# Chapter 5
# Recommended Plan

The airport master plan for Kerrville-Kerr County Airport (ERV) has progressed through a systematic and logical process with a goal of formulating a recommended 20-year development plan. The process began with an evaluation of existing and future operational demand, which aided in creating an assessment of future facility needs. Those needs were then used to develop alternative facility plans to meet projected needs. Each step in the planning process has included the development of draft working papers, which were presented and discussed at previous planning advisory committee (PAC) meetings and public information workshops and have been made available on the project website.

In the previous chapter, several development alternatives were analyzed to explore options for the future growth and development of ERV. The development alternatives have been refined into a single recommended concept for the master plan. This chapter describes, in narrative and graphic form, the recommended direction for the future use and development of ERV.

The recommended concept provides the ability to meet the disparate needs of various airport operators. The goal of this plan is to ensure the airport can continue (and improve) in its role of serving general aviation operators. The plan has been specifically tailored to support existing and future growth in all forms of potential aviation activity as the demand materializes.

The recommended master plan concept, as shown on **Exhibit 5A**, presents a long-term configuration for the airport that preserves and enhances the role of the airport while meeting Federal Aviation Administration (FAA) design standards. The phased implementation of the recommended development concept will be presented in Chapter Six. The following sections describe the key details of the recommended master plan concept.

# AIRFIELD PLAN

The airfield plan generally considers improvements related to the runway and taxiway system and navigational aids at ERV. The following sections provide descriptions of the airfield recommendations.

## DESIGN STANDARDS

The FAA has established design criteria to define the physical dimensions of runways and taxiways, as well as the imaginary surfaces surrounding them, to enhance the safe operation of aircraft at airports. These design standards also define the separation criteria for the placement of landside facilities.

As previously discussed, the design criteria primarily center on the airport's critical design aircraft. The critical design aircraft is the most demanding aircraft (or family of aircraft) that currently conducts or is projected to conduct 500 or more operations (takeoffs and landings) per year at the airport. Factors included in airport design are an aircraft's wingspan, approach speed, and tail height, as well as the instrument approach visibility minimums for each runway. The FAA has established the runway design code (RDC) to relate these critical design aircraft factors to airfield design standards.

While airfield elements, such as safety areas, must meet design standards associated with the applicable RDC, landside elements can be designed to accommodate specific categories of aircraft. For example, an airside taxiway must meet taxiway object free area (TOFA) standards for all aircraft types that use the taxiway, while the taxilane to a T-hangar area only needs to meet width standards for smaller single- and multi-engine piston aircraft that are expected to utilize the taxilane.

The applicable RDC and critical design aircraft for each runway at ERV in the existing and ultimate conditions, as established in Chapter Two, are summarized in **Table 5A**.

**TABLE 5A | Airport and Runway Classifications**

| | Runway 12-30 | Runway 3-21 |
|---|---|---|
| Airport Reference Code (ARC) | C-II | A/B-I |
| Critical Aircraft | Falcon 900 | Cessna 425 Corsair |
| Runway Design Code (RDC) | C-II-5000 | A/B-I-5000 |
| Taxiway Design Group (TDG) | 2A | 2A |

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

## RUNWAY 12-30

**Runway Designation |** Due to magnetic declination, the magnetic heading of Runway 12-30 is now 127°/307°. The ideal runway designation for this magnetic heading is 13-31. The plan reflects an ultimate runway designation change from 12-30 to 13-31.

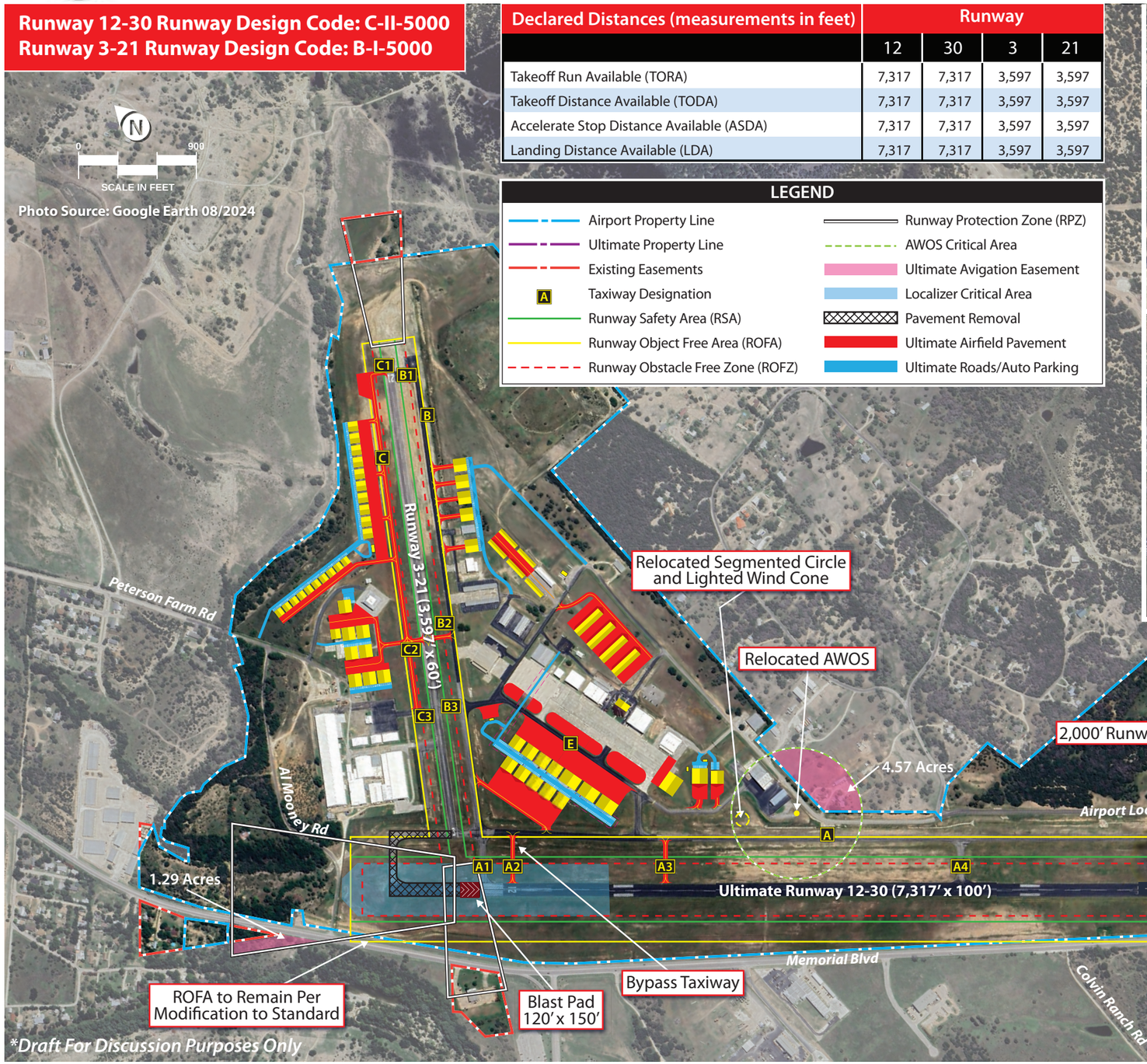
**Runway Dimensions |** Runway 12-30 is currently 6,004 feet long and 100 feet wide with a 687-foot displaced threshold at the Runway 12 end. The displacement is the result of the need to provide 600 feet of runway safety area (RSA) prior to the landing threshold, as well as to provide appropriate approach surface clearance over Al Mooney Road. The threshold displacement reduces the landing distance available (LDA) on Runway 12 to 5,313 feet. The runway length analysis in Chapter Three concluded that

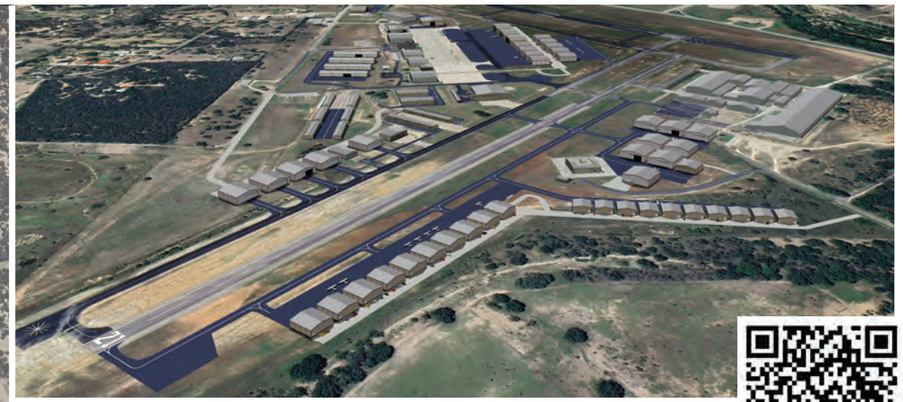
## Runway 12-30 Runway Design Code: C-II-5000
## Runway 3-21 Runway Design Code: B-I-5000

| Declared Distances (measurements in feet) | Runway | | | |
|---|---|---|---|---|
| | 12 | 30 | 3 | 21 |
| Takeoff Run Available (TORA) | 7,317 | 7,317 | 3,597 | 3,597 |
| Takeoff Distance Available (TODA) | 7,317 | 7,317 | 3,597 | 3,597 |
| Accelerate Stop Distance Available (ASDA) | 7,317 | 7,317 | 3,597 | 3,597 |
| Landing Distance Available (LDA) | 7,317 | 7,317 | 3,597 | 3,597 |

**LEGEND**

- Airport Property Line
- Ultimate Property Line
- Existing Easements
- A — Taxiway Designation
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zone (RPZ)
- AWOS Critical Area
- Ultimate Avigation Easement
- Localizer Critical Area
- Pavement Removal
- Ultimate Airfield Pavement
- Ultimate Roads/Auto Parking



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additional runway length is needed to accommodate the existing critical aircraft (Falcon 900), as well as larger and heavier business jets that currently use the airport and are projected for significant growth at ERV in the future. The recommended development concept includes removal of the existing threshold displacement at the Runway 12 end and extension of the runway by 2,000 feet at the Runway 30 end for a full length of 7,317 feet. Eliminating the displacement will allow the runway to meet the RDC C-II-5000 design standard of providing 1,000 feet of RSA/ROFA beyond each runway end without applying declared distances, which is preferred by the FAA. The added runway length will provide for greater utility to the existing/ultimate critical aircraft as well as the larger/heavier business jets that routinely utilize the airport.

To accommodate the extension of the runway and the ultimate safety areas, the airport is in the process of acquiring approximately 53.9 acres of property to the southeast of the runway end. This area will support the extension and protect the ultimate runway protection zone (RPZ). The airport access road, Airport Loop, will also need to be rerouted farther southeast to mitigate impacts to the runway's safety areas.

The existing runway width of 100 feet meets the existing/ultimate RDC C-II-5000 design standard. No additional runway width is planned.

**Pavement Strength |** Runway 12-30 is currently strength-rated for up to 22,400 pounds for single wheel loading (SWL) aircraft and 73,700 pounds for dual wheel loading (DWL) aircraft. These ratings are sufficient for the existing/ultimate critical aircraft (Falcon 900), which has a maximum takeoff weight (MTOW) of 49,200 pounds on dual wheel main landing gear; however, the plan includes increasing the pavement strength rating to 100,000 pounds DWL to accommodate some of the largest business jets in the national fleet, including the Gulfstream G650, which has an MTOW of 99,600 pounds.

**Modification to Standard |** The runway object free area (ROFA) extends beyond airport property, encompassing a portion of Texas State Highway 27 (Memorial Boulevard). This condition was identified in the previous airport master plan, and the FAA and Texas Department of Transportation (TxDOT) are aware of the non-standard condition. Due to the high cost of relocating either Runway 12-30 or Highway 27, the FAA and TxDOT have accepted the deficiency as a minor modification to standard, allowing the condition to remain.

**Runway Lighting/Marking/Navigational Aids |** Runway 12-30 is currently equipped with medium intensity edge lighting (MIRL) and a four-box precision approach path indicator (PAPI-4) system on both runway ends. The runway is marked with non-precision runway markings. These lighting and marking systems are adequate and should be maintained through the planning period. Both ends of the runway are equipped with global positioning system (GPS)-based approach with vertical guidance (APV) instrument approach procedures that provide one-mile visibility minimums. These procedures will need to be modified to reflect the planned runway shift and extension but are otherwise sufficient. No new instrument procedures or lower visibility minimums are planned.

**Runway Protection Zones |** The plan to eliminate the displaced threshold on the Runway 12 end will consolidate the approach and departure RPZs in the same location as the existing approach RPZ. In this location, approximately 1.29 acres of the RPZ will extend beyond existing airport property and avigation easements over property west of Texas State Highway 27 (Memorial Boulevard). This area is planned to be protected via avigation easement. With the extension on the Runway 30 end, the ultimate RPZ will shift southeast and extend over 53.9 acres of acquired property. Approximately 0.48 acres of the RPZ will extend beyond airport property, which is planned to be protected via avigation easement.

## RUNWAY 3-21

**Runway Dimensions |** Runway 3-21 is currently 3,597 feet long and 58 feet wide and meets RDC A/B-I-5000 standards. Because this runway is capable of accommodating most small aircraft, for which it is designed, no additional length is planned. The width of the runway, which is currently published at 58 feet, is two feet short of meeting the design standard width of 60 feet. This is likely due to an error in reporting, as the runway has historically been reported as being 60 feet wide. It is recommended that the sponsor coordinate with TxDOT and revalidate the runway width so that FAA publications can be updated with the correct current width.

**Pavement Strength |** Runway 3-21 is currently strength-rated for up to 15,000 pounds for SWL aircraft. Because this runway primarily serves small aircraft that weigh less than 12,500 pounds, the current strength rating is adequate. No additional strength is recommended.

**Runway Lighting/Marking/Navigational Aids |** Runway 3-21 is currently equipped with MIRL and a two-box precision approach path indicator (PAPI-2) system on both runway ends. The runway is marked with basic runway markings. These lighting and marking systems are adequate and should be maintained through the planning period. There are no published straight-in instrument approach procedures to either end of this runway; however, circling approaches can be used with published visibility minimums down to one mile. The runway is planned to be maintained as a visual or circling-only runway through the planning period.

**Runway Protection Zones |** The RPZs for both ends of the runway are contained on existing airport property or are protected via avigation easements. No changes to the RPZs are planned.

## TAXIWAY IMPROVEMENTS

The taxiway system at ERV is planned to meet airplane design group (ADG) II and taxiway design group (TDG) 2A design standards. These standards establish a minimum taxiway width of 35 feet, which is currently met or exceeded by all taxiways.

**Taxiway Nomenclature |** The FAA recommends using the guidelines found in Engineering Brief No. 89, *Taxiway Nomenclature Convention*, when developing or revising airport plans, such as this master plan. Following the standards presented in the brief, the taxiway system at ERV has been given alphanumeric designations to improve the situational awareness of pilots and the safety margins at the airport. The ultimate designations are shown on **Exhibit 5A**. Airfield signage is planned to be updated to reflect the new taxiway designations.

**Taxiway A |** Taxiway A is a parallel taxiway that extends the entire length of Runway 12-30. It is planned to be altered along with the ultimate ends of the runway, which involves removing the portion of the taxiway that extends north of the Runway 3 threshold. The extended taxiway pavement is planned to a width of 35 feet, which meets TDG 2A design standards. New entrance taxiways (A2, A3, A6, and A7) are planned to allow aircraft to exit the runway more quickly upon arrival. Taxiway A2 is planned to allow aircraft to bypass each other at the Runway 12 threshold, which increases circulation efficiency in a location where space does not allow for a traditional holding apron.

**Taxiway B |** The plan is to redesignate existing Taxiway F as Taxiway B. The existing entrance taxiway at the Runway 21 threshold would be redesignated as B1 and the existing Taxiway E connector would be redesignated as B3. No physical changes are planned to the taxiway other than the addition of a new connecting taxiway (B2) to provide access to new landside facilities on the north side of Runway 3-21.

**Taxiway C |** A partial-parallel taxiway is planned on the north side of Runway 3-21 to extend from the Runway 21 threshold to existing Taxiway M1 (ultimate C3). An additional exit taxiway, C2, is planned to provide an additional crossing point between Taxiways B and C. A holding apron is planned near the Runway 21 threshold to provide a location for aircraft to conduct pre-flight engine checks and to allow aircraft to bypass each other while waiting for departure.

**Taxiway Pavement Strengthening |** Due to the increasing use of ERV by heavier aircraft, some portions of taxiway pavement have experienced failures and have required emergency repairs. The plan includes strengthening portions of Taxiways A and E to ratings up to 100,000 pounds DWL to support heavier aircraft as they taxi to/from the terminal apron.

## NAVIGATIONAL AND WEATHER AIDS

The segmented circle and lighted wind cone and automated weather observation station (AWOS), which are currently located between Taxiways A and E, are planned to be relocated to allow for the expansion of the terminal apron and new hangar facilities. The relocation site for the segmented circle and lighted wind cone is approximately 1,300 feet southeast of the existing location along Taxiway A but outside the taxiway object free area (TOFA). The AWOS is planned to be relocated to a site approximately 1,900 feet southeast of the existing location between Taxiway A and the Airport Loop road.

FAA Order JO 6560.20C stipulates that the preferred AWOS siting should be between 1,000 and 3,000 feet from the primary runway threshold and between 500 and 1,000 feet from the runway centerline. This site is approximately 2,500 feet from the Runway 12 threshold and approximately 570 feet from the runway centerline, placing it within the preferred siting range. The order further stipulates that the wind sensor should be mounted at 30 to 33 feet above the average ground height within a radius of 500 feet. Any surrounding objects should be at least 15 feet lower than the height of the sensor within the 500-foot radius and be no greater than 10 feet above the sensor from 500 feet to 1,000 feet.

**Exhibit 5B** depicts the 500-foot and 1,000-foot radii surrounding the new AWOS site and various objects (buildings, power poles, trees, antennas) within those areas. The neighboring T-hangar structure associated with Guadalupe Aviation is greater than 15 feet lower than the height of the wind sensor, so it is not considered an obstruction. A portion of the larger Guadalupe Aviation conventional hangar is also within 500 feet of the proposed AWOS site and is 26 feet tall at its highest point, which is only seven feet lower than the wind sensor. In this case, FAA guidance stipulates that an object becomes a sheltering obstruction if the distance between the sensor and the object is less than 10 times the height of the object ***and*** the lateral angle from the sensor to the ends of the object exceeds 10 degrees. The hangar is located approximately 362 feet from the proposed wind sensor, which is greater than 10 times the height of the structure (26 feet tall x 10 = 260 feet). Furthermore, the lateral angle from the proposed sensor to the end of the hangar is less than 10 degrees. Several additional objects (trees, power poles, buildings, windmills, and antennas) within the 500-foot and 1,000-foot radii were evaluated to determine whether they qualified as sheltering obstructions and none were found to meet both criteria.

## *LANDSIDE CONCEPT*

The primary goal of landside facility planning is to provide adequate space to meet reasonably anticipated needs of the various users while optimizing operational efficiency and land use. Achieving these goals yields a development scheme that segregates functional uses while maximizing the airport's revenue potential.

**As a reminder, all landside development should occur only as dictated by demand. The locations and sizes of aprons and hangars proposed in the recommended plans are conceptual and may not reflect the needs of future developers and their customers. The recommended concept is strictly intended to be used as a guide for ERV staff when considering new developments.**

Recommended landside developments are depicted on **Exhibits 5C** and **5D**.

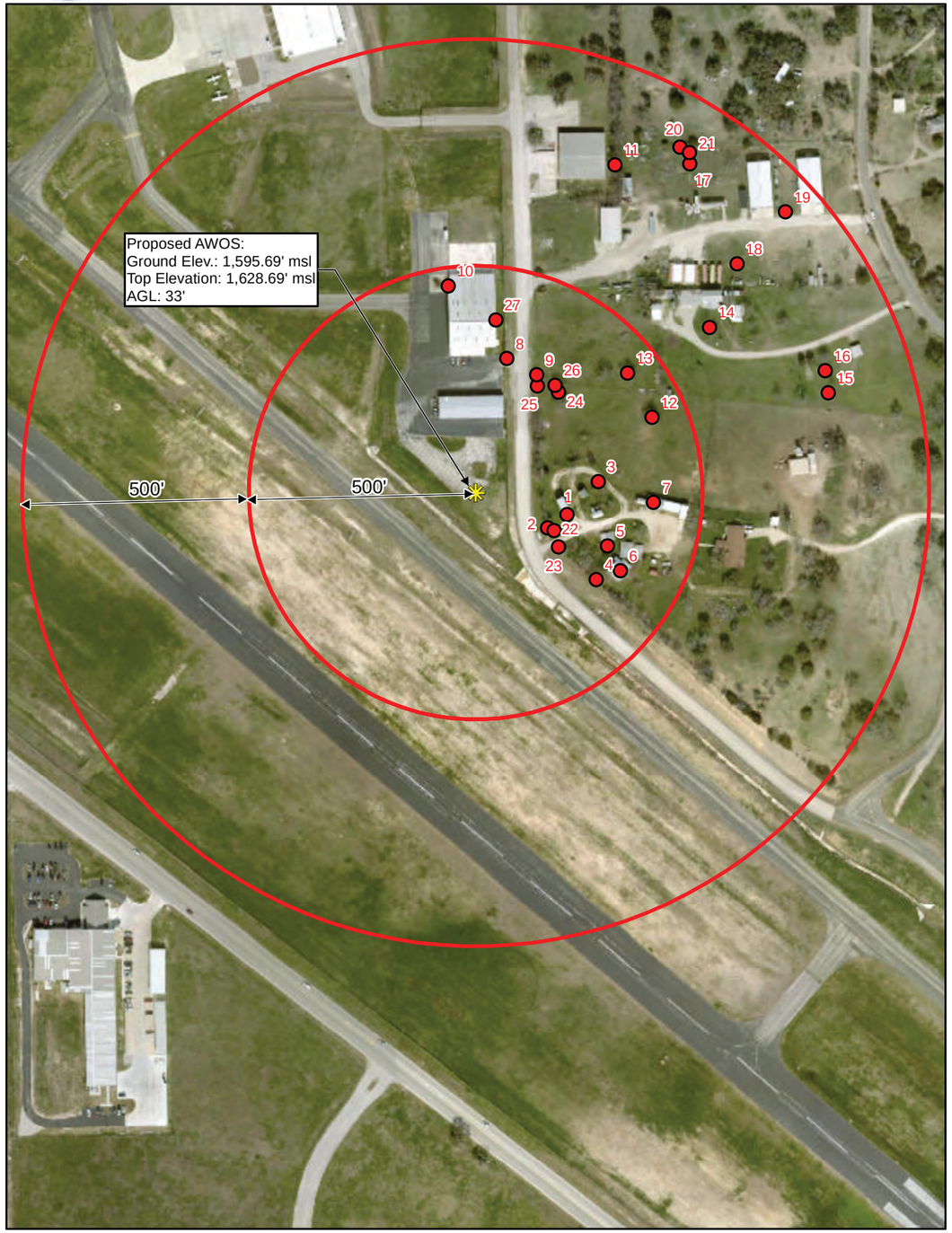
### GENERAL AVIATION FACILITIES

**Terminal |** The facility requirements evaluation determined that the existing 5,000-square-foot (sf) terminal building is adequately sized for the operation levels projected through the intermediate period; however, additional space may be needed some time in the 10- to 20-year timeframe. The plan includes a potential expansion of the terminal building that could include additional leasable office space, lobby/ waiting areas, and expanded amenities.

**Aprons |** The existing apron capacity at ERV totals approximately 32,200 square yards (sy). Additional apron capacity was identified as a key need in the facility requirements; an additional 40,600 sy will be needed over the next 20 years. The plan includes several expansions of the terminal apron that total 41,500 sy. These apron expansions extend into an undeveloped area of the airfield that is currently occupied by the AWOS equipment and segmented circle/lighted wind cone. As previously mentioned, this equipment is planned to be relocated elsewhere on the airfield to allow for the expansion of the terminal apron, as well as new hangar developments. A new vehicle access road that is planned to access the midfield area will cross the existing terminal apron to provide public access to the new hangar facilities. The new access road will create a single access/egress point to the main terminal apron via Taxiway A. The northern segregated portion of the terminal apron will be accessible via Taxiway B.

**Hangars |** A major priority for ERV is the development of new hangar facilities. Current capacity stands at 435,170 sf of total hangar space and the facility requirements analysis identified a need to increase capacity by 127,730 sf over the next 20 years. Three new conventional hangars are already under development at the south end of the terminal apron and will increase capacity by approximately 45,125 sf. Once the AWOS and segmented circle/lighted wind cone are relocated, the mid-field portion of the terminal area is planned to be developed with a variety of conventional hangars ranging in size from 10,000 sf to 15,000 sf.

Five new 10,000-sf conventional hangars are planned along Taxiway B. Four new T-hangars and smaller box hangars are planned east of the terminal area along Airport Loop. These hangars are intended for use by smaller aircraft that can more easily access these areas using taxilanes with higher grades. Due to the rising terrain in some areas of the airport, several hangar development sites will require moderate to significant grading work before development.




| Basic Obstruction List | | | | | | | | Sheltering Obstruction Criteria | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ID | Feature | AGL (ft.) | Top Elevation (ft. msl.) | Distance From Sensor | Sensor Height (ft. AGL) | Sensor Top Elevation (ft. msl.) | Penetration Value (ft.) | 10x Height | Violates 10x Height/Distance From Sensor Rule | Lateral Angle | Sheltering Obstruction (Y/N) |
| 1 | POWER POLE | 21.87 | 1,616.57 | 207.70 | 33.00 | 1,628.69 | 2.88 | 218.70 | Yes | Less than 10° | No |
| 2 | POWER POLE | 31.78 | 1,623.82 | 176.96 | 33.00 | 1,628.69 | 10.13 | 317.80 | Yes | Less than 10° | No |
| 3 | TREE | 28.54 | 1,627.17 | 271.96 | 33.00 | 1,628.69 | 13.48 | 285.40 | Yes | Less than 10° | No |
| 4 | TREE | 33.49 | 1,627.49 | 328.04 | 33.00 | 1,628.69 | 13.80 | 334.90 | Yes | Less than 10° | No |
| 5 | POWER POLE | 22.66 | 1,619.21 | 313.94 | 33.00 | 1,628.69 | 5.52 | 226.60 | No | N/A | No |
| 6 | BUILDING | 26.62 | 1,622.68 | 362.74 | 33.00 | 1,628.69 | 8.99 | 266.20 | No | N/A | No |
| 7 | BUILDING | 17.39 | 1,616.38 | 393.07 | 33.00 | 1,628.69 | 2.69 | 173.90 | No | N/A | No |
| 8 | POWER POLE | 23.60 | 1,621.64 | 303.20 | 33.00 | 1,628.69 | 7.95 | 236.00 | No | N/A | No |
| 9 | TREE | 14.48 | 1,615.09 | 292.26 | 33.00 | 1,628.69 | 1.40 | 144.80 | No | N/A | No |
| 10 | BUILDING | 21.90 | 1,618.92 | 459.40 | 33.00 | 1,628.69 | 5.23 | 219.00 | No | N/A | No |
| 11 | TREE | 36.75 | 1,643.87 | 784.65 | 33.00 | 1,628.69 | 5.18 | 367.50 | No | N/A | No |
| 12 | TREE | 30.25 | 1,633.62 | 422.91 | 33.00 | 1,628.69 | 19.93 | 302.50 | No | N/A | No |
| 13 | TREE | 20.19 | 1,625.09 | 426.34 | 33.00 | 1,628.69 | 11.40 | 201.90 | No | N/A | No |
| 14 | TREE | 35.39 | 1,642.18 | 631.37 | 33.00 | 1,628.69 | 3.49 | 353.90 | No | N/A | No |
| 15 | TREE | 40.52 | 1,643.79 | 807.90 | 33.00 | 1,628.69 | 5.10 | 405.20 | No | N/A | No |
| 16 | TREE | 46.34 | 1,650.68 | 816.47 | 33.00 | 1,628.69 | 11.99 | 463.40 | No | N/A | No |
| 17 | TREE | 39.63 | 1,649.95 | 864.78 | 33.00 | 1,628.69 | 11.26 | 396.30 | No | N/A | No |
| 18 | TREE | 46.11 | 1,654.51 | 766.21 | 33.00 | 1,628.69 | 15.82 | 461.10 | No | N/A | No |
| 19 | TREE | 39.23 | 1,650.37 | 921.46 | 33.00 | 1,628.69 | 11.68 | 392.30 | No | N/A | No |
| 20 | TREE | 40.94 | 1,651.56 | 885.05 | 33.00 | 1,628.69 | 12.87 | 409.40 | No | N/A | No |
| 21 | TREE | 36.56 | 1,647.24 | 885.04 | 33.00 | 1,628.69 | 8.55 | 365.60 | No | N/A | No |
| 22 | WINDMILL | 36.71 | 1,629.39 | 192.24 | 33.00 | 1,628.69 | 15.70 | 367.10 | Yes | Less than 10° | No |
| 23 | TREE | 38.74 | 1,631.37 | 218.91 | 33.00 | 1,628.69 | 17.68 | 387.40 | Yes | Less than 10° | No |
| 24 | TREE | 30.28 | 1,631.69 | 286.87 | 33.00 | 1,628.69 | 18.00 | 302.80 | Yes | Less than 10° | No |
| 25 | POWER POLE | 32.95 | 1,633.16 | 271.11 | 33.00 | 1,628.69 | 19.47 | 329.50 | Yes | N/A | No |
| 26 | SENSOR ON BUILDING | 34.10 | 1,635.57 | 294.24 | 33.00 | 1,628.69 | 21.88 | 341.00 | Yes | N/A | No |
| 27 | ANTENNA | 38.81 | 1,636.33 | 382.69 | 33.00 | 1,628.69 | 22.64 | 388.10 | Yes | Less than 10° | No |

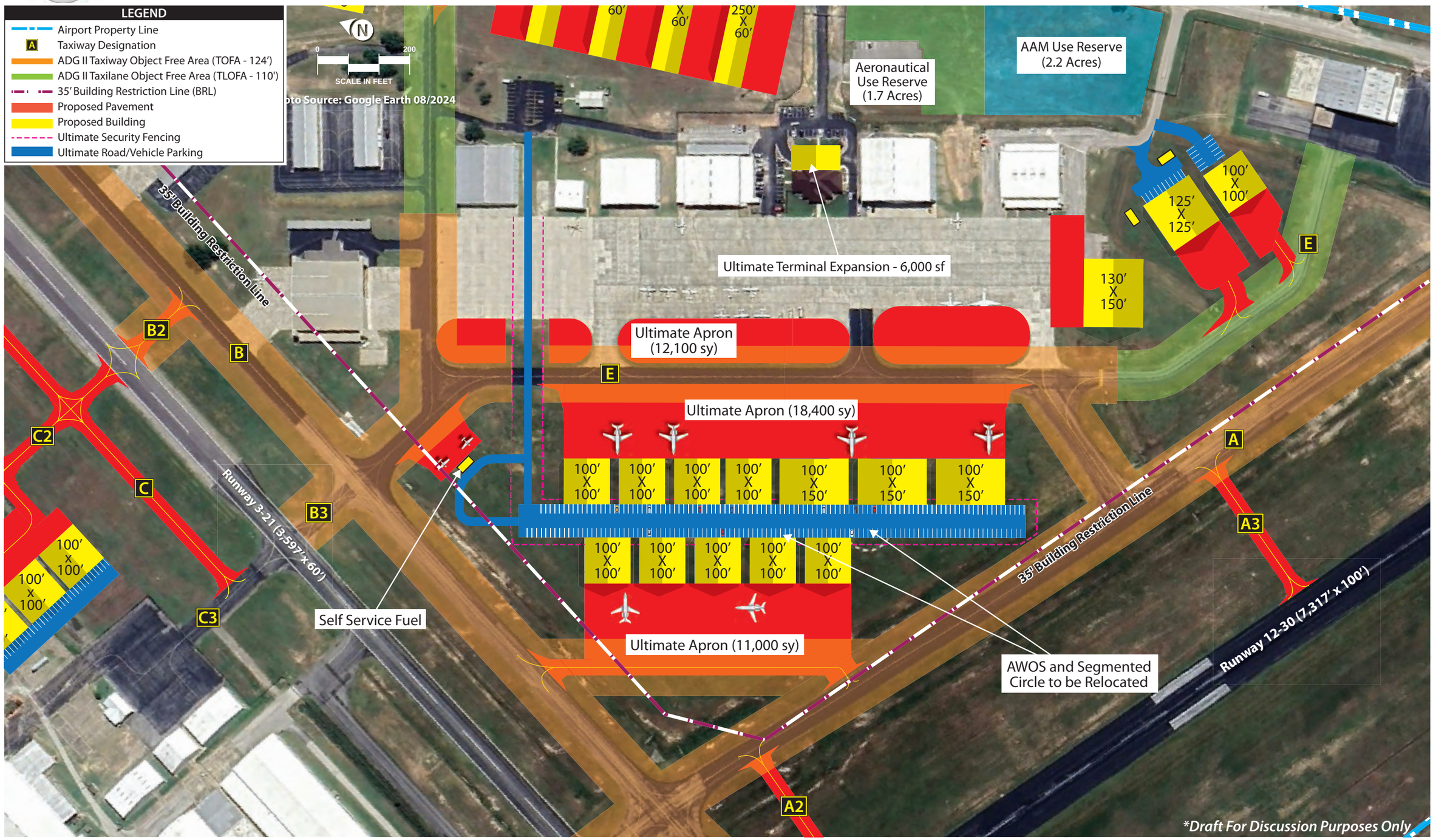
Source: Coffman Associates

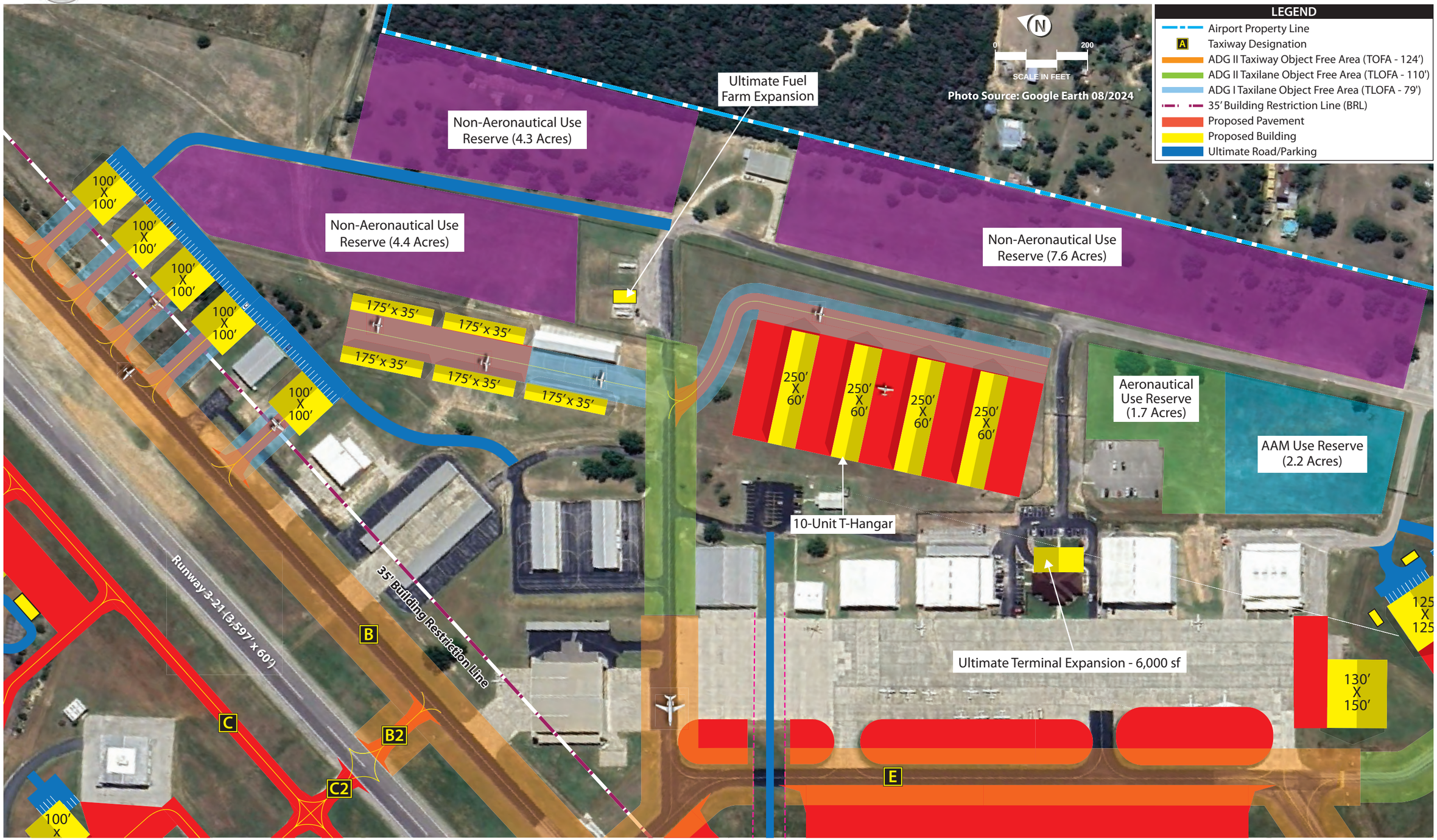
Proposed AWOS
AWOS Basic Clearance Obstructions
AWOS Obstruction Clearance Radius

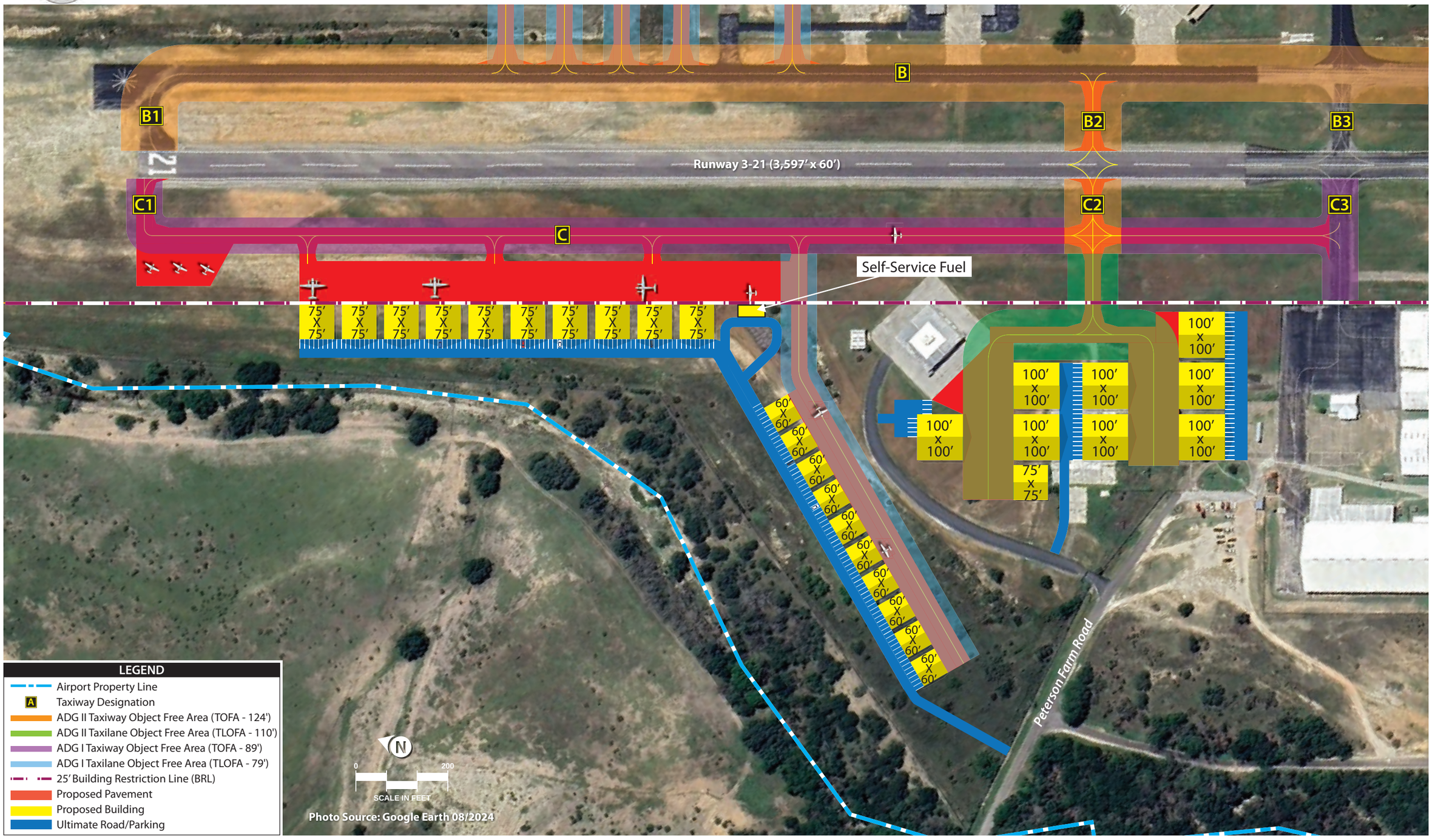
Source: Obstruction points taken from 18B ADIP Survey Download. Obstruction analysis based on USDOT/FAA Order 6560.20B, Appendix 1 (7/20/1998)

0 300 600 N

1" = 300'


LEGEND
Airport Property Line
A Taxiway Designation
ADG II Taxiway Object Free Area (TOFA - 124')
ADG II Taxilane Object Free Area (TLOFA - 110')
35' Building Restriction Line (BRL)
Proposed Pavement
Proposed Building
Ultimate Security Fencing
Ultimate Road/Vehicle Parking
N
0
200
SCALE IN FEET
oto Source: Google Earth 08/2024
60' X 60'
250' X 60'
Aeronautical Use Reserve (1.7 Acres)
AAM Use Reserve (2.2 Acres)
Ultimate Terminal Expansion - 6,000 sf
130' X 150'
125' X 125'
100' X 100'
E
35' Building Restriction Line
B2
B
Ultimate Apron (12,100 sy)
E
Ultimate Apron (18,400 sy)
100' X 100'
100' X 150'
C2
C
B3
Runway 3-21 (3,597' x 60')
C3
Self Service Fuel
Ultimate Apron (11,000 sy)
A
A3
35' Building Restriction Line
AWOS and Segmented Circle to be Relocated
Runway 12-30 (7,317' x 100')
A2
*Draft For Discussion Purposes Only


LEGEND
Airport Property Line
A Taxiway Designation
ADG II Taxiway Object Free Area (TOFA - 124')
ADG II Taxilane Object Free Area (TLOFA - 110')
ADG I Taxilane Object Free Area (TLOFA - 79')
35' Building Restriction Line (BRL)
Proposed Pavement
Proposed Building
Ultimate Road/Parking
N
0
200
SCALE IN FEET
Photo Source: Google Earth 08/2024
Ultimate Fuel Farm Expansion
Non-Aeronautical Use Reserve (4.3 Acres)
Non-Aeronautical Use Reserve (4.4 Acres)
Non-Aeronautical Use Reserve (7.6 Acres)
100' X 100'
175' x 35'
250' X 60'
Aeronautical Use Reserve (1.7 Acres)
AAM Use Reserve (2.2 Acres)
10-Unit T-Hangar
Ultimate Terminal Expansion - 6,000 sf
130' X 150'
125 X 125
Runway 3-21 (3,597' x 60')
35' Building Restriction Line
B
B2
C
C2
E


B
B1
B2
B3
12
21
Runway 3-21 (3,597′ x 60′)
C1
C
C2
C3
Self-Service Fuel
75′ X 75′
60′ X 60′
100′ x 100′
75′ x 75′
Peterson Farm Road
LEGEND
Airport Property Line
A Taxiway Designation
ADG II Taxiway Object Free Area (TOFA - 124')
ADG II Taxilane Object Free Area (TLOFA - 110')
ADG I Taxiway Object Free Area (TOFA - 89')
ADG I Taxilane Object Free Area (TLOFA - 79')
25′ Building Restriction Line (BRL)
Proposed Pavement
Proposed Building
Ultimate Road/Parking
N
0
200
SCALE IN FEET
Photo Source: Google Earth 08/2024

North of Runway 3-21 on land adjacent to the Mooney complex, several new box hangar developments are planned that range in size from 3,600 sf to 10,000 sf. In terms of staging new hangar development, this area is on level, undeveloped ground, and with the development of new taxilanes, would be immediately accessible to the airfield.

The plan includes a total hangar capacity expansion of 498,625 sf, well above the projected need. Planning for more hangar capacity than the forecast shows is intentional because not every identified development site will necessarily be viable. Factors like environmental constraints, regulatory changes, leasing issues, or engineering challenges can make developing on some sites impractical. Building extra capacity into the plan ensures the airport can meet demand even if certain sites are ultimately removed from the development program.

**Fuel Storage |** The existing fuel farm located at the northern end of Airport Loop is planned to remain and be expanded, as needed. The facility requirements analysis identified a potential need for an additional 10,273 gallons of Jet A fuel storage over the planning period. The plan includes an expansion to add a 12,000-gallon Jet A fuel tank. Additionally, the self-service fuel facility on the airport is planned to be relocated to the north side of the terminal apron to allow for the development of new hangar facilities in the existing location. An additional self-service fuel facility is also planned to be located among the hangar developments north of Runway 3-21 to prevent the need for mobile refueling trucks to cross the active airfield to provide fueling services to aircraft based in this area.

Future fuel storage capacity may be needed for unleaded aviation fuel when it becomes more widely adopted and available.

**Vehicle Parking |** While the existing vehicle parking capacity is projected to meet forecasted need at the airport over the planning period, new parking lots and vehicle access roads are planned along with most of the new hangar developments within the core terminal area, as well as the area north of Runway 3-21.

**Aeronautical Use Reserve |** The plan includes the preservation of two parcels southeast of the terminal building for future aeronautical (1.7 acres) and advanced air mobility (AAM) (2.2 acres) uses. These parcels have steep slopes and uneven terrain, which will make them challenging and expensive to prepare for fixed-wing aircraft because building new taxilanes requires meeting strict FAA grading, pavement, and safety area standards; however, vertical takeoff and landing (VTOL) operations, which do not require the same extensive taxiway network or large, uniformly graded surfaces could be more conducive to this area. A VTOL pad can often be sited on a smaller, leveled footprint, reducing the need for large-scale earthwork and making the parcel usable without the same infrastructure investment. VTOL operations can include traditional helicopters and emerging electric AAM aircraft (eVTOLs).

## NON-AERONAUTICAL DEVELOPMENT

Airports often have property areas that are inaccessible to the airfield and offer limited utility for aeronautical operations. These areas are typically reserved for non-aeronautical uses that provide an opportunity to diversify and expand revenue streams for the airport.

At ERV, property along Airport Loop, totaling approximately 16.3 acres, has been reserved for non-aeronautical uses. Portions of these areas have already been developed with non-aeronautical uses, including an office/storage facility, as well as the airport's maintenance and equipment storage building. This property is segregated from the airfield and cannot be used for aeronautical purposes.

## *LAND USE COMPATIBILITY*

Land use planning around ERV occurs through regulatory and non-regulatory means. The primary regulatory tool for directing land use is the zoning ordinance, which limits the type, size, and density of land uses in various locations. Examples of land use types include residential, commercial, industrial, and agricultural. Non-regulatory means of land use controls include the comprehensive or strategic land use plan. These documents can be adopted for the greater municipality or for specific areas. In most states, including Texas, zoning ordinances are required to be created in accordance with the city or county's comprehensive plan.

It is important to note the distinction between primary land use concepts used in evaluating development within the airport environs and existing land use, comprehensive plan land use, and zoning land use. Existing land use refers to property improvements as they *exist today*, according to city records.

The comprehensive plan land use map identifies the *projected or future* land use, according to the goal and policies of the locally adopted comprehensive plan. This document guides future development within the city planning area and provides the basis for zoning designations.

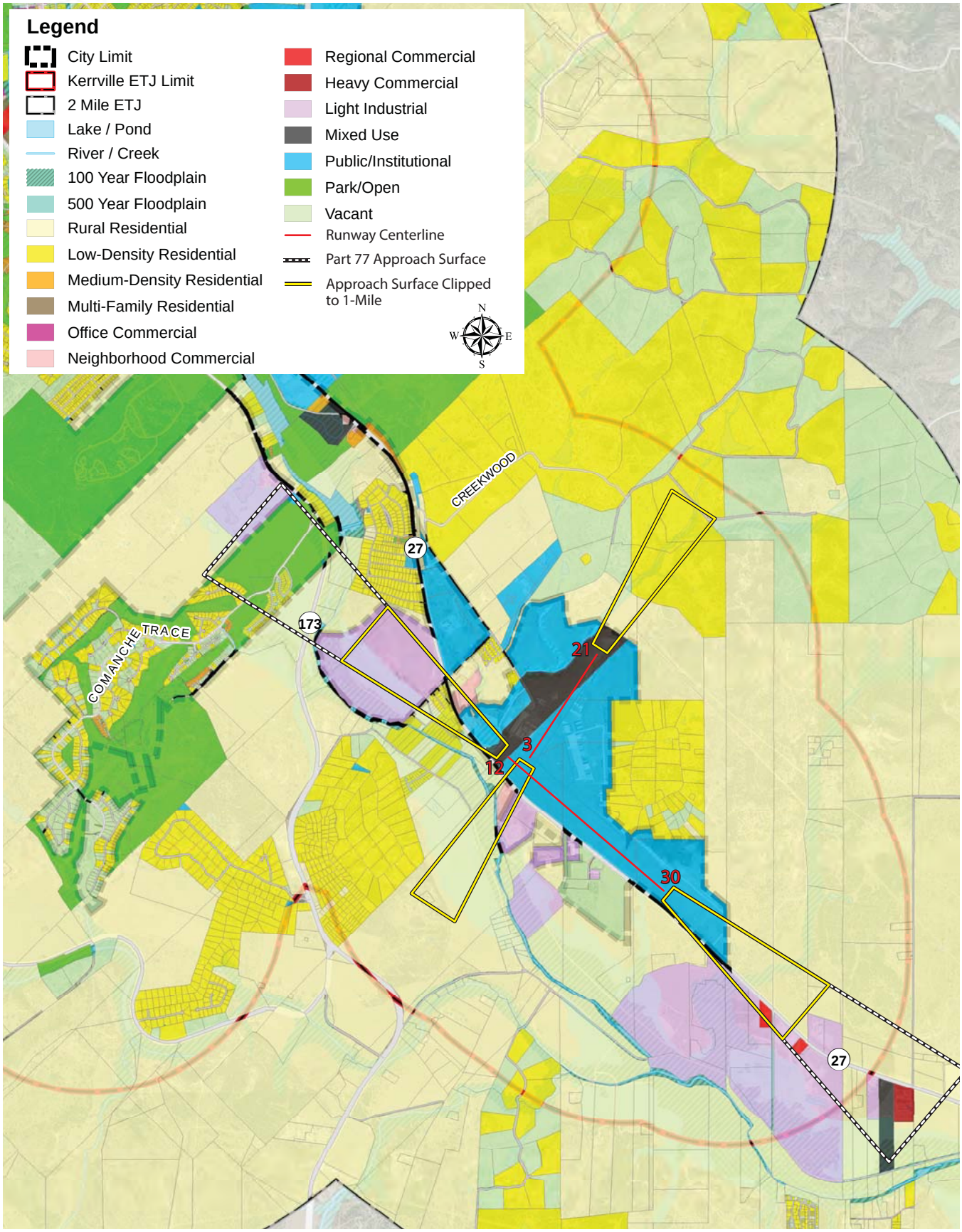
Zoning identifies the type of land use *permitted* on a given piece of property, according to the city zoning ordinances and maps. Local governments are required to regulate the subdivision of all lands within their corporate limits. Zoning ordinances should be consistent with the general plan, where one has been prepared. In some cases, the land use prescribed in the zoning ordinance or depicted in the general plan may differ from the existing land use.

The following sections describe the applicable land use policies for the area within the vicinity of the airport. Specifically, these sections pertain to the lands within the 65-decibel (dB) day-night average sound level metric (DNL) contours and the FAA Title 14 Code of Federal Regulations (CFR) Part 77 approach surface restricted to one mile from the runway ends.

### EXISTING LAND USE

As discussed in Chapter One, ERV is located within the city limits of Kerrville, TX. The existing runway approach surfaces for both runways clipped to one mile also lie within the City of Kerrville extraterritorial jurisdiction (ETJ); however, the full ultimate approach surface for Runway 30 extends beyond the City of Kerrville ETJ and into unincorporated Kerr County to the southeast.

**Exhibit 5E** depicts the existing land use designations within the airport approach surfaces out to one mile for the existing airfield condition. Airport property is classified as public/institutional and mixed use.




Source: City of Kerrville Existing Land Use Map (August 2018)

Northwest of the airport within the approach surface to Runway 12, existing land uses include light industrial, low-density residential, mixed use, and public/institutional. Southeast of the airport within the approach surface to Runway 30, existing land uses include public/institutional, rural residential, light industrial, and one parcel classified as regional commercial. Existing land uses within the approach surfaces to crosswind Runway 3-21 include mixed use, rural residential, low-density residential, and neighborhood commercial land uses.

## FUTURE LAND USE PLAN

The future land use plan is a general policy document used by a government agency to identify and describe the community's characteristics, articulate goals and policies, and explore alternative plans for future growth, which will be used to produce zoning ordinances and subdivision regulations to carry out the plan's goals. A municipality will often incorporate goals and policies for its airports in the future land use plan, which is typically separate from an airport master plan. Generally, the future land use plan assists local decision-makers regarding complicated issues during the development process or maintenance issues. The most recent planning document of this type for the land near the airport is the *Kerrville 2050 Comprehensive Plan*, which was adopted in June 2018 and updated in 2025.[1]

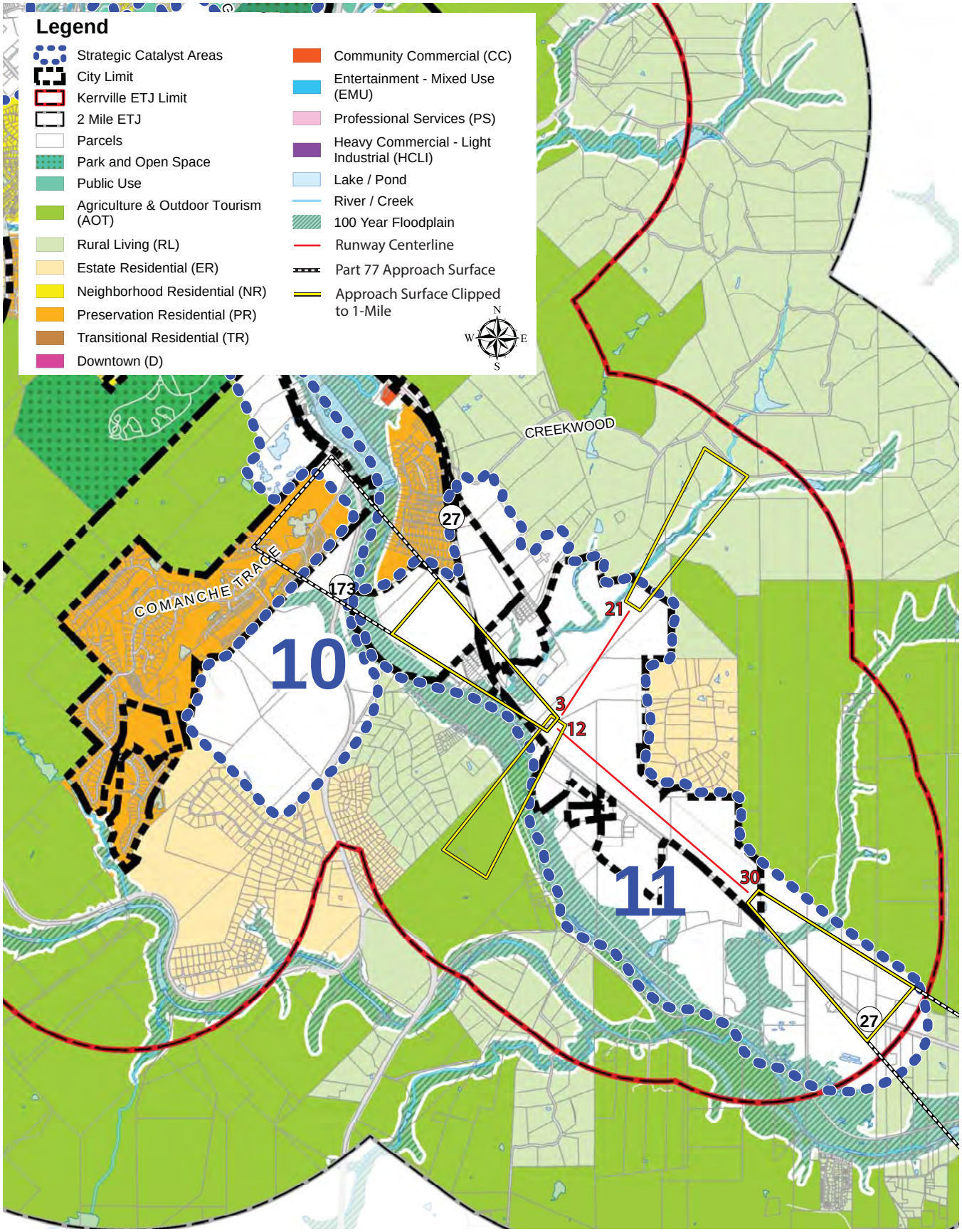
### *Kerrville 2050 Comprehensive Plan*

Chapter 4, *Land Use*, of the City of Kerrville's comprehensive plan lays the groundwork for future land use policies within the City of Kerrville and its ETJ over a 25-year planning period. The comprehensive plan establishes a preferred growth concept that is depicted on the city's future land use map. It is important to note that future land use planning efforts surrounding the airport extend beyond the existing city limits into the city's ETJ. The ETJ allows for the planning of areas outside city limits for land use development and planning purposes with jurisdiction established by Texas Local Government Code.[2]

The *Kerrville 2050 Comprehensive Plan* identifies ERV as one of the city's strategic assets where infill of new development and redevelopment should be encouraged; thus, airport property is identified as a Strategic Catalyst Area on the *Kerrville 2050 Comprehensive Plan* future land use map. Future planned land uses surrounding the airport are primarily low-density residential.

**Exhibit 5F** depicts the future land use designations within the airport's ultimate Part 77 approach surfaces clipped to one mile. Future land uses identified within the one-mile approach surfaces are limited to the airport property Strategic Catalyst Area, rural living, and agricultural and outdoor tourism. The 100-year floodplain along the Guadalupe River is also depicted on the future land use map within three of the airport's four ultimate approach surfaces. **Table 5B** presents the runway approach location where each land use is planned, the purpose of each land use designation as stated in the comprehensive plan, and the densities/intensities recommended for each designation.

[1] Kerrville 2050 Comprehensive Plan (https://fni.mysocialpinpoint.com/kerrville-comprehensive-plan), 2025
[2] Texas Local Government Code § 42.021 (https://statutes.capitol.texas.gov/Docs/LG/htm/LG.42.htm), 1987




Source: Kerrville 2050 Comprehensive Plan (June 2025)

**TABLE 5B | Future Land Use Designations Within the Ultimate Approach Surfaces Clipped to 1-Mile**

| Future Land Use Designation | Description | Location |
|---|---|---|
| Strategic Catalyst Area 7 | Strategic Catalyst Area 7 lies on the southeastern edge of the city and is distinguished by ERV. Future growth in this area should focus on leveraging the airport's potential and associated industrial spaces while ensuring the development respects and minimizes impacts on neighboring residential communities. Additional consideration should be given to the floodplain to reduce risks and promote sustainable development, aligning with broader goals of environmental protection.<br><br>The most appropriate place types include agriculture, conservation and recreation, parks and open space, neighborhood residential, heavy commercial/light industrial, and public use. | Airport property; approach to Runways 12, 30, 3, & 21 |
| Rural Living (RL) | Rural living places are characterized by scenic Hill Country views and a high degree of separation between buildings. Residents in these areas typically prefer minimal residential density with homes sparsely situated throughout. This pattern preserves the rural character, scale, and scenic value of the surrounding landscape.<br><br>• Primary land use: single-family detached homes<br>• Secondary land use: civic and institutional uses, parks and open space, small-scale farm and livestock activities, food production (complementary to the primary use) | Approach to Runway 21 |
| Agriculture & Outdoor Tourism (AOT) | Agriculture, conservation, and recreation areas are characterized by large tracts of undeveloped land primarily utilized for agricultural production, ranch and wildlife management, and nature-based recreational activities. These areas contribute to the community's environmental character and serve as open space buffers that can support environmental resilience to local hazards, such as riparian buffers for flooding. ACR includes opportunities for low-intensity developments and additional uses that support the character and economic viability of the primary land use.<br><br>• Primary Land Use: commercial agriculture, ranching and farming operations, nature parks and undeveloped open space, outdoor tourism and nature-based recreational activities (e.g., hiking, camping, non-motorized water sports, etc.), conservation or preservation lands<br>• Secondary Land Use: civic and institutional uses, single-family detached homes (associated with primary uses), commercial and industrial buildings, operations associated with a primary use (e.g., barns, farm buildings, food production), park amenities that are complementary to the primary open space use(s) | Approach to Runways 3 & 21 |

*Sources: Kerrville 2050 Comprehensive Plan, 2025; Coffman Associates analysis*

## ZONING

Zoning regulations are used in conjunction with subdivision regulations and are an essential tool to achieve goals and policies outlined in the comprehensive plan. Zoning regulations divide land into districts, or zones, and regulate land use activities in those districts and specify permitted uses, the intensity and density of each use, and the bulk sizes of each building. Traditional zoning ordinances separate land into four basic uses: residential, commercial (including office), industrial, and agricultural.

The current Kerrville development code became effective on October 1, 2019, under authority granted to the city by the State of Texas[3] and Chapter 60, Section 60-03[4] of the *Kerrville, Texas, Code of Ordinances*. The City of Kerrville developed its zoning regulations "in order to guide the planning and growth of the City of Kerrville, Texas, and to promote and protect the health, safety, and general welfare of the citizens of the City." Relevant goals of the zoning code include implementation of the policies of the city's comprehensive plan, promotion of a safe and effective transportation system, and facilitation and coordination of the adequate provision of public utilities and community services.

As previously mentioned, the City of Kerrville's ETJ extends beyond the city limits. All the land within the runway approach surfaces clipped to one mile is within the jurisdiction of the City of Kerrville and subject to Chapter 60, *Zoning*, of the city's municipal code. As shown on **Exhibit 5G**, the following zoning districts are present within the ultimate runway approach surfaces out to one mile: Airport District (AD), Residential Estate (RE), Single-Family Residential (R-1), and Planned Development (PD).

**Table 5C** summarizes the types of land uses allowed in each zoning district, maximum allowable building height for structures, and overall minimum lot areas.

**TABLE 5C | Zoning Classifications Within the Ultimate Approach Surfaces Clipped to One Mile**

| City of Kerrville, TX Zoning Classification | Approach Surface Location | Residential Allowed? | Maximum Building Height[1] | Minimum Lot Size |
|---|---|---|---|---|
| Airport District (AD) | Airport property; Runways 12, 30, 3, & 21 | No | 45 feet[1] | None |
| Residential Estate (RE) | Runways 12, 30, 3, & 21 | Yes | 35 feet | 1 acre |
| Single-Family Residential (R-1) | Runway 3 | Yes | 35 feet | 5,000 square feet |
| Planned Development (PD) | Runway 12 | Yes | Varies[2] | Varies[2] |

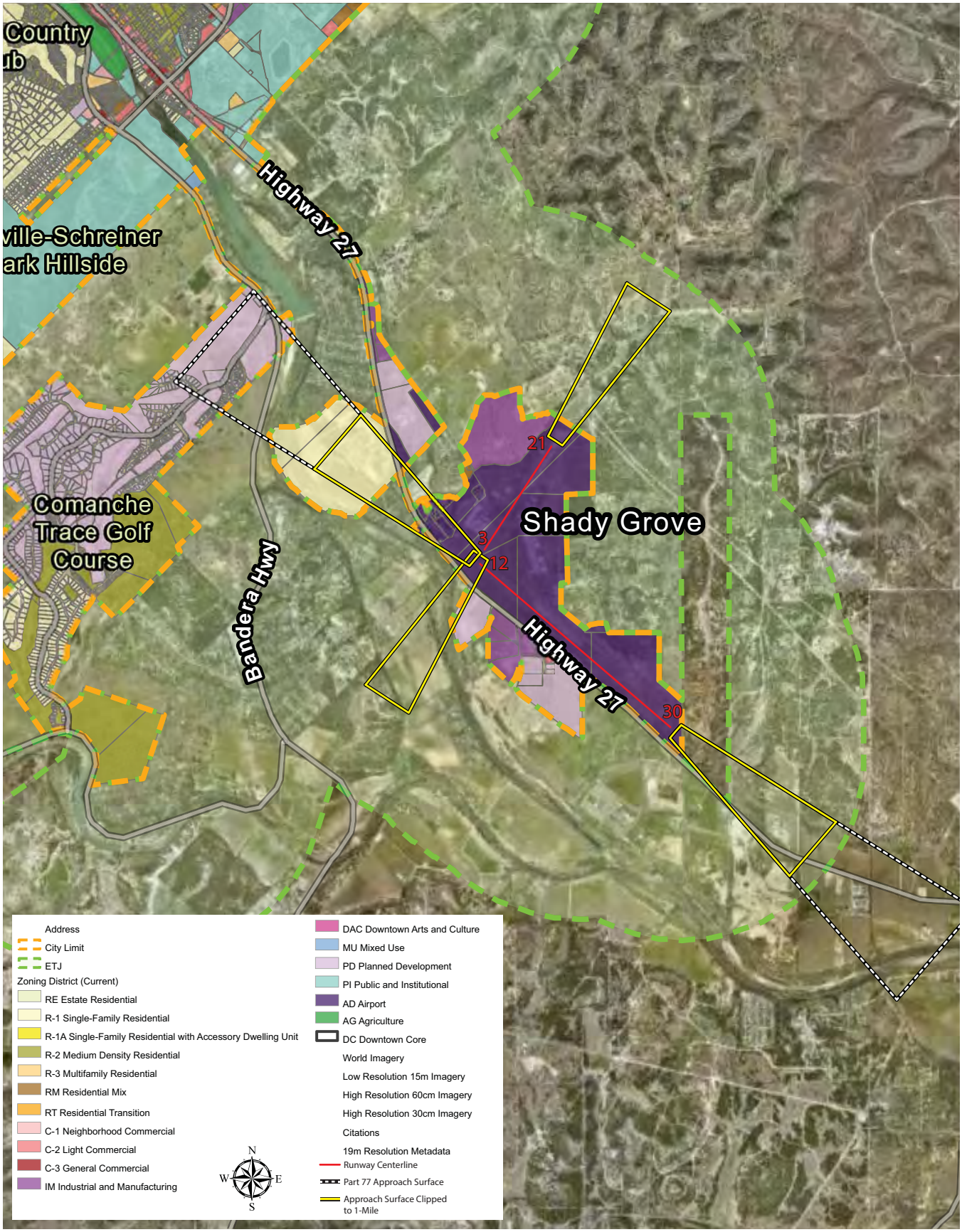
[1]Applies to off-airport development only. On-airport development has no maximum building height limit except that buildings shall comply with FAA requirements.
[2]An application for PD zoning may refer to the area and height regulations of an existing zoning district as the basis for the request or may propose area and height regulations that are not the same as those under any other district in this zoning code. In addition, the application shall include the proposed area and height requirements for each tract of land within the PD.

*Sources: Kerrville, Texas, Code of Ordinances, Chapter 60, Zoning; Coffman Associates analysis*

## SUBDIVISION REGULATIONS

Subdivision regulations are legal devices employed to administer the process of dividing land into two or more lots, parcels, or sites for the building and location, design, and installation of supporting infrastructure. The subdivision regulations are one of two instruments commonly employed to carry out the goals and policies outlined in the comprehensive plan. The land subdivision ordinance of the City of Kerrville is codified within Subchapter 82, *Subdivision Code*, of the *Kerrville, Texas, Code of Ordinances*.[5]

[3] Texas Local Government Code § 213.002 (https://statutes.capitol.texas.gov/Docs/LG/htm/LG.213.htm), 2024
[4] Kerrville, Texas, Code of Ordinances, Chapter 60, Zoning (https://library.municode.com/tx/kerrville/codes/code_of_ordinances?nodeId=PTIICOOR_CH60ZO), 2019
[5] Kerrville, Texas Code of Ordinances, Subchapter 82, Subdivision Code (https://library.municode.com/tx/kerrville/codes/code_of_ordinances?nodeId=PTIICOOR_CH82SUCO), 2021




Source: City of Kerrville GIS Property Viewer, Zoning Layer (Accessed August 2025)

Subdivision regulations can be used to specify requirements for airport-compatible land development by requiring developers to plat and develop land to minimize noise impacts or reduce noise exposure to new development. Subdivision regulations can also be used to protect the airport proprietor from litigation for noise impacts at a later date. The most common requirement is the dedication of a noise or avigation easement to the airport sponsor by the land developer as a condition of the development approval. Easements typically authorize overflights of property, with noise levels attendant to such operations.

## BUILDING CODE

Building codes were established to provide minimum standards to safeguard life, limb, health, and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all buildings and structures. Building codes require the provision of sound insulation in new residential, office, and institutional buildings when warranted by existing or potential high aircraft noise levels.

The current City of Kerrville, Texas, Ordinance No. 2008-10 consists of the 2018 edition of the *International Building Code* (IBC), with amendments.[6] The IBC generally does not include noise attenuation requirements in the building code. Jurisdictions can pass additional regulations in their building codes to require additional building requirements, such as reacting to unique threats of regional natural disasters and helping to build structures properly at the beginning of construction when it matters most, as changes can be expensive and difficult to enact. For new construction near an airport, incorporating noise attenuation can be especially important. Noise attenuation measures can include increased thicknesses of windows or sound-absorbing building materials.

## NON-COMPATIBLE DEVELOPMENT ANALYSIS

In addition to evaluating areas with the potential for non-compatible development based on future land use plans and zoning, the airport's noise exposure contours have been evaluated in comparison with the recommended height restrictions within the airport's Part 77 approach surfaces out to one mile. This was accomplished by evaluating city-adopted land use plans and zoning designations for the parcels encompassed by the noise contours to determine if noise-sensitive land uses could be developed in those areas. The noise contours and height restrictions within the Part 77 approach surface area are addressed as follows.

### Noise Exposure Contours

The standard methodology for analyzing noise conditions at airports involves the use of a computer simulation model. The purpose of the noise model is to produce noise exposure contours that are overlain on a map of the airport and vicinity to graphically represent aircraft noise conditions. When compared to land use, zoning, and general plan maps, the noise exposure contours may be used to identify areas that are currently, or have the potential to be, exposed to aircraft noise.

[6] Kerrville, Texas Code of Ordinances, Article II, Building Codes, Section 26-31 (https://library.municode.com/tx/kerrville/codes/code_of_ordinances?nodeId=PTIICOOR_CH26BUBURE_ARTIIBUCO_S26-31INBUCO2018ED)

To achieve an accurate representation of an airport's noise conditions, the noise model uses a combination of industry-standard information and user-supplied inputs specific to the airport. The software provides noise characteristics, standard flight profiles, and manufacturer-supplied flight procedures for aircraft that commonly operate at ERV. Because each aircraft has different design and operating characteristics (number and type of engines, weight, and thrust levels), each aircraft emits different noise levels. The most common way to spatially represent the noise levels emitted by an aircraft is a noise exposure contour.

Airport-specific information is also used in modeling inputs, including runway configuration, flight paths, aircraft fleet mix, runway use distribution, local terrain and elevation, average temperature, and numbers of daytime and nighttime operations.

Based on assumptions provided by the user, the noise model calculates average 24-hour aircraft sound exposure within a grid covering the airport and surrounding areas. The grid values, which represent the DNL at each intersection point on the grid, signify a noise level for that geographic location. To create noise contours, an isoline similar to those on a topographic map is drawn connecting points of the same DNL noise value. In the same way a topographic contour represents areas of equal elevation, the noise contour identifies areas of equal noise exposure.

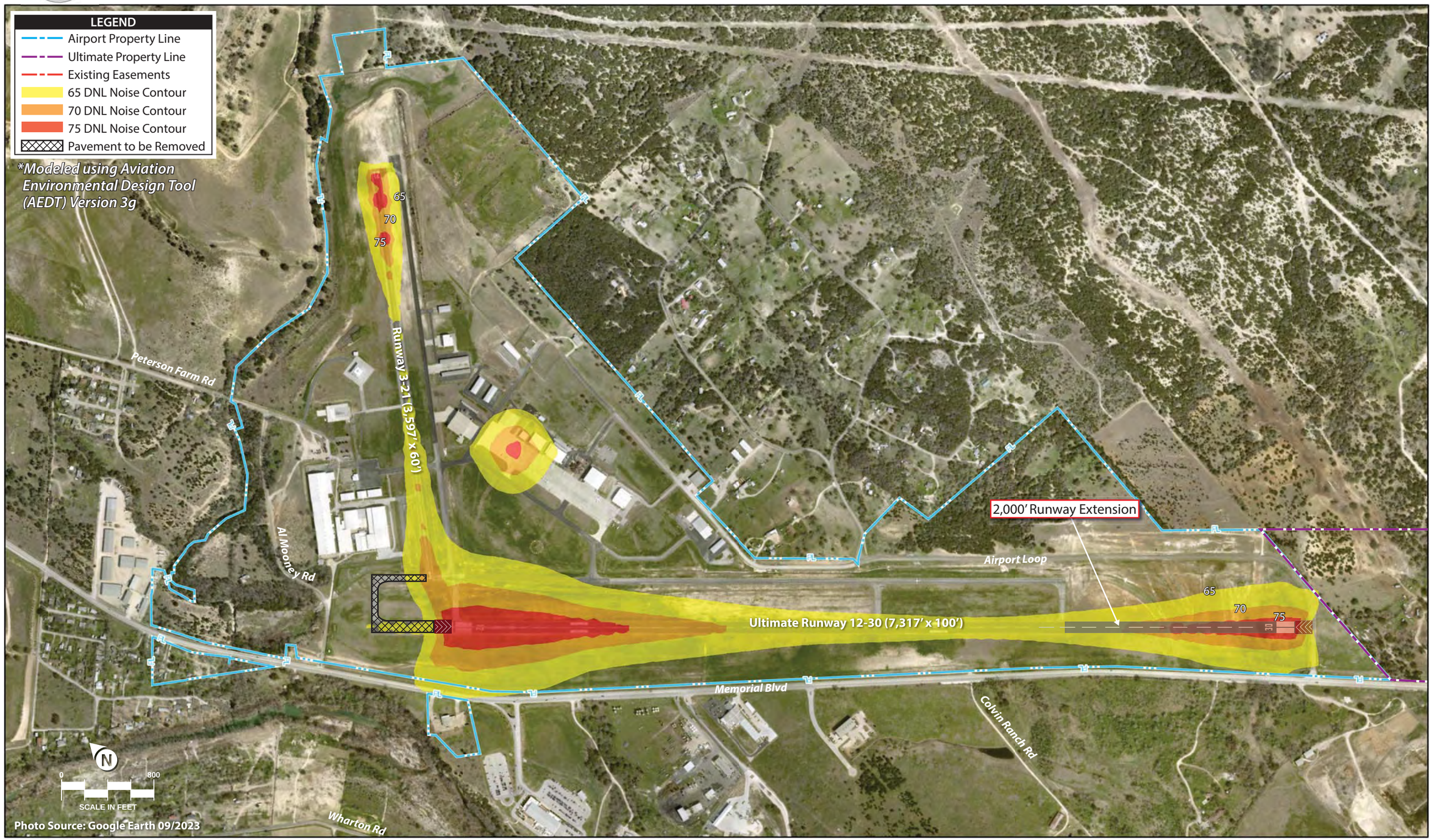
DNL is the metric currently accepted by the FAA, U.S. Environmental Protection Agency (EPA), and Department of Housing and Urban Development (HUD) as an appropriate measure of cumulative noise exposure. These three agencies have each identified the 65-dB DNL noise contour as the threshold of incompatibility.

The guidelines summarized in Table 1 of Title 14 CFR Part 150 indicate that all land uses are acceptable in areas below 65 DNL.[7] At or above the 65 DNL threshold, residential uses (including RV parks and campgrounds), educational and religious facilities, health and childcare facilities, and outdoor sport, recreation, and park facilities are all incompatible. Educational, healthcare, and religious facilities are also generally considered to be incompatible with noise exposure above 65 DNL. As with residential development, a community can make a policy decision that these uses are acceptable with appropriate sound attenuation measures. Hospitals and nursing homes, places of worship, auditoriums, and concert halls are structures that are generally compatible if measures to achieve noise level reduction are incorporated into the design and construction of the structures. Outdoor music shells and amphitheaters are not compatible and should be prohibited within the 65 DNL noise contour. Additionally, agricultural uses and livestock farming are generally considered compatible except for related residential components of these uses, which should incorporate sound attenuation measures.

As part of this master plan, noise exposure contours were prepared for ERV for a baseline condition (2024) and a future condition (2044). The resulting contours are shown on **Exhibit 5H**. As shown on the exhibit, noise contours out to the 65 DNL largely remain on airport property for the baseline and future forecasted conditions. In the future condition, a portion of the 65 DNL contour extends off airport property over Memorial Boulevard near the Runway 12 threshold but does not encompass any noise-incompatible land uses.

[7] Title 14 CFR Part 150 (https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-150)


LEGEND
Airport Property Line
Existing Easements
65 DNL Noise Contour
70 DNL Noise Contour
75 DNL Noise Contour
*Modeled using Aviation Environmental Design Tool (AEDT) Version 3g
65
70
75
Runway 3-21 (3,597' x 58')
Runway 12-30 (6,004' x 100')
Peterson Farm Rd
Al Mooney Rd
Airport Loop
Memorial Blvd
Colvin Ranch Rd
Wharton Rd
N
0
800
SCALE IN FEET
Photo Source: Google Earth 09/2023


LEGEND
Airport Property Line
Ultimate Property Line
Existing Easements
65 DNL Noise Contour
70 DNL Noise Contour
75 DNL Noise Contour
Pavement to be Removed
*Modeled using Aviation Environmental Design Tool (AEDT) Version 3g
65
70
75
Runway 3-21 (3,597' x 60')
Peterson Farm Rd
Al Mooney Rd
2,000' Runway Extension
Airport Loop
Ultimate Runway 12-30 (7,317' x 100')
Memorial Blvd
Colvin Ranch Rd
Wharton Rd
0
800
SCALE IN FEET
Photo Source: Google Earth 09/2023

**Height Restrictions**

To analyze the potential for non-compatible development of land off airport property, zoning within the Part 77 approach surface area out to one mile from the ends of the runways were evaluated. **Table 5C** notes the maximum height limit for zoning of the underlying permitted land uses, which range from 35 to 45 feet.

## RECOMMENDATIONS

Based on the previously presented information and the non-compatible development analysis, the following recommendations are provided to maintain airport land use compatibility in the vicinity of ERV. The below recommendations are in accordance with the recently published FAA Advisory Circular (AC) 150/5190-4B, which identifies compatible land use development tools, resources, and techniques to protect surrounding communities from adverse effects associated with airport operations.[8]

- **Coordinate Review of the City of Kerrville's Zoning Ordinance and Maps with the Joint Airport Board**

  Airport hazard zoning for ERV is administered by the Kerrville/Kerr County Joint Airport Board. An airport hazard overlay district typically references the airport's existing approach surfaces and includes descriptions of the approach, transition, horizontal, and conical zones, which may change from time to time as the Part 77 airspace drawing for the airport is updated. The City of Kerrville could work in coordination with the Joint Airport Board to ensure zoning regulations for off-airport development are consistent with FAA guidance.

- **Implement FAA 7460-1 Airspace Analysis**

  The ERV airport hazard zoning ordinance and/or building permit application process could be modified so that airport hazards are identified through an FAA 7460-1 airspace analysis. The FAA notice criteria tool[9] allows users (airport sponsor, developer, and local municipality) to input location and dimensional information about a proposed development to determine if filing notice with the FAA is required. If a notice is required, the proponent would be required to submit FAA Form 7460-1, *Notice of Construction or Alteration*, to the FAA for review as a local project review standard.

- **Consult FAA Advisory Circular for Wildlife Hazard Review**

  Local zoning ordinances can be modified to limit uses with the potential to create bird strike hazards. Certain land uses that attract birds and other wildlife hazards should not be permitted on or near the airport, according to FAA AC 15/5200-33C.[10]

[8] FAA, AC 150/5190-4B, Airport Land Use Compatibility Planning, September 16, 2022

[9] FAA, Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) Web Portal (https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm)

[10] FAA, AC 15/5200-33C, Hazardous Wildlife Attractants on or near Airports, February 21, 2020

- **Use Conservation Easement**

  Conservation easements may be established for vacant land within the approach surfaces designated for agriculture and outdoor tourism on the city's future land use map.

- **Special Exceptions/Conditional Uses**

  In its most recent advisory circular, the FAA advises that if a community located near an airport allows some land use control through conditional uses, that community should make certain that such uses do not create a hazard for the community, the airport, or the user of the subject property. The City of Kerrville could modify its change of zone requirements and/or conditional use requirements within the airport's vicinity to have a designation that triggers extraordinary review of these exceptions because of a property's location near an airport.

- **Adopt Fair Disclosure Requirements for Real Estate Transactions Within the Vicinity of ERV**

  Fair disclosure regulations in real estate transactions are intended to ensure prospective buyers of a property are informed that the property is (or will be) exposed to potentially disruptive aircraft noise or overflights. It is not uncommon, around even the busiest airports, for newcomers to report having bought property without having been informed about airport noise levels. At the most formal level, fair disclosure can be implemented through a city ordinance requiring a deed notice for property within the vicinity based on an existing boundary, such as the Part 77 horizontal imaginary surface. The following is an example of deed notice language that would notify a property owner of the proximity of an airport and expectations for living in the vicinity of the airport:

  *The subject property is within the vicinity of Kerrville-Kerr County Airport, which is located at 1877 Airport Loop, Kerrville, TX 78028. Properties within this area are routinely subject to overflights by aircraft using this public-use airport. As a result, residents may experience inconvenience, annoyance, or discomfort arising from the noise of such operations. Residents should also be aware that the current volume of aircraft activity may increase in response to the population and economic growth within the Kerrville-Kerr County Airport vicinity. Any subsequent deed conveying this parcel or subdivisions thereof shall contain a statement in substantially this form.*

- **Airport and FAA Participation in Local and Regional Planning**

  The authority to develop, implement, and enforce land use programs and decisions rests predominantly with local governments; therefore, it is recommended that airport operators be involved in the preparation of city, county, and regional comprehensive plans so they can advocate for airport interests and provide their specialized expertise to the planning team. Airport coordination with local governments ensures they are routinely provided with information about proposed development activity in the airport environs, allowing the airport operators the opportunity to review and comment on those proposals. This would include engagement with all jurisdictions in the airport vicinity.

# AIRPORT RECYCLING, REUSE, AND WASTE REDUCTION

The primary objective of this section is to provide the City of Kerrville/Kerr County and its airport administration with recommendations for future improvements and processes that promote sustainable principles in addressing airport operations and aviation demand. By making sustainability a priority in the planning process and identifying best management practices, the airport can become a more environmentally friendly economic hub.

## REGULATORY GUIDELINES

### *FAA Modernization and Reform Act of 2012*

The *FAA Modernization and Reform Act of 2012* (FMRA), which amended Title 49 United States Code (USC), included several changes to the *Airport Improvement Program* (AIP). Two of these changes are related to recycling, reuse, and waste reduction at airports:

- Section 132(b) of the FMRA expanded the definition of airport planning to include "developing a plan for recycling and minimizing the generation of airport solid waste, consistent with applicable state and local recycling laws, including cost of a waste audit."
- Section 133 of the FMRA added a provision requiring any airport that has or plans to prepare a master plan and receives AIP funding for an eligible project to ensure the new or updated master plan addresses issues related to solid waste recycling at the airport, including the following:
    - The feasibility of solid waste recycling at the airport
    - Minimizing the generation of solid waste at the airport
    - Operation and maintenance requirements
    - A review of waste management contracts
    - The potential for cost savings or generation of income

### State of Texas Solid Waste Management

The *Texas Administrative Code*, Title 30, Part 1, Chapter 330, *Municipal Solid Waste*,[11] was adopted to regulate waste management. This document provides policy and procedural guidance to state, substate, and local agencies on the proper management of solid waste and outlines sound methods of solid waste management and disposal for state, substate, and local agencies.

[11] Texas Administrative Code (https://texas-sos.appianportalsgov.com/rules-and-meetings?chapter=330&interface=VIEW_TAC&part=1&title=30), accessed June 2025

The Texas Commission on Environmental Quality (TCEQ) oversees the state's solid waste management implementation.[12] The Land Department in the TCEQ overviews waste management, recycling, reuse, and cleanups and remediation. Duties assigned to the Land Department include oversight of the following:

- Processing, storing, transportation, and disposal of waste
- Permits, registrations, and compliance
- Household, industrial, municipal, and radioactive waste
- Septic systems, sludge, dredge, and injection

Duties assigned to the recycling, reducing, and reusing office include oversight of the following:

- Recycling operations and composting
- Home and business resources
- Automotive waste, electronic waste, and fats, oils, and grease
- Exchange network for business and industry

### City of Kerrville Solid Waste Management

The City of Kerrville has delegated its solid waste management to a division under the Public Works Department. The city currently owns and operates a municipal landfill, transfer station, and composting facility.[13] Republic Services provides collection services for the city, including collection of garbage, single-stream recycling, yard waste, bulky waste items, household hazardous waste, and dead animals.

## SOLID WASTE

Airport sponsors typically have purview over waste-handling services in facilities they own and operate, such as passenger terminal buildings, hangars, aircraft rescue and firefighting (ARFF) stations, and maintenance facilities. Tenants of airport-owned buildings/hangars or tenants that own their facilities are typically responsible for coordinating their own waste-handling services.

For airports, waste can generally be divided into eight categories:[14]

1. **Municipal solid waste** (MSW) is more commonly known as trash or garbage and consists of everyday items that are used and then discarded, such as product packaging.

2. **Construction and demolition** (C&D) waste is considered non-hazardous trash resulting from land clearing, excavation, demolition, and renovation or repair of structures, roads, and utilities. C&D waste includes concrete, wood, metals, drywall, carpet, plastic, pipe, cardboard, and salvaged building components. C&D is also generally labeled MSW.

[12] Texas Commission on Environmental Quality, Land, Permitting and Managing Waste Disposal, Cleanups, and Other Land-Based Activities (https://www.tceq.texas.gov/agency/land_main.html)
[13] Kerrville Texas, Solid Waste (https://www.kerrvilletx.gov/77/Solid-Waste)
[14] FAA, Recycling, Reuse, and Waste Reduction at Airports, April 24, 2013

3. **Green waste** is a form of MSW yard waste that consists of tree, shrub, and grass clippings, leaves, weeds, small branches, seeds, and pods.

4. **Food waste** includes unconsumed food products or waste generated and discarded during food preparation and is also considered MSW.

5. **Deplaned waste** is waste removed from passenger aircraft. Deplaned waste includes bottles, cans, mixed paper (i.e., newspapers, napkins, and paper towels), plastic cups, service ware, food waste, and food-soiled paper/packaging.

6. **Lavatory waste** is a special waste that is emptied through a hose and pumped into lavatory service vehicle. The waste is then transported to a triturator[15] facility for pretreatment prior to discharge in a sanitary sewage system. Chemicals in lavatory waste can present environmental and human health risks if mishandled; therefore, caution must be taken to ensure lavatory waste is not released to the public sanitary sewage system prior to pretreatment.

7. **Spill clean and remediation wastes** are special wastes that are generated during cleanup of spills and/or remediation of contamination from several types of sites on an airport.

8. **Hazardous wastes** are governed by the *Resource Conservation and Recovery Act* (RCRA) and the regulations in Title 40 CFR Subtitle C, Parts 260 to 270. The U.S. EPA has developed less stringent regulations for certain hazardous waste (universal waste), which are described in Title 40 CFR Part 237, the *Universal Waste Rule*.

## SOLID WASTE MANAGEMENT SYSTEM

Airports generally utilize either a centralized or decentralized waste management system.

- **Decentralized waste management |** Under a decentralized waste management system, the airport provides waste containers and contracts for the hauling of waste materials in airport-operated spaces only; however, airport tenants (such as fixed base operators [FBOs], retail shops, and others) manage the waste from their leased spaces with separate contracts, billing, and hauling schedules. A decentralized waste management system can increase the number of receptacles on airport property and the number of trips by a waste collection service provider if tenants' and the airport's collection schedules differ.

- **Centralized waste management system |** Under a centralized management system, the airport provides receptacles for the collection of waste, recyclable materials, and/or compostable materials and contracts for their removal by a single local provider.[16] The centralized waste management system allows for more participation from airport tenants who may not be incentivized to recycle

[15] A triturator turns lavatory waste into fine particulates for further processing.
[16] National Academies of Science, Engineering, and Medicine, Airport Cooperative Research Program, Synthesis 92, Airport Waste Management and Recycling Practices, 2018

on their own and can reduce the overall cost of service for all involved. A centralized strategy can be inefficient for some airports because it requires more effort and oversight on the part of airport management; however, the centralized system is advantageous because it involves fewer working components in the overall management of solid waste and recycling efforts. It also allows greater control by the airport sponsor over the type(s), placement, and maintenance of dumpsters, thereby saving space and eliminating the need for tenants to have individual containers.

## EXISTING SERVICES

ERV currently contracts solid waste services through the City of Kerrville. At present, the airport does not enforce a recycling program. ERV currently participates in a decentralized waste management system, as tenants are responsible for obtaining their respective waste services.

## GOALS AND RECOMMENDATIONS

### Solid Waste and Recycling Goals

The following recommendations are made to maximize waste reduction and introduce recycling efforts at the airport.

*Goal 1: Reduce the Amount of Solid Waste Generated*

1. Create a centralized waste management system at the airport. ERV currently participates in a decentralized waste management system because airport tenants are responsible for overseeing their own waste management. Airport staff could consider engaging tenants to create a centralized waste management system at the airport to streamline waste management efforts at ERV.

   Considerations:

   - Any lease agreements that are up for renewal should be reviewed/revised to include language that would require tenants to enact recycling practices.
   - Implementation of incentives for FBOs and other tenants to either enhance existing recycling practices or join the airport's recycling program should be considered.

2. Assign the responsibility of waste management to a dedicated individual or group. Having one person or a group of people oversee and manage solid waste at the airport would create efficient and cost-saving solid waste management solutions. People dedicated to this operational aspect of the airport would gain familiarity with waste processes and could help identify areas of improvement and cost-saving measures.

3. Provide education for airport employees. To minimize waste within the airport, it is crucial to inform airport employees and provide them with a thorough education on waste management at individual and group levels. As part of the onboarding process, new employees should be given the tools needed to achieve a thorough understanding of the airport's solid waste goals.

4. Audit the current waste management system. The continuation of an effective program requires accurate data on current waste rates. An airport can gain insight into its waste stream in several ways, such as requesting weights from the hauler, tracking the volume, or reviewing the bills; however, managing the waste system starts with a waste audit, which is an analysis of the types of waste produced. A waste audit is the most comprehensive and intensive way to assess waste stream composition, opportunities for waste reduction, and capture of recyclables, and should include the following actions:

    - Examination of records
        - Evaluate waste hauling and disposal records and contracts
        - Examine supply and equipment invoices
        - Identify other waste management costs (commodity rebates, container costs, etc.)
        - Track waste from the point of origin
        - Establish a baseline for metrics
    - Facility walk-through conducted by the airport
        - Gather qualitative waste information to determine major waste components and waste-generating processes
        - Identify the locations on the airport that generate waste
        - Identify what types of waste are generated by the airport to determine what can be reduced, reused, or recycled
        - Improve understanding of waste pick-up and hauling practices
    - Waste sort
        - Provides quantitative data on total airport waste generation

5. Create a tracking and reporting system. Track solid waste generated to allow the airport to identify areas where a significant amount of waste is generated, which will help the airport estimate annual waste volumes. Understanding the cyclical nature of waste generation will allow the airport to estimate costs and identify areas of improvement.

*Goal 2: Create a Recycling Management Plan at ERV*

1. Introduce a recycling program at the airport. To guarantee the airport reduces the amount of waste hauled to the landfill, materials that cannot be reused or avoided should be recycled, if possible. The city should review internal procedures to ensure there are no unacceptable items contaminating recycling containers or recyclables thrown in the trash.

2. Reduce waste through controlled purchasing practices and the consumption of nonessential products. The airport can control the amount of waste generated by prioritizing the purchase of items or supplies that are reusable, recyclable, compostable, or made from recycled materials.

3. Provide tenant education. It is crucial to encourage tenant participation to ensure buy-in of any future recycling efforts that may be undertaken at ERV. To ensure recycling is part of the airport's everyday business, airport administration should provide training and education to support personnel, tenants, and others who conduct business at the airport. In-person meetings with airport tenants could be held to create mutual understanding of the airport's solid waste and recycling goals and how tenants play a vital role in the airport's overall success.

*Goal 3: Establish Construction and Demolition Goals*

1. Implement construction waste requirements in contracts for construction projects. Construction contracts should highlight ways to repurpose and reuse materials/salvage and explain how recyclable materials are defined in the construction process. Additionally, these contracts should establish standards and specifications in the procurement process and contracting when starting a new construction project at ERV. Other action items to consider when drafting a contract for a construction project include preparing a construction waste management (CWM) plan, assigning a waste management coordinator, and tracking and reporting requirements under the CWM plan.

2. Create a CWM plan. The airport and its contractors should adopt a CWM plan when applicable. A typical CWM plan should encompass goals and strategies to manage a project's C&D waste. A CWM plan should also identify the types and quantities by weight for any proposed demolition, site clearing, and/or construction waste that may be generated by the project.

   Other items to include in a CWM plan include the following:

   - Complete a materials handling estimate worksheet for all applicable project waste streams.
   - Identify where recyclable materials storage and collection points will be situated.
   - Create a plan to communicate recycling goals with employees and subcontractors.
   - Create a waste reduction work plan to identify what materials can be salvaged or recycled, how waste is disposed of, and the method for collecting and transporting waste streams.

   At the end of each project, as part of the CWM plan, documentation that includes tracking, reporting, and invoicing should be submitted to demonstrate which CWM plan goals were met.

| **The construction waste management plan should consider the following construction and demolition debris for recycling or reuse:** | |
|---|---|
| Earth, soil, dirt | Wood |
| Concrete reclaimed asphalt pavement | Gypsum drywall |
| Bricks/masonry (cinder blocks, mortar, etc.) | Plastics |
| Rock, stone, gravel | Plaster |
| Ferrous metal (iron, steel, etc.) | Paint |
| Nonferrous metal (aluminum, copper, etc.) | Plumbing fixtures and piping |
| Roofing shingles and other roof materials | Land-clearing debris |
| Cardboard, paper, packaging | Non-asbestos insulation |
| Sand | |

## ENVIRONMENTAL OVERVIEW

An analysis of potential environmental impacts associated with proposed airport projects is an essential consideration in the airport master plan process. The primary purpose of this discussion is to review the recommended development concept (**Exhibits 5A**, **5C**, and **5D**) and the airport's capital program to determine whether projects identified in the airport master plan could, individually or collectively, significantly impact existing environmental resources. Information contained in this section was obtained from previous studies, official internet websites, and analysis by the consultant. This section provides an overview of potential impacts to existing resources that could result from the implementation of the planned improvements outlined on the recommended development concept.

If the FAA retains approval authority over a project, the project is typically subject to the *National Environmental Policy Act* (NEPA). For projects not categorically excluded under FAA Order 1050.1G, *FAA National Environmental Policy Act Implementing Procedures*, compliance with NEPA is generally satisfied through the preparation of an environmental assessment (EA). In instances where significant environmental impacts are expected, an environmental impact statement (EIS) may be required.

The *FAA Reauthorization Act of 2024* introduced a variety of updated and new environmental guidelines. The primary environmental-related updates are outlined in two sections: Section 743 and Section 783.

- Section 743 details the FAA's authority to regulate uses of airport property for projects on land acquired without federal assistance and outlines limitations imposed on non-aeronautical review. Section 743 also states that a notice of intent for proposed projects outside FAA jurisdiction should be submitted by an airport sponsor to the FAA.

- Section 783 outlines the airport capacity enhancement projects, terminal development projects, and general aviation airport improvement projects that will be subject to coordinated and expedited environmental review requirements.

The following portion of the master plan is not designed to satisfy NEPA requirements for a specific development project, but it provides a preliminary review of environmental issues that may need to be considered in more detail within the environmental review processes. It is important to note that the FAA is ultimately responsible for determining the level of environmental documentation required for airport actions.

**Table 5D** summarizes potential environmental concerns associated with implementation of the ultimate recommended development concept for ERV. Analysis under NEPA includes effects or impacts a proposed action or alternative may have on the human environment (see Title 40 CFR §1508.1).

**TABLE 5D | Summary of Potential Environmental Concerns**

| | |
|---|---|
| **AVIATION EMISSIONS AND AIR QUALITY** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the U.S. EPA under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.*** |
| Potential Environmental Concerns | **Potential Impact.** An increase in operations could occur over the 20+ year planning horizon of the master plan that would likely result in additional emissions; however, Kerr County is in attainment for all federal criteria pollutants.<br><br>For construction or operational emissions, project-specific qualitative or quantitative emissions inventories under NEPA may be required, depending on the type of environmental review needed for specific projects defined on the development concept plan. |
| **BIOLOGICAL RESOURCES** (INCLUDING FISH, WILDLIFE, AND PLANTS) | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species or would result in the destruction or adverse modification of federally designated critical habitat.***<br><br>***The FAA has not established a significance threshold for non-listed species; however, factors to consider include whether an action would have the potential to cause:***<br><br>• ***Long-term or permanent loss of unlisted plant or wildlife species;***<br>• ***Adverse impacts to special status species or their habitats;***<br>• ***Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations; or***<br>• ***Adverse impacts on a species' reproductive rates, non-natural mortality, or ability to sustain the minimum population levels required for population maintenance.*** |
| Potential Environmental Concerns | <u>Federally Protected Species</u><br><br>**Potential Impact.** According to the USFWS *Information for Planning and Consultation* (IPaC) report, there is potential for 13 proposed threatened, threatened, and endangered species at ERV:<br><br>• golden-cheeked warbler – federal endangered / state endangered<br>• piping plover – threatened / state threatened<br>• rufa red knot – federal threatened / state threatened<br>• Texas blind salamander – federal endangered / state threatened<br>• Guadalupe fatmucket – federal endangered / state threatened<br>• Guadalupe orb – federal endangered / state threatened<br>• Comal Springs dryopid beetle – federal endangered<br>• monarch butterfly –federal proposed threatened<br>• Peck's Cave amphipod – federal endangered<br>• bracted twistflower – federal threatened / state threatened<br>• Texas wild-rice – federal endangered<br>• Tobusch fishhook cactus – federal threatened / state endangered<br><br>Out of this list, the monarch butterfly may occur within the airport.<br><br><u>Designated Critical Habitat</u><br><br>**No Impact.** There are no designated critical habitats within airport boundaries.<br><br>*(Continues)* |

**TABLE 5D | Summary of Potential Environmental Concerns (continued)**

| | |
|---|---|
| Potential Environmental Concerns (continued) | Non-Listed Species<br><br>**Potential Impact.** Non-listed species of concern include those protected by the *Migratory Bird Treaty Act* (MBTA) and the *Bald and Golden Eagle Protection Act*. Bird species protected by the MBTA could be adversely affected if construction occurs during the nesting and breeding seasons (April to September). Pre-construction surveys of vegetated areas at the airport are recommended for projects that involve ground-clearing projects unless such projects occur outside the nesting and breeding seasons.<br><br>State Protected Species<br><br>**Potential Impact.** According to a record search conducted on the Texas Parks & Wildlife Department's *Annotated County Lists of Rare Species*, the species listed below have been identified as state threatened within Kerr County.<br><br>• white-faced ibis – state threatened<br>• zone-tailed hawk – state threatened<br>• black bear – state threatened<br>• white-nosed coati – state threatened<br>• Cagle's map turtle – state threatened<br>• Texas horned lizard – state threatened<br>• Texas tortoise – state threatened<br><br>Impacts to these species should be assessed prior to development on a project-by-project basis. The recommended development concept depicts hangar development that would require tree removal. Airport activities that involve tree maintenance or removal activities could impact species listed above.<br><br>*Source: USFWS, IPaC (https://ipac.ecosphere.fws.gov/), accessed July 2025* |
| **COASTAL RESOURCES** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The FAA has not established a significance threshold for Coastal Resources. Factors to consider include whether an action would have the potential to:***<br><br>• ***Be inconsistent with the relevant state coastal zone management plan(s);***<br>• ***Impact a coastal barrier resources system unit;***<br>• ***Pose an impact on coral reef ecosystems;***<br>• ***Cause an unacceptable risk to human safety or property; or***<br>• ***Cause adverse impacts on the coastal environment that cannot be satisfactorily mitigated.*** |
| Potential Environmental Concerns | **No Impact.** ERV is not located in a coastal zone and is not near any costal resources. |
| ***DEPARTMENT OF TRANSPORTATION* (DOT) *ACT*, SECTION 4(f)** (NOW CODIFIED IN TITLE 49 USC § 303) | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The action involves more than a minimal physical use of a Section 4(f) resource or constitutes a "constructive use" based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource. Resources that are protected by Section 4(f) are publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance and publicly or privately owned land from a historic site of national, state, or local significance. Substantial impairment occurs when the activities, features, or attributes of the resource that contribute to its significance or enjoyment are substantially diminished.*** |
| Potential Environmental Concerns | **No Impact.** No wilderness areas, public recreational facilities, or National Register of Historic Places (NRHP)-listed resources are located within a mile of ERV; thus, no impacts to Section 4(f) resources are anticipated. The recommended development concepts only propose new airport development within existing airport property or land immediately adjacent to ERV's property line. |

*(Continues)*

**TABLE 5D | Summary of Potential Environmental Concerns (continued)**

| | |
|---|---|
| **FARMLANDS** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The total combined score on Form AD-1006, Farmland Conversion Impact Rating, ranges between 200 and 260. Form AD-1006 is used by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) to assess impacts under the Farmland Protection Policy Act (FPPA).***<br><br>***The FPPA applies when airport activities meet the following conditions:***<br><br>• ***Federal funds are involved;***<br>• ***The action involves the potential for the irreversible conversion of important farmlands to non-agricultural uses (important farmlands include pastureland, cropland, and forest considered to be prime or unique land or statewide or locally important land); or***<br>• ***None of the exemptions to the FPPA apply; these exemptions include:***<br>o ***Land that is not considered "farmland" under the FPPA, such as land that is already developed or already irreversibly converted (these instances include when land is designated as an urban area by the U.S. Census Bureau or the existing footprint includes rights-of-way)***<br>o ***Land that is already committed to urban development***<br>o ***Land that is committed to water storage***<br>o ***Construction of non-farm structures necessary to support farming operations***<br>o ***Construction/land development for national defense purposes*** |
| Potential Environmental Concerns | **Potential Impact.** As detailed in Chapter One, the airport is comprised of farmable soils and may be subject to the FPPA. Development such as the hangar construction, extension of Runway 30, construction of the holding bay near Runway 30, proposed taxiway pavement, and portions of the ultimate roads will be located in soils classified as farmland and may require coordination with the USDA. |
| **HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The FAA has not established a significance threshold for Hazardous Materials, Solid Waste, and Pollution Prevention; however, factors to consider include whether an action would have the potential to:***<br><br>• ***Violate applicable federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management;***<br>• ***Involve a contaminated site;***<br>• ***Produce an appreciably different quantity or type of hazardous waste;***<br>• ***Generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal and/or would exceed local capacity;***<br>• ***Use a different method of waste collection, treatment, storage, or disposal that, as an action, would adversely impact the site, surroundings, or affected community, and/or would exceed extant state, tribal, or local capacity; or***<br>• ***Adversely affect human health and the environment.*** |
| Potential Environmental Concerns | **Potential Impact.** There are no identified brownfields or Superfund sites within a one-mile buffer of the airport. Prior to any proposed land acquisition, a Phase I site assessment should be conducted to provide a more detailed understanding of what hazardous materials may be located on the land to be acquired.<br><br>Due to existing regulatory environmental management requirements regarding hazardous materials and water and stormwater management, no impacts related to ultimate airport development are anticipated.<br><br>*(Continues)* |

**TABLE 5D | Summary of Potential Environmental Concerns (continued)**

| | |
|---|---|
| Potential Environmental Concerns (continued) | The construction of the proposed hangars on the north and northeast areas of the airport would increase the amount of solid waste generated at the airport; however, no long-term impacts related to solid waste disposal are expected. The closest landfill to the airport is Kerrville Landfill, which is located three miles north of ERV.<br><br>*Source: NEPAssist (https://nepassisttool.epa.gov/nepassist/nepamap.aspx), accessed July 2025* |
| **HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The FAA has not established a significance threshold for Historical, Architectural, Archaeological, and Cultural Resources. Factors to consider include whether an action would result in a finding of adverse effect through the Section 106 process; however, an adverse effect finding does not automatically trigger the preparation of an EIS (i.e., a significant impact).*** |
| Potential Environmental Concerns | **Potential Impact.** There are no listed NRHP resources on airport property. As mentioned in Chapter One, no systematic airport-wide cultural surveys have been conducted, and while much of the airport has been developed or disturbed by construction, there is still a chance intact cultural resources may be present on the ground surface or subsurface.<br><br>If previously undocumented buried cultural resources are identified during ground-disturbing activities for future airport development, all work must immediately cease within 30 meters (100 feet) until a qualified archaeologist has documented the discovery and evaluated its eligibility for the NRHP, as appropriate. Work must not resume in the area without the approval of the FAA.<br><br>*Source: National Park Service (NPS), NRHP (https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466), accessed July 2025* |
| **LAND USE** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The FAA has not established a significance threshold for Land Use and there are no specific independent factors to consider. The determination that significant impacts exist is normally dependent on the significance of other impacts.*** |
| Potential Environmental Concerns | **Potential Impact.** Proposed airport improvements include the construction of a blast pad off Runway 12, the 2,000-foot extension of Runway 30, construction of Taxiway C pavement, and construction of hangars and associated improvements (i.e., access roads and vehicular parking). As mentioned earlier in the text under *Farmlands*, the proposed development would occur in areas that are comprised of soils suitable for farming; thus, coordination may need to be undertaken with the USDA on a project-by-project basis.<br><br>**Exhibit 5A** depicts property to be acquired (or protected via avigation easement) within ERV's RPZs and an avigation easement for the critical area associated with the proposed relocated AWOS. These property acquisitions and avigation easements are recommended to give the airport control over what land uses may be permitted within the airport's RPZs and critical areas. |
| **NATURAL RESOURCES AND ENERGY SUPPLY** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The FAA has not established a significance threshold for Natural Resources and Energy Supply; however, factors to consider include whether the action would have the potential to cause demand to exceed available or future supplies of these resources.*** |
| Potential Environmental Concerns | **No Impact.** Planned development projects at the airport could increase demands on energy utilities, water supplies and treatment, and other natural resources during construction; however, significant long-term impacts are not anticipated. Should long-term impacts be a concern, coordination with local service providers is recommended. |

*(Continues)*

**TABLE 5D | Summary of Potential Environmental Concerns (continued)**

| | |
|---|---|
| **NOISE AND NOISE-COMPATIBLE LAND USE** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The significance threshold applies to all civil aviation activities, including aircraft and airports; UAS and hubs; AAM and vertiports; and commercial space vehicles and launch and reentry sites.***<br><br>***The action would result in noise exposure from impulsive noise sources (e.g., sonic booms) that meet or exceed 60 CDNL (equivalent to DNL 65 dBA).***<br><br>***The action would increase noise by a DNL of 1.5 dB or more for a noise-sensitive area that is exposed to noise at or above the 65-dB DNL noise exposure level, or that will be exposed at or above the 65-dB DNL level due to a 1.5-dB DNL or greater increase, when compared to the no-action alternative for the same timeframe.***<br><br>***Another factor to consider is that special consideration should be given to the evaluation of the significance of noise impacts on noise-sensitive areas within Section 4(f) properties where the land use compatibility guidelines in Title 14 CFR Part 150 are not relevant to the value, significance, and enjoyment of the area in question.*** |
| Potential Environmental Concerns | **Potential Impact.** Existing and future noise contours for ERV are shown on **Exhibit 5H**. In the existing condition, the 65-dB DNL noise exposure (yellow contour) is located outside the airport boundaries along Memorial Boulevard. In the future condition, the 65-dB DNL is similarly located outside airport boundaries along Memorial Boulevard and expands within airport property; however, in both the existing and future conditions, the 65-dB DNL would not traverse noise-sensitive land uses. The future development at the airport is not expected to change the overall noise environment by more than the 1.5-dB threshold; however, this should be confirmed prior to implementing a runway extension on ultimate Runway 30, as shown on **Exhibit 5A**.<br><br>Within one mile of the airport, there are residential land uses and a school (Our Lady of the Hills College Prep) that would be considered noise-sensitive land uses. It is important to note that operational growth, unless tied to a specific project, will not result in noise impacts under FAA Order 1050.1G. Impacts to noise-sensitive land uses are evaluated through NEPA documentation for specific projects or through the voluntary Part 150 process. |
| **SOCIOECONOMICS AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS** | |
| **Socioeconomics** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The FAA has not established a significance threshold for Socioeconomics; however, factors to consider include whether an action would have the potential to:***<br><br>• ***Directly or indirectly induce substantial economic growth in an area (e.g., through establishing projects in an undeveloped area);***<br>• ***Disrupt or divide the physical arrangement of an established community;***<br>• ***Cause extensive relocation when sufficient replacement housing is unavailable;***<br>• ***Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities;***<br>• ***Disrupt local traffic patterns and substantially reduce the levels of service of roads serving the airport and its surrounding communities; or***<br>• ***Produce a substantial change in the community tax base.*** |
| Potential Environmental Concerns | **Potential Impact.** The proposed development depicted on **Exhibits 5A**, **5C**, and **5D** could encourage economic growth for the City of Kerrville and Kerr County. This growth could include new construction jobs, new jobs for the airport and other commercial uses, new housing, and increases to the local tax base.<br><br>The proposed development at the airport includes concentrations of hangars located on the north and northeast areas of the airport. No long-term traffic impacts are anticipated as a result of this development, as hangars are typically low traffic generators. |

*(Continues)*

**TABLE 5D | Summary of Potential Environmental Concerns (continued)**

| | |
|---|---|
| **Children's Health and Safety Risks** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The FAA has not established a significance threshold for Children's Environmental Health and Safety Risks; however, factors to consider include whether an action would have the potential to lead to a disproportionate health or safety risk to children.*** |
| Potential Environmental Concerns | **No Impact.** No disproportionately high or adverse impacts are anticipated to affect children living near the airport because of the proposed ultimate development. The airport is an access-controlled facility and children will not be allowed within the fenced portions of the airport without adult supervision. Additionally, all construction areas should be controlled to prevent unauthorized access. |
| **VISUAL EFFECTS** | |
| **Light Emissions** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The FAA has not established a significance threshold for Light Emissions; however, a factor to consider is the degree to which an action would have the potential to:***<br>• ***Create annoyance or interfere with normal activities from light emissions; or***<br>• ***Affect the nature of the visual character of the area due to light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources.*** |
| Potential Environmental Concerns | **No Impact.** The airfield is outfitted with MIRL, runway threshold lights, and medium intensity taxiway lights (MITL). Other lighting on the airfield includes a rotating beacon, a PAPI-4 system on Runway 12-30, and a PAPI-2 system on Runway 3-21. Similar light fixtures are anticipated to be installed with the construction of the proposed runway and taxiway improvements.<br><br>A 2,000-foot runway extension is proposed for Runway 30. Other airfield improvements include construction of connector taxiways off Taxiway A, construction of Taxiway C, and construction of holding bays. Night lighting during construction phases within the runway environment is typically directed downward to the construction work area to prevent light spilling outside the airport boundaries. Other ultimate projects, such as the proposed hangars, would include new light fixtures during the operation of the new facilities. Building security lights would be directed downward and would not create glare issues for users on nearby roadways. |
| **Visual Resources/Visual Character** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The FAA has not established a significance threshold for Visual Resources/Visual Character; however, a factor to consider is the extent to which an action would have the potential to:***<br>• ***Affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources;***<br>• ***Contrast with the visual resources and/or visual character in the study area; or***<br>• ***Block or obstruct the views of the visual resources, including whether these resources would still be viewable from other locations.*** |
| Potential Environmental Concerns | **No Impact.** There are no national scenic byways, state scenic byways, or scenic corridors near ERV. Views of the airport are accessible along Highway 27 but are otherwise not readily available off airport property due to the flat topography of the airport environs and densely clustered vegetation along the boundaries of the airport. |

*(Continues)*

**TABLE 5D | Summary of Potential Environmental Concerns (continued)**

| | |
|---|---|
| **WATER RESOURCES** | |
| **Wetlands** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The action would:***<br>1. ***Adversely affect a wetland's function to protect the quality or quantity of municipal water supplies, including surface waters and sole source and other aquifers;***<br>2. ***Substantially alter the hydrology needed to sustain the affected wetland system's values and functions or those of a wetland to which it is connected;***<br>3. ***Substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety, or welfare (the term "welfare" includes cultural, recreational, and scientific resources or property important to the public);***<br>4. ***Adversely affect the maintenance of natural systems that support wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands;***<br>5. ***Promote the development of secondary activities or services that would cause the circumstances listed above to occur; or***<br>6. ***Be inconsistent with applicable state wetland strategies.*** |
| Potential Environmental Concerns | **Potential Impact.** Based on aerial mapping conducted by the National Wetlands Inventory, there are freshwater ponds and riverines associated with Guadalupe River that traverse the airport. The closest proposed improvement to these mapped rivers is the 2,000-foot runway extension of Runway 30.<br><br>Field surveys and wetland delineations may be required to determine the presence or absence of wetlands at the airport. Removal or relocation of wetlands may require a Section 404 permit under the *Clean Water Act*, which regulates the discharge of dredged or fill material into waters of the United States, including jurisdictional wetlands. |
| **Floodplains** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The action would cause notable adverse impacts on natural and beneficial floodplain values. Natural and beneficial floodplain values are defined in Paragraph 4.k of DOT Order 5650.2, Floodplain Management and Protection.*** |
| Potential Environmental Concerns | **No Impact.** Based on the Federal Emergency Management Agency (FEMA) *Flood Insurance Rate Map* (FIRM), the majority of the airport is located in an area of minimal flood hazard; however, there are 100-year floodplains on the western portion of ERV and a 500-year floodplain on the south side of the airport. Airport improvements are not proposed in these areas. |
| **Surface Waters** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The action would:***<br>1. ***Exceed water quality standards established by federal, state, local, and tribal regulatory agencies; or***<br>2. ***Contaminate public drinking water supply such that public health may be adversely affected.***<br><br>***Factors to consider include whether a project would have the potential to:***<br>• ***Adversely affect natural and beneficial water resource values to a degree that substantially diminishes or destroys such values;***<br>• ***Adversely affect surface waters such that the beneficial uses and values of such waters are appreciably diminished or can no longer be maintained and such impairment cannot be avoided or satisfactorily mitigated; or***<br>• ***Present difficulties based on water quality impacts when obtaining a permit or authorization.*** |
| Potential Environmental Concerns | **Potential Impact.** The proposed development depicted on **Exhibits 5A**, **5C**, and **5D** would increase impervious surfaces at ERV with the construction of additional pavement for taxiways, apron areas, holding aprons, and more.<br><br>*(Continues)* |

**TABLE 5D | Summary of Potential Environmental Concerns (continued)**

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|---|---|
| Potential Environmental Concerns (continued) | A National Pollutant Discharge Elimination System (NPDES) general construction permit would be required for all projects that involve ground disturbance over one acre. FAA AC 150/5370-10H, Item C-102, *Temporary Air and Water Pollution, Soil Erosion, and Siltation Control*, should also be implemented during construction projects at the airport. |
| **Groundwater** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The action would:***<br>1. ***Exceed groundwater quality standards established by federal, state, local, and tribal regulatory agencies; or***<br>2. ***Contaminate an aquifer used for public water supply such that public health may be adversely affected.***<br><br>***Factors to consider include whether a project would have the potential to:***<br>• ***Adversely affect natural and beneficial groundwater values to a degree that substantially diminishes or destroys such values;***<br>• ***Adversely affect groundwater quantities such that the beneficial uses and values of such groundwater are appreciably diminished or can no longer be maintained and such impairment cannot be avoided or satisfactorily mitigated; or***<br>• ***Present difficulties based on water quality impacts when obtaining a permit or authorization.*** |
| Potential Environmental Concerns | **Potential Impact.** According to the NEPAssist website, there are no United States Geological Survey (USGS) groundwater wells at the airport. The airport is located over the Edwards Aquifer I (San Antonio Area). The proposed development has the potential to contribute to the depletion of the aquifer due to the increase in impervious paved surfaces at the airport, which would increase stormwater runoff and reduce percolation into the groundwater basin. |
| **Wild and Scenic Rivers** | |
| FAA Order 1050.1G, *Significance Threshold/ Factors to Consider* | ***The FAA has not established a significance threshold for Wild and Scenic Rivers. Factors to consider include whether an action would have an adverse impact on the values for which a river was designated (or is considered for designation) through:***<br><br>• ***Destroying or altering a river's free-flowing nature;***<br>• ***A direct and adverse effect on the values for which a river was designated (or is under study for designation);***<br>• ***Introducing a visual, audible, or another type of intrusion that is out of character with the river or would alter outstanding features of the river's setting;***<br>• ***Causing the river's water quality to deteriorate;***<br>• ***Allowing the transfer or sale of property interests without restrictions needed to protect the river or the river corridor; or***<br>• ***Any of the above impacts that prevents a river on the Nationwide Rivers Inventory (NRI) or a Section 5(d) river that is not included in the NRI from being included in the Wild and Scenic River System or causing a downgrade in its classification (e.g., from wild to recreational).*** |
| Potential Environmental Concerns | **No Impact.** The closest designated National Wild and Scenic River is the Rio Grande River, which is located 160 miles from the airport. The closest NRI feature is a segment of the Guadalupe River, south of Memorial Boulevard. The proposed avigation easement associated with the Runway 12 RPZ will abut the edge of this river, but the avigation easement would be utilized to protect the runway's approach zones so that ultimate development would not occur within this area; therefore, impacts to the Guadalupe River are not anticipated.<br><br>Projects delineated on the master plan concept would not have adverse effects on these rivers; outstanding remarkable values (i.e., scenery, recreation, geology, fish, wildlife, and history).<br><br>*Source: National Wild and Scenic Rivers System (https://rivers.gov/texas), accessed July 2025; NPS, NRI (https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm), accessed July 2025* |

## *SUMMARY*

The best way to begin implementation of the recommendations in the master plan is to first recognize that planning is a continuous process that does not end with the completion and approval of this document. Rather, the ability to continuously monitor the existing and forecasted status of airport activity must be provided and maintained. The issues on which the master plan is based will remain valid for many years. The primary goal is for ERV to best serve the general aviation air transportation needs of the region while continuing to be economically self-sufficient.

The actual need for facilities is most appropriately established by ERV activity levels, rather than by a specified date. For example, projections have been made as to when additional hangars may be needed; however, the timeframe in which the development is needed may be substantially different. Actual demand may be slower to develop than expected, or high levels of demand may establish the need to accelerate development. Although every effort has been made in this master planning process to conservatively estimate when facility development may be needed, actual aviation demand will dictate when facility improvements need to be delayed or accelerated.

The real value of a usable master plan is its ability to keep the issues and objectives in the minds of the airport's managers and decision-makers so they can better recognize changes and their effects. In addition to adjustments in aviation demand, decisions regarding when to undertake the improvements recommended in the master plan will impact the period for which the plan remains valid. The format used in this plan is intended to reduce the need for formal and costly updates by simply adjusting the timing. Updates can be performed by ERV staff, thereby improving the plan's effectiveness.

In summary, the planning process requires ERV management to consistently monitor progress in terms of aircraft operations and based aircraft. Analysis of aircraft demand is critical to the timing and need for certain airport facilities. The information obtained from continually monitoring activity will provide the data necessary to determine if the development schedule should be accelerated or decelerated.