



Chapter Five

Master Plan Concept

The airport master plan for Denton Enterprise Airport (DTO) 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 DTO. 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 DTO.

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

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

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

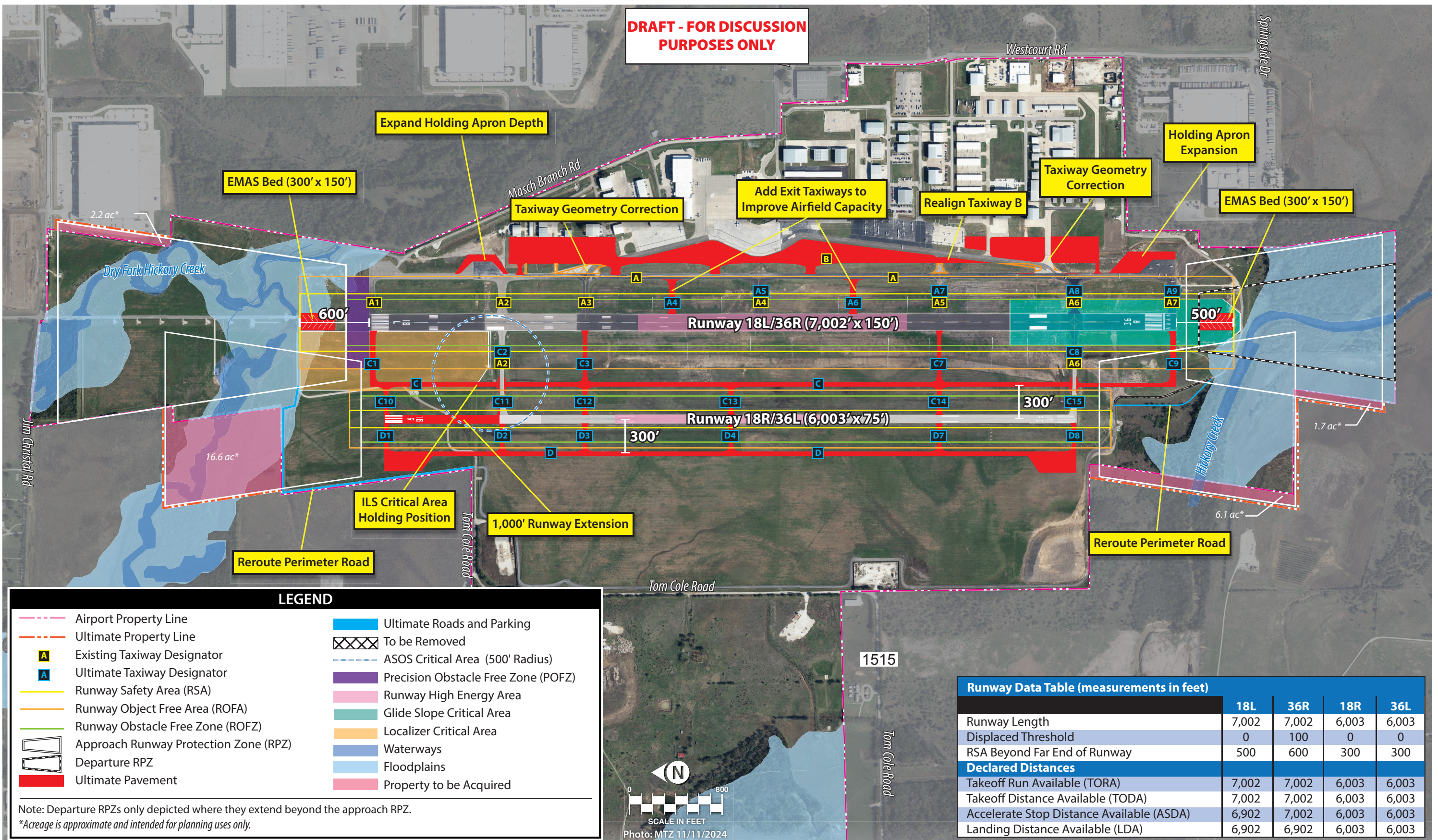
TABLE 5A Airport and Runway Classifications			
	Runway 18L-36R		Runway 18R-36L
	Existing	Ultimate	Existing/Ultimate
Airport Reference Code (ARC)	C-II	C/D-III	B-II
Critical Aircraft (Typ.)	Bombardier Challenger 600	Gulfstream G550/G650	Beechcraft King Air 90/200/300/350
Runway Design Code (RDC)	C-II-2400	C/D-III-2400	B-II-4000
Taxiway Design Group (TDG)	3	3	2A

Source: FAA AC 150/5300-13B, Airport Design, Change 1

RUNWAY 18L-36R

Runway Dimensions

Runway 18L-36R is currently 7,002 feet long and 150 feet wide. Due to the presence of Hickory Creek south of the runway and Dry Fork Hickory Creek north of the runway, the standard 1,000-foot runway safety area (RSA) beyond each runway end cannot be met. To ensure property safety area standards, the airport has published declared distances that reduce the accelerate-stop distance available (ASDA) and landing distance available (LDA) in both directions, resulting in an ASDA and LDA of 6,502 feet for Runway 18L and an ASDA of 6,602 feet and LDA of 6,502 feet for Runway 36R. As a result of the applied declared distances, the RSA extends 500 feet beyond the south end of the runway and 600 feet beyond the north end of the runway. The takeoff run available (TORA) and takeoff distance available (TODA) declared distances for Runway 18L-36R are the full pavement length of 7,002 feet.



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The FAA recommends that the use of declared distances be reduced or eliminated whenever possible. Where it is not practicable to obtain the standard RSA dimensions, the FAA recommends installing engineered material arresting system (EMAS) beds. EMAS is a crushable concrete material that decelerates an aircraft during an excursion incident without damaging the landing gear of the aircraft. The recommended development concept includes the installation of EMAS beds at both ends of the runway within the existing graded RSA to reduce the RSA/runway object free area (ROFA) standards beyond the end of the runway from 1,000 feet to 600 feet. Installing EMAS allows the Runway 18L ASDA and LDA to increase from 6,502 feet to 6,902 feet. The Runway 36R ASDA would increase from 6,602 feet to 7,002 feet and the LDA would increase from 6,502 feet to 6,902 feet. This EMAS solution would enhance the runway's utility by increasing the amount of usable runway for takeoff and landing aircraft with no impacts to the waterways north and south of the runway.

The existing runway width of 150 feet exceeds the ultimate RDC C/D-III-2400 design standard of 150 feet. At some point in the future, when Runway 18L-36R needs major rehabilitation/reconstruction, the FAA will likely only support maintenance of 100 feet of runway width unless it can be demonstrated at that time that aircraft with maximum takeoff weights of greater than 150,000 pounds are operating at least 500 times annually at DTO. If the FAA only supports a 100-foot width, the sponsor can choose to reduce the runway width or fund the maintenance of the additional 50 feet.

Pavement Strength

Runway 18L-36R is currently strength-rated for up to 70,000 pounds for single wheel loading (SWL) aircraft and 100,000 pounds for dual wheel loading (DWL) aircraft. These strengths are adequate for the general aviation aircraft operating at DTO now and in the future; therefore, no additional strength is currently recommended.

Runway Lighting/Marking/Navigational Aids

Runway 18L-36R is currently equipped with medium intensity runway edge lighting (MIRL) and a four-box precision approach path indicator (PAPI-4) system, and Runway 18L has a medium intensity approach lighting system with runway alignment indicator lights (MALSR). The runway is marked with precision runway markings. The MIRL system is planned to be upgraded to a more efficient light-emitting diode (LED) system. Runway end identifier lights (REILs) are planned to be added to Runway 36R. Holding position markings associated with Runway 18L-36R are established at a separation distance of 250 feet from the runway centerline, which meets current design standards. In the ultimate condition, these markings should be moved to a separation distance of 256 feet.

Runway Protection Zones (RPZs)

The Runway 18L-36R RPZs encompass a combined 127.892 acres of property (18L: 78.914 acres / 36R: 48.978 acres). Approximately 3.9 acres (18L: 2.2 acres / 36R: 1.7 acres) of the total RPZ area extend beyond airport property and are not protected by existing aviation easements. The plan includes the acquisition of aviation easements for the 3.9 acres of property to ensure the airport sponsor can prevent or mitigate new incompatible land uses within the RPZs.

RUNWAY 18R-36L

Runway Dimensions

Runway 18R-36L is currently 5,003 feet long and 75 feet wide. These dimensions are sufficient for small piston aircraft; however, the runway is designed to meet RDC B-II-4000 design standards, which includes small and mid-sized business jets. The runway length analysis determined that a minimum length of 5,500 feet is needed to accommodate 75 percent of the business jet fleet at 60 percent useful loads and 6,000 feet is needed to accommodate 100 percent of the business jet fleet at 60 percent useful loads. As development of the west side of the airfield occurs, it is reasonable to anticipate that the parallel runway will be used more frequently by a wider range of business jets. For this reason, the development plan includes a 1,000-foot extension of Runway 18R-36L to achieve a full-length of 6,003 feet. The existing runway width meets RDC B-II-4000 design standards and is not planned to change.

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

- The PAPI-4 visual approach aid on the 18R end should be relocated.
- Planned parallel Taxiway D should be extended to the new runway end once the runway is extended. This includes the addition of a new entrance taxiway (D1) at the Runway 18R threshold, as well as a new holding apron.
- MIRL should be added to all new runway pavement to be consistent with the existing system.
- New airfield signage should be updated to reflect new taxiway connectors associated with the runway extension.
- Existing instrument approach procedures should be revalidated once the runway shift/extension is completed.

Pavement Strength

Runway 18R-36L is currently strength-rated for up to 30,000 pounds for SWL aircraft and 50,000 pounds for DWL aircraft. These strengths are adequate for the smaller general aviation aircraft anticipated to use the secondary runway on a regular basis, including the existing critical aircraft for the airport, the Challenger 600, which has a maximum takeoff weight of 45,100 pounds on DWL main landing gear.

Runway Lighting/Marking/Navigational Aids

Runway 18L-36R is currently equipped with MIRL and PAPI-4s on both runway ends. The runway is marked with non-precision runway markings. REILs are planned to be added to both runway ends. Holding position markings associated with Runway 18R-36L are established at a separation distance of 260 feet from the runway centerline. These markings should be moved to 200 feet from the runway centerline to meet the design standard.

Runway Protection Zones (RPZs)

The Runway 18R-36L RPZs encompass a combined 97.956 acres of property (48.978 acres for both approach RPZs). Approximately 22.7 acres (18R: 16.6 acres / 36L: 6.1 acres) of the total RPZ area extend beyond airport property and are not protected by existing aviation easements. The plan includes the acquisition of aviation easements for the 22.7 acres of property to ensure the airport sponsor can prevent or mitigate new incompatible land uses within the RPZs.

TAXIWAY IMPROVEMENTS

The taxiway system associated with Runway 18L-36R is planned to meet airplane design group (ADG) III and taxiway design group (TDG) 3 design standards in the ultimate condition, while the taxiway system associated with Runway 18R-36L is planned to ADG II and TDG 2A standards. All taxiways east of Runway 18L-36R currently meet TDG 3 standards, while the two taxiways extending west to the parallel runway meet TDG 2A standards. Improvements related to the taxiway system at DTO are summarized as follows.

Taxiway Nomenclature

The FAA recommends using the guidelines 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 DTO has been given alphanumeric designations to improve the situational awareness of pilots and the safety margins at the airport. The ultimate taxiway designations are shown on **Exhibit 5A**. The new taxiway designations are largely associated with the realignment of Taxiway B. Once Taxiway B is realigned, the new nomenclature starts at the north end with connections between Taxiway A and Taxiway B, starting with B1 and extending south to B5. On the east side of Taxiway B, all existing taxilanes are redesignated, starting with B6 (existing Taxilane F) and moving south to B10 (existing Taxilane K). Existing Taxilanes M, P, and Q are consolidated into a single designation, Taxilane E. The ultimate parallel taxiway between the runways is designated as Taxiway C and the west side parallel taxiway is designated Taxiway D.

Taxiway A

Taxiway A (50 feet wide) is a parallel taxiway that extends the entire length of Runway 18R-36L on its east side. The only alteration planned for this taxiway is the addition of two new exit taxiways (ultimate A4 and A6) to reduce runway occupancy times by allowing aircraft more opportunities to exit in the middle portion of the runway.

Taxiway B

Taxiway B (50 feet wide) is a partial parallel taxiway that serves the east side of the airfield, including the terminal ramp and aircraft hangars. Taxiway B is nonlinear and several turns are incorporated into its route, creating non-standard intersections with Taxiway A. The plan includes realignment of Taxiway B to be a true dual parallel taxiway extending from A2 on the north end to Taxilane L and beyond once new apron pavement is constructed on the south end. The new Taxiway B alignment will be set at a centerline separation distance of 144.5 feet, allowing for the terminal apron to be expanded to the west. The new alignment eliminates the non-standard intersection geometry and direct-access points from those areas.

Taxiways C and D

To support new developments planned for the west side of the airfield, new taxiway infrastructure is needed, including a west side parallel taxiway (ultimate Taxiway D) and a mid-field parallel taxiway between the two runways (Taxiway C). Both taxiways and their associated connecting taxiways are planned to ADG II and TDG 2A standards. Taxiways C and D are planned at a centerline separation distance of 300 feet from Runway 18R-36L, which meets RDC C-II-4000 design standards. Planning for the higher design standard will allow the parallel runway to grow into a higher design standard in the future without the need to relocate the taxiway.

The perimeter service road is planned to be rerouted in areas that will be impacted by the construction of Taxiways C and D.

Holding Aprons

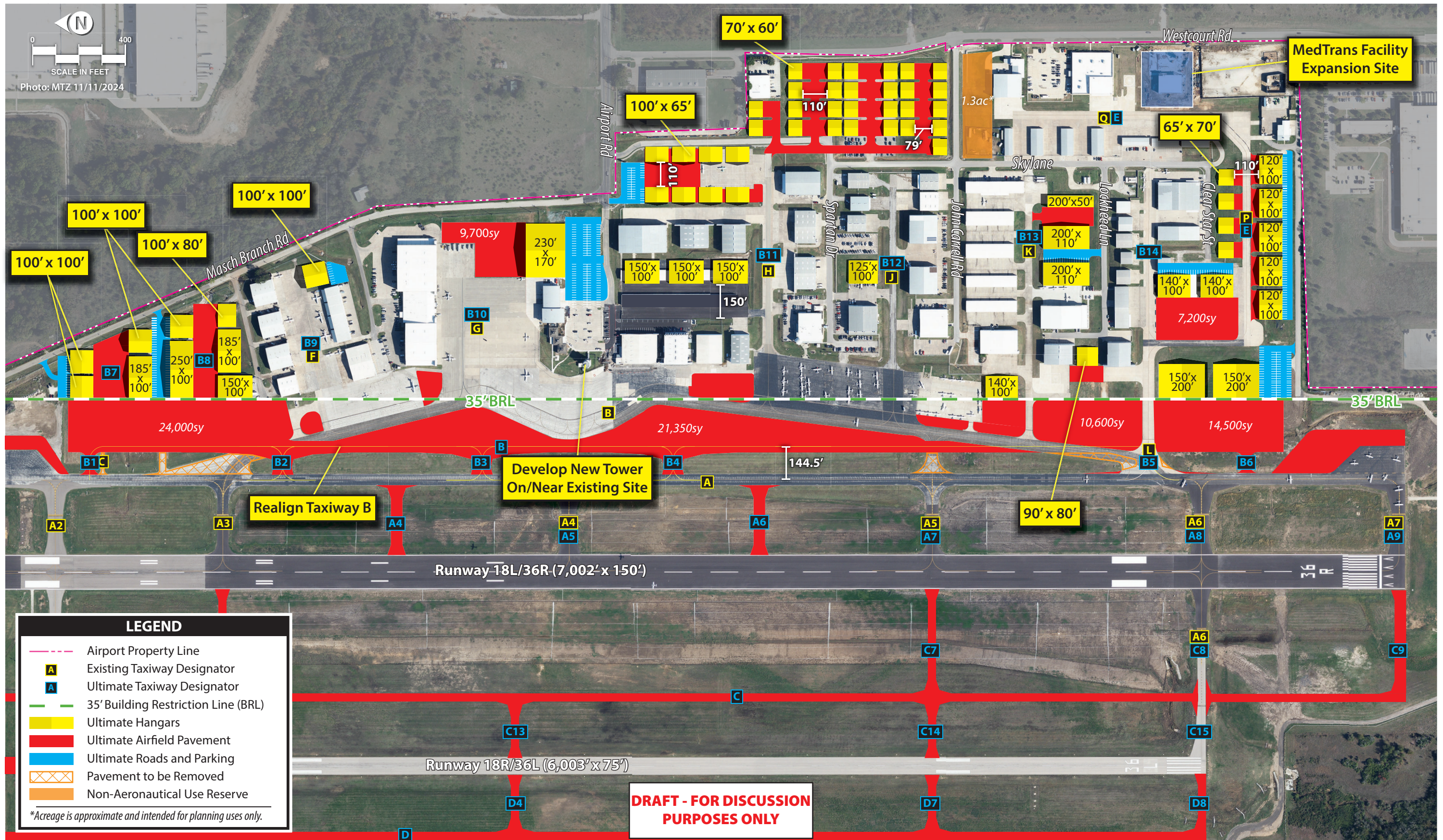
Existing Taxiway A holding aprons are planned to be expanded to support use by more aircraft and larger aircraft, particularly once the runway/taxiway meet ultimate ADG III standards. Once ADG III standards are applied, the TOFA for Taxiway A will increase in width from 124 feet to 171 feet. The additional depth planned will allow for aircraft to hold on the apron without impacting the TOFA. Two additional holding aprons are planned at the north and south ends of ultimate Taxiway D to support operations on the west side of the airfield.

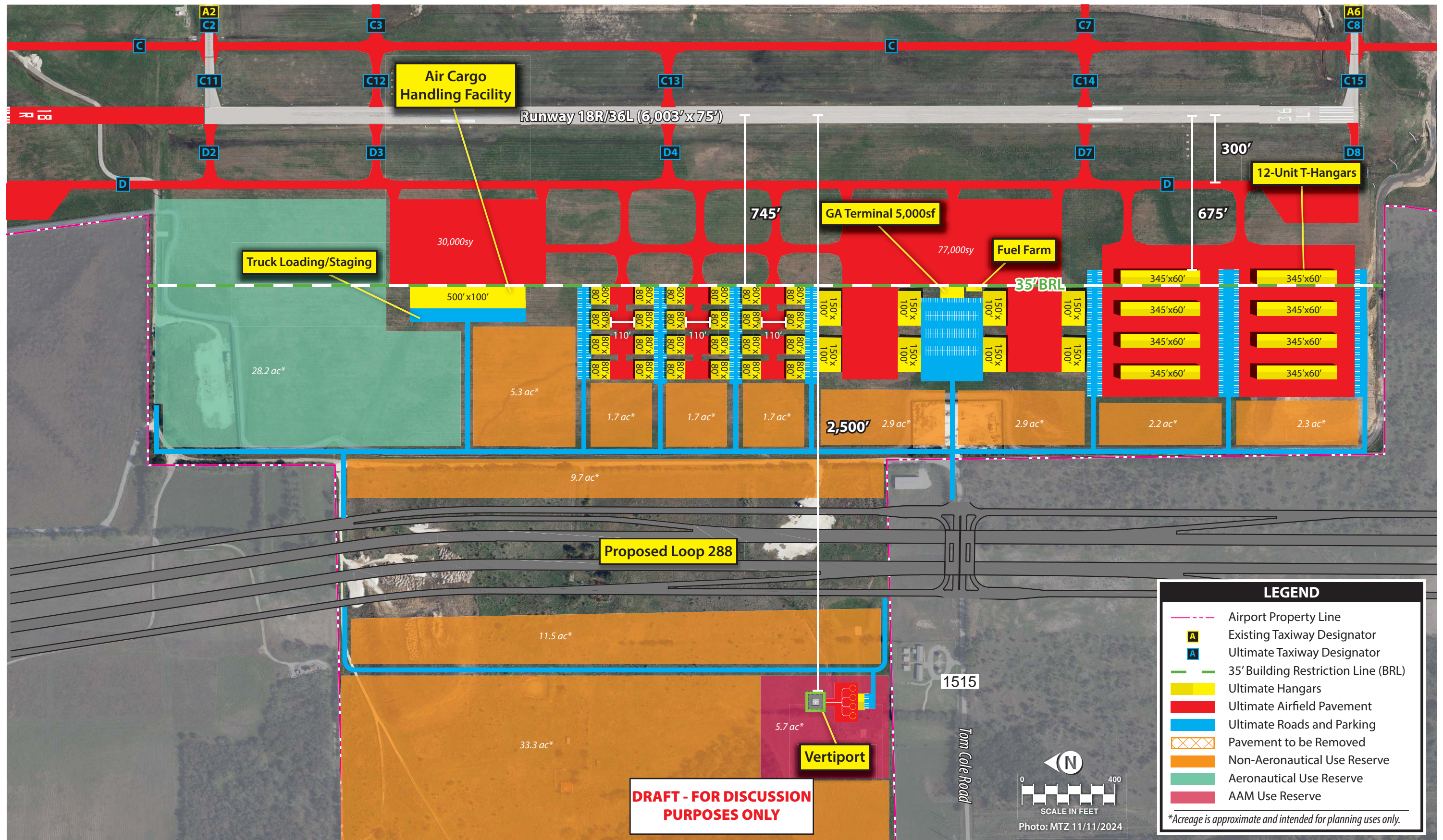
LANDSIDE CONCEPT

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. The landside development plan reflects a potential build-out scenario where depicted hangar and apron facility growth may be beyond the forecasted 20-year need identified in the facility requirements. Planning for more capacity than the forecast shows is intentional because not every identified development site will necessarily be viable, or development may be delayed. Factors like financing and environmental constraints, regulatory changes, leasing issues, or engineering challenges can make developing on some sites impractical. Building extra capacity into the plan ensures the airport can meet demand even if certain sites are ultimately removed from the development program.

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 DTO staff when considering new developments.

Recommended landside developments are depicted on **Exhibits 5B** (east side) and **5C** (west side).







GENERAL AVIATION FACILITIES

Terminal

General aviation terminal services are provided from the 4,800-square-foot (sf) GA Administration Building, as well as Sheltair's fixed base operator (FBO) facilities, which total approximately 18,000 sf. It is projected that the combined available square footage (22,800 sf) is sufficient to meet the long-term demand at DTO. Over time, the FBO and various specialty aviation service operators (SASOs) on the airport will develop new facilities or modernize and/or expand existing general aviation (GA) services facilities to better serve their customers and the users of the airport, so there are no specific plans to expand the GA Administration Building in the master plan; however, the plan includes the development of an additional 5,000-sf GA terminal facility on the west side of the airfield to support activities and developments in that area. The GA terminal facility is planned to include a passenger waiting area, a pilots' lounge, flight planning, concessions, and leasable spaces for FBOs/SASOs. The west GA terminal is accompanied by a vehicle parking lot accessible from a new access road constructed from Tom Cole Road, which would extend from the proposed Loop 288.

Aprons

DTO has five aprons on the east side of the airfield that combine to provide 60,175 square yards (sy) of aircraft parking and circulation area. The project apron requirements indicate additional capacity is needed within the existing east landside area and to support new developments on the west side.

The plan includes realignment of Taxiway B to a uniform separation distance of 144.5 feet from Taxiway A to allow the terminal apron to be expanded by 21,350 sy. An additional 9,700-sy expansion of the terminal apron and infill of areas that are currently unpaved would bring the total terminal/FBO apron capacity to approximately 76,470 sy. Additional east side expansions include a 24,000-sy apron within the redeveloped north side and apron expansions on the south side that total approximately 28,300 sy. West side plans include a 77,000-sy main apron to support the GA terminal and FBO/SASO hangars and a 30,000-sy apron dedicated to the potential for air cargo activities. Including the two existing private aprons (15,900 sy), the plan calls for increasing DTO apron capacity to approximately 251,670 sy.

Hangars

Existing hangars at DTO include a variety of T-hangars, corporate/box hangars, and conventional hangars that total 736,720 sf of storage capacity. Strong demand exists for new hangars; the airport maintains a hangar waiting list of 329 individuals and many SASOs have expressed interest in developing hangar facilities at DTO. The plan reflects new hangar developments on what remains of the airport's undeveloped properties on the east side, along with redevelopment of certain areas with the aim of focusing on facilities to support larger GA aircraft, while new developments on the west side of the airfield are planned to support smaller GA aircraft. Redevelopment areas on the east side include the north area, which includes smaller hangars along existing Taxilanes C, D, and E. These existing hangars are planned to be relocated/removed to allow for development of a new apron and larger hangar facilities. Two T-hangar facilities located immediately south of the new aircraft rescue and firefighting station (ARFF)

are also planned to be relocated/removed to make way for three larger conventional hangars and apron frontage for those hangars. Finally, on the south side of the area, several small, detached hangars and T-hangars along Taxilanes L, N, M, and O are planned to be relocated/removed to make way for larger hangars and associated ramp space.

As previously mentioned, the west side includes a variety of planned hangar developments, including 96 new or relocated T-hangar units, 24 individual 6,400-sf box hangars and eight 15,000-sf conventional hangars. Beyond what is shown on the exhibit, an additional 28.2-acre area has been reserved for aeronautical use that would focus on a large-scale SASO or additional private hangar developments.

Fuel Storage

The existing fuel farms are planned to remain and be expanded as needed. The facility requirements analysis identified a need for additional Jet A fuel storage capacity over the course of the planning period as turbine traffic grows. Ultimately, it is up to the FBO(s) operating at the airport that own or lease all fuel storage facilities at DTO to make the business decision about when to add more fuel storage capacity. The plan identifies the need for a fuel farm to be added to the west side of the airfield as new facilities begin to develop in that area to avoid the need to send refuel trucks across the active airfield. Future fuel storage capacity should also plan for unleaded aviation fuel when it becomes more widely adopted and available.

Vehicle Parking

Generally, new or expanded parking lots and vehicle access roads are planned with most of the new hangar developments on the east and west sides. In the existing core terminal area, a vehicle parking lot expansion is planned for the GA Administration Building and the new ARFF station to support new hangar facilities in the area. The planned west GA terminal will be supported by a large vehicle parking lot centrally located between new hangars planned for FBO/SASOs.

AIR CARGO FACILITIES

Air cargo activities at DTO currently comprise a small share of the overall operational activity at DTO. There are no scheduled cargo flights; all cargo flights operate as on-demand charters. Most cargo charters carry inbound freight to Denton and outbound shipments are rare. The *Air Cargo Assessment* prepared for this master plan (included as **Appendix C**) found that prevailing trends in scheduled air cargo operators (e.g., FedEx, UPS, Amazon Air, etc.) do not indicate the addition of new airports like DTO to their networks. Competition from established commercial airports in the Dallas-Fort Worth Metroplex limits DTO's ability to capitalize on potential opportunities and grow its air cargo business. A substantial expansion of air cargo services at DTO would likely require significant investments in cargo facilities, infrastructure, and handling equipment – investments that may not be justifiable given the low revenue levels the airport/city currently receives from cargo operations. Despite this, DTO's air cargo services provide substantial value to key companies in the Denton community, making the continuation of charter cargo operations a priority.

Should opportunities arise for expanded air cargo operations at DTO, the plan includes a dedicated air cargo handling facility, associated apron, and truck loading/staging area on the west side of the airfield. Once Loop 288 is developed, the west side will be more accessible to the regional roadway network for distribution trucks.

AIRPORT TRAFFIC CONTROL TOWER

The existing airport traffic control tower (ATCT) located on the east side of the airfield has been identified by staff as undersized, with limited space for more controllers, which may be needed as operation levels continue to rise at DTO. The plan includes the option to expand the existing tower or develop a new tower in a location nearby the existing tower at some point in the future. If a new tower is developed, the FAA, while consulting with the airport sponsor, will lead the evaluation of where a new tower should be located at the airport.

ADVANCED AIR MOBILITY

Advanced air mobility (AAM), also known as urban air mobility (UAM), is an emerging industry that involves next-generation aviation technologies designed to move people and goods more efficiently using innovative aircraft, such as electric vertical takeoff and landing (eVTOL) vehicles, autonomous drones, and hybrid systems. AAM aims to create new transportation options that reduce congestion, improve connectivity, and enhance sustainability by leveraging cleaner propulsion methods, advanced automation, and smart air traffic management systems. While still in the development stages, AAM is being implemented in various ways across the nation's airport network, including regional initiatives, such as the AllianceTexas Mobility Innovation Zone, which is centered around the Perot Field/Fort Worth Alliance Airport (AFW). AllianceTexas is advertised as an "AAM ecosystem" with intermodal corridors and a flight test center supporting drone delivery businesses. Dallas-Fort Worth International Airport (DFW) has also entered into agreements with AAM developers to explore vertiport infrastructure and integration with passenger eVTOL operations across the region. The City of Arlington has partnered with an AAM manufacturer to establish eVTOL operations at Arlington Municipal Airport (GKY).

While still in the early development phase, AAM is a significant growth opportunity for the aviation industry and should be carefully considered for the future of DTO. In this effort, the City of Denton is collaborating with the University of North Texas on an economic feasibility study for a Denton vertiport. The study will evaluate the potential economic benefits, market demand, and infrastructural considerations of vertiport construction in the City of Denton. This study is not yet completed but its findings will be incorporated into this master plan, when available.

This master plan has considered the potential impacts of developing a vertiport on airport property in its alternatives analysis. After consideration, the recommended development plan includes reserving a 5.7-acre site for the potential development of a vertiport and any supporting facilities (taxilane, apron, terminal, vehicle access and parking) west of the proposed Loop 288 and north of Tom Cole Road. This site is at least 2,500 feet from the Runway 18R-36L centerline, which is the minimum separation distance recommended by the FAA to avoid controller sequencing issues with eVTOL and fixed-wing aircraft in the visual traffic pattern. Any other site on the airport was found to be too close to the runway system, which could result in eVTOL wake turbulence and traffic pattern conflicts with traditional fixed-wing aircraft.



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 non-aeronautical related uses that provide opportunities to diversify and expand revenue streams for an airport. The recommended development plan for DTO includes reserving approximately 1.3 acres on the east side and approximately 75 acres on the west side for future non-aeronautical use. The 1.3-acre area on the east side is bound on three sides by roads and is blocked from Taxiway Q by a private ramp. This area is planned to be leased and developed as a vehicle parking lot to serve a flight school located at the airport. On the west side, properties that front the proposed Loop 288 and west of Loop 288 are planned for non-aeronautical use to take advantage of the visibility from the highway, which will attract commercial developments that could boost and diversify airport revenues.

LAND USE COMPATIBILITY

Land use planning around DTO 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 uses. Non-regulatory means of land use controls include comprehensive or strategic land use plans. These documents can be adopted for a 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 with the airport environs and existing land use, comprehensive plan land use, and zoning land use. Existing land use refers to property improvements as they exist today, according to city records.

The comprehensive plan land use map identifies the projected or future land use, according to the 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, where one has been prepared. In some cases, the land use prescribed in the zoning ordinance or depicted in the general plan may differ from the existing land use.

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

EXISTING LAND USE

As discussed in Chapter One, DTO is located within the city limits of Denton, Texas. The existing runway approach surfaces for all four runways clipped to one mile also lie within the City of Denton jurisdiction; however, the full ultimate approach surface for Runway 18L extends into unincorporated Denton County to the north.

Exhibit 5D depicts the existing land use designations within the airport approach surfaces out to one mile for the existing and ultimate conditions. South of the airport within the approach surfaces to Runway 36L and 36R, existing land consists of undeveloped, industrial, and light industrial uses. North of the airport within the approach surface to Runway 18R and 18L, the existing land is more developed and includes agriculture, industrial, light industrial, commercial, and residential uses. The residential lots south of U.S. 380 are on large lots, whereas the residential uses north of U.S. 380 are developed as subdivisions.

FUTURE LAND USE PLAN

The future land use plan is a general policy document used by a government agency to identify and describe the community's characteristics, articulate goals and policies, and explore alternative plans for future growth, which will be used to produce zoning ordinances and subdivision regulations to carry out the plan's goals. A municipality will often incorporate goals and policies for its airports in the future land use plan, which is typically separate from an airport master plan. Generally, the future land use plan assists local decision-makers regarding complicated issues during the development process, or maintenance issues. The current planning document of this type for the land near the airport is the *Denton 2040 Comprehensive Plan*, which was adopted in March 2022.

Denton 2040 Comprehensive Plan

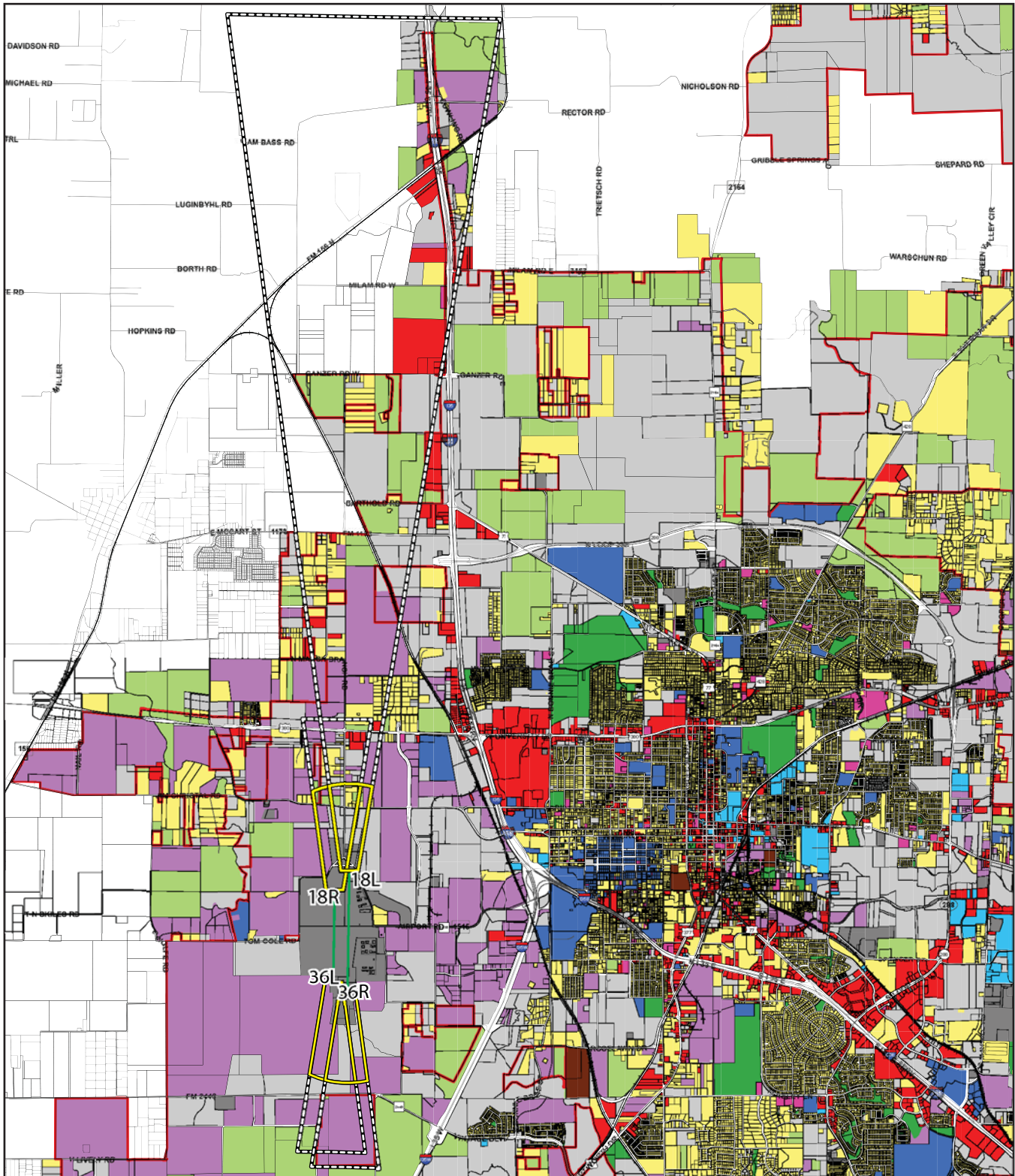
The City of Denton's comprehensive plan sets the course for managing growth, promoting reinvestment, and improving quality of life in the city over a 20-year planning period. The comprehensive plan establishes a preferred growth concept, as depicted on the city's future land use map. It is important to note that land use planning efforts for the future extend beyond the existing city limits into two extraterritorial jurisdictions (ETJ), which are shown as Division 1 and Division 2. An ETJ allows for planning of areas outside city limits for land use development and planning purposes with jurisdiction established by the *Texas Local Government Code*.¹

Airport property is identified as Government/Institutional on the *Denton 2040 Comprehensive Plan* future land use map, is surrounded by Industrial Commerce uses to the west, north, and east, and borders a Master Planned Community to the south.

The following guidelines are identified in the comprehensive plan for the Industrial land uses surrounding the airport:

- Minimize conflicts with adjoining land uses and efficiently utilize existing transportation systems
- Locate development in a manner that does not compromise the health, safety, and welfare of the community
- Design all facilities (whether freestanding or related to manufacturing uses) to address the street frontage at a pedestrian scale

¹ <https://statutes.capitol.texas.gov/Docs/LG/htm/LG.42.htm>



Legend

Agriculture	Industrial	Religious	Parks	Part 77 Approach Surface
Commercial	Infrastructure	Residential	City Limits	Approach Surface Clipped to 1 mile
Commercial	Institutional	Undeveloped	Roads	Runway Centerline
Government	Parks and Open Space		Lakes	



The City of Denton has prepared maps for departmental use. These are not official maps of the City of Denton and should not be used for legal, engineering or surveying purposes but rather for reference purposes. These maps are the property of the City of Denton and have been made available to the public based on the Public Information Act. The City of Denton makes every effort to produce and publish the most current and accurate information possible. No warranties, expressed or implied, are provided for the data herein, its use, or its interpretation. Utilization of this map indicates understanding and acceptance of this statement.



- Consider the adaptive reuse of existing warehouse buildings for non-industrial uses, such as office or community facilities
- Use varying building heights and setbacks to define different functions, such as offices and warehousing
- Screen all loading docks, platforms, and overhead bay doors from public view; loading functions should be located away from front streets and should be designed or screened in such a way as to reduce their visibility

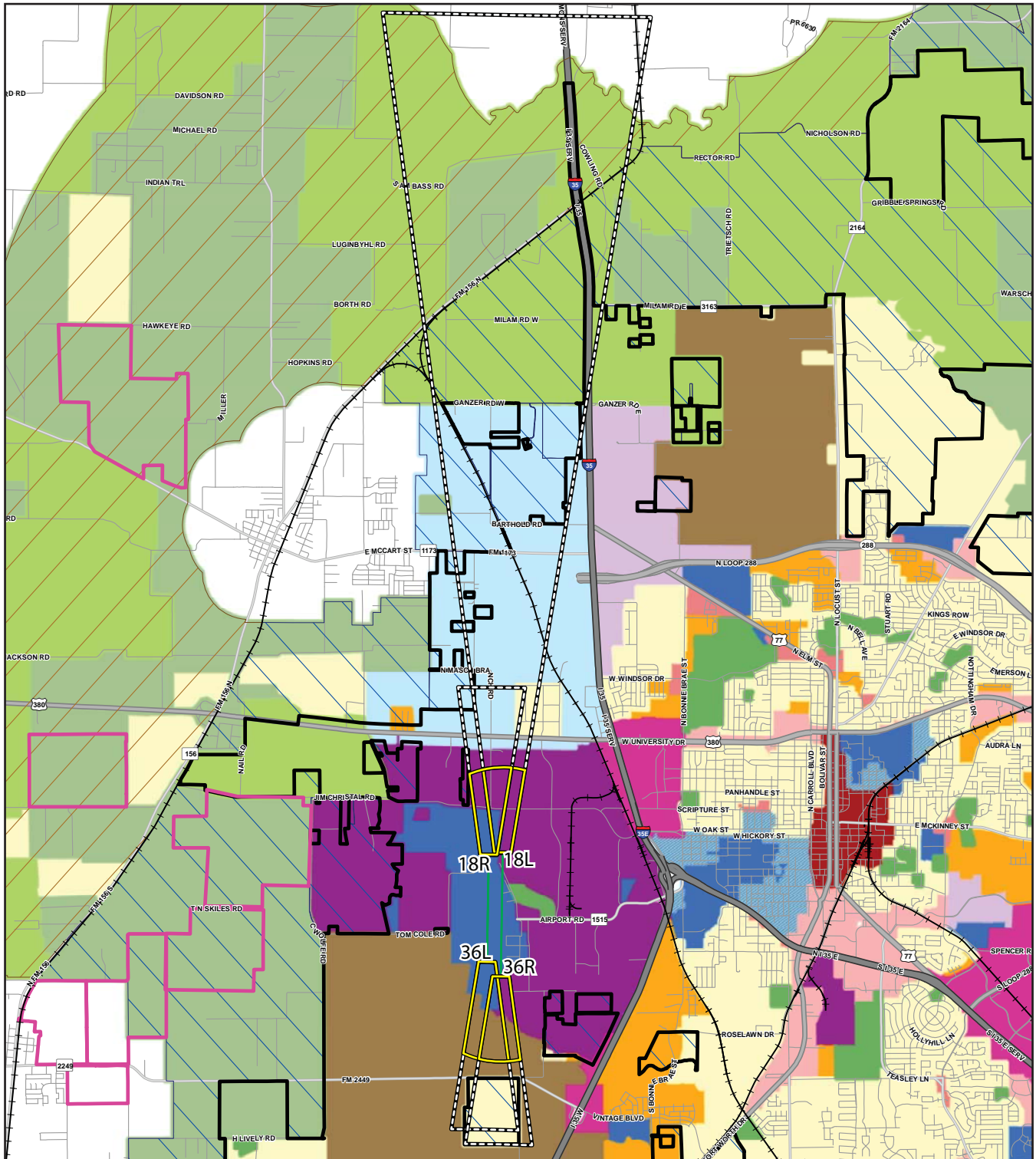
Exhibit 5E depicts the future land use designations within the airport’s existing and ultimate Part 77 approach surfaces clipped to one mile. Future land uses identified within the one-mile approach surfaces include open space, single-family residential, light industrial, and airport property. **Table 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		
Future Land Use Designation	Description	Location
Government/ Institutional	This designation applies to government-owned land, university and college campuses, and similar large-scale institutional activity centers. Development in these land use areas is typically subject to particular guidelines and is therefore outside the oversight of development review. It is important that transitions to adjacent land uses are considered in the development of future government and institutional-related uses. Coordination on future development will ensure these land uses are appropriately designed. Government and institutional uses often include structures that become architectural and visual landmarks, which add to the community’s sense of place and identity. As such, development of future governmental and institutions uses should recognize principles of placemaking.	Airport property; approach to Runways 18R, 18L, 36R, & 36L
Industrial Commerce	This designation applies to areas where the predominant uses include light and heavy industrial uses, such as moderate to heavy manufacturing, assembly, fabrication, and wholesaling. Distribution warehouses may be included in this designation if used to replace underutilized and heavy industrial uses, or if ultimately reused to house future industrial development. This designation is located primarily west of I-35W near DTO. It is important in future development that transitions to adjacent sensitive land uses are considered.	Approach to Runways 18R, 18L, 36R, & 36L
Master Planned Community (Cole Ranch/ Hunter Ranch)	This category denotes large-scale developments that are guided by separate development approvals, which establish the land uses, densities, and intensities of development, as well as character. These developments typically provide for mixed uses that balance residential and non-residential uses and provide connectivity to other developments throughout the city.	Approach to Runways 36L and 36R

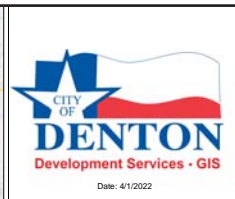
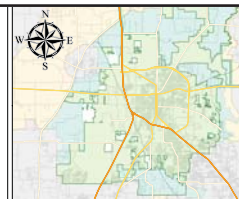
Sources: Denton 2040 Comprehensive Plan, March 2022; Coffman Associates analysis

ZONING

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



- | | | |
|--|---|---|
| <ul style="list-style-type: none"> City Limits ETJ Division 1 ETJ Division 2 Lakes Potential Municipal Utility Districts (MUDs) (petitioning for state approval) Part 77 Approach Surface Approach Surface Clipped to 1-Mile Runway Centerline | Future Land Use <ul style="list-style-type: none"> Agriculture Rural Areas Low Residential Moderate Residential Master Planned Community (refer to approved development plans) Downtown Denton Regional Mixed Use | <ul style="list-style-type: none"> Community Mixed Use Neighborhood Mixed Use Neighborhood / University Compatibility Area Business Center Light Industrial Industrial Commerce Government / Institutional Parks / Open Space |
|--|---|---|



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The current Denton development code became effective on October 1, 2019, under authority granted to it by the State of Texas² and Article X³ of the *Denton Municipal Charter*. As previously mentioned, the City of Denton’s extraterritorial zoning jurisdictions (ETJ) extend beyond the city limits. All of the land within the runway approach surfaces out to one mile are within the jurisdiction of the City of Denton and subject to Article X, *Planning and Zoning*, of the city’s municipal code.

As shown on **Exhibit 5F**, 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, the maximum allowable heights for structures, maximum building coverage for lots, and overall minimum lot areas.

City of Denton, TX Zoning Classifications	Approach Surface Location	Residential Allowed?	Maximum Building Height ¹	Maximum Building Coverage	Minimum Lot Area
RR – Residential Rural	Runways 18L & 18R	Yes	65'	15%	5 acres
LI – Light Industrial	Runways 18L & 18R	No	75'	85%	5,000 sf
PF – Public Facilities	Airport property; Runways 18R, 18L, 36L & 36R	No	100'	90%	None
HI – Heavy Industrial	Runways 18L & 36R	No	140'	85%	20,000 sf
MPC – Master Planned Community	Runway 36L & 36R	Yes	Varies	Varies	Varies

¹May be subject to special height limitations in airport-controlled area. Building and structure height may be further limited according to Section 4.5: MAO – Municipal Airport Overlay District (https://library.municode.com/tx/denton/codes/development_code?nodeId=CITY_DENTONDECO_SUBCHAPTER_40VHIDI_4.5MAUNAIOVDI).

Sources: City of Denton, Texas, Development Code; Coffman Associates analysis

In addition to the requirements of the above-listed underlying zoning designations, the City of Denton has adopted the Municipal Airport Overlay District (MAO) to comply with state and federal rules associated with land uses in the vicinity of airports. The overlay district includes two subdistricts: the Airport Height Hazard District (AHHD) and the Airport Compatibility Land Use District (ACLUD).

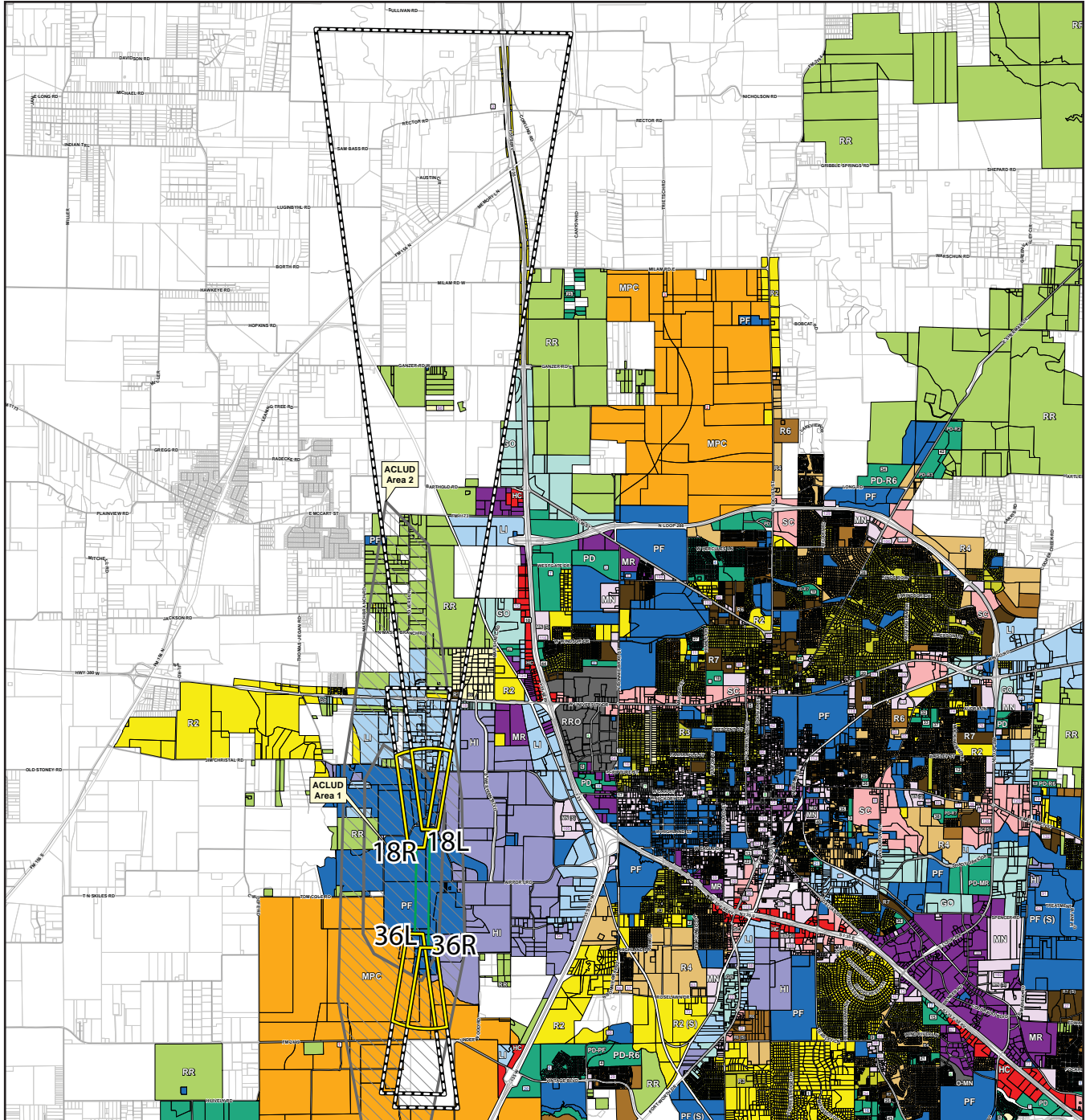
The AHHD⁴ outlines height restrictions in Section 4.5.8, stating that no person shall erect, alter, or maintain a structure, and no person shall allow a tree or other natural object to grow in excess of the applicable height limitations established for each airport height hazard subdistrict, including the area lying beneath the approach surfaces, transitional surfaces, horizontal surface, and conical surfaces of DTO.

The ACLUD consists of two subdistricts (ACLUD-1 and ACLUD-2), which are depicted on the city’s official zoning map. The ACLUD overlay prohibits educational uses and healthcare facilities throughout this district, as well as new residential uses in ACLUD-1. All land uses within the underlying zoning districts are allowed in ACLUD-2; however, residential property owners must adhere to specific noise mitigation standards and execute avigation easements for aircraft landing at, taking off from, or operating at DTO. Noise mitigation requirements are also established throughout the ACLUD in accordance with FAA requirements.

² Texas Local Government Code § 213.002 (<https://statutes.capitol.texas.gov/Docs/LG/htm/LG.213.htm>), 2024

³ City of Denton, Texas, Code of Ordinances, Article X, Planning and Zoning (https://library.municode.com/tx/denton/codes/code_of_ordinances?nodeId=PTICH_ARTXPLZO), 1979

⁴ Denton, Texas, Development Code, Section 4.5.6 (https://library.municode.com/tx/denton/codes/development_code?nodeId=CITY_DENTONDECO_SUBCHAPTER_40VHIDI_4.5MAUNAIOVDI_4.5.8AHIRHEHADI)



- RR - Residential Rural
- R1 - Residential
- R2 - Residential
- R3 - Residential
- R4 - Residential
- R6 - Residential
- R7 - Residential
- MN - Mixed-Use Neighborhood
- MD - Mixed-Use Downtown Core
- MR - Mixed-Use Regional
- HC - Highway Commercial
- SC - Suburban Corridor
- GO - General Office
- LI - Light Industrial
- HI - Heavy Industrial
- PF - Public Facilities
- PD - Planned Development
- MPC
- OVERLAY
- Denton Municipal Airport
- Runway Centerline
- Approach Surface Clipped to 1-mile
- Part 77 Approach Surface

Property Address	Current Zoning	Proposed Zoning	Notes
1000 E. Main St.	RR	R1	
1001 E. Main St.	RR	R1	
1002 E. Main St.	RR	R1	
1003 E. Main St.	RR	R1	
1004 E. Main St.	RR	R1	
1005 E. Main St.	RR	R1	
1006 E. Main St.	RR	R1	
1007 E. Main St.	RR	R1	
1008 E. Main St.	RR	R1	
1009 E. Main St.	RR	R1	
1010 E. Main St.	RR	R1	
1011 E. Main St.	RR	R1	
1012 E. Main St.	RR	R1	
1013 E. Main St.	RR	R1	
1014 E. Main St.	RR	R1	
1015 E. Main St.	RR	R1	
1016 E. Main St.	RR	R1	
1017 E. Main St.	RR	R1	
1018 E. Main St.	RR	R1	
1019 E. Main St.	RR	R1	
1020 E. Main St.	RR	R1	
1021 E. Main St.	RR	R1	
1022 E. Main St.	RR	R1	
1023 E. Main St.	RR	R1	
1024 E. Main St.	RR	R1	
1025 E. Main St.	RR	R1	
1026 E. Main St.	RR	R1	
1027 E. Main St.	RR	R1	
1028 E. Main St.	RR	R1	
1029 E. Main St.	RR	R1	
1030 E. Main St.	RR	R1	
1031 E. Main St.	RR	R1	
1032 E. Main St.	RR	R1	
1033 E. Main St.	RR	R1	
1034 E. Main St.	RR	R1	
1035 E. Main St.	RR	R1	
1036 E. Main St.	RR	R1	
1037 E. Main St.	RR	R1	
1038 E. Main St.	RR	R1	
1039 E. Main St.	RR	R1	
1040 E. Main St.	RR	R1	
1041 E. Main St.	RR	R1	
1042 E. Main St.	RR	R1	
1043 E. Main St.	RR	R1	
1044 E. Main St.	RR	R1	
1045 E. Main St.	RR	R1	
1046 E. Main St.	RR	R1	
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1078 E. Main St.	RR	R1	
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1090 E. Main St.	RR	R1	
1091 E. Main St.	RR	R1	
1092 E. Main St.	RR	R1	
1093 E. Main St.	RR	R1	
1094 E. Main St.	RR	R1	
1095 E. Main St.	RR	R1	
1096 E. Main St.	RR	R1	
1097 E. Main St.	RR	R1	
1098 E. Main St.	RR	R1	
1099 E. Main St.	RR	R1	
1100 E. Main St.	RR	R1	



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SUBDIVISION REGULATIONS

Subdivision regulations are legal devices employed to administer the process of dividing land into two or more lots, parcels, or sites for the building and location, design, and installation of supporting infrastructure. The subdivision regulations represent one of two instruments commonly employed to carry out the goals and policies outlined in a comprehensive plan. The land subdivision ordinance of the City of Denton is codified within Subchapter 8, *Subdivisions*, of the *Denton, Texas, Development Code*.⁵

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

The current *City of Denton Building Code*, which was adopted in April 2022, consists of the *International Building Code* (IBC), 2021 edition, 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 in reaction to unique threats of regional natural disasters to help build structures properly at the beginning of construction when it matters most, as changes can be expensive and difficult. For new construction near an airport, incorporating noise attenuation can be especially important. Noise attenuation measures can include increased window thicknesses 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 were 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 the parcels encompassed by the noise contours to determine if noise-sensitive land uses could be developed in those areas. Noise contours and height restrictions within the Part 77 approach surface area are addressed as follows.

⁵ Denton, Texas, Development Code, Subchapter 8, Subdivisions (https://library.municode.com/tx/denton/codes/development_code?nodeId=CITY_DENTONDECO_SUBCHAPTER_8SU), 2024

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

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

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

The guidelines summarized in Table 1 of Title 14 CFR Part 150 indicate that all land uses are acceptable in areas below 65 DNL.⁶ 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 such 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.

⁶ Title 14 CFR, Part 150 (<https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-150>)

As part of this master plan, noise exposure contours were prepared for DTO for a baseline condition (2024) and a long-range condition (2044). The resulting contours are shown on **Exhibit 5G**. As shown on the exhibit, noise contours out to the 65 DNL largely remain on airport property for both the baseline and long-range forecast conditions. To the northeast of the airport, the 65 DNL contour extends off airport property over a wooded area along Masch Branch Road that is currently undeveloped.

Height Restrictions

To analyze the potential for non-compatible development of land off airport property, zoning was evaluated within the Part 77 approach surface area out to one mile from the ends of the runways. **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 previously presented information and the non-compatible development analysis, the following recommendations are provided to maintain airport land use compatibility in the vicinity of DTO. These recommendations are in accordance with the recently published FAA Advisory Circular (AC) 150/5190-4B, which identifies compatible land use development tools, resources, and techniques to protect surrounding communities from adverse effects associated with airport operations.⁷

Review City of Denton’s MAO Zoning Ordinance and Maps | The MAO zoning ordinance and its associated AHHD and ACLUD maps should be reviewed periodically during the planning period for any necessary updates. The MAO references DTO’s existing 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. Additionally, updated noise contours could necessitate adjustments to the ACLUD map and ACLUD-1 and ACLUD-2 boundaries.

Implement FAA 7460-1 Airspace Analysis | The MAO 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 tool⁸ allows a user (airport sponsor, developer, or local municipality) to input location and dimensional information about a proposed development to determine if the user is 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 strike hazards are currently prohibited in the Denton development code. 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.⁹

⁷ FAA, AC 150/5190-4B, Airport Land Use Compatibility Planning, September 16, 2022

⁸ FAA, Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) (<https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm>)

⁹ FAA, AC 15/5200-33C, Hazardous Wildlife Attractants on or near Airports, February 21, 2020

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

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

Adopt Fair Disclosure Requirements for Real Estate Transactions within the Vicinity of DTO | Fair disclosure regulations in real estate transactions are intended to ensure prospective buyers of property are informed that the property is or will be exposed to potentially disruptive aircraft noise or overflights. It is not uncommon, around even the busiest airports, for newcomers to report having bought property without having been informed about airport noise levels. At the most formal level, fair disclosure can be implemented through a city ordinance 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 a property owner of the proximity of an airport and expectations for living in the vicinity of the airport:

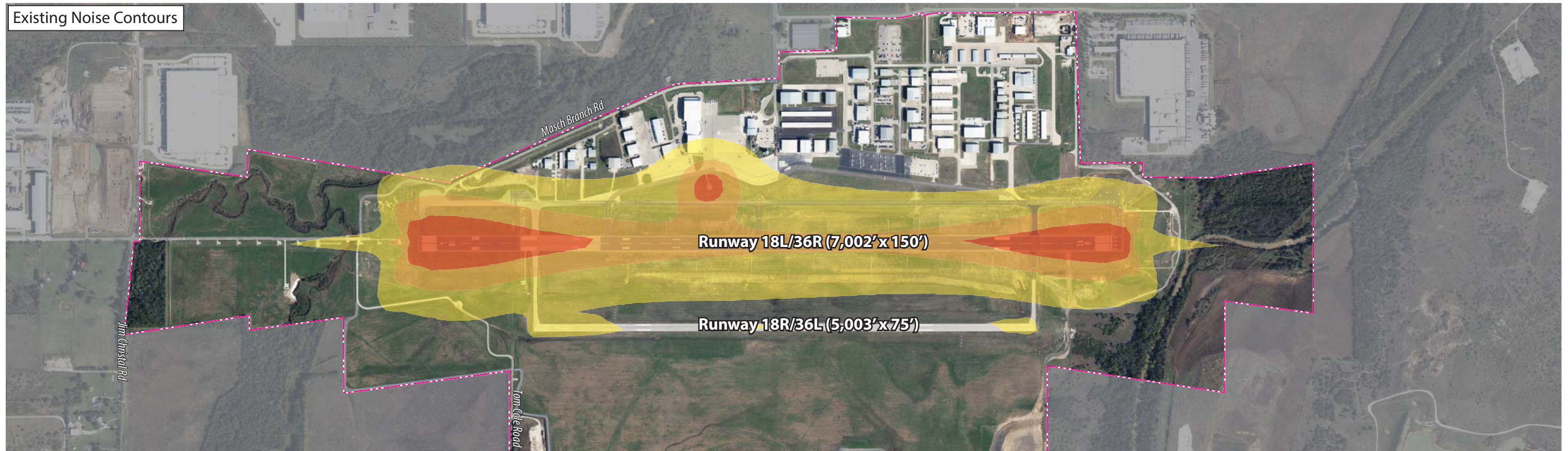
The subject property is within the vicinity of Denton Enterprise Airport, which is located at 5000 Airport Road, Denton, TX 76207. Properties within this area are routinely subject to overflights by aircraft using this public-use airport. As a result, residents may experience inconvenience, annoyance, or discomfort arising from the noise of such operations. Residents also should be aware that the current volume of aircraft activity may increase in response to population and economic growth within the vicinity of Denton Enterprise Airport. Any subsequent deed conveying this parcel or subdivisions thereof shall contain a statement in substantially this form.

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

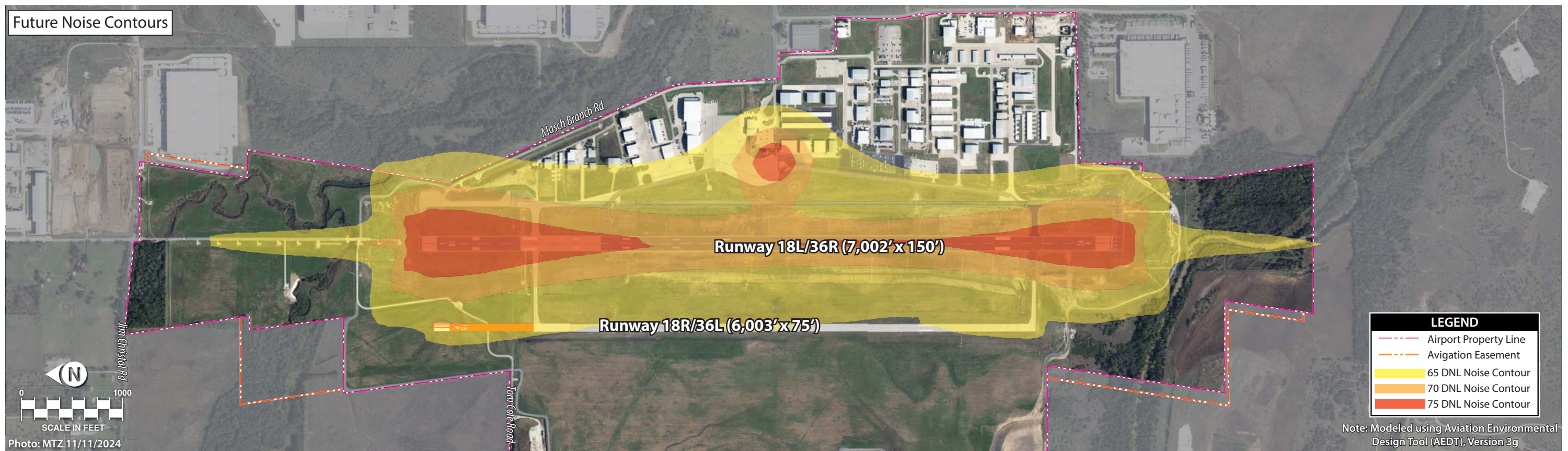
AIRPORT RECYCLING, REUSE, AND WASTE REDUCTION

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

Existing Noise Contours



Future Noise Contours



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REGULATORY GUIDELINES

FAA Modernization and Reform Act of 2012

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

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

State of Texas Solid Waste Management

Title 30 of the *Texas Administrative Code*, Part 1, Chapter 330, *Municipal Solid Waste*,¹⁰ was adopted to regulate waste management. This document provides policy and procedural guidance to state, substate, and local agencies on the proper management of solid waste and outlines sound methods of solid waste management and disposal for state, substate, and local agencies.

The Texas Commission on Environmental Quality (TCEQ) oversees the state’s solid waste management implementation.¹¹ The Land Department in the TCEQ overviews waste management, recycling, reduction, reuse, and cleanups and remediation. Duties assigned to the Land Department include oversight of the following:

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

¹⁰ Texas Administrative Code ([https://texas-sos.appianportalsgov.com/rules-and-meetings?\\$locale=en_US&interface=VIEW_TAC_SUMMARY&queryAsDate=06%2F10%2F2025&recordId=221713](https://texas-sos.appianportalsgov.com/rules-and-meetings?$locale=en_US&interface=VIEW_TAC_SUMMARY&queryAsDate=06%2F10%2F2025&recordId=221713)), accessed June 2025

¹¹ 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)

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

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

City of Denton Solid Waste Management

The city’s Solid Waste and Recycling Department oversees and manages the city’s waste management.¹² This department offers a variety of scheduled pick-up services for commercial trash and recycling, with varying sizes and styles for receptacles. The city also provides services to recycle smaller household electronics, televisions, and computers at the City of Denton Landfill. In addition, the City of Denton has a commercial diversion program to limit the amount of solid waste that ends up in the landfill.¹³

SOLID WASTE

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

For airports, waste can generally be divided into eight categories.¹⁴

- **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 (C&D)** waste is considered non-hazardous trash resulting from land clearing, excavation, demolition, and renovation or repair of structures, roads, and utilities. C&D waste includes concrete, wood, metals, drywall, carpet, plastic, pipe, cardboard, and salvaged building components. C&D is also generally labeled MSW.
- **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 (i.e., newspapers, napkins, and paper towels), plastic cups, service ware, food waste, and food-soiled paper/packaging.

¹² City of Denton, Texas, Solid Waste Recycling (<https://www.cityofdenton.com/353/Solid-Waste-Recycling>), accessed June 2025

¹³ City of Denton, Texas, Commercial Division (<https://www.cityofdenton.com/1048/Commercial-Diversion>), accessed June 2025

¹⁴ FAA, Recycling, Reuse, and Waste Reduction at Airports, April 24, 2013



- **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 triturator¹⁵ facility for pretreatment prior to discharge in a sanitary sewage system. Chemicals in lavatory waste can present environmental and human health risks if mishandled; therefore, caution must be taken to ensure lavatory waste is not released to the public sanitary sewage system prior to pretreatment.
- **Spill clean and remediation wastes** are special wastes that are generated during cleanup or spills and/or remediation of contamination from several types of sites on an airport.
- **Hazardous wastes** are governed by the *Resource Conservation and Recovery Act* (RCRA) and the regulations in Title 40 CFR Subtitle C, Parts 260 to 270. The U.S. EPA has developed less stringent regulations for certain hazardous waste (universal waste), which are described in 40 CFR Part 237, the *Universal Waste Rule*.

There are multiple areas where the airport potentially contributes to the waste stream, including the terminal (GA Administration Building), on-airport tenants (FBOs, 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 centralized or a decentralized waste management systems. The differences between the two methods are described as follows.

- **Centralized waste management system** | With a centralized management system, the airport provides receptacles for the collection of waste, recyclable materials, and/or compostable materials and contracts for their removal by a single local provider.¹⁶ A centralized waste management system allows for more participation from airport tenants who 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 because it requires more effort and oversight on the part of airport management; however, the centralized system is advantageous because it involves fewer working components in the overall management system of solid waste and recycling efforts. This system also allows greater control by the airport sponsor over the type(s), placement, and maintenance of dumpsters, thereby saving space and eliminating the need for tenants to have individual containers.
- **Decentralized waste management** | Under a decentralized waste management system, the airport provides waste containers and contracts for the hauling of waste materials in airport-operated spaces only; however, airport tenants (such as FBOs, retail shops, and others) manage the waste from their leased spaces with separate contracts, billing, and hauling schedules. A decentralized waste management system can increase the number of receptacles on airport property and the number of trips by a waste collection service provider if tenants' and the airport's collection schedules differ.

¹⁵ A triturator turns lavatory waste into fine particulates for further processing.

¹⁶ National Academies of Science, Engineering, and Medicine, Airport Cooperative Research Program, Synthesis 92, Airport Waste Management and Recycling Practices, 2018)

EXISTING SERVICES

The airport currently contracts solid waste and recycling services through the City of Denton. Common accepted items for recycling include cardboard, paper products, cartons, plastic bottles, aluminum and steel cans, and glass. At present, the airport does not recycle hazardous or electronic waste.

DTO currently participates in a decentralized waste management system, as tenants are responsible for obtaining their respective waste/recycling services. Recycling services are available for each leasehold at DTO, and in most cases, recycling is required under the City of Denton's *Code of Ordinances* for those who enroll in a commercial waste service.

GOALS AND RECOMMENDATIONS

To maximize waste reduction and enhance recycling efforts at the airport, the following recommendations are made to achieve the goals outlined in this section.

Goal 1: Reduce the amount of solid waste generated.

- *Create a centralized waste management system at the airport.* Currently, DTO participates in a decentralized waste management system because airport tenants are responsible for overseeing their own waste management. Airport staff could consider engaging tenants to create a centralized waste management system at the airport to streamline waste management efforts at DTO.
 - *Considerations:* Implementation of incentives for FBOs and other tenants to either enhance existing recycling practices or join the airport's recycling program should be considered.
- *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 would create efficient and cost-saving solid waste management solutions. People dedicated to this operational aspect of the airport would gain familiarity with waste processes and could help identify areas of improvement and cost-saving measures.
- *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 goals.
- *Audit the current waste management system.* The continuation of an effective program requires accurate data on current waste rates. An airport can gain insight into its waste stream in several ways, such as requesting weights from the hauler, tracking the volume, or reviewing the bills; however, managing the waste system starts with a waste audit, which is an analysis of the types of waste produced. A waste audit is the most comprehensive and intensive way to assess waste stream composition, opportunities for waste reduction, and capture of recyclables, and should include the following actions.



- Examination of records
 - Evaluate waste hauling and disposal records and contracts
 - Examine supply and equipment invoices
 - Identify other waste management costs (commodity rebates, container costs, etc.)
 - Track waste from the point of origin
 - Establish a baseline for metrics
- Facility walk-through conducted by the airport
 - Gather qualitative waste information to determine major waste components and waste-generating processes
 - Identify the locations on the airport that generate waste
 - Identify what types of waste are generated by the airport to determine what can be reduced, reused, or recycled
 - Improve understanding of waste pick-up and hauling practices
- Waste sort
 - Provides quantitative data on total airport waste generation
- *Create a tracking and reporting system.* Track solid waste created at the airport to allow DTO to identify areas where a significant amount of waste is generated, which will help the airport estimate annual waste volumes. Understanding the cyclical nature of waste generation will allow the airport to estimate costs and identify areas of improvement.

Goal 2: Increase Number of Materials Recycled at DTO

- *Enhance the recycling program at the airport.* To guarantee the airport continues to reduce the amount of waste hauled to the landfill, materials that cannot be reused or avoided should be recycled, if possible. The city should review internal procedures to ensure there are no unacceptable items contaminating recycling containers or recyclables thrown in the trash. In addition, DTO can consider increasing the types of items that are recycled by including new types of waste (i.e., hazardous and electronic waste) into its existing recycling practices.
- *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 tenant education.* It is crucial to encourage tenant participation to ensure buy-in of any future recycling efforts that may be undertaken at DTO. To ensure recycling is part of the airport's everyday business, airport administration should provide training and education to support personnel, tenants, and others who conduct business at the airport. In-person meetings with airport tenants could be held to create mutual understanding of the airport's solid waste and recycling goals and how tenants play a vital role in the airport's overall success.

Goal 3: Establish Construction and Demolition Goals

- *Implement construction waste requirements in contracts for construction projects.* Contracts should highlight ways to repurpose and reuse materials/salvage and explain how recyclable materials are defined in the construction process. Additionally, contracts should establish standards and specifications in the procurement process and contracting when starting new construction projects at DTO. Other action items to consider when drafting a contract for a construction project include preparing a construction waste management plan, assigning a waste management coordinator, and tracking and reporting requirements under a construction waste management (CWM) plan.
- *Create a CWM plan.* Have the airport and its contractors adopt a CWM plan when applicable. A typical CWM plan should encompass goals and strategies to manage a project’s C&D waste. A CWM plan should also identify the types and quantities by weight for any proposed demolition, site-clearing, and/or construction waste that may be generated by the project.

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

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

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

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

ENVIRONMENTAL OVERVIEW

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

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

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

- Section 743 details the FAA’s authority to regulate uses of airport property for projects on land acquired without federal assistance and outlines limitations imposed on non-aeronautical review. Section 743 also states that a notice of intent for proposed projects outside FAA jurisdiction should be submitted to the FAA by an airport sponsor.
- Section 783 outlines that airport capacity enhancement projects, terminal development projects, and general aviation airport improvement projects will be subject to coordinated and expedited environmental review requirements. Section 783 also introduces a new process for determining which safety-related projects should be prioritized during the environmental review process.

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

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

TABLE 5D Summary of Potential Environmental Concerns	
AVIATION EMISSIONS AND AIR QUALITY	
FAA Order 1050.1G, Significance Threshold/ Factors to Consider	<i>The action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the U.S. EPA under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations.</i>
Potential Environmental Concerns	<p>Potential Impact. An increase in operations could occur over the 20+ year planning horizon of the master plan that would likely result in additional emissions. The airport is located in Denton County, which is in nonattainment for eight-hour ozone (severe-15, 2008 standard) and eight-hour ozone (serious, 2015 standard).</p> <p><i>Source: U.S. EPA, Texas Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants (https://www3.epa.gov/airquality/greenbook/anayo_tx.html), data current as of May 31, 2025</i></p>
BIOLOGICAL RESOURCES (INCLUDING FISH, WILDLIFE, AND PLANTS)	
FAA Order 1050.1G, Significance Threshold/ Factors to Consider	<i>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.</i>
<i>(Continues)</i>	



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

<p>FAA Order 1050.1G, <i>Significance Threshold/ Factors to Consider</i> (continued)</p>	<p>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:</p> <ul style="list-style-type: none"> • Long-term or permanent loss of unlisted 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.
<p>Potential Environmental Concerns</p>	<p><u>Federally Protected Species</u></p> <p>Potential Impact. According to the USFWS <i>Information for Planning and Consultation</i> (IPaC) report, there is potential for five proposed threatened, threatened, and endangered species at DTO:</p> <ul style="list-style-type: none"> • piping plover – federal threatened • rufa red knot – federal threatened • whooping crane – federal endangered • alligator snapping turtle – federal proposed threatened • monarch butterfly – federal proposed threatened <p>Out of this list, there is potential suitable habitat for the whooping crane, alligator snapping turtle, and monarch butterfly.</p> <p><u>Designated Critical Habitat</u></p> <p>No Impact. There are no designated critical habitats with airport boundaries.</p> <p><u>Non-Listed Species</u></p> <p>Potential Impact. Non-listed species of concern include those protected by the <i>Migratory Bird Treaty Act</i> (MBTA) and the <i>Bald and Golden Eagle Protection Act</i>. Bird species protected by the MBTA could be adversely affected if construction occurs during the nesting and breeding seasons (February–October). Pre-construction surveys of vegetated areas at the airport are recommended for projects that involve ground-clearing unless such projects occur outside the nesting and breeding seasons.</p> <p><u>State Protected Species</u></p> <p>Potential Impact. According to a record search conducted on the Texas Parks & Wildlife Department's <i>Annotated County Lists of Rare Species</i>, the following species have been identified as state threatened in Denton County:</p> <ul style="list-style-type: none"> • black rail – state threatened • piping plover – state threatened / federal threatened • rufa red knot – state threatened / federal threatened • white-faced ibis – state threatened • whooping crane – state endangered / federal endangered • Texas horned lizard – state threatened <p>Impacts to these species should be assessed prior to development on a project-by-project basis. The recommended development concept depicts proposed development (such as proposed hangar development on the eastern and western portions of the airport) that would require tree removal. Airport activities that involve tree-maintenance or removal activities could impact these species.</p>

(Continues)



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

COASTAL RESOURCES	
FAA Order 1050.1G, Significance Threshold/ Factors to Consider	<p><i>The FAA has not established a significance threshold for Coastal Resources. Factors to consider include whether an action would have the potential to:</i></p> <ul style="list-style-type: none"> • <i>Be inconsistent with the relevant state coastal zone management plan(s);</i> • <i>Impact a coastal barrier resources system unit;</i> • <i>Pose an impact on coral reef ecosystems;</i> • <i>Cause an unacceptable risk to human safety or property; or</i> • <i>Cause adverse impacts on the coastal environment that cannot be satisfactorily mitigated.</i>
Potential Environmental Concerns	No Impact. The airport is not located within a coastal zone; therefore, no impact to any coastal barriers would occur.
DEPARTMENT OF TRANSPORTATION ACT, SECTION 4(F) AND LAND AND WATER CONSERVATION FUND, SECTION 6(F)	
FAA Order 1050.1G, Significance Threshold/ Factors to Consider	<p><i>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 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.</i></p>
Potential Environmental Concerns	No Impact. There are no Section 4(f) resources within one mile of the airport (i.e., National Register of Historic Places [NRHP]-listed resources, wildlife/waterfowl refuges, wilderness areas, or national recreation areas). There are no Section 6(f) parcels at DTO.
FARMLANDS	
FAA Order 1050.1G, Significance Threshold/ Factors to Consider	<p><i>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).</i></p> <p><i>The FPPA applies when airport activities meet the following conditions:</i></p> <ul style="list-style-type: none"> • <i>Federal funds are involved;</i> • <i>The action involves the potential for the irreversible conversion of important farmlands to non-agricultural uses; important farmlands include pastureland, cropland, and forest considered to be prime, unique, or statewide or locally important land; or</i> • <i>None of the exemptions to the FPPA apply. These exemptions include:</i> <ul style="list-style-type: none"> ○ <i>Land that is not considered “farmland” under the FPPA, such as land that is already developed or already irreversibly converted (these instances include when land is designated as an urban area by the U.S. Census Bureau or the existing footprint includes rights-of-way);</i> ○ <i>Land that is already committed to urban development;</i> ○ <i>Land that is committed to water storage;</i> ○ <i>Construction of non-farm structures necessary to support farming operations; and</i> ○ <i>Construction/land development for national defense purposes.</i>
Potential Environmental Concerns	<p>Potential Impact. According to the NRCS Web Soil Survey, portions of the airport are comprised of soils that have been identified as <i>all areas are prime farmland or farmland of statewide importance (Exhibit 1N)</i>. Proposed changes to the airside and landside areas of the airport (i.e., 1,000-foot runway extension of Runway 18R, EMAS bed at each end of Runway 18L-36R, future pavement, roads, and buildings) could convert farmlands protected by the FPPA. Impacts should be evaluated on a project-by-project basis in consultation with the state soil conservationist and Form AD-1006 should be completed, when appropriate.</p> <p><i>Source: USDA-NRCS, Web Soil Survey (https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx)</i></p>

(Continues)



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

HAZARDOUS MATERIALS, SOLID WASTE, AND POLLUTION PREVENTION	
FAA Order 1050.1G, <i>Significance Threshold/ Factors to Consider</i>	<p>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:</p> <ul style="list-style-type: none"> • 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; • Use a different method of waste collection, treatment, storage, or disposal that, as an action, would adversely impact the site, surrounding, or affected community, and/or would exceed extant state, tribal, or local capacity; or • Adversely affect human health and the environment.
Potential Environmental Concerns	<p>No Impact. There are no identified Superfund or brownfield sites within a one-mile buffer of the airport. Prior to any proposed land acquisition (i.e., property to be acquired in association with RPZs), a Phase I site assessment should be conducted to provide a more detailed understanding of what hazardous materials may be located on the land to be purchased.</p> <p>Due to existing regulatory environmental management regarding hazardous materials and waste and stormwater, no impacts related to ultimate airport development are anticipated.</p> <p>The construction of proposed hangars on the airport would increase solid waste. No long-term impacts related to solid waste disposal are expected. The recommended development concept does not include land uses that would produce an appreciably different quantity or type of hazardous waste; however, should this type of land use be proposed, further NEPA review and/or permitting would be required. There are no known hazardous material or active waste contamination sites on airport property.</p> <p><i>Source: NEPAassist (https://nepassisttool.epa.gov/nepassist/nepamap.aspx), accessed July 2025</i></p>
HISTORICAL, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES	
FAA Order 1050.1G, <i>Significance Threshold/ Factors to Consider</i>	<p>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).</p>
Potential Environmental Concerns	<p>Potential Impact. There are no listed NRHP resources on airport property. At the time of this report, no systematic airport-wide cultural surveys have been conducted, and while much of the airport has been developed, there is still a chance intact cultural resources may be present on the ground surface.</p>
LAND USE	
FAA Order 1050.1G, <i>Significance Threshold/ Factors to Consider</i>	<p>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.</p>
Potential Environmental Concerns	<p>Potential Impact. Proposed airport improvements include an extension of Runway 18R, the construction of an EMAS bed at each end of Runway 18L and 36R, construction of new taxiway pavements, rerouting of the perimeter road, proposed hangar development and associated infrastructure, and non-aeronautical, aeronautical, and AAM use reserves. As mentioned earlier in the text under <i>Farmlands</i>, the proposed development would occur in areas that are comprised of soils suitable for farming; thus, coordination may need to be undertaken with the FPPA on a project-by-project basis. In addition, portions of the perimeter road to be rerouted and the installation of an EMAS bed near Runway 18L would be located in a floodplain.</p>

(Continues)



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

Potential Environmental Concerns (continued)	Exhibit 5A depicts property to be protected via aviation easement within DTO's RPZs. These property aviation easements are recommended to give the airport control over what land uses may be permitted within the airport's RPZs.
NATURAL RESOURCES AND ENERGY SUPPLY	
FAA Order 1050.1G, Significance Threshold/ Factors to Consider	<i>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 or adversely impact extant federal, tribal, state, or local resource planning that is already in place.</i>
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. If long-term impacts become a concern, coordination with local service providers is recommended.
NOISE AND NOISE-COMPATIBLE LAND USE	
FAA Order 1050.1G, Significance Threshold/ Factors to Consider	<p><i>The significance threshold applies to all civil aviation activities, including aircraft and airports; UAS and hubs; AAM and vertiports; and commercial space vehicles and launch/reentry sites.</i></p> <p><i>The action would result in noise exposure from impulsive noise sources that meet or exceed CDNL (equivalent to DNL 65 dBA [A-weighted decibels]).</i></p> <p><i>The action would increase noise by DNL 1.5 decibels (dB) or more for a noise-sensitive area that is exposed to noise at or above the 65-dB DNL noise exposure level, or that will be exposed at or above the 65-dB DNL level due to a 1.5-dB DNL or greater increase, when compared to the no-action alternative for the same timeframe.</i></p> <p><i>Another factor to consider is that special consideration should be given to the evaluation of the significance of noise impacts on noise-sensitive areas within Section 4(f) properties where the land use compatibility guidelines in Title 14 CFR Part 150 are not relevant to the value, significance, and enjoyment of the area in question.</i></p>
Potential Environmental Concerns	<p>Potential Impact. Exhibit 5G shows existing and future noise contours for the airport. As shown on the exhibit for existing conditions, the 65 DNL noise exposure (yellow contour) is slightly outside airport boundaries east of the Runway 18L threshold. In the future noise contours, the 65 DNL extends slightly farther out in the same area; however, in the existing and future conditions, the 65 DNL would not traverse over noise-sensitive land use. The future development at the airport is not expected to change the overall noise environment by more than the 1.5-dB threshold; however, this should be confirmed prior to implementing a runway extension on Runway 18R, as depicted on Exhibit 5A.</p> <p>There are noise-sensitive land uses (i.e., residential neighborhoods, a school, and a place of worship) within a one-mile radius (Exhibit 1N). It is important to note that operational growth will not result in noise impacts under FAA Order 1050.1G unless tied to a specific project. Impacts to noise-sensitive land uses are evaluated through NEPA documentation for specific projects or through the voluntary Part 150 process.</p>
SOCIOECONOMICS AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS	
Socioeconomics	
FAA Order 1050.1G, Significance Threshold/ Factors to Consider	<p><i>The FAA has not established a significance threshold for Socioeconomics; however, factors to consider include whether an action would have the potential to:</i></p> <ul style="list-style-type: none"> • <i>Disrupt or divide the physical arrangement of an established community;</i> • <i>Cause extensive relocation when sufficient replacement housing is unavailable;</i> • <i>Cause extensive relocation of community businesses that would cause severe economic hardship for affected communities;</i> • <i>Disrupt local traffic patterns and substantially reduce the levels of service of roads serving the airport and its surrounding communities; or</i> • <i>Produce a substantial change in the community tax base.</i>

(Continues)



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

Potential Environmental Concerns	<p>Potential Impact. The proposed development on airport property could encourage economic growth for Denton County. This growth could include new construction jobs, new jobs for the airport and other commercial uses, new housing, and increases to the local tax base.</p> <p>Exhibit 5C identifies an area on the western side of the airport that has been identified for a future aeronautical reserve. Development of this reserve could increase vehicle traffic and could change the levels of service for roads leading to and within the airport, such as Tom Cole Road. South of this proposed aeronautical use reserve, a highway is proposed (see Exhibit 5C) that could relieve traffic from local service roads.</p> <p>Ultimately, the long-term changes to the level of service on roads are determined by the type of use proposed, and it may be necessary to perform a traffic study to ensure service is not substantially impacted and/or identify mitigation measures to be addressed. In the short term, during the construction of improvements at the airport, there could be temporary disruptions to surface traffic patterns.</p>
Children's Health and Safety Risks	
FAA Order 1050.1G, Significance Threshold/ Factors to Consider	The FAA has not established a significance threshold for Children's Environmental Health and Safety Risks; however, factors to consider include whether an action would have the potential to lead to a disproportionate health or safety risk to children.
Potential Environmental Concerns	No Impact. No disproportionately high or adverse impacts are anticipated to affect children living near DTO because of the proposed ultimate development. The closest residents live southeast of the airport along Underwood Road. No parks or other recreational facilities are located within a mile of the airport. The airport is an access-controlled facility and children are not allowed within the fenced portions of the airport without adult supervision. All construction areas should be controlled to prevent unauthorized access.
VISUAL EFFECTS	
Light Emissions	
FAA Order 1050.1G, Significance Threshold/ Factors to Consider	The FAA has not established a significance threshold for Light Emissions; however, a factor to consider is the degree to which an action would have the potential to:
Potential Environmental Concerns	<ul style="list-style-type: none"> • Create annoyance or interfere with normal activities from light emissions; or • 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. <p>No Impact. Existing lighting at the airport includes medium intensity runway edge lights (MIRLs), medium intensity taxiway edge lights (MITL), and lighted guidance signs. Similar light fixtures are anticipated to be installed with the construction of the proposed airfield pavement improvements.</p> <p>A 1,000-foot runway extension is proposed on Runway 18R. Other airfield improvements include the construction of two new parallel taxiways, the expansion of holding aprons, and the construction of EMAS beds for Runway 18L-36R. Night lighting during construction phases within the runway environment is typically directed downward to the construction work area to prevent light spilling outside the airport boundaries. Other ultimate projects, such as proposed hangars on the west and east sides of the airport would include new light fixtures during the operation of the new facilities. Building security lights would be directed downward and would not create glare issues for users on nearby roadways. The closest residential neighborhood (i.e., light-sensitive land use) to DTO is located 0.44 miles southeast of the airport.</p>
Visual Resources/Visual Character	
FAA Order 1050.1G, Significance Threshold/ Factors to Consider	The FAA has not established a significance threshold for Visual Resources/Visual Character; however, a factor to consider is the extent to which an action would have the potential to:
	<ul style="list-style-type: none"> • 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; or • Block or obstruct the views of the visual resources, including whether these resources would still be viewable from other locations.

(Continues)



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

Potential Environmental Concerns	<p>No Impact. As depicted on Exhibit 5C, the construction of a highway is proposed on the west side of the airport, along with land slated for a non-aeronautical reserve and AAM use reserve. This area is primarily vacant and would not affect the nature of the visual character of the area, which has been identified as a public facility land use. Furthermore, there are no national scenic byways or state scenic byways within a one-mile radius of DTO.</p>
WATER RESOURCES	
Wetlands	
FAA Order 1050.1G, Significance Threshold/ Factors to Consider	<p>The action would:</p> <ul style="list-style-type: none"> • 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; • 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; • Substantially reduce the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety, or welfare (the term welfare includes cultural, recreational, and scientific resources or property important to the public); • 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; • Promote the development of secondary activities or services that would cause the circumstances listed above to occur; or • Be inconsistent with applicable state wetland strategies.
Potential Environmental Concerns	<p>Potential Impact. Based on aerial mapping conducted by the National Wetlands Inventory, there are freshwater/forested shrub wetlands on the western portion of the airport, which are associated with Hickory Creek (Exhibit 1R). Exhibit 5C depicts the potential for a proposed non-aeronautical reserve and AAM use reserve, the latter of which would house a vertiport.</p> <p>Field surveys and wetland delineations may be required to determine the presence or absence of wetlands at the airport. Removal or relocation of wetlands may require a Section 404 permit under the <i>Clean Water Act</i>, which regulates the discharge of dredged or fill material into waters of the United States, including wetlands.</p> <p>Additionally, these wetlands are associated with the city's mapped environmentally sensitive areas and field assessments may be required prior to development within these areas.</p> <p><i>Source: National Wetlands Inventory (https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/), accessed July 2025</i></p>
Floodplains	
FAA Order 1050.1G, Significance Threshold/ Factors to Consider	<p>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 Department of Transportation (DOT) Order 5650.2, Floodplain Management and Protection.</p>
Potential Environmental Concerns	<p>Potential Impact. Based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM), the majority of the airport is located in an area of minimal flood hazard; however, there are 100-year and 500-year floodplains along the northern, southern, and western boundaries, as depicted on Exhibit 5A. The following development would encroach on floodplains:</p> <ul style="list-style-type: none"> • Construction of EMAS bed near Runway 18L • Reroute of perimeter road • Designation of non-aeronautical use reserve and AAM use reserve <p>All development in areas that contain floodplains will need to comply with the city's Code of Ordinances, Chapter 30, <i>Flood Prevention and Protection</i>, and applicable building permits.</p> <p><i>Source: FEMA, Flood Map Service Center (https://msc.fema.gov/portal/home), accessed July 2025</i></p>

(Continues)



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

Surface Waters	
<p>FAA Order 1050.1G, <i>Significance Threshold/ Factors to Consider</i></p>	<p>The action would:</p> <ul style="list-style-type: none"> • <i>Exceed water quality standards established by federal, state, local, and tribal regulatory agencies; or</i> • <i>Contaminate public drinking water supply such that public health may be adversely affected.</i> <p>Factors to consider include whether the action would have the potential to:</p> <ul style="list-style-type: none"> • <i>Adversely affect natural and beneficial water resource values to a degree that substantially diminishes or destroys such values;</i> • <i>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</i> • <i>Present difficulties based on water quality impacts when obtaining a permit or authorization.</i>
<p>Potential Environmental Concerns</p>	<p>Potential Impact. The proposed development depicted on Exhibits 5A, 5B, and 5C would increase impervious surfaces at DTO with the construction of additional pavement for taxiways, apron areas, holding aprons, and more.</p> <p>A National Pollutant Discharge Elimination System (NPDES) general construction permit would be required for all projects that involve ground disturbance over one acre. FAA AC 150/5370-10H, Item C-102, <i>Temporary Air and Water Pollution, Soil Erosion, and Siltation Control</i>, should also be implemented during construction projects at the airport.</p>
Groundwater	
<p>FAA Order 1050.1G, <i>Significance Threshold/ Factors to Consider</i></p>	<p>The action would:</p> <ul style="list-style-type: none"> • <i>Exceed groundwater quality standards established by federal, state, local, and tribal regulatory agencies; or</i> • <i>Contaminate an aquifer used for public water supply such that public health may be adversely affected.</i> <p>Factors to consider include whether the action would have the potential to:</p> <ul style="list-style-type: none"> • <i>Adversely affect natural and beneficial groundwater values to a degree that substantially diminishes or destroys such values;</i> • <i>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</i> • <i>Present difficulties based on water quality impacts when obtaining a permit or authorization.</i>
<p>Potential Environmental Concerns</p>	<p>No Impact. Based on NEPAassist, there is one U.S. Geological Survey (USGS) groundwater well on the airport. Impacts to this well are not anticipated as a result of the recommended improvements at DTO. The closest sole source aquifer is the Arbuckle-Simpson Aquifer, which is located 80 miles from DTO.</p> <p>Sources: U.S. EPA, <i>Sole Source Aquifer Map</i> (https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b), accessed July 2025; NEPAassist (https://nepassisttool.epa.gov/nepassist/nepamap.aspx), accessed July 2025</p>
Wild and Scenic Rivers	
<p>FAA Order 1050.1G, <i>Significance Threshold/ Factors to Consider</i></p>	<p>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 considered for designation) through:</p> <ul style="list-style-type: none"> • <i>Destroying or altering a river's free-flowing nature;</i> • <i>A direct and adverse effect on the values for which a river was designated (or is under study for designation);</i>

(Continues)



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

<p>FAA Order 1050.1G, <i>Significance Threshold/ Factors to Consider</i> (continued)</p>	<ul style="list-style-type: none"> • <i>Introducing a visual, audible, or another type of intrusion that is out of character with the river or would alter outstanding features of the river's setting;</i> • <i>Causing the river's water quality to deteriorate;</i> • <i>Allowing the transfer or sale of property interests without restrictions needed to protect the river or the river corridor; or</i> • <i>Any of the above impacts preventing a river on the Nationwide Rivers Inventory (NRI) or a Section 5(d) river that is not included in the NRI from being included in the Wild and Scenic River System or causing a downgrade in its classification (e.g., from wild to recreational).</i>
<p>Potential Environmental Concerns</p>	<p>No Impact. There are no wild and scenic rivers or rivers listed on the NRI near the airport. The closest designated wild and scenic river identified is the Cossatot River, which is located more than 185 miles from the airport. The nearest NRI feature is a segment of Brazos River, which is located more than 55 miles away from the airport.</p> <p><i>Source: National Wild and Scenic Rivers System (https://rivers.gov/), accessed July 2025; Nationwide Rivers Inventory (https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm), accessed July 2025</i></p>

SUMMARY

The best way to begin implementation of the recommendations in the master plan is to first recognize that planning is a continuous process that does not end with the completion and approval of this document. Rather, the ability to continuously monitor the existing and forecasted status of airport activity must be provided and maintained. The issues on which the master plan is based will remain valid for many years. The primary goal is for DTO 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 DTO 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 DTO staff, thereby improving the plan's effectiveness.

In summary, the planning process requires DTO 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.