limited, and will require development by the City for future access.

The following alternative discussion will analyze the different options and recommend a preferred development plan.

THIS SECTION INTENTIONALLY LEFT BLANK

4.2.1 ALTERNATIVE ONE – AIRSIDE

Key Components of Airside Alternative One

- Runway 19 is extended 500’ to the north – width remains 75’.
- Land Acquisition of 10 acres (approx) is needed.
- Houston-Clinton Drive is relocated to loop around the RPZ for Runway 19.
- Taxiway A is extended 500’ to the north and Runway to Taxiway separation remains 240’.
- ASOS is relocated to the west side of the airport.

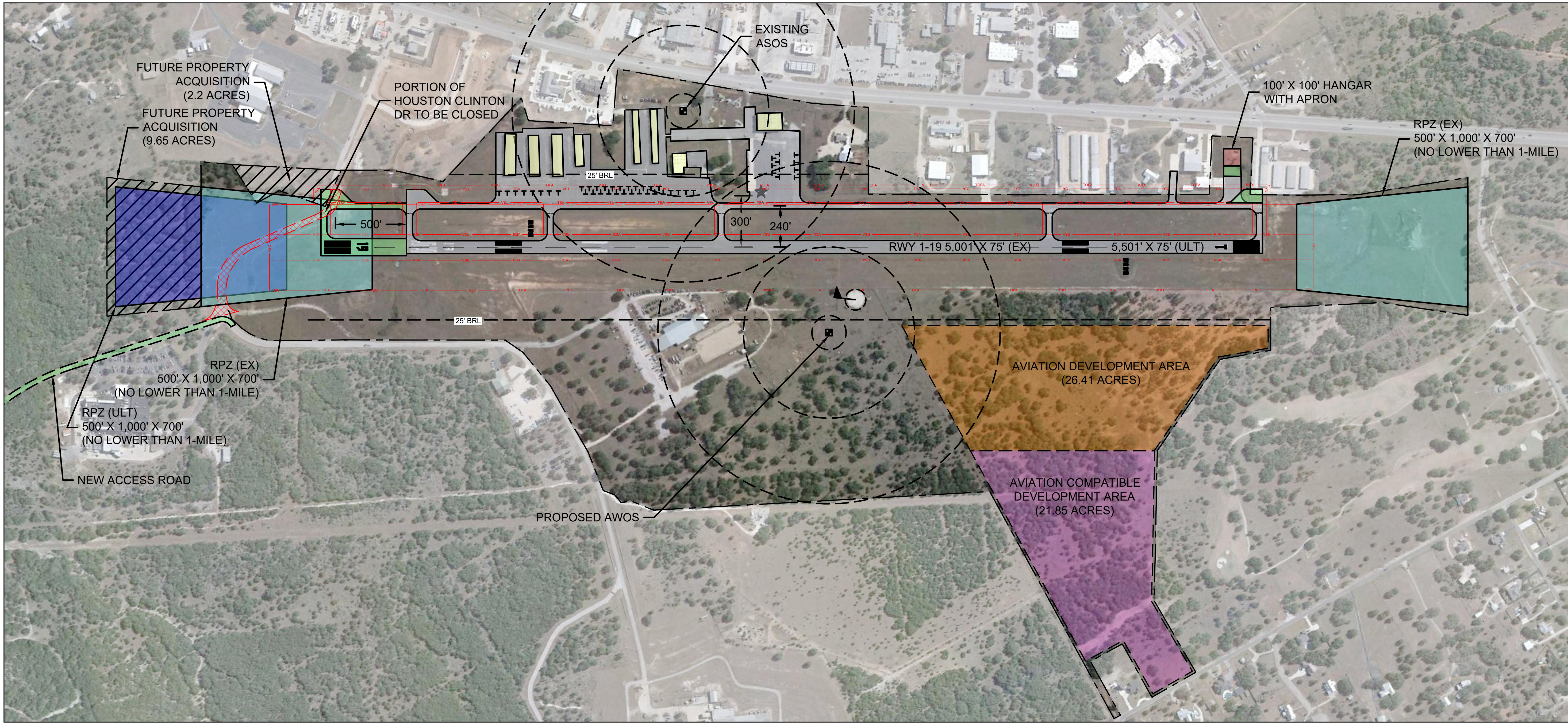
Advantages

- Allows for longer stage length for existing aircraft utilizing the airport.
- Minimal impact to surrounding area.
- Low overall cost alternative.

Disadvantages

- Requires property acquisition of 10 acres for runway extension.
- A modification to standards will need to be granted by the FAA
- New road construction is necessary for Houston-Clinton Drive.

THIS SECTION INTENTIONALLY LEFT BLANK



LEGEND

- AIRPORT PROPERTY
- EXISTING PAVEMENT
- EXISTING RPZ
- EXISTING BUILDINGS
- PROPOSED AIRPORT PROPERTY
- PROPOSED PAVEMENT
- PROPOSED RPZ
- PROPOSED BUILDINGS
- AVIATION DEVELOPMENT AREA
- AVIATION COMPATIBLE DEVELOPMENT AREA

NOTES

- RETAIN RDC B-II
- EXTEND RUNWAY 500'
- EXTEND PARALLEL TAXIWAY
- CLOSE HOUSTON CLINTON DR
- CREATE NEW ENTRANCE TO HOSPITAL OFF BUCHANAN DR

EXHIBIT 4.1 - AIRSIDE ALTERNATIVE ONE

4.2.2 ALTERNATIVE TWO - AIRSIDE

Key Components of Airside Alternative Two

- Runway 19 is extended 1,000' for the north.
- Taxiway A is extended 1,000' to the north and the Runway to Taxiway separation becomes 300'.
- Land Acquisition for larger north RPZ requires 38 Acres (approx).
- Land Acquisition for the larger southern RPZ and land for east side separation standard is 13.04 acres (approx).
- Runway 01-19 is widened to 100'.
- Houston-Clinton Drive is closed and a new access from Buchanan Drive is constructed.

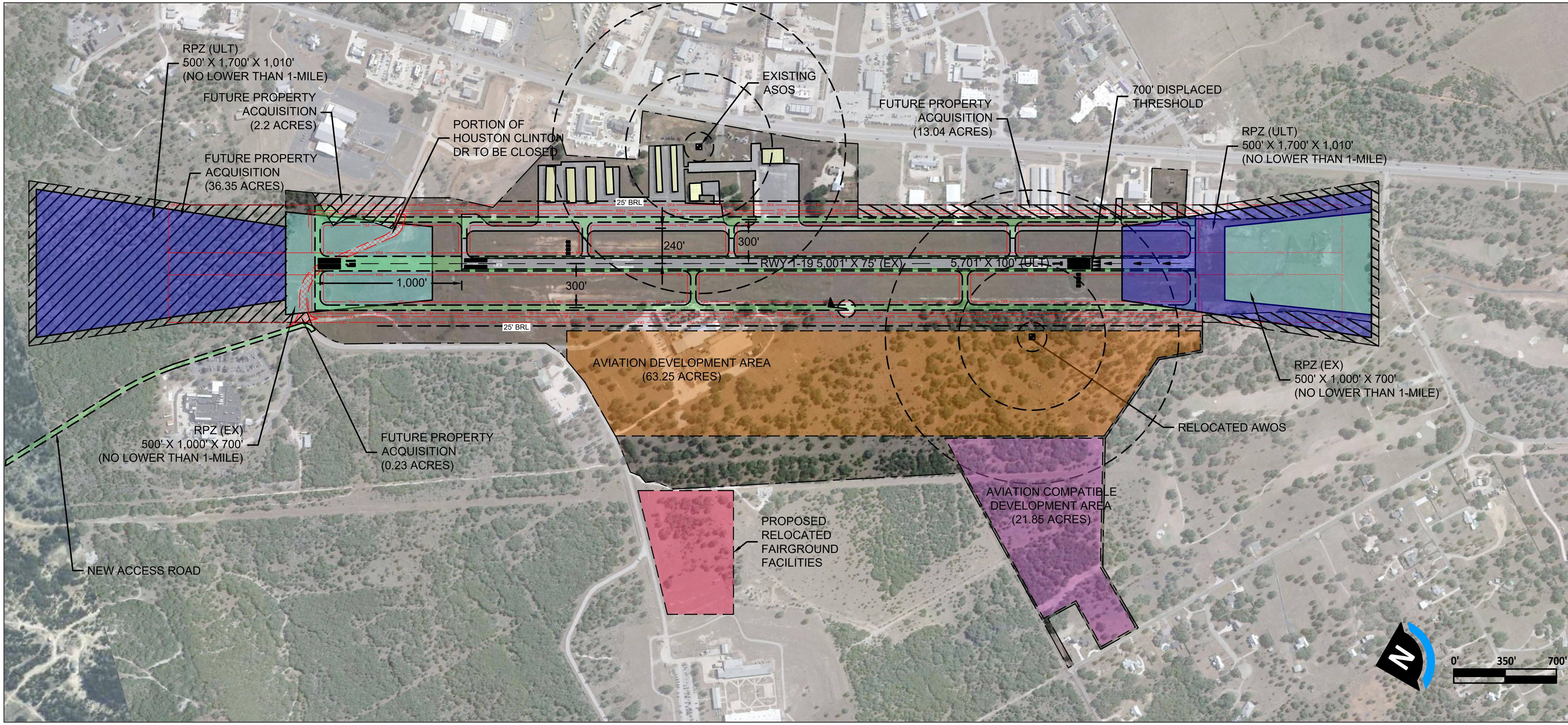
Advantages

- Allows for significantly greater stage length for aircraft utilizing the airport.
- Approach minimums are reduced.
- New runway will allow for larger and heavier aircraft to operate.

Disadvantages

- Significant disruption to existing land uses and surface transportation around the airport.
- Over 60 acres if property needs to be acquired.
- Extremely high cost to complete and will likely require many years.
- Would likely require significant city at large funds as FAA and TxDot would not be able to cover costs with grant funds.
- Primary benefits would be to operators outside of the region.

THIS SECTION INTENTIONALLY LEFT BLANK



LEGEND

- AIRPORT PROPERTY
- EXISTING PAVEMENT
- EXISTING RPZ
- EXISTING BUILDINGS
- PROPOSED AIRPORT PROPERTY
- PROPOSED PAVEMENT
- PROPOSED RPZ
- PROPOSED BUILDINGS
- AVIATION DEVELOPMENT AREA
- AVIATION COMPATIBLE DEVELOPMENT AREA
- PROPOSED RELOCATED FAIRGROUND FACILITIES

NOTES

- APPLY C/D RDC STANDARDS
- 12-MONTH OPERATIONS RDC C/D = 438
- JAN 2020 - JULY 2022 OPERATION - RDC C/D = 796
- RDC C/D R/W-T/W SEPARATION = 300'
- RDC C/D R/W WIDTH = 100'
- DISPLACE THRESHOLD AND IMPLEMENT DECLARED DISTANCES
- RDC C/D - DESIGN STANDARDS
  - RSA WIDTH = 500'
  - ROFA WIDTH = 800'
  - RSA/ROFA LENGTH = 1,000'
- RPZ = 500' X 1,700' X 1,010'

EXHIBIT 4.2 - AIRSIDE ALTERNATIVE TWO

4.2.3 ALTERNATIVE THREE - AIRSIDE

Key Components of Airside Alternative Three

- Runway 19 is extended 700' to the north.
- Taxiway A is extended 700' to the north and the Runway to Taxiway separation becomes 300'.
- Land Acquisition for larger north RPZ requires 32 Acres(approx).
- Land Acquisition for the larger southern RPZ and land for east side separation standard is 13 acres.
- Runway 01-19 is widened to 100'.
- Houston Clinton Drive is closed and a new access from Buchanan Drive is constructed.
- Fair grounds are relocated to the west to allow for expanded west side aviation development area.

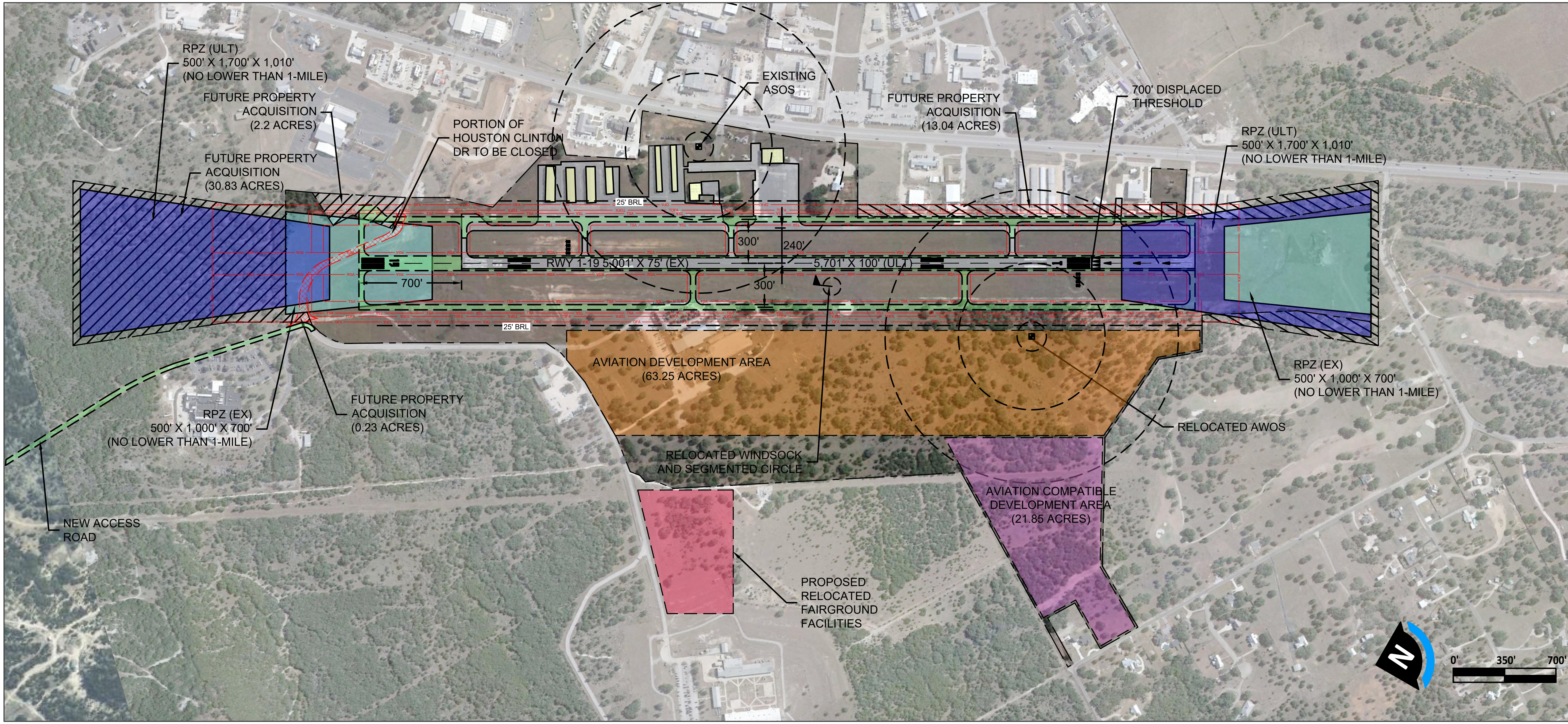
Advantages

- Allows for increased stage length for aircraft utilizing the airport.
- Approach minimums are reduced.
- New runway will allow for larger and heavier aircraft to operate.
- No Impacts to Del Springs Blvd or golf course.

Disadvantages

- Significant disruption to existing land uses and surface transportation around the airport.
- Nearly 50 acres if property needs to be acquired.
- Extremely high cost to complete and will likely require many years.
- Would likely require significant city at large funds as FAA and TxDot would not be able to cover costs with grant funds.
- Primary benefits would be to operators outside of the region.

THIS SECTION INTENTIONALLY LEFT BLANK



LEGEND

- AIRPORT PROPERTY
- EXISTING PAVEMENT
- EXISTING RPZ
- EXISTING BUILDINGS
- PROPOSED AIRPORT PROPERTY
- PROPOSED PAVEMENT
- PROPOSED RPZ
- PROPOSED BUILDINGS
- AVIATION DEVELOPMENT AREA
- AVIATION COMPATIBLE DEVELOPMENT AREA

NOTES

- APPLY C/D RDC STANDARDS
- 12-MONTH OPERATIONS RDC C/D = 438
- JAN 2020 - JULY 2022 OPERATION - RDC C/D = 796
- RDC C/D R/W-T/W SEPARATION = 300'
- RDC C/D R/W WIDTH = 100'
- DISPLACE THRESHOLD AND IMPLEMENT DECLARED DISTANCES
- RDC C/D - DESIGN STANDARDS
  - RSA WIDTH = 500'
  - ROFA WIDTH = 800'
  - RSA/ROFA LENGTH = 1,000'
- RPZ = 500' X 1,700' X 1,010'

EXHIBIT 4.3 - AIRSIDE ALTERNATIVE THREE

4.2.4 ALTERNATIVE ONE – LANDSIDE

Key Components of Landside Alternative One

- ASOS is relocated to the west side of the airport
- Runway to taxiway separation is increased to 300' for the entire length

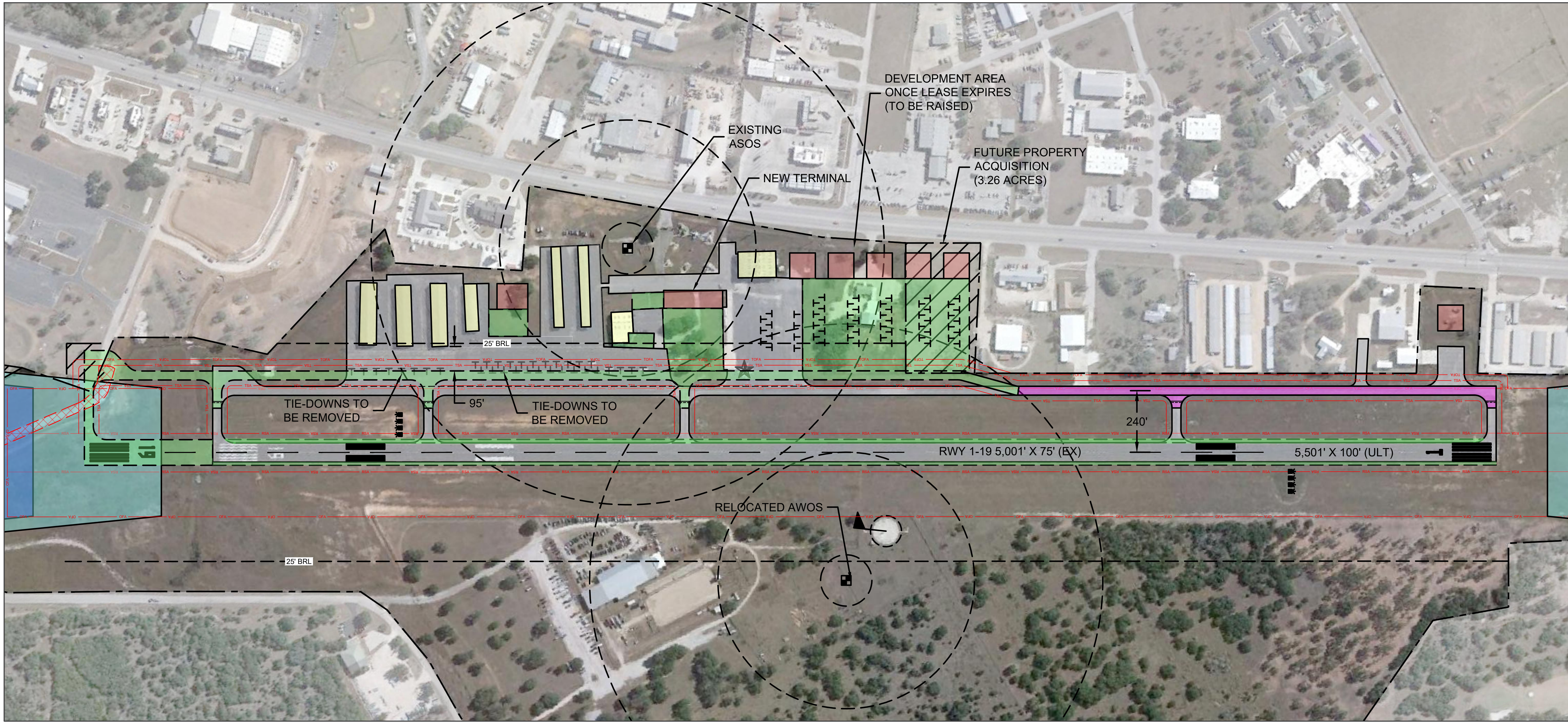
Advantages

- Efficient use of east side land
- Auto parking area is available to be expanded and paved
- West side is opened for additional terminal expansion (long term)

Disadvantages

- Existing Tie downs along flight line are removed and need to be replaced
- No new T-hangars are proposed
- Trees south of FBO terminal are removed
- A modification to standards will be necessary for southern parallel taxiway

THIS SECTION INTENTIONALLY LEFT BLANK



LEGEND

- AIRPORT PROPERTY
- EXISTING PAVEMENT
- EXISTING RPZ
- EXISTING BUILDINGS
- PROPOSED AIRPORT PROPERTY
- PROPOSED PAVEMENT
- PROPOSED RPZ
- PROPOSED BUILDINGS
- PROPOSED MODIFICATION OF STANDARD

0' 200' 400'

EXHIBIT 4.4 - LANDSIDE ALTERNATIVE ONE

4.2.5 ALTERNATIVE TWO – LANDSIDE

Key Components of Landside Alternative Two

- ASOS is relocated to the west side of the airport
- Runway to taxiway separation is increased to 300' for the entire length
- Land Acquisition is required on southern and east side of the airport
- FBO hangar/Terminal is expanded

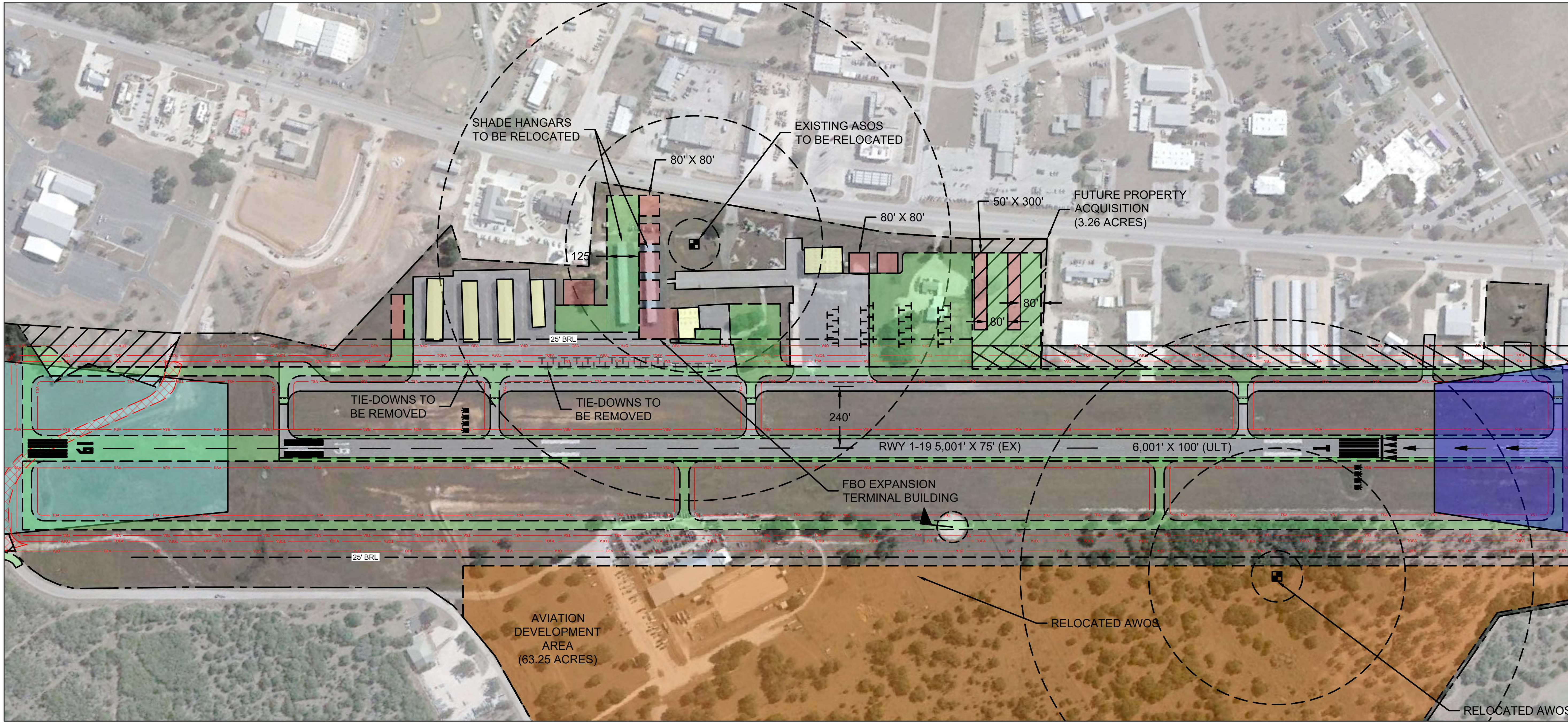
Advantages

- Efficient use of east side land
- Auto parking area is available to be expanded and paved
- West side is opened for additional terminal expansion (long term)
- New T-hangars and conventional hangars are proposed

Disadvantages

- Existing Tie downs along flight line are removed and need to be replaced
- Land acquisition to the south and east impact multiple businesses

THIS SECTION INTENTIONALLY LEFT BLANK



LEGEND

AIRPORT PROPERTY	PROPOSED AIRPORT PROPERTY	AVIATION DEVELOPMENT AREA
EXISTING PAVEMENT	PROPOSED PAVEMENT	
EXISTING RPZ	PROPOSED RPZ	
EXISTING BUILDINGS	PROPOSED BUILDINGS	

EXHIBIT 4.5 - LANDSIDE ALTERNATIVE TWO

4.2.6 ALTERNATIVE THREE – LANDSIDE

Key Components of Landside Alternative Three

- ASOS is relocated to the west side of the airport
- Runway to taxiway separation is increased to 300’ for the entire length
- Land Acquisition is required on the south and east side of the airport
- FBO hangar/Terminal is expanded

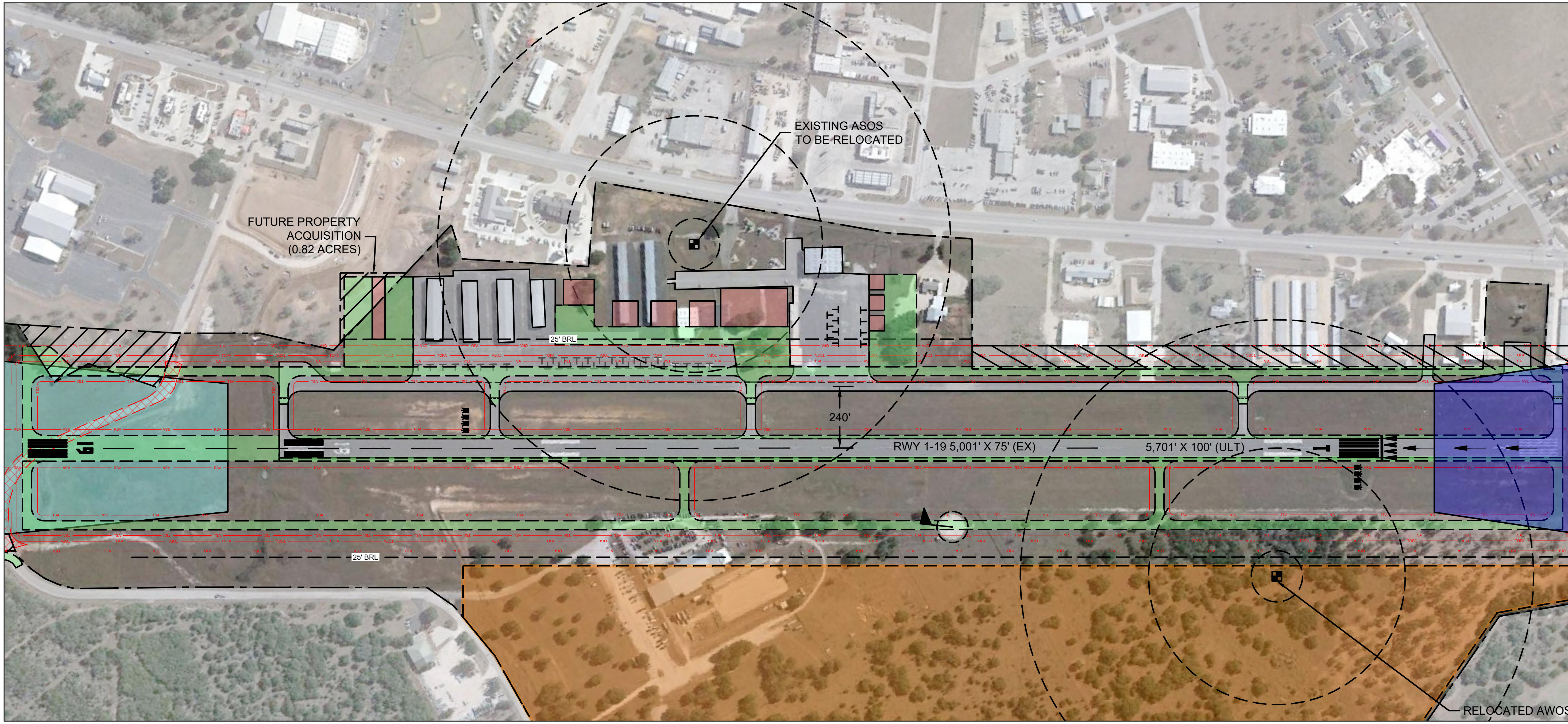
Advantages

- Efficient use of east side land
- Auto parking area is available to be expanded and paved
- West side is opened for additional terminal expansion (long term)
- Promotes large conventional hangar development

Disadvantages

- Existing Tie downs along flight line are removed and need to be replaced
- Land acquisition to the south and east impact multiple businesses
- Only provide for additional T-hangars
- Fair grounds will need to be relocated or reconfigured

THIS SECTION INTENTIONALLY LEFT BLANK



LEGEND

- AIRPORT PROPERTY
- EXISTING PAVEMENT
- EXISTING RPZ
- EXISTING BUILDINGS
- PROPOSED AIRPORT PROPERTY
- PROPOSED PAVEMENT
- PROPOSED RPZ
- PROPOSED BUILDINGS
- AVIATION DEVELOPMENT AREA

EXHIBIT 4.6 - LANDSIDE ALTERNATIVE THREE

4.3 RECOMMENDED DEVELOPMENT PLAN

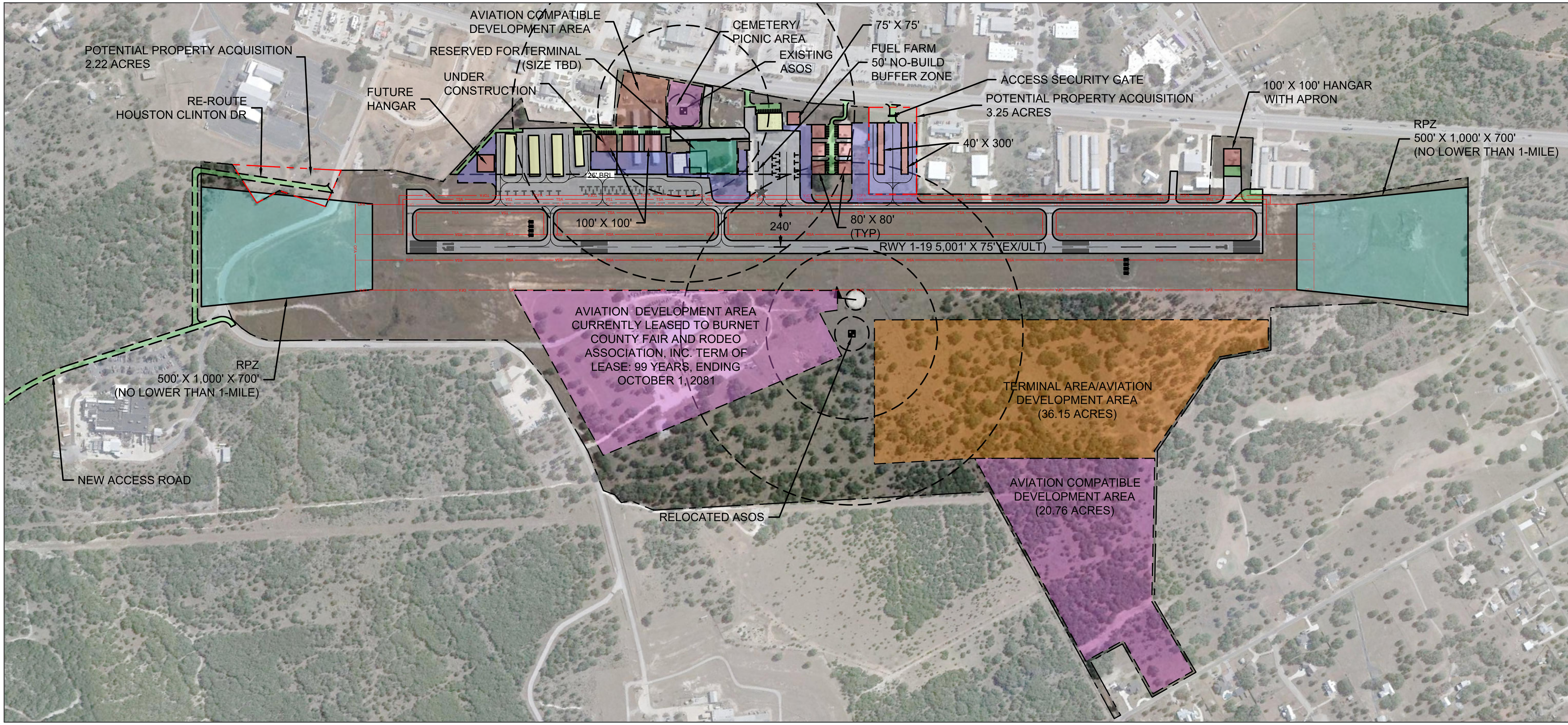
The overall Recommended Development Plan combines aspects of each airside and landside alternative. Each alternative's most feasible and relevant portions are included to give one consolidated overview of what development should occur at the Airport. Understanding what projects should be expected during the planning period is essential to meet FAA design standards and user needs and provide adequate services. This recommended plan will be included in the Airport Layout Plan (ALP) for approval and will be the basis of the implementation and Capital Improvement Program (CIP) moving forward. It is recommended the City of Burnet focus on Landside development in the near term which includes improving the overall efficiency of available land by relocating the ASOS / AWOS to the west portion of the airfield, hangar development, preservation of an area for new general aviation terminal building, and associated auto parking.

4.3.1 AIRSIDE

The specific airside portion of these recommendations consider improvements to areas including the runway and taxiway infrastructure which is focused on FAA planning, design criteria and capability to accommodate the airports existing and future operational needs. Currently aircraft using BMQ can adequately operate on the existing runway configuration. However, operational activity at Burnet Municipal Airport is forecast to increase throughout the 20-year planning timeframe serving a full range of general and business aviation users which will likely include larger jets with needing runway, length, width and pavement strength needs. Purchasing land, and controlling the RPZ is required by FAA Advisory Circular 150/5300-13B, *Airport Design.* These are ***long-term*** concerns and should only be considered as demand warrants. Major airside improvements addressed in the recommended plan include:

- No extension to Runway or Taxiway
- Maintain existing Runway length, width and strength
- Acquire approximately 2.2 acres of land in fee simple for Runway 19 RPZ
- Re-route Houston Clinton Drive around future extended Runway 19 RPZ.

THIS SECTION INTENTIONALLY LEFT BLANK



LEGEND

AIRPORT PROPERTY	PROPOSED AIRPORT PROPERTY	AVIATION DEVELOPMENT AREA
EXISTING PAVEMENT	PROPOSED PAVEMENT	AVIATION COMPATIBLE DEVELOPMENT AREA
EXISTING RPZ	PROPOSED RPZ	TERMINAL DEVELOPMENT AREA
EXISTING BUILDINGS	PROPOSED BUILDINGS	

0' 300' 600'

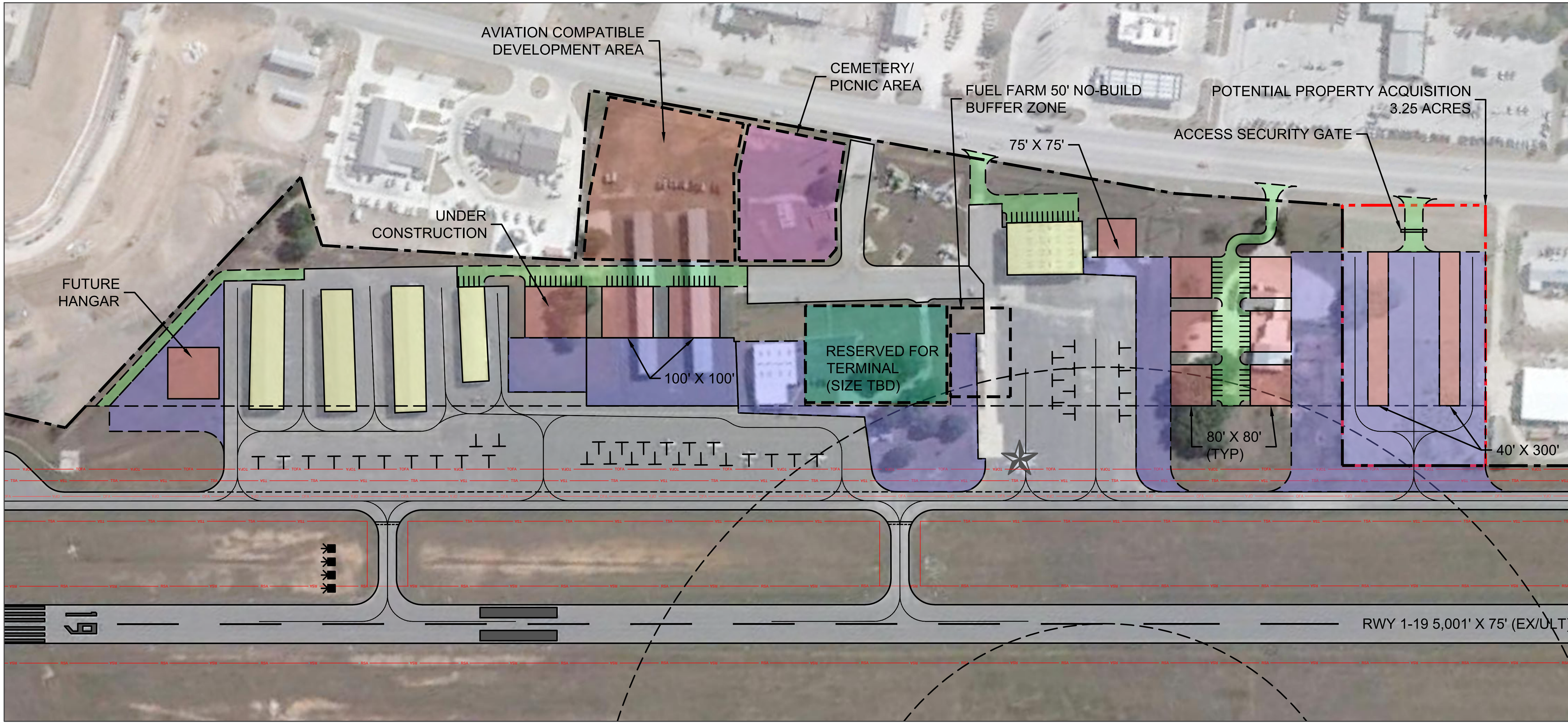
EXHIBIT 4.7 - RECOMMENDED DEVELOPMENT PLAN - AIRSIDE

4.3.2 Landside

The primary goal of these landside recommendations provides the Airport with adequate terminal and aircraft storage facilities while maximizing operational efficiencies. Landside components include the FBO/terminal facility, hangars, and automobile parking. Major landside issues addressed in this recommended plan include:

- Relocate Automated Surface Observing System (ASOS) to the west side of Runway 01/19 and upgrade to newer AWOS equipment. In its present location, the various sensor critical areas serving the weather station do not meet the dimension criteria in relation to airfield infrastructure including the general aviation terminal building, apron, and aircraft parking.
- Expand apron area for Conventional Hangars
- Promote hangar development south of the city owned Commemorative Airforce Hangar. The graphic depicts six (80' x 80') box hangars with expanded apron.
- Purchase 3.25 tract of vacant land for T-hangar development. The plan shows two - 300' x 40' T-hangars for T- Hangars expansion.
- Construct FBO/Terminal building (long term)
- Removal of the sun hangars
- Construct automobile access road, increase auto parking and restricting auto access to the airfield.

THIS SECTION INTENTIONALLY LEFT BLANK



LEGEND

- AIRPORT PROPERTY
- EXISTING PAVEMENT
- EXISTING RPZ
- EXISTING BUILDINGS
- PROPOSED AIRPORT PROPERTY
- PROPOSED ROAD PAVEMENT
- PROPOSED APRON PAVEMENT
- PROPOSED BUILDINGS
- CEMETERY/PICNIC AREA
- AVIATION COMPATIBLE DEVELOPMENT AREA
- TERMINAL DEVELOPMENT AREA

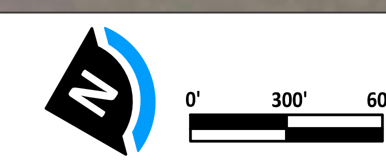


EXHIBIT 4.8 - RECOMMENDED DEVELOPMENT PLAN - LANDSIDE

5

Implementation

KSA

05 IMPLEMENTATION

5.1 OVERVIEW

This chapter presents a summary of the airport improvements identified in the development plan Capital Improvement Program (CIP), its anticipated phasing, and funding sources. The analysis provides estimates of the local share of project costs and the total capital investment required from the airport sponsor over the planning period. These costs and associated funding sources are for planning purposes and may change at the time of implementation based on current construction costs, bidding, and project scope.

Additionally, the phasing and timing for future projects are important and will be subject to funding availability, sponsor contributions, and needs of the airport users. Projects may be chosen from this plan and implemented accordingly based on dynamic market conditions and needs. The chapter is intended to be a guide for implementing the recommended development and may be flexible based on real-world factors and conditions.

5.2 CAPITAL IMPROVEMENT PROGRAM

The Capital Improvement Program (CIP) identifies improvement projects recommended for an airport over a specific period, estimates the order in which the projects are to take place, and calculates the projects' total costs and funding sources. As the CIP progresses from projects planned in the current year to those scheduled in future years, it becomes less detailed and more flexible. Additionally, the CIP is typically modified annually as new projects are identified or as projects and priorities change. **Table 5.1** summarizes projects for this plan.

TABLE 5.1 – AIRPORT DEVELOPMENT SUMMARY

Runway	Maintain Runway 01/19 at 5,001 feet and ARC B-II standards.
Taxiway	Maintain parallel taxiway at 240' from centerline of Runway 01/19
Apron	Maintain and re-stripe existing tie down apron Construct new apron area as needed adjacent to new terminal building and Conventional hangars
Terminal Building	Preservation for new terminal building – size and timing TBD
Hangars	Construct 2 additional T-hangars and Conventional hangars as dictated by demand.
Auto Parking	Construct new auto parking areas along back side of Conventional Hangars
Land Acquisition	Purchase approx.. 0.5 acres for Runway 19 RPZ
Miscellaneous	Relocate ASOS equipment to west side. Demo Sun Hangars for new hangars and apron area

5.3 COST ESTIMATES

Projects presented in the Recommended Development Plan may involve many variables and phases. Costs associated with these projects usually include preliminary engineering, design, construction, and administration oversight. The lifecycle of each project will be determined by the type and associated complexity of each project. For instance, runway projects may involve many phases, and detailed engineering plans will be scoped and estimated at the time of project implementation. Due to these variables, most estimates of costs are on a scale comparable to airports with similar types of projects and requirements. However, these estimates are usually conservative for planning purposes to allow for adequate budgeting in future years.

In addition to raw materials, other factors are usually rolled into each project to give a total estimated cost that includes the following:

- Preliminary Engineering Reports
- Design (usually estimated at 10% of construction costs)
- Construction, including mobilization costs for contractors.
- Construction Administration (usually estimated at 10% of construction costs)

Given the uncertainty of future material costs and other variables, most estimates also include a 10% contingency buffer. When planning for projects as far as 20 years in the future, this will help offset any errors or changes in pricing. Table 5.2 describes estimated total costs for projects included in the CIP while Table 5.3 provides a breakout detail of projects anticipated to require private partner funding.

Traditionally, hangars are not typically considered high priority projects and are often constructed with private or third-party funds; however, they are an integral component for attracting operators and/or businesses to the field and one of the few primary revenue sources generated at the field. While there are federally assisted funding programs in place for hangars, other priority items at an airport usually preclude these from being constructed in the short-, and intermediate-time frames. Additionally, hangars are constructed based on market demands. Costs for hangars are provided for information purposes and are variable depending on the potential tenant's needs and lease agreement with the airport.

THIS SECTION INTENTIONALLY LEFT BLANK

TABLE 5.2 – COST ESTIMATES – ALL PROJECTS

Project Description	Eng & Inspect Services	Construction	Total Project
Relocate ASOS to west side of airfield and upgrade to AWOS	$50,000	$200,000	$250,000
Rehabilitate Runway 01-19 (5,001' x 75’)	$125,000	$365,000	$490,000
Rehabilitate north terminal aircraft parking apron (20,000 sq. yds)	$56,000	$160,000	$216,000
Rehabilitate parallel taxiway (5,001 x 35’) and connectors 5@ (200’x 35’) approximately 25,000 sq. yds	$70,000	$200,000	$270,000
Rehabilitate CAF public apron area (15,000)	$42,000	$120,000	$162,000
Rehabilitate hangar access taxilanes (25,000 sq. yds)	$70,000	$200,000	$270,000
Demo Sun Hangars	$24,000	$66,000	$90,000
Install fencing (500 LF) and security gate	$12,000	$35,000	$47,000
Conduct Environmental Assessment for property acquisition and Clinton Houston Road Relocation	$0	$0	$200,000
Acquire property for Runway 19 RPZ and Houston Clinton Road (2.2 acres)	$0	$0	$100,000
Construct relocated Houston Clinton Road	$370,000	$1,060,000	$1,430,000
TOTAL	**$819,000**	**$2,406,000**	**$3,525,000**

TABLE 5.3 – PRIVATE DEVELOPMENT COST ESTIMATES

Project Description	Eng & Inspect Services	Construction	Total Project
Construct 2 new 80’ x 80’ conventional Hangar with Auto parking	$820,000	$2,350,000	$3,170,000
Construct Conventional Hangar apron	$294,000	$840,000	$1,134,000
Construct 2 new T-hangars (300’ x 40’)	$880,00	$2,420,000	$3,300,000
TOTAL	**$1,114,000**	**$5,610,000**	**$7,604,000**

5.4 PROJECT SCHEDULE

As detailed in the cost estimates, the anticipated funding needed to enact the Airport Action Plan will be substantial. This is not expected to be completed in a singular time frame and is included in a schedule and phased implementation. With a total of over $11 million in improvements, projects must be completed incrementally to be financially feasible. Projects are broken into phases below to help Airport and municipal staff prioritize projects and plan accordingly. Certain projects may be shifted into other phases as needed depending on funding priority and user needs over the duration of the planning period.

5.4.1 SHORT-TERM (CURRENT TO 5 YEARS)

Projects listed in this phase are considered high priority and will need to be addressed soon after the adoption of the plan. As previously mentioned, this is dependent on funding levels. This planning period primarily focuses on maintaining the current airport infrastructure.

The following projects are expected to occur in this short-term planning period.

1. Relocate ASOS to west side of airport and upgrade to AWOS.
2. Acquire property for Runway 19 RPZ (approx. 2.2 acres)
3. Rehabilitate Runway 01-19 (5,001 x 75')
4. Rehabilitate parallel taxiway and connectors (25,000 sq. yds)
5. Rehabilitate north aircraft apron (20,000 sq. yds)
6. Rehabilitate CAF public apron area (15,000)
7. Rehabilitate T-hangar access taxi lanes (25,000 sq. yds)

5.4.2 LONG-TERM (6 TO 20 YEARS)

These projects are combined into those projects that are not detailed in the short-term or have immediate improvement / development need. These projects tend to be larger-scale and significant in funding needs. Improvements for these projects are typically focused more on terminal area development, given the expected timeline. However, inherently, these projects also provide the most flexibility as they are far into the future of the Airport.

The following projects are expected to occur in this mid-term planning period.

1. Demo Sun Hangars
2. Construct 2 new T-hangars (300' x 40')
3. Install fencing (500 LF) and security gate.
4. Construct 2 Conventional Hangars (100' x 100') with associated auto parking expansion.
5. Construct Conventional hangar aircraft apron (6,000 sq. Yds.)
6. Conduct Environmental Assessment for property acquisition and Houston Clinton Road Relocation
7. Construct relocated Houston Clinton Road

5.4.3 ROUTINE MAINTENANCE PROJECTS

As airport infrastructure ages, routine maintenance will be required throughout the 20-year planning period, including ongoing pavement, lighting, and other projects. For runway, taxiway, and apron areas, this includes pavement crack and seal or rehabilitation projects necessary to maintain a safe environment for aircraft operations. The Airport will need to routinely assess the condition of the pavement and airside operational requirements such as marking and lighting to ensure sound operational condition.

It will be important for the Airport to stay active in the TxDOT Aviation Pavement Management Programs to help assist with managing the pavement and keeping track of airport pavement conditions. The Airport should take advantage of state grants in order to gain as much funding assistance for routine airport pavement maintenance as well as minor capital improvement projects.

5.4.4 BEYOND THE ACTION PLAN HORIZON

Certain development has been identified and shown on the Recommended Plan that may be included in subsequent planning efforts. These projects are not expected to be completed in the 20-year planning horizon; however, have been shown to examine the ultimate build-out of potential hangar/apron facilities on the airfield.

As previously mentioned, it is important to keep this long-range development shown on the plan as it may influence how development is expanded in the near term. Space will need to be preserved to allow for access taxiways/apron that lead to the proposed development. Hangar development previously identified in the alternatives chapter and labeled on the Recommended Development Plan will include T-hangars and box hangars with subsequent apron space.

5.5 FUNDING SOURCES

This section describes sources and eligibility criteria for funding programs the Airport may take advantage of to aid in the funding of future development projects. It is not guaranteed all funding sources will be available and used on airport projects; however, it lists the general options and funding criteria. During the financial implementation of projects at the Airport, all funding sources should be evaluated and coordinated with the appropriate funding source for eligibility.

5.5.1 STATE FUNDING

Funding for airport projects falls under the purview of the Texas Department of Transportation (TxDOT) Aviation Division. As a Block Grant state, the State of Texas oversees the eligibility and distribution of grant funding for General Aviation and Reliever Airports. Texas is one of 10 Block Grant states that allocate funding on behalf of the FAA. Funding is eligible for cities and counties to obtain and disburse federal and state funds for these airports included in the 300-airport Texas Aviation System Plan (TASP). Continued justification and local sponsor cost share are determining factors in the timely implementation of these projects. Projects identified in the current year will go before the Texas Transportation Commission for approval prior to going out for proposals and funding. Most grant items funded through this program are 90/10 cost share.

This program will fund the largest share of the Airport's capital improvement needs over the duration of the development plan. Airport sponsors should consistently engage TxDOT Aviation staff of airport project needs for consideration in the ACIP.

5.5.2 BIPARTISAN INFRASTRUCTURE LAW

At the end of 2021, the Federal Government passed the Bipartisan Infrastructure Law, which includes funding for airports to use funds over the course of the next five years. Airports can use funds for runways, taxiways, safety, terminal, airporttransit connections, and roadway projects. The funding will be provided annually, and each year, Burnet Municipal Airport will be entitled to $159,000 for FY 2022 and $145,000 for FY 2023. Fiscal Years 2024, 2025, and 2026 have yet to be determined. These funds will be provided with a 90/10 cost share, similar to the state funding outlined above.

5.5.3 RAMP PROGRAM

TxDOT Aviation Division also administers the Routine Airport Maintenance Program (RAMP), which matches local government grants (50/50) up to $50,000 for basic improvements such as parking lots, fencing, and other airside and landside needs. This program is aimed at assisting airports to continue providing quality services and infrastructure through an annual maintenance basis. Projects that may not be eligible under other funding sources may be used hereafter other obligations are met. The local government match is 50% of actual costs plus any excess of $100,000 total costs.

This program includes smaller budget airside and landside airport improvements such as:

- Construction of airport entrance roads
- Pavement of airport public parking lots
- Installation of security fencing
- Replacement of rotating beacon
- VirTower aircraft operations counting software

TxDOT determines the eligibility of specific items and insists that airside improvements are secure before requesting assistance with landside maintenance and improvements.

5.5.4 HANGAR PROGRAM

This program allows an airport to utilize a four-year bank of NPE for the construction of hangars. However, in order to qualify, all of an airport's airside and safety deficiency needs must be met. Other considerations that must be met include justification for the additional hangar need, site-specific location based on an approved Airport Layout Plan (ALP), fair market hangar lease and rate structure in place, and adoption of airport minimum standards. This program assists airport sponsors with funding these structures with a local share of 10%, with the state contributing 90% up to a state maximum contribution of $600,000. It is important to note that should the Airport decide to pursue funding under this program, it would be exempt from funding for the following three (3) years.

5.5.5 TERMINAL PROGRAM

One additional program that TxDOT Aviation provides is specific to general aviation terminal buildings. Many airports across the state are in need of upgraded or new terminal facilities for pilot lounges, FBO facilities, and airport staff administration. This program assists airport sponsors that have not previously been awarded funding for new terminal buildings at a local share of 50% up to a state maximum contribution of $500,000.

5.5.6 SPONSOR FUNDING

Airport funds are typically approved annually through the sponsor's budgeting process, and funds are allocated to the account for airport facilities operations and all activities necessary to provide services. As such, revenues collected by the airports, such as lease rental income and other services are used to match expenses and match grant requirements. It is important to maximize revenues in order to continue to fund such activities with revenue generated directly from the airport. This fund will be critical to maintain in order to match future large Capital Improvement Projects.

5.5.7 ALTERNATE FUNDING SOURCES

Often when traditional aviation funding sources are not eligible or have been expended, other local and alternate funding options should be considered. Innovative financial strategies can be evaluated with the support of local elected officials and the general public. In addition to traditional municipal debt services such as general bond elections, other funding sources may be applicable.

Texas Enterprise Fund – The Texas Enterprise Fund (TEF) is the largest fund of its kind in the nation. The fund is used as a final incentive tool for projects that offer significant projected job creation and capital investment and where a single Texas site is competing with another viable out-of-state option. This may be useful in attracting aeronautical companies to the airport from other states, significantly impacting the local and state economy.

State Financing – Texas is committed to facilitating funding for companies and communities with expansion and relocation projects in the state. Asset-based loans for companies leverages loans to communities, and tax-exempt bond financing are just a few means of obtaining the capital necessary for a successful project.

Tax Incentives – The state also offers a variety of tax incentives and innovative solutions for businesses expanding in or relocating to Texas. Programs include Enterprise Zone sales tax refunds, manufacturing sales tax exemptions, property tax value limitation, and "freeport" inventory tax exemptions.

In addition to the possible funding courses mentioned above, there are federal programs that assist with workforce and job creation along with research and innovation. Partnerships with area universities and junior colleges may be an exciting way to involve education in the Airport's development goals.

5.6 CAPITAL IMPROVEMENT PROGRAM SUMMARY

This program will not be solely funded by the airport sponsor. The cost estimates previously presented are broken down by phase and give an estimated cost-share based on eligibility. Subject to approval and funding, the following cost estimates by project type are listed in **Table 5.4.**

5.7 PHASING PLAN

The cost estimates indicate the suggested phasing for projects during the short, intermediate, and long-range planning periods. The proposed improvements for each phase are illustrated graphically by time period. These are suggested schedules, and variance from them will almost certainly be likely, particularly during the later periods. Attention has been given to the first five years as being the most critical, and the scheduled projects outlined in this time frame should be adhered to as much as possible. The demand for certain facilities and the economic feasibility of their development are the prime factors influencing the timing of individual project implementation. Care must be taken to provide adequate lead-time for detailed planning and construction of facilities to meet aviation demands. **Table 5.5** presents the phasing plan phases.

THIS SECTION INTENTIONALLY LEFT BLANK

TABLE 5.4 – PROJECT COST SUMMARY

	Project Description	Total	Federal / State Share	Local / Private Share
1	Relocate ASOS to west side of airfield and upgrade to AWOS	$250,000	$200,000	$25,000
2	Acquire property for Runway 19 RPZ and Houston Clinton Road (2.2 acres)	$125,000	$112,500	$12,500
3	Rehabilitate Runway 01-19 (5,001' x 75')	$490,000	$441,000	$49,000
4	Rehabilitate north terminal aircraft parking apron (20,000 sq. yds)	$216,000	$194,400	$21,600
5	Rehabilitate parallel taxiway (5,001 x 35') and connectors 5@ (200'x 35') approximately 25,000 sq. yds	$270,000	$243,000	$27,000
6	Rehabilitate CAF public apron area (15,000)	$162,000	$145,800	$16,200
7	Rehabilitate hangar access taxilanes (25,000 sq. yds)	$270,000	$243,000	$27,000
	Short-term Subtotal	$1,783,000	$1,579,700	$178,300
8	Construct 2 new T-hangars (300' x 40')	$3,300,000	$0	$3,300,000
9	Demo Sun Hangars	$90,000	$0	$90,000
10	Install fencing (500 LF) and security gate	$47,000	$42,300	$4,700
11	Construct 2 Conventional hangars with auto parking	$3,170,000	$0	$3,170,000
12	Construct conventional hangar apron (6,000 sq yds)	$1,134,000	$0	$1,134,000
13	Conduct Environmental Assessment for property acquisition and Clinton Houston Road Relocation	$200,000	$180,000	$20,000
14	Construct relocated Houston Clinton Road	$1,430,000	$1,287,000	$143,000
	Long-term Subtotal	9,371,000	$1,509,300	7,861,700
	TOTALS	$11,154,000	$3,089,000	$8,040,000

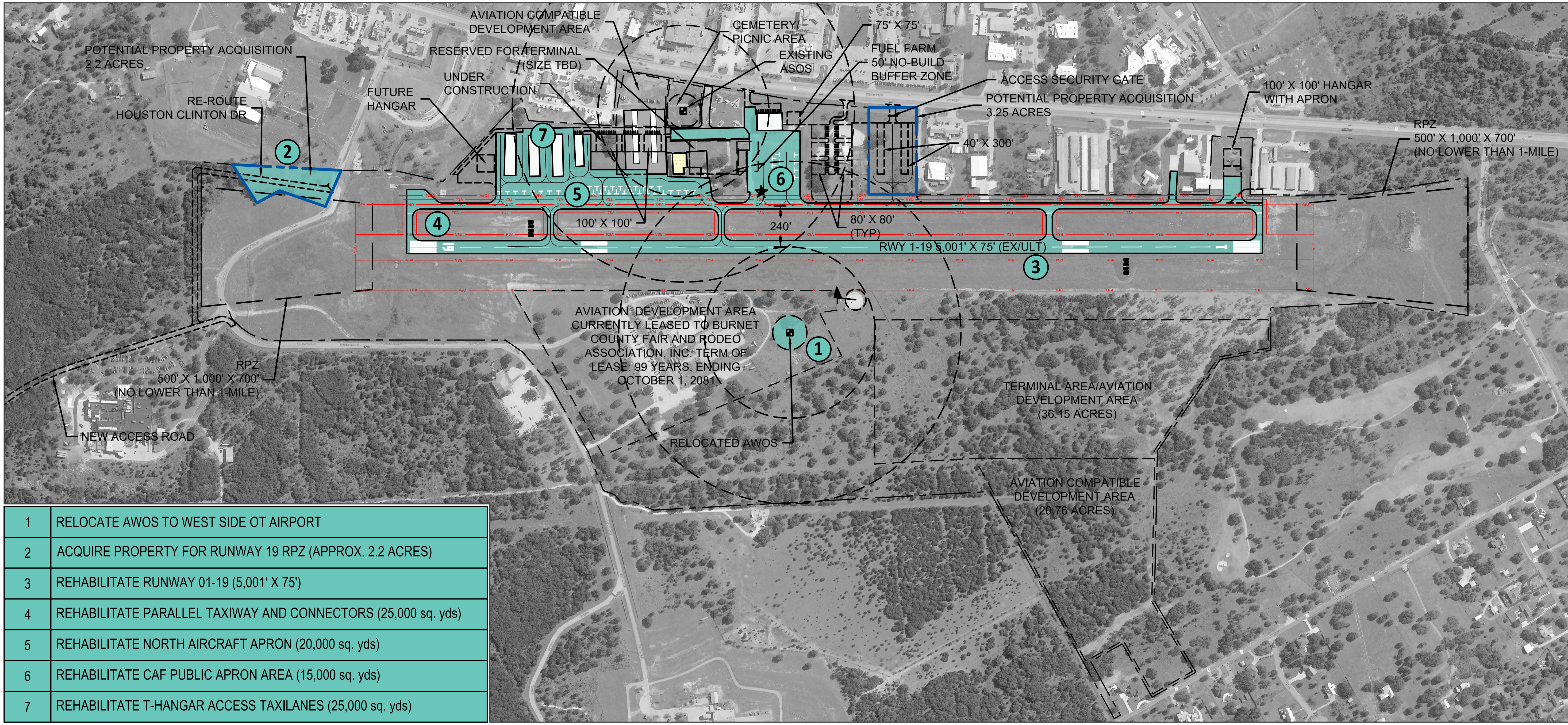
Source: KSA

**NOTE – APPROXIMATELY $7,604,000 OF TOTAL LOCAL COSTS WILL BE BORN BY PRIVATE ENTITIES PERTAINING TO HANGAR DEVELOPMENT. SEE TABLE 5.3*

THIS SECTION INTENTIONALLY LEFT BLANK

TABLE 5.5 – PHASING PLAN SUMMARY

Project Description	Justification	Total Cost
Short-Term (0-5 Years)		
Relocate ASOS to west side of airfield and upgrade to AWOS	Safety	$250,000
Acquire property for Runway 19 RPZ and Houston Clinton Road (2.2 acres)	Safety	$125,000
Rehabilitate Runway 01-19 (5,001' x 75')	Safety	$490,000
Rehabilitate north terminal aircraft parking apron (20,000 sq. yds)	Safety	$216,000
Rehabilitate parallel taxiway (5,001 x 35') and connectors 5@ (200'x 35') approximately 25,000 sq. yds	Safety	$270,000
Rehabilitate CAF public apron area (15,000)	Safety	$162,000
Rehabilitate hangar access taxilanes (25,000 sq. yds)	Safety	$270,000
Long-Term (6-20 Years)		
Construct 2 new T-hangars (300' x 40')	Capacity	$3,300,000
Demo Sun Hangars	Capacity	$90,000
Install fencing (500 LF) and security gate	Safety / Security	$47,000
Construct 2 Conventional hangars with auto parking	Capacity	$3,170,000
Construct conventional hangar apron (6,000 sq yds)	Capacity	$1,134,000
Conduct Environmental Assessment for property acquisition and Clinton Houston Road Relocation	Compliance / Safety	$200,000
Construct relocated Houston Clinton Road	Capacity	$1,430,000
TOTAL		$11,154,000

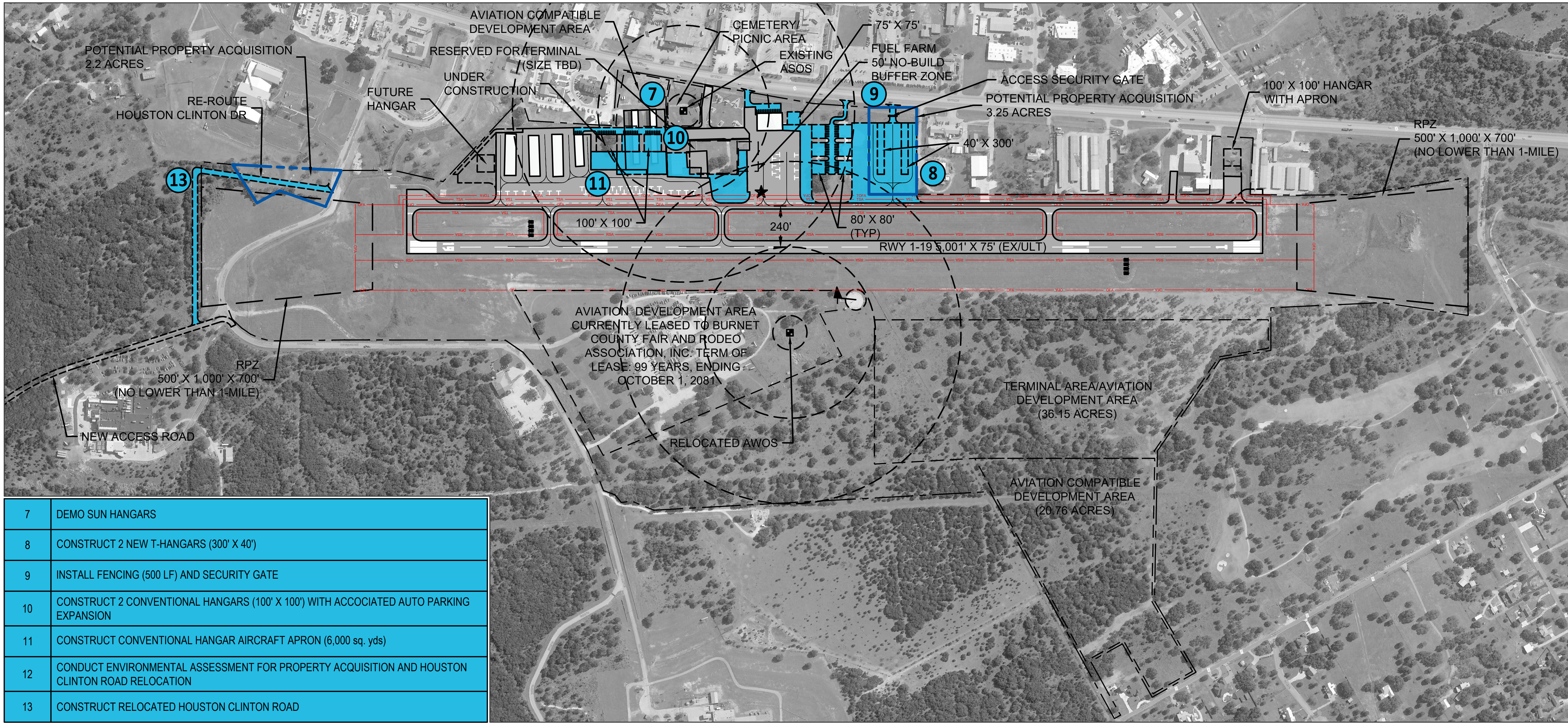


1	RELOCATE AWOS TO WEST SIDE OT AIRPORT
2	ACQUIRE PROPERTY FOR RUNWAY 19 RPZ (APPROX. 2.2 ACRES)
3	REHABILITATE RUNWAY 01-19 (5,001' X 75')
4	REHABILITATE PARALLEL TAXIWAY AND CONNECTORS (25,000 sq. yds)
5	REHABILITATE NORTH AIRCRAFT APRON (20,000 sq. yds)
6	REHABILITATE CAF PUBLIC APRON AREA (15,000 sq. yds)
7	REHABILITATE T-HANGAR ACCESS TAXILANES (25,000 sq. yds)

LEGEND

- AIRPORT PROPERTY
- EXISTING PAVEMENT
- EXISTING RPZ
- EXISTING BUILDINGS
- PROPOSED AIRPORT PROPERTY
- PROPOSED PAVEMENT
- PROPOSED ACCESS AND PARKING
- PROPOSED BUILDINGS

EXHIBIT 5.1 - SHORT-TERM PHASING PLAN (CURRENT - 5 YEARS)



7	DEMO SUN HANGARS
8	CONSTRUCT 2 NEW T-HANGARS (300' X 40')
9	INSTALL FENCING (500 LF) AND SECURITY GATE
10	CONSTRUCT 2 CONVENTIONAL HANGARS (100' X 100') WITH ACCOCIATED AUTO PARKING EXPANSION
11	CONSTRUCT CONVENTIONAL HANGAR AIRCRAFT APRON (6,000 sq. yds)
12	CONDUCT ENVIRONMENTAL ASSESSMENT FOR PROPERTY ACQUISITION AND HOUSTON CLINTON ROAD RELOCATION
13	CONSTRUCT RELOCATED HOUSTON CLINTON ROAD

LEGEND

- AIRPORT PROPERTY
- EXISTING PAVEMENT
- EXISTING RPZ
- EXISTING BUILDINGS
- PROPOSED AIRPORT PROPERTY
- PROPOSED PAVEMENT
- PROPOSED ACCESS AND PARKING
- PROPOSED BUILDINGS

N

0' 300' 600'

EXHIBIT 5.2 - LONG-TERM PHASING PLAN (6 - 20 YEARS)

Airport Plans

KSA

06 AIRPORT PLANS

6.1 OVERVIEW

As required by the Federal Aviation Administration, an Airport Layout Plan (ALP) set was prepared to graphically depict the airport environs and the subsequent recommendations for development described in this planning effort. Recommendations for airfield geometry, obstructions, and landside development are described in the following:

- Cover Sheet
- Airport Layout Plan Drawing
- Airspace Drawing
- Inner Portion of the Approach Surface Drawing (Runways 1 and 19)
- Runway Departure Surface Drawing (Runways 1 and 19)
- Terminal Area Drawing
- Land Use Plan
- Exhibit "A" Property Map

6.2 AIRPORT LAYOUT PLAN DRAWING

The Airport Layout Plan (ALP), which illustrates both airside and landside facilities, depicts the existing and ultimate airport facilities required for the airport to accommodate the forecast future demand adequately. Additionally, the ALP provides detailed information on airport and runway design criteria, which is necessary to define relationships with applicable standards.

6.3 AIRSPACE DRAWING

The airspace drawing depicts the various FAR Part 77 imaginary approach surfaces on a plan view of the entire airport and its surroundings. These surfaces include the primary surface, the horizontal surface, the transitional surfaces, the approach surfaces, and the conical surface.

6.4 INNER PORTION OF THE APPROACH SURFACE DRAWINGS

Inner portion drawings provide a more detailed view of the inner portion of the FAR Part 77 imaginary approach surfaces. This drawing offers large-scale plan and profile delineations of the approach surfaces out to a distance where the surface is 100 feet above the runway end elevation. They are intended to facilitate the identification of roads, utility lines, railroads, structures, trees, vegetation, and other possible obstructions that may lie within the confines of the approach surfaces close to the runway ends. Inner portion drawings are based on the ultimate planned runway lengths, the ultimate planned approaches to each runway end, and the ultimate end elevations.

6.5 RUNWAY DEPARTURE SURFACE DRAWINGS

This drawing is a large-scale plan and profile illustration depicting the dimension and slope of the departure end of the runway (DER) surfaces. This drawing is based on the ultimate planned runway length and the ultimate planned departure surface extending from the runway. No objects should penetrate a surface beginning at the elevation of the DER or end of the clearway, whichever is greater, that slopes to a 40 to 1 gradient.

6.6 TERMINAL AREA PLAN

The terminal area plan illustrates the projected facilities layout of the airport based on the recommended development plan. This plan specifies the location and size of hangars, aprons, taxilanes, fuel farms, and other improvements based on the 20-year footprint.

6.7 LAND USE DRAWING

The land use drawing aims to provide the airport with a plan for leasing revenue-producing areas on the airport. All existing and future development within the airport boundary will be compatible with the primary functions of the airport and will generate lease revenue for the airport's operation.

This drawing also guides local authorities in establishing appropriate land-use zoning near the airport. As specified by FAA Grant Assurance 21, *Compatible Land Use*, the airport sponsor "will take appropriate action, to the extent reasonable, including the adoption of zoning laws, restrict the use of land adjacent to, or in the vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and take-off of aircraft."

6.8 EXHIBIT "A" AIRPORT PROPERTY MAP

This map indicates how various tracts of airport property and easements were acquired and the dates of such acquisitions. Its purpose is to provide documentation of the current and future aeronautical use of land acquired with federal funds or through an FAA Administered Land Transfer Program.

THIS SECTION INTENTIONALLY LEFT BLANK

AIRPORT LAYOUT PLAN

BURNET MUNICIPAL AIRPORT (BMQ)

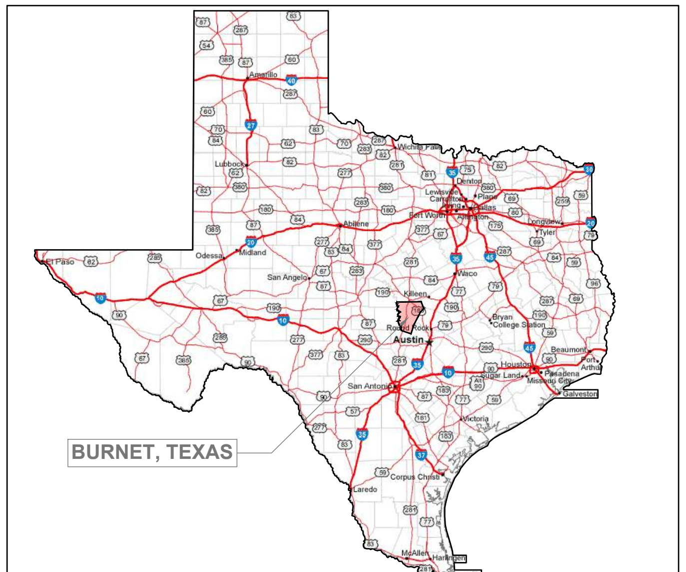
BURNET, TEXAS

SPONSOR

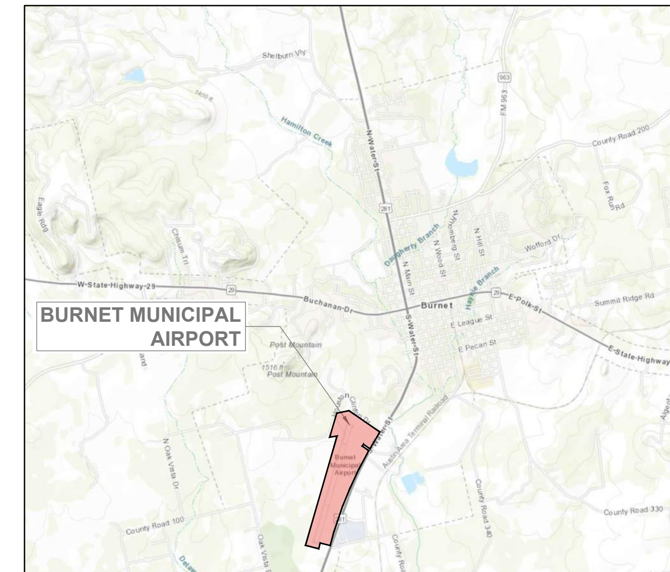
PREPARED BY

KSA

October 6, 2023



LOCATION MAP



VICINITY MAP

INDEX OF SHEETS

AIRPORT SPONSOR

CURRENT AND FUTURE DEVELOPMENT DEPICTED ON THIS ALP IS APPROVED AND SUPPORTED BY AIRPORT SPONSOR

SPONSOR ACKNOWLEDGES APPROVAL OF ALP BY TXDOT DOES NOT CONSTITUTE A COMMITMENT TO FUNDING

TITLE, AIRPORT SPONSORS REPRESENTATIVE

SIGNATURE DATE

DAN HARMON TxDOT AVIATION DIRECTOR DATE

KSA

DES: ED
DR: ED
CH: CM
APP: CM

ISSUE RECORD

NO.	BY	DATE	REVISION

BURNET MUNICIPAL AIRPORT
BURNET, TEXAS

AIRPORT LAYOUT PLAN

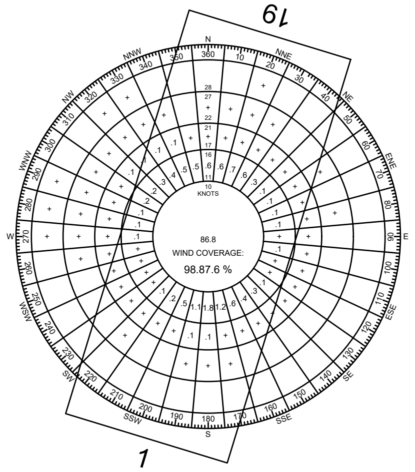
TITLE SHEET

AIP GRANT NO.	KSA JOB NO.	DATE:
3-48-0215-xx-2019	BUR.005	October 6, 2023

1

103 SHEET NO.

ALL-WEATHER WIND COVERAGE DATA

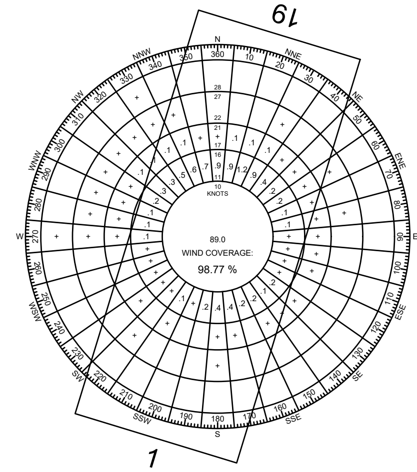


RUNWAY	10.5 KNOTS	13 KNOTS	16 KNOTS
1	72.23%	73.12%	73.80%
19	82.84%	83.50%	83.98%
1-19	97.63%	98.87%	99.67%

OBSERVATIONS: PERIOD= 2011-2020 STATION= 722542, BURNET MUNICIPAL CRADOCK FIELD

DATA SOURCE: DATA PROCESSING DIVISION, NATIONAL CLIMATIC CENTER, NOAA

IFR WIND COVERAGE DATA



RUNWAY	10.5 KNOTS	13 KNOTS	16 KNOTS
1	83.27%	84.24%	82.90%
19	74.38%	74.89%	75.30%
1-19	97.58%	98.77%	99.55%

OBSERVATIONS: PERIOD= 2011-2020 STATION= 722542, BURNET MUNICIPAL CRADOCK FIELD

DATA SOURCE: DATA PROCESSING DIVISION, NATIONAL CLIMATIC CENTER, NOAA

Runway Data Table	Runway 1/19			
	Existing		Ultimate	
	1	19	1	19
Runway Design Code (RDC)	B-II		B-II	
Runway Reference Code (RRC)	B-II-5000	B-II-5000	B-II-5000	B-II-5000
Pavement Design Strength (X 1,000 LBS.)	35 S, 50 D		35 S, 50 D	
Pavement Type	ASPHALT		ASPHALT	
Strength by PCN	N/A		N/A	
Maximum Gradient	0.29%		0.29%	
Line of Sight	7'		7'	
Percent Wind Coverage (13-Knots)	98.87%		98.87%	
Runway Length & Width	5,001' x 75'		5,001' x 75'	
Runway Displaced Threshold	N/A	N/A	N/A	N/A
Runway Bearing (True)	016°	196°	016°	196°
Runway End Coordinates (NAD 83)	N 30° 43' 56.3677" W 98° 14' 26.9571"	N 30° 44' 43.9077" W 98° 14' 11.0357"	N 30° 43' 56.3677" W 98° 14' 26.9571"	N 30° 44' 43.9077" W 98° 14' 11.0357"
Runway End Elevations (NAD 88)	1258.4'	1283.31'	1258.4'	1283.31'
Displaced Runway End Coordinates (NAD83)	N/A	N/A	N/A	N/A
Displaced Runway End Elevations (NAD88)	N/A	N/A	N/A	N/A
Runway High / Low Point Elevation	1,268.9' / 1,258.4'	1,283.4' / 1,268.9'	1,268.9' / 1,258.4'	1,283.4' / 1,268.9'
Runway Touchdown Zone Elevation (TDZE)	1,268.9'	1,283.4'	1,268.9'	1,283.4'
Runway Lighting	MIRL, REIL		MIRL, REIL	
Runway Marking	NON-PERCISION		NON-PERCISION	
Runway Protection Zone Dimensions	500' x 1,000' x 700'	500' x 1,000' x 700'	500' x 1,000' x 700'	500' x 1,000' x 700'
Approach Visibility Minimums	> 1 Mile	> 1 Mile	> 1 Mile	> 1 Mile
Navigational Aids (Electronic)	RNAV (GPS)		RNAV (GPS)	
Visual Aids (Lighting)	PAPI-4L		PAPI-4L	
14 CFR Part 77 Approach Category	C (NON-PERCISION)	C (NON-PERCISION)	C (NON-PERCISION)	C (NON-PERCISION)
14 CFR Part 77 Approach Slope	34:1	34:1	34:1	34:1
Aeronautical Survey Required for Approach	NVGS	NVGS	NVGS	NVGS
Runway Departure Surface	Yes	Yes	Yes	Yes
Runway Safety Area Width	150'		150'	
Runway Safety Area Beyond R/W End	300'	300'	300'	300'
Runway Safety Area Length Prior to Threshold	300'	300'	300'	300'
Runway Object Free Area Width	500'		500'	
Runway Object Free Area Beyond R/W End	300'	300'	300'	300'
Runway Object Free Area Length Prior to Threshold	300'	300'	300'	300'
Runway Obstacle Free Zone Width	400'		400'	
Runway Obstacle Free Zone Length	200'	200'	200'	200'
Approach Surface AC 150/5300-13B TABLE 3-3	4	4	4	4

Declared Distances Table	Runway 1/19			
	Existing		Ultimate	
	1	19	1	19
Take-Off Run Available (TORA)	5,001'	5,001'	5,001'	5,001'
Take-off Distance Available (TODA)	5,001'	5,001'	5,001'	5,001'
Accelerate Stop Distance Available (ASDA)	5,001'	5,001'	5,001'	5,001'
Landing Distance Available (LDA)	5,001'	5,001'	5,001'	5,001'

Taxiway Data Table	Existing	Ultimate
Taxiway Design Group	2A	2A
Taxiway Width	35'	35'
Taxiway Safety Area Width	79'	79'
Taxiway Object Free Area Width	124'	124'
Taxiway Markings / Lighting	Centerline Markings	Centerline Markings
Taxiway/Runway Separation	240'	240'
Taxiway to Fixed/Moveable object	62'	62'

Airport Data Table	Existing	Ultimate
Airport Reference Code (ARC)	B-II	B-II
Mean Max Temp (Hottest Month)	98° F August	98° F August
Airport Elevation (AMSL) NAD 88	1284.10'	1284.10'
Airport & Terminal NAVAID's	GPS	GPS
Miscellaneous Facilities	ASOS/ Segmented Circle/ Windcone	ASOS/ Segmented Circle/ Windcone
Airport Reference Point (ARP) NAD 83	N 30° 44' 20.138" W 98° 14' 18.99"	N 30° 44' 20.138" W 98° 14' 18.99"
NPIAS Service Level	LOCAL	RGNL
State System Role	RGNL BS	RGNL BS
Critical Aircraft	Cessna Citation 550	Falcon 900B, 900C
Wingspan (Feet)	52.17'	63.42'
Undercarriage Width (Feet)	18.5'	25.92'
Approach Speed (knots)	112	111
Maximum Take-off Weight (LBS)	14,800	46,500
Airport Magnetic Variation	3° 35' 17" E NOAA, March 2023	

Survey Control Stations			
Designation	Identifier	Latitude	Longitude
T27 A (PACS)	AB2837	N 30° 44' 10.82"	W 98° 14' 20.46"
BURNPORT (SACS)	BN0801	N 30° 44' 25.72"	W 98° 14' 15.54"
BURNPORT AZ MK (SACS)	BN0802	N 30° 44' 36.29"	W 98° 14' 12.54"

Source: National Geodetic Survey Data Explorer; March 2023

Modifications to Standards Approval Table			
Approval Date	Airspace Case No.	Standard to be Modified	Description
		None Required	

KSA

DES: ED
DR: ED
CH: CM
APP: CM

ISSUE RECORD			
NO.	BY	DATE	REVISION

BURNET MUNICIPAL AIRPORT
BURNET, TEXAS

AIRPORT LAYOUT PLAN

AIRPORT DATA SHEET

AIP GRANT NO. 3-48-0215-xx-2019
KSA JOB NO. BUR.005
DATE: October 6, 2023

2
SHEET NO.
104

\\ksa.net\gateway\Projects\BUR005\008 CAD\02 ALP\30 Sheets\BUR005-C-ALP-ALD.dwg : AIRPORT DATA SHEET

DRAWING LEGEND

ITEM	EXISTING
AIRPORT PROPERTY	
AIRPORT PAVEMENT RUNWAY/TAXIWAY	
AIRPORT PAVEMENT TO BE REMOVED	
ROAD/DRIVE/HIGHWAY	
BUILDING/HANGAR	
WETLANDS	
RUNWAY PROTECTION ZONE (RPZ)	RPZ(e)
PRECISION OBSTACLE FREE ZONE (POFZ)	POFZ
BUILDING RESTRICTION LINE (BRL)	BRL 25'

RUNWAY OBJECT FREE AREA (ROFA)	ROFA(e)
RUNWAY SAFETY AREA (RSA)	RSA(e)
RUNWAY OBJECT FREE ZONE (ROFZ)	ROFA(e)
INNER APPROACH OBJECT FREE ZONE (OFZ)	OFZ(e)
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA(e)
TAXIWAY SAFETY AREA (TSA)	TSA(e)
APPROACH SURFACE	AS(e)
FENCE	
RUNWAY THRESHOLD LIGHT	
RUNWAY END IDENTIFIER LIGHTS (REIL)	
ROTATING BEACON	
GLIDE SLOPE ANTENNA	

AIRPORT SPONSOR

CURRENT AND FUTURE DEVELOPMENT DEPICTED ON THIS ALP IS APPROVED AND SUPPORTED BY AIRPORT SPONSOR

SPONSOR ACKNOWLEDGES APPROVAL OF ALP BY TXDOT DOES NOT CONSTITUTE A COMMITMENT TO FUNDING

TITLE, AIRPORT SPONSORS REPRESENTATIVE

SIGNATURE DATE

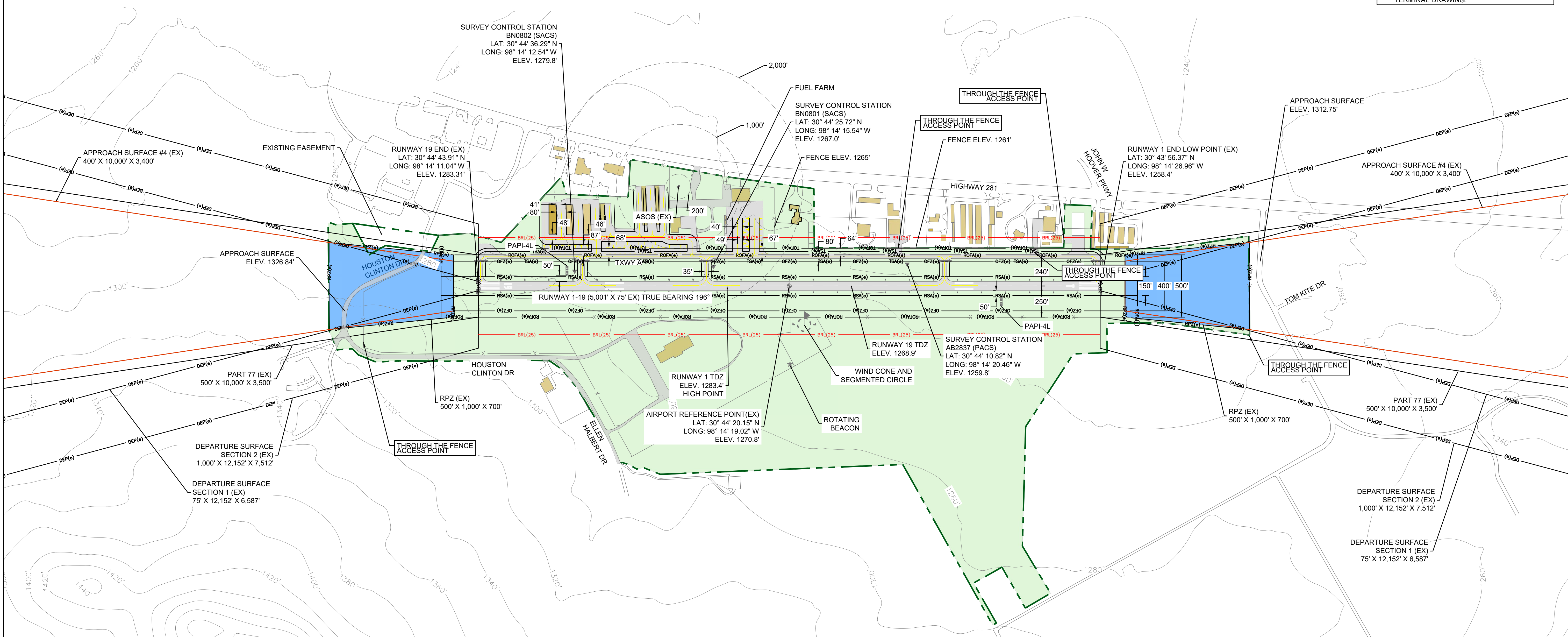
DAN HARMON TxDOT AVIATION DIRECTOR DATE

3°35'17"E
MAGNETIC
TRUE
DATE: MARCH 2023
ANNUAL RATE OF CHANGE: 0°06'33"W
SOURCE: U.S. NGDC

600' 0 600' 1200'
GRAPHIC SCALE IN FEET

NOTES:

1. ALL HORIZONTAL COORDINATES ARE SHOWN IN TEXAS STATE PLANE NORTH CENTRAL ZONE, US FOOT, NAD 83/2019.
2. ALL VERTICAL COORDINATES ARE SHOWN IN NAD 88.
3. BUILDING STRUCTURES IDENTIFIED ON TERMINAL DRAWING.



KSA	DES: ED	ISSUE RECORD				BURNET MUNICIPAL AIRPORT BURNET, TEXAS	AIRPORT LAYOUT PLAN	AIRPORT LAYOUT DRAWING - EXISTING	3
	DR: ED	NO.	BY	DATE	REVISION			AIP GRANT NO. 3-48-0215-xx-2019	
	CH: CM							KSA JOB NO. BUR.005	
	APP: CM							DATE: October 6, 2023	SHEET NO. 105

\\ksa.net\gateway\Projects\BUR005\008 CAD\02 ALP\30 Sheets\BUR005-C-ALP-ALD.dwg : AIRPORT LAYOUT DRAWING - EXISTING

DRAWING LEGEND

ITEM	ULTIMATE
AIRPORT PROPERTY	
AIRPORT PAVEMENT RUNWAY/TAXIWAY	
AIRPORT PAVEMENT TO BE REMOVED	
ROAD/DRIVE/HIGHWAY	
BUILDING/HANGAR	
WETLANDS	
RUNWAY PROTECTION ZONE (RPZ)	RPZ(u)
PRECISION OBSTACLE FREE ZONE (POFZ)	POFZ
BUILDING RESTRICTION LINE (BRL)	BRL 25'

RUNWAY OBJECT FREE AREA (ROFA)	ROFA(u)
RUNWAY SAFETY AREA (RSA)	RSA(u)
RUNWAY OBJECT FREE ZONE (ROFZ)	ROFA(u)
INNER APPROACH OBJECT FREE ZONE (OFZ)	OFZ(u)
TAXIWAY OBJECT FREE AREA (TOFA)	TOFA(u)
TAXIWAY SAFETY AREA (TSA)	TSA(u)
APPROACH SURFACE	AS(u)
FENCE	XX
RUNWAY THRESHOLD LIGHT	
RUNWAY END IDENTIFIER LIGHTS (REIL)	
ROTATING BEACON	
GLIDE SLOPE ANTENNA	

AIRPORT SPONSOR

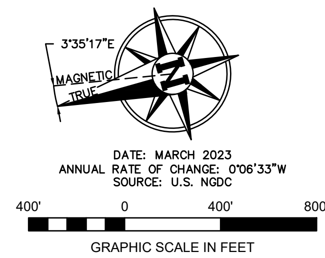
CURRENT AND FUTURE DEVELOPMENT DEPICTED ON THIS ALP IS APPROVED AND SUPPORTED BY AIRPORT SPONSOR

SPONSOR ACKNOWLEDGES APPROVAL OF ALP BY TXDOT DOES NOT CONSTITUTE A COMMITMENT TO FUNDING

TITLE, AIRPORT SPONSORS REPRESENTATIVE

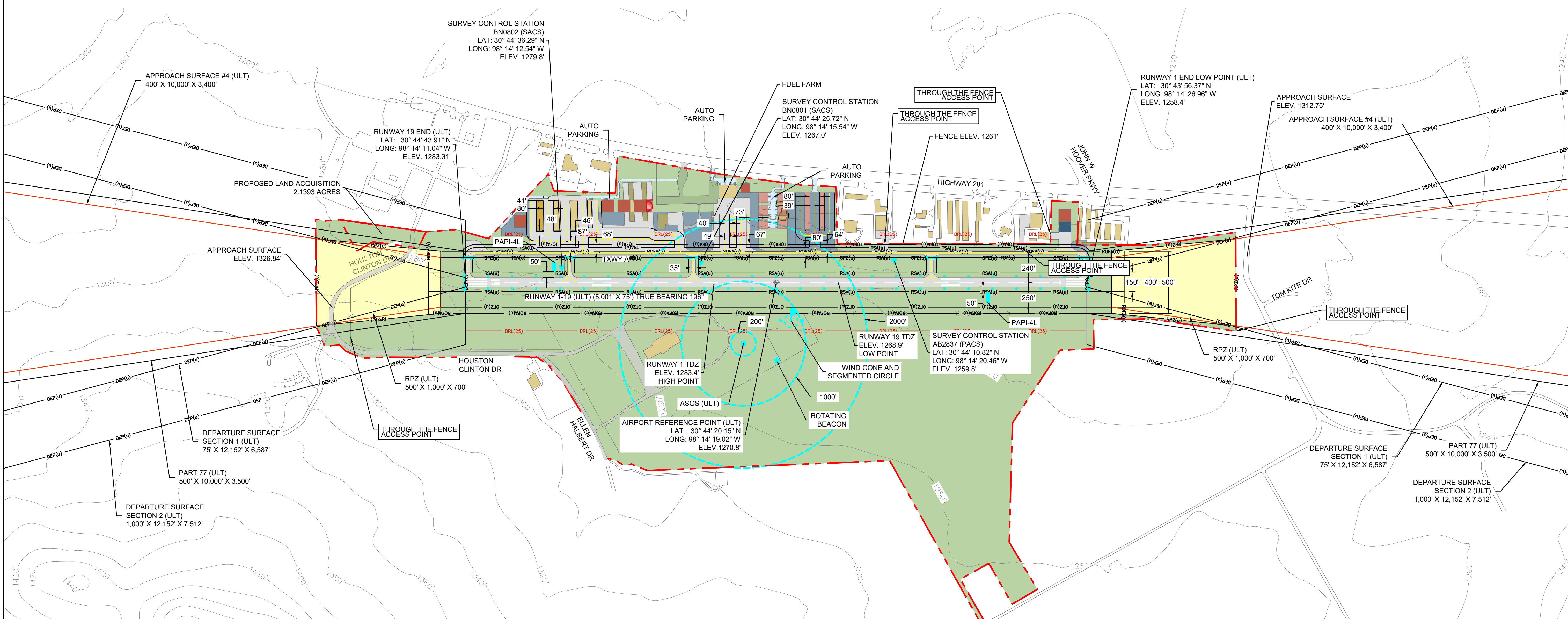
SIGNATURE DATE

DAN HARMON TxDOT AVIATION DIRECTOR DATE



NOTES:

1. ALL HORIZONTAL COORDINATES ARE SHOWN IN TEXAS STATE PLANE NORTH CENTRAL ZONE, US FOOT, NAD 83/2019.
2. ALL VERTICAL COORDINATES ARE SHOWN IN NAD 88.
3. BUILDING STRUCTURES IDENTIFIED ON TERMINAL DRAWING.



DES: ED	ISSUE RECORD			
DR: ED	NO.	BY	DATE	REVISION
CH: CM				
APP: CM				

KSA

CITY OF BURNET 1883 Lakes·Hills·History

BURNET MUNICIPAL AIRPORT
BURNET, TEXAS

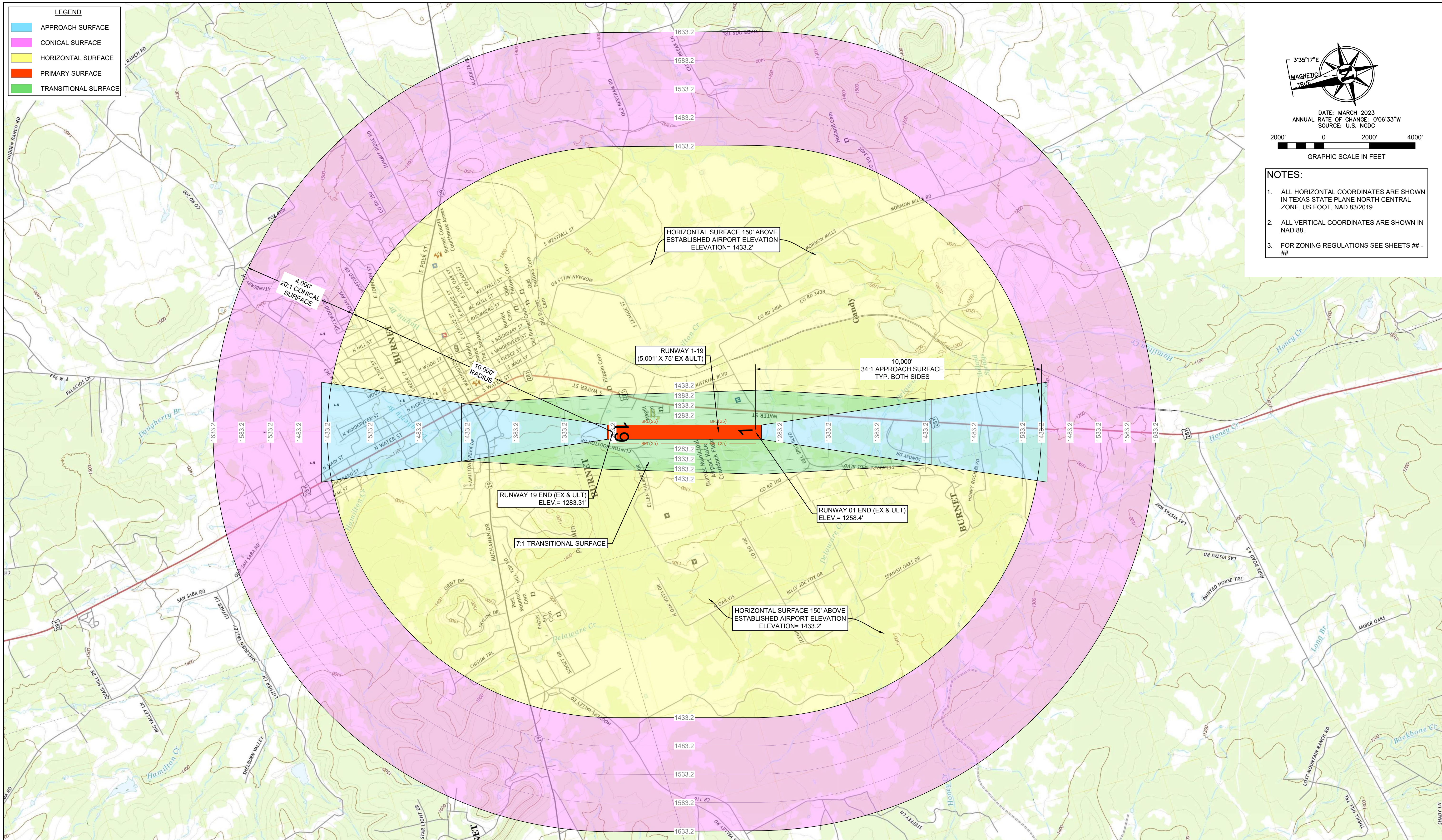
AIRPORT LAYOUT PLAN

AIRPORT LAYOUT DRAWING - ULTIMATE

AIP GRANT NO.	KSA JOB NO.	DATE:
3-48-0215-xx-2019	BUR.005	October 6, 2023

SHEET NO. 4

\\ksa.net\gateway\Projects\BUR005\008 CAD\02 ALP\30 Sheets\BUR005-C-ALP-ALD.dwg : AIRPORT LAYOUT DRAWING - ULTIMATE



DES: ED	ISSUE RECORD				BURNET MUNICIPAL AIRPORT BURNET, TEXAS	AIRPORT LAYOUT PLAN	AIRPORT AIRSPACE DRAWING
DR: ED	NO.	BY	DATE	REVISION			
CH: CM							AIP GRANT NO. 3-48-0215-xx-2019 / KSA JOB NO. BUR.005 / DATE: October 6, 2023
APP: CM							SHEET NO. 5

107

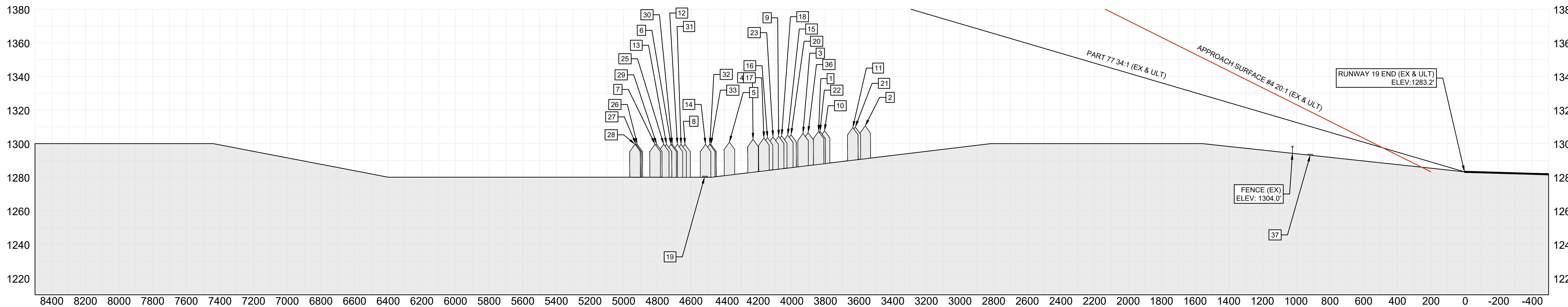
\\ksa.net\gateway\Projects\BUR005\008 CAD\02 ALP\30 Sheets\BUR005-C-ALP-AAD.dwg : AIRPORT AIRSPACE DRAWING

RUNWAY 19 OBSTRUCTION TABLE

No.	OBJECT DESCRIPTION	LATITIDE (N)	LONGITUDE (W)	DISTANCE FROM RUNWAY END	OFFSET FROM RWY CL	TOP ELEVATION	AMOUNT OF PART 77 PENETRATION	REMEDIATION
1	SEE SHEET 11							

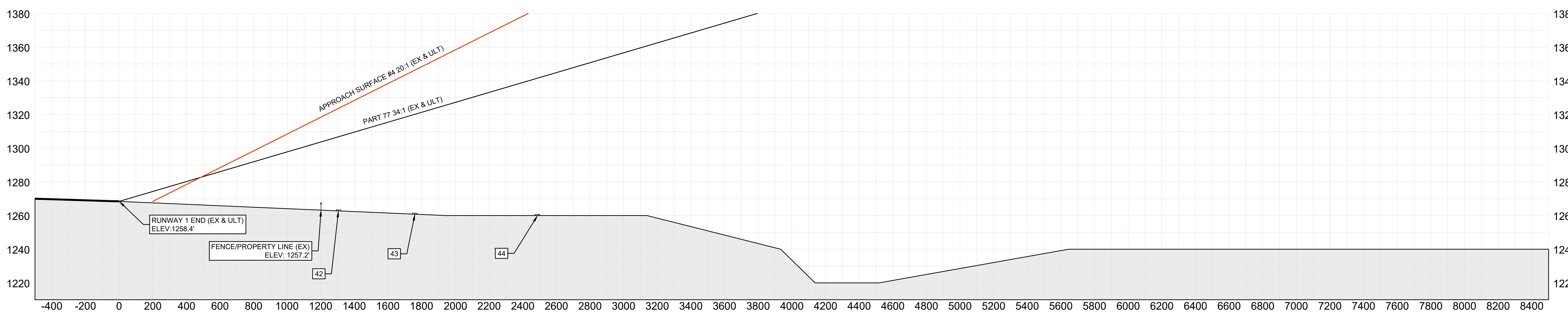
NOTES:

1. ALL HORIZONTAL COORDINATES ARE SHOWN IN TEXAS STATE PLANE SOUTH CENTRAL ZONE, US FOOT, NAD 83/2019.
2. ALL VERTICAL COORDINATES ARE SHOWN IN NAD 88.
3. NO OBSTRUCTION SURVEY PROVIDED. OBSTRUCTION ELEVATIONS ATTAINED FROM GOOGLE EARTH.
4. SEE SHEET 11 FOR SIGNIFICANT OBJECT TABLE.



RUNWAY 1 OBSTRUCTION TABLE

No.	OBJECT DESCRIPTION	LATITIDE (N)	LONGITUDE (W)	DISTANCE FROM RUNWAY END	OFFSET FROM RWY CL	TOP ELEVATION	AMOUNT OF PART 77 PENETRATION	REMEDIATION
1	NONE							



KSA

DES: ED
DR: ED
CH: CM
APP: CM

ISSUE RECORD			
NO.	BY	DATE	REVISION

CITY OF BURNET 1883 Lakes-Hills-History

BURNET MUNICIPAL AIRPORT
BURNET, TEXAS

AIRPORT LAYOUT PLAN

AIRPORT AIRSPACE PLAN - RUNWAY 16-34 EXTENDED APPROACH PROFILES

AIP GRANT NO.: 3-48-0215-xx-2019
KSA JOB NO.: BUR.005
DATE: October 6, 2023

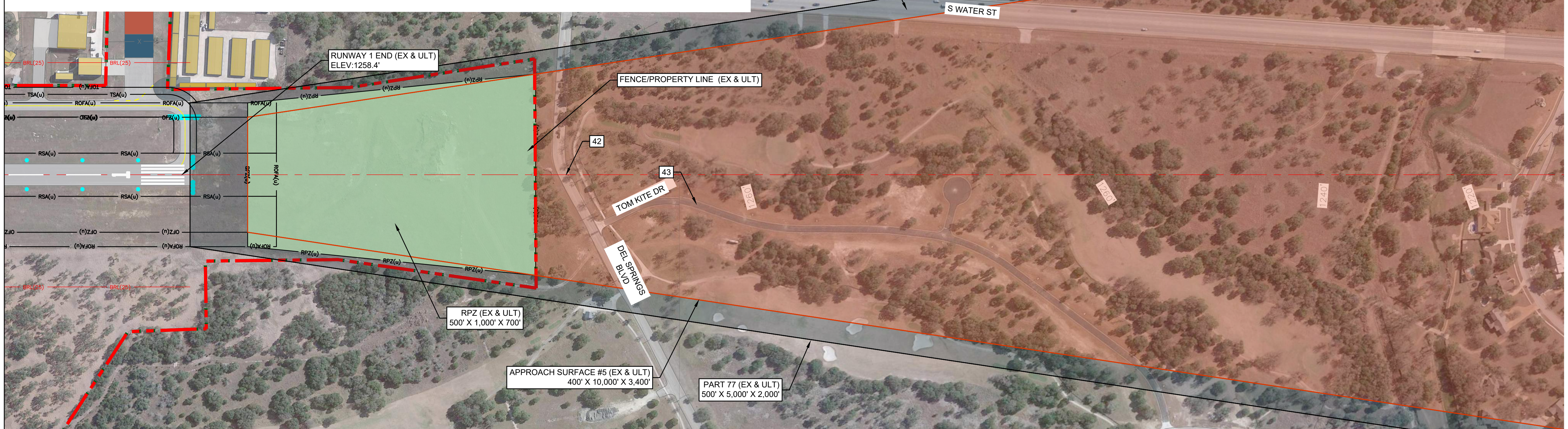
6

SHEET NO.

\\ksa.net\gateway\Projects\BUR005\008 CAD\02 ALP\30 Sheets\BUR005-C-ALP-PROFILES.dwg : AIRPORT AIRSPACE PLAN - RUNWAY 16-34 EXTENDED APPROACH PROFILES

RUNWAY 1 OBSTRUCTION TABLE

No.	OBJECT DESCRIPTION	LATITIDE (N)	LONGITUDE (W)	DISTANCE FROM RUNWAY END	OFFSET FROM RWY CL	TOP ELEVATION	AMOUNT OF APP PENETRATION	REMEDIATION
1	SEE SHEET 11							



3°35'17"E
MAGNETIC
TRUE

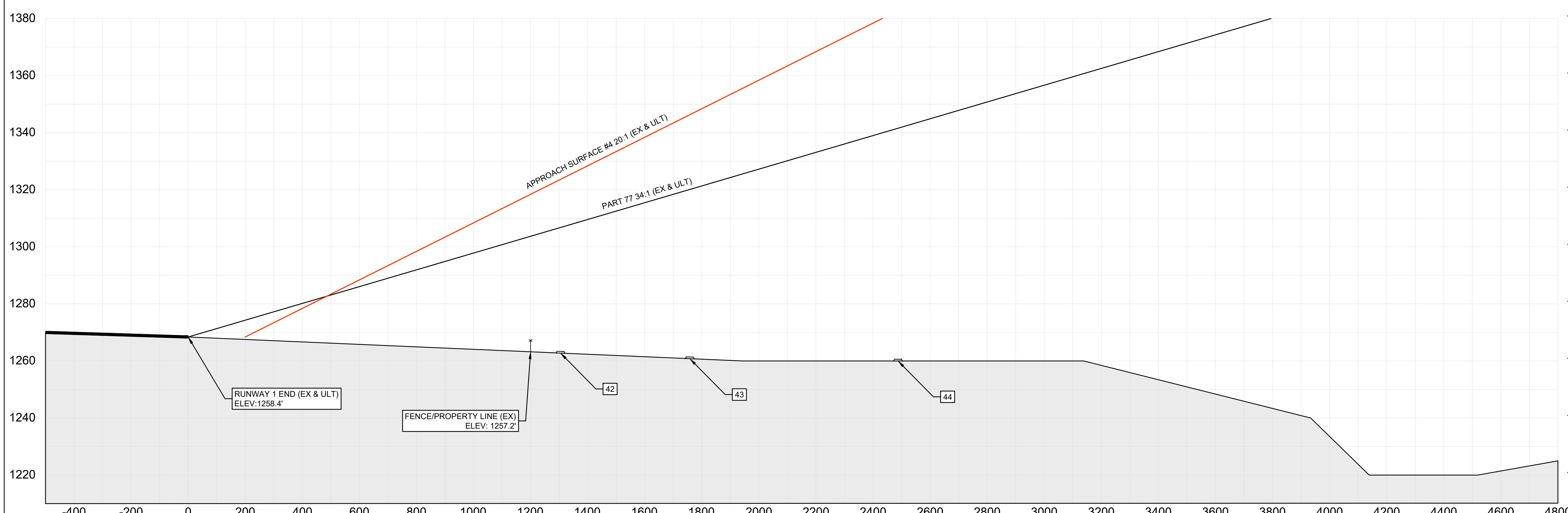
DATE: MARCH 2023
ANNUAL RATE OF CHANGE: 0°06'33"W
SOURCE: U.S. NGDC

200' 0 200' 400'
HORIZONTAL SCALE IN FEET

20' 0 20' 40'
VERTICAL SCALE IN FEET

NOTES:

1. ALL HORIZONTAL COORDINATES ARE SHOWN IN TEXAS STATE PLANE SOUTH CENTRAL ZONE, US FOOT, NAD 83/2019.
2. ALL VERTICAL COORDINATES ARE SHOWN IN NAD 88.
3. NO OBSTRUCTION SURVEY PROVIDED. OBSTRUCTION ELEVATIONS ATTAINED FROM GOOGLE EARTH.
4. SEE SHEET 11 FOR SIGNIFICANT OBJECT TABLE.



KSA

DES: ED	ISSUE RECORD			
DR: ED	NO.	BY	DATE	REVISION
CH: CM				
APP: CM				

BURNET MUNICIPAL AIRPORT
BURNET, TEXAS

AIRPORT LAYOUT PLAN

INNER APPROACH SURFACE DRAWING - RUNWAY 1

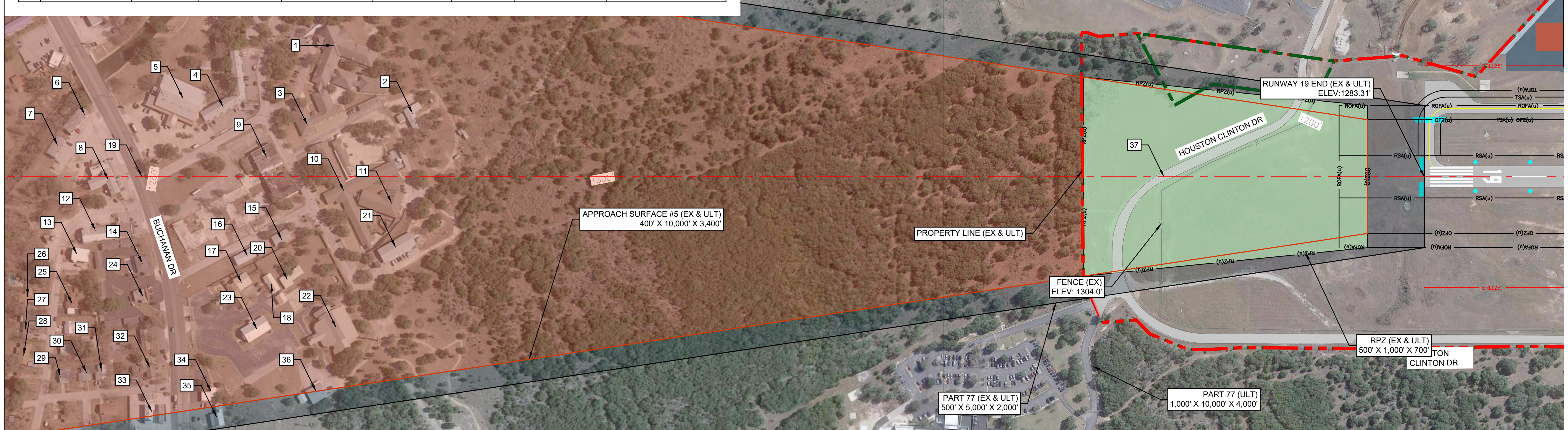
AIP GRANT NO.	KSA JOB NO.	DATE:
3-48-0215-xx-2019	BUR.005	October 6, 2023

7
SHEET NO.

\\ksa.net\gateway\Projects\BUR005\008 CAD\02 ALP\30 Sheets\BUR005-C-ALP-PROFILES.dwg : INNER APPROACH SURFACE DRAWING - RUNWAY 1

RUNWAY 19 OBSTRUCTION TABLE

No.	OBJECT DESCRIPTION	LATITIDE (N)	LONGITUDE (W)	DISTANCE FROM RUNWAY END	OFFSET FROM RWY CL	TOP ELEVATION	AMOUNT OF APP PENETRATION	REMEDIATION
1	SEE SHEET 11							



3°35'17"E
MAGNETIC
TRUE

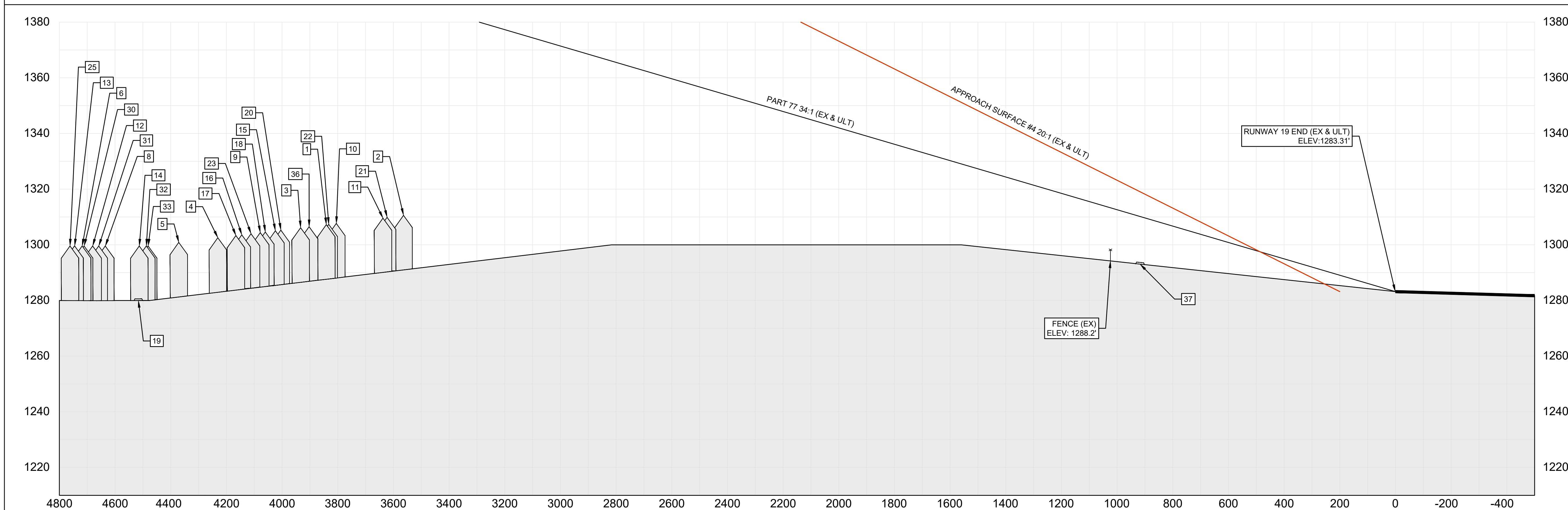
DATE: MARCH 2023
ANNUAL RATE OF CHANGE: 0°06'33"W
SOURCE: U.S. NGDC

200' 0 200' 400'
HORIZONTAL SCALE IN FEET

20' 0 20' 40'
VERTICAL SCALE IN FEET

NOTES:

1. ALL HORIZONTAL COORDINATES ARE SHOWN IN TEXAS STATE PLANE SOUTH CENTRAL ZONE, US FOOT, NAD 83/2019.
2. ALL VERTICAL COORDINATES ARE SHOWN IN NAD 88.
3. NO OBSTRUCTION SURVEY PROVIDED. OBSTRUCTION ELEVATIONS ATTAINED FROM GOOGLE EARTH.
4. SEE SHEET 11 FOR SIGNIFICANT OBJECT TABLE.



KSA

DES: ED
DR: ED
CH: CM
APP: CM

ISSUE RECORD			
NO.	BY	DATE	REVISION

CITY OF BURNET 1883 Lakes-Hills-History

BURNET MUNICIPAL AIRPORT
BURNET, TEXAS

AIRPORT LAYOUT PLAN

INNER APPROACH SURFACE DRAWING - RUNWAY 19

AIP GRANT NO. 3-48-0215-xx-2019
KSA JOB NO. BUR.005
DATE: October 6, 2023

8
SHEET NO.
110

\\ksa.net\gateway\Projects\BUR005\008 CAD\02 ALP\30 Sheets\BUR005-C-ALP-PROFILES.dwg : INNER APPROACH SURFACE DRAWING - RUNWAY 19

RUNWAY 1 OBSTRUCTION TABLE

No.	OBJECT DESCRIPTION	LATITIDE (N)	LONGITUDE (W)	DISTANCE FROM RUNWAY END	OFFSET FROM RWY CL	TOP ELEVATION	AMOUNT OF DEPARTURE PENETRATION	REMEDIATION
1	SEE SHEET 11							

3°35'17"E
MAGNETIC
TRUE

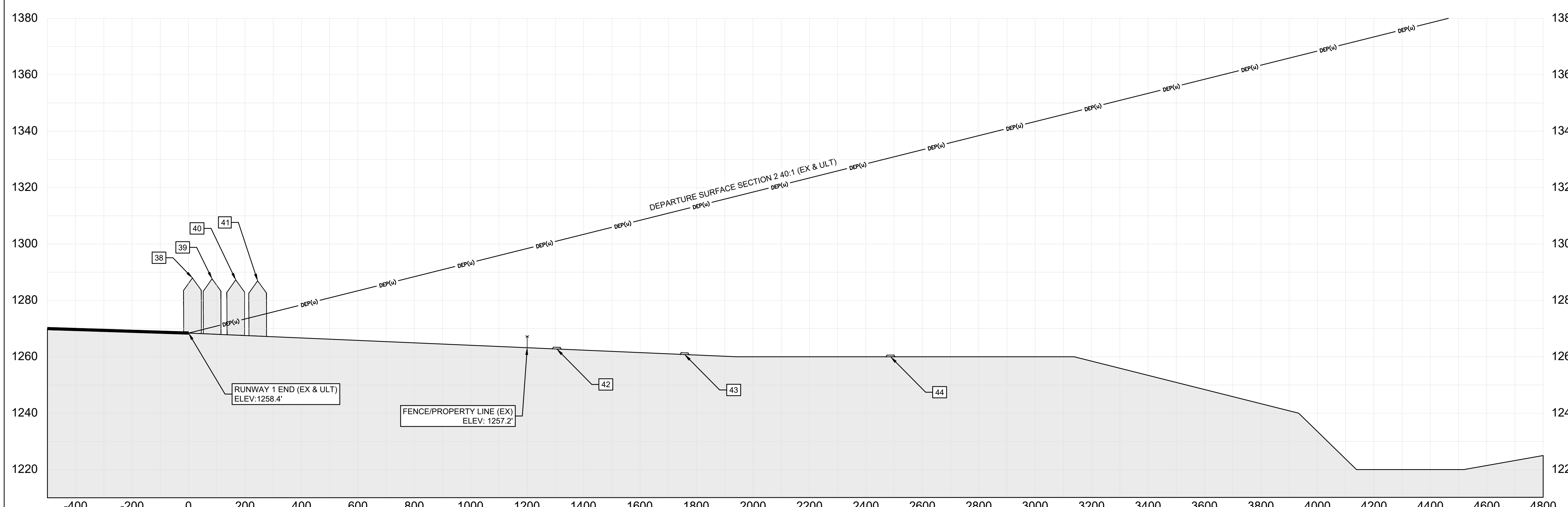
DATE: MARCH 2023
ANNUAL RATE OF CHANGE: 0°06'33"W
SOURCE: U.S. NGDC

1000' 0 1000' 2000'
HORIZONTAL SCALE IN FEET

100' 0 100' 200'
VERTICAL SCALE IN FEET

NOTES:

1. ALL HORIZONTAL COORDINATES ARE SHOWN IN TEXAS STATE PLANE SOUTH CENTRAL ZONE, US FOOT, NAD 83/2019.
2. ALL VERTICAL COORDINATES ARE SHOWN IN NAD 88.
3. NO OBSTRUCTION SURVEY PROVIDED. OBSTRUCTION ELEVATIONS ATTAINED FROM GOOGLE EARTH.
4. SEE SHEET 11 FOR SIGNIFICANT OBJECT TABLE.

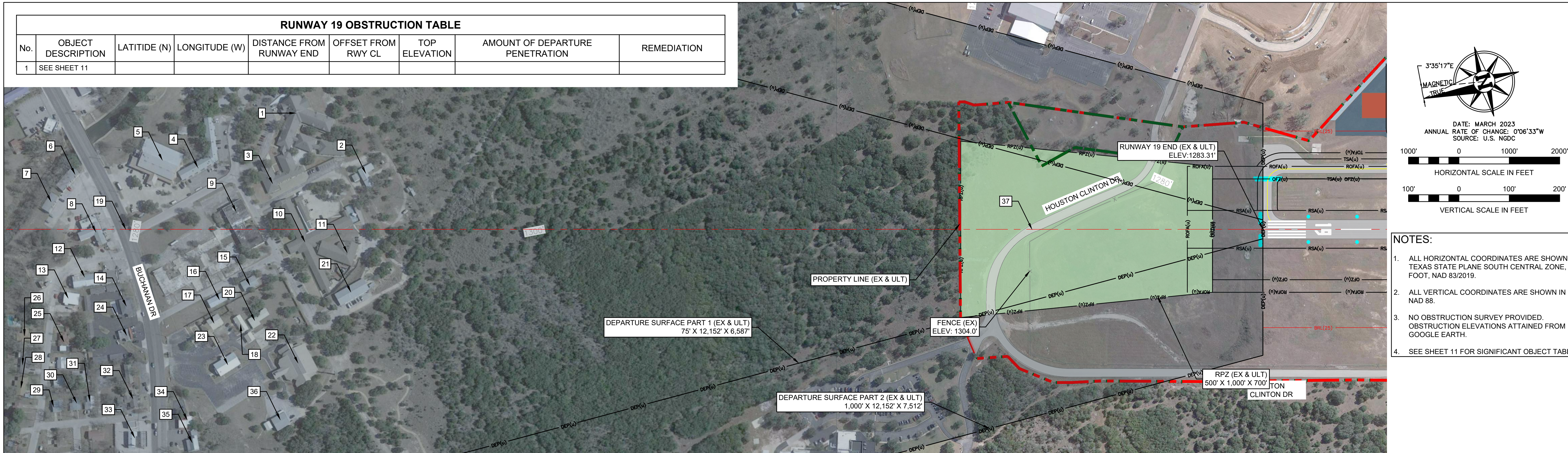


KSA	DES: ED	ISSUE RECORD				BURNET MUNICIPAL AIRPORT BURNET, TEXAS	AIRPORT LAYOUT PLAN	RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 1	9
	DR: ED	NO.	BY	DATE	REVISION			AIP GRANT NO. 3-48-0215-xx-2019 / KSA JOB NO. BUR.005 / DATE: October 6, 2023	SHEET NO. 11
	CH: CM								
	APP: CM								

\\ksa.net\gateway\Projects\BUR005\008 CAD\02 ALP\30 Sheets\BUR005-C-ALP-PROFILES.dwg : RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 1

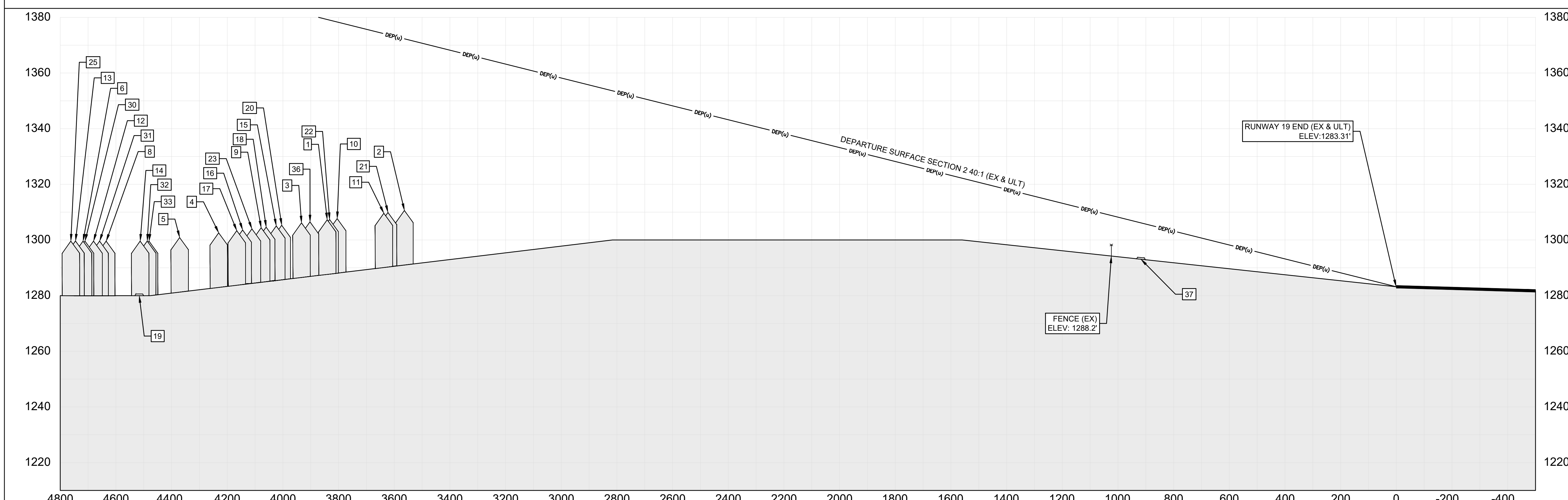
RUNWAY 19 OBSTRUCTION TABLE

No.	OBJECT DESCRIPTION	LATITUDE (N)	LONGITUDE (W)	DISTANCE FROM RUNWAY END	OFFSET FROM RWY CL	TOP ELEVATION	AMOUNT OF DEPARTURE PENETRATION	REMEDIATION
1	SEE SHEET 11							



NOTES:

1. ALL HORIZONTAL COORDINATES ARE SHOWN IN TEXAS STATE PLANE SOUTH CENTRAL ZONE, US FOOT, NAD 83/2019.
2. ALL VERTICAL COORDINATES ARE SHOWN IN NAD 88.
3. NO OBSTRUCTION SURVEY PROVIDED. OBSTRUCTION ELEVATIONS ATTAINED FROM GOOGLE EARTH.
4. SEE SHEET 11 FOR SIGNIFICANT OBJECT TABLE.



KSA

DES: ED	ISSUE RECORD			
DR: ED	NO.	BY	DATE	REVISION
CH: CM				
APP: CM				

BURNET MUNICIPAL AIRPORT
BURNET, TEXAS

AIRPORT LAYOUT PLAN

RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 19

AIP GRANT NO.	KSA JOB NO.	DATE:
3-48-0215-xx-2019	BUR.005	October 6, 2023

SHEET NO. 10

\\ksa.net\gateway\Projects\BUR005\008 CAD\02 ALP\30 Sheets\BUR005-C-ALP-PROFILES.dwg : RUNWAY DEPARTURE SURFACE DRAWING - RUNWAY 19

Point Table

Point #	Top Elevation	Longitude	Latitude	Object Description	Distance From RWY End	Offset from RWY CL	Amount of Part 77 Penetration	Amount of APP Penetration	Amount of DEP Penetration	Recommendation
1	1313.00'	W97° 57' 24.59"	N52° 35' 07.39"	BUILDING	3840.04'	461.64' RT	-	-	-	None
2	1314.00'	W97° 57' 27.12"	N52° 35' 05.40"	BUILDING	3562.68'	222.86' RT	-	-	-	None
3	1316.00'	W97° 57' 26.61"	N52° 35' 09.02"	BUILDING	3932.42'	182.16' RT	-	-	-	None
4	1304.00'	W97° 57' 25.43"	N52° 35' 11.67"	BUILDING	4229.80'	246.41' RT	-	-	-	None
5	1299.00'	W97° 57' 24.89"	N52° 35' 12.93"	BUILDING	4370.13'	275.07' RT	-	-	-	None
6	1295.00'	W97° 57' 24.56"	N52° 35' 16.38"	BUILDING	4717.19'	219.21' RT	-	-	-	None
7	1297.00'	W97° 57' 25.21"	N52° 35' 17.57"	BUILDING	4812.25'	110.62' RT	-	-	-	None
8	1306.00'	W97° 57' 26.56"	N52° 35' 16.20"	BUILDING	4634.20'	10.04' LT	-	-	-	None
9	1312.00'	W97° 57' 27.17"	N52° 35' 10.69"	BUILDING	4077.40'	71.45' RT	-	-	-	None
10	1317.00'	W97° 57' 28.74"	N52° 35' 08.42"	BUILDING	3804.28'	49.21' LT	-	-	-	None
11	1320.00'	W97° 57' 29.45"	N52° 35' 06.94"	BUILDING	3636.55'	91.36' LT	-	-	-	None
12	1309.00'	W97° 57' 27.88"	N52° 35' 17.11"	BUILDING	4679.46'	188.01' LT	-	-	-	None
13	1308.00'	W97° 57' 28.40"	N52° 35' 17.96"	BUILDING	4744.35'	272.47' LT	-	-	-	None
14	1317.00'	W97° 57' 29.17"	N52° 35' 15.85"	BUILDING	4516.08'	302.69' LT	-	-	-	None
15	1327.00'	W97° 57' 29.61"	N52° 35' 10.96"	BUILDING	4023.56'	220.88' LT	-	-	-	None
16	1337.00'	W97° 57' 29.79"	N52° 35' 12.26"	BUILDING	4143.79'	278.46' LT	-	-	-	None
17	1326.00'	W97° 57' 30.49"	N52° 35' 12.72"	BUILDING	4164.92'	371.97' LT	-	-	-	None
18	1336.00'	W97° 57' 30.77"	N52° 35' 11.73"	BUILDING	4059.29'	378.01' LT	-	-	-	None
19	1281.00'	W97° 57' 26.75"	N52° 35' 15.05"	ROAD	4515.50'	0.00'	-	-	-	None
20	1330.00'	W97° 57' 30.77"	N52° 35' 11.15"	BUILDING	4003.46'	361.41' LT	-	-	-	None
21	1330.00'	W97° 57' 30.73"	N52° 35' 07.22"	BUILDING	3621.70'	248.30' LT	-	-	-	None
22	1334.00'	W97° 57' 32.50"	N52° 35' 09.97"	BUILDING	3831.44'	530.34' LT	-	-	-	None
23	1331.00'	W97° 57' 31.92"	N52° 35' 12.64"	BUILDING	4110.59'	536.37' LT	-	-	-	None
24	1213.00'	W97° 57' 30.10"	N52° 35' 16.14"	BUILDING	4511.97'	420.28' LT	-	-	-	None
25	1212.00'	W97° 57' 29.74"	N52° 35' 18.58"	BUILDING	4760.95'	445.92' LT	-	-	-	None
26	1315.00'	W97° 57' 29.20"	N52° 35' 20.00"	BUILDING	4917.88'	421.79' LT	-	-	-	None
27	1314.00'	W97° 57' 30.09"	N52° 35' 20.38"	BUILDING	4927.36'	539.88' LT	-	-	-	None
28	1312.00'	W97° 57' 30.81"	N52° 35' 20.69"	BUILDING	4931.46'	628.42' LT	-	-	-	None
29	1316.00'	W97° 57' 31.69"	N52° 35' 19.66"	BUILDING	4802.30'	702.92' LT	-	-	-	None
30	1317.00'	W97° 57' 31.78"	N52° 35' 18.75"	BUILDING	4710.26'	688.85' LT	-	-	-	None
31	1318.00'	W97° 57' 31.85"	N52° 35' 18.23"	BUILDING	4657.66'	682.28' LT	-	-	-	None
32	1322.00'	W97° 57' 32.15"	N52° 35' 16.58"	BUILDING	4486.73'	671.96' LT	-	-	-	None
33	1324.00'	W97° 57' 33.39"	N52° 35' 16.93"	BUILDING	4480.16'	826.78' LT	-	-	-	None
34	1327.00'	W97° 57' 33.30"	N52° 35' 14.76"	BUILDING	4271.66'	755.47' LT	-	-	-	None
35	1330.00'	W97° 57' 34.06"	N52° 35' 14.81"	BUILDING	4251.93'	845.54' LT	-	-	-	None
36	1337.00'	W97° 57' 34.12"	N52° 35' 11.24"	BUILDING	3901.92'	755.10' LT	-	-	-	None
37	1262.00'	W97° 57' 34.82"	N52° 34' 40.85"	ROAD	1758.48'	102.14' RT	-	-	-	None
38	1260.00'	W97° 57' 45.03"	N52° 33' 43.42"	BUILDING	1305.52'	0.38' RT	-	-	20'	ADD LIGHTING TO TOP OF BUILDING
39	1274.00'	W97° 57' 45.24"	N52° 33' 42.77"	BUILDING	245.92'	378.37' LT	-	-	17'	ADD LIGHTING TO TOP OF BUILDING
40	1275.00'	W97° 57' 45.44"	N52° 33' 41.99"	BUILDING	168.23'	380.68' LT	-	-	15'	ADD LIGHTING TO TOP OF BUILDING
41	1277.00'	W97° 57' 45.61"	N52° 33' 41.27"	BUILDING	084.40'	382.60' LT	-	-	12'	ADD LIGHTING TO TOP OF BUILDING
42	1278.00'	W97° 57' 51.02"	N52° 33' 32.21"	ROAD	014.79'	387.98' LT	-	-	-	None
43	1295.00'	W97° 57' 52.84"	N52° 33' 28.17"	ROAD	916.99'	0.00'	-	-	-	None
44	1268.00'	W97° 57' 49.10"	N52° 33' 19.42"	ROAD	2488.28'	575.04' LT	-	-	-	None

NOTES:

1. ALL HORIZONTAL COORDINATES ARE SHOWN IN TEXAS STATE PLANE SOUTH CENTRAL ZONE, US FOOT, NAD 83/2019.
2. ALL VERTICAL COORDINATES ARE SHOWN IN NAD 88.
3. NO OBSTRUCTION SURVEY PROVIDED. OBSTRUCTION ELEVATIONS ATTAINED FROM GOOGLE EARTH.

KSA

DES: ED
DR: ED
CH: CM
APP: CM

ISSUE RECORD

NO.	BY	DATE	REVISION

BURNET MUNICIPAL AIRPORT
BURNET, TEXAS

AIRPORT LAYOUT PLAN

SIGNIFICANT OBJECTS TABLE

AIP GRANT NO. 3-48-0215-xx-2019
KSA JOB NO. BUR.005
DATE: October 6, 2023

11
SHEET NO.

\\ksa.net\gateway\Projects\BUR005\008 CAD\02 ALP\30 Sheets\BUR005-C-ALP-PROFILES.dwg : SIGNIFICAN OBSTACES TABLE

AIRPORT FACILITY LIST

BUILDING NUMBER	DESCRIPTION EXISTING	DESCRIPTION ULTIMATE	TOP ELEVATION
1	-	HANGAR	-
2	HANGAR "C"	HANGAR "C"	1,293.4'
3	HANGAR "B"	HANGAR "B"	1,293.4,
4	HANGAR "A"	HANGAR "A"	1,297.7'
5	T-HANGAR	T-HANGAR	1,290.3'
6	-	BOX HANGAR	-
7	-	BOX HANGAR	-
8	-	BOX HANGAR	-
9	SHADE HANGAR	-	1,289.4'
10	SHADE HANGAR	-	1,289.9'
11	ASOS	-	UNKN.
12	FBO	FBO	1,288.1'
13	FUEL FARM	FUEL FARM	-
14	2402, CAF MUSEUM HANGAR	2402 CAF MUSEUM HANGAR	1,291.7'
15		BOX HANGAR	-

AIRPORT FACILITY LIST

BUILDING NUMBER	DESCRIPTION EXISTING	DESCRIPTION ULTIMATE	TOP ELEVATION
16	-	BOX HANGAR	-
17	-	BOX HANGAR	-
18	-	BOX HANGAR	-
19	-	BOX HANGAR	-
20	-	BOX HANGAR	-
21	-	BOX HANGAR	-
22	2500, BURNET VETERIANARIANS	-	1,274.3'
23	-	T-HANGAR	-
24	-	T-HANGAR	-
25	-	BOX HANGAR	-
26	COUNTY FAIRGROUNDS	-	1,296.1'
27	WINDCONE/SEGMENTED CIRCLE	WINDCONE/SEGMENTED CIRCLE	UNKN.
28	-	RELOCATED ASOS	-
29	ROTATING BEACON	ROTATING BEACON	UNKN.

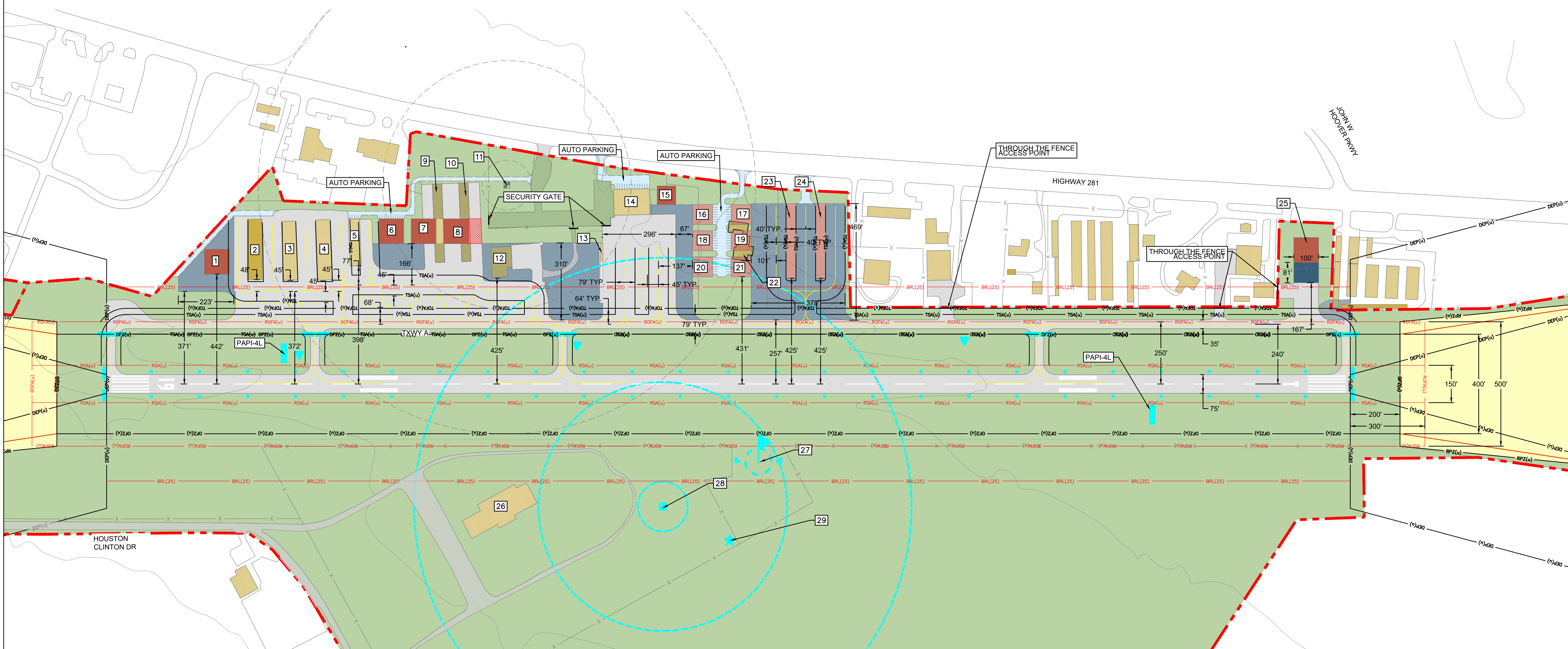
3°35'17"E
MAGNETIC
TRUE

DATE: MARCH 2023
ANNUAL RATE OF CHANGE: 0°06'33"W
SOURCE: U.S. NGDC

200' 0 200' 400'
GRAPHIC SCALE IN FEET

NOTES:

1. ALL HORIZONTAL COORDINATES ARE SHOWN IN TEXAS STATE PLANE NORTH CENTRAL ZONE, US FOOT, NAD 83/2019.
2. ALL VERTICAL COORDINATES ARE SHOWN IN NAD 88.



DES: ED	ISSUE RECORD			
DR: ED	NO.	BY	DATE	REVISION
CH: CM				
APP: CM				

BURNET MUNICIPAL AIRPORT
BURNET, TEXAS

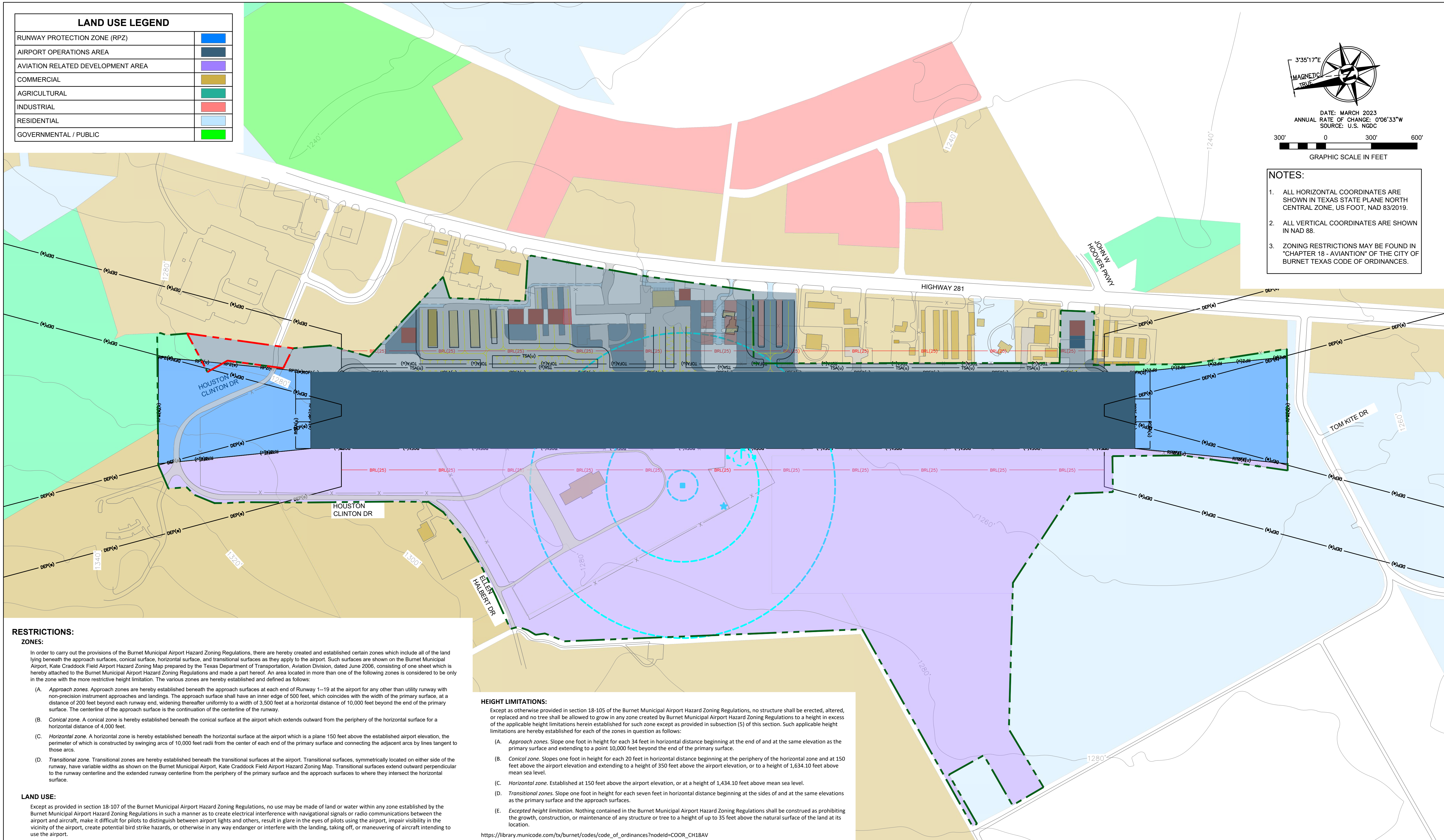
AIRPORT LAYOUT PLAN

AIRPORT TERMINAL AREA DRAWING

AIP GRANT NO. 3-48-0215-xx-2019
KSA JOB NO. BUR.005
DATE: October 6, 2023

12
SHEET NO.

\\ksa.net\gateway\Projects\BUR005\008 CAD\02 ALP\30 Sheets\BUR005-C-ALP-ATAD.dwg : AIRPORT TERMINAL AREA DRAWING



LAND USE LEGEND

RUNWAY PROTECTION ZONE (RPZ)	(blue)
AIRPORT OPERATIONS AREA	(dark blue-grey)
AVIATION RELATED DEVELOPMENT AREA	(purple)
COMMERCIAL	(tan)
AGRICULTURAL	(teal)
INDUSTRIAL	(pink)
RESIDENTIAL	(light blue)
GOVERNMENTAL / PUBLIC	(green)

NOTES:

1. ALL HORIZONTAL COORDINATES ARE SHOWN IN TEXAS STATE PLANE NORTH CENTRAL ZONE, US FOOT, NAD 83/2019.
2. ALL VERTICAL COORDINATES ARE SHOWN IN NAD 88.
3. ZONING RESTRICTIONS MAY BE FOUND IN "CHAPTER 18 - AVIANTION" OF THE CITY OF BURNET TEXAS CODE OF ORDINANCES.

RESTRICTIONS:

ZONES:

In order to carry out the provisions of the Burnet Municipal Airport Hazard Zoning Regulations, there are hereby created and established certain zones which include all of the land lying beneath the approach surfaces, conical surface, horizontal surface, and transitional surfaces as they apply to the airport. Such surfaces are shown on the Burnet Municipal Airport, Kate Craddock Field Airport Hazard Zoning Map prepared by the Texas Department of Transportation, Aviation Division, dated June 2006, consisting of one sheet which is hereby attached to the Burnet Municipal Airport Hazard Zoning Regulations and made a part hereof. An area located in more than one of the following zones is considered to be only in the zone with the more restrictive height limitation. The various zones are hereby established and defined as follows:

(A. *Approach zones.* Approach zones are hereby established beneath the approach surfaces at each end of Runway 1--19 at the airport for any other than utility runway with non-precision instrument approaches and landings. The approach surface shall have an inner edge of 500 feet, which coincides with the width of the primary surface, at a distance of 200 feet beyond each runway end, widening thereafter uniformly to a width of 3,500 feet at a horizontal distance of 10,000 feet beyond the end of the primary surface. The centerline of the approach surface is the continuation of the centerline of the runway.

(B. *Conical zone.* A conical zone is hereby established beneath the conical surface at the airport which extends outward from the periphery of the horizontal surface for a horizontal distance of 4,000 feet.

(C. *Horizontal zone.* A horizontal zone is hereby established beneath the horizontal surface at the airport which is a plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of 10,000 feet radii from the center of each end of the primary surface and connecting the adjacent arcs by lines tangent to those arcs.

(D. *Transitional zone.* Transitional zones are hereby established beneath the transitional surfaces at the airport. Transitional surfaces, symmetrically located on either side of the runway, have variable widths as shown on the Burnet Municipal Airport, Kate Craddock Field Airport Hazard Zoning Map. Transitional surfaces extend outward perpendicular to the runway centerline and the extended runway centerline from the periphery of the primary surface and the approach surfaces to where they intersect the horizontal surface.

LAND USE:

Except as provided in section 18-107 of the Burnet Municipal Airport Hazard Zoning Regulations, no use may be made of land or water within any zone established by the Burnet Municipal Airport Hazard Zoning Regulations in such a manner as to create electrical interference with navigational signals or radio communications between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, create potential bird strike hazards, or otherwise in any way endanger or interfere with the landing, taking off, or maneuvering of aircraft intending to use the airport.

HEIGHT LIMITATIONS:

Except as otherwise provided in section 18-105 of the Burnet Municipal Airport Hazard Zoning Regulations, no structure shall be erected, altered, or replaced and no tree shall be allowed to grow in any zone created by Burnet Municipal Airport Hazard Zoning Regulations to a height in excess of the applicable height limitations herein established for such zone except as provided in subsection (5) of this section. Such applicable height limitations are hereby established for each of the zones in question as follows:

(A. *Approach zones.* Slope one foot in height for each 34 feet in horizontal distance beginning at the end of and at the same elevation as the primary surface and extending to a point 10,000 feet beyond the end of the primary surface.

(B. *Conical zone.* Slopes one foot in height for each 20 feet in horizontal distance beginning at the periphery of the horizontal zone and at 150 feet above the airport elevation and extending to a height of 350 feet above the airport elevation, or to a height of 1,634.10 feet above mean sea level.

(C. *Horizontal zone.* Established at 150 feet above the airport elevation, or at a height of 1,434.10 feet above mean sea level.

(D. *Transitional zones.* Slope one foot in height for each seven feet in horizontal distance beginning at the sides of and at the same elevations as the primary surface and the approach surfaces.

(E. *Excepted height limitation.* Nothing contained in the Burnet Municipal Airport Hazard Zoning Regulations shall be construed as prohibiting the growth, construction, or maintenance of any structure or tree to a height of up to 35 feet above the natural surface of the land at its location.

https://library.municode.com/tx/burnet/codes/code_of_ordinances?nodeId=COOR_CH18AV

KSA

DES: ED
DR: ED
CH: CM
APP: CM

ISSUE RECORD

NO.	BY	DATE	REVISION

BURNET MUNICIPAL AIRPORT
BURNET, TEXAS

AIRPORT LAYOUT PLAN

AIRPORT LAND USE DRAWING

AIP GRANT NO. 3-48-0215-xx-2019
KSA JOB NO. BUR.005
DATE: October 6, 2023

13
SHEET NO.

\\ksa.net\gateway\Projects\BUR005\008 CAD\02 ALP\30 Sheets\BUR005-C-ALP-ALUD.dwg : AIRPORT LAND USE DRAWING

AIRPORT PROPERTY - DATA TABLE

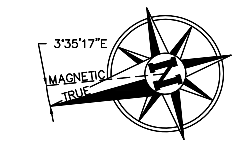
PARCEL	GRANTOR	INTEREST	ACREAGE	DATE ACQUIRED	DOCUMENT NUMBER
1	SUE LEE MAGILL	COND	79.31	12/10/1959	VOL 124/PAGE 111
2	SUE LEE MAGILL	RESERVED	0.006	12/10/1959	VOL 124/PAGE 111
3	RHODA CLINTON, RAMSEY CLINTON, EMMY CLINTON	FEE	20.794	7/29/1982	VOL 300/PAGE 184
4	RHODA CLINTON, RAMSEY CLINTON, EMMY CLINTON	FEE	0.672	7/29/1982	VOL 300/PAGE 184
5	RHODA CLINTON, RAMSEY CLINTON, EMMY CLINTON	FEE	5.006	7/29/1982	VOL 300/PAGE 184
6	RHODA CLINTON, RAMSEY CLINTON, EMMY CLINTON	FEE	2.924	7/29/1982	VOL 300/PAGE 184
7	RHODA CLINTON, RAMSEY CLINTON, EMMY CLINTON	FEE	0.889	7/29/1982	VOL 300/PAGE 184
8	RHODA CLINTON, RAMSEY CLINTON, EMMY CLINTON	FEE	1.6390	7/29/1982	VOL 300/PAGE 180
9	MARK E FOX, BILLY JOE FOX, VELMA SMITH	FEE	19.956	12/22/1982	VOL 304/PAGE 994
10	SAN LUIS CO. INC. HUMBERTO V. REYES	FEE	18.094	6/16/1983	VOL 311/PAGE 88
11	STEPHEN O. HAWKINS AND M.L. SCHENIN	FEE	5.371	9/17/1985	VOL 458/PAGE 841
12	STEPHEN O. HAWKINS AND M.L. SCHENIN	FEE	2.73	9/17/1985	VOL 458/PAGE 841
13	MARY STARR NIENDORFF	FEE	3.203	5/22/1991	VOL 502/PAGE 46
14	CITY OF BURNET	FEE	0.603	12/1/1991	VOL 514/PAGE 588
15	STATE OF TEXAS (PRISON SITE)	FEE	2.259	9/24/2009	VOL 608/PAGE 19
16	DAN EDWARD McBRIDE, ET UX	FEE	3.702	4/20/2010	-
17	BURGET, TED	FEE	0.872	9/12/2012	201207433

AIRPORT PROPERTY - DATA TABLE

PARCEL	GRANTOR	INTEREST	ACREAGE	DATE ACQUIRED	DOCUMENT NUMBER
18	SONDRA L. MOBLEY	FEE	0.1222	9/17/2012	201309215
19	JAMES B. WHITE AND VIRGINIA R. WHTE	FEE	0.2304	9/24/2012	201207668
20	TRUSTEES OF THE BURNET UNITED PENTECOSTAL CHURCH	FEE	0.0871	11/9/2012	201209286
21	CWSKY INTEREST, LLC	FEE	0.0825	2/13/2013	201301444
22	STIEHLING INVESTIMENTS, INC.	EASEMENT	1.4065	5/17/2013	201309813
23	HILL COUNTRY FELLOWSHIP CHURCH	EASEMENT	2.1393	7/9/2013	201305974
24	NVS INVESTMENT, LLC	FEE	0.0128	12/16/2013	201310379
25	NICK SUMMITT, ET UX	FEE	0.1696	12/16/2013	201310377
26	G.M.S.M., L TD	FEE	0.4664	6/20/2014	201405029
27	ADVANCED TECHNOLOGY MATERIALS, INC.	EASEMENT	5.2498	6/10/2015	201507102
28	ADVANCED TECHNOLOGY MATERIALS, INC.	FEE	2.734	6/10/2015	201507101
29	BIG LEAF LTD	FEE	61.3	5/7/2019	-
30	CWSKY INTEREST LLC	FEE	0.972	9/11/2019	-
31	STATE OF TEXAS (PRISON SITE)	LOCAL FEE PURCHASE	28.157	8/27/2021	HOUSE BILL 954 OF THE 87TH LEG REG SESSION 2021
32	G.M.S.M., L TD	PROPOSED	2.912	-	-
33	CITY OF BURNET	FEE	7.44	-	-
34	DELAWARE SPRINGS RANCH INVESTMENTS LLC	AVIGATION EASEMENT	5.3480	9/14/2021	-
35	DELAWARE SPRINGS RANCH INVESTMENTS LLC	AVIGATION EASEMENT	25.9540	9/14/2021	-
36	DELAWARE SPRINGS RANCH INVESTMENTS LLC	AVIGATION EASEMENT	11.7600	9/14/2021	-

DRAWING LEGEND

ITEM	ULTIMATE
ULTIMATE AIRPORT PROPERTY LINE	(red dashed line)
LOT LINES	(black solid line)

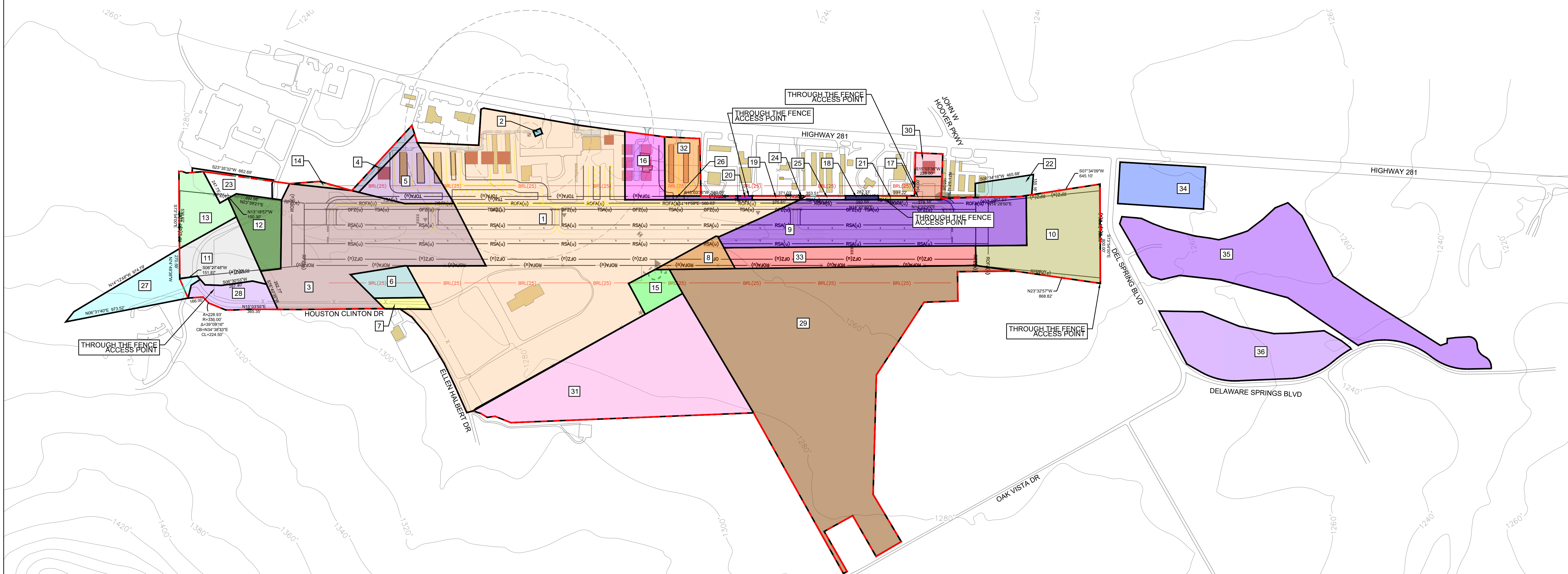


DATE: MARCH 2023
ANNUAL RATE OF CHANGE: 0°06'33"W
SOURCE: U.S. NGDC

400' 0 400' 800'
GRAPHIC SCALE IN FEET

NOTES:

1. ALL HORIZONTAL COORDINATES ARE SHOWN IN TEXAS STATE PLANE NORTH CENTRAL ZONE, US FOOT, NAD 83/2019.
2. ALL VERTICAL COORDINATES ARE SHOWN IN NAD 88.



KSA	DES: ED	ISSUE RECORD			
	DR: ED	NO.	BY	DATE	REVISION
	CH: CM				
	APP: CM				

BURNET MUNICIPAL AIRPORT
BURNET, TEXAS

AIRPORT LAYOUT PLAN

AIRPORT PROPERTY MAP

AIP GRANT NO. 3-48-0215-xx-2019 | KSA JOB NO. BUR.005 | DATE: October 6, 2023

SHEET NO. 14

Appendix A: SWOT Analysis

KSA

INTRODUCTION

A key component of the beginning of the airport master plan will be a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis. The SWOT analysis is be performed to determine the internal and external influences on the operation and management of the airport. This exercise will help determine facility requirements identify the vision for Burnet Municipal Airport in the future, forming the framework for the planning process.

The primary objective of the SWOT is to produce tangible, identifiable, focus areas for the business objectives. In this case, it applies to improving the airport's services, development areas, and key market drivers. As previously mentioned, SWOT stands for strengths, weaknesses, opportunities, and threats. In order to accurately determine how to apply factors in each category, we must first understand each factor.

Internal Factors: These factors are the most easily understood in most SWOT analyses because they are internal to the business/entity. The airport can (even if indirectly) control most of these factors and they are directly related to the airport. When determining initial action items related to a SWOT, these internal factors can be prioritized and easily influenced by direct airport action. For example, if an airport has identified that airport staffing levels is a weakness, then they may be able to directly change the factor by adding staff.

- **Strengths**: These are the characteristics of the airport that give it an advantage over others or are perceived by customers as a positive asset. We must first understand what gives the airport an advantage.

- **Weaknesses**: Similar to strengths, these are the characteristics that may be limiting the success of the airport. These may be perceived as negative aspects or areas of needed improvement compared to others. These may be one of the most important aspects of creating a successful SWOT analysis and are usually the basis for improvement moving forward.

External Factors: It is important to note that these external factors present the environment for which the airport is operating within. Therefore, many of these factors can't be directly changed by the airport but influence how the objectives of the airport may be impacted.

- **Opportunities**: After clearly identifying what the airport's strengths and weaknesses are, the sponsor must identify opportunities that can help grow the success of the airport. These factors serve as a catalyst to improve upon the airport and help realize future goals.

- **Threats**: The last element in the analysis is the potential pitfalls or competitive disadvantages that may arise in the implementation of previously identified opportunities. This will ensure a reality-based business approach for achieving the goals set forth in the analysis.

Identifying SWOT factors is extremely important and can be applied to airports just as with any other business enterprise. In fact, most municipally owned and operated airports greatly benefit if the management and governance of the airport is influenced by business approaches such as a SWOT analysis. Often, new revenue streams, market opportunities, and partnership are realized by results of a SWOT. When combined with an airport planning exercise, the results of a SWOT can expedite the implementation of the plan.

EFFECTIVE SWOT ANALYSIS

There is no right or wrong way to conduct a SWOT analysis. The goal is to be engaging, diverse, and thorough. Brainstorming issues in each key area is a positive way to get thoughts and ideas down on paper that can be put in perspective. In this exercise, participants are encouraged to come up with as many ideas as possible even though they may apply in multiple areas in the SWOT.

Once ideas are documented, a SWOT diagram can be made in various shapes and sizes to help articulate the thoughts of the exercise. This diagram is helpful in organizing thoughts and visualizing the strengths, weaknesses, opportunities, and threats. Only after quantifying these and putting them into the diagram can focus and priority be given to improvement and capitalizing on these. When adding strengths and weaknesses, one must always keep in mind that they are internal factors that are generally easy to identify. Factors can vary significantly depending on the purpose of the business venture and SWOT analysis.

THIS SECTION INTENTIONALLY LEFT BLANK

SWOT RESULTS MATRIX

Positive | *Negative*

Internal

Strengths
- Community support
- Economic impact to community
- Diversity of aircraft, operations, and services
- Good fuel prices
- Runway length
- Access from town/business center
- Surrounding land/acquisition
- Geographic location in state
- FBO presence/service
- Self-sufficient
- Approaches
- Educational tool for existing facilities
- Strong CAF/Fly-in
- Waitlist = 81
- Adjacent emergency services

Weaknesses
- Limited expansion opportunities
- Limiting weight restriction
- No food options
- Land lease contracts
- Lack of crew living quarters
- Insufficient size/location of terminal area
- Unknown FBO future
- No good observation area/access for public
- Lack of "front door"/public side
- Lack of ramp area
- Lack of access to vacant land
- 99 year lease to rodeo grounds

External

Opportunties
- Electric chargers on field
- Education for public to see airport
- Expansion of facilities (Jet Center) based on existing demand of service
- Ethanol gas/MOGAS
- Economic/population growth
- Alternative technologies (AAM) - proximity to Austin
- New terminal building/parking
- Money from BIL
- FBO in the future?

Threats
- FAA - lack of solutions, standards changing, strict
- Rising cost of operating and owning aircraft (inflation, fuel)
- Surrounding growth
- Community unity
- Funding - competition, no change over years
- Lease renewals/financial recapture rate stability
- Noise complaints
- FBO stability/lack of maintenance
- Lack of identity with growth
- Political turnover

BURNET MUNICIPAL AIRPORT – KATE CRADDOCK FIELD (BMQ)

AIRPORT LAYOUT PLAN UPDATE WITH NARRATIVE

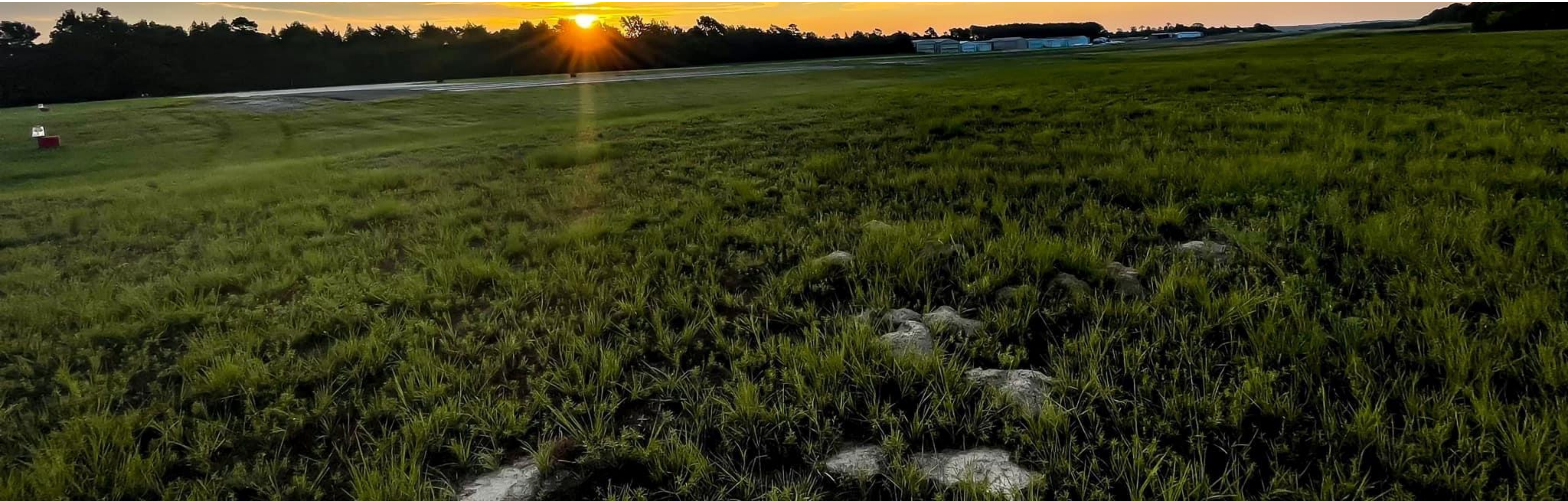
CITY COUNCIL WORKING SESSION

DECEMBER 12th, 2023

CITY OF BURNET 1883 Bluebonnet Capital of Texas Lakes • Hills • History

KSA

Purpose and Goal




FUTURE FOCUSED
Where do we go from here? How can we grow?
We need to be ready.

Why Master Plan?

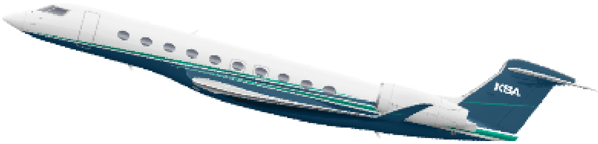
Purpose

A comprehensive study that describes the short- medium-, and long-term development plans to meet future aviation demand.

Primary Functions

- Sponsor's strategy for the development (20 year) of the airport as required by TxDOT/FAA
- Update the Airport Layout Plan to ensure project eligibility
- Effectively prepare a priority-based Capital Improvement Program

Where are we today?



01 INVENTORY
Airside/Landside Facilities
Utilities/GIS
Land Use

02 FORECAST
Operations
Market Area
Regional/National Trends

03 FACILITY REQUIREMENTS
Runway/Taxiway
Airspace/Geometrics
Apron and Hangars
Land Use Plan

04 ALTERNATIVES
Flexible Scenario Based
Options Focused on
Functional Areas

05 DEVELOPMENT
Capital Improvement Plan
Business/Economic Plan
Land Use

06 DELIVERABLES
Airport Layout Plan
Narrative
Phased Development Plan
Marketing Materials

FAA/OAC Approval required for forecast and Airport Layout Plan (ALP).

Demand provides… JUSTIFICATION
Planning provides… FEASIBILITY

PLANNING ADVISORY COMMITTEE ROLE

"Every successful airport master planning program has one element in common: an engaged client."

- Provide various perspectives and expertise
- Serve in an advisory role and provide input to the project
- Review, respond, and comment on study materials
- Make recommendations on the preferred course of action
- Should include a diverse group

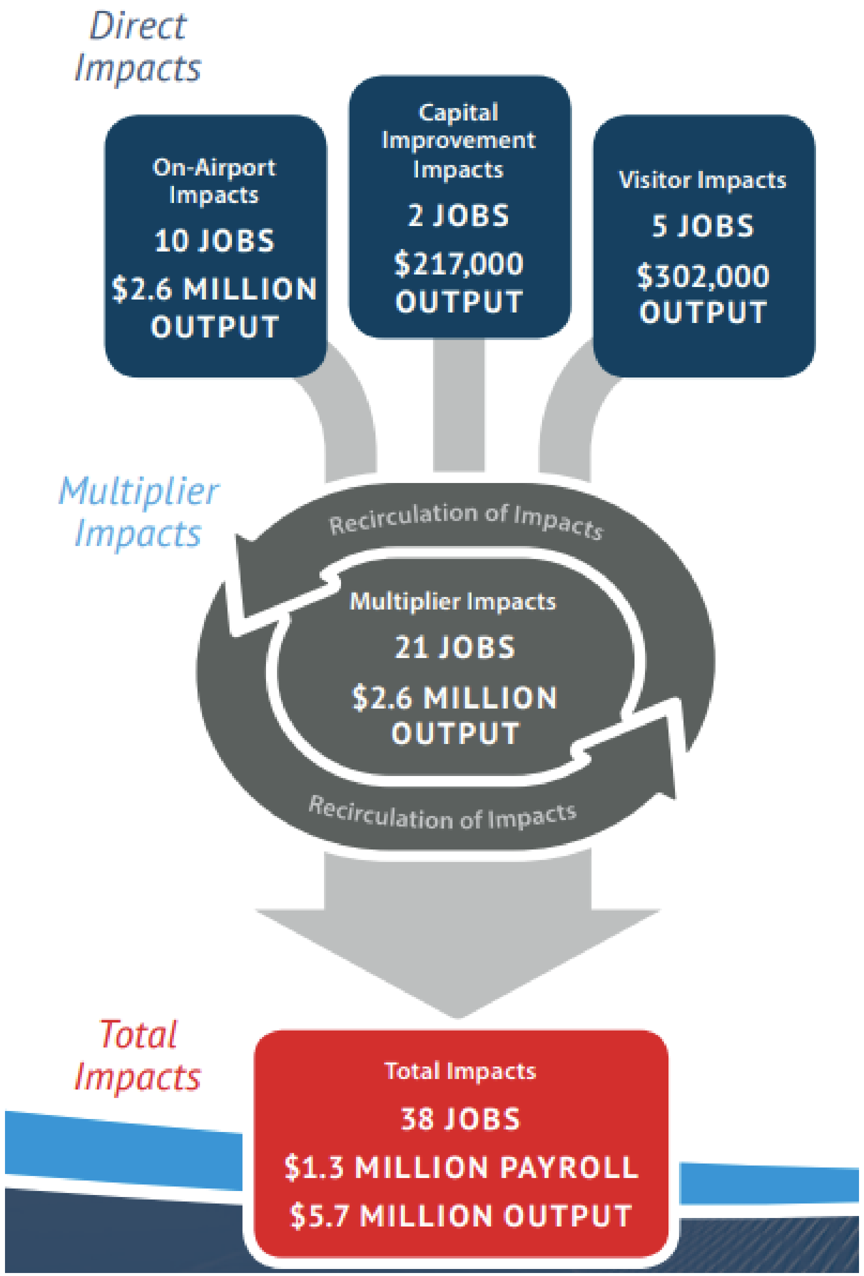
ECONOMIC IMPACT

STATE ROLE

- Business/Corporate

FEDERAL NPIAS ROLE

- Local/General Aviation



PROJECT MILESTONES

- Kick-off Meeting (SWOT, Planning Process) – April 21, 2022
- PAC #2 / Public Outreach #1 (Inventory, Forecasts, Fac. Req.) – August 17, 2022
- PAC #3 / Public Outreach #2 (Alternatives, CIP, Airport Plans) - June 8, 2023
- PAC Approval (Virtual) – November 15, 2023
- City Council (Acceptance / Approval) – December 12, 2023

FORECAST REVIEW

TABLE 2.14 – SUMMARY OF OPERATIONS BY AIRCRAFT TYPE, 2021-2041

Operations	2021	2026	2031	2036	2041
Single-Engine Piston	15,610	17,476	19,571	21,924	24,566
Multi-Engine Piston	1,115	1,132	1,135	1,120	1,084
Turbo-prop (SE)	892	1,132	1,418	1,760	2,168
Turbo-prop (ME)	1,561	1,886	2,269	2,720	2,529
Business Jet	1,338	1,509	1,985	2,240	2,890
Helicopter	892	1,006	1,135	1,280	1,806
Military	650	650	650	650	650
Other (Glider)	223	251	284	320	361
TOTAL OPERATIONS	22,300	25,145	28,364	32,006	36,126
Local Operations	16,000	17,476	19,004	20,644	22,398
Itinerant Operations	6,300	7,669	9,360	11,362	13,728
Based Aircraft					
Single-Engine Piston	42	47	51	56	62
Multi-Engine Piston	4	4	4	4	3
Single-Engine Turboprop	2	2	3	3	4
Multi-Engine Turboprop	0	0	1	1	2
Jet	2	2	3	4	4
Helicopter	1	1	1	1	2
Gliders	1	1	1	1	2
TOTAL	52	58	64	70	78

Source: KSA; totals may not equal sum of rows due to rounding

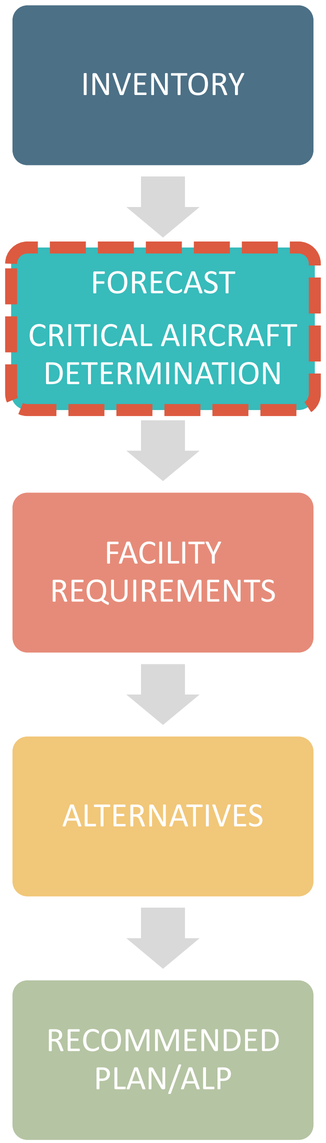
AIRCRAFT OPERATIONS SUMMARY

- Recreational activities and location
  - Lake LBJ and recreation activity / Hill Country
  - Proximity and location to AUS MSA
  - Constraint for growth at competing airports
- Change in Fleet Mix
  - Increase in turbine utilization – Jet traffic
    - C / D Aircraft – 438 operations (July 2021 – July 2022) - FAA TFMSC Data
    - C / D Aircraft – 796 operations (Jan 2020 – July 2022) - FAA TFMSC Data
- Aircraft Operations = CAGR 2.5%; increase from 21,650 to 35,400

FORCAST & ALP APPROVAL STATUS

- Forecasting Approved by TxDOT - June 1, 2023
- ALP Submitted to TxDOT for Approval - April 19, 2023
- ALP Approved by TxDOT - August 29, 2023 (Awaiting city signature)
- ALP approved by FAA OE/AAA - October 4, 2023

CRITICAL AIRCRAFT



Critical Aircraft Defined

- The most demanding aircraft type, or grouping of aircraft with similar characteristics, that make regular use of the airport.
- Regular use is 500 annual operations
  - An operation is either a takeoff or landing.
  - Excluding touch-and-go operations.
- Similar characteristics refer to the practice of grouping aircraft by comparable operational and/or physical characteristics.

CRITICAL AIRCRAFT CHARACTERISTICS

Aircraft Approach Category (AAC)	
AAC	Approach Speed
A	Less than 91 knots
B	91 knots or more but less than 121 knots
C	121 knots or more but less than 141 knots
D	141 knots or more but less than 166 knots
E	166 knots or more

Airplane Design Group (ADG)		
Group	Tail Height (ft)	Wingspan (ft)
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’

A-I

B-I

B-II

C-II

C-III

BMQ CRITICAL AIRCRAFT

EXISTING CRITICAL AIRCRAFT				
Runway	Critical Design Aircraft	RDC	ARC	TDG
1 / 19	Cessna Citation 550	B-II-5000	B-II	2A

ULTIMATE CRITICAL AIRCRAFT				
Runway	Critical Design Aircraft	RDC	ARC	TDG
1 / 19	Falcon 900	B-II-5000	B-II	2A

FACILITY REQUIREMENTS SUMMARY

- Maximize runway length in support of anticipated operational growth, driven by regional economic development
- Proper siting for weather reporting equipment (ASOS), including areas programmed for terminal parking and terminal building expansion
- Increase the capacity of fuel storage – Jet-A and MOGAS
- Landside Development
  - Increased need to facilitate small to large general aviation facilities and operators
  - New Terminal building and associated auto parking
  - Additional T-hangars and conventional hangars in support of the anticipated increase in based aircraft at the Airport
  - Additional apron area in support of the anticipated increase in based and itinerant aircraft at the Airport

ALTERNATIVES REVIEW AND RECOMMENDED CONCEPT DEVELOPMENT

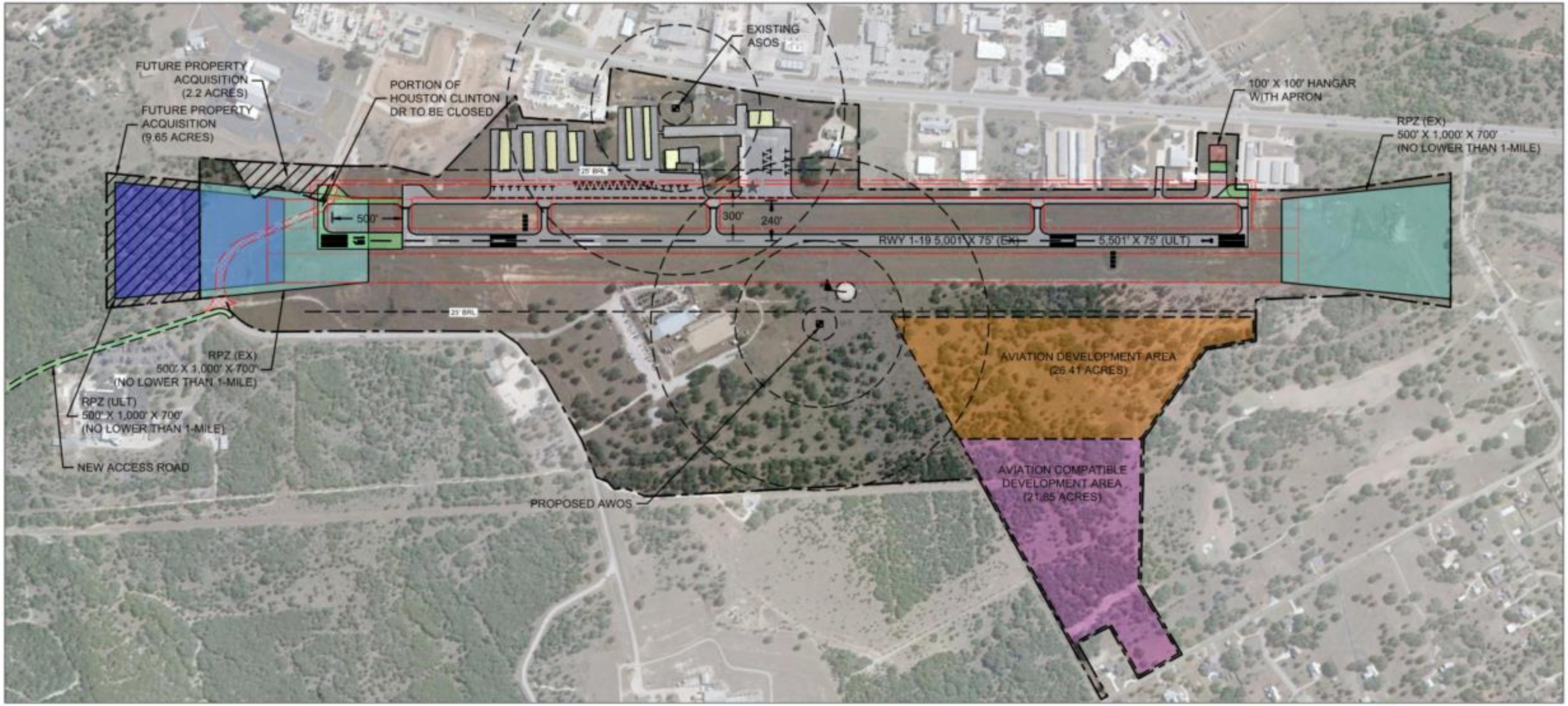
Designed for Long-Term Aviation Development

Must Meet & Adhere to FAA Design Criteria

Aligns with Facility Requirements & Based on Demand & Market Conditions

AIRSIDE ALTERNATIVE ONE

- Maintain Runway 1/19 at ARB B-II standards
- Extend Runway 500’
- Extend Parallel Taxiway
- Close Houston Clinton Dr.
- Create new entrance to hospital off Buchannan Dr



LEGEND

- AIRPORT PROPERTY
- EXISTING PAVEMENT
- EXISTING RPZ
- EXISTING BUILDINGS
- PROPOSED AIRPORT PROPERTY
- PROPOSED PAVEMENT
- PROPOSED RPZ
- PROPOSED BUILDINGS
- AVIATION DEVELOPMENT AREA
- AVIATION COMPATIBLE DEVELOPMENT AREA

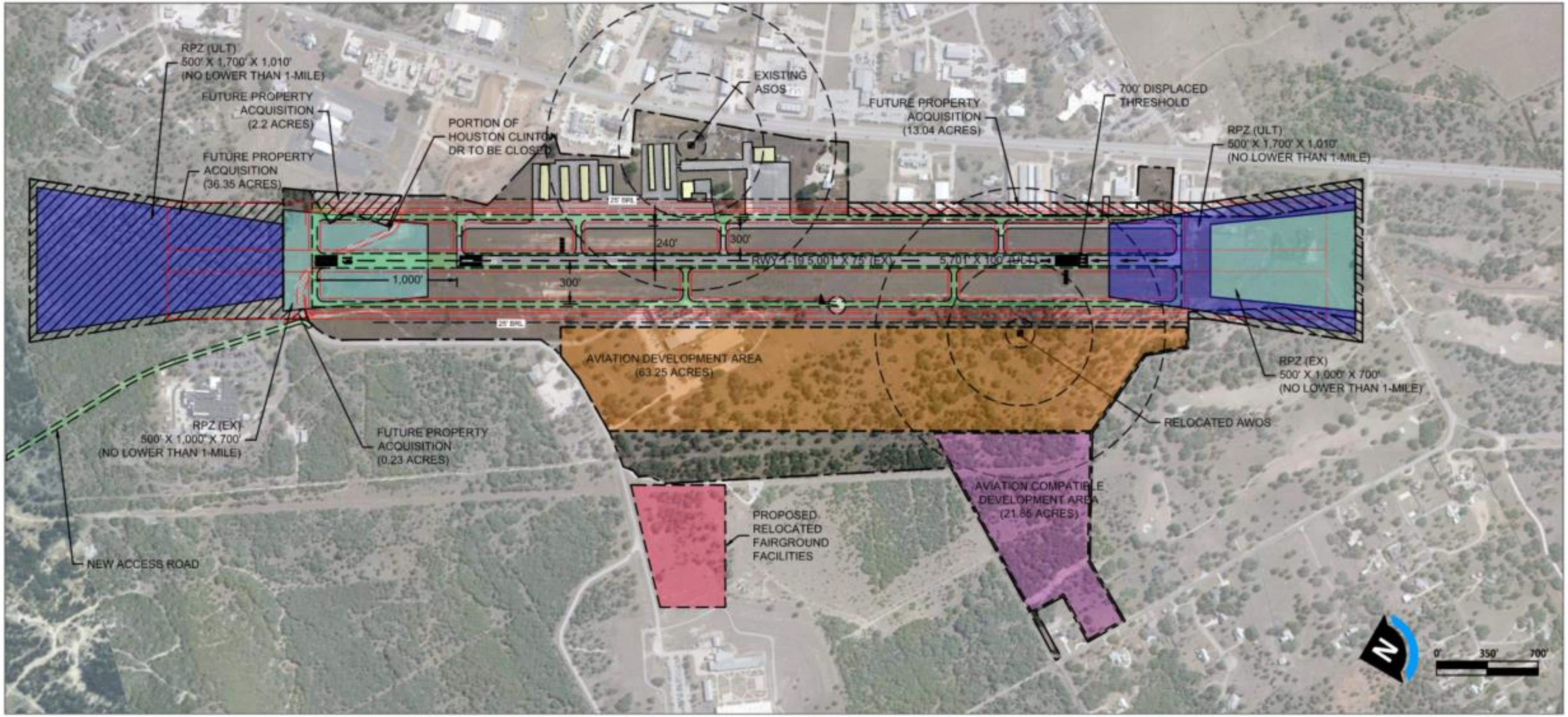
NOTES

- RETAIN RDC B-II
- EXTEND RUNWAY 500'
- EXTEND PARALLEL TAXIWAY
- CLOSE HOUSTON CLINTON DR
- CREATE NEW ENTRANCE TO HOSPITAL OFF BUCHANAN DR

EXHIBIT 4.1 - AIRSIDE ALTERNATIVE ONE

AIRSIDE ALTERNATIVE TWO

- Apply C/D RDC Standards
- Displace Threshold and Implement declared distances
- RPZ dimensions = 500’ x 1,700’ x 1,010’
- Taxiway Separation = 300’
- Runway Safety Area = 500’ Wide, 1,000’ beyond runway end



LEGEND

- AIRPORT PROPERTY
- EXISTING PAVEMENT
- EXISTING RPZ
- EXISTING BUILDINGS
- PROPOSED AIRPORT PROPERTY
- PROPOSED PAVEMENT
- PROPOSED RPZ
- PROPOSED BUILDINGS
- AVIATION DEVELOPMENT AREA
- AVIATION COMPATIBLE DEVELOPMENT AREA
- PROPOSED RELOCATED FAIRGROUND FACILITIES

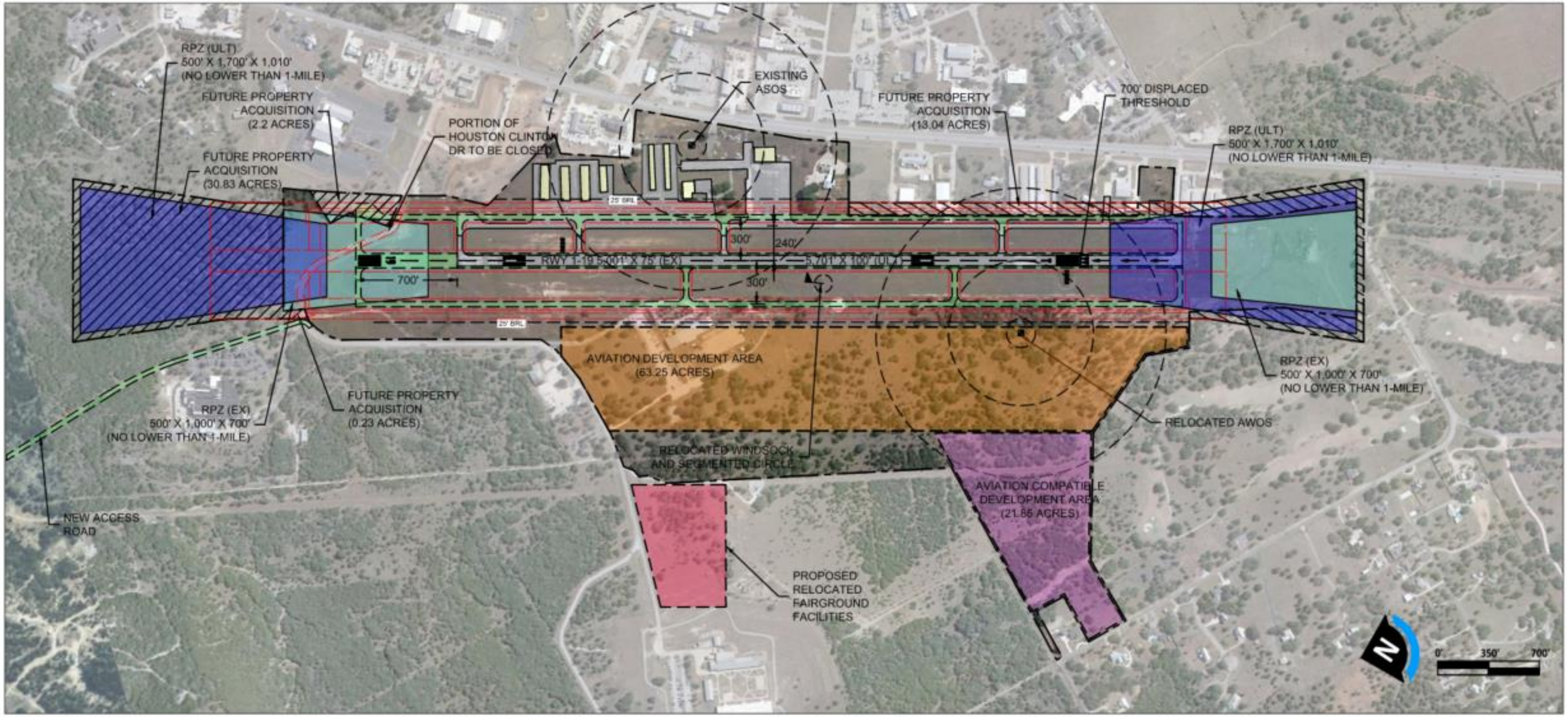
NOTES

- APPLY C/D RDC STANDARDS
- 12-MONTH OPERATIONS RDC C/D = 438
- JAN 2020 - JULY 2022 OPERATION - RDC C/D = 796
- RDC C/D R/W-T/W SEPARATION = 300'
- RDC C/D R/W WIDTH = 100'
- DISPLACE THRESHOLD AND IMPLEMENT DECLARED DISTANCES
- RDC C/D - DESIGN STANDARDS
  RSA WIDTH = 500'
  ROFA WIDTH = 800'
  RSA/ROFA LENGTH = 1,000'
- RPZ = 500' X 1,700' X 1,010'

EXHIBIT 4.2 - AIRSIDE ALTERNATIVE TWO

AIRSIDE ALTERNATIVE THREE

- Apply C/D RDC Standards, extend runway 700’
- Displace Threshold and Implement declared distances
- RPZ dimensions = 500’ x 1,700’ x 1,010’
- Taxiway Separation = 300’
- Runway Safety Area = 500’ Wide, 1,000’ beyond runway end



LEGEND

- AIRPORT PROPERTY
- EXISTING PAVEMENT
- EXISTING RPZ
- EXISTING BUILDINGS
- PROPOSED AIRPORT PROPERTY
- PROPOSED PAVEMENT
- PROPOSED RPZ
- PROPOSED BUILDINGS
- AVIATION DEVELOPMENT AREA
- AVIATION COMPATIBLE DEVELOPMENT AREA

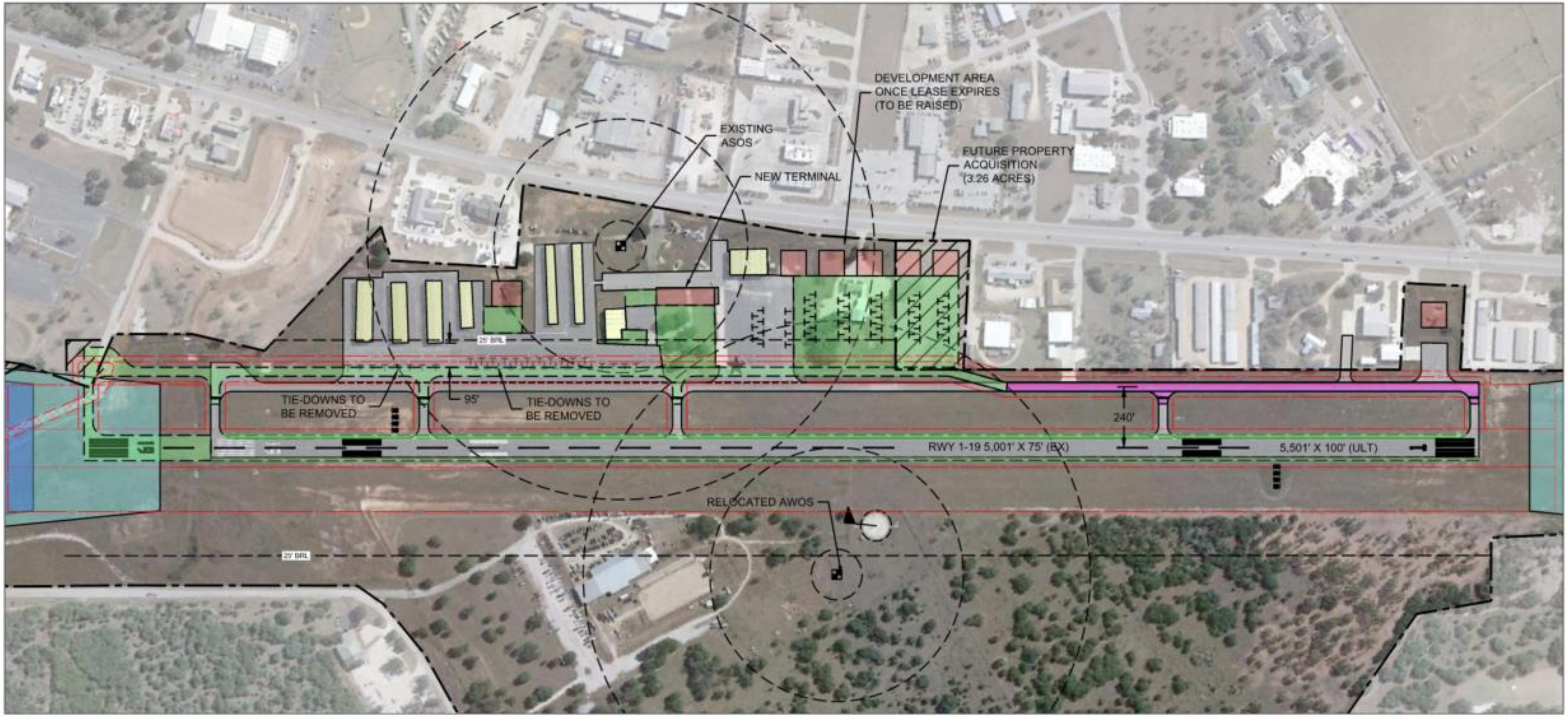
NOTES

- APPLY C/D RDC STANDARDS
- 12-MONTH OPERATIONS RDC C/D = 438
- JAN 2020 - JULY 2022 OPERATION - RDC C/D = 796
- RDC C/D R/W-T/W SEPARATION = 300'
- RDC C/D R/W WIDTH = 100'
- DISPLACE THRESHOLD AND IMPLEMENT DECLARED DISTANCES
- RDC C/D - DESIGN STANDARDS
  - RSA WIDTH = 500'
  - ROFA WIDTH = 800'
  - RSA/ROFA LENGTH = 1,000'
- RPZ = 500' X 1,700' X 1,010'

EXHIBIT 4.3 - AIRSIDE ALTERNATIVE THREE

LANDSIDE ALTERNATIVEs

- Promotes Hangar development, and additional apron space
- Analyzes locations to relocate AWOS (weather reporting) sensors
- Tree removal in safety areas
- Analyze land use on east side
- Analyze use of modification of standards for taxiway separation



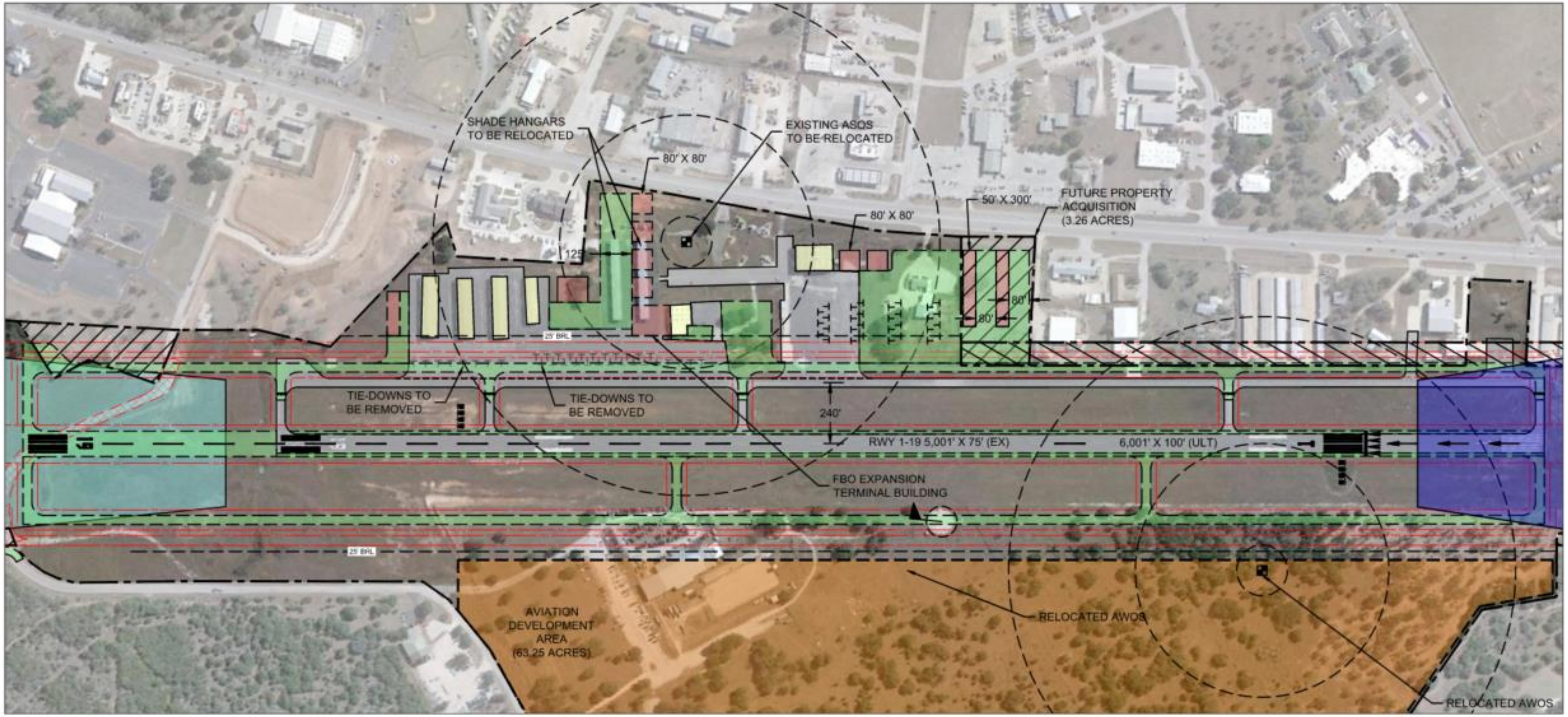
LEGEND

AIRPORT PROPERTY
EXISTING PAVEMENT
EXISTING RPZ
EXISTING BUILDINGS
PROPOSED AIRPORT PROPERTY
PROPOSED PAVEMENT
PROPOSED RPZ
PROPOSED BUILDINGS
PROPOSED MODIFICATION OF STANDARD

N

0' 200' 400'

EXHIBIT 4.4 - LANDSIDE ALTERNATIVE ONE



LEGEND

- AIRPORT PROPERTY
- EXISTING PAVEMENT
- EXISTING RPZ
- EXISTING BUILDINGS
- PROPOSED AIRPORT PROPERTY
- PROPOSED PAVEMENT
- PROPOSED RPZ
- PROPOSED BUILDINGS
- AVIATION DEVELOPMENT AREA

EXHIBIT 4.5 - LANDSIDE ALTERNATIVE TWO

RECOMMENDED PLAN

- PAC Feedback; Sets Framework for Future Airport Improvements
- Maintain & Rehab Runway 1/19 at ARB B-II standards
- Maintain & Rehab Parallel Taxiway & Connectors & Apron
- General Aviation Hangar Development
- Acquire Property for Runway 19 RPZ (2.2 acres)
- Relocate ASOS to West Side of Airfield

Recommended Plan - Airside

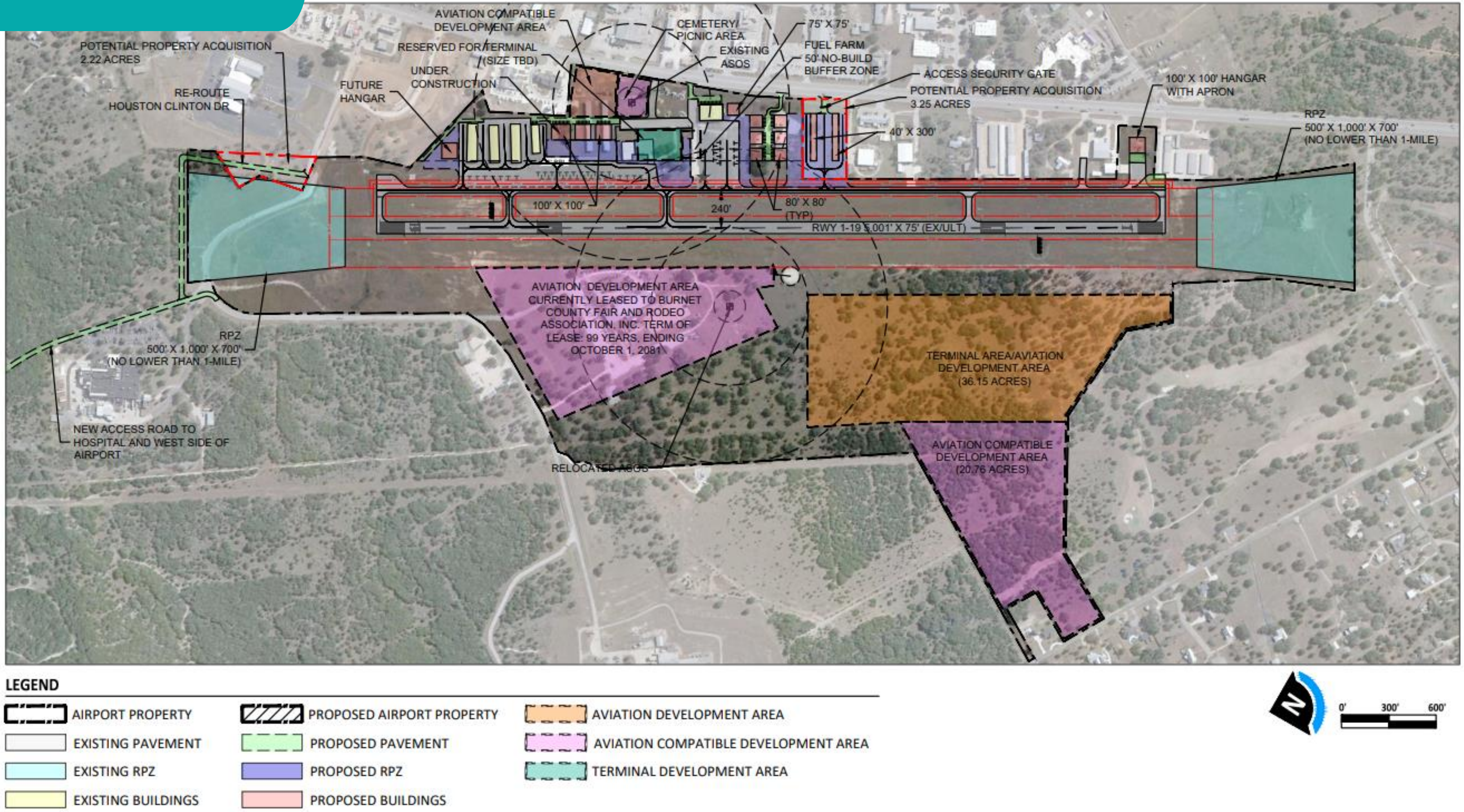


EXHIBIT 4.7 - RECOMMENDED DEVELOPMENT PLAN - AIRSIDE

Recommended Plan - Landside

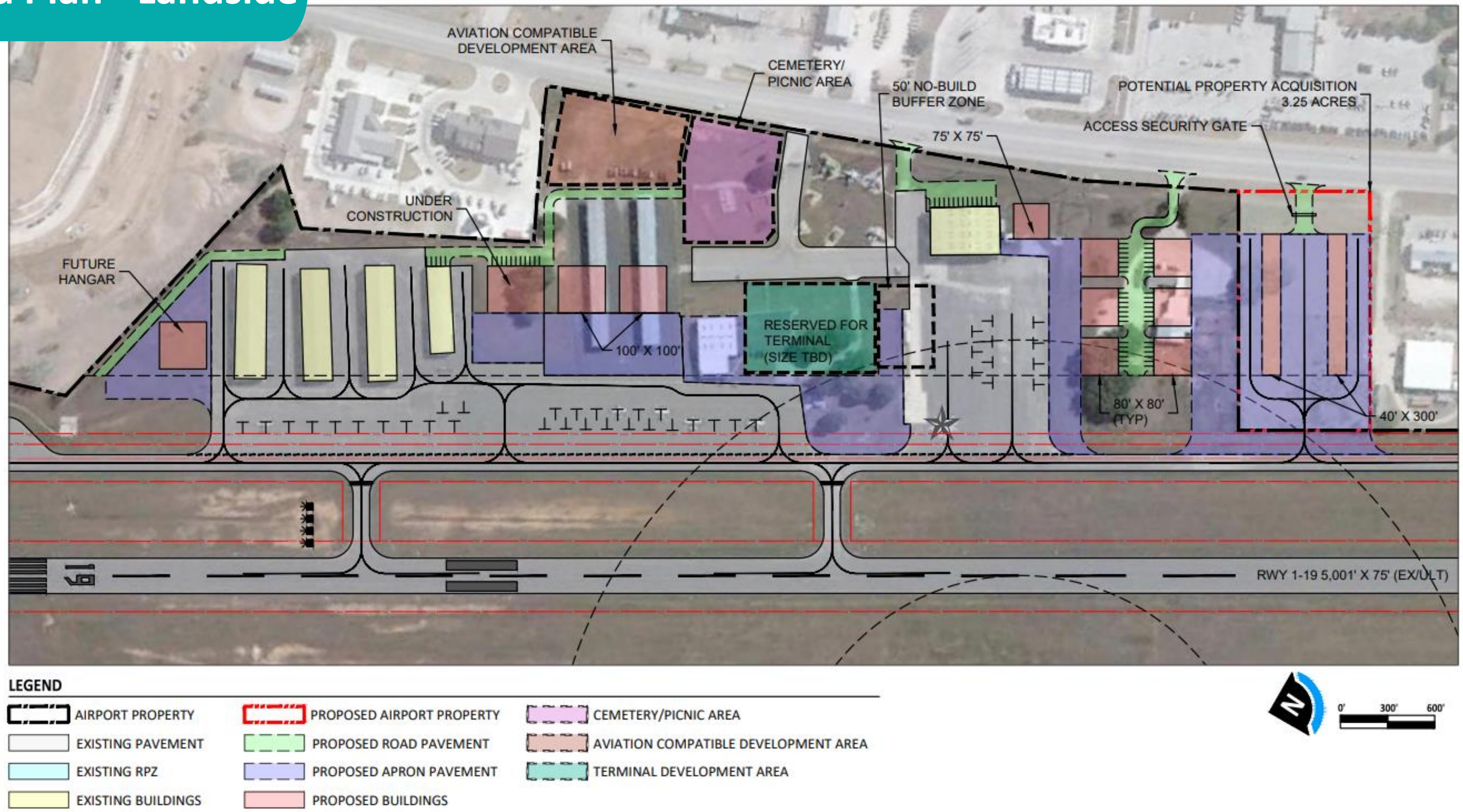


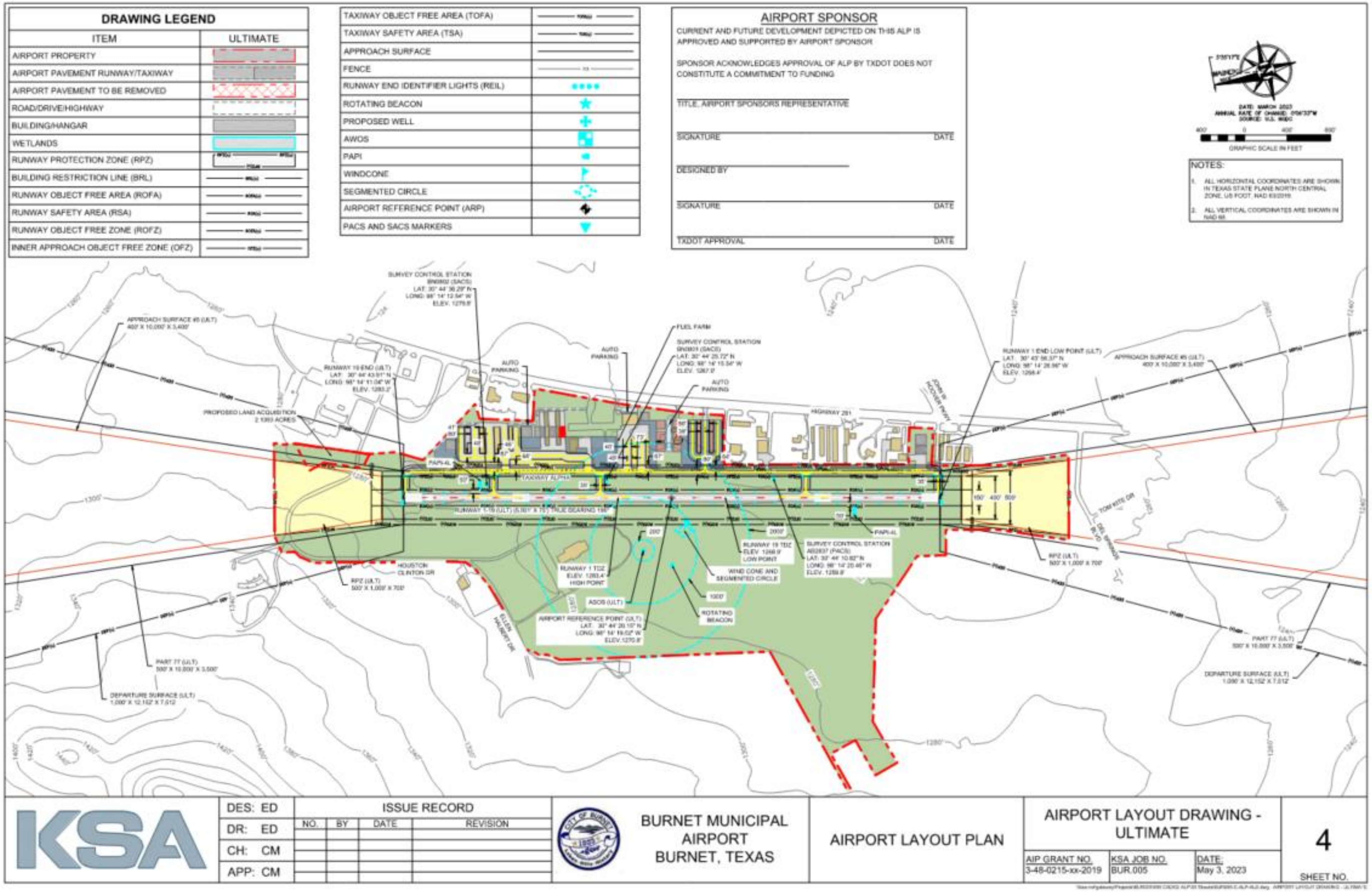
EXHIBIT 4.8 - RECOMMENDED DEVELOPMENT PLAN - LANDSIDE

Estimated Development Costs

	Project Description	Total	Federal / State Share	Local / Private Share
1	Relocate ASOS to west side of airfield and upgrade to AWOS	$250,000	$200,000	$25,000
2	Acquire property for Runway 19 RPZ and Houston Clinton Road (2.2 acres)	$125,000	$112,500	$12,500
3	Rehabilitate Runway 01-19 (5,001' x 75')	$490,000	$441,000	$49,000
4	Rehabilitate north terminal aircraft parking apron (20,000 sq. yds)	$216,000	$194,400	$21,600
5	Rehabilitate parallel taxiway (5,001 x 35') and connectors 5@ (200'x 35') approximately 25,000 sq. yds	$270,000	$243,000	$27,000
6	Rehabilitate CAF public apron area (15,000)	$162,000	$145,800	$16,200
7	Rehabilitate hangar access taxilanes (25,000 sq. yds)	$270,000	$243,000	$27,000
	Short-term Subtotal	$1,783,000	$1,579,700	$178,300
8	Construct 2 new T-hangars (300' x 40')	$3,300,000	$0	$3,300,000
9	Demo Sun Hangars	$90,000	$0	$90,000
10	Install fencing (500 LF) and security gate	$47,000	$42,300	$4,700
11	Construct 2 Conventional hangars with auto parking	$3,170,000	$0	$3,170,000
12	Construct conventional hangar apron (6,000 sq yds)	$1,134,000	$0	$1,134,000
13	Conduct Environmental Assessment for property acquisition and Clinton Houston Road Relocation	$200,000	$180,000	$20,000
14	Construct relocated Houston Clinton Road	$1,430,000	$1,287,000	$143,000
	Long-term Subtotal	9,371,000	$1,509,300	7,861,700
	TOTALS	$11,154,000	$3,089,000	$8,040,000

Source: KSA

Airport Layout Drawing



NEXT STEPS

Accept and Approve Airport Layout Plan w/Narrative Study

City Council Approval / Acceptance

City Sign ALP set for submission to TxDOT

KSA

Contact Information:

Chris Munroe, C.M.
Senior Aviation Planner
cmunroe@ksaeng.com
972.542.2995

Logan Hutto, C.M.
Aviation Planner
lhutto@ksaeng.com
972.542.2995

WE BUILD PEOPLE WHO BUILD THE FUTURE.