Recommended Master Plan Concept

The airport master plan for Mesquite Metro Airport (HQZ) 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 HQZ. 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 HQZ.

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. 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 discussed previously, 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 HQZ in the existing and ultimate conditions – as established in Chapter Two – are summarized in **Table 5A**.

TABLE 5A | Airport and Runway Classifications

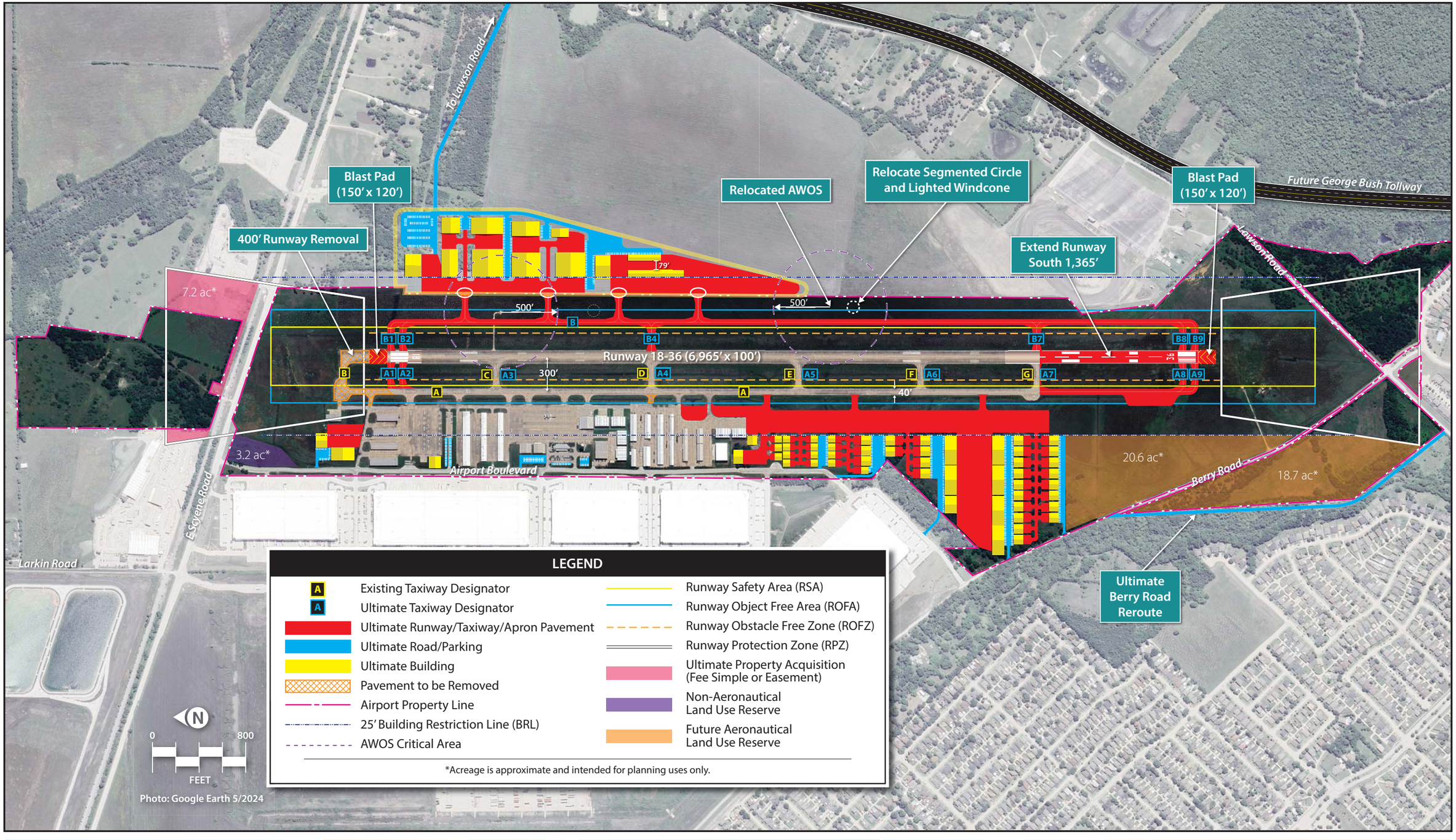
	Runway 18-36 (Existing)	Runway 18-36 (Ultimate)
Airport Reference Code (ARC)	B-II	C-II
Critical Aircraft (Typ.)	Cessna CJ2+	Bombardier Challenger 300
Runway Design Code (RDC)	B-II-4000	C-II-4000
Taxiway Design Group (TDG)	2A	2A

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

RUNWAY 18-36

Runway Dimensions | Runway 18-36 is currently 6,000 feet long and 100 feet wide. At this length, the runway can accommodate most business jet aircraft that currently operate at HQZ; however, additional length is needed to safely accommodate larger/heavier aircraft, especially during the hotter summer months. During these periods, some aircraft are forced to restrict payloads (fuel/passengers/freight) to ensure safe departure. When less fuel is taken, non-stop destinations can be limited.

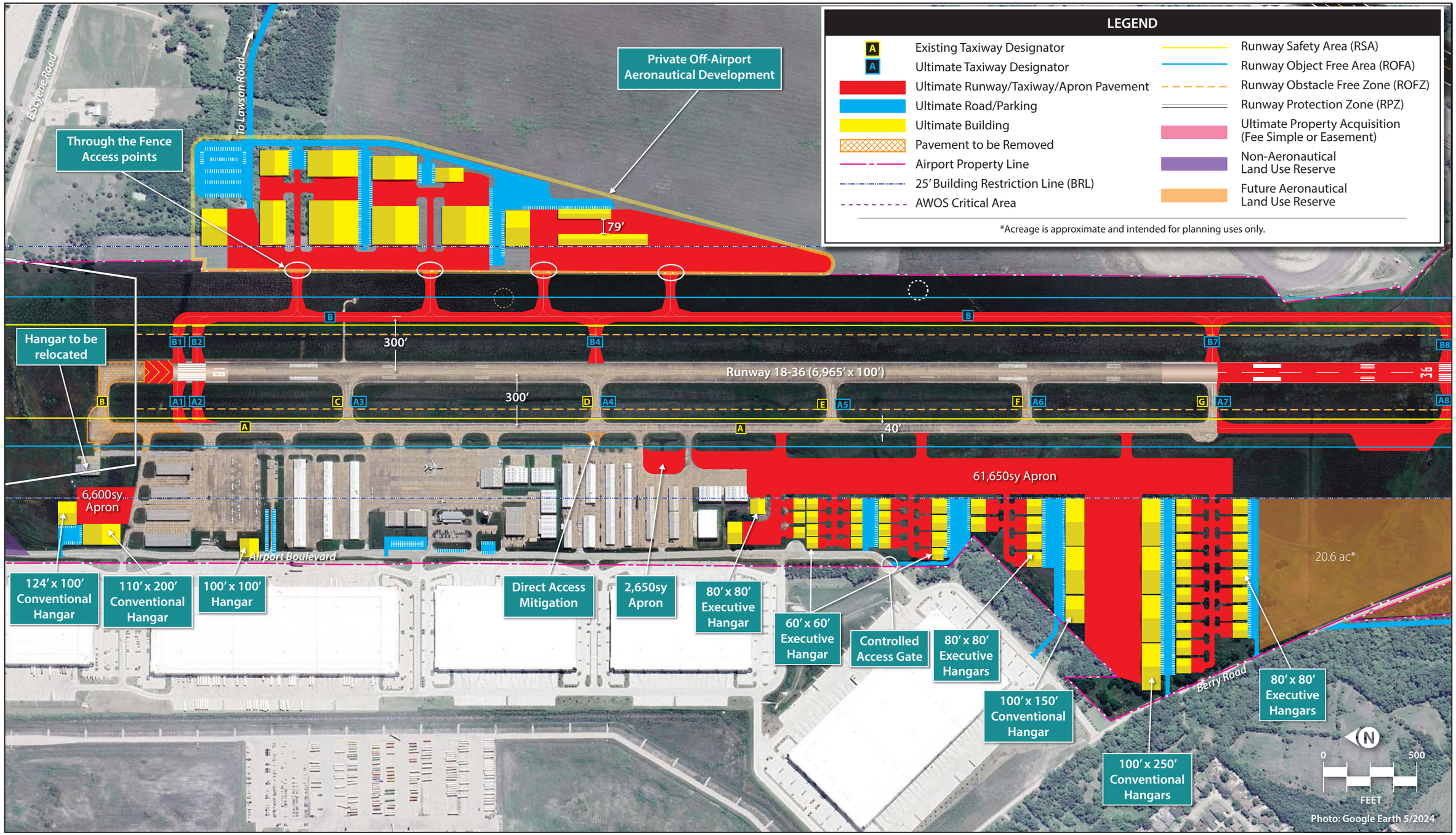
The alternatives in the previous chapter considered options to extend the runway up to 8,000 feet. After review and discussion of the various alternatives with the PAC, it was determined that the preferred alternative was to extend the runway to 6,965 feet by extending it to the south by 1,365 feet and removing 400 feet of runway pavement on the north end. The pavement removal is needed to ensure the runway meets the 1,000-foot runway safety area (RSA) and runway object free area (ROFA) standard off the north end. The 1,365-foot extension to the south is the maximum extension allowable while maintaining the standard 1,000 feet of RSA and ROFA. This length will better serve the existing and ultimate critical aircraft, particularly when operating under Part 135 charter aircraft rules when the runway is wet or contaminated.



LEGEND

- A — Existing Taxiway Designator
- A — Ultimate Taxiway Designator
- Ultimate Runway/Taxiway/Apron Pavement
- Ultimate Road/Parking
- Ultimate Building
- Pavement to be Removed
- Airport Property Line
- 25′ Building Restriction Line (BRL)
- AWOS Critical Area
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zone (RPZ)
- Ultimate Property Acquisition (Fee Simple or Easement)
- Non-Aeronautical Land Use Reserve
- Future Aeronautical Land Use Reserve

*Acreage is approximate and intended for planning uses only.



LEGEND

- Existing Taxiway Designator
- Ultimate Taxiway Designator
- Ultimate Runway/Taxiway/Apron Pavement
- Ultimate Road/Parking
- Ultimate Building
- Pavement to be Removed
- Airport Property Line
- 25' Building Restriction Line (BRL)
- AWOS Critical Area
- Runway Safety Area (RSA)
- Runway Object Free Area (ROFA)
- Runway Obstacle Free Zone (ROFZ)
- Runway Protection Zone (RPZ)
- Ultimate Property Acquisition (Fee Simple or Easement)
- Non-Aeronautical Land Use Reserve
- Future Aeronautical Land Use Reserve

*Acreage is approximate and intended for planning uses only.

The existing runway width of 100 feet meets the ultimate RDC C-II-4000 design standard and is planned to be maintained.

Connected actions and notes regarding the runway extension are as follows:

- The visual approach aids on both ends of the runway (four-box precision approach path indicators [PAPI-4s], runway end identifier lights [REILs], and lead-in lights) will need to be relocated.
- Parallel Taxiway A will need to be adjusted to the new runway ends. This includes the addition of two new entrance taxiways at both ends of the runway. These new taxiways are identified as A1, A2, A8, and A9 on **Exhibit 5A**. Taxiways A2 and A8 serve as bypass taxiways, allowing for greater circulation and efficiency.
- Blast pads that measure 150 feet wide by 120 feet long will be added to the runway ends to prevent soil erosion from jet blast.
- Medium intensity runway edge lighting (MIRL) will be added to all new runway pavement to be consistent with the existing system.
- New airfield signage will need to be updated to reflect new taxiway connectors associated with the runway extension.
- Existing instrument approach procedures will need to be revalidated once the runway shift/ extension is completed.

Pavement Strength | Runway 18-36 is currently strength-rated for up to 70,000 pounds for single wheel loading (S) aircraft and 100,000 pounds for dual wheel loading (D) aircraft and dual tandem wheel loading (DT) aircraft. These strengths are adequate for the general aviation aircraft operating at HQZ now and in the future; therefore, no additional strength is currently recommended.

Property Acquisition | The runway extension is designed so that no new property acquisition is required. The ultimate RSA/ROFA and runway protection zone (RPZ) on the south end all remain on airport property; however, approximately 7.2 acres of the Runway 18 RPZ on the north end is unprotected. The plan includes acquiring an avigation easement over these 7.2 acres of property to protect against incompatible developments that might impact the approach and departure surfaces.

Runway Protection Zones (RPZs) | The RPZs for Runway 18-36 are impacted by traversing public roads (E Scyene Road on the north side and Lawson Road and Berry Road on the south side). FAA Advisory Circular (AC) 150/5190-4B, *Land Use Compatibility Planning*, requires airport sponsors to take active steps to prevent or mitigate new incompatible land uses within the RPZs. This process involves acquiring ownership control (fee simple or avigation easement) of the RPZ property or regulating land uses within the RPZ via zoning action. When control of the RPZ property is not possible, an alternatives evaluation that outlines the purpose and need for the project (in this case, a runway extension) must be submitted to the FAA, along with a summary of all alternatives considered and a practicability assessment that explains why the preferred alternative is the most appropriate.

In the case of the Runway 18 RPZ, the removal of 400 feet of runway pavement reduces the amount of the RPZ impacted by E Scyene Road. Berry Road, which traverses the ultimate Runway 36 RPZ, is planned to be rerouted so that it is outside the RPZ. Lawson Road is not planned to be rerouted due to the constraining Falcon's Ridge neighborhood, in which existing homes prevent the ability to reroute. When roads cannot be rerouted outside the RPZ, the *Land Use Compatibility Planning* AC recommends airports that add roadway signage alerting vehicles to the RPZ, prohibit stopping and standing in the RPZ, and avoid locating stoplights near the edge of the RPZ to prevent queues from building into the RPZ. The goal of these recommendations is to mitigate concentrations of people and visual obstructions within the RPZ.

TAXIWAY IMPROVEMENTS

The taxiway system at HQZ 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 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 HQZ has been given alphanumeric designations to improve both the situational awareness of pilots and the safety margins at the airport. The ultimate designations can be seen on **Exhibit 5A**; for example, existing Taxiway C becomes A3 and Taxiway D becomes A4.

Taxiway A | Taxiway A (40 feet wide) is a true parallel taxiway that extends the entire length of Runway 18-36. It is planned to be altered, along with the ultimate ends of the runway, which involves removing 400 feet of taxiway pavement at the north end and extending it 1,365 feet south. The extended taxiway pavement is planned to a width of 35 feet, which meets TDG 2A design standards. New entrance taxiways (A1, A2, A8, and A9) are planned at both ends of the runway to provide aircraft the ability to bypass each other, which increases circulation efficiency.

Taxiway B | The plan includes the possibility of a new parallel taxiway on the east side of the runway to support a potential private through-the-fence (TTF) development. Taxiway B would have a separation distance of 300 feet from the runway centerline and is planned to meet TDG 2A standards. It includes six connecting taxiways to the runway to coincide with existing connectors on the west side, except where it would create an intersection with the runway's high-energy area (the middle third of the runway). The construction of Taxiway B would require the relocation of the automated weather observation station (AWOS) equipment and the segmented circle and lighted wind cone. Both are shown to be relocated to a midfield site outside of the ROFA.

Taxiway Geometry Improvements | The taxiway system at HQZ includes two non-standard geometry configurations. These are direct access points from midfield hangars to the runway via Taxiway D and a taxilane linkage from a private hangar adjacent to the Runway 18 threshold. In both cases, the plan includes the removal of pavement to mitigate the direct access points. Taxilane pavement improvements will be necessary to provide access to the private hangar prior to the closure of the existing access point. The midfield hangars can utilize other existing taxiway stubs to access Taxiway A.

Holding Apron | A new holding apron is planned at the south end of Taxiway A to provide a location for aircraft to perform preflight engine checks. The holding apron is planned to a depth that allows for holding aircraft to be outside the Taxiway A taxiway object free area (TOFA).

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 HQZ staff when considering new developments.

Recommended landside developments are depicted on the reverse side of **Exhibit 5A**.

GENERAL AVIATION FACILITIES

Terminal | The facility requirements evaluation determined that the existing terminal building – supplemented by general aviation terminal services provided by specialty aviation service operators (SASOs), as well as the pilot's lounge and restrooms at the east end of building #1520 – is sufficient to meet long-term demand; however, the airport plans to remodel the terminal with new paint, furniture, and artwork. The bathrooms will be remodeled, and general repairs will be performed.

Aprons | The existing apron capacity at HQZ totals approximately 33,400 square yards (sy). The plan includes the continuation of the apron to the south along the flightline. The new apron would total approximately 64,300 sy and would provide a buffer between the runway and the new hangar facilities and taxilanes to the west.

Hangars | Hangar facilities at HQZ stretch from north to south on the west side of the airfield and include a variety of styles, from T-hangars – which accommodate small aircraft – up to large conventional style hangars that can house multiple aircraft, including larger turboprop and jet aircraft. The plan includes layouts for new executive hangars and conventional style hangars, for which demand is greatest. At the north end of the landside area, two conventional hangars are planned with an associated 6,600 sy apron, which can be utilized for FBO-related services. Another new 10,000-square-foot (sf) hangar is planned along Airport Boulevard to support a new flight school. Remaining hangar development is shown to the south of the existing landside area and includes a variety of executive hangars that range in size from 3,600 sf to 6,400 sf and conventional hangars that range from 10,000 sf to 25,000 sf. Each column of hangars includes taxilane access to the apron, with connectors to Taxiway A leading to the runway.

Fuel Storage | The existing fuel farm located along Airport Boulevard is planned to remain and be expanded, as needed. The facility requirements analysis identified a potential need for additional Jet A fuel storage by the intermediate-term planning horizon. An expansion to add a 12,000-gallon Jet A tank is included in the plan. Future fuel storage capacity may also be needed for unleaded aviation fuel when it becomes more widely adopted and available.

Vehicle Parking | Vehicle parking lot expansions are planned for the terminal, tower, and hangars (buildings #1280 and #1290) immediately north of the terminal building. These lots are estimated to add approximately 65 new parking spaces serving the high activity area. The auxiliary parking lot located south of the north apron is also planned to be expanded to add approximately 50 new spaces to accommodate a new flight school operating from the north apron. New parking lots and vehicle access roads are planned along with most of the new hangar developments.

Aeronautical Use Reserve | The plan includes preserving two parcels, which total approximately 39.3 acres of property along Berry Road to the south, for future aeronautical development. Once Berry Road is rerouted, the two parcels can be consolidated into a single parcel along the flightline that is entirely accessible to the airfield. This area could be used for additional private individual hangar facilities, or for larger-scale SASOs in need of a large footprint.

ADDITIONAL CONSIDERATIONS

Through-the-Fence (TTF) Development

The plan includes the potential for TTF development on the east side of the airport. The concept depicts several large hangars and aprons that could access the airfield via controlled access points leading to Taxiway B. If the development potential of remaining airport property is limited and/or a large-scale operator needs more land than what is available on the west side, the airport could pursue a TTF agreement as a means of supporting new aeronautical developments and generating new revenue.

A TTF operation is defined by the FAA as any activity or use of real property of an aeronautical or non-aeronautical nature that is located outside and adjacent to airport property but has access to the airport's runway and/or taxiway system. These properties are not under control in any manner by the airport sponsor. The FAA views TTF access as a privilege and not a right. Under existing federal law, there is no requirement for a public airport sponsor to provide access to the airport from private property adjacent to the airport. The FAA officially defines TTF as follows:

> *"Through-the-fence operations are those activities permitted by an airport sponsor through an agreement that permits access to the public landing area by independent entities or operations offering an aeronautical activity or to owners of aircraft based on land adjacent to, but not part of, the airport property. The obligation to make an airport available for the use and benefit of the public does not impose any requirement for the airport sponsor to permit ground access by aircraft from adjacent property."*

TTF operations typically fall into one of the following three categories:

1. Residential Airpark (prohibited at commercial service airports)
2. Provision of Commercial Aeronautical Services (must not have an unfair economic advantage over on-airport business)
3. Business or Private Aircraft Storage (must not have an unfair economic advantage over other on-airport aircraft storage options)

The owner of an airport may enter into an agreement (i.e., access agreement or lease agreement) that permits access to the public landing area to independent operators offering an aeronautical activity, or to owners of aircraft based on land adjacent to, but not a part of, the airport property; however, a TTF operation could undermine an airport's minimum standards, unless the airport sponsor is careful to apply its minimum standards through an airport access agreement that includes conditions to protect the airport's ability to meet all its federal obligations.

Except in unusual circumstances, and only in accordance with the requirements and guidelines promulgated under FAA National Policy Order 5190.6B, *FAA Airport Compliance Manual*, as amended, and only upon FAA review and approval, HQZ will not permit adjoining landowners or businesses access to airport property or facilities. Payment of appropriate access fees to the airport shall be a condition of approval of future TTF agreements.

Grant Assurances

When the airport sponsor receives FAA Airport Improvement Program (AIP) funding, the sponsor is required to execute a contract with the FAA. This contract includes 39 grant assurances, which are a series of performance metrics by which the airport sponsor agrees to abide in operating the airport.
FAA audits of airports with existing TTF arrangements have found that many TTF arrangements inadvertently violate airport sponsor grant assurances. In some cases, the FAA has exercised regulatory enforcement rights, including eliminating the eligibility of the airport to receive future AIP development grants. Of the 39 grant assurances, TTF operations generally risk violation of three primary ones:

- Grant Assurance #5: Preserving Rights and Powers – This grant assurance states that the airport sponsor will not take or permit any action that would deprive it of any of the rights and powers necessary to perform any or all of the terms, conditions, and assurances in the grant agreement. Essentially, the airport cannot give up control of any part of the airport, and some TTF agreements have been found to restrict future development of the airport.

- Grant Assurance #21: Compatible Land Use – This grant assurance requires the airport sponsor to take appropriate action to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes that are compatible with airport operations. For example, residential property is considered incompatible with airport operations, and airports are thus encouraged to use zoning or other means to keep residential development away from airports.

- Grant Assurance #22: Economic Non-discrimination – This grant assurance requires the airport sponsor to establish reasonable, and not unjustly discriminatory, conditions to be met by all airport users. In a number of the audited TTF agreements reviewed by the FAA, it was found that the off-airport TTF operators did not pay for access to the airfield, thus giving such operators an economic advantage over a business located on the airport; therefore, any approved TTF operator must pay an access fee at least equal to on-airport land rental. Any TTF operator is responsible for the construction and maintenance of its own infrastructure from its site to the connection with airfield pavements, and they must pay land lease fees for the connection out to the taxilane object free area.

Access Agreements

Any TTF access should be subject to a written agreement between the airport sponsor and the party granted access. The access agreement should specify what specific rights of access are granted; payment provisions that provide (at a minimum) parity with similarly situated on-airport tenants and equitable compensation for the use of the airport; expiration date; maintenance; security; default and termination provisions; insurance and indemnity provisions; and a clear statement that the access agreement is subordinate to the grant assurances and/or federal property conveyance obligations, and that the sponsor shall have the express right to amend or terminate the access agreement to ensure continued compliance with all grant assurances and federal property conveyance obligations.

The access agreement should have a fixed contract period, and the airport sponsor is under no obligation to accept a proposed assignment or sale of the access agreement by one party to another. The airport sponsor is encouraged to expressly prohibit the sale or assignment of its access agreement.

Additional sources for information on establishing TTF agreements include FAA Order 5190.6B, *Airport Compliance Manual*, and Airport Cooperative Research Program (ACRP) Report 114, *Guidebook for Through-the-Fence Operations*. The Texas Department of Transportation (TxDOT) also has a guide on managing TTF agreements, which is available through its website[1].

NON-AERONAUTICAL DEVELOPMENT

Airports often have property areas that are inaccessible to the airfield and offer limited utility for aviation operations. These areas are typically reserved for other non-aeronautical related uses that provide an opportunity to diversify and expand revenue streams for the airport. At HQZ, only a small 3.2-acre area at the southeast corner of Airport Boulevard and E Scyene Road is planned for non-aeronautical use. This area plans to take advantage of the high visibility from E Scyene Road for the development of a restaurant to serve airport users/employees, as well as workers at the many nearby large logistics centers.

[1] https://www.txdot.gov/content/dam/docs/aviation/how-to-through-fence-agreements.pdf

LAND USE COMPATIBILITY

Land use planning around HQZ occurs through regulatory and non-regulatory means. The primary regulatory tool for directing land use is the zoning ordinance, which limits the types, sizes, and densities 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, 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 goals 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.

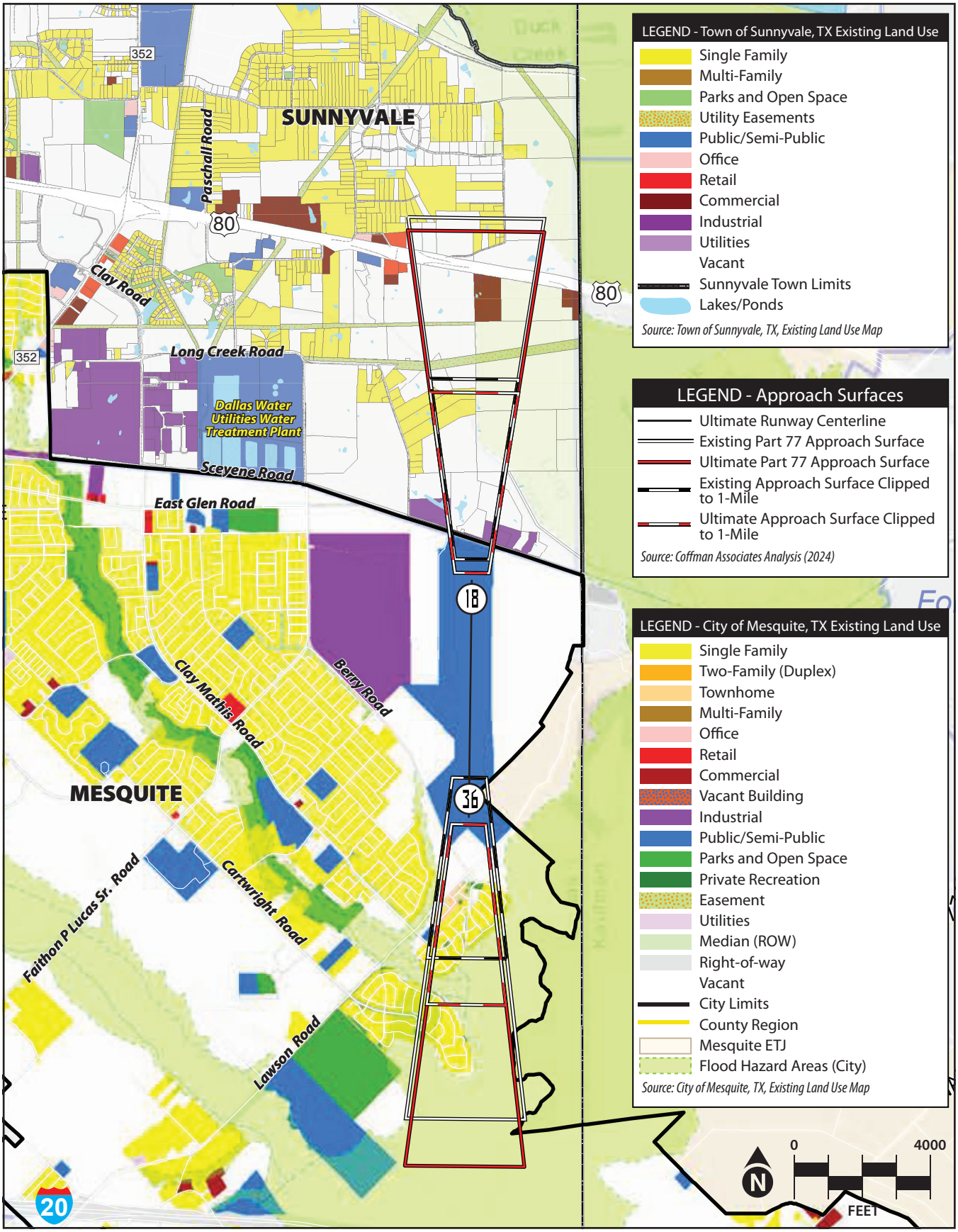
Zoning identifies the type of land use *permitted* on a given piece of property, according to the city zoning ordinances and maps. Local governments are required to regulate the subdivision of all lands within their corporate limits. Zoning ordinances should be consistent with the general plan, if one 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 day-night noise level metric (DNL) contours and the FAA Title 14 Code of Federal Regulations (CFR) Part 77 approach surface, restricted to one mile from runway ends.

EXISTING LAND USE

As discussed in Chapter One, HQZ is located within the city limits of Mesquite, TX; however, the runway approach surfaces for the airport extend into jurisdictions outside the City of Mesquite. The approach surface to Runway 18 extends north into the Town of Sunnyvale, TX, and a portion of the approach surface to Runway 36 lies within unincorporated Dallas County.

Exhibit 5B depicts the existing land use designations within the airport approach surfaces out to one mile for both the existing and ultimate conditions. South of the airport within the approach surface to Runway 36, existing land use consists of a single-family residential planned development district – Falcon's Lair and Falcon's Ridge – as well as vacant land and flood hazard areas, which are generally regarded as unsuitable for future development. North of the airport within the approach surface to Runway 18, the existing land uses are industrial along Scyene Road, single-family residential to the north along Larkin Road, or vacant.


SUNNYVALE
MESQUITE
Paschall Road
Clay Road
Long Creek Road
Dallas Water Utilities Water Treatment Plant
Sceyene Road
East Glen Road
Clay Mathis Road
Berry Road
Faithon P Lucas Sr. Road
Cartwright Road
Lawson Road
352
80
18
36
20
LEGEND - Town of Sunnyvale, TX Existing Land Use
Single Family
Multi-Family
Parks and Open Space
Utility Easements
Public/Semi-Public
Office
Retail
Commercial
Industrial
Utilities
Vacant
Sunnyvale Town Limits
Lakes/Ponds
Source: Town of Sunnyvale, TX, Existing Land Use Map
LEGEND - Approach Surfaces
Ultimate Runway Centerline
Existing Part 77 Approach Surface
Ultimate Part 77 Approach Surface
Existing Approach Surface Clipped to 1-Mile
Ultimate Approach Surface Clipped to 1-Mile
Source: Coffman Associates Analysis (2024)
LEGEND - City of Mesquite, TX Existing Land Use
Single Family
Two-Family (Duplex)
Townhome
Multi-Family
Office
Retail
Commercial
Vacant Building
Industrial
Public/Semi-Public
Parks and Open Space
Private Recreation
Easement
Utilities
Median (ROW)
Right-of-way
Vacant
City Limits
County Region
Mesquite ETJ
Flood Hazard Areas (City)
Source: City of Mesquite, TX, Existing Land Use Map
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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. In turn, zoning ordinances and subdivision regulations are produced to carry out the plan's goals. Municipalities often incorporate goals and policies for their airports in their future land use plans, which are 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 regarding maintenance issues. The current planning documents of this type for the land near the airport are the *Mesquite Comprehensive Plan* (adopted in October 2019) and the *2017 Comprehensive Plan, Town of Sunnyvale, Texas* (adopted in February 2017).

Mesquite Comprehensive Plan

The City of Mesquite's comprehensive plan contains guiding principles that were defined to help guide future policy decisions that impact Mesquite's development pattern, which includes maintaining and building quality infrastructure. Airport property is identified as Public/Semi-Public on the *Mesquite Comprehensive Plan* future land use map and is surrounded by light industrial land use. The following strategies are identified in the comprehensive plan for the light industrial areas surrounding the airport:

- Light industrial areas should be located along arterial thoroughfares in proximity to freeways, rail lines, and/or areas with access to airports and other transportation outlets.
- These areas should be screened and buffered from residential uses through the use of a major roadway, commercial/retail/office use, or floodplain/natural area.
- Light industrial areas should serve as a buffer and transition between heavy industrial and lower intensity uses.
- Industrial business parks that function as employment centers are encouraged.

Sunnyvale Comprehensive Plan

The future land use plan contained within the Town of Sunnyvale's comprehensive plan sets an overall framework for the preferred pattern of development within Sunnyvale and is intended to be a comprehensive blueprint of Sunnyvale's vision for its future land use pattern. The area immediately adjacent to and north of HQZ is designated as Business Park (Industrial) in the comprehensive plan. The area has been identified as the most suitable for this use because of its proximity to the Union Pacific railroad line that runs parallel to Scyene Road. It is recommended that industrial uses be limited to this area of Sunnyvale and that only light manufacturing uses be developed in these areas, with appropriate setbacks, screenings, and site design principles that mitigate any potential negative effects on surrounding properties.

Exhibit 5C depicts the future land use designations within the airport's existing and ultimate Part 77 approach surfaces out to one mile. Future land uses identified within the one-mile approach surfaces include open space, single-family residential, light industrial, and airport property. **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.

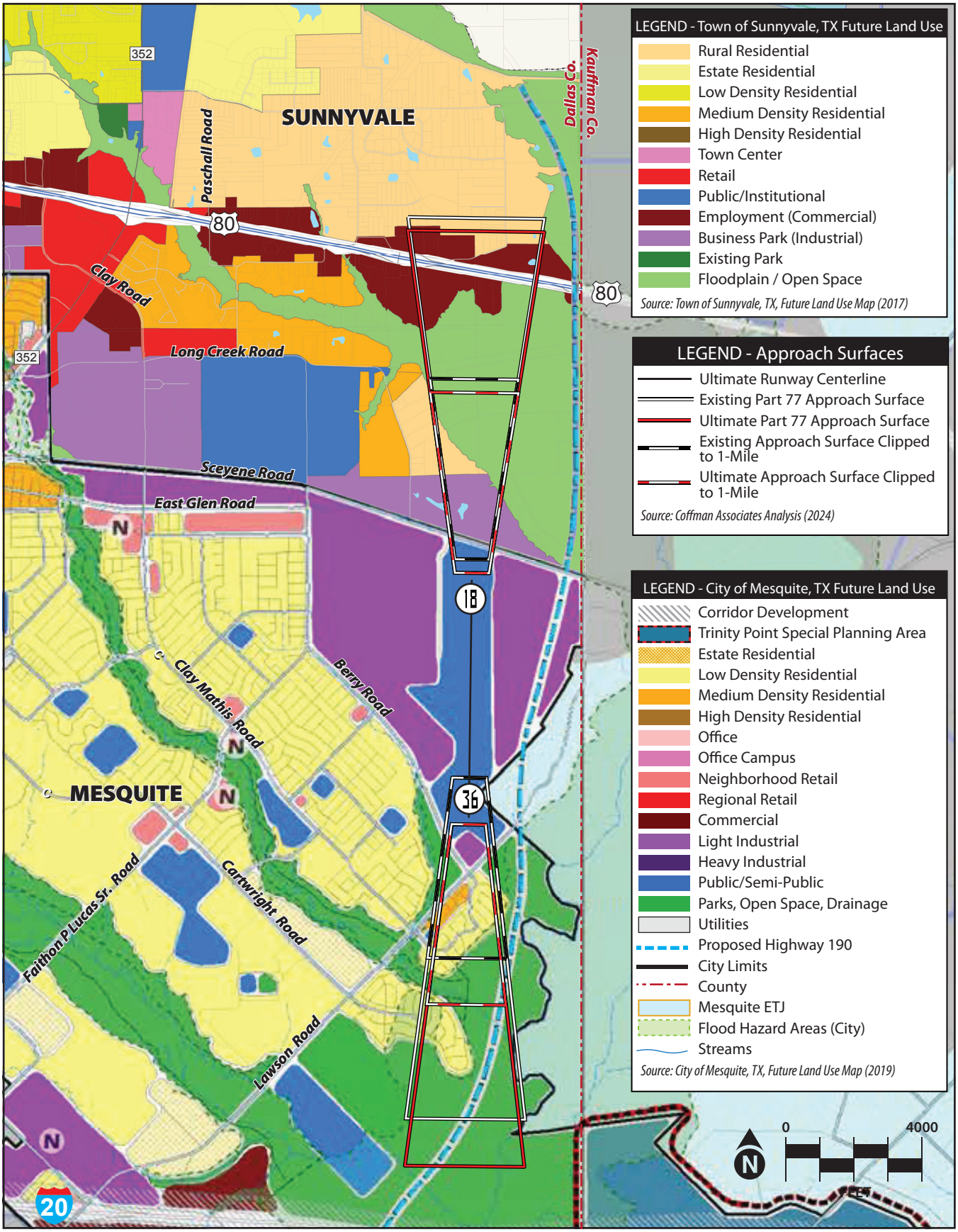
TABLE 5B | Future Land Use Designations Within the Ultimate Approach Surfaces, Clipped to One Mile

CITY OF MESQUITE – RUNWAY 36	TOWN OF SUNNYVALE – RUNWAY 18
Parks, Open Space, Drainage	**Floodplain/Open Space**
This designation is intended to preserve open spaces for the protection and enjoyment of natural areas. Areas within this designation are primarily located along the floodway running throughout the city. These areas should be preserved as public and neighborhood-oriented open spaces and incorporate trails and drainage corridors, which are left in a naturalistic state. Generally, areas located within a floodway are better suited for recreational uses than residential or commercial development. Impacts on these areas should be closely considered when intense uses are proposed within their proximity.	This designation is representative of areas that include floodplains, open space, and parks. These areas should remain undeveloped to protect the rural character of Sunnyvale and to provide recreational amenities.
	Rural Residential
	This category refers to single-family homes that are generally included in subdivisions. This type of housing currently comprises a large portion of Sunnyvale's existing housing stock. Low density residential generally includes one-acre lots (i.e., 1.0 dwelling units per gross acre).
Low Density Residential	**Medium Density Residential**
Low density residential land use represents a traditional single-family detached neighborhood in which each dwelling unit is located on an individual lot. Densities may vary from one neighborhood to the next, as well as within the same subdivision, to encourage diverse housing options. The recommended density range is three to five units per acre.	This category refers to single-family homes on smaller lots. This land use can serve as a transition zone between large-lot, single-family neighborhoods and commercial development. Medium density residential use generally includes lots between 7,000 and 24,000 square feet (4.0 to 1.4 dwelling units per gross acre).
Light Industrial	**Business Park (Industrial)**
Light industrial development includes a variety of manufacturing and storage uses that have a wide range of appearances and intensities. Land use types include refining or manufacturing facilities (with no outdoor activity), indoor warehouse/storage facilities, and industrial business parks.	This land use designation is suitable for manufacturing, processing, assembling, packaging, and fabricating previously prepared materials, as well as warehousing.
Public/Semi-Public (Airport Property)	**Public/Institutional (Airport Property)**
Public/semi-public uses serve a public purpose and are generally related to a public entity, such as government offices, public safety facilities, and public education facilities. Land use types include City Hall, public facilities, federal offices, and public schools.	This designation is representative of uses that are governmental or institutional in nature. These uses are generally permitted within any area; therefore, the areas shown on the future land use map include the uses that currently exist. It is anticipated that there will be a need for additional public uses with future population growth.

Sources: Mesquite Comprehensive Plan, adopted October 2019; 2017 Comprehensive Plan, Town of Sunnyvale, Texas, adopted February 2017; Coffman Associates analysis

ZONING

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


SUNNYVALE
MESQUITE
Paschall Road
Clay Road
Long Creek Road
Sceyene Road
East Glen Road
Clay Mathis Road
Berry Road
Cartwright Road
Faithon P Lucas Sr. Road
Lawson Road
Dallas Co.
Kaufman Co.
352
80
18
36
20
N
0
4000
LEGEND - Town of Sunnyvale, TX Future Land Use
Rural Residential
Estate Residential
Low Density Residential
Medium Density Residential
High Density Residential
Town Center
Retail
Public/Institutional
Employment (Commercial)
Business Park (Industrial)
Existing Park
Floodplain / Open Space
Source: Town of Sunnyvale, TX, Future Land Use Map (2017)
LEGEND - Approach Surfaces
Ultimate Runway Centerline
Existing Part 77 Approach Surface
Ultimate Part 77 Approach Surface
Existing Approach Surface Clipped to 1-Mile
Ultimate Approach Surface Clipped to 1-Mile
Source: Coffman Associates Analysis (2024)
LEGEND - City of Mesquite, TX Future Land Use
Corridor Development
Trinity Point Special Planning Area
Estate Residential
Low Density Residential
Medium Density Residential
High Density Residential
Office
Office Campus
Neighborhood Retail
Regional Retail
Commercial
Light Industrial
Heavy Industrial
Public/Semi-Public
Parks, Open Space, Drainage
Utilities
Proposed Highway 190
City Limits
County
Mesquite ETJ
Flood Hazard Areas (City)
Streams
Source: City of Mesquite, TX, Future Land Use Map (2019)

The City of Mesquite's Zoning Ordinance was adopted on April 2, 1990, under authority granted to the city by the State of Texas.[2] In addition, the City of Mesquite's extraterritorial zoning jurisdiction (ETJ) extends beyond the city limits. All the land within the ultimate Runway 36 approach surfaces out to one mile is within the jurisdiction of the City of Mesquite and subject to Appendix C, *Zoning Ordinance*, of the city's code, or ETJ-applicable standards where the approach surface extends into unincorporated Dallas County.

As shown on **Exhibit 5D**, the following zoning districts are present within the ultimate runway approach surfaces out to one mile: industrial, agricultural, single-family residential, and mixed-use.

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

TABLE 5C | Zoning Classifications Within the Ultimate Approach Surfaces Clipped to 1-Mile

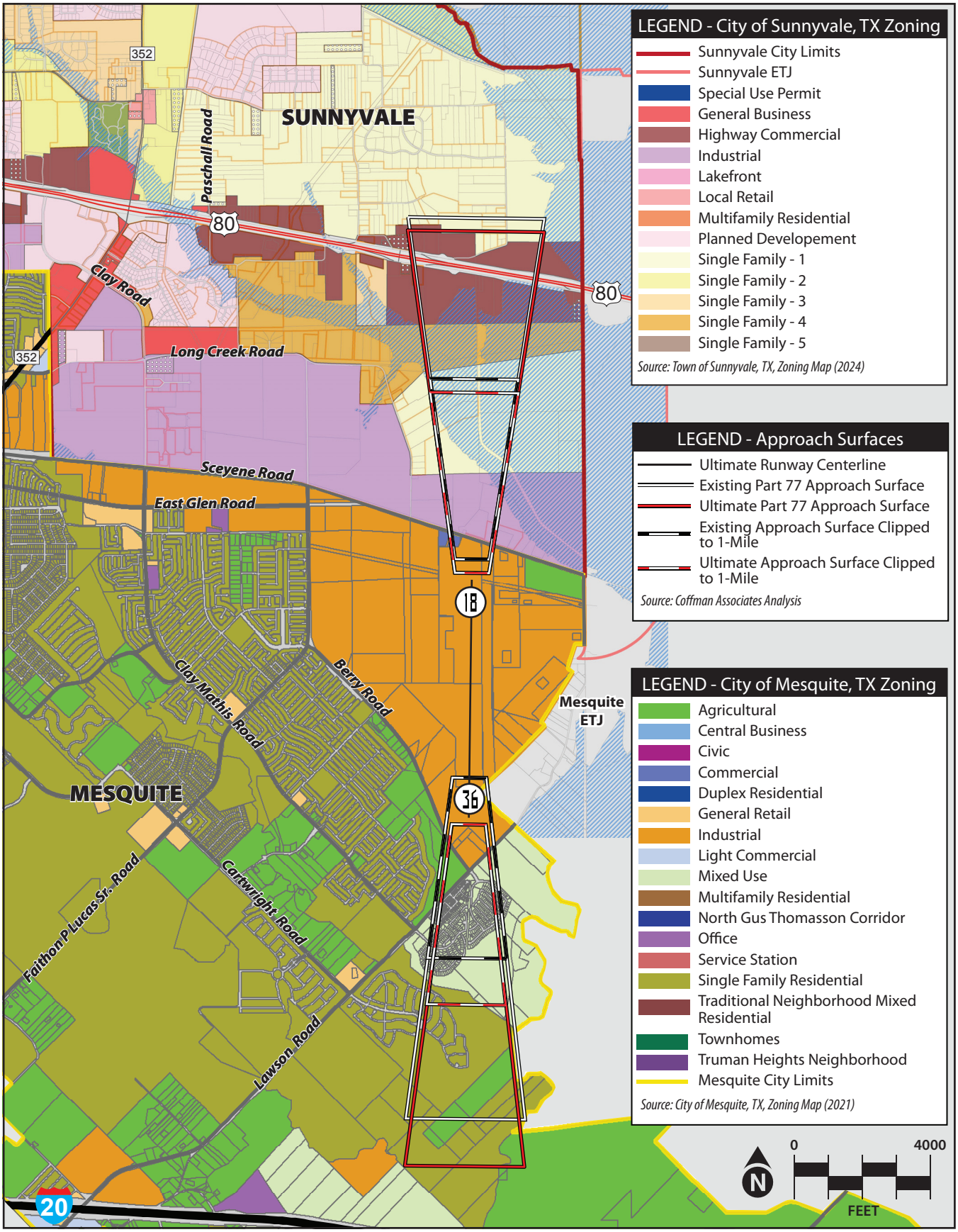
City of Mesquite, TX Zoning Classifications	Residential Allowed?	Minimum Living Area	Maximum Allowable Height	Minimum Lot Area
I – Industrial	None	N/A	75 feet	N/A (75% maximum coverage allowed)
AG – Agricultural	Yes	2,500 square feet	35 feet	1 acre
R-1 – Single Family Residential	Yes	2,000 square feet	35 feet	11,000 square feet
MU – Mixed Use (Planned Development District)	Yes	Varies	Varies	Varies
Town of Sunnyvale, TX Zoning Classification	**Residential Allowed?**	**Minimum Living Area**	**Maximum Allowable Height**	**Minimum Lot Area**
I – Industrial	None	N/A	100 feet	1 acre
SF-1 – Single-Family Residential	Yes	2,200 square feet	40 feet	2 acres

Sources: Town of Sunnyvale, TX, Unified Development Ordinance; City of Mesquite, TX, Zoning Ordinance; Coffman Associates analysis

In addition to the requirements of the above-listed underlying zoning designations, the City of Mesquite adopted the Mesquite Metro Airport Hazard Area Zoning Ordinance in 1983, in accordance with the *Texas Airport Zoning Act*.[3] The Mesquite Metro Airport Hazard Area Zoning Ordinance is based on the airport's approach zones, turning zones, transition zones, and operation zone, as shown on the airport's hazard zoning map. The 1-mile approach surfaces utilized in this analysis fall within the approach zone with a 50:1 slope; therefore, the permitted height for each land use within these zones varies based on the distance of the proposed use from the end of the runway.

The Mesquite Metro Airport Hazard Area Zoning Ordinance outlines height restrictions in Article IV, Division II, Section 3-143,[4] stating that no structure shall be erected, altered, or maintained, and no tree shall be allowed to grow in any zone created by this division to a height in excess of the applicable height limit established for such zone. Such applicable height limitations are established for the approach zone as follows:

[2] TX Local Government Code § 213.002 (https://statutes.capitol.texas.gov/Docs/LG/htm/LG.213.htm), 2024
[3] TX Local Government Code § 241.901-902 (https://statutes.capitol.texas.gov/Docs/LG/htm/LG.241.htm), 2024
[4] Code of the City of Mesquite, TX, Article IV, Division II, 3-143 (https://library.municode.com/tx/mesquite/codes/code_of_ordinances?nodeId=PTIICOOR_CH3AIAI_ARTIVAIZO_DIV2AIZORE_S3-144HELI), 2024


SUNNYVALE
MESQUITE
Mesquite ETJ
Paschall Road
Clay Road
Long Creek Road
Sceyene Road
East Glen Road
Clay Mathis Road
Berry Road
Faithon P Lucas Sr. Road
Cartwright Road
Lawson Road
352
80
18
36
20
LEGEND - City of Sunnyvale, TX Zoning
Sunnyvale City Limits
Sunnyvale ETJ
Special Use Permit
General Business
Highway Commercial
Industrial
Lakefront
Local Retail
Multifamily Residential
Planned Developement
Single Family - 1
Single Family - 2
Single Family - 3
Single Family - 4
Single Family - 5
Source: Town of Sunnyvale, TX, Zoning Map (2024)
LEGEND - Approach Surfaces
Ultimate Runway Centerline
Existing Part 77 Approach Surface
Ultimate Part 77 Approach Surface
Existing Approach Surface Clipped to 1-Mile
Ultimate Approach Surface Clipped to 1-Mile
Source: Coffman Associates Analysis
LEGEND - City of Mesquite, TX Zoning
Agricultural
Central Business
Civic
Commercial
Duplex Residential
General Retail
Industrial
Light Commercial
Mixed Use
Multifamily Residential
North Gus Thomasson Corridor
Office
Service Station
Single Family Residential
Traditional Neighborhood Mixed Residential
Townhomes
Truman Heights Neighborhood
Mesquite City Limits
Source: City of Mesquite, TX, Zoning Map (2021)
N
0
4000
FEET

"Approach zones. One (1) foot in height for each fifty (50) feet in horizontal distance beginning at the end of and at the same elevation as the primary surface and extending to a point ten thousand (10,000) feet from the end of the primary surface, then rising one (1) foot in height for each forty feet in horizontal distance for an additional forty thousand (40,000) feet."

Although preexisting nonconforming heights within the airport hazard area may be continued as a non-conforming use, according to the code, the owner of any nonconforming structure or tree is required to permit the installation, operation, and maintenance of markers and lights (at the city's expense) to indicate the presence of airport hazards to airport operators.

Land use restrictions are also stipulated in Section 3-145 of the Mesquite Metro Airport Hazard Area Zoning Ordinance, which states:

"No use may be made of land or water within any zone established by this division, in such a manner as to create electrical interference with navigational signals or radio communication between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, create bird strike hazards, or otherwise in any way endanger or interfere with the landing, taking off, or maneuvering of aircraft intending to use the Mesquite Metro Airport."

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, 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 Mesquite is codified within Appendix B of the Mesquite, Texas, Municipal Code.[5] Subdivision regulations for the Town of Sunnyvale, TX, are contained within the Town of Sunnyvale: Unified Development Ordinance (UDO).[6]

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,

[5] Code of the City of Mesquite, TX, Appendix B, Subdivisions (https://library.municode.com/tx/mesquite/codes/code_of_ordinances?nodeId=PTIICOOR_APXBSU), 2024

[6] Sunnyvale, TX, Uniform Development Code (https://www.townofsunnyvale.org/DocumentCenter/View/5526/Sunnyvale-UDO-December-Update?bidId=)

location, and maintenance of all buildings and structures. Building codes may be required to provide sound insulation in new residential, office, and institutional buildings when warranted by existing or potential high aircraft noise levels.

The current Mesquite Building Code (adopted in September 2020) includes the 2018 International Building Code (IBC), with amendments. 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 "right" at the beginning of construction, when it matters most, as they can be expensive and difficult to change. 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 Part 77 approach surfaces out to one mile. This was accomplished by evaluating city-adopted land use plans and zoning designations for parcels encompassed by the noise contours to determine if noise-sensitive land uses could be developed in those areas. Both noise contours and height restrictions within the Part 77 approach surface area are addressed below.

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.

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 that are specific to the airport. The software provides noise characteristics, standard flight profiles, and manufacturer-supplied flight procedures for aircraft that commonly operate at HQZ. As 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 – including runway configuration, flight paths, aircraft fleet mix, runway use distribution, local terrain and elevation, average temperature, and numbers of daytime and nighttime operations – is also used in modeling inputs.

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, representing 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 that a topographic contour represents 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 DNL noise contour as the threshold of incompatibility.

The guidelines summarized in Table 1 of 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 HQZ for a baseline condition (2023) and a long-range condition (2043). The resulting contours are shown on **Exhibit 5E**. As shown on the exhibit, noise contours out to the 65 DNL noise contour remain on airport property for both the baseline and long-range forecast conditions.

Height Restrictions

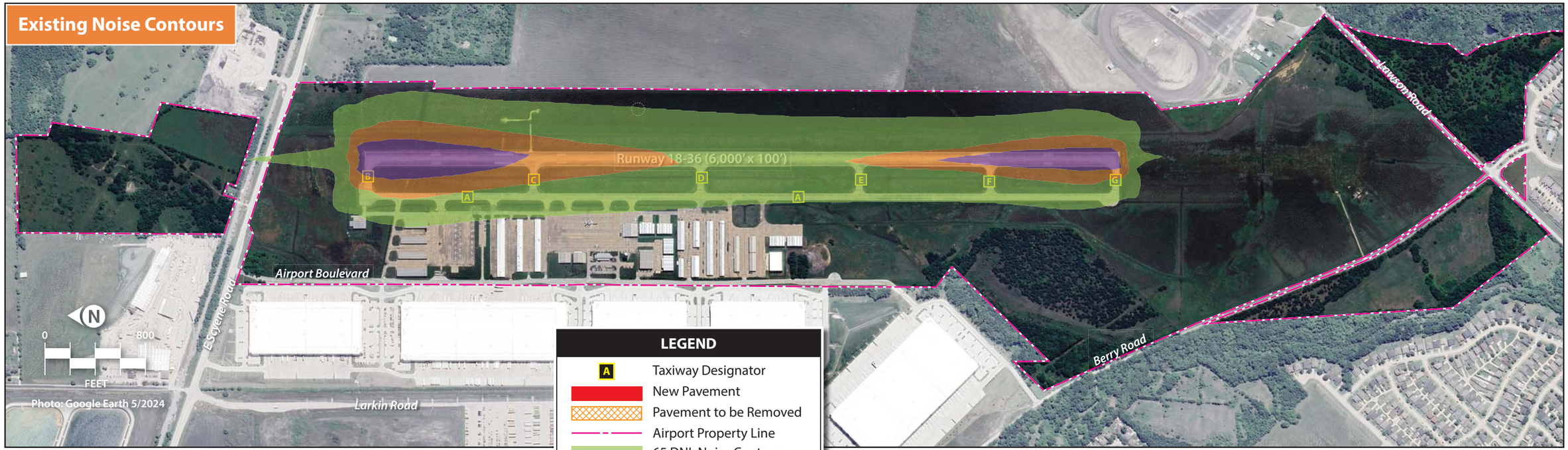
To analyze the potential for non-compatible development of land off airport property, zoning within the Part 77 approach surface area out to one mile from the end of each runway was evaluated. **Table 5C** notes the maximum height limit for zoning of the underlying permitted land uses, which range from 35 to 100 feet.

RECOMMENDATIONS

Based on the information presented above and the non-compatible development analysis, the following recommendations are provided to maintain airport land use compatibility in the vicinity of HQZ. These recommendations are in accordance with the recently published FAA 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]

[7] 14 CFR Part 150 (https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-150)
[8] Federal Aviation Administration, Advisory Circular 150/5190-4B, Airport Land Use Compatibility Planning (September 16, 2022)

Existing Noise Contours

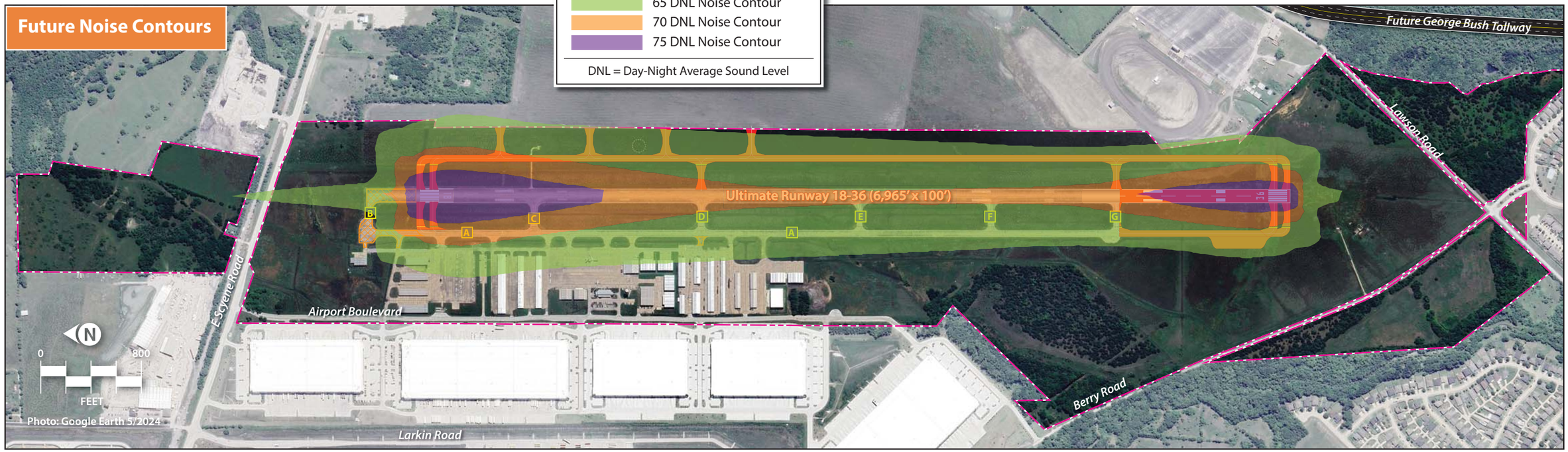


LEGEND

- A — Taxiway Designator
- New Pavement
- Pavement to be Removed
- Airport Property Line
- 65 DNL Noise Contour
- 70 DNL Noise Contour
- 75 DNL Noise Contour

DNL = Day-Night Average Sound Level

Future Noise Contours



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Update City of Mesquite's Airport Hazard Area Zoning Ordinance & Map – The Mesquite Metro Airport Hazard Area Zoning Ordinance could be reviewed and updated. The current airport hazard zoning ordinance references a precision instrument runway and precision instrument approach surfaces, as well as 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 hazard zoning map referenced in Sec. 3-143 could also be updated.

Implement FAA 7460-1 Airspace Analysis – The Mesquite Metro Airport Hazard Area 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 they are required to file notice with the FAA. 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 – Land uses that create bird strikes are currently prohibited in the Mesquite Metro Airport Hazard Area Zoning Ordinance. 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]

Use Conservation Easement – Conservation easements may be established for vacant land within the approach surfaces designated as open space on the future land use maps.

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 such uses do not create a hazard for the community, the airport, or the user of the subject property. The City of Mesquite and Town of Sunnyvale, TX, could modify their change of zone requirements and/or conditional use requirements within the airport's vicinity to include a designation that triggers extraordinary review of these exceptions because of the property's location near an airport.

Adopt Fair Disclosure Requirements for Real Estate Transactions within the Vicinity of HQZ – Fair disclosure regulations in real estate transactions are intended to ensure that prospective buyers of property are informed that the property is, or will be, exposed to potentially disruptive aircraft noise or overflights. Around even the busiest airports, it is not uncommon 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 that requires 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 the 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 Mesquite Metro Airport, located at 1340 Airport Boulevard, Mesquite, TX 75181. Properties within this area are routinely subject to overflights by aircraft using this public-use airport; as a result, residents may experience inconvenience,*

[9] https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm
[10] Federal Aviation Administration, Advisory Circular 15/5200-33C, Hazardous Wildlife Attractants on or near Airports (February 21, 2020)

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 Mesquite Metro 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 information about proposed development activity in the airport environs, allowing the airport operators the opportunity to review and comment on those proposals. This includes 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 Mesquite and its airport administration with recommendations for ultimate improvements and processes that promote sustainable principles in addressing airport operations and aviation demand. Prioritizing sustainability in the planning process will aid the airport in identifying ways to reduce its overall environmental impact. As a result of implementing sustainability issues in the master plan process, 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 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 the cost of a waste audit."

- Section 133 of the FMRA added a provision requiring airports that have or plan to prepare a master plan and receive AIP funding for an eligible project to ensure the new or updated master plan addresses issues relating to solid waste recycling at the airport, including:
    - 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; and
    - The potential for cost savings or generation of revenue.

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 in the proper management of solid waste and outlines sound methods of solid waste management and disposal for state, substate, and local agencies.

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

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

Duties assigned to the recycling, reducing, and reusing office include overseeing:

- Recycling operations and composting;
- Home and business resources;
- Fats, oils, and grease; automotive waste; electronics; and
- Exchange networking for business and industry.

City of Mesquite Solid Waste Management

At a citywide level, Mesquite has a Solid Waste Division, which is responsible for the collection and disposal of the city's solid waste and recyclables[13]. The Solid Waste Division provides a system of collection and transportation of municipal solid waste for residential, commercial, and public land uses in Mesquite. In addition, the Clean City Initiative was adopted in 2021 by the City of Mesquite and focuses on encouraging the better appearance of the community through outreach and education of its citizens.

SOLID WASTE

Typically, an airport sponsor has purview over waste handling services in facilities it owns and operates, such as the passenger terminal building, airport-owned hangars, and maintenance facilities. Tenants of airport-owned buildings/hangars or tenants that own their own facilities are usually responsible for coordinating their own waste handling services. While airport-operated facilities are the focus of this plan, the airport should work to incorporate facility-wide strategies that create consistency in waste disposal mechanisms, which would ultimately result in the reduction of materials sent to the landfill.

[11] Texas Administrative Code (https://texreg.sos.state.tx.us/public/readtac$ext.TacPage?sl=R&app=9&p_dir=&p_rloc=&p_tloc=&p_ploc=&pg=1&p_tac=&ti=30&pt=1&ch=330&rl=103)
[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] Mesquite, Texas, Solid Waste and Recycling (https://www.cityofmesquite.com/262/Solid-Waste), accessed May 2024

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

- **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.
- **Construction and Demolition Waste** (C&D) is considered non-hazardous trash that results from land clearing; excavation; and demolition, renovation, or repair of structures, roads, and utilities, including concrete, wood, metals, drywall, carpet, plastic, pipe, cardboard, and salvaged building components. C&D is also generally labeled as MSW.
- **Green Waste** is a form of MSW yard waste that consists of tree, shrub, and grass clippings; leaves; weeds; small branches; seeds; and pods.
- **Food Waste** includes unconsumed food products or waste generated and discarded during food preparation and is also considered MSW.
- **Deplaned Waste** is waste removed from passenger aircraft. Deplaned waste includes bottles, cans, mixed paper (newspapers, napkins, paper towels), plastic cups, service ware, food waste, and food-soiled paper/packaging.
- **Lavatory Waste** is a special waste that is emptied through a hose and pumped into a lavatory service vehicle. The waste is then transported to a triturator[15] facility for pretreatment prior to discharge in the 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.
- **Spill Clean and Remediation Wastes** are also special wastes and are generated during cleanup of spills and/or the remediation of contamination from several types of sites on an airport.
- **Hazardous Wastes** are governed by the Resource Conservation and Recovery Act (RCRA), as well as the regulations in 40 CFR Subtitle C, Parts 260 to 270. The U.S. EPA developed less stringent regulations for certain hazardous waste – known as universal waste – described in 40 CFR Part 237, *The Universal Waste Rule*.

The airport potentially contributes to the waste stream via multiple areas, including the terminal building (offices), on-airport tenants (FBOs/SASOs, etc.), hangars, airfields, aircraft ground support equipment, and airport construction projects. To create a comprehensive waste reduction and recycling plan for the airport, all potential inputs must be considered.

SOLID WASTE MANAGEMENT SYSTEM

Airports generally utilize either a centralized or decentralized waste management system. The differences between these two methods are described below.

[14] FAA, Recycling, Reuse, and Waste Reduction at Airports, April 24, 2013
[15] A triturator facility turns lavatory waste into fine particulates for further processing.

- **Centralized Waste Management System –** With a centralized waste management system, the airport provides receptables for the collection of waste, recyclables, 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 – which may not be incentivized to recycle on their own – and can reduce the overall cost of service for all involved. A centralized strategy can be inefficient for some airports, as it requires more effort and oversight on the part of airport management; however, the centralized system is advantageous because it involves fewer players in the overall management of the solid waste and recycling efforts and allows greater control by the city over the type, placement, and maintenance of dumpsters, thereby saving space and eliminating the need for each tenant to have its own container(s).

- **Decentralized Waste Management System –** 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 FBOs, retail shops, and other tenants) 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, as well as the number of trips by a waste collection service provider if the collection schedule for a tenant differs from the airport's collection schedule.

EXISTING SERVICES

The City of Mesquite manages solid waste through two primary dumpsters located at the airport. These dumpsters are used by the airport and its tenants. The City of Mesquite has scheduled pick-up dates for garbage and recycling twice a week, on Tuesdays and Fridays, at the airport[17]. Currently, the airport recycles plastic bottles and electronic waste. The airport collects plastic bottles at a bottle drop-off location near the airport terminal, where they are then picked up by city-provided services. The airport also recycles electronic waste (e-waste), which is taken to a local drop-off site where the waste is properly disposed of. Hazardous waste (i.e., fluorescent bulbs, aircraft tires, batteries, etc.) is not currently recycled at this time.

GOALS AND RECOMMENDATIONS

Solid Waste and Recycling Goals

Table 5D outlines objectives that could help reduce waste generation and increase recycling efforts at the airport. To increase the effectiveness of tracking progress at the airport, a baseline state of all suggested metrics should be established to provide a comparison over time.

[16] National Academies of Sciences, Engineering, and Medicine Airport Cooperative Research Program, Synthesis 92, Airport Waste Management and Recycling Practices, 2018

[17] Mesquite, Texas, Garbage and Recycling Map Viewer (https://gisservice.cityofmesquite.com/portal/apps/webappviewer/index.html?id=538a8c00983945dfbfe9e315eb028b67)

TABLE 5D | Waste Management and Recycling Goals

Goals	Objectives
Reduce amount of solid waste generated	• Switch to online bill pay to eliminate monthly paper bills • Conduct a waste audit to identify most common types of waste • Eliminate purchase of items that are not recyclable (i.e., Styrofoam, plastic bags)
Reuse of materials or equipment	• Reuse grass clippings as mulch • Offer reusable dishes to employees • Reuse cardboard boxes for storage
Increase amount of materials recycled	• Promote the availability of recycling services to all areas of the airport • Initiate waste and recycling tracking and data management • Incorporate recycling requirements and/or recommendations into tenant lease agreements • Provide recycling marketing and promotion efforts throughout public areas • Require contractors to implement strategies to reduce, reuse, and recycle construction and demolition waste

Source: Coffman Associates, Inc.

Recommendations

The following recommendations are made to maximize waste reduction and initiate recycling efforts at the airport:

- **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 and recycling at the airport will create efficient and cost-saving solutions to solid waste management. People dedicated to this operational aspect of the airport will be familiar with processes and will help identify areas for improvement and cost-cutting measures.

- **Audit the current waste management system.** The continuation of an effective program requires accurate data on current waste and recycling rates. There are several ways an airport can gain insight into their waste stream, such as requesting weights from the hauler, tracking volume, and reviewing bills, but managing the waste system should start with a waste audit. A waste audit is an analysis of the types of waste produced and is the most comprehensive and intensive way to assess waste stream composition, opportunities for waste reduction, and capture of recyclables. A waste audit should include the following actions:
    - Examination of records
        - Review waste hauling and disposal records and contracts
        - Examine supply and equipment invoices
        - Evaluate other waste management costs (commodity rebates, container costs, etc.)
        - Track waste from the point of origin
        - Establish a baseline for metrics
    - Facility walkthrough conducted by the airport
        - Gather qualitative waste information to determine major waste components and waste-generating processes
        - Identify the locations of the airport that generate waste

        - Identify what types of waste are generated by the airport to determine what can be reduced, reused, or recycled
        - Understand waste pickup and hauling practices
    - Waste sort
        - Provide quantitative data on total airport waste generation
        - Allow problem-solving design/enhance the recycling program for the airport

- **Create a tracking and reporting system.** Tracking solid waste generation will allow the airport to identify areas in which a significant amount of waste is generated and will help the airport estimate annual waste volumes. Understanding the cyclical nature of waste generation will allow the airport to estimate costs and will identify areas of improvement. Once the airport engages in recycling services, the airport can track recycling rates and waste quantities to identify cost-saving measures that are currently unidentified due to a lack of quantitative data.
- **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.
- **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 both 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 and recycling goals. This education should also be tailored to the type of job an individual may hold within the airport.
- **Provide ongoing tenant education.** It is vital to encourage tenant participation to ensure buy-in of the airport's recycling efforts. To ensure recycling is part of the airport's everyday business, airport administration can provide training and educational support to 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.
- **Incorporate an airport-wide waste reduction strategic plan.** Designing an airport-wide waste reduction strategic plan will create consistency in waste deposal mechanisms, ultimately resulting in the reduction of materials sent to the landfill.

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 (**Exhibit 5A**) and associated capital program at the airport to determine whether projects identified in the airport master plan could, individually or collectively, significantly impact existing environmental resources. The information contained in this section was obtained from previous studies, official internet websites, and analysis by the consultant.

The following portion of the airport master plan is not designed to satisfy the *National Environmental Policy Act* (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.

The environmental inventory included in the first chapter of this master plan provides baseline information about the airport environs. This section provides an overview of potential impacts to existing resources that could result from implementation of the planned improvements outlined in the recommended development concept.

Table 5E summarizes potential environmental concerns associated with implementation of the recommended development concept for HQZ. Analysis under NEPA includes effects or impacts a proposed action or alternative may have on the human environment (see 40 CFR § 1508.1). Effects have recently been defined in the Council of Environmental Quality guidelines as foreseeable environmental effects of the proposed action, reasonably foreseeable adverse environmental effects that cannot be avoided, and a reasonable range of alternatives to the proposed action.

TABLE 5E | Summary of Potential Environmental Concerns

AIR QUALITY	
FAA Order 1050.1F, ***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 United States (U.S.) Environmental Protection Agency (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, which would likely result in additional emissions. Dallas County, which contains the airport, is currently in nonattainment for 8-hour ozone (2008) (Severe 15) and 8-hour ozone (2015) (Moderate)[1]; therefore, general conformity review per the *Clean Air Act* could be required for specific airport development projects. According to the most recent FAA *Aviation Emissions and Air Quality Handbook* (2015), an emissions inventory under NEPA is also necessary for proposed actions that would result in a reasonably foreseeable increase in emissions due to plan implementation. For construction emissions, a qualitative or quantitative emissions inventory under NEPA may be required, depending on the type of environmental review needed for specific projects defined on the development concept plan. [1]*U.S. EPA, Green Book, Texas Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants (https://www3.epa.gov/airquality/greenbook/anayo_tx.html)*

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TABLE 5E | Summary of Potential Environmental Concerns (continued)

BIOLOGICAL RESOURCES (INCLUDING FISH, WILDLIFE, AND PLANTS)	
FAA Order 1050.1F, ***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.*** ***The FAA has not established a significance threshold for non-listed species; however, factors to consider include whether an action would have the potential for:*** • ***Long-term or permanent loss of non-listed plant or wildlife species;*** • ***Adverse impacts to special-status species or their habitats;*** • ***Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or populations; or*** • ***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	Federally Protected Species **Potential Impact.** According to the USFWS Information for Planning and Consultation (IPaC) report, there is the potential for eight endangered, proposed endangered, threatened, proposed threatened, and candidate species within the vicinity of the airport: tricolored bat (endangered, mammal), golden-cheeked warbler (endangered, bird), piping plover (threatened, bird), red knot (threatened, bird), whooping crane (endangered, bird), alligator snapping turtle (proposed threatened, reptile), Texas fawnsfoot (proposed threatened, clam), and monarch butterfly (candidate, insect)[2]. Two of the eight species listed above have potential habitat at the airport (tricolored bat and monarch butterfly). The tricolored bat may roost in manmade structures on airport property. The monarch butterfly may inhabit areas that include flowering plants on and near the airport. The airport contains grasses, shrubs, and trees on airport property. If development were to occur in areas populated with trees, or other types of vegetation are removed that may be home to the species listed above, a bat survey and habitat survey (i.e., botanical survey) may be warranted prior to project development. Designated Critical Habitat **No Impact.** There are no designated critical habitats within airport boundaries. Non-Listed Species **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.* No eagles are expected to use the airport environs. Bird species protected by the MBTA could be adversely affected if construction occurs during the nesting and breeding seasons (March to October). Pre-construction surveys of vegetated areas at the airport are recommended for projects during which ground clearing would occur, unless happening outside the nesting and breeding seasons. Projects related to future land acquisitions that contain vegetation may also be areas of concern. [2] *U.S. Fish and Wildlife Service, Information for Planning and Consultation (https://ipac.ecosphere.fws.gov/)*
CLIMATE	
FAA Order 1050.1F, ***Significance Threshold/ Factors to Consider***	***The FAA has not established a significance threshold for Climate.*** *Refer to FAA Order 1050.1F, Desk Reference, and/or the most recent FAA Aviation Emissions and Air Quality Handbook for the most up-to-date methodology for examining impacts associated with climate change.*
Potential Environmental Concerns	**Unknown.** An increase in greenhouse gas (GHG) emissions could occur over the 20+ year planning horizon of the airport master plan. A project-specific analysis may be required per FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, based on the parameters of the individual projects; however, at this time, the FAA does not have an impact threshold to use to determine significance under NEPA.

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TABLE 5E | Summary of Potential Environmental Concerns (continued)

COASTAL RESOURCES	
FAA Order 1050.1F, ***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:*** • ***Be inconsistent with the relevant state coastal zone management plan(s);*** • ***Impact a coastal barrier resources system unit;*** • ***Pose an impact on coral reef ecosystems;*** • ***Cause an unacceptable risk to human safety or property; or*** • ***Cause adverse impacts on the coastal environment that cannot be satisfactorily mitigated.***
Potential Environmental Concerns	**No Impact.** The airport is not located within a coastal zone. The closest National Marine Sanctuary is the Flower Garden Banks National Marine Sanctuary, located more than 365 miles away[3]. *[3]National Marine Sanctuary System (https://sanctuaries.noaa.gov/)*
***DEPARTMENT OF TRANSPORTATION ACT*, SECTION 4(f)** (NOW CODIFIED IN 49 USC § 303)	
FAA Order 1050.1F, ***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 National Register of Historic Places (NRHP)-listed resources[4], waterfowl/wildlife refuges, wilderness areas, or public recreation facilities would be impacted by proposed development at the airport. The closest potential Section 4(f) resources are Thompson Elementary School, located 0.70 miles to the west of the airport, and a Pet and Park station, located 0.40 miles south of the airport. These resources are not likely to be physically or constructively used as a result of the proposed airport development because they are not located on airport property. Any airport structures that are 50 years or older should be evaluated for historic significance prior to alteration or demolition. If a structure is determined to be a significant historic resource, it would qualify as a Section 4(f) resource. *[4]National Register of Historic Places (https://www.nps.gov/maps/full.html?mapId=7ad17cc9-b808-4ff8-a2f9-a99909164466)*
FARMLANDS	

FAA Order 1050.1F, ***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].)***
	The FPPA applies when airport activities meet one of the following conditions:
	• ***Federal funds are involved;***
	• ***The action involves the potential for the irreversible conversion of important farmlands to non-agricultural uses (important farmlands include pastureland, cropland, and forest that is considered to be prime, unique, or statewide or locally important land); or***
	• ***None of the exemptions to FPPA apply. These exemptions include the following:***
	  ○ ***When land 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 when the existing footprint includes rights-of-way;***
	  ○ ***When land is already committed to urban development;***
	  ○ ***When land is committed to water storage;***
	  ○ ***Construction of non-farm structures that are necessary to support farming operations; and***
	  ○ ***Construction/land development for national defense purposes.***

Potential Environmental Concerns	**Potential Impact.** According to the NRCS Web Soil Survey (WSS), most of the airport is identified as all areas are prime farmland, with portions of airport soil on the southwest, southeast, and northeast categorized as not prime farmland[5]; furthermore, while the majority of the airport is located outside urbanized areas, a small portion of the airport located on the southeastern edge of the airport property is located on land that is designated as an urban area. Several ultimate development projects are located on soils that are classified as prime farmland, which have also not been identified as an urban designated area by the U.S. Census and, as a result, could convert farmlands protected by the FPPA. This should be confirmed prior to project development and Form AD-1006 should be completed, when appropriate. *[5]USDA-NRCS, Web Soil Survey (https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx)*

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TABLE 5E | Summary of Potential Environmental Concerns (continued)

HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION	
FAA Order 1050.1F, ***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:*** • ***Violate applicable federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management;*** • ***Involve a contaminated site;*** • ***Produce an appreciably different quantity or type of hazardous waste;*** • ***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; or*** • ***Adversely affect human health and the environment.***
Potential Environmental Concerns	**No Impact.** No identified brownfields or Superfund sites are located within one mile of the airport[6]. Due to existing regulatory environmental management regarding hazardous materials, waste, and stormwater management, no impacts related to ultimate airport development are anticipated. The construction of the ultimate buildings on the airport would increase solid waste; however, no long-term impacts related to solid waste disposal are expected. See discussion on Surface Water for information regarding water quality pollution prevention. [6] *U.S. EPA, EJScreen (https://ejscreen.epa.gov/mapper/)*
HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES	
FAA Order 1050.1F, ***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	**Unknown.** There are no NRHP-listed resources within one mile of the airport; however, no survey reports for cultural resources at the airport have been provided as part of the master plan and the presence of buried cultural resources is not known. An airport-wide cultural resources survey should be completed to document any resources at the airport. A historic resources evaluation may also be warranted for any buildings or structures that are 50 years or older. The FAA would determine the level of impact airport projects would have on these resources under NEPA and through the *National Historic Preservation Act* Section 106 process. If previously undocumented buried cultural resources are identified during ground-disturbing activities for ultimate airport development, all work must immediately cease with 30 meters (100 feet) until a qualified archaeologist has documented the discovery and its eligibility for the NRHP, as appropriate. Work must not resume in the area without the approval of the FAA.

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TABLE 5E | Summary of Potential Environmental Concerns (continued)

LAND USE	
FAA Order 1050.1F, *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 new hangars, a new parallel taxiway, eight new connector taxiways, more apron space, an ultimate extension of Runway 36, acquisition of an avigation easement north of the Runway 18 approach end, aeronautical and non-aeronautical land use reserves, relocation of the segmented circle and lighted wind cone, and relocation of the existing AWOS. A new road northeast of the airport would also be constructed as a result of the proposed private off-airport aeronautical development. This road would extend eastward towards Lawson Road and could impact nearby residents who live northeast of the airport/south of E Scyene Road. The proposed development also considers the potential rerouting of Berry Road near the southwestern end of the airport. This potential rerouting of Berry Road would bring the road closer to nearby residences and could result in an increase in noise exposure to vehicular traffic. **Exhibit 5A** depicts an easement that is recommended for consideration within the Runway 18 RPZ. Properties obtained through fee simple acquisitions in the RPZ would reduce the possibility of natural growth or manmade obstructions. Similarly, an avigation easement is a contractual right or a property interest in land over which a right of unobstructed flight in the airspace is established. There are several residential areas in proximity to airport boundaries. The proposed development nearest to these residential areas would be the construction of the proposed hangars on the southwestern portion of the airport, across from Berry Road. This proposed hangar development would be contained to airport property and would not displace or relocate any nearby residences.
NATURAL RESOURCES AND ENERGY SUPPLY	
FAA Order 1050.1F, *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.
NOISE AND NOISE-COMPATIBLE LAND USE	
FAA Order 1050.1F, *Significance Threshold/ Factors to Consider*	***The action would increase noise by day-night average sound level (DNL) 1.5 decibel (dB) or more for a noise-sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no-action alternative for the same timeframe.*** ***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 14 CFR Part 150 are not relevant to the value, significance, and enjoyment of the area in question.***
Potential Environmental Concerns	**No Impact. Exhibit 5E** shows existing and anticipated noise contours for the airport. As shown on the exhibit, for existing conditions, the DNL 65 dB noise exposure remains entirely on the airport, except for a small portion over E Scyene Road to the north. The ultimate noise exposure shows the DNL 65 dB contour extending slightly beyond airport property to the northeast and southeast; however, these areas are undeveloped, and the airport is not expected to change the overall noise environment by more than the 1.5 dB threshold.

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TABLE 5E | Summary of Potential Environmental Concerns (continued)

SOCIOECONOMICS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS	
Socioeconomics	
FAA Order 1050.1F, *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:*** • ***Induce substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area);*** • ***Disrupt or divide the physical arrangement of an established community;*** • ***Cause extensive relocation when sufficient replacement housing is unavailable;*** • ***Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities;*** • ***Disrupt local traffic patterns and substantially reduce the levels of service of roads that serve the airport and its surrounding communities; or*** • ***Produce a substantial change in the community tax base.***
Potential Environmental Concerns	**Potential Impact.** Proposed development would not relocate or disrupt current businesses or residents. No division of existing neighborhoods or housing, or business relocations, would occur due to proposed development on the airport. Ultimate airport projects would result in temporary disruption of local traffic patterns during construction, or once operational. The proposed development concept includes the construction of a new road east of Runway 18-36 and south of E Scyene Road. This road would connect perpendicular to Lawson Road. Berry Road is also planned to be rerouted. The construction of the new road and rerouting of Berry Road may impact nearby residents who live south of E Scyene Road and south of Lawson Road.
Environmental Justice	
FAA Order 1050.1F, *Significance Threshold/ Factors to Consider*	***The FAA has not established a significance threshold for Environmental Justice; however, factors to consider include whether an action would have the potential to lead to a disproportionately high and adverse impact to an environmental justice population (i.e., a low-income or minority population) due to:*** • ***Significant impacts in other environmental impact categories; or*** • ***Impacts on the physical or natural environment that affect an environmental justice population in a way the FAA determines is unique to and significant to that population.***
Potential Environmental Concerns	**No Impact.** Both low-income and minority populations have been identified in the vicinity of the airport[7]. The closest residential areas are located east of the airport, across Lawson Road; however, it is unlikely that implementation of the proposed improvements outlined in the development concept plan would affect these populations in a disproportionate or adverse manner. Executive Order (E.O.) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, and the accompanying Presidential Memorandum, and Department of Transportation (DOT) Order 5610.2C, *U.S. Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, require the FAA to provide meaningful public involvement for minority and low-income populations, as well as analysis that identifies and addresses potential impacts on these populations that may be disproportionately high and adverse. Environmental justice impacts may be avoided or minimized through early and consistent communication with the public and by allowing ample time for public consideration; therefore, disclosure of ultimate airport development to potentially affected environmental justice populations near the airport is crucial. If disproportionately high or adverse impacts are noted, mitigation and enhancement measures and offsetting benefits should be taken into consideration. [7] *U.S. EPA, EJScreen (https://www.epa.gov/ejscreen), accessed May 2024*

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TABLE 5E | Summary of Potential Environmental Concerns (continued)

Children's Health and Safety Risks	
FAA Order 1050.1F, ***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, playing, or attending school 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. All construction areas should be controlled to prevent unauthorized access.
VISUAL EFFECTS (INCLUDING LIGHT EMISSIONS AND VISUAL RESOURCES/VISUAL CHARACTER)	
Light Emissions	
FAA Order 1050.1F, ***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 could:*** • ***Create annoyance or interfere with normal activities from light emissions; and*** • ***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 existing lighting at the airport includes runway/taxiway lighting (medium intensity) and lighting used for navigation (such as a rotating beacon and PAPI-4s on Runway 18-36). The proposed development concept maintains the existing lighting features of the airfield. Proposed developments, such as new hangars and taxiways, may introduce new lighting fixtures at the airport; however, these ultimate projects would not significantly change the amount of lighting seen from outside the airport. Similarly, the proposed extension of Runway 36 would include new lighting fixtures along the runway; however, this runway extension would not significantly alter the amount of lighting seen from outside the airport. Night lighting during construction phases within the runway environment is typically directed down to the construction work area to prevent spilling light outside the airport boundaries.
Visual Resources/Visual Character	
FAA Order 1050.1F, ***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 could:*** • ***Affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources;*** • ***Contrast with the visual resources and/or visual character in the study area; and*** • ***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.** The airport is surrounded by mature vegetation (i.e., trees and shrubs) that acts as a visual buffer from nearby land uses (i.e., residential areas).
WATER RESOURCES (INCLUDING WETLANDS, FLOODPLAINS, SURFACE WATERS, GROUNDWATER, AND WILD AND SCENIC RIVERS)	
Wetlands	
FAA Order 1050.1F, ***Significance Threshold/ Factors to Consider***	***The action would:*** 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;*** 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;*** 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 that is important to the public);*** 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;*** 5. ***Promote the development of secondary activities or services that would cause the circumstances listed above to occur; or*** 6. ***Be inconsistent with applicable state wetland strategies.***
Potential Environmental Concerns	**No Impact.** According to the USFWS National Wetlands Inventory, no wetlands are located on the airport and no wetlands are located on the proposed private off-airport aeronautical development site located on the northeast side of the airport.

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TABLE 5E | Summary of Potential Environmental Concerns (continued)

Floodplains	
FAA Order 1050.1F, *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.** The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panel numbers 48113C0395K and 48113C0535K (effective July 7, 2014) indicate that the airport is in Zone X, an area of minimal flood hazard[8]. The airport is outside the 100-year and 500-year floodplain. E.O. 14030, *Climate-Related Financial Risk*, was established on May 25, 2021. Section 5(e) of E.O. 14030 reinstates E.O. 13690, *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input* (originally set forth January 30, 2015). E.O. 13690 amends E.0. 11988 and mandates the creation of a Federal Flood Risk Management Standard (FFRMS). One of the primary purposes of the FFRMS is to expand the management of floodplains from a base flood evaluation to include a higher vertical elevation (and the corresponding floodplain) to protect against future flood risks for federally funded projects. Under E.O. 13690 and its guidelines, one of several approaches should be used to identify floodplains and their risks to critical or non-critical federally funded actions: • Climate-Informed Science Approach (CISA) – the elevation and flood hazard area (i.e., 100-year floodplain) using data that integrate climate science with an emphasis on possible future effects on critical actions • Freeboard Value Approach – the elevation and flood hazard area and an additional two or three feet above the base flood elevation, depending on whether the proposed federal action is critical or non-critical • 500-Year Floodplain Approach – all areas subject to the 0.2 percent annual chance flood • Other methods resulting from updates to the FFRMS Because the airport and all proposed aeronautical development on **Exhibit 5A** are outside the 500-year floodplain, which is one of the methods for determining federal flood risk, no impacts related to the FFRMS are expected. [8] *U.S. FEMA, Flood Map Service Center (https://msc.fema.gov/portal/home), accessed May 2024*
Surface Waters	
FAA Order 1050.1F, *Significance Threshold/ Factors to Consider*	***The action would:*** ***1. Exceed water quality standards established by federal, state, local, and tribal regulatory agencies; or*** ***2. Contaminate public drinking water supply such that public health may be adversely affected.*** ***Factors to consider are when a project would have the potential to:*** • ***Adversely affect natural and beneficial water resource values to a degree that substantially diminishes or destroys such values;*** • ***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*** • ***Present difficulties based on water quality impact when obtaining a permit or authorization.***
Potential Environmental Concerns	**Potential Impact.** The airport is located within the North Mesquite Creek-East Fork Trinity River watershed.[9] Long-term impacts to water quality from the proposed airfield improvements may need to be assessed, depending on how or if stormwater runoff is conveyed to airport stormwater infrastructure. A National Pollutant Discharge Elimination System (NPDES) General Construction permit would be required for all projects involving ground disturbance over one acre. FAA AC 150/5370-10G, *Standards for Specifying Construction of Airports*, Item P-156, *Temporary Air and Water Pollution, Soil Erosion and Siltation Control*, should also be implemented during construction projects at the airport. [9] *U.S. EPA, How's My Waterway (https://www.epa.gov/waterdata/hows-my-waterway), accessed May 2024*

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TABLE 5E | Summary of Potential Environmental Concerns (continued)

Groundwater	
FAA Order 1050.1F, ***Significance Threshold/ Factors to Consider***	***The action would:*** ***1. Exceed groundwater quality standards established by federal, state, local, and tribal regulatory agencies; or*** ***2. Contaminate an aquifer used for public water supply such that public health may be adversely affected.*** ***Factors to consider are when a project would have the potential to:*** • ***Adversely affect natural and beneficial groundwater values to a degree that substantially diminishes or destroys such values;*** • ***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*** • ***Present difficulties based on water quality impacts when obtaining a permit or authorization.***
Potential Environmental Concerns	**No Impact.** The airport property is not located near a sole source aquifer (SSA). The closest SSA is the Arbuckle-Simpson Aquifer, located more than 110 miles from the airport[10]. There are no wells located on airport property and the airport is not designated as part of a Groundwater Conservation District. *[10] U.S. EPA, Map of Sole Source Aquifer Locations (https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b), accessed May 2024*
Wild and Scenic Rivers	
FAA Order 1050.1F, ***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:*** • ***Destroying or altering a river's free-flowing nature;*** • ***A direct and adverse effect on the values for which a river was designated (or is under study for designation);*** • ***Introducing a visual, audible, or other type of intrusion that is out of character with the river or would alter outstanding features of the river's setting;*** • ***Causing the river's water quality to deteriorate;*** • ***Allowing the transfer or sale of property interests without restrictions needed to protect the river or the river corridor; or*** • ***Any of the above impacts preventing a river in the Nationwide Rivers Inventory (NRI), or a Section 5(d) river that is not included in the NRI, from being included in the National Wild and Scenic Rivers System, or causing a downgrade in its classification (e.g., from wild to recreational).***
Potential Environmental Concerns	**No Impact.** The closest designated wild and scenic river identified is the Cossatot River, located 171 miles from the airport.[11] The nearest NRI feature is the Brazos River, located 75 miles from the airport.[12] Projects delineated on the proposed development concept would not have adverse effects on these rivers' outstanding remarkable values (i.e., scenery, recreation, geology, fish, wildlife, and history). *[11] National Wild and Scenic Rivers System (https://www.rivers.gov/texas), accessed May 2024* *[12] Nationwide Rivers Inventory (https://www.nps.gov/maps/full.html?mapId=8adbe798-0d7e-40fb-bd48-225513d64977), accessed May 2024*

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 forecast status of airport activity must be provided and maintained. The issues upon which the master plan is based will remain valid for many years. The primary goal is for HQZ 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 HQZ 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 HQZ staff, thereby improving the plan's effectiveness.

In summary, the planning process requires HQZ 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.