

CHAPTER 4: FACILITY REQUIREMENTS

Introduction

This chapter evaluates the existing facilities at Dallas Executive Airport (RBD or Airport) and identifies improvements, referred to as “facility requirements,” needed to effectively meet the forecasted demand described in the *Forecast of Aviation Activity Chapter (Chapter 3)*. The identified facility requirements are used to inform the alternatives development and analysis process discussed in Chapter 5.

Facility requirements are sometimes established based on Planning Activity Levels (PAL) that correlate to the forecast intervals defined in Chapter 3. The relationship between the identified forecast intervals and PALs are shown below:

- PAL 1 – Forecast Year 2025
- PAL 2 – Forecast Year 2030
- PAL 3 – Forecast Year 2035
- PAL 4 – Forecast Year 2040
- PAL 5 – Forecast Year 2045

The facility requirements described in this chapter should only be enacted based on demonstrated demand as seen in the airport’s current activity levels and approved FAA forecast projections. Consequently, the realization of the activity levels associated with the PALs described above should be used to guide the implementation of future development projects at RBD. The passage of time should not be used to guide the implementation of future improvement projects at RBD unless the implementation of the improvement is directly related to the infrastructure element’s useful life.

For the facility requirements analysis, an airport’s infrastructure is divided into airside and terminal/landside categories. The airside facilities include but are not limited to runways, taxiways, protected surfaces, airspace, navigational aids (NAVAIDs), Advanced Air Mobility (AAM) infrastructure, and airfield markings, signage, and lighting. The terminal/landside facilities include but are not limited to hangars, aprons, terminal buildings, fixed base operator (FBO) facilities, fuel storage and delivery, vehicular parking, and airport access roads.

Airside Facility Requirements

This section provides an overview of the facility requirements established to inform the short (0-5 years), mid (6-10 years), and long-term (11+ years) development of airside facilities at RBD. Airside facility requirements are typically based on forecasted aircraft operations activity levels and the current and anticipated critical aircraft for each runway which is used to establish a runway's Runway Design Code (RDC). Based on the *Forecast of Aviation Activity Chapter*, the existing and ultimate critical aircraft for each runway at RBD is shown in **Table 4-1**.

Table 4-1 - Runway Critical Aircraft

RDC Variables	Runway 13-31		Runway 17-35	
	Existing	Ultimate	Existing	Ultimate
Aircraft Approach Category (AAC)	C	C	B	B
Airplane Design Group (ADG)	II	III	II	II
Approach Visibility Minimums	4,000 ft.	4,000 ft.	5,000 ft.	5,000 ft.
Critical Aircraft/RDC	C-II-4000	C-III-4000	B-II-5000	B-II-5000

Source: Garver Forecast Analysis, 2025

As shown in the table, the ultimate critical aircraft for Runway 13-31 is anticipated to shift into from Airplane Design Group (ADG) II to ADG III during the forecast period (20 years). No change is anticipated to the critical aircraft for Runway 17-35.

As discussed in the *Forecast of Aviation Activity Chapter*, a baseline and high-growth scenario were created for the aircraft operations forecast at RBD to better evaluate the impact of potential changes in aircraft operations levels during the 20-year forecast period. The forecast years and corresponding PAL, baseline scenario, and high-growth scenario are shown in **Table 4-2**.

Table 4-2- Forecast Summaries - Operations

PAL - Year	Baseline Aircraft Operations Forecast	High Growth Aircraft Operations Forecast
PAL 1 – 2025	91,556	89,432
PAL 2 – 2030	97,965	100,548
PAL 3 – 2035	104,298	114,194
PAL 4 – 2040	111,237	131,347
PAL 5 – 2045	118,841	152,088

Source: Garver Forecast Analysis, 2025

Runway Facility Requirements

The primary runway at RBD is Runway 13-31 which is 7,136 feet long and 100 feet wide and is served by RNAV/GPS approaches to both runway ends and an ILS approach to Runway 31. The secondary runway at RBD is Runway 17-35 which is 3,800 feet long and 150 feet wide and is served by RNAV/GPS approaches to each runway end.

Runway Length

FAA AC 150/5325-4B, *Runway Length Requirements for Airport Design*, provides guidance in determining the recommended length for a runway. The process for determining a runway's recommended length includes the evaluation of the performance characteristics of various groups and specific models of aircraft expected to use the runway, the common mission requirements of aircraft using the runway (e.g., payload, distance flown, etc.), and airport attributes that impact aircraft performance (e.g., weather, elevation, runway grade, etc.).

For the RBD runway length evaluation, a generalized runway length analysis was conducted using the process set forth in Chapters 2 and 3 of AC 150/5325-4B. For this analysis, site specific considerations related to RBD were considered including airport field elevation, average high temperature, weather conditions, and aircraft stage length (e.g., non-stop flight distance). As temperatures, density altitude, weather, and aircraft stage length change, the runway length requirements change accordingly. Consequently, if a runway is designed to accommodate 75% of the fleet at 60% useful load, this does not prevent larger aircraft at certain times and during specific conditions from utilizing the runway. However, the amount of time such operations can safely occur is limited.

Runway length calculations were based on an airport elevation of 660.5 feet above Mean Sea Level (MSL), a mean maximum daily temperature of 94.6 °F, and a maximum difference in runway end elevation of 6.5 feet for Runway 13-31 and 8.6 feet for Runway 17-35.

Table 4-3 summarizes the runway length requirements established for Runway 13-31 based on the nomographs contained in AC 150/5325-4B.

Table 4-4 summarizes the runway length requirements established for Runway 17-35 based on the nomographs contained in AC 150/5325-4B.

In addition to this analysis, historical flight data for RBD was reviewed to aid in analyzing the sufficiency of the existing length of each runway. Based on historical flight data from 2025, RBD had departures to San Jose Mineta International Airport (SJC) which is 1,259

nautical miles (NM) from RBD in July 2025 and King County International Airport/Boeing Field (BFI) which is 1,457 NM from RBD in November 2025. The completion of these flights indicates that the existing length of Runway 13-31 is sufficient to serve the needs of most domestic aircraft operations.

Table 4-3 – RBD Runway Length Requirements for Runway 13-31

Aircraft Category	Runway Designation	Current Runway Length (ft.)	Runway Length Requirement (ft.)	Deficiency/ Surplus
Small Aircraft: 12,500 pounds or less:				
95% GA Fleet	13-31	7,136	3,500	3,636
100% GA Fleet	13-31	7,136	4,000	3,136
100% GA Fleet with 10 or more passenger seats	13-31	7,136	4,450	2,686
Large Aircraft between 12,500 and 60,000 pounds:				
75% of fleet at 60% useful load	13-31	7,136	5,500	1,636
75% of fleet at 90% useful load	13-31	7,136	7,315	-179
100% of fleet at 60% useful load	13-31	7,136	5,965	1,171
100% of fleet at 90% useful load	13-31	7,136	9,465	-2,329

Source: Garver, 2026; AC 150/5325-4B, *Runway Length Requirements for Airport Design*, Figures 2-1, 2-2, 3-1, and 3-2

Note: Red text indicates a deficiency, and green text indicates a surplus. Analysis reflects generalized length requirements only. Actual lengths should be calculated based on a specific aircraft's operational nomographs. Useful load refers to all usable fuel, passengers, and cargo.

Table 4-4 – RBD Runway Length Requirements for Runway 17-35

Aircraft Category	Runway Designation	Current Runway Length (ft.)	Runway Length Requirement (ft.)	Deficiency/ Surplus
<u>Small Aircraft: 12,500 pounds or less:</u>				
95% GA Fleet	17-35	3,800	3,500	300
100% GA Fleet	17-35	3,800	4,000	-200
100% GA Fleet with 10 or more passenger seats	17-35	3,800	4,450	-650
<u>Large Aircraft between 12,500 and 60,000 pounds:</u>				
75% of fleet at 60% useful load	17-35	3,800	5,500	-1,700
75% of fleet at 90% useful load	17-35	3,800	7,336	-3,536
100% of fleet at 60% useful load	17-35	3,800	5,986	-2,186
100% of fleet at 90% useful load	17-35	3,800	9,486	-5,686

Source: Garver, 2026; AC 150/5325-4B, *Runway Length Requirements for Airport Design*, Figures 2-1, 2-2, 3-1, and 3-2

Note: Red text indicates a deficiency, and green text indicates a surplus. Analysis reflects generalized length requirements only. Actual lengths should be calculated based on a specific aircraft's operational nomographs. Useful load refers to all usable fuel, passengers, and cargo.

Feedback was also collected on the existing runway length available at RBD through interviews with various airport businesses and users as part of the inventory data collection effort. The majority of airport users/businesses identified that the length of Runway 13-31 is sufficient to meet their typical needs. However, challenges arise if Runway 13-31 is closed and only Runway 17-35 is available. Consequently, based on the results of the analysis, it is recommended to plan for the ultimate extension of Runway 17-35 by 1,000 feet to reach 4,800 feet in length. The existing length of Runway 13-31 is sufficient.

Runway Alignment

The primary runway at an airport should be aligned with the airport's prevailing winds to limit crosswind conditions for arriving and departing aircraft. FAA AC 150/5300-13B, *Airport Design*, provides guidance regarding the allowable crosswind tolerance for a runway based on the runway's critical design aircraft. In general, an airport's primary runway should meet the crosswind coverage tolerance for its critical aircraft category for at least 95% of an average year. If this requirement cannot be met, the airport may need to consider the establishment of a crosswind runway to better accommodate aircraft operations when the crosswind component of the primary runway would be exceeded.

Table 4-5 shows the critical aircraft category and the applicable crosswind tolerance at RBD in the existing and ultimate condition for each runway.

Table 4-5 – RBD Runway Crosswind Coverage

Runway	Existing/Ulimate Condition	Critical Aircraft	Crosswind Component
13-31	Existing	C-II	16 knots
	Ultimate	C-III	16 knots
17-35	Existing	B-II	13 knots
	Ultimate	B-II	13 knots

Source: RBD Forecast 2025, FAA Advisory Circular 150/5300-13B, Airport Design

Based on this information, a wind analysis was completed using historical wind data available from the ASOS system at RBD. **Table 4-6** shows the analysis.

Table 4-6 – RBD Wind Coverage Analysis

Runway	All Weather Wind Coverage %			IFR Wind Coverage %			VFR Wind Coverage %		
	10.5 Knots	13 Knots	16 Knots	10.5 Knots	13 Knots	16 Knots	10.5 Knots	13 Knots	16 Knots
17-35	96.55%	98.39%	99.58%	95.60%	97.70%	99.24%	96.72%	98.52%	99.65%
13-31	90.96%	96.23%	99.28%	93.86%	97.33%	99.32%	90.46%	96.05%	99.28%
Combined	98.68%	99.53%	99.92%	98.24%	99.27%	99.81%	98.75%	99.58%	99.93%

Source: RBD ASOS Data 2015-2024

The results of the analysis show that Runway 17-35 has better wind coverage than Runway 13-31. However, Runway 13-31 meets the 95% crosswind requirement in the 13 knot and 16 knot categories. This means that most large turboprop and jet aircraft should be able to use Runway 13-31 based on wind coverage for more than 95% of an average year. However, some single-engine piston and light twin-engine aircraft, that are within the 10.5 knot crosswind category, may not be able to use Runway 13-31 for 95% of an average year. Based on this analysis, a crosswind runway at RBD is not justified.

Table 4-7 shows an analysis of wind data at RBD by runway end. Based on the results of the analysis, Runway 17 and Runway 13 are the preferred runway ends for aircraft operations for the majority of the year.

Table 4-7 – RBD Wind Coverage Analysis by Runway End

Runway	All Weather Wind Coverage %			IFR Wind Coverage %			VFR Wind Coverage %		
	10.5 Knots	13 Knots	16 Knots	10.5 Knots	13 Knots	16 Knots	10.5 Knots	13 Knots	16 Knots
17	65.39%	66.14%	66.62%	51.98%	52.75%	53.30%	67.72%	68.47%	68.93%
35	36.63%	37.72%	38.44%	49.28%	50.62%	51.63%	34.43%	35.47%	36.14%
13	63.33%	67.02%	69.05%	57.75%	59.39%	60.26%	64.39%	68.45%	70.68%
31	33.11%	34.70%	35.73%	41.78%	43.62%	44.75%	31.51%	33.05%	34.05%

Source: RBD ASOS Data 2015-2024

Airfield Capacity

At airports with current or anticipated activity levels exceeding 100,000 aircraft operations annually, it is important to holistically analyze the capacity of the runway and taxiway system. Airfield capacity-related improvements should be planned at airports that are anticipated to reach at least 60% of their identified Annual Service Volume (ASV). Based on AC 150/5060-5, *Airport Capacity and Delay*, ASV is defined as “a reasonable estimate of an airport’s annual capacity. It accounts for differences in runway use, aircraft mix, weather conditions, etc., that would be encountered over a year’s time.”

To analyze airfield capacity at RBD, three different airfield capacity models were used:

1. AC 150/5060-5 Chapter 2 – Capacity and Delay Calculations for Long Range Planning:
This analysis method considers general runway configuration and fleet mix but excludes considerations such as taxiway exit locations and the location where runways cross which can significantly impact an airport’s ASV. In general, this model is very conservative in estimating an airport’s ASV as it typically provides an ASV calculation that is higher than other more detailed models.
2. Airport Cooperative Research Program (ACRP) Report 79 – Airfield Capacity Model:
This analysis method is an Excel spreadsheet model based on the procedures described in Chapter 3 of AC 150/5060-5 for analyzing airfield capacity and estimating an airport’s ASV. This model is more detailed and integrates considerations such as runway configuration, runway crossing point location, weather conditions, fleet mix, and the general number of taxiway exit locations. However, the specific location of taxiway exits for each runway are not integrated into the analysis as well as specific air traffic procedures in place for RBD. This model typically calculates ASVs that are lower than those calculated using the methodology described in Chapter 2 of AC 150/5060-5.
3. MITRE runwaySimulator Model: MITRE Corporation developed a simulation-based tool called runwaySimulator to aid the FAA in analyzing airfield capacity. This

simulation-based software provides capacity curves for an airfield system that integrate detailed information such as runway configuration, runway crossing point location, weather conditions, fleet mix, local air traffic procedures, and specific runway exit points. This model does not directly calculate ASV but provides a robust analysis of hourly airfield capacity.

Table 4-8 shows the results of the AC 150/5060-5 Chapter 2 and the ACRP Report 79 airfield capacity models for RBD and compares the ASV calculations to the baseline and high-growth aircraft operations forecasts.

Figure 4-1 shows the hourly capacity curves calculated for RBD using the MITRE Corporation's runwaySimulator model.

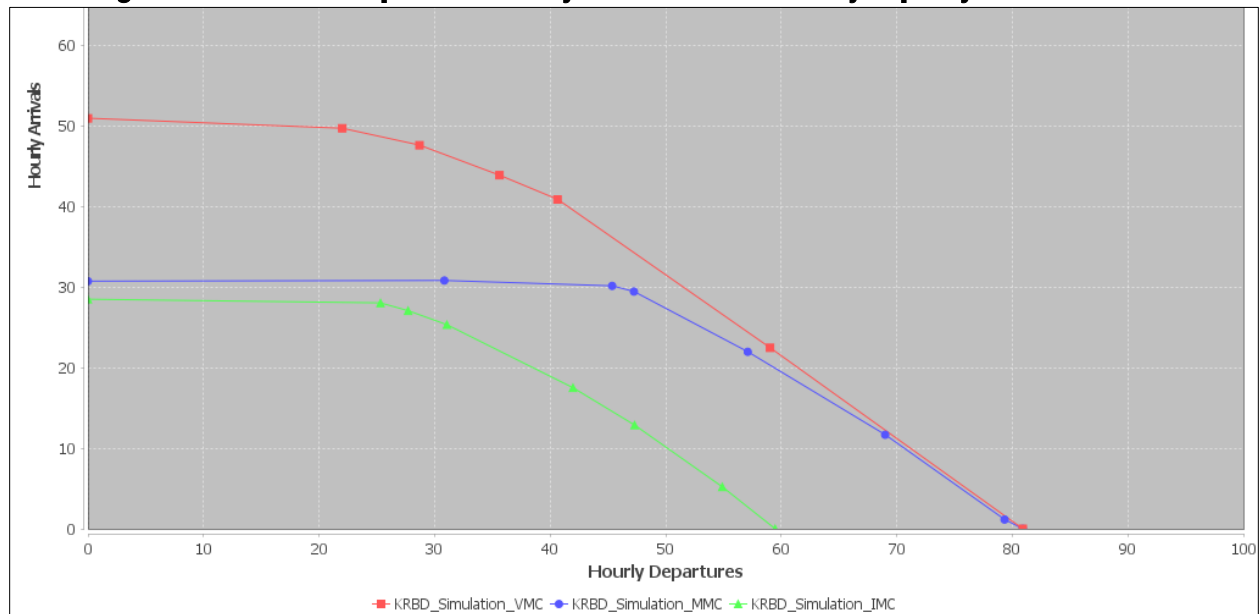
Table 4-8 – AC 150/5060-5 Chapter 2 and ACRP Report 79 Airfield Capacity Models for RBD

Planning Activity Level	Baseline Forecast Annual Operations	<u>ACRP Report 79 Capacity Methodology</u>		<u>AC 150/5060-5 Long-Range Methodology</u>	
		Calculated Annual Service Volume (ASV)	Operations % of Annual Service Volume (ASV)	Estimated Annual Service Volume (ASV)	Operations % of Annual Service Volume (ASV)
PAL 1	91,556	154,400	59.30%	230,000	39.81%
PAL 2	97,965	154,400	63.45%	230,000	42.59%
PAL 3	104,298	154,400	67.55%	230,000	45.35%
PAL 4	111,237	154,400	72.04%	230,000	48.36%
PAL 5	118,841	154,400	76.97%	230,000	51.67%
Planning Activity Level	High Growth Forecast Annual Operations	Calculated Annual Service Volume (ASV)	Operations % of Annual Service Volume (ASV)	<u>Estimated</u>	
				Annual Service Volume (ASV)	Operations % of Annual Service Volume (ASV)
PAL 1	89,432	154,400	57.92%	230,000	38.88%
PAL 2	100,548	154,400	65.12%	230,000	43.72%
PAL 3	114,194	154,400	73.96%	230,000	49.65%
PAL 4	131,347	154,400	85.07%	230,000	57.11%
PAL 5	152,088	154,400	98.50%	230,000	66.13%

Source: AC 150/5060-5 Chapter 2 and ACRP Report 79 models calculated by Garver, 2026

Note: Green cells indicate that the forecasted annual aircraft operations figure is less than 60% of the ASV. Yellow cells indicate that the forecasted annual aircraft operations figure is at least 60% but less than 80% of the ASV. Red cells indicate that the forecasted annual aircraft operations figure is 80% or more of the ASV.

Figure 4-1 – MITRE Corporation runwaySimulator Model Hourly Capacity Curves for RBD



Source: MITRE Corporation runwaySimulator modeling performed by Garver, 2026

Note: The red line shows hourly capacity during visual flight rule (VFR) conditions. The blue line shows hourly capacity during marginal visual flight rule conditions (MVFR). The green line shows hourly capacity during instrument flight rule (IFR) conditions.

Both the AC 150/5060-6 Chapter 2 model and the ACRP Report 79 model indicate that RBD could exceed 60% of the airport's ASV by the end of the forecast period. While the results of the MITRE Corporation runwaySimulator model do not calculate an ASV, the hourly capacity rates calculated indicate that RBD's actual ASV is likely between the ASVs calculated using the other two models. **Table 4-9** shows a comparison of the hourly IFR and VFR capacities calculated using each model.

Table 4-9 – Hourly Airfield Capacity Model Comparison

Hourly Rate	FAA AC 150/5060-5 Chapter 2	MITRE runwaySimulator	ACRP 79 Model
VFR Hourly Capacity	98	81	58-59
IFR Hourly Capacity	59	57	45-46

Source: Garver, 2026

Based on this analysis, it is estimated that the ASV using the MITRE runwaySimulator hourly capacity curves would be approximately 190,000 annual operations. Using this estimate, RBD would reach 60% of its ASV in PAL 5 of the baseline aircraft operations forecast scenario and 80% of its ASV in PAL 5 of the high-growth forecast scenario.

Based on this analysis, it is recommended that RBD continue to maintain Runway 17-35 as a secondary runway to support potential increases in operational activity.

Runway Strength

The published weight bearing capacity of a runway is a significant factor that dictates the ability of larger jet and turboprop aircraft to use the runway. FAA AC 150/5320-6G, *Airport Pavement Design and Evaluation*, provides guidance on the structural design of airport pavements. The FAA requires the use of the pavement design program, FAARFIELD, to determine the pavement section that should be established to support the airport's anticipated fleet mix of aircraft. The design is based on a 20-year pavement life cycle. FAARFIELD analyzes the damage to the pavement done by each aircraft operation and determines the final pavement thickness/structure based on the total cumulative damage of all aircraft.

Table 4-10 shows the existing weight bearing capacity of the runways at RBD.

Table 4-10 - Runway Weight Bearing Capacity

Weight Bearing Capacity (lbs.) by Gear Configuration	Runway 13-31	Runway 17-35
Single Wheel (SW)	40,000 lbs.	35,000 lbs.
Double Wheel (DW)	90,000 lbs.	60,000 lbs.
Double Tandem (DT)	130,000 lbs.	110,000 lbs.

Source: FAA Aeronautical Information Services Website – Obtained 11/5/2025

Table 4-11 identifies some of the larger aircraft that operated at RBD in 2025 and their maximum take-off weights (MTOW).

Based on the results of the analysis, RBD had more large jet aircraft operating at the airport in 2025 compared to 2023 and 2024. However, the weight bearing capacity for the runways is generally sufficient to meet the needs of the existing and forecasted fleet mix. Consequently, runway strengthening is not anticipated to be needed during the forecast horizon.

Magnetic Declination

As the magnetic poles of the Earth shift over time, the magnetic headings used to establish the designation of a runway can change. The existing magnetic declination for RBD is 2.53° E with an annual rate of change of 0.083° W annually according to the National Oceanic and Atmospheric Administration (NOAA) Magnetic Declination Estimated Value Calculator (calculated in February 2026).

The true bearing of Runway 13-31 is 135.1° and 315.1°. Based on the airport's existing magnetic declination and the aforementioned rate of change, it is not expected that Runway 13-31 will need to be redesignated during the planning horizon.

The true bearing of Runway 17-35 is 180.1° and 00.1°. Based on the airport's existing magnetic declination and the aforementioned rate of change, Runway 17-35 could currently be redesignated to Runway 18-36. Runway 17-35 should be redesignated to Runway 18-36 as part of an upcoming airfield project.

Table 4-11 – RBD 2025 Large Aircraft Operations

Aircraft	Gear Type	Maximum Takeoff Weight (MTOW)	Number of Operations 2025	Number of Operations 2023-2025	Percentage of Operations in 2025	Within Weight Limits for Runway 17-35	Within Weight Limits for Runway 13-31
Dassault Falcon 900	DW	49,000	184	287	64.11%	Yes	Yes
Dassault Falcon 50	DW	39,700	94	263	35.74%	Yes	Yes
Hawker 800	DW	28,000	87	339	25.66%	Yes	Yes
Bombardier Challenger 600/601/604	DW	47,600	351	819	42.86%	Yes	Yes
Cessna Citation Latitude	DW	30,800	67	192	34.90%	Yes	Yes
Cessna Citation X	DW	36,100	55	121	45.45%	Yes	Yes
Gulfstream IV	DW	73,200	22	94	23.40%	No	Yes
Gulfstream V	DW	79,600	13	29	44.83%	No	Yes
Bombardier Global 7500	DW	114,480	16	19	84.21%	No	No

Source: FAA TFMSC Data, 2023-2025

Note: Green cells indicate that a higher percentage of operations of this aircraft type occurred in 2025 compared to 2023 and 2024. Red cells indicate that a lower percentage of operations of this aircraft type occurred in 2025 compared to 2023 and 2024.

Runway Design Standards

The FAA has established detailed standards regarding runway pavements, protected surfaces, and setbacks/offsets to other facilities. These design standards are described in AC 150/5300-13B, *Airport Design*. The dimension and application of various runway design standards are typically based on the RDC for the runway.

Table 4-12 provides a summary of Runway 17-35's alignment with current B-II-5,000 design standards. **Table 4-13** provides a summary of Runway 13-31's alignment with current C-II-4,000 design standards and ultimate C-III-4,000 design standards.

Figure 4-2 depicts the Runway Safety Area (RSA), Runway Object Free Area (ROFA), and Runway Obstacle Free Zone (ROFZ) surfaces applicable to Runway 17-35. **Figure 4-3** depicts the RSA, ROFA, and ROFZ surfaces applicable to Runway 13-31.

In general, the design of an airport should conform to FAA airport design criteria without requiring a Modification to Standards (MOS). Compliance with each applicable design standard is discussed further in subsequent sections of this report.

Runway Width

FAA AC 150/5300-13B, *Airport Design*, delineates the requirements for runway width. Currently, Runway 17-35 is 150 feet wide and Runway 13-31 is 100 feet wide. The width of Runway 13-31 meets existing and ultimate design standards for a runway with an RDC of C-II-4,000 (existing) and C-III-4,000 (ultimate).

The width of Runway 17-35 exceeds the existing and ultimate design standards for a runway with an RDC of B-II-5,000. The runway is currently 150 feet wide but only 75 feet in width is needed per standard. However, based on the condition of the pavement and the cost associated with relocating the medium intensity runway edge lights (MIRLs), it is recommended that Runway 17-35 be maintained at 150 feet in width.

Table 4-12 – Runway 17-35 Design Standard Compliance

Item	<u>Existing/Ultimate Condition</u>	
	FAA Design Standard: B-II-5,000	Runway 17-35
Runway Safety Areas:		
RSA Length beyond R/W end (ft.)		
- Runway 17	300	300
- Runway 35	300	300
RSA Width (ft.)	150	150
Runway Object Free Areas:		
OFA Length beyond R/W end (ft.)		
- Runway 17	300	300
- Runway 35	300	300
OFA Width (ft.)	500	500
Runway Obstacle Free Zone:		
ROFZ Length beyond R/W end (ft.)		
- Runway 17	200	200
- Runway 35	200	200
ROFZ Width (ft.)	400	400
Runway Setbacks -Runway Centerline to:		
Parallel Taxiway Centerline (ft.)	240	300
Holdline (ft.)	200	200
Runway Width:		
Required Width (ft.)	75	150

Source: Garver, 2026; FAA Advisory Circular 150/5300-13B, *Airport Design*

Note: Red cells indicate a deficiency in design standards while green cells indicate that design standards are exceeded.

Table 4-13 – Runway 13-31 Design Standard Compliance

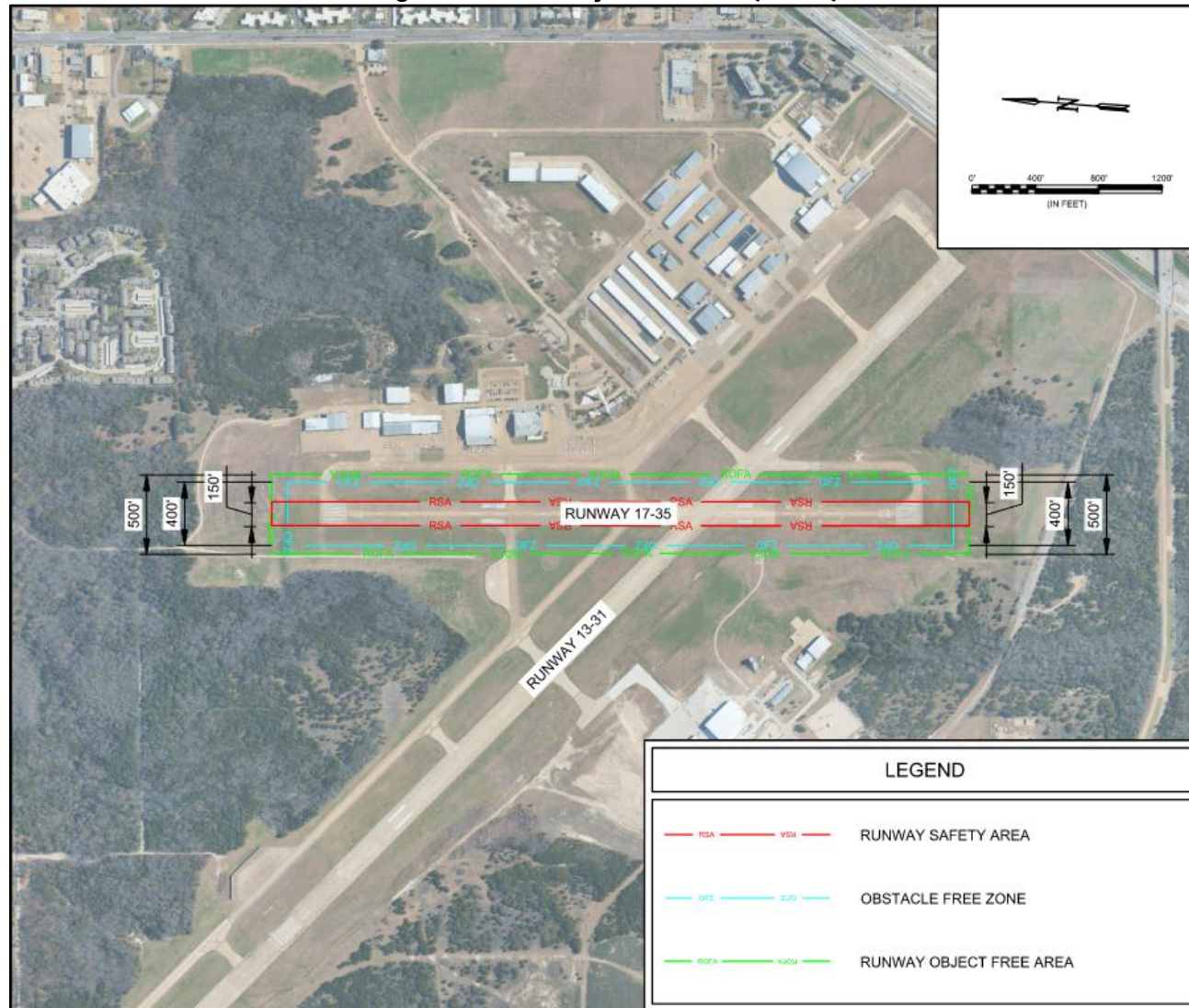
Item	<u>Existing Condition</u>		<u>Ultimate Condition</u>	
	FAA Design Standard: C-II-4,000	Runway 13-31	FAA Design Standard: C-III-4,000	Runway 13-31
Runway Safety Areas:				
RSA Length beyond R/W end (ft.)				
- Runway 13	1,000	1,000	1,000	1,000
- Runway 31	1,000	982	1,000	982
RSA Width (ft.)	500	500	500	500
Runway Object Free Areas:				
OFA Length beyond R/W end (ft.)				
- Runway 13	1,000	1,000	1,000'	1,000
- Runway 31	1,000	963	1,000'	963
OFA Width (ft.)	800	777	800'	777
Runway Obstacle Free Zone:				
ROFZ Length beyond R/W end (ft.)				
- Runway 13	200	200	200'	200'
- Runway 31	200	200	200'	200'
ROFZ Width (ft.)	400	400	400'	400'
Runway Setbacks -Runway Centerline to:				
Parallel Taxiway Centerline (ft.)	300	300	400	300
Holdline (ft.)	250	250	250	250
Runway Width:				
Required Width (ft.)	100	100	100*	100

Source: Garver, 2026; FAA Advisory Circular 150/5300-13B, *Airport Design*

Note: Red cells indicate a deficiency in design standards while green cells indicate that design standards are exceeded.

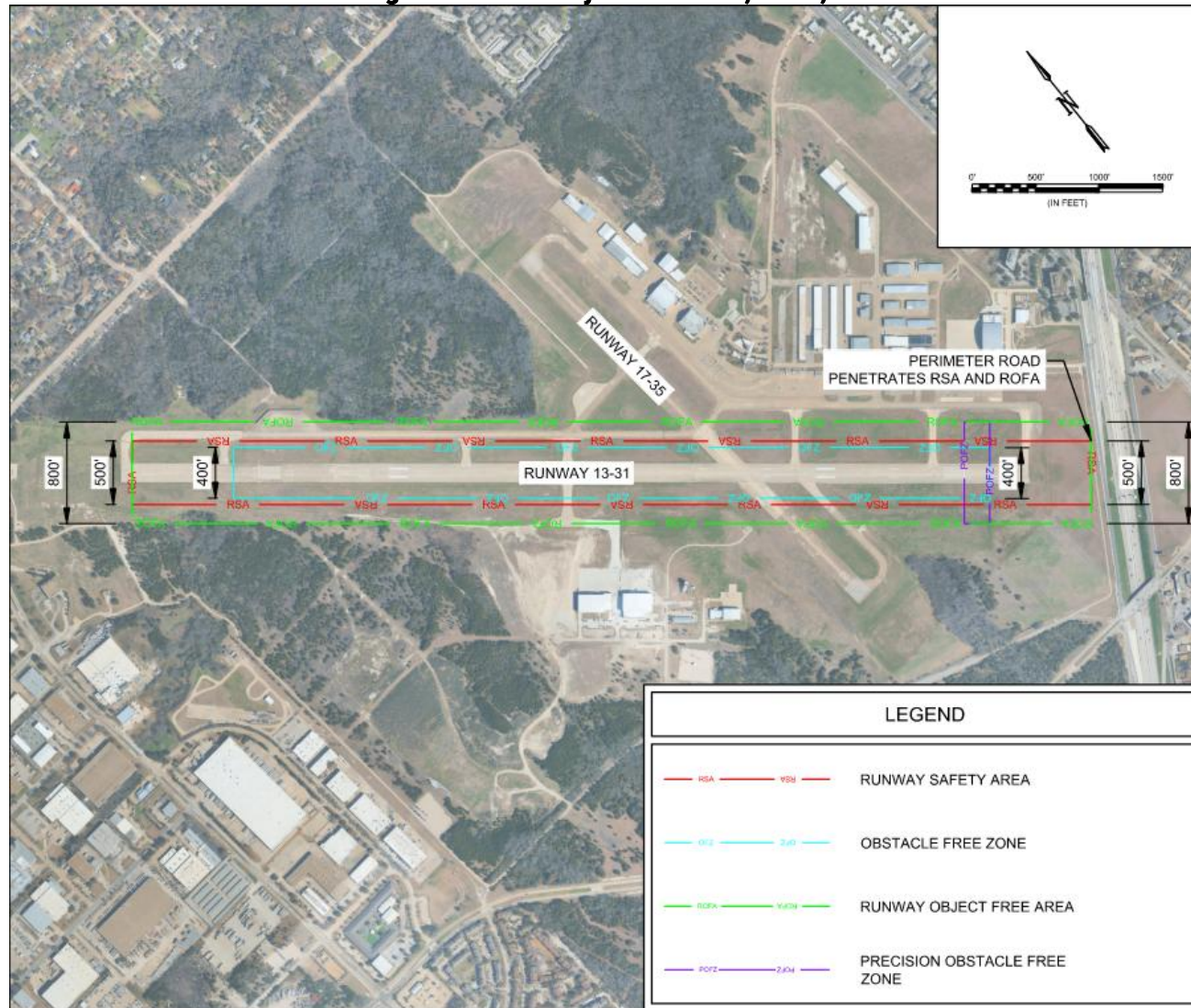
* - Standard changes to 150 feet in runway width if the critical aircraft is over 150,000 pounds certified maximum takeoff weight (MTOW). This is not anticipated for RBD.

Figure 4-2 – Runway 17-35 – RSA, ROFA, and ROFZ



Source: Garver, 2026

Figure 4-3 – Runway 13-31 – RSA, ROFA, and ROFZ



Source: Garver, 2026

Runway Safety Area

A Runway Safety Area (RSA) is a two-dimensional area surrounding and extending beyond the paved surface of the runway. The RSA is provided to reduce the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway pavement. In addition, it must be free of objects, except those required for air navigation, and be graded to transverse and longitudinal standards to prevent water accumulation. Objects located in the RSA over three (3) inches above grade must be constructed, to the extent practical, on frangible mounted structures with a frangible point no higher than three (3) inches above grade. All non-frangible items located in the RSA must have a top elevation that is between flush with the grade and a height of one (1) inch above the immediate surrounding grade. Under dry conditions, the RSA must support Aircraft Rescue and Fire Fighting (ARFF) and snow removal equipment (if applicable), along with the occasional passage of aircraft without causing damage to the aircraft. The Airport should own all the property inside the limits of the RSA.

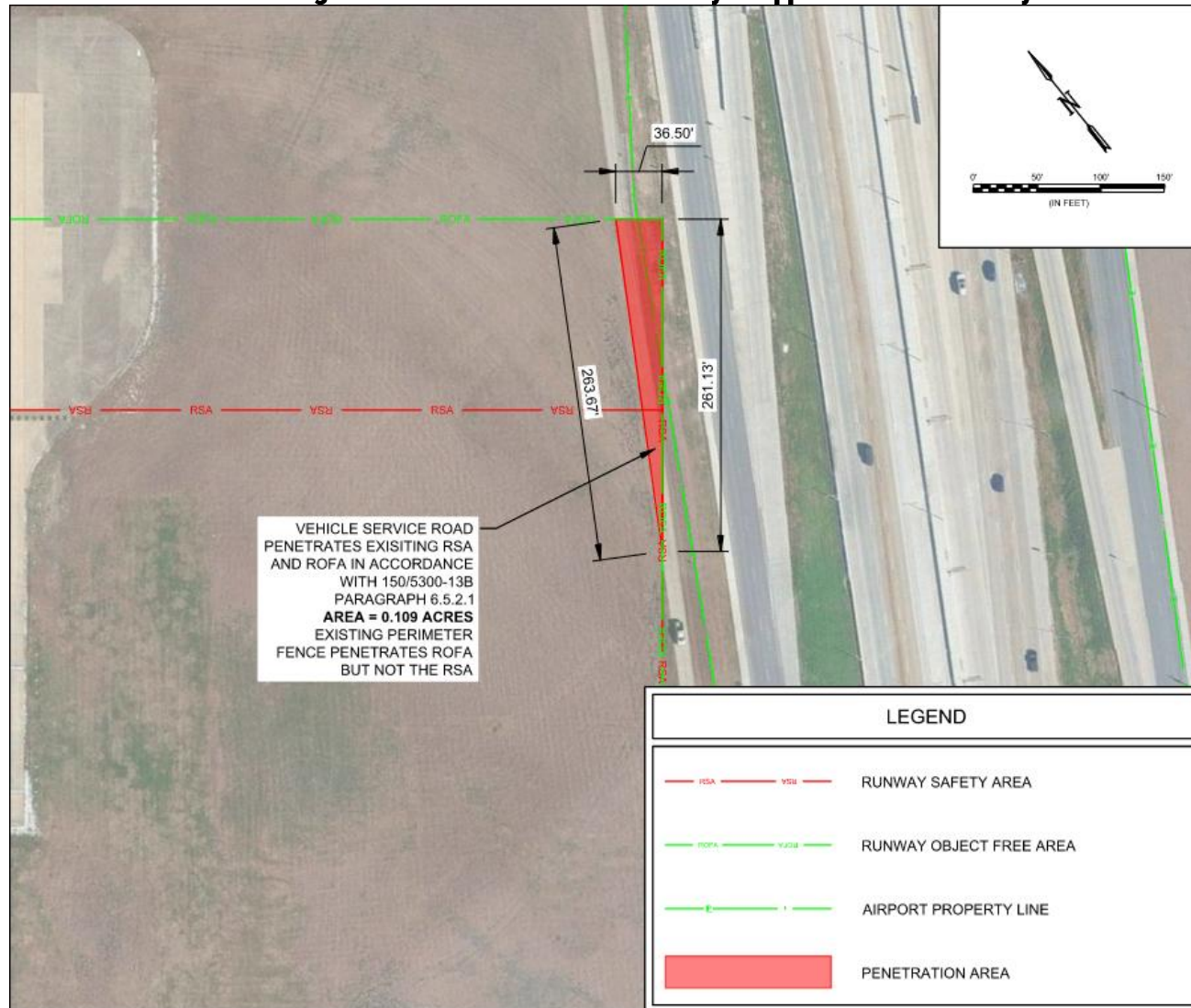
Based on available data, the RSA associated with Runway 17-35 meets current FAA standards. The RSA associated with Runway 13-31 also meets FAA standards with the exception of a RSA penetration located at the approach end of Runway 31. This deficiency is shown in **Figure 4-4**. Currently, the RSA extends over the vehicle service road (VSR) at the south end of the airfield. A Runway Object Free Area (ROFA) penetration also exists in this area and is discussed in the next section. The RSA deficiency will need to be addressed in the ultimate development plan.

Runway Object Free Area

A Runway Object Free Area (ROFA) is a two-dimensional area surrounding a runway. It must remain clear of objects except those used for air navigation or aircraft ground maneuvering purposes and requires clearing of above-ground objects protruding higher than the elevation of the RSA at the closest adjacent point. An object is considered any terrain, structure, navigational aid, person, equipment, or parked aircraft. The Airport should own all the property inside the limits of the ROFA.

Currently, the ROFA associated with the approach end of Runway 31 is penetrated by the VSR and the airport perimeter fence. This area is shown in **Figure 4-4**. Additionally, a small portion of the blast fence associated with Taxiway B at the approach end of Runway 13 penetrates the lateral limits of the ROFA. These ROFA deficiencies will need to be addressed in the ultimate development plan.

Figure 4-4 – RSA and ROFA Deficiency at Approach End of Runway 31



Source: Garver, 2026

Obstacle Free Zone

An Obstacle Free Zone (OFZ) is a volume of airspace above and centered along the runway centerline. The OFZ precludes taxiing and parked airplanes and object penetrations except for objects required to be located in the OFZ due to their function. An OFZ can have a number of different components including a Runway Obstacle Free Zone (ROFZ), inner-transitional OFZ, inner approach OFZ, and a Precision Obstacle Free Zone (POFZ). The ROFA is applicable to both Runway 17-35 and Runway 13-31 at RBD. A POFZ is also applicable to the landing threshold associated with Runway 31 as the Decision Altitude (DA) for the ILS and RNAV/GPS approaches to that runway end are less than 250 feet. Currently, no penetration exists to the ROFZ or POFZ for the runways at RBD.

Runway Separation Distances

Standard separation distances should exist from runway centerlines to parallel taxiways and runway hold position markings to facilitate the safe and efficient movement of aircraft to and from the runway environment. The placement of runway hold position markings ensure that aircraft remain clear of the runway's RSA and ROFZ until it is safe to enter the runway environment. The separation from the runway centerline to a parallel taxiway centerline provides sufficient wing tip clearance for arriving and departing aircraft while also protecting the runway's RSA and ROFZ.

Currently, the distance from the Runway 17-35 centerline to its parallel taxiway (Taxiways A and D) centerlines is 300 feet. This is 60 feet more than the minimum distance of 240 feet required under B-II-5,000 design standards.

The current distance from the Runway 13-31 centerline to Taxiway B (the northern parallel taxiway) centerline is 300 feet which meets the existing C-II-4,000 design standard. However, when the critical aircraft for Runway 13-31 increases to C-III-4,000, the separation between the Runway 13-31 centerline and Taxiway B will need to be increased to 400 feet. The distance from the Runway 13-31 centerline to the centerline of Taxiway E (the southern parallel taxiway) is 400 feet which meets the ultimate C-III-4,000 design standard for the runway.

Runway Protection Zone

The purpose of a Runway Protection Zone (RPZ) is to enhance the protection of people and property on the ground and to prevent developments that are incompatible with aircraft operations. The FAA recommends that airports own the entire RPZ in "fee simple" title and that the RPZ be clear of any non-aeronautical structure or object that would interfere with the arrival and departure of aircraft. However, if "fee simple" interest is unachievable, the next option is controlling the height of objects through an aviation easement or zoning



ordinance and keeping the area clear of any facilities that would support an incompatible activity (e.g., places of public assembly, etc.).

The RPZ is a two-dimensional trapezoidal area that normally begins 200 feet beyond the paved runway end and extends along the runway centerline. The approach RPZ begins 200 feet from the runway landing threshold and the departure RPZ begins 200 feet beyond the end of the Takeoff Run Available (TORA) for the runway.

AC 150/5190-4B, *Airport Land Use Compatibility Planning*, addresses acceptable property uses within an RPZ. The RPZ dimensions for each runway are determined by the RDC for each runway end. **Table 4-14** delineates the existing and ultimate RPZ dimensions for RBD. Approach and departure RPZs are identified separately for Runway 13-31 since declared distances are in place for the runway. The approach and departure RPZs overlap for Runway 13 in the existing and ultimate condition.

It should be noted that RPZ dimensions do not change when comparing C-II-4,000 and C-III-4,000 design standards. Consequently, the RPZs associated with Runway 13-31 don't change based on the anticipated shift in the ultimate critical aircraft.

Table 4-14 – Runway Protection Zones

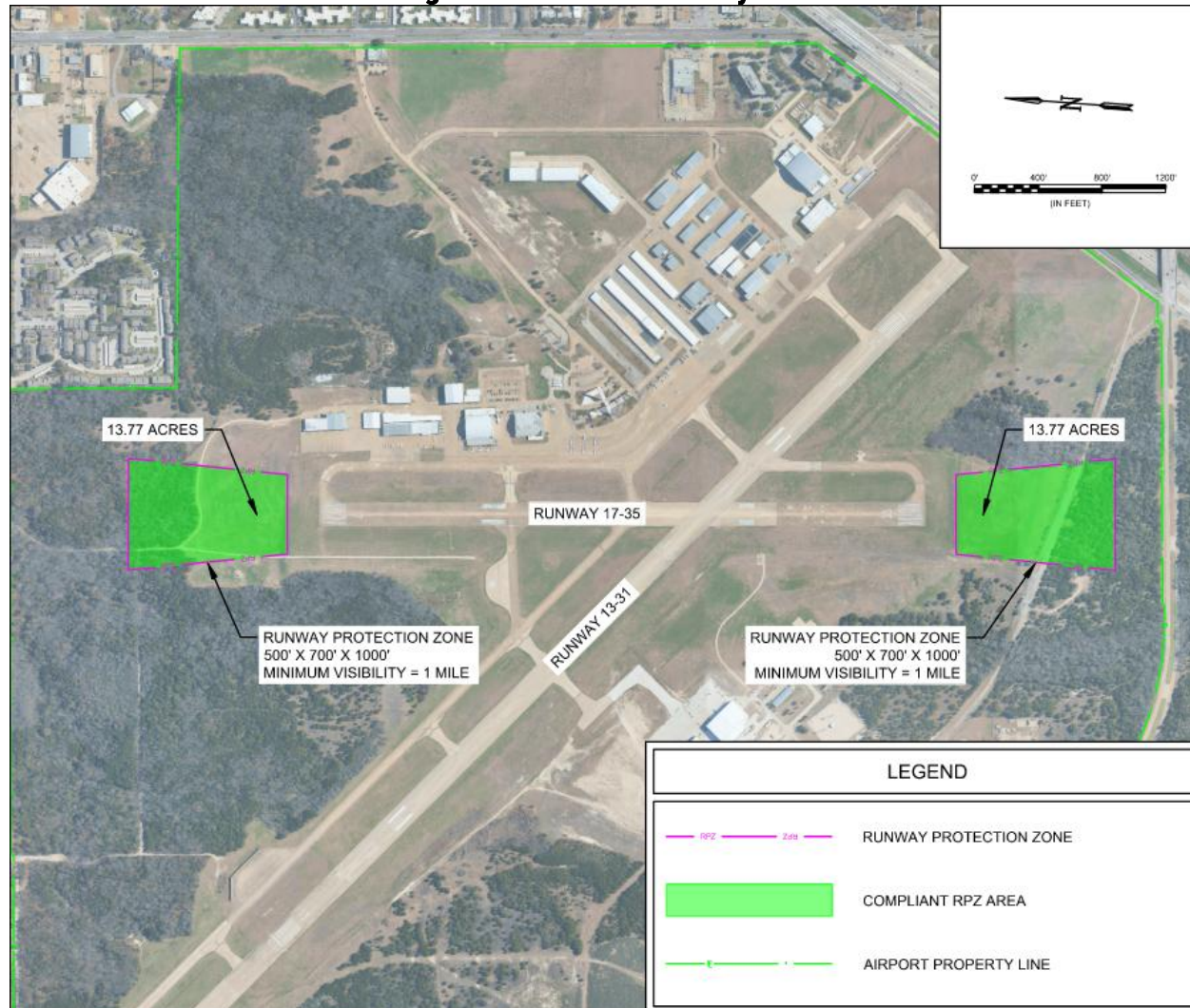
Runway End	RDC	Inner Width (ft.)	Outer Width (ft.)	Length (ft.)
Runway 13 - Approach	C-II/III-4,000	500	1,010	1,700
Runway 13 - Departure	C-II/III-4,000	500	1,010	1,700
Runway 31 - Approach	C-II/III-4,000	1,000	1,510	1,700
Runway 31 - Departure	C-II/III-4,000	500	1,010	1,700
Runway 17 - Approach/Departure	B-II-5,000	500	700	1,000
Runway 35 - Approach/Departure	B-II-5,000	500	700	1,000

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

The RPZs associated with Runway 17-35 are shown in **Figure 4-5**. The RPZs associated with Runway 13 are shown in **Figure 4-6**. The RPZs associated with Runway 31 are shown in **Figure 4-7**.

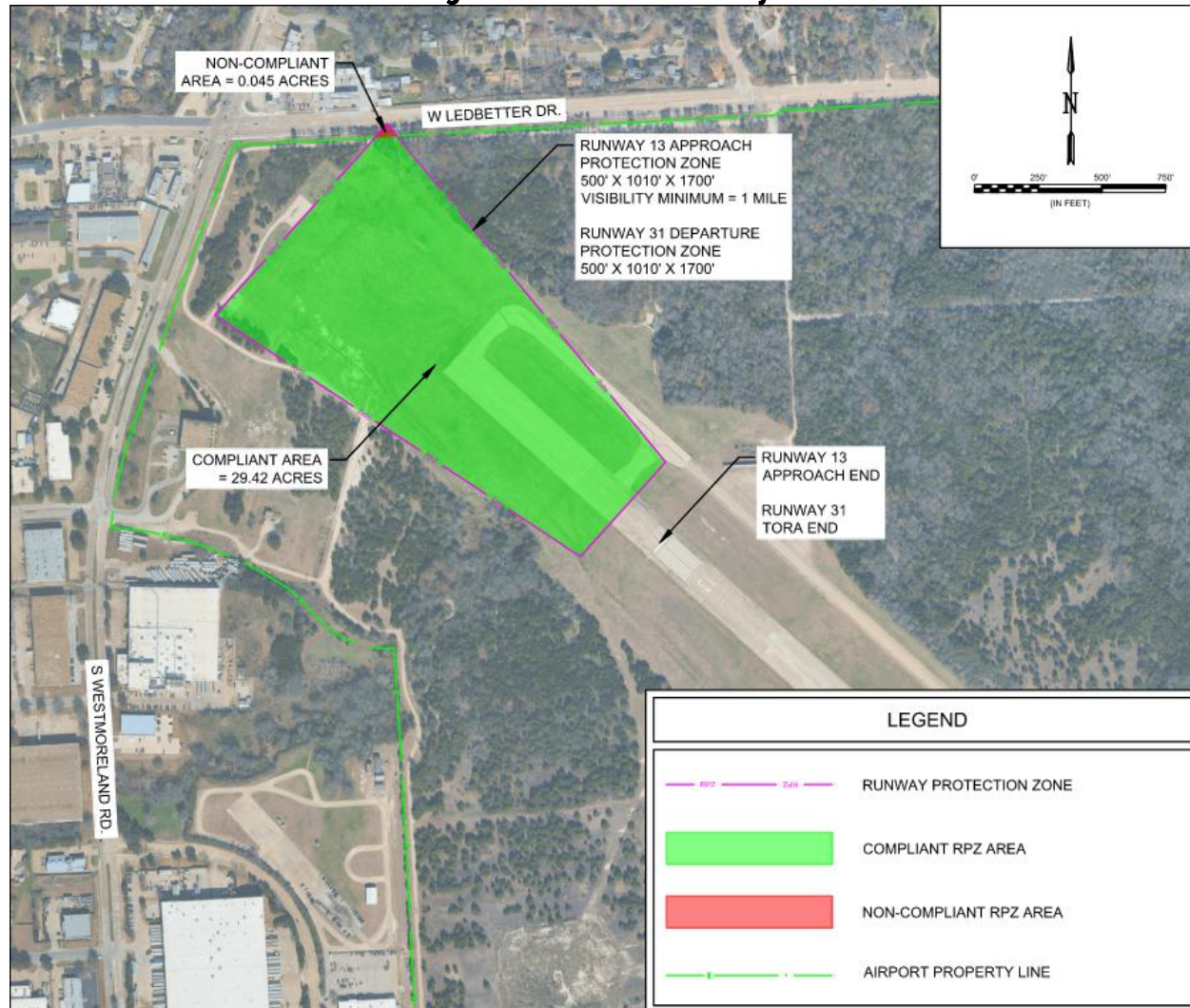
No non-compliant conditions exist within the limits of the RPZs associated with Runway 17-35. The only non-compliant conditions noted within the limits of the RPZs for Runway 13 and Runway 31 are vehicle roadways and parking lots. No buildings are located within any RPZ associated with Runway 13 or Runway 31. The compliance of the RPZs associated with Runway 13 and Runway 31 were improved when the runway was extended in 2017. Consequently, no further improvements are anticipated to be necessary.

Figure 4-5 – RPZs for Runway 17-35



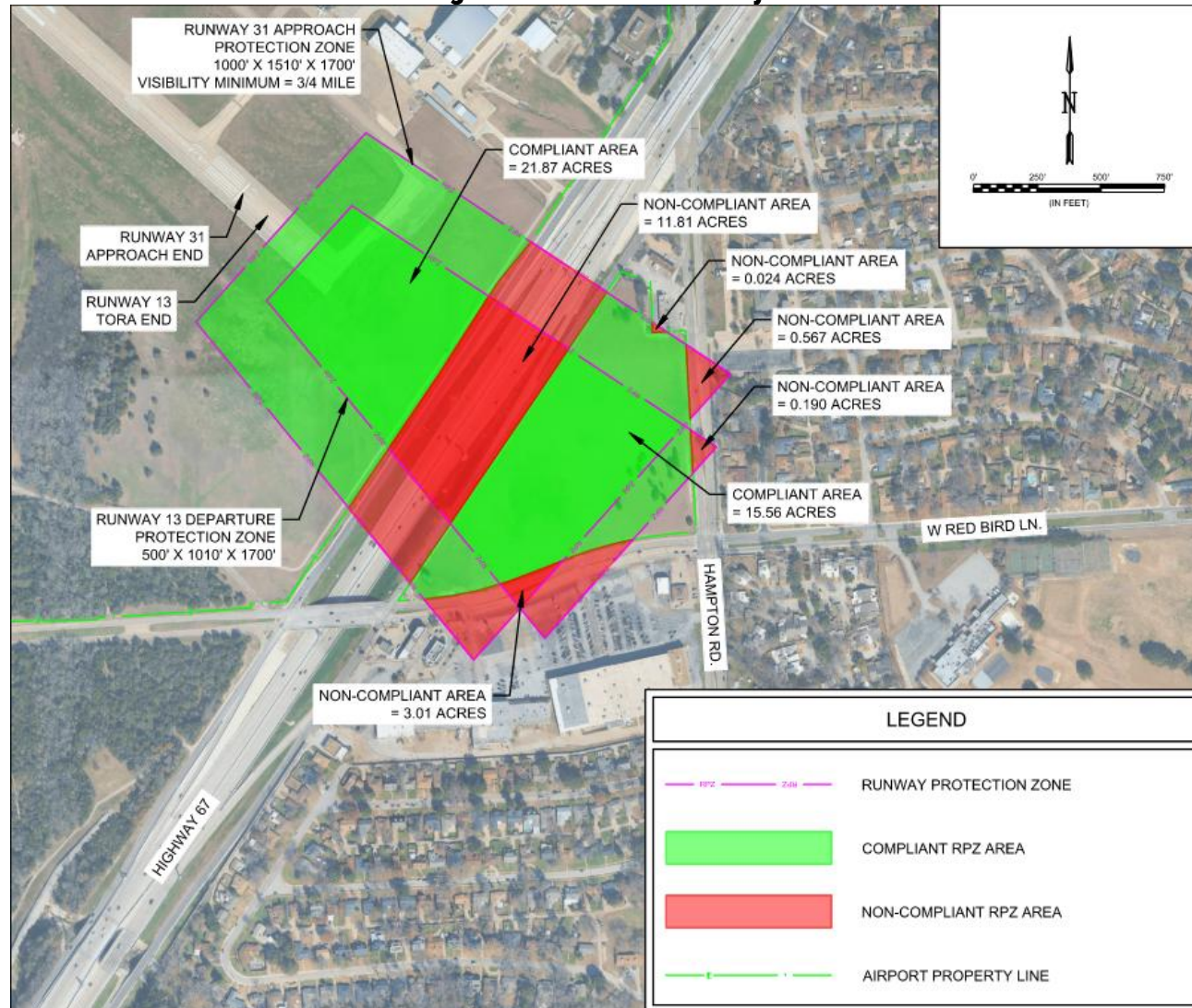
Source: Garver, 2026

Figure 4-6 – RPZs for Runway 13



Source: Garver, 2026

Figure 4-7 – RPZs for Runway 13



Source: Garver, 2026

Runway Lighting, Signage, and Markings

Runway lighting, signage, and markings play a significant role in supporting a pilot's situational awareness when using an airport. Currently, Runway 13-31 and Runway 17-35 are equipped with Medium Intensity Runway Lights (MIRLs). Runways 13, 17, and 35 have non-precision approach markings and Runway 31 has precision approach markings. Other than general maintenance and rehabilitation, no improvements are anticipated to be required for runway lighting, signage, and markings.

Airport Navigational Aids and Instrument Approaches

Airport Navigation Aids (NAVAIDs) are installed on or near an airport to increase the airport's usability and to provide electronic guidance and visual references for executing an approach to the airport or runway. As discussed in the Inventory Chapter, RBD has the visual and electronic NAVAIDs associated with each runway shown in **Table 4-15**.

Table 4-15 – Airport NAVAIDS

Runway End	Visual NAVAIDS	Electronic NAVAIDS
Runway 13	PAPL-4L, REILS	None
Runway 31	PAPL-4R, REILS	ILS
Runway 17	PAPL-4R, REILS	None
Runway 35	REILS	None
Non-Runway NAVAIDS	Airport Beacon	None

Source: FAA Aeronautical Information System (AIS), pulled 4-22-2026

Instrument Approach Procedures (IAPs) currently exist to all runway ends at RBD. The ILS and RNAV/GPS approach for Runway 31 provide visibility minimums of $\frac{3}{4}$ statute mile and a Decision Altitude (DA) of 200 feet. The IAPs to the other runway ends provide visibility minimums of no lower than 1 mile and DAs of no lower than 363 feet.

To evaluate the need for lower IAP minimums and additional NAVAIDs at RBD, an analysis of historical weather data was conducted. The analysis reviewed approximately 10 years of hourly ASOS observations at RBD to identify the amount of time in an average year that weather is at or below the lowest existing IAP minimums at RBD. The results of the analysis are shown in **Table 4-16**.

Based on the results of the analysis, IAP minimums at RBD are sufficient. Lowering the instrument approach minimums below $\frac{3}{4}$ statute mile would provide minimal benefit and would have a substantial cost as an approach lighting system (ALS) would be required. Consequently, no additional NAVAIDs are anticipated to be needed except for adding a PAPI system to Runway 35. The PAPI would provide a visual reference to pilots using the runway for landing which enhances safety.



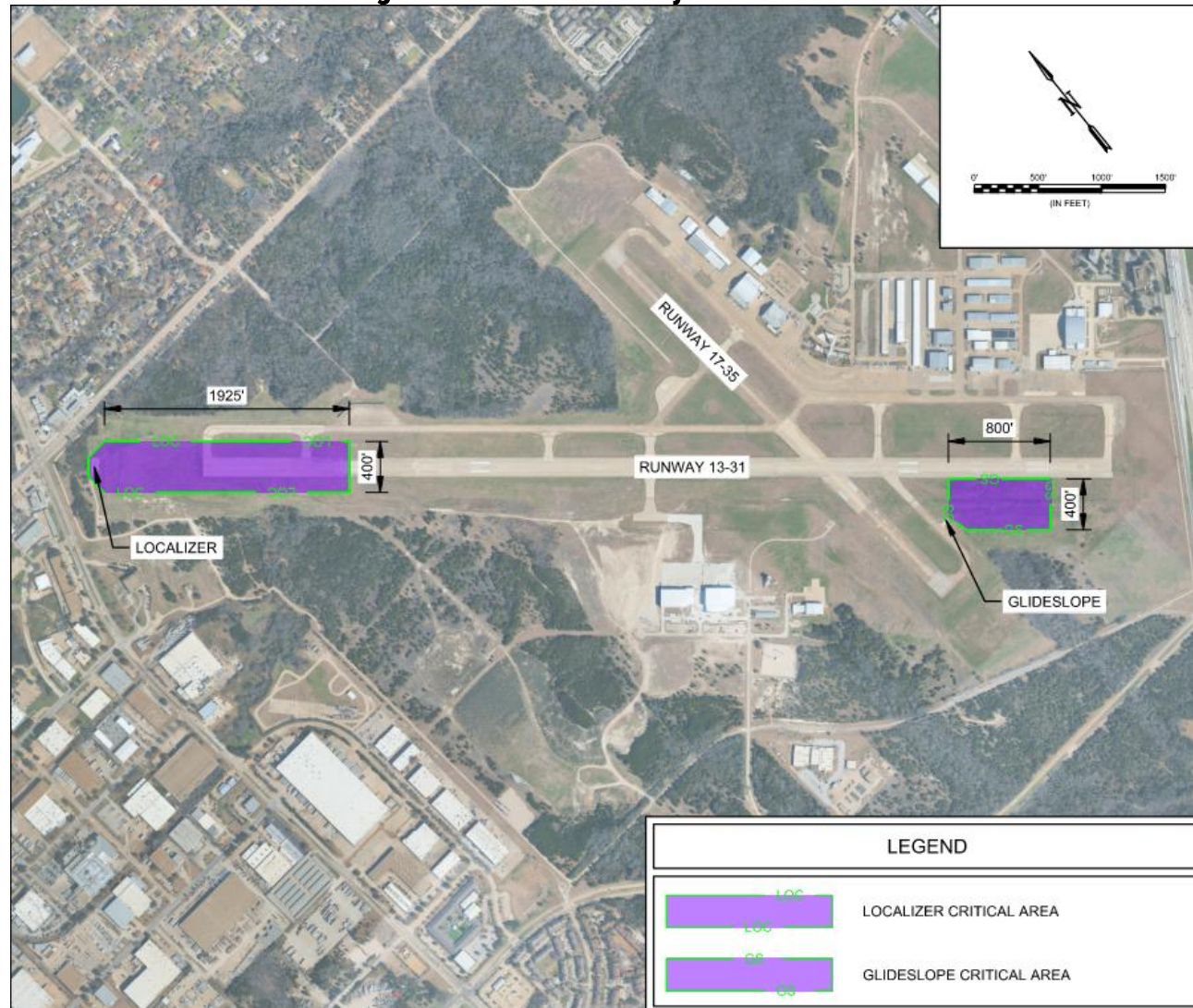
Table 4-16 – RBD Weather Analysis

Visibility Minimums	Total Hourly Weather Observations at or Below Level	Average Number of Hours Per Year with Minimums at or Below Level
Visibility Below 1 Mile	516	53.44
Visibility Below 3/4 Mile	372	38.53

Source: RBD ASOS Data, 2016-2025

Additionally, the critical areas associated with the Instrument Landing System (ILS) for Runway 31 were reviewed. The critical areas associated with the Localizer (LOC) and Glideslope (GS) portions of the ILS system are shown in **Figure 4-8**. No deficiencies were noted.

Figure 4-8 – RBD ILS Runway 31 NAVAID Critical Areas



Source: Garver, 2026

Taxiway Facility Requirements

Taxiways serve an essential function for aircraft operations, as they are the primary surface that aircraft utilize to transition to and from the runway(s) to aircraft parking facilities. There are numerous factors that must be considered when evaluating an airport's existing taxiway system including traffic volume, traffic patterns, and critical aircraft.

Runway Exit Taxiways

The proper location of taxiway exits from a runway is a critical function of reducing Runway Occupancy Time (ROT) and improving runway capacity. The best location for exit taxiways from a runway is a function of the runway's length, fleet mix, and weather conditions.

For this analysis, the existing exit taxiways for each runway end were evaluated using the Runway Exit Design Interactive Model (REDIM) Version 4.0.2 published by the Air Transportation Systems Laboratory at Virginia Tech University. Dallas Executive Airport's ADS-B data from 2025 for each runway was used to establish the fleet mix used for taxiway exit modeling using REDIM for each runway end.

Using REDIM, the existing ROT was identified for each runway and additional analysis was completed, where appropriate, to identify opportunities to reduce ROT. **Table 4-17** identifies the estimated ROT in the existing condition for each runway end. In the existing condition models, it was assumed that the crossing runway would not be used as a taxiway for exiting the runway. For example, for the ROT analysis of landings on Runway 17, aircraft were assumed not to use Runway 13-31 as a surface to exit Runway 17. This approach was taken in accordance with guidance set forth in AC 150/5300-13B Paragraph I.4 which states that ideally runways should not be used as taxiways. However, it is a local practice for aircraft to use Runway 13-31 as an exit when landing on Runway 17 at RBD.

Table 4-17 – RBD Runway Occupancy Tim – Existing Condition

Runway End	Existing ROT
Runway 13	55.7 seconds
Runway 31	60.4 seconds
Runway 17	51.1 seconds
Runway 35	45.1 seconds

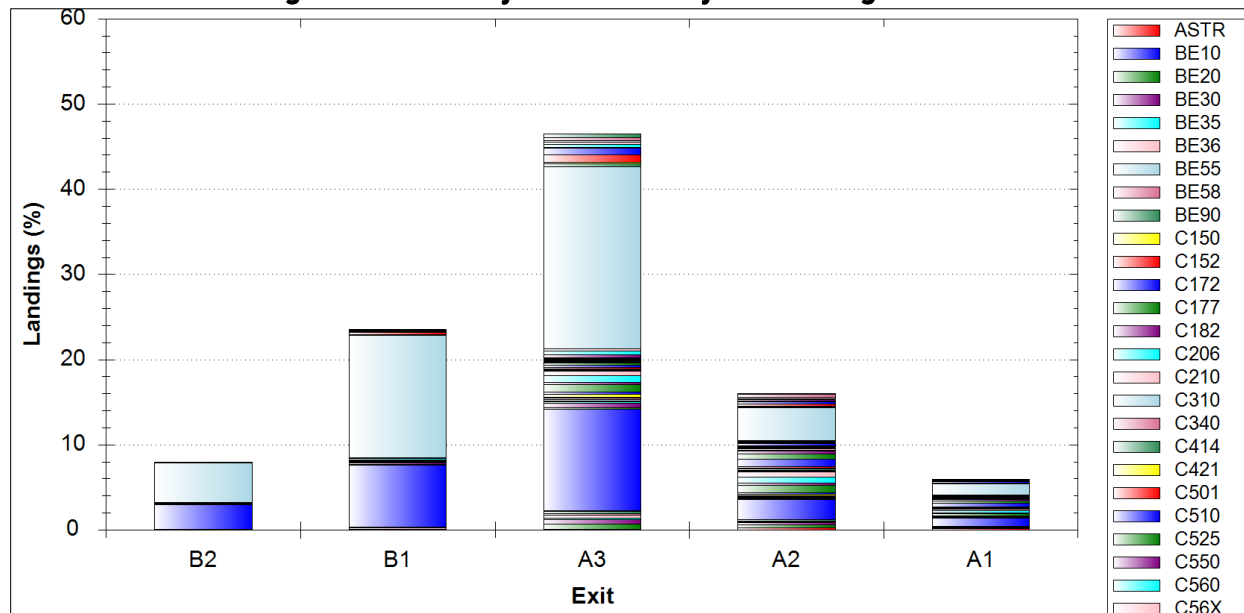
Source: REDIM 4.0.2, Garver Analysis, 2026

The results of the analysis and potential improvements are discussed in the following subsections.

Runway 13 – Taxiway Exits

The existing condition ROT analysis for Runway 13 identified ROT to be approximately 55.7 seconds. The analysis identified that the majority of aircraft landing on Runway 13 would exit the runway using Taxiway A3 followed by Taxiways B1 and then A2. The result of this analysis is shown in **Figure 4-9**. Based on this analysis, the best opportunity to reduce ROT would be to locate a taxiway between Taxiways B1 and A3 to allow aircraft to exit the runway before reaching Taxiway A3. This will be considered in the alternatives analysis. Adding an exit taxiway in this area is estimated to improve ROT by approximately 2-3 seconds based on the exact location of the new taxiway.

Figure 4-9 – Runway 13 REDIM Analysis – Existing Condition



Source: REDIM 4.0.2, Garver Analysis, 2026

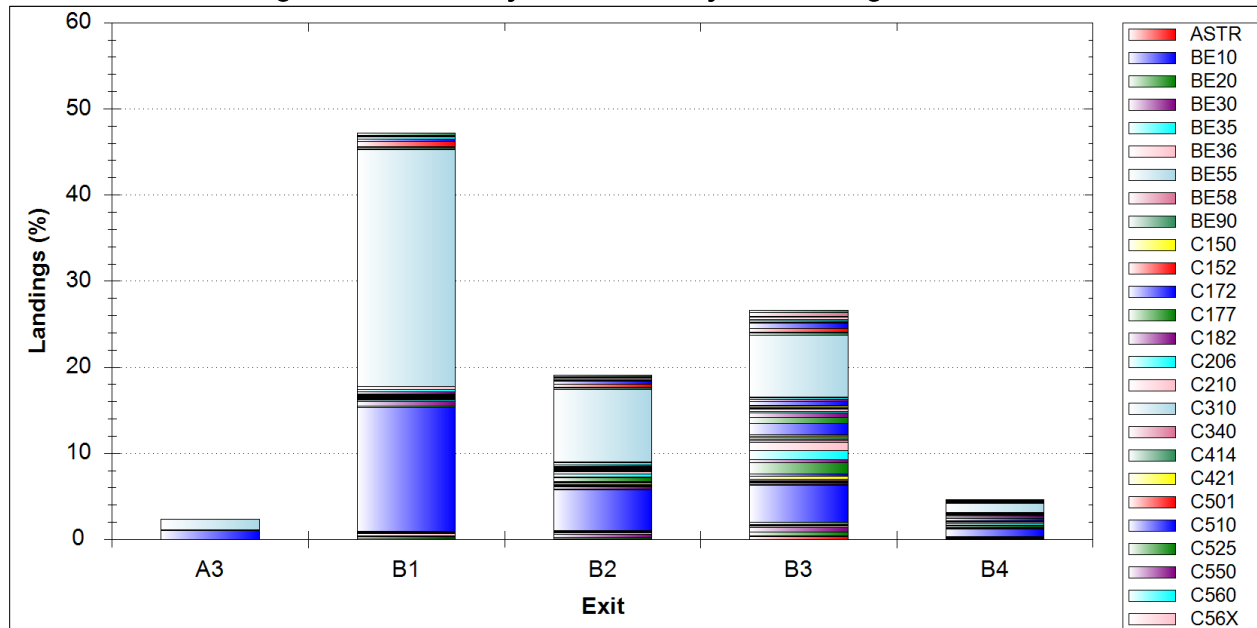
Runway 31 – Taxiway Exits

The existing condition ROT analysis for Runway 31 identified ROT to be approximately 60.4 seconds. The analysis identified that the majority of aircraft landing on Runway 31 would exit the runway using Taxiway B1 followed by Taxiways B3 and then B2. The result of this analysis is shown in **Figure 4-10**. Based on this analysis, the best opportunities to reduce ROT would be:

- To locate a taxiway between Taxiways B2 and B3 to allow aircraft to exit the runway before reaching Taxiway B3.
- To locate a taxiway between Taxiways A3 and B1 to allow aircraft to exit the runway before Taxiway B1.

This will be considered in the alternatives analysis. Adding exit taxiways in these areas is estimated to improve ROT by approximately 2-3 seconds based on the exact location of the new taxiways.

Figure 4-10 – Runway 31 REDIM Analysis – Existing Condition



Source: REDIM 4.0.2, Garver Analysis, 2026

Runway 17 – Taxiway Exits

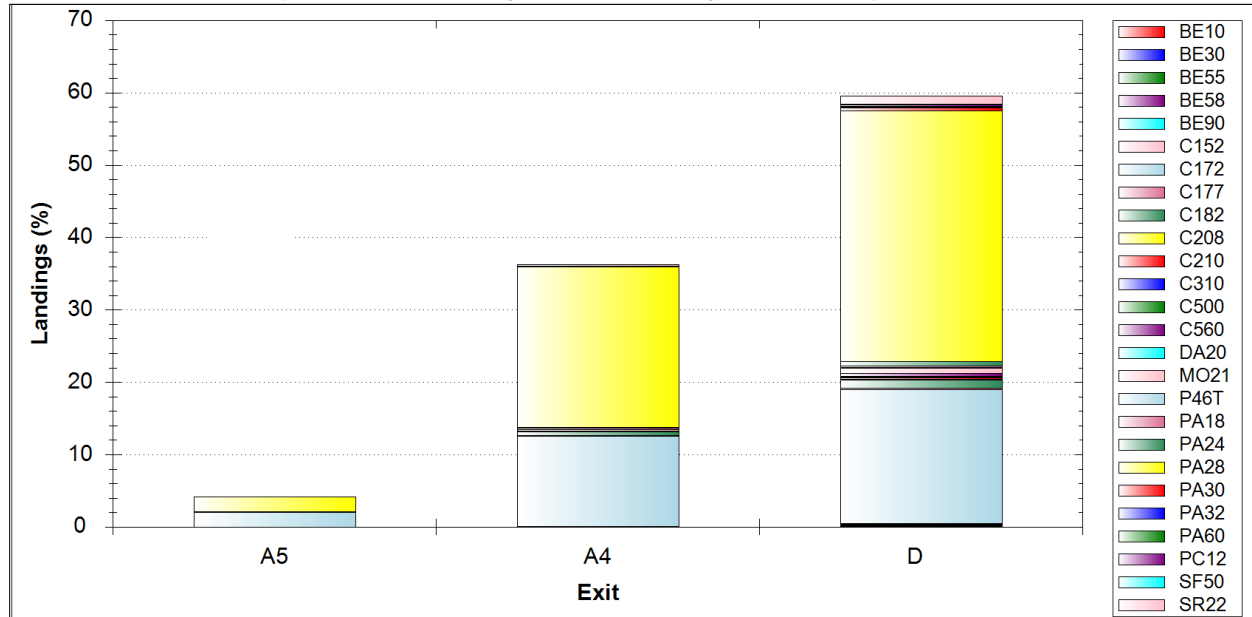
The existing condition ROT analysis for Runway 17 identified ROT to be approximately 51.1 seconds assuming that Runway 13-31 is not used to exit the runway. The analysis identified that the majority of aircraft landing on Runway 17 would exit the runway using Taxiway D followed by Taxiways A4 and then A3. The result of this analysis is shown in **Figure 4-11**. Based on this analysis, the best opportunity to reduce ROT would be to locate a taxiway between Taxiways A4 and D to allow aircraft to exit the runway before reaching Taxiway D. This will be considered in the alternatives analysis. Adding an exit taxiway in this area is estimated to improve ROT by approximately 5-6 seconds based on the exact location of the new taxiway.

Runway 35 – Taxiway Exits

The existing condition ROT analysis for Runway 35 identified ROT to be approximately 45.1 seconds. The analysis identified that the majority of aircraft landing on Runway 35 would exit the runway using Taxiway A5 followed by Taxiways A4 and then A6. The result of this analysis is shown in **Figure 4-12**. As the estimated ROT is below 50 seconds, no additional

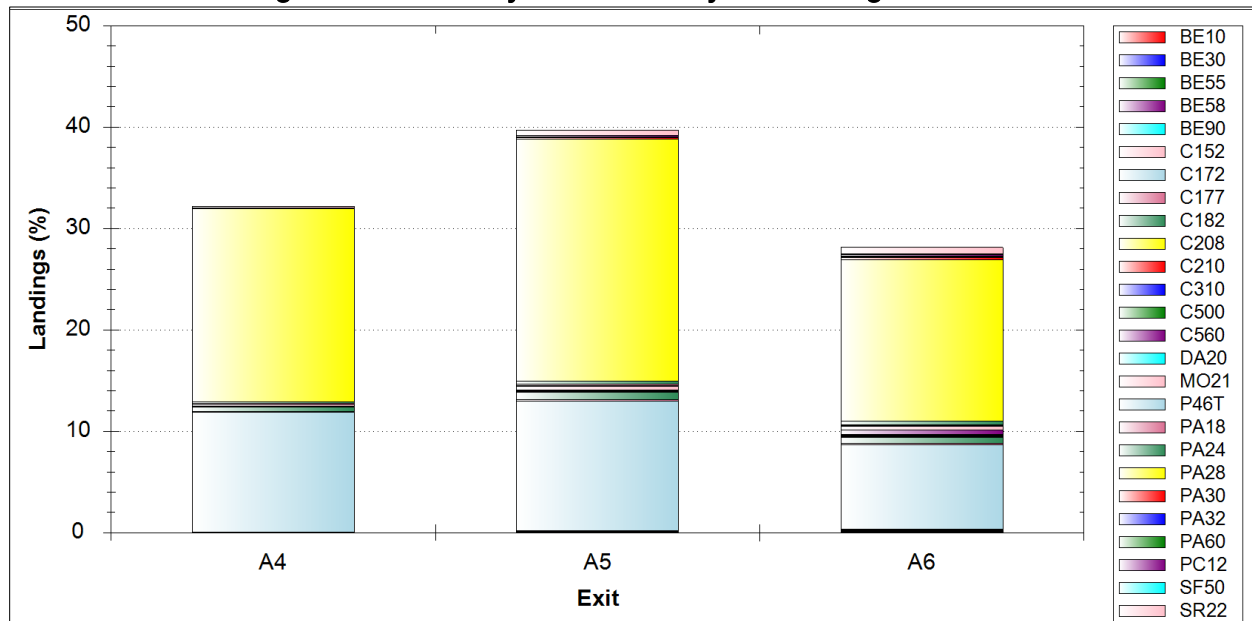
taxiway exits are anticipated to be needed for aircraft landing Runway 35 at the existing runway's length.

Figure 4-11 – Runway 17 REDIM Analysis – Existing Condition



Source: REDIM 4.0.2, Garver Analysis, 2026

Figure 4-12 – Runway 35 REDIM Analysis – Existing Condition



Source: REDIM 4.0.2, Garver Analysis, 2026

Taxiway Design Group Considerations

Taxiway pavement design is complex because it is largely based on landing gear configurations which vary widely between different aircraft types. The FAA has classified the numerous variations of aircraft landing gear configurations into Taxiway Design Groups (TDG) standards that guide taxiway pavement design. Based on the forecast, the existing critical aircraft for taxiway pavement design is TDG-2A. **Table 4-18** identifies some of the TDG-2A aircraft and larger that operated at RBD in 2025. The ultimate critical aircraft is expected to be in the TDG-2B category as discussed in the forecast chapter. However, it is recommended that RBD plan and develop specific taxi routes to TDG III standards to support larger jet aircraft.

Table 4-18 – RBD 2025 TDG Operations

Aircraft	Taxiway Design Group	Operations 2025
Cessna Citation V/Ultra/Encore	2A	502
Dassault Falcon 900	2A	184
Beech King Air 200	2A	201
Pilatus PC-12	2A	355
Bombardier Global 7500	2B	16
Gulfstream V/500	2B	13
Gulfstream G600	2B	8

Source: FAA TFMSC Data, 2025

Table 4-19 compares the width of the taxiways at RBD to existing FAA standards. It should be noted that the prescribed width for TDG 2A and 2B taxiways are both 35 feet. The prescribed width for TDG 3 taxiways is 50 feet.

All taxiways at RBD currently meet TDG taxiway width design standards for TDG 2A and 2B. Additionally, all taxiways are wide enough to meet TDG 3 taxiway width standards.

Most taxiways at RBD were designed prior to the establishment of the FAA's TDG based taxiway pavement design standards that were implemented in 2014. As a result, many of the existing taxiway fillets (e.g., pavement layout where the taxiways curve) do not meet FAA design standards. These fillets should be improved as taxiways at RBD are reconstructed or rehabilitated.

Table 4-19 – Taxiway Design Group Width Standards

Taxiway Designation	Taxiway Design Group	Standard Width (ft)	Actual Width (ft)	Standard Met
A	2A	35	60	Yes
A1	2A	35	50	Yes
A2	2A	35	50	Yes
A3	2A	35	50	Yes
A4	2A	35	60	Yes
A5	2A	35	60	Yes
A6	2A	35	60	Yes
B	2A	35	60	Yes
B1	2A	35	65	Yes
B2	2A	35	60	Yes
B3	2A	35	60	Yes
B4	2A	35	60	Yes
C	2A	35	60	Yes
D	2A	35	60	Yes
E	2A	35	60	Yes
E1	2A	35	65	Yes

Source: Garver, 2026, FAA Advisory Circular 150/5300-13B, *Airport Design*

ADG Based Taxiway Design Standards

While taxiway pavement design is based on an aircraft's TDG, the Taxiway Safety Areas (TSA), Taxiway Object Free Areas (TOFAs), and taxiway separation standards are based on the Airplane Design Group (ADG) for a given taxiway. Unlike a taxiway's TDG, a taxiway's ADG is based on aircraft wingspan and tail height and not its landing gear configuration. **Table 4-20** and **Table 4-21** provide an overview of how RBD's existing taxiways align with current ADG-based taxiway design standards established by the FAA in the existing (ADG II) and ultimate (ADG III) condition.

In general, all existing taxiways meet ADG II design standards for the TSA and TOFA. In the ultimate condition, two penetrations are noted related to ADG III TOFA standards:

- Taxiway B TOFA Penetration – The blast fence located at the approach end of Runway 13 will slightly penetrate the ADG III TOFA associated with Taxiway B.
- Taxiway D TOFA Penetration – The glide slope for Runway 31 will penetrate the ADG III TOFA associated with Taxiway D.

Additional grading may be necessary on the northern side of Taxiway B to provide an ADG III compliant TSA. Additional ground survey will be needed to verify if this is needed.

Table 4-20 – ADG Based Taxiway Design Standards – Existing Condition ADG II

Taxiway Designation	Existing TSA Standard (ft.)	Standard Met	Existing TOFA Standard (ft.)	Standard Met
A	79	Yes	124	Yes
A1	79	Yes	124	Yes
A2	79	Yes	124	Yes
A3	79	Yes	124	Yes
A4	79	Yes	124	Yes
A5	79	Yes	124	Yes
A6	79	Yes	124	Yes
B	79	Yes	124	Yes
B1	79	Yes	124	Yes
B2	79	Yes	124	Yes
B3	79	Yes	124	Yes
B4	79	Yes	124	Yes
C	79	Yes	124	Yes
D	79	Yes	124	Yes
E	79	Yes	124	Yes
E1	79	Yes	124	Yes

Source: Garver, 2026, FAA Advisory Circular 150/5300-13B, *Airport Design*

Table 4-21 – ADG Based Taxiway Design Standards – Ultimate Condition ADG III

Taxiway Designation	Existing TSA Standard (ft.)	Standard Met	Existing TOFA Standard (ft.)	Standard Met
A	118	Yes	171	Yes
A1	118	Yes	171	Yes
A2	118	Yes	171	Yes
A3	118	Yes	171	Yes
A4	118	Yes	171	Yes
A5	118	Yes	171	Yes
A6	118	Yes	171	Yes
B	118	Yes*	171	No
B1	118	Yes	171	Yes
B2	118	Yes	171	Yes
B3	118	Yes	171	Yes
B4	118	Yes	171	Yes
C	118	Yes	171	Yes
D	118	Yes	171	No
E	118	Yes	171	Yes
E1	118	Yes	171	Yes

Source: Garver, 2026, FAA Advisory Circular 150/5300-13B, *Airport Design*

* - Additional grading may be necessary to provide an ADG III compliant TSA. Survey is necessary.

Taxiway Lighting, Signage, and Markings

Taxiway lighting, signage, and markings are critical to maintaining a pilot's situational awareness when operating on an airfield. Currently, all taxiways at RBD have taxiway centerline markings and medium intensity taxiway edge lights (MITL). The current airfield signage is FAA-type L-858 with a curved face produced by Lumacurve. Other than general maintenance and rehabilitation, no significant improvements are anticipated to be needed regarding taxiway marking, signage, and lighting.

Airfield Configuration

Through research, the FAA has identified various airfield pavement configurations that sometimes cause pilot confusion and may become a contributing factor to an aircraft incident or accident. As part of this facility requirements analysis, the existing airfield configuration at RBD was analyzed to identify any potential configuration deficiencies. The identified configuration deficiencies are discussed in the following subsections.

Taxiway A4, Taxiway B, and Runway 17-35 Intersection

During discussions with RBD Air Traffic Control Tower (ATCT) personnel, it was noted that pilots sometimes lose situational awareness when crossing Runway 17-35 at the Taxiway A4 and Taxiway B intersection. This runway crossing point is not at a 90-degree angle per the guidance set forth in AC 150/5300-13B Paragraph 4.8.1.1. This area is shown in **Figure 4-13**. Mitigation strategies for this area should be considered as part of the alternatives analysis.

Taxiway D, Taxiway A3, and Runway 13-31 Intersection

This runway crossing point is not at a 90-degree angle per the guidance set forth in AC 150/5300-13B Paragraph 4.8.1.1. This area is shown in **Figure 4-13**. Mitigation strategies for this area should be considered as part of the alternatives analysis.

Middle Third Runway Crossings

AC 150/5300-13B Paragraph 4.8.1.2, Item 3, recommends that runway crossing points be limited to the outer thirds of a runway. This should be done to reduce the potential for a catastrophic result from a runway incursion as the middle third of a runway is typically where an aircraft that is arriving or departing, is still on the ground and traveling at a high speed. **Figure 4-14** shows the current taxiway crossing points at RBD that are in the middle third of Runway 17-35 or Runway 13-31.



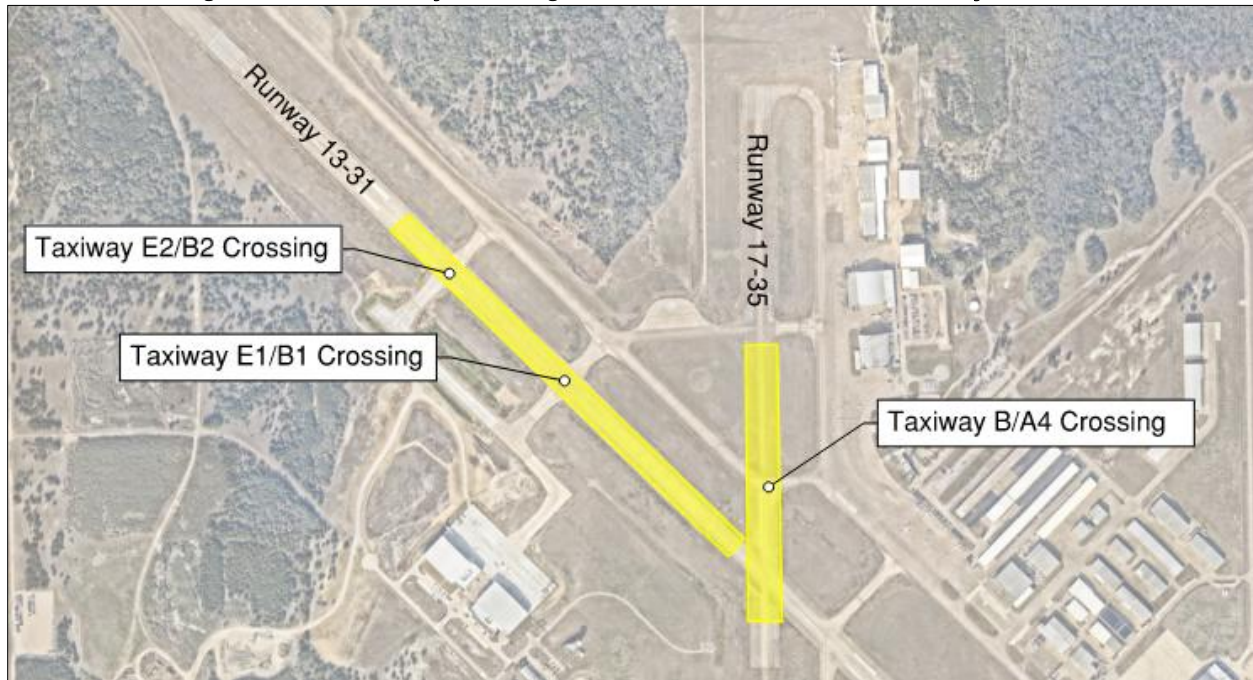
It should be noted that runway crossings in the middle third of a runway are not prohibited by FAA standards. The elimination of runway crossings in the middle third of a runway are considered a “recommended practice” under AC 150/5300-13B. It is recommended that the potential for eliminating crossing in the middle third of Runway 17-35 and Runway 13-31 be considered as part of the alternatives analysis.

Figure 4-13 – Runway Crossings Not At A 90 Degree Angle



Source: Garver, 2026

Figure 4-14 – Runway Crossings in the Middle Third of the Runway at RBD



Source: Garver, 2026

Direct Apron to Runway Access

According to AC 150/5300-13B, Paragraph 4.3.5.1, direct access should not be provided from an aircraft parking apron to a runway without requiring a turn of at least 75 to 90 degrees. Currently, this standard is not met for Taxiways A5, A4, and A3 at RBD. However, a project is currently underway to resolve this deficiency.

Wind Indicator and Segmented Circle

RBD has a primary lighted wind cone and segmented circle that are located north of the runway/runway intersection. The windsock is internally illuminated with an LED lighting array. No additional wind indicators are anticipated to be needed at RBD.

Weather Observing System

Automated Weather Observing Systems (AWOS) and Automated Surface Observing Systems (ASOS) consist of various types of sensors, a processor, a computer-generated voice subsystem, and a transmitter to broadcast minute-by-minute weather data from a fixed location directly to pilots. The information is transmitted over the voice portion of a local NAVAID (VOR or DME) or a discrete radio frequency.

RBD currently has an ASOS located southwest of the runway/runway intersection. No necessary improvements have been identified related to the existing ASOS.

Airspace and Air Traffic Control Tower

Dallas Executive Airport is surrounded by Class D airspace. Currently, the ATCT is located off Boulder Drive on the west side of the airport. The tower facility opened in 2007. There are currently no line-of-sight issues from the ATCT cab to any portions of the movement area.

The 14 CFR Part 77 imaginary surfaces for the RBD are defined below. These surfaces are depicted in the Airspace Drawing that is included as part of the Airport Layout Plan (ALP) as well as known obstructions to these surfaces. An 18B aeronautical survey was not completed for this ALP project.

- Runway 13-31
 - Primary Surface – 1,000 feet wide x 200 feet past each runway end.
 - Approach Surface – 34:1 slope for 10,000 feet on Runway 13 and 50:1 slope for the first 10,000 feet then and 40:1 for 40,000 feet on Runway 31.
- Runway 17-35
 - Primary Surface – 500 feet wide x 200 feet past each runway end.
 - Approach Surface – 34:1 slope for 10,000 feet on Runway 17 and 34:1 slope for 10,000 feet on Runway 35.
- Non-Runway Specific Surfaces
 - Horizontal Surface – Flat surface established at an elevation of 810.5 feet (150 feet above field elevation). The perimeter is based on 10,000 feet arcs from each end of Runway 13-31 and Runway 17-35.
 - Conical Surface – Extends from the edges of the horizontal surface for a horizontal distance of 4,000 feet at a 20:1 slope.
 - Transitional Surface – Extends from the edges of the primary surface at a 7:1 slope until it reaches the horizontal surface and from the edges of the approach surfaces at a 7:1 slope until it reaches the horizontal surface or for a horizontal distance of 5,000 feet.

Emerging Technology Facility Requirements

The aviation industry is changing with the continued development of unmanned aerials systems (UAS), vertical takeoff and landing aircraft (VTOL), and alternative fuels such as Sustainability Aviation Fuel (SAF), electric aircraft, and hydrogen powered aircraft. Consequently, as part of planning efforts, it is important that airports identify and analyze



various use cases for these emerging technologies and establish plans for supporting those use cases.

A key focus in large metropolitan areas like the DFW metroplex is understanding the role that airports may play in establishing an Advanced Air Mobility (AAM) network that could be used to transport goods and personnel across the metropolitan area quickly and efficiently. Through the North Central Texas Council of Governments (NCTCOG), planning has already begun on what the AAM network within the DFW metroplex could look like.

At this time, it is still unclear what the exact use cases are for these emerging technologies that may be applicable to Dallas Executive Airport. Consequently, it is recommended that the following strategies be implemented to support the airport's readiness as these new technologies develop and proliferate:

- Dallas Executive Airport should identify vertiport sites on airport property that could support a diverse array of AAM use cases including passenger/air taxi, cargo, and general aviation.
- Dallas Executive Airport should reserve areas for emerging fuel types (i.e., SAF, electric aircraft, and hydrogen).

Additional analysis will be needed as part of a separate study to analyze the potential upstream electrical improvements that may be needed to support electric aircraft operations at RBD.

Other Airside Facility Requirements

In addition to the other airside facility requirements identified through this analysis, the following improvements are recommended based on interviews with airport staff and tenants:

- Establish a perimeter road connecting the Commemorative Air Force (CAF) apron to where the perimeter road begins adjacent to the Marvin D. Love Freeway.
- Add engine run-up areas on each end of the parallel taxiways supporting Runway 17-35 to provide locations for engine run-ups for small single engine piston aircraft.

Airside Facility Requirements Summary

Based on the airside facility requirements analysis, the following development objectives have been established for the alternatives process:

- Extend Runway 17-35 to 4,800 feet in total length
- Redesignate Runway 17-35 to Runway 18-36
- Retain Runway 17-35 to support future operational capacity needs
- Resolve RSA and ROFA deficiencies with the perimeter fence and VSR at the approach end of Runway 31
- Resolve the ROFA deficiency for Runway 13-31 associated with the blast fence northeast of Taxiway B
- Add a PAPI-4 system to Runway 35
- Relocate Taxiway B to be 400 feet from the Runway 13-31 centerline when the critical aircraft shifts to C-III-4,000 for the runway
- Add a runway exit taxiway between Taxiways A4 and Taxiway D to improve runway capacity for landings on Runway 17
- Add a runway exit taxiway between Taxiways B1 and A3 to improve runway capacity for landings on Runway 13 and Runway 31
- Add a runway exit taxiway between Taxiways B2 and B3 to improve runway capacity for landings on Runway 31
- Realign the intersection of Taxiway A4, Taxiway B, and Runway 17-35
- Realign the intersection of Taxiway D, Taxiway A3, and Runway 13-31
- Analyze the ability to eliminate runway crossings in the middle third of Runway 13-31 and Runway 17-35
- Resolve ultimate TOFA penetrations associated with ADG III aircraft using Taxiway B and Taxiway D
- Identify vertiport sites on airport property that could support a diverse array of AAM use cases including passenger/air taxi, cargo, and general aviation
- Reserve areas for emerging fuel types (i.e., SAF, electric aircraft, and hydrogen)
- Establish a perimeter road connecting the CAF apron to where the perimeter road begins adjacent to the Marvin D. Love Freeway
- Add engine run-up pads to each end of Runway 17-35 to support engine run-ups for small single engine piston aircraft



Terminal/Landside Facility Requirements

Terminal and landside area facilities play an important role in enabling the transition of pilots, passengers, and goods to and from the airside facilities at the airport. Terminal and landside area facilities include FBO/terminal buildings, hangars, apron space, vehicle parking areas, and roadway access.

Key terminal/landside area facility requirements are developed in consideration of the following general planning practices:

- Future development should typically be centralized to minimize development cost.
- Future developments should be grouped based on the size of the aircraft expected to use the development to minimize wasted space and reduce costs.
- Planned development should allow for the incremental linear expansion of facilities and services in a modular fashion so development can easily scale to demand.
- Major design considerations include minimizing earthwork/grading, avoiding flood-prone areas, and integrating existing paved areas to reduce costs.
- Future apron expansion should allow sufficient maneuverability and accessibility for the airport's anticipated mix of aircraft.

These general planning concepts are integrated into this terminal and landside facilities analysis.

The terminal/landside facility requirements analysis leverages information contained in the *Forecast of Aviation Activity* chapter to establish projections for additional FBO terminal building, apron, vehicle parking, and hangar space during the 20-year planning horizon. For this analysis, the baseline and high-growth scenarios contained in the *Forecast of Aviation Activity* chapter were used. The results of this analysis provide minimum facility planning thresholds that will be used in the alternatives effort. For example, if the facility requirements analysis shows demand for approximately 300,000 square feet of additional hangar space, the alternatives analysis will include planning for that amount of additional hangar space at a minimum.

The analysis techniques used to establish terminal/landside facility requirements blend industry best practices established by the Airport Cooperative Research Program (ACRP), FAA guidance materials, and Garver's professional experience.

FBO Terminal Building Requirements

Currently, there are two FBO terminal buildings at RBD – Ambassador Jet Center and Jet Access. Each facility provides a pilot lounge, flight planning facilities, lobby, conference



rooms, office space, and restrooms. The existing facilities were analyzed based on factors described in ACRP Report 113 – *Guidebook on General Aviation Facility Planning*. **Table 4-22** provides an overview of the anticipated FBO terminal buildings space requirements over the 20-year planning period for both the baseline and high-growth forecast scenarios.

Table 4-22 – FBO Terminal Building Space Requirements

	<u>Baseline Forecast</u>				
	PAL 1	PAL 2	PAL 3	PAL 4	PAL 5
Formula Factors					
- Peak Hour Operations	21	23	24	26	28
- % of Aircraft Using FBO Facilities	50%	50%	55%	55%	60%
- Peak Hour Multiplier	3.5	3.5	3.5	3.5	3.5
- Sq. Ft. Per Person	150	150	150	150	150
Total FBO Sq. Ft. Requirement	5,513	6,038	6,930	7,508	8,820
Current FBO Sq. Ft.	11,400	11,400	11,400	11,400	11,400
Surplus/Deficiency (Sq. Ft.)	5,888	5,363	4,470	3,893	2,580
	<u>High Growth Forecast</u>				
	PAL 1	PAL 2	PAL 3	PAL 4	PAL 5
Formula Factors					
- Peak Hour Operations	21	24	27	31	36
- % of Aircraft Using FBO Facilities	50%	50%	55%	55%	60%
- Peak Hour Multiplier	3.5	3.5	3.5	3.5	3.5
- Sq. Ft. Per Person	150	150	150	150	150
Total FBO Sq. Ft. Requirement	5,513	6,300	7,796	8,951	11,340
Current FBO Sq. Ft.	11,400	11,400	11,400	11,400	11,400
Surplus/Deficiency (Sq. Ft.)	5,888	5,100	3,604	2,449	60

Source: Garver, 2026; ACRP Guidebook for GA Facility Planning

Note: Green text indicates a spatial surplus while red text indicates a spatial deficiency.

Based on this analysis, the existing amount of FBO terminal building space is anticipated to be sufficient during the planning horizon. This surplus is likely due to the recent construction of the Jet Access FBO facility which greatly increased FBO terminal building capacity.

An expansion of the terminal building the City of Dallas owns at RBD is not anticipated to be needed during the planning horizon.

Aircraft Storage

Establishing requirements for future hangar space is a critical component of terminal/landside facility planning. In general, future hangar areas should achieve a balance between maintaining an unobstructed expansion area, minimizing pavement development, and allowing convenient airside and landside access.

To evaluate future hangar space requirements, general parking area needs must be established for different types of aircraft. For this analysis it was assumed that:

- A single-engine piston aircraft demands approximately 1,250 square feet of parking space,
- A twin-engine propeller aircraft requires approximately 3,000 square feet of parking space,
- A business turboprop/jet aircraft requires approximately 3,000 to 5,000 square feet of parking space; and,
- A helicopter requires approximately 1,500 square feet.

Based on these spatial requirements, a formula was used to calculate future hangar space requirements that incorporate considerations for based aircraft, itinerant aircraft operations, and common aircraft storage practices. Based on the forecast, it is presumed that hangar space at RBD will need to grow as described in **Table 4-23** to accommodate the demand shown in the baseline forecast scenario and as described in **Table 4-24** to accommodate the demand shown in the high-growth scenario.

Currently, RBD has box hangars and T-hangar storage totaling 681,300 square feet and the hangars are at capacity. Based on the analysis, the alternatives effort will include planning for at least 321,000 square feet of additional hangar space.

Table 4-23 – Hangar Space Requirements – Baseline Forecast

Facility	PAL 1	PAL 2	PAL 3	PAL 4	PAL 5
Based Aircraft - Single Engine Piston	262	261	259	258	257
% of Based SE Aircraft Utilizing Hangar Space	90%	90%	90%	90%	90%
Total Based SE Aircraft Placed in Hangar	236	235	233	232	231
Estimated Hangar Space per Aircraft	1,250	1,250	1,250	1,250	1,250
Total Hangar Space Required (sq. ft.)	294,750	293,625	291,375	290,250	289,125
Based Aircraft - Multi-Engine/Turboprop	49	51	54	57	60
% of Based ME/TP Aircraft Utilizing Hangar Space	100%	100%	100%	100%	100%
Total Based ME/TP Aircraft Placed in Hangar	49	51	54	57	60
Estimated Hangar Space per Aircraft	2,500	2,500	2,500	2,500	2,500
Total Hangar Space Required (sq. ft.)	122,500	127,500	135,000	142,500	150,000
Based Aircraft - Turbo-Jet	55	63	72	82	94
% of Based Jet Aircraft Utilizing Hangar Space	100%	100%	100%	100%	100%
Total Based Jet Aircraft Placed in Hangar	55	63	72	82	94
Estimated Hangar Space per Aircraft	3,500	3,500	3,500	3,500	3,500
Total Hangar Space Required (sq. ft.)	192,500	220,500	252,000	287,000	329,000
Based Aircraft - Helicopters	12	13	14	15	17
Estimated Hangar Space per Aircraft	1,500	1,500	1,500	1,500	1,500
Total Hangar Space Required (sq. ft.)	18,000	19,500	21,000	22,500	25,500
Annual Transient Operations	30,488	32,622	34,731	37,042	39,574
Maintenance/Transient Hangar Area Demand (ft ²)	60,976	65,244	69,462	74,084	79,148
Total Based Aircraft	378	388	399	412	428
Total Hangar Space Required (sq. ft.)	688,726	726,369	768,837	816,334	872,773
Hangar Space Lost to Exclusive Use/Office Space (estimated at 5%) (sq. ft.)	34,436	36,318	38,442	40,817	43,639
Hangar Space Required + Space Lost to Exclusive Use/Office Space (sq. ft.)	723,162	762,687	807,279	857,151	916,412
Current Total Hangar Space (sq. ft.)	681,300	681,300	681,300	681,300	681,300
Surplus/Deficiency (sq. ft.)	-41,862	-81,387	-125,979	-175,851	-235,112

Source: Garver, 2026

Note: Green text indicates a spatial surplus while red text indicates a spatial deficiency.

Table 4-24 – Hangar Space Requirements – High-Growth Forecast

Facility	PAL 1	PAL 2	PAL 3	PAL 4	PAL 5
Based Aircraft - Single Engine Piston	262	268	273	278	283
% of Based SE Aircraft Utilizing Hangar Space	90%	90%	90%	90%	90%
Total Based SE Aircraft Placed in Hangar	236	241	246	250	255
Estimated Hangar Space per Aircraft	1,250	1,250	1,250	1,250	1,250
Total Hangar Space Required (sq. ft.)	294,750	301,500	307,125	312,750	318,375
Based Aircraft - Multi-Engine/Turboprop	49	52	55	59	62
% of Based ME/TP Aircraft Utilizing Hangar Space	100%	100%	100%	100%	100%
Total Based ME/TP Aircraft Placed in Hangar	49	52	55	59	62
Estimated Hangar Space per Aircraft	2,500	2,500	2,500	2,500	2,500
Total Hangar Space Required (sq. ft.)	122,500	130,000	137,500	147,500	155,000
Based Aircraft - Turbo-Jet	55	66	77	90	104
% of Based Jet Aircraft Utilizing Hangar Space	100%	100%	100%	100%	100%
Total Based Jet Aircraft Placed in Hangar	55	66	77	90	104
Estimated Hangar Space per Aircraft	3,500	3,500	3,500	3,500	3,500
Total Hangar Space Required (sq. ft.)	192,500	231,000	269,500	315,000	364,000
Based Aircraft - Helicopters	12	14	16	17	19
Estimated Hangar Space per Aircraft	1,500	1,500	1,500	1,500	1,500
Total Hangar Space Required (sq. ft.)	18,000	21,000	24,000	25,500	28,500
Annual Itinerant Aircraft Operations	30,488	34,269	38,899	41,487	44,323
Maintenance/Transient Hangar Area Demand (ft ²)	60,976	68,538	77,797	82,974	88,646
Total Based Aircraft	378	400	421	444	468
Total Hangar Space Required (sq. ft.)	688,726	752,038	815,922	883,724	954,521
Hangar Space Lost to Exclusive Use/Office Space (estimated at 5%) (sq. ft.)	34,436	37,602	40,796	44,186	47,726
Hangar Space Required + Space Lost to Exclusive Use/Office Space (sq. ft.)	723,162	789,640	856,719	927,910	1,002,247
Current Total Hangar Space (sq. ft.)	681,300	681,300	681,300	681,300	681,300
Surplus/Deficiency (sq. ft.)	-41,862	-108,340	-175,419	-246,610	-320,947

Source: Garver, 2026

Note: Green text indicates a spatial surplus while red text indicates a spatial deficiency.

Vehicle Parking

Vehicle parking is an important consideration within the terminal/landside environment at an airport. Providing sufficient vehicle parking in areas adjacent to hangars or other aeronautical facilities allows for the efficient transition of personnel to/from the airside environment into the greater community.

Parking requirements at an airport are not uniform by area. The amount of parking needed in a specific area of the airport is highly dependent on the aeronautical activities of airport users and businesses located within the localized area. However, to estimate total parking space requirements for the airport as a whole the best practices established in the Airport Cooperative Research Program's (ACRP) *Guidebook for General Aviation Facility Planning* were used. Under the best practices established in the report a total of 2.5 to 3.5 spaces should be allocated for each peak hour aircraft operation and an additional one space for every 1,000 square feet of hangar space.

Table 4-25 shows the number of parking spaces for the baseline scenario while **Table 4-26** shows the number of parking spaces required for the high-growth scenario.

Table 4-25 – Vehicle Parking Space Requirements – Baseline Forecast

Facility	PAL 1	PAL 2	PAL 3	PAL 4	PAL 5
FBO Terminal Parking					
- Peak Hour Operations	21	23	24	26	28
- % of Aircraft Using FBO Terminal Facilities	50%	50%	55%	55%	60%
- Peak Hour Multiplier	3.5	3.5	3.5	3.5	3.5
Parking Space Need for Passenger/Pilot	37	40	46	50	59
Hangar Space Parking					
- Hangar Space Requirement	688,726	726,369	768,837	816,334	872,773
- Parking Allotment Based on Hangar Space (1 space per 1,000 sq. ft.)	689	726	769	816	873
- Reduction for Parking Inside Hangar	50.0%	50.0%	50.0%	50.0%	50.0%
Total Parking Needed for Hangar Space	344	363	384	408	436
Tie-Down Space Parking					
- Tie-Down Space Requirements	26	26	26	26	26
- % of A/C in Use at One-Time	10%	10%	10%	10%	10%
Total Parking Needed for Tie-Down Space	3	3	3	3	3
Total # of Spaces Currently	430	430	430	430	430
Total Number of Parking Spaces Needed	384	406	433	461	498
Total Deficiency/Surplus	46	24	-3	-31	-68

Source: Garver, 2026

Note: Green text indicates a spatial surplus while red text indicates a spatial deficiency



Table 4-26 – Vehicle Parking Space Requirements – Baseline Forecast

Facility	PAL 1	PAL 2	PAL 3	PAL 4	PAL 5
FBO Terminal Parking					
- Peak Hour Operations	21	24	27	31	36
- % of Aircraft Using FBO Terminal Facilities	50%	50%	55%	55%	60%
- Peak Hour Multiplier	3.5	3.5	3.5	3.5	3.5
Parking Space Need for Passenger/Pilot	37	42	52	60	76
Hangar Space Parking					
- Hangar Space Requirement	688,726	752,038	815,922	883,724	954,521
- Parking Allotment Based on Hangar Space (1 space per 1,000 sq. ft.)	689	752	816	884	955
- Reduction for Parking Inside Hangar	50.0%	50.0%	50.0%	50.0%	50.0%
Total Parking Needed for Hangar Space	344	376	408	442	477
Tie-Down Space Parking					
- Tie-Down Space Requirements	26	26	26	26	26
- % of A/C in Use at One-Time	10%	10%	10%	10%	10%
Total Parking Needed for Tie-Down Space	3	3	3	3	3
Total # of Spaces Currently	430	430	430	430	430
Total Number of Parking Spaces Needed	384	421	463	504	555
Total Deficiency/Surplus	46	9	-33	-74	-125

Source: Garver, 2026

Note: Green text indicates a spatial surplus while red text indicates a spatial deficiency

This analysis indicates that additional parking space will be needed in various areas of the airport as hangars or other aeronautical facilities are added. Furthermore, additional vehicle parking space is needed now in portions of the eastern development area where existing vehicle parking is limited. The addition of more vehicle parking will be a consideration in the alternatives analysis.

Vehicle Access

Vehicle access to Dallas Executive Airport is primarily via Challenger Drive on the east side of the airport and Boulder Drive on the west side of the airport. Based on interviews with tenants and airport personnel, the primary roadway access points to each side of the airport are sufficient.

To the extent practical, the existing roadway access via Saturn Drive in the eastern development area should be reconfigured to reduce the amount of vehicle traffic utilizing the taxilane system in this area.

Aircraft Parking Apron

Aircraft apron areas are provided for aircraft maneuvering and parking. Typically, aprons utilized for aircraft parking have a blend of based aircraft utilizing the apron as a permanent parking location and itinerant aircraft using the apron as a temporary parking location. Currently, the RBD aircraft parking aprons are used for a combination of tenant and itinerant aircraft parking.

Since the aprons at RBD are used for a combination of tenant and itinerant aircraft parking, the calculations regarding the need for future ramp space consider both current and future based aircraft demand as well as the space needed to park itinerant aircraft and the space needed for general aircraft movement.

To begin the analysis, a weighted average for the number of square feet of pavement needed to park an aircraft at RBD was calculated. The weighted average aircraft was determined based on the fleet mix of aircraft using the airport in 2025. Additionally, the weighted average aircraft parking area considers the movement of the aircraft into and out of the parking area, and the movement of other aircraft around the parked aircraft. This includes consideration for required clearances on all sides of the aircraft. **Table 4-27** provides a weighted average apron space requirement per aircraft for PAL1. The weighted average was increased by 50 square feet during each subsequent PAL to account for an increasing number of large aircraft using RBD.

Table 4-27 – Aircraft Apron Space Requirements (Weighted)

ADG	Average Length (ft.)	Average Wingspan (ft.)	Additional Clearance (ft.)	TLOFA Clearance (ft.)	Average Parking Area Required (ft. ²)	Fleet Mix	Weighted Average Parking Area (ft. ²)
I	26	35	7.50	79	6,000	94.14%	5,648
II	55	60	7.75	110	13,628	5.08%	692
III	100	100	10.00	158	33,360	0.08%	27
Helicopter	35	30	15.00	0	3,186	0.71%	23
					Weighted Average:		6,390

Source: Garver, 2026

Note: These calculations take into account the TOFA required for another aircraft to pass by the parked aircraft. The average parking area required was calculated by multiplying the average aircraft length plus 2 times the additional clearance margin by the average aircraft wingspan plus 2 times the additional clearance margin and then adding that number to the TOFA plus the aircraft's average wingspan plus 2 times the additional clearance margin.

Using this weighted average parking area, an analysis was completed estimating the amount of apron space needed based on the baseline and high-growth forecasts. The

results of this analysis are shown in **Table 4-28** and **4-29**. It should also be noted that a significant portion of the current aircraft parking apron at RBD is used as a taxilane and is not used for aircraft parking. This consideration is incorporated into the Aircraft Circulation Factor shown in the tables.

For the analysis, an assumption was made that no more than 50% of the total number of estimated itinerant operations during the peak hour would be on the ramp at the same time. The estimated parking apron required was calculated by multiplying the peak hour by the forecasted percentage of itinerant operations, then multiplying that result by the estimated percentage of itinerant operations on the apron at the same time and then multiplying that result by the weighted average aircraft parking area. It was also assumed that a total of 26 tie-down spaces would be occupied. A factor of ten was added to the apron space calculation to account for general aircraft circulation and movement and taxilanes on the apron. This high factor was utilized to account for the significant amount of apron space that is immediately in front of hangars and the high number of designated taxilanes that are only available for aircraft movement and not parking.

Based on the results of the analysis, the existing amount of apron space at RBD is sufficient. However, additional apron space is anticipated to be needed as hangars are added.

Fuel Storage Requirements

Airports should have sufficient fuel on hand to accommodate delays or interruptions in fuel service that could be reasonably anticipated. For example, if a fuel shipment is delayed for one to two days, an airport should ideally have enough fuel on hand to minimize any impacts to aircraft operations while waiting for the fuel shipment to be fulfilled.

Based on discussions with both Jet Access and Ambassador, the existing fuel farms at the airport are generally sufficient to support existing demand. However, as development increases on the west side of the airport, an additional 20,000-gallon Jet A fuel farm will be needed in that area.

Table 4-28 – Aircraft Apron Space Requirements – Baseline Forecast

Year	Peak Hour Operations	Forecasted % of Itinerant Operations Parking on Apron	Estimated Percentage of Itinerant Ops on Apron at Same Time	Permanent Tie-Down Aircraft	Weighted Average Aircraft Parking Area (ft. ²)	Estimated Parking Apron Required	Aircraft Circulation Factor	Total Apron Area Required (ft. ²)	Current Apron Area (ft. ²)	Surplus/ Deficiency Based on Current Apron Size (ft. ²)
PAL 1	21	50%	50%	26	6,390	77,748	777,475	855,223	1,500,000	644,778
PAL 2	23	50%	50%	26	6,440	81,230	812,300	893,530	1,500,000	606,470
PAL 3	24	50%	50%	26	6,490	83,140	831,400	914,540	1,500,000	585,460
PAL 4	26	50%	50%	26	6,540	86,710	867,100	953,810	1,500,000	546,190
PAL 5	28	50%	50%	26	6,590	90,330	903,300	993,630	1,500,000	506,370

Source: Garver, 2026

Table 4-29 – Aircraft Apron Space Requirements – High-Growth Forecast

Year	Peak Hour Operations	Forecasted % of Itinerant Operations Parking on Apron	Estimated Percentage of Itinerant Ops on Apron at Same Time	Permanent Tie-Down Aircraft	Weighted Average Aircraft Parking Area (ft. ²)	Estimated Parking Apron Required	Aircraft Circulation Factor	Total Apron Area Required (ft. ²)	Current Apron Area (ft. ²)	Surplus/ Deficiency Based on Current Apron Size (ft. ²)
PAL 1	21	50%	50%	26	6,390	77,748	777,475	855,223	1,500,000	644,778
PAL 2	24	50%	50%	26	6,440	82,840	828,400	911,240	1,500,000	588,760
PAL 3	27	50%	50%	26	6,490	88,007	880,075	968,082	1,500,000	531,918
PAL 4	31	50%	50%	26	6,540	94,885	948,850	1,043,735	1,500,000	456,265
PAL 5	36	50%	50%	26	6,590	103,510	1,035,100	1,138,610	1,500,000	361,390

Source: Garver, 2026

Terminal/Landside Facility Requirements Summary

Based on the terminal/landside facility requirements analysis, the following development objectives have been established for the alternatives process:

- An additional 321,000 square feet of hangar space will be needed
- Aircraft apron space will need to be added to support hangar development
- Additional FBO terminal space may be needed when PAL 5 is reached
- Vehicle parking needs to be added in the eastern development areas and as new hangars or aeronautical facilities are added
- An additional 20,000-gallon Jet A fuel farm is needed in the western development area