DALLAS
FORT WORTH
INTERNATIONAL
AIRPORT

Draft Environmental Assessment

Runway 18L/36R Rehabilitation Project

SUBMITTED BY:

Dallas Fort Worth International Airport

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DRAFT ENVIRONMENTAL ASSESSMENT

Runway 18L/36R Rehabilitation Project

Dallas Fort Worth International Airport

Tarrant County, Texas

Prepared for:

Texas Airport District Office [ASW-650]

Federal Aviation Administration

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Responsible FAA Official	Date

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ACRONYMS AND ABBREVIATIONS

AAD	Average Annual Day
AC	Advisory Circular
ADG	Airplane Design Group
AEDT	Airport Environmental Design Tool
AGL	Above Ground Level
ALP	Airport Layout Plan
ANP	Aircraft Noise Performance
APE	Area of Potential Effects
APU	Auxiliary Power Units
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CO	Carbon Monoxide
CMMP	Contaminated Media Management Plan
CSPP	Construction Safety and Phasing Plan
CWA	Clean Water Act
dB	Decibel
DFW	Dallas Fort Worth International Airport
DNL	Day-Night Average Sound Level
DSHS	Department of State Health Services
DOT	Department of Transportation
EA	Environmental Assessment
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FOD	Foreign Object Debris
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FY	fiscal year
GHG	Greenhouse Gases
GSE	Ground Support Equipment
LOB	Lines of Business
LWCF	Land and Water Conservation Fund
MALSR	Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights
MBTA	Migratory Bird Treaty Act
MMS	Materials Management Site
MOVES	Motor Vehicle Emissions Simulator
MSW	Municipal Solid Waste
NAA	No Action Alternative
NAAQS	National Ambient Air Quality Standards
NAVAIDS	Navigational Aids
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHRP	National Register of Historic Places
nmi	Nautical Miles
NO_2	Nitrogen Dioxide
NOMS	Noise and Operations Monitoring System
NOx	Nitrogen Oxides
NPIAS	National Plan of Integrated Airport Systems
NPL	National Priorities List
NSA	Noise Study Area
NSR	New Source Review
NWHP	Northwest Holdpad
O_3	Ozone
OPSNET	FAA's Operations Network
PAPI	Precision Approach Pathway Indicator
Pb	Lead
PCI	Pavement Condition Index
PDD	Project Definition Document
PM	Particulate Matter
PM_{10}	Particulate matter with a diameter less than 10 micrometers
$PM_{2.5}$	Particulate matter with a diameter less than 2.5 micrometers
PSL	Project Support Locations
RFP	Reasonable Further Progress
RWIS	Runway Weather Information System
RWSL	Runway Status Lights
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	Sulphur Dioxide
SPCC	Spill Prevention, Control, and Countermeasures
SWHP	Southwest Holdpad
SWPPP	Stormwater Pollution Prevention Plan
TAF	Terminal Area Forecast
TCEQ	Texas Commission on Environmental Quality
TDG	Taxiway Design Group
THC	Texas Historical Commission
TPD	Tons per Day

TPY	Tons per Year
TPDES	Texas Pollutant Discharge Elimination System
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
VOC	Volatile Organic Compounds
WOTUS	Waters of the United States

SECTION 1.0 INTRODUCTION

1.1 National Environmental Policy Act (NEPA) Authority

This Draft Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969. NEPA requires federal agencies to (1) analyze the environmental impacts of their proposed actions, (2) identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions, (3) consider relevant and reasonable mitigation measures, and (4) provide interested parties with an opportunity to participate in the environmental review process.

The Federal Aviation Administration (FAA) is the Lead Federal Agency to ensure compliance with NEPA for the purpose of the Proposed Project. Under NEPA, the FAA is required to consider potential environmental impacts before funding or approving projects over which it has authority.[1] All airport improvement projects that are considered to be a major federal action, including through the receipt of federal funding, must be examined from an environmental standpoint, to comply with NEPA, the Airport and Airway Improvement Act of 1982, as amended, and other pertinent laws, and regulations. FAA's NEPA policies and procedures are set forth in FAA Order 1050.1G, *FAA National Environmental Policy Act Implementing Procedures* (FAA, 2025), FAA Order 1050.1 Desk Reference (FAA, 2023), and FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions* (FAA, 2006). FAA also adheres to the NEPA policies and procedures established in Department of Transportation (DOT) Order 5610.1D, *DOT's Procedures for Considering Environmental Impacts* (DOT, 2025).

The purpose of this EA is to analyze the potential environmental impacts of the proposed Runway 18L/36R Rehabilitation Project (Proposed Project or Proposed Action). This EA also includes public and agency coordination documents used to communicate the results of the environmental analyses, as well as to gather input from the public and regulatory agencies consulted. FAA will use the findings in the EA to determine whether to prepare an Environmental Impact Statement or a Finding of No Significant Impact (FONSI).

1.2 Project Sponsor

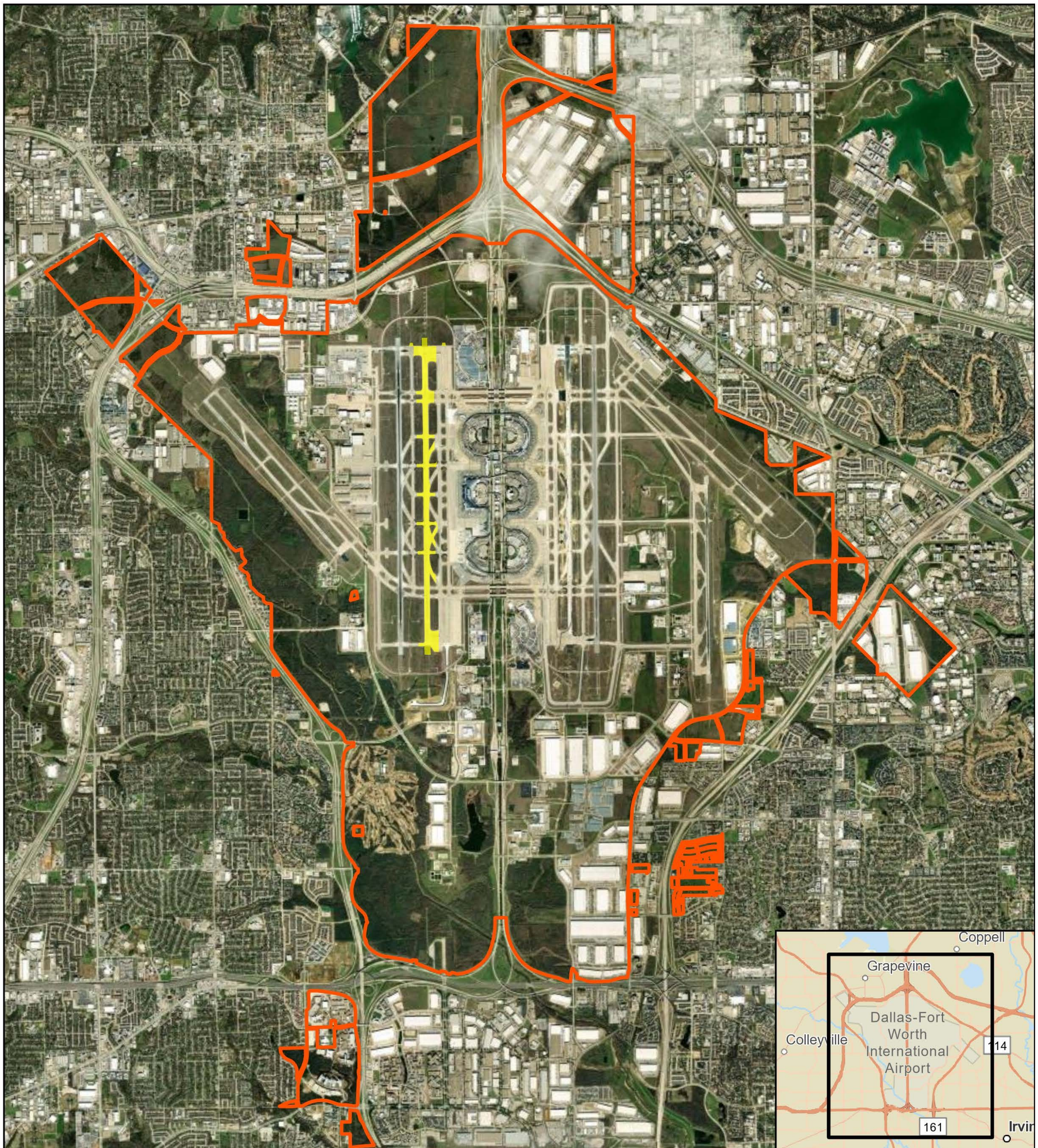
The Project Sponsor is the Dallas Fort Worth International Airport Board (DFW Board), located in Dallas and Tarrant counties, Texas.

1.3 Background

DFW is a commercial service airport that currently encompasses 17,207 acres (approximately 27 square miles) in Dallas and Tarrant counties. In the National Plan of Integrated Airport Systems (NPIAS, 2022), the FAA classifies the Airport as a large hub primary commercial service airport. DFW's airfield system consists of seven runways (13L/31R, 13R/31L, 17C/35C, 17L/35R, 17R/35L, 18L/36R, and 18R/36L). DFW has five passenger terminals named Terminals A, B, C, D, and E. **Figure 1-1** shows the general location map of DFW Airport, including its airfield and terminal areas.

[1] Recent changes in federal law (i.e. the FAA Reauthorization Act of 2018 and the FAA Reauthorization Act of 2024) have required FAA to revisit whether FAA approval is needed for certain types of projects. After review or the project scope and discussions pertaining to grant funding, FAA has determined that it has approval authority over the Proposed Runway 18L/36R rehabilitation project, assessed in this EA.

Figure 1-1. DFW Airport Property and Runway 18L/36R Location Map



0 5,000 10,000 Feet N	Project Location DFW Property Boundary	Project Location DFW Runway 18L/36R

HDR	Sources: Runway 18L/36R Rehabilitation – Project Definition Document (p. 21). (January 2025).;City of Fort Worth, City of Grapevine, Texas Parks & Wildlife, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USFWS, Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community	May 2025	Figure 1-1

O:\10431164_10189_DFW Runway 18L35R EA\7.2_WIP\Deliverables\Environmental\ProjectLocation.pdf

Runway 18L/36R is 13,401 feet long and serves as DFW's west airfield primary departure runway. Runway 18L/36R is 200 feet wide with 40-foot-wide asphalt shoulders and accommodates Airplane Design Group (ADG) VI.

The Proposed Project is part of DFW Airport's Comprehensive Runway Rehabilitation Program, which started in 2018. This comprehensive rehabilitation program started with the rehabilitation of Runway 17C/35C from May 2018 to March 2019. In June 2020, DFW then initiated a project to rehabilitate Runway 18R/36L, which was completed in April 2021. In August 2023, DFW started the Runway 17R/35L rehabilitation project and completed it in October 2024. Runway 18L/36R is the fourth runway in the rehabilitation program; based on the 2019 pavement condition index (PCI) report, the condition of the keel section received a "fair" score of 66 and needed rehabilitation to restore the asset to good condition, reduce the number of unplanned runway closures and reduce maintenance costs. Since 2019, the Runway 18L/36R pavement has continued to deteriorate and evaluations of the pavement conditions showed signs of continued distress and deficiencies attributed to age infrastructure and inadequate drainage conditions. Similar to the recently completed projects in the Comprehensive Runway Rehabilitation Program, the Runway 18L/36R Rehabilitation Project will also include installation of an asphalt overlay that will provide a reliable operational surface and standard maintenance cycle that aligns with the previous runway rehabilitation projects.

1.4 Federal Actions

The federal actions necessary for implementation of the Proposed Action include:

1. Determination under 49 U.S. Code (USC) §§ 40103(b) and 47107(a)(16), relating to the eligibility of the Proposed Action for federal funding under the Airport Improvement Program,
2. Determination under 49 USC § 40117, as implemented by 14 Code of Federal Regulations (CFR) § 158.25, to impose and use passenger facility charges collected at the airport to assist with construction of potentially eligible items shown on the Airport Layout Plan (ALP),
3. Unconditional approval of the ALP portion depicting the Proposed Action as described in this document, in **Section 3.3** and shown in Figure **3-1**, and
4. Modification, relocation, and/or upgrade of FAA-owned navigational aids (NAVAIDS) serving Runway 18L/36R.

SECTION 2.0 PURPOSE AND NEED

2.1 Purpose

The purpose of the Proposed Project is to rehabilitate the existing Runway 18L/36R, a mission critical asset, and extend its structural life, as well as reduce operational impacts and maintenance costs. The Proposed Project will restore the structural integrity of the runway pavement, enhance its functional performance, and improve Runway 18L/36R and adjacent taxiway conditions to meet current FAA design standards and Advisory Circular (AC) guidelines, thus ensuring DFW's airfield continues to support safe and efficient operations.

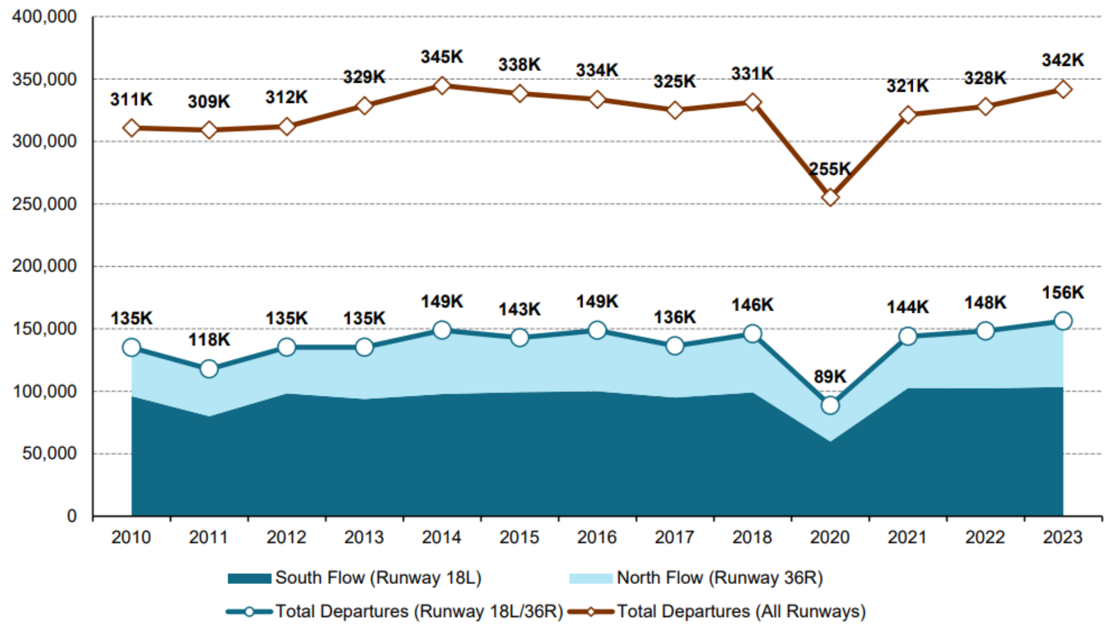
Since its opening in 1974, Runway 18L/36R has not undergone rehabilitation to address its pavement and utility deficiencies. While ongoing maintenance and select panel replacements have helped maintain operations to date, Runway 18L/36R has now reached a critical point on the pavement maintenance curve and does not meet current FAA design standards and AC guidelines. As such, complete rehabilitation of the runway and adjacent taxiways is required to extend its service life and ensure long-term operational reliability.

2.2 Need

Runway 18L/36R is one of DFW's mission critical departure runways; it serves as an all-weather runway with the capacity to support large aircraft operations by ADG VI passenger and cargo aircraft. Since 2010, Runway 18L/36R has supported more than 40 percent of all departing aircraft operations at DFW (**Figure 2-1**). In 2023, Runway 18L/36R served more than 156,000 departure operations, representing approximately 46 percent of all departures at DFW. Within the FAA southwest region, which includes small-, medium-, and large-hub airports in Texas, Oklahoma, Louisiana, New Mexico, and Arkansas, DFW accounts for approximately 25 percent of the total operations, and Runway 18L/36R accounts for nearly 6 percent of the total operations. As air travel demand continues to increase, Runway 18L/36R is projected to support over 208,000 annual departure operations by 2038. **Figure 2-2** shows the recent-past and forecast number of departure operations for Runway 18L/36R. See **Appendix A** for additional details on aircraft operations.

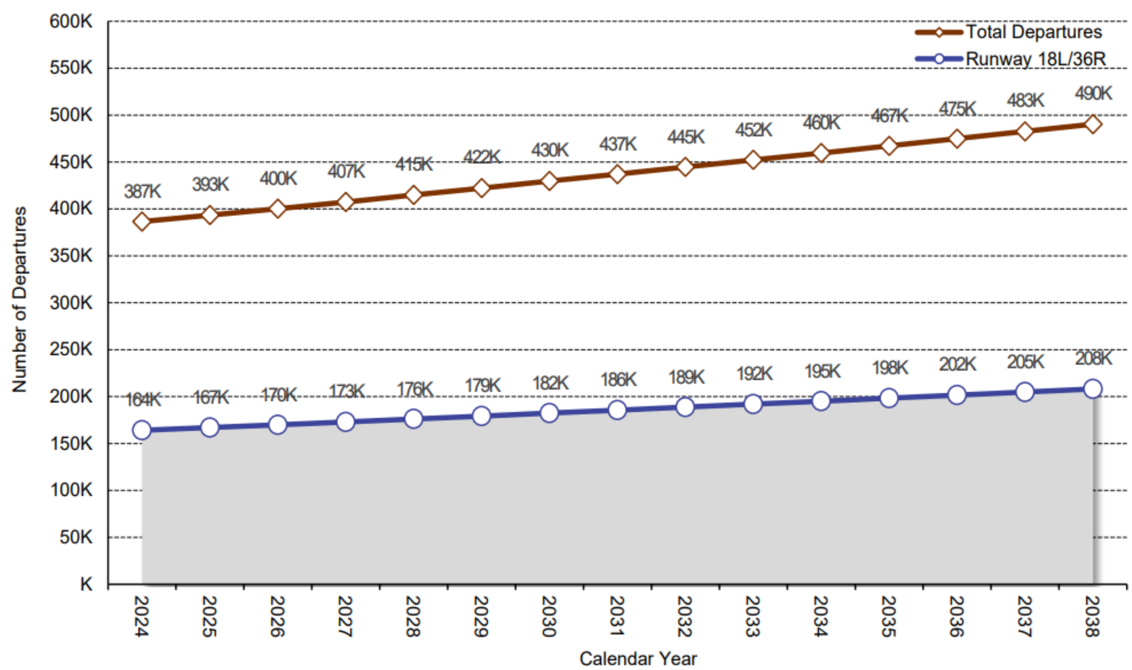
PCI surveys conducted in 2020 indicated that the keel section of the original (1974) runway pavement was 64 (Fair), while the extended sections of the runway had a PCI of 77 (PDD 2025). The PCI is used to rate pavement conditions, and ranges from 0-100, with 0 being the worst condition, and 100 being good condition. Pavement with a PCI score of 0 to 25 is considered to have failed or to be in serious/poor condition, usually needing major reconstruction. Pavement with a PCI of 26 to 54 is considered to be in poor condition, and pavement with a PCI of 55 to 69 is considered to be in fair condition, both of which usually require major rehabilitation. Pavement with a PCI of 70 to 85 is considered to be in satisfactory condition, and in need of pavement preservation and routine maintenance; and pavement with a PCI of 85 to 100 is considered to be in good condition, only needing routine maintenance to preserve the asset.

Figure 2-1. Runway 18L/36R Historic Operations (2010 to 2023)



Source: DFW Runway 18L/36R Rehabilitation PDD, January 2025

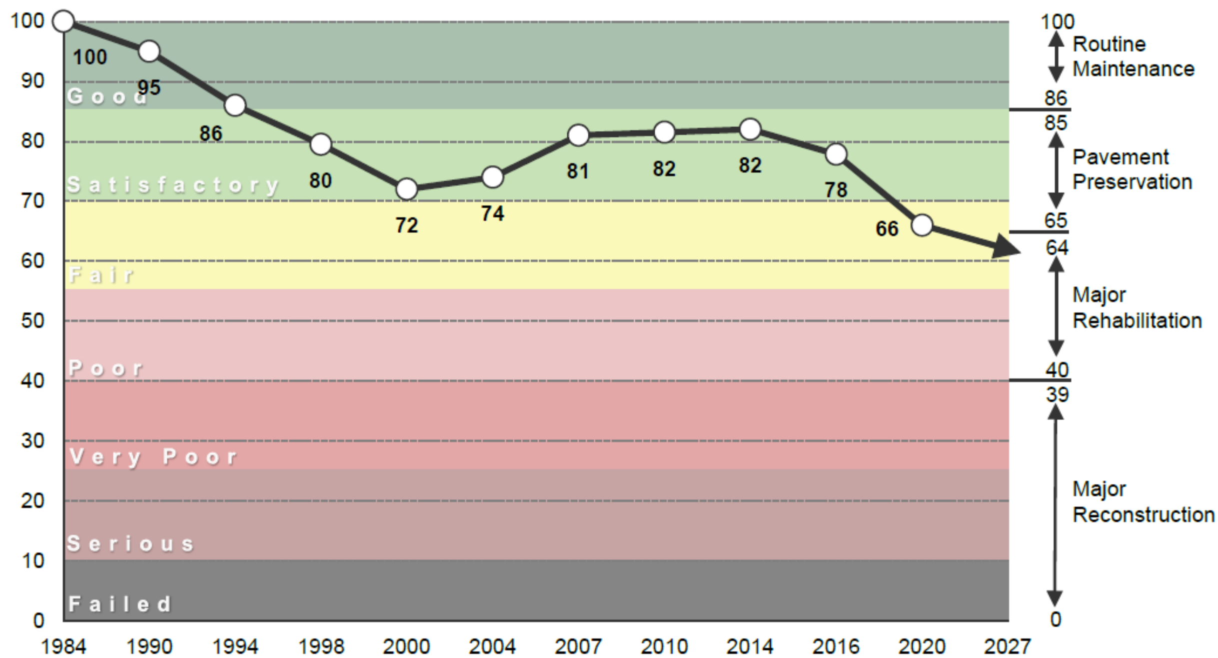
Figure 2-2. Runway 18L/36R Recent-Past and Forecasted Departure Operations (2024 – 2038)



Source: DFW Runway 18L/36R Rehabilitation PDD, January 2025

The historical PCI for the keel section of Runway 18L/36R are shown in **Figure 2-3**. As shown in the figure, the overall PCI for Runway 18L/36R declined from 82 (Satisfactory) in 2014 to 66 (Fair) in 2020, and due to the increased number of departure operations on Runway 18L/36R, the PCI has continued to trend downwards and is approaching the PCI levels associated with a need for major rehabilitation. Although Runway 18L/36R has undergone routine maintenance, it has not undergone comprehensive rehabilitation since opening in 1974. During pavement condition assessment of the runway and adjacent support facilities, DFW observed pavement distresses, cracking, joint seal damage, and panel deterioration, particularly in high-load areas. Routine maintenance is no longer sufficient to address the challenges, and without the proposed rehabilitation, the runway will continue to deteriorate. Furthermore, the projected growth in operations will result in an increase in the number of aircraft using Runway 18L/36R, and further deterioration and damage to the pavement subbase. Without the proposed project, the runway PCI would further decline, thus requiring costly maintenance and lengthy runway closures that would disrupt operations.

Figure 2-3. Runway 18L/36R Pavement Condition Index Results Summary



Source: DFW Runway 18L/36R Rehabilitation PDD, January 2025

The Proposed Project is needed to reinstate Runway 18L/36R to good condition, reduce the number of unplanned runway closures, and extend the runway's useful life. Furthermore, the Proposed Project is needed to update the runway and associated facilities to meet the current FAA design standards and FAA AC guidelines.

SECTION 3.0 ALTERNATIVES

FAA Orders 1050.1G and 5050.4B set forth policies and procedures to be followed when assessing the environmental impacts of aviation-related projects in compliance with NEPA. The FAA orders require a thorough objective assessment of the Proposed Action, No Action Alternative (NAA), and all "reasonable" alternatives that would achieve the stated purpose and need of the Proposed Action. The alternatives analysis presented in this section of the Draft EA is consistent with the requirements of FAA Orders 1050.1G and 5050.4B.

The process to identify the range of initial alternatives to be considered is described in this section. Only those alternatives that would satisfy the purpose and need, as detailed in **SECTION 2.0**, were carried forward in the environmental analysis. Since the Proposed Action is rehabilitation of an existing runway, there are no other prudent or feasible action alternatives. Therefore, the NAA and the preferred Proposed Action Alternative were evaluated in this Draft EA. A comparative summary of the anticipated environmental effects of the alternatives carried forward is presented in **Section 3.4**.

3.1 Alternatives Evaluation Process

As indicated previously in **SECTION 2.0**, the purpose and need for the proposed action has been carefully examined and documented. This analysis of alternatives was prepared to determine which alternatives might feasibly meet the purpose and need statement.

Because the Proposed Project is part of a comprehensive runway rehabilitation program, Runway 18L/36R was selected as the project site. As such, the selected site is the only area that would serve the purpose and need of the Proposed Project. No alternative sites would suit the purpose of the proposed runway rehabilitation project. The project support locations (PSLs), which include staging areas, contractor yards, and batch plant sites, were selected based on the area's proximity to Runway 18L/36R.

The alternatives analyzed in this assessment include:

1. The No Action Alternative (NAA), and
2. The Proposed Action Alternative with two phases:
    - Phase 1 – Night closures of Runway 18L/36R and the temporary relocated threshold of Runway 36R, maintaining approximately 9,273 feet of usable runway length.
    - Phase 2 – Full closure of Runway 18L/36R.

3.2 No Action Alternative

Inclusion of an NAA in environmental analysis and documentation is required under NEPA. The NAA is used to evaluate the effects of not constructing the project, thus providing a benchmark against the action alternatives may be evaluated. Under the NAA, DFW would not implement the proposed Runway 18L/36R Rehabilitation Project. The runway would continue to deteriorate and DFW would not be able to preserve the structural integrity of the runway. Furthermore, the potential for Foreign Object Debris (FOD) would increase which would impact safe airfield operations. The NAA does not meet the stated purpose and need for this project. However, to satisfy the intent of NEPA, FAA Order 1050.1G: *National Environmental Policy Act Implementing Procedures* and

FAA Order 5050.4B: *Implementing Instructions for Airport Actions*; and other special purpose environmental laws, the NAA is carried forward in the analysis of environmental consequences.

3.3 Proposed Action Alternative

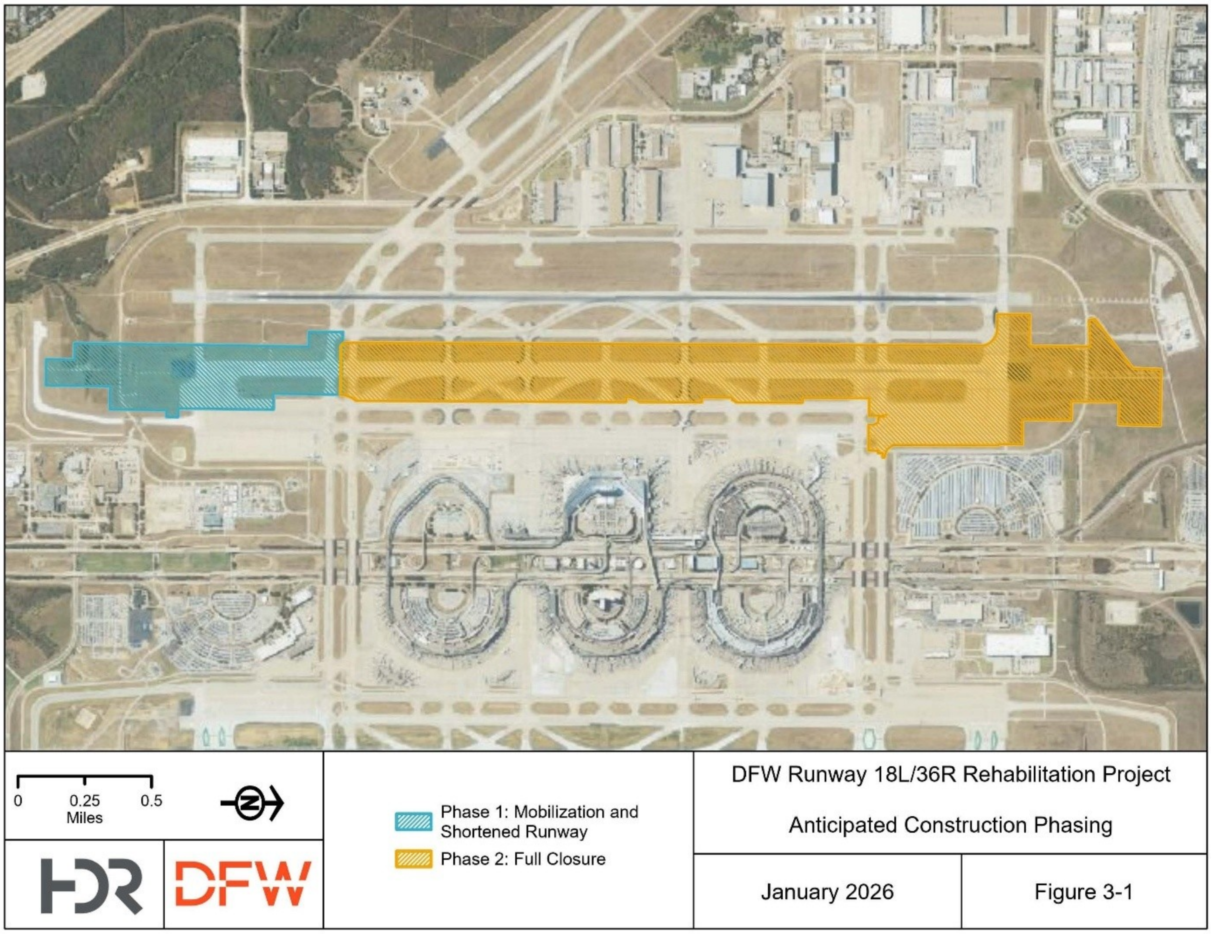
Under the Proposed Action Alternative—the sponsor's preferred alternative—the rehabilitation of Runway 18L/36R would consist of a closure of the runway from May 2026 through April 2027. During the period when the runway is closed, all aircraft operations would be moved from Runway 18L/36R; this change in aircraft operations and runway utilization operations would be temporary, during the construction period only. The Proposed Action would include two phases (Figure **3-1**):

- ***Phase 1*** would generally consist of construction of the PSLs at the north end of the project area. Near the end of Phase 1, Runway 18L/36R would be closed nightly for partial depth saw cutting. Phase 1 would be scheduled to start in May 2026 and run through August 2026. During this phase, the Runway 36R threshold would be relocated and partial demolition of Runway 36R Run-Up Area would occur. The temporary relocation of the threshold would maintain a usable runway length of approximately 9,273 feet for ADG-III operations. The Southwest Holdpad (SWHP) will be utilized for hardstand operations for up to ADG-VI aircraft.
- ***Phase 2*** would consist of the construction of an additional PSL and the demolition and reconstruction of the runway, connecting taxiways and rehabilitation of the Northwest Holdpad (NWHP). Phase 2 would start in August 2026 and continue through April 2027. This phase would require the full closure of the runway. Taxiway WM would always remain open.

The detailed project scope shown in **Figure 3-2** includes the following:

Pavement and rehabilitation
    - Select panel replacement, joint seal, and spall repair
    - Reduce width of runway from 200 feet to 150 feet
    - Full-depth reconstruction of shoulder pavements to meet FAA AC 150/5300-13B Change 1 requirement
    - Full depth reconstruction of the blast pad to meet ADG VI runway design standards
    - Application of 6-inch Hot Mix Asphalt (HMA) overlay
- Non-FAA circuit rehabilitation (will be removed and either moved to a new location or returned to current location)
    - Touchdown zone, centerline, and edge light emitting diode (LED) upgrades
    - Manholes replaced with junction can plazas
    - Replacement of in-pavement can lights including taxiways
    - Non-standard signs with pig tails
    - Temperature sensors
    - Electrical box relocation (ADG-VI obstruction)
    - Removal of old electrical infrastructure in the SWHP

Figure 3-1. Runway 18L/36R Proposed Construction Phasing

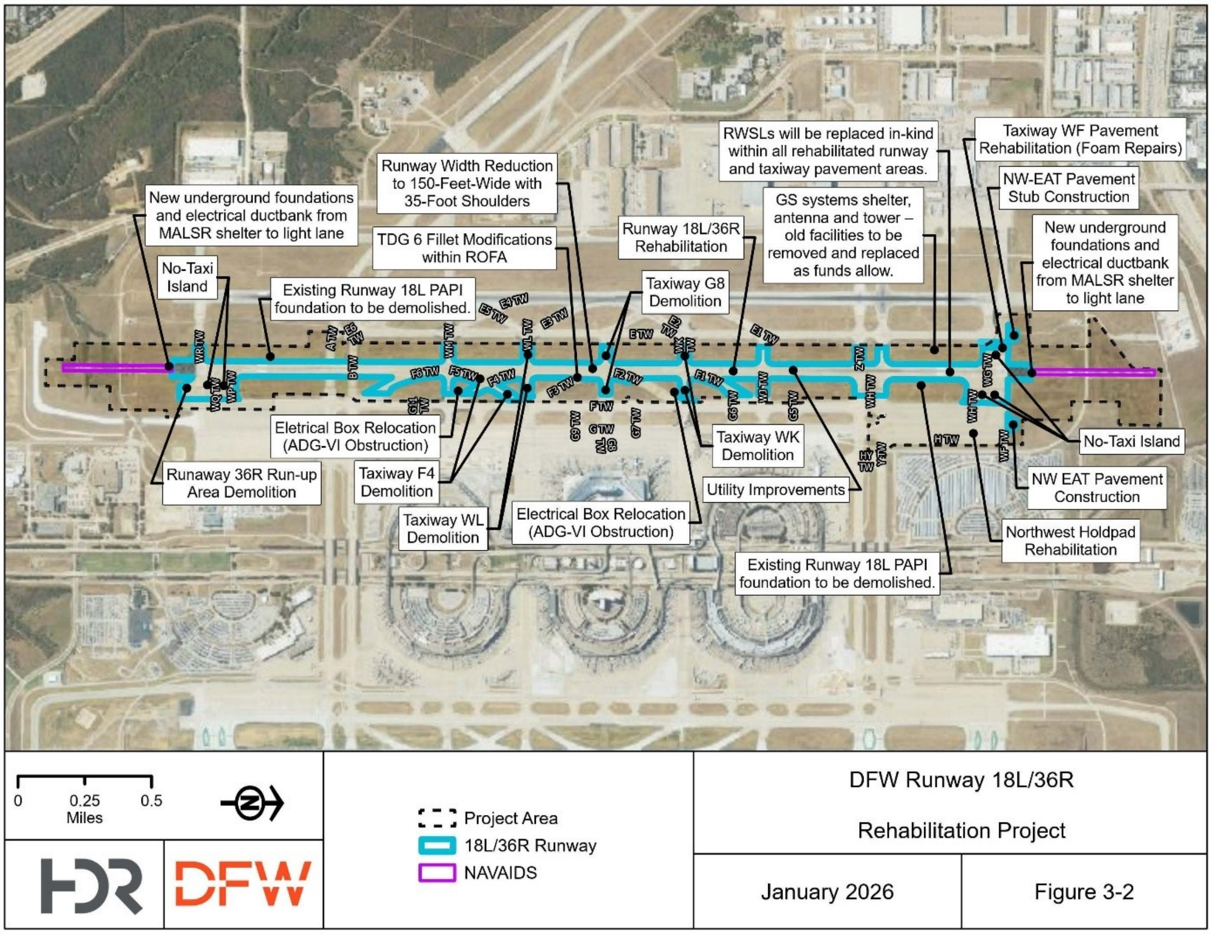


- Modification, relocation, and/or upgrade of FAA-owned NAVAIDS
  - Runway 18L/36R Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) systems: Approach light plane adjustment due to new runway surface/grading with new MALSR field equipment to be provided by the FAA for installation by DFW contractor as a target of opportunity collaboration. Work includes new underground infrastructure including foundations and electrical ductbank from MALSR shelter to light lane (Station 10+00) and between the threshold and Station 24+00. As part of this project, a new runway MALSR equipment shelter will be replaced as funds allow.
  - Runway 18L/36R Precision Approach Path Indicator Lights (PAPI) systems: Due to the reduction in runway width, both PAPIs will be relocated closer to the runway requiring new underground infrastructure which includes foundations and electrical ductbank. Due to the new runway surface/grading, both PAPIs will require vertical adjustments of lamp housing assemblies due to new runway surface height.
  - Runway 18L/36R Runway Status Light System (RWSLs) will be removed and replaced in-kind throughout the rehabilitated pavement areas for both runway and taxiway surfaces.

- Runway 18L/36R Glideslope (GS) systems shelter, antenna and tower – old facilities to be removed and replaced as funds allow.

- Utility improvements and rehabilitation of runway stormwater drainage
    - Relocate stormwater inlets
    - Relocate stormwater inlets within Taxiway F safety area
- Reset runway hold position markings
- NWHP Rehabilitation and Taxiway Design Group (TDG) 6 fillet modifications
- SWHP TDG 6 fillet modifications
- TDG 6 fillet modifications and select panel replacement of all taxiways and high-speed taxiway exits within the Runway 18L/36R Object Free Area (OFA)
- Demolition of existing taxiway pavement on Taxiway WK, between Taxiways E and F
- Demolition of taxiway pavement on Taxiway G8, between Taxiways E and F
- Demolition of taxiway pavement on Taxiway WL, between Taxiways E and F
- Demolition of taxiway pavement on Taxiway F4, between Runway 18L/36R and Taxiway F
- Rehabilitation of Taxiway WF pavement, south of taxiway centerline
- Construction of the Northwest End Around Taxiway (NW EAT) pavement, north of Runway 18L within Runway Safety Area (RSA)
- Partial demolition of the Runway 36R run-up threshold
- Installation of No-Taxi islands at the following locations:
    - East of the Runway 18L threshold between Taxiway WF and Taxiway WG
    - East of the Runway 18L threshold between Taxiway WG and Taxiway WH
    - West of the Runway 18L threshold between Taxiway WF and Taxiway WG
    - East of the Runway 36R threshold between Taxiway WP and Taxiway WQ
    - East of the Runway 36R threshold between Taxiway WQ and Taxiway WR
    - East of Runway 18L/36R, between Taxiway Y and Taxiway Z
- Construction of requisite utilities and improvements to lighting, signage, and stormwater drainage infrastructure
- Installation of the Runway 18L/36R Runway Weather Information System (RWIS) to effectively monitor pavement and weather conditions and support maintenance operations
- Final site-area grading, topsoil, seed/sod, and other erosion controls, as necessary. Limits of grading, topsoil, and sodding to encompass areas beyond the inlets/drains to mitigate infield problem areas
- Temporary lighting, signage, and pavement markings installation, as necessary, to support temporary taxiway routing during various phases of construction

Figure 3-2. Runway 18L/36R Rehabilitation Project Scope



3.4 Alternatives Comparison

Under the NAA, Runway 18L/36R, the primary west airfield arrival runway would continue to deteriorate, which could seriously compromise the safety and efficiency of airport operations. Although the NAA would not result in temporary noise impacts to noise sensitive land uses, it would result in increased maintenance costs due to the need for repairs caused by pavement and joint-seal structural failures. The NAA would increase FOD and adversely impact airlines, passengers, and business partners, who depend on DFW's ability to support safe and efficient operations. The NAA would not meet the purpose and need; however, pursuant to NEPA, it has been carried forward as the baseline by which potential impacts of the action alternative can be measured.

In contrast, the Proposed Action Alternative would rehabilitate Runway 18L/36R and restore its structural integrity and useful life. It would allow DFW to support the current and future operations in a safe and efficient manner. The Proposed Action Alternative—the sponsor's preferred alternative—consists of rehabilitating the runway through a two-phase construction process. The construction phases would be sequenced to reduce impacts to airfield operations, airline partners, and the surrounding communities. During the planning and design process, DFW considered the best methods of phasing the project so as to minimize impacts to airfield operations and customer experience. DFW decided to implement the Proposed Action in two phases. During the first phase, DFW would relocate the runway threshold and close a portion of the runway to enable construction while allowing for the continued use of the runway by ADG-III operations. During Phase 2, DFW would close the entire runway and shift aircraft operations to other runways. The traffic shifts, operational changes, and noise effects would be temporary and limited to the construction period. The Proposed Action Alternative meets the project's purpose and need by restoring the structural integrity of the runway, reducing FOD risks, and ensuring safe and efficient airfield operations. The Proposed Action extends the useful life of the runway and provides long-term benefits; the Proposed Action Alternative meets the purpose and need and is carried forward for detailed analysis.

3.5 Connected/Concurrent Actions

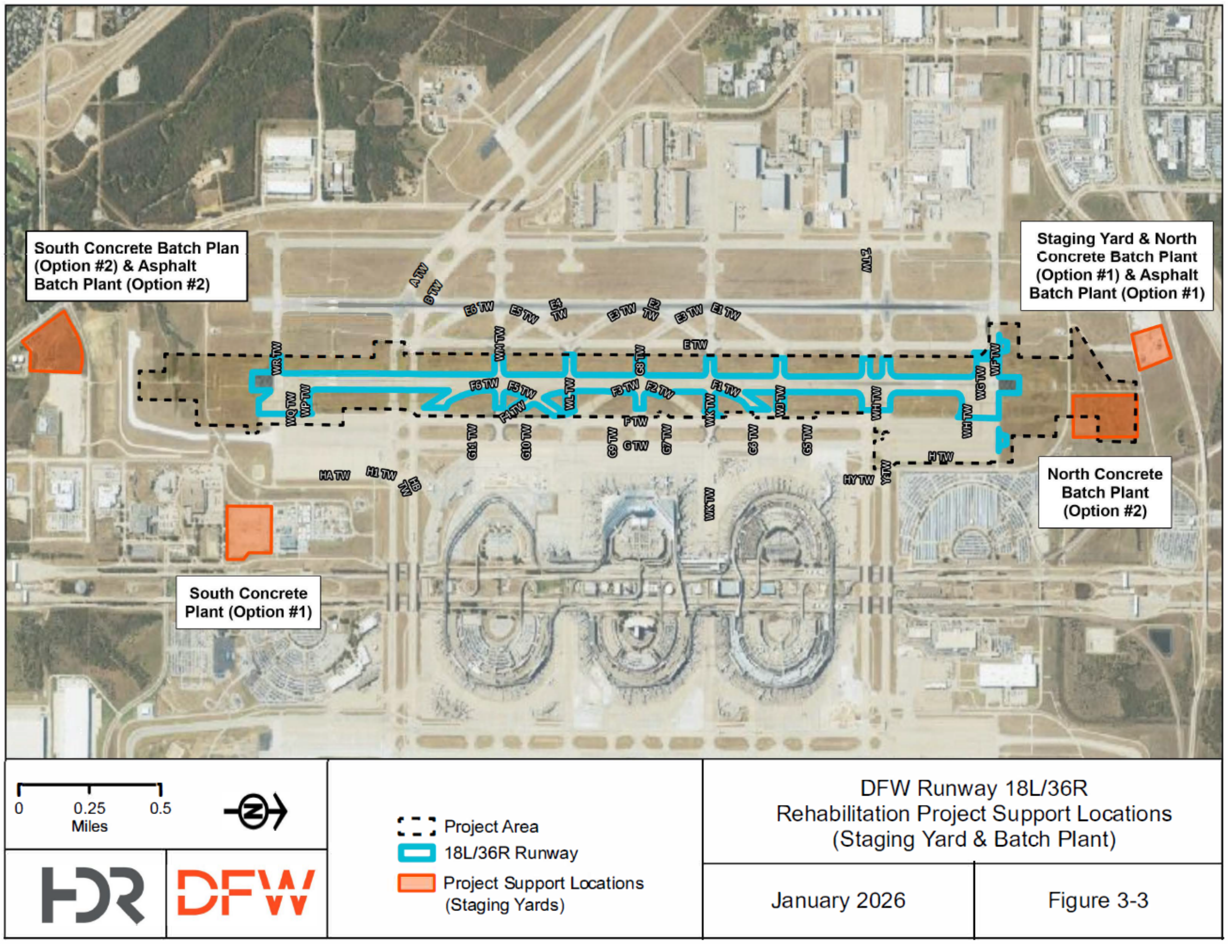
According to FAA Order 1050.1G, *connected action means a separate Federal action within the authority of FAA that is closely related to the proposed agency action and should be addressed in a single environmental document because the proposed agency action would (1) automatically trigger the separate Federal action, which independently would require the preparation of additional environmental documents; (2) cannot proceed unless the separate Federal action is taken previously or simultaneously; or (3) is an interdependent part of a larger Federal action that includes a separate Federal action, which mutually depends on the larger Federal action for their justification*.

Actions that are connected to the Proposed Project include:

- PSLs (**Figure 3-3**)
- Construction of the west airfield drainage improvements,
- Construction and installation of updated airfield lighting and signage, and
- Optimization of the west airfield duct bank and installation of supporting electrical utilities

Multiple projects will be ongoing in the vicinity of Runway 18L/36R at the same time as the rehabilitation project effort is being completed. Although these projects are independent efforts, the work areas, haul routes, and PSLs would need to be coordinated to ensure minimal impacts to airport operations.

Figure 3-3. Runway 18L/36R Project Support Locations



SECTION 4.0 AFFECTED ENVIRONMENT

This section describes the environmental conditions within the project area and related regulations. Where potential impacts exist, environmental commitments and mitigation measures to offset these impacts are detailed in **SECTION 5.0**.

4.1 Resource Categories Not Carried Forward for Detailed Analyses

Per NEPA § 106(b)(2), codified under 42 U.S.C. § 4336(b)(2), EAs are to be concise; therefore the lead federal agency shall identify and eliminate from detailed study the issues that are not important, or that have been covered by prior environmental review, narrowing the discussion of these issues in the document to a brief presentation of why they would not have substantial effect on the human or natural environment. **Table 4-1** illustrates the rationale behind the elimination of the resources categories that were not carried forward for detailed analysis in this EA.

Table 4-1. Resource Categories Not Carried Forward for Detailed Analysis

Resource Category	Regulatory Setting, Significance Threshold, and Rationale for Elimination
Biological Resources	Biological resources are valued for their intrinsic, aesthetic, economic, and recreational qualities and include fish, wildlife, plants, and their respective habitats. Primary Federal and State Regulations: Bald and Golden Eagle Protection Act; Endangered Species Act; Fish and Wildlife Coordination Act; Magnuson-Stevens Fishery Conservation and Management Act; Migratory Bird Treaty Act (MBTA); Texas Parks and Wildlife Code; Texas Administrative Code. **No Impact.** Reasoning: Under the Proposed Action, no habitat for any of the federally listed species and state-listed species was present within the proposed project area; therefore, there would be No Effect to the federally- or state-listed threatened or endangered species. If construction activities occur during the migratory bird nesting season, a nest survey would be conducted and any migratory bird nests would be protected in accordance with the MBTA, and other state and local regulations, including the DFW MBTA compliance nest survey protocol (see **Appendix E** for IPaC and Protected Species Assessment Report).
Coastal Resources	Coastal resources include all natural resources occurring within coastal waters and their adjacent shorelands such as islands, transitional and intertidal areas, salt marshes, wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as fish and wildlife and their respective habitats within these areas. In geographic terms, coastal resources include the coastlines of the United States and its territories along the Atlantic and Pacific oceans, the Great Lakes, and the Gulf of Mexico. Primary Federal Regulations*:* Coastal Barrier Resources Act; Coastal Zone Management Act; National Marine Sanctuaries Act; Texas Coastal Management Program. **No impact.** Reasoning: There are no coastal resources located within or adjacent to the proposed project area.
U.S. DOT Act, Section 4(f) and Land and Water Conservation Fund Act, Section 6(f)	Section 4(f) of the U.S. DOT Act of 1966 (codified at 49 U.S.C. 303) protects significant publicly owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historic sites. Section 4(f) applies only to agencies within the U.S. DOT and protects certain properties from use for DOT projects unless the relevant DOT agency, in this case the FAA, determines there is no feasible and prudent alternative, and a project includes all possible planning to minimize harm. Section 6(f) of the Land and Water Conservation Fund (LWCF) Act stipulates that properties acquired or developed with LWCF assistance must be maintained for public outdoor recreation use, unless a conversation to non-recreational use is approved by the National Park Service. Primary Federal Regulations: U.S. Department of Transportation Act, Section 4(f); Land and Water Conservation Fund Act of 1965, Section 6(f) **No impact.** Reasoning: There are no Section 4(f) parks and recreational areas, publicly owned wildlife and waterfowl refuges, or historic sites within or adjacent to the proposed project area. There are also no Section 6(f) properties within the proposed project area.

Resource Category	Regulatory Setting, Significance Threshold, and Rationale for Elimination
Farmlands	Farmlands are defined as those agricultural areas considered important and protected by federal, state, and local regulations. Important farmlands include all pasturelands, croplands, and forests (even if zoned for development) considered to be prime, unique, or of statewide or local importance. Farmland does not include land already in or committed to urban development or water storage. Primary Federal Regulations: Farmland Protection Policy Act (FPPA) **No impact.** Reasoning: DFW does not contain prime or unique farmlands and the project area (i.e., right-of-way) was purchased between 1962 and 1974. According to Part 523 of the FPPA Manual, construction within existing right-of-way purchased on or before August 4, 1984 is not subject to the provisions of FPPA (NRCS 2013). Since the Proposed Action would occur on previously paved or disturbed land, and there are no farmlands at or near DFW, the farmlands resource category is not impacted and therefore not carried forward for detailed analysis.
Historical, Architectural, Archeological, and Cultural Resources	The National Historic Preservation Act (NHPA) (54 U.S.C. 300101-307108) requires federal agencies to consider effects on historic properties, including those listed or eligible for the National Register of Historic Places (NRHP). Section 106 mandates consultation with the State Historic Preservation Officer (SHPO) and/or Tribal Historic Preservation Officer (THPO). The Archaeological and Historic Preservation Act (54 U.S.C. 312501-312508) protects archaeological resources. Primary Federal and State Regulations: NHPA, Archaeological and Historic Preservation Act; Antiquities Code of Texas. **No Impact.** Reasoning: A historical, architectural, and cultural resources evaluation was completed and reviewed by the Texas Historic Commission (THC)/ SHPO. No historically significant or resources eligible for listing on the NRHP were found within the direct and indirect area of potential effects. On September 12, 2025, the THC SHPO concurred with the Section 106 report findings and conclusions. **T**he Section 106 Evaluation Report and SHPO concurrence letter are included in **Appendix F**.
Land Use	NEPA (42 U.S.C. 4321-4370m) requires consideration of land use impacts. The Aviation Safety and Noise Abatement Act (49 U.S.C. 47501-47510) and FAA regulations at 14 CFR Part 150 address compatible land use planning around airports. Primary Federal Regulations: NEPA, Aviation Safety and Noise Abatement Act. **No Impact.** Reasoning: The Proposed Action would not require any property acquisition or land use changes. The proposed Project would be developed entirely on airport property and is compatible with DFW's on-airport land use plans.
Natural Resources and Energy Supply	NEPA (42 U.S.C. 4321-4370m) requires consideration of impacts on natural resources and energy supply. The Energy Policy and Conservation Act (42 U.S.C. 6201-6422) promotes energy conservation, applicable to federal actions affecting energy use. Primary Federal Regulations: National Environmental Policy Act, Energy Policy and Conservation Act. **No Impact.** Reasoning: FAA Order 1050.1 requires that federal agencies consider energy requirements, natural or depletable resource requirements, and the conservation potential of alternative and mitigation measures. Consumption of natural resources and use of energy supplies may result from construction, operation, and/or maintenance of the Proposed Action. Buildings and other structures at the airport require electricity and natural gas for lighting, cooling, heating, electric vehicle charging and operating the Skylink automated people mover. DFW is located within a highly urbanized area with adequate access to natural resources for airport operations, aircraft operations, and construction projects. DFW has implemented a sustainability program to reduce energy and water consumption and use alternative renewable energy sources.

Resource Category	Regulatory Setting, Significance Threshold, and Rationale for Elimination
Socioeconomics and Children's Environmental Health and Safety	NEPA (42 U.S.C. 4321-4370m) requires consideration of socioeconomic effects in environmental reviews. The primary statute related to socioeconomic impacts for FAA NEPA reviews is the Uniform Relocation and Assistance and Real Property Acquisition Act, which contains provisions that must be followed if the Proposed Action would result in acquisition of real property or displacement of people. A socioeconomic analysis evaluates how elements of the human environment such as population, employment, housing, and public services might be affected by the proposed action and alternative(s). *Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks* directs federal agencies to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. Impacts to children are considered separately in NEPA reviews because children may experience a different intensity of impact as compared to an adult exposed to the same event Primary Federal Regulations: NEPA, Uniform Relocation Assistance and Real Property Acquisition Policies Act, and Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks.* **No Impact**. Reasoning: Implementation of the Proposed Action would not result in substantial changes to the prevailing socioeconomic conditions, because there would not be any relocation of residents or businesses located within or adjacent to the project area. The entire project area is located on DFW airport property; it would not require land acquisition or loss of the tax base of any community. Although construction and implementation of the Proposed Action would temporarily change air pollutants emissions, the changes are minimal and would not have an adverse impact to children's health and safety.
Visual Effects (including Lighting Emissions)	NEPA (42 U.S.C. 4321-4370m) requires consideration of aesthetic impacts. The National Historic Preservation Act (54 U.S.C. 300101-307108) applies if visual impacts affect historic properties. Primary Federal Regulations: NEPA, NHPA. **No Impact.** Reasoning: Visual effects deal with the extent to which the Proposed Action would 1) produce light emissions that create annoyance or interfere with activities; or 2) contrast with, or detract from, the visual resources and/or the visual character of the existing environment. Light emission sources at DFW include airfield lighting, signage, navigational aids, and buildings. Mobile light sources include ground access vehicles utilizing airport roadways, aircraft, and aviation support vehicles. There are no residential or light sensitive areas within or adjacent to the project area. Light emissions from the Proposed Action would not cause substantial annoyance for people in the vicinity nor interfere with normal airport activities. Therefore, the Proposed Action would not result in impacts to the visual environment not already occurring or expected to occur with current operations in the area.
Water Resources: **Floodplains**	The National Flood Insurance Act (42 U.S.C. 4001 et seq.) establishes the National Flood Insurance Program, requiring compliance with Federal Emergency Management Agency (FEMA) floodplain management regulations (44 CFR Part 60). Primary Federal Regulations: National Flood Insurance Act, Executive Order 11988, and DOT Order 5650.2, Floodplain Management and Protection. **No Impact.** Reasoning: The Proposed Runway 18L/36R Project and the associated PSLs are located in upland areas; there are no floodplains within the project areas of disturbance. The Proposed Project and the associated PSLs are located outside the 100-year Floodplain, within Zone X, identified as areas of minimal flood hazard (FEMA FIRM Map Panel 48439C0120K (effective 9/25/2009) and Panel 48439C0235L (effective 3/21/2019).
Water Resources: **Groundwater (Sole Source Aquifers)**	The Safe Drinking Water Act (42 U.S.C. 300f-300j-26) prohibits federal actions that contaminate EPA-designated sole source aquifers. Primary Federal Regulations: Safe Drinking Water Act. **No impact.** Reasoning: According to the interactive US EPA Sole Source Aquifer Map, there are no sole source aquifers in the Proposed Project area. The nearest sole source aquifer, the Edwards Aquifer, is located almost 200 miles south of the Proposed Project area.

Resource Category	Regulatory Setting, Significance Threshold, and Rationale for Elimination
***Water Resources:* Wetlands**	The Clean Water Act (33 U.S.C. 1251-1387) regulates discharges into wetlands through Section 404 permits and Section 401 certifications. The Fish and Wildlife Coordination Act (16 U.S.C. 661-667d) requires consultation for wildlife impacts. Primary Federal Regulations: Clean Water Act, Fish and Wildlife Coordination Act, and Executive Order 11990. **No Impact**. Reasoning: The Proposed Project and the associated PSLs are located in upland areas; there are no wetlands within the project areas of disturbance. A study to determine and delineate any wetlands and waters of the U.S. within the project area was conducted in July 2025. No wetlands or waters of the U.S. were identified within the project and staging areas (see **Appendix E**).
***Water Resources:* Wild and Scenic Rivers**	The Wild and Scenic Rivers Act (16 U.S.C. 1271-1287) protects designated rivers and study rivers from actions that adversely affect their free-flowing nature or values. Primary Federal Regulations: Wild and Scenic Rivers Act. **No impact.** Reasoning: According to the National Wild and Scenic Rivers System (2017), there are no wild or scenic rivers or eligible rivers located within or adjacent to the proposed project area.

4.2 Air Quality

4.2.1 Regulatory Background

The Clean Air Act (CAA) requires adoption of National Ambient Air Quality Standards (NAAQS), which are periodically updated, to protect public health and welfare from the effects of air pollution (**Table 4-2**). Under the CAA, the U.S. Environmental Protection Agency (USEPA) established federal standards for six criteria pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), sulfur dioxide (SO_2), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns ($PM_{2.5}$).

Based on air monitoring data and in accordance with the CAA, areas within the United States are designated as either "attainment" or "non-attainment" areas for each pollutant. Areas that meet the NAAQS are designated as attainment, those that do not meet the standards are designated as nonattainment, and those that are in transition from nonattainment to attainment are designated as “maintenance.” Those areas designated as “non-attainment” for purposes of NAAQS compliance are required to prepare regional air quality plans, which set forth a strategy for bringing an area into compliance with the standards. These regional air quality plans developed to meet NAAQS are included in an overall program referred to as the State Implementation Plan (SIP). A SIP is a comprehensive record of all air pollution control strategies, emission budgets, and timetables implemented.

Table 4-2. National Ambient Air Quality Standards

Pollutant	Averaging Time	Standard	Type of Standard	Form
CO	1-hour	35 ppm	Primary	Not to be exceeded more than once annually
	8-hour	9 ppm	Primary	Not to be exceeded more than once annually
Pb	Rolling quarter	0.15 μg/m^3	Primary & Secondary	Not to be exceeded

Pollutant	Averaging Time	Standard	Type of Standard	Form
NO_2	1-hour	100 ppb	Primary	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	1 year	53 ppb	Primary & Secondary	Annual Mean
O_3	8-hour	0.070 ppm	Primary & Secondary	Annual 4th highest daily maximum 8-hour concentration, averaged over 3 years
PM_{10}	24-hour	150 µg/m^3	Primary & Secondary	Not to be exceeded more than once annually on average over 3 years
$PM_{2.5}$	1 year	9.0 µg/m^3	Primary	Annual mean, averaged over 3 years
	1 year	15.0 µg/m^3	Secondary	Annual mean, averaged over 3 years
	24-hour	35 µg/m^3	Primary & Secondary	98th percentile, averaged over 3 years
SO_2	1-hour	75 ppb	Primary	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	1 year	10 ppb	Secondary	Annual mean, averaged over 3 years

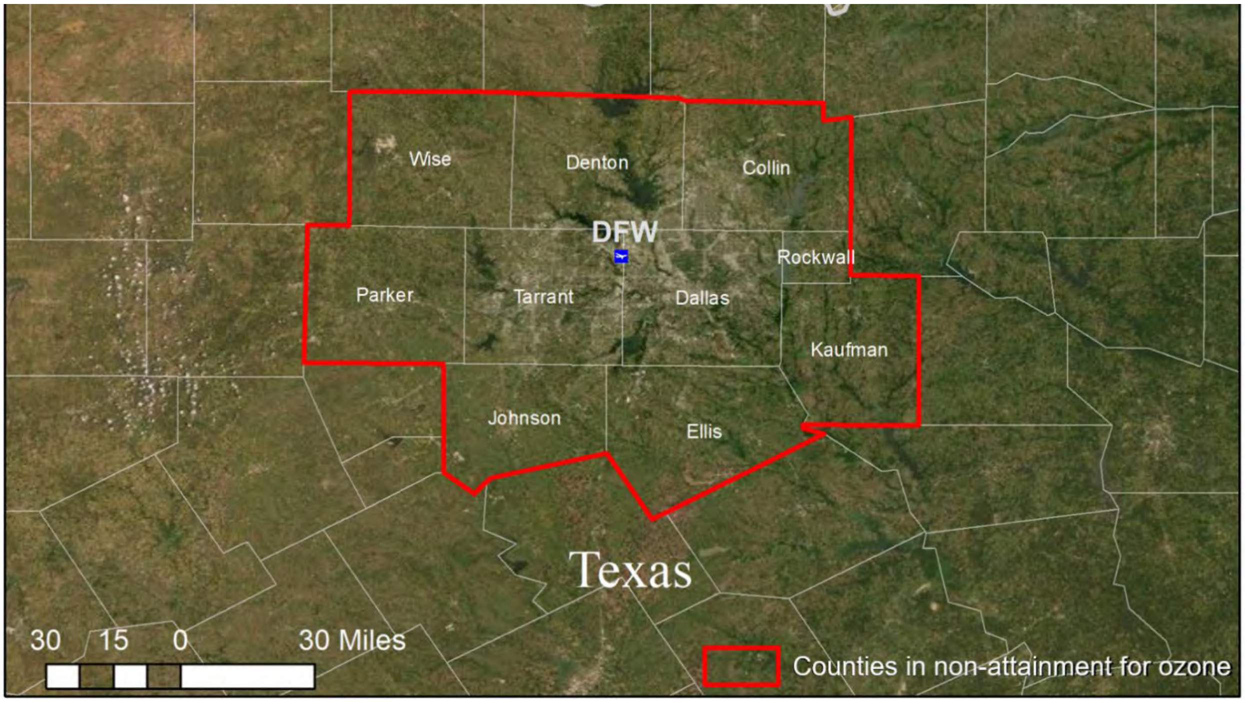
Source: EPA, 2025
Notes: ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter.
Primary standards provide public health and safety protection, especially for sensitive populations such as asthmatics, children, and the elderly.
Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

4.2.2 Existing Conditions

The Dallas-Fort Worth metropolitan area has been designated as an attainment area for all criteria pollutants except for O_3 (TCEQ, 2025). The Runway 18L/36R Rehabilitation Project is located in Tarrant County, which is in the Dallas-Fort Worth metropolitan area (**Figure 4-1**). The Dallas-Fort Worth metropolitan area, the air quality study area for this project, is designated as a "*Severe Nonattainment*" area for the 2008 8-hour O_3 standard (0.075 ppm) and a "*Serious Nonattainment*" area for the 2015 8-hour O_3 standard (0.070 ppm). The Dallas-Fort Worth metropolitan area is designated as being in *Attainment or Unclassified for* CO (1-hr, 8-hr), NO_2 (1-hr, Annual), SO_2 (1-hr, 3-hr), PM_{10} (24-hr), $PM_{2.5}$ (24-hr, Annual), and Pb (Rolling 3-month average).

The Texas Commission on Environmental Quality (TCEQ) is responsible for developing the SIP to ensure Texas complies with the CAA and meets the NAAQS by a designated deadline. For the Dallas-Fort Worth metropolitan area, the SIP focuses on reducing the two primary pollutants that lead to O_3 formation, volatile organic compounds (VOCs) and nitrogen oxides (NOx). O_3 is not directly emitted but is formed in the atmosphere when NOx and VOCs react in sunlight.

Figure 4-1. DFW and AQCR Ozone Non-Attainment Area



Source: EPA 2025

4.2.3 General Conformity

General Conformity is a process to ensure that federal actions taken by FAA comply with the CAA and do not worsen air quality in nonattainment and maintenance areas. Furthermore, General Conformity ensures that FAA actions do not interfere with a state's plan to meet NAAQS. General Conformity analysis evaluates both direct emissions and indirect emissions, as defined by the *40 CFR 93.152*. Direct emissions are those that occur at the same time and place as the federal action. Indirect emissions are defined as emissions or precursors that are caused or initiated by the federal action and originate in the same nonattainment area or maintenance area but occur at a different time or place from the action, are reasonably foreseeable, that the agency can practically control, and for which the agency has continuing program responsibility.

When developing the General Conformity Rule, the EPA recognized that many actions conducted by federal agencies do not result in substantial increases in air pollutant emissions in nonattainment and maintenance areas. Therefore, the EPA established *de minimis* threshold levels for emissions of each of the criteria pollutants. If the sum of the increases from direct and indirect emissions caused by a project is found to be below *de minimis* levels, no further air quality analysis is needed. If the total direct and indirect emissions exceed *de minimis* thresholds for any pollutant, the project would require a General Conformity Determination.

Design values shown in **Table 4-3** are from available Air Quality System (AQS) sites closest to DFW Airport, as determined by the EPA Interactive Map of Air Quality Monitors (https://www.epa.gov/outdoor-air-quality-data/interactive-map-air-quality-monitors) and the EPA Design Value Interactive Tool (https://www.epa.gov/air-trends/design-value-interactive-tool). All data from 2024 was current as of 8 May 2025.

Table 4-3. Recent Air Quality at Dallas-Fort Worth-Arlington, Texas

Pollutant	Federal Standard	2024 Design Value	Active Monitoring Years	Monitoring Site	Current Status
CO	9 ppm (8-hour)	1.3 ppm	2011-2025	Dallas Hinton	Attainment
Pb	0.15 µg/m^3 (3-month)	0.08 µg/m^3 (2022-2024)	2011-2024	Frisco Stonebrook	Attainment
NO_2	100 ppb (1-hour)	44 ppb	2019-2025	Dallas Hinton	Attainment
	100 ppb (1-hour)	41 ppb	1998-2025	Dallas North #2	Attainment
	100 ppb (1-hour)	38 ppb	2000-2025	Grapevine Fairway	Attainment
	100 ppb (1-hour)	42 ppb	2010-2025	Keller	Attainment
O_3	0.070 ppm (2015 8-hour)	0.080 ppm	1990-2025	Keller	Nonattainment
	0.070 ppm (2015 8-hour)	0.077 ppm	1998-2025	Dallas North #2	Nonattainment
	0.070 ppm (2015 8-hour)	0.073 ppm	1995-2025	Dallas Hinton	Nonattainment
	0.070 ppm (2015 8-hour)	0.081 ppm	2000-2025	Grapevine Fairway	Nonattainment
PM_{10}	150 µg/m^3 (24-hour)	0.00 (2022-2024) average exceedances	2009-2024	Earhart	Attainment
$PM_{2.5}$	12 µg/m^3 (annual)	9.6 µg/m^3	2011-2025	Dallas Hinton	Attainment
	35 µg/m^3 (24h primary)	22 µg/m^3	2011-2025	Dallas Hinton	Attainment
SO_2	75 ppb (1-hour)	4 ppb	2011-2025	Dallas Hinton	Attainment

Source: USEPA 2025a

4.2.4 Sources of Airport Air Emissions

Sources of airport air emissions include construction equipment, motor vehicles (employees, passengers airport fleet, etc.), heating and cooling systems, aircraft taxiing, ground support equipment (GSE), and auxiliary power units (APU).

4.3 Hazardous Materials, Solid Waste, and Pollution Prevention

4.3.1 Regulatory Background

The handling and disposal of hazardous materials, chemicals, and wastes is primarily governed by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) (more commonly known as “Superfund”), Pollution Prevention Act, Toxic Substances Control Act, and Resource Conservation and Recovery Act (RCRA), as amended. RCRA governs the generation, treatment, storage, and disposal of solid and hazardous wastes. CERCLA provides for consultation with natural resources trustees and cleanup of any release of a hazardous substance (excluding petroleum) into the environment. In addition to these laws, three Executive Orders have been designated to ensure federal compliance with pollution control standards, federal right-to-know laws, and Superfund implementation. FAA Orders 1050.1 Desk Reference, 1050.1G, and 5050.4B do not provide a specific threshold of significance for hazardous material and solid waste impacts. However, they conclude that actions involving property listed (or potentially listed) on the National Priorities List (NPL) would be considered significant.

Solid waste is generated by a project and defined as any discarded material that is abandoned, recycled, considered inherently waste-like, or a military munition (RCRA). Hazardous waste is a type of solid waste that possesses at least one of the following four characteristics: ignitibility, corrosivity, reactivity, or toxicity (40 CFR § 261.3). Hazardous material refers to any substance or material that is capable of posing an unreasonable risk to health, safety, and property when transported in commerce. Per 49 CFR § 172.101, hazardous materials include both hazardous wastes and hazardous substances, as well as petroleum and natural gas substances and materials.

4.3.2 Existing Conditions

Per the EPA's NPL database, there are no properties listed (or proposed) on the NPL in the direct Project Area.

4.3.2.1 Solid Waste

Solid waste at DFW is generated by passengers, concessionaires, and various activities associated with demolition and construction projects. DFW collects this solid waste and evaluates it to determine where it is to be disposed. Waste Management of Texas collects and transports DFW's municipal solid waste (MSW) to the Dallas-Fort Worth Landfill in Lewisville. This landfill is appropriately permitted and located approximately 9 miles north-northeast of the project area. DFW also has a consolidated east materials management site to help facilitate recycling and reuse of construction materials. DFW recycles a variety of materials including, but not limited to, construction and demolition waste, paper, cardboard, wood, metal, concrete, soil, and tires. DFW's Sustainability Management Plan details the airport's commitments to decreasing the generation of MSW and hazardous materials and increasing campus-wide recycling.

4.4 Noise and Noise-Compatible Land Uses

Noise is considered unwanted sound that can disturb routine activities and can cause annoyance. Per FAA Order 1050.1 Desk Reference, aviation noise primarily results from the operation of fixed and rotary wing aircraft, such as departures, arrivals, overflights, taxiing, and engine run-ups. This section discusses the aircraft noise and noise compatible land use analysis for the baseline conditions. The analysis summarizes the operational data used in calculating noise exposure levels, how noise is characterized and defined, and how people respond to noise. Refer to **Appendix D** for the detailed noise analysis technical report.

4.4.1 Regulatory Background

Federal statutes, FAA regulations, and FAA guidance related to the consideration of noise impacts are detailed in **Appendix D**. This EA follows guidance and regulations provided in FAA Order 1050.1G, *Environmental Impacts: Policies and Procedures*, FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*, and the 1050.1 Desk Reference on how the impact assessment should occur, as well as other federal statutes, regulations, and specific agency orders.

Federal laws and FAA guidance documents detailed in **Appendix D** specify the use of the Day-Night Average Sound Level (DNL) as the noise metric used in all FAA aviation noise studies in airport communities. DNL, a cumulative sound level, provides a measure of total sound energy. DNL is a logarithmic average of the sound levels of multiple events at one location over a 24-hour period. A 10 decibel (dB) weighting is added to all sounds occurring during nighttime hours (between 10:00 p.m. and 6:59 a.m.). The weighting for nighttime noise events is intended to account for the added intrusiveness of noise during typical sleeping hours, as ambient sound levels during nighttime hours are typically about 10 dB lower than during daytime hours.

For a NEPA noise analysis, the FAA requires that the 24-hour analysis period represents the average annual day (AAD). The AAD reflects the daily aircraft operations averaged over a 365-day period. Further details on noise metrics, including DNL, can be found in **Appendix D**.

FAA has adopted guidelines for evaluating land-use compatibility with noise exposure. In general, most land uses are considered compatible with DNL less than 65 dB, but only certain uses are compatible with DNL greater than or equal to 65 dB.

The noise analysis compares the NAA and Proposed Action Alternative for the forecast conditions using the FAA's thresholds of significance. **Table 4-4** lists the significance and reportable threshold for changes in noise in accordance with FAA Order 1050.1G.

Table 4-4. Aircraft DNL Thresholds and Impact Categories

Impact Category	65 DNL or Greater	Greater than or equal to 60 DNL but less than 65 DNL	Greater than or equal to 45 DNL but less than 60 DNL
Minimum Change in DNL when comparing the Proposed Action and NAA DNL	1.5 dB	3.0 dB	5.0 dB
Level of Change	Significant	Reportable	Reportable

Source: FAA Order 1050.1G and 1050.1 Desk Reference[2]

4.4.2 Study Area

To adequately capture the effects of aircraft noise, the noise study area (NSA) must include not only the immediate airport environs, where aircraft flight paths are aligned with the runways, but also other potentially affected areas over which aircraft would fly as they follow any modified flight corridors that join the surrounding airspace. The NSA was developed to encompass an area that would contain at least the lateral extent of the estimated 60 DNL contour resulting from aircraft flight and ground operations contemplated under the Proposed Action, with an adequate buffer to accommodate potential changes in the contour between the NAA and the Proposed Action Alternative. **Figure 4-2** displays the NSA on the land use map. The NSA is approximately 4 nautical miles (nmi) to the east and west and 8 nmi to the north and south.

[2] 1050.1 Desk Reference

4.4.3 Noise Compatible Land Use

NEPA requires the review of land uses located in the airport environs to understand the relationship between those land uses and the noise exposure associated with arriving and departing aircraft. Identification of a noise sensitive use within the 65 DNL contour does not necessarily mean that the use is either considered noncompatible or that it is eligible for mitigation. Rather, identification merely indicates that the use is generally considered noncompatible but requires further investigation. Factors that influence compatibility and/or eligibility may include but are not limited to previous sound reduction treatments, current interior noise levels, structure condition, ambient and self-generated noise levels, whether a given use is considered temporary or permanent, and the timeframe within which a given structure was constructed. Existing land use in the NSA consists of DFW property, residential uses, commercial, and industrial land uses, as shown on **Figure 4-2.** Additional details on the land use can be found in **Appendix D.**

4.4.4 Existing Conditions

This section provides a description of current aircraft noise conditions within the NSA. The existing conditions for this Draft EA represent aircraft operations for calendar year 2024.

4.4.4.1 Aircraft Operations

Data from DFW's Noise and Operations Monitoring System (NOMS) and from the FAA's Operations Network (OPSNET) are the basis of the existing condition noise model inputs. The fleet mix developed from the DFW NOMS data was grouped into FAA operational categories (Air Carrier, Air Taxi, and General Aviation) and the totals were scaled to match the annual OPSNET counts. The total operations count for 2024 was 743,203. The commercial categories (Air Carrier and Air Taxi) were separated to display both passenger and cargo annual and daily operations, as shown in **Table 4-5**. Further details on the existing level of operations can be found in **Appendix A**.

Table 4-5. Existing Condition (2024) Operations

Time frame	Air Carrier Passenger	Air Carrier Cargo	Air Taxi Passenger	Air Taxi Cargo	General Aviation	Military	Total
Full Year	705,825	16,573	10,580	4,290	5,724	211	743,203
Average Annual Day	1,928.5	45.3	28.9	11.7	15.6	0.6	2,030.6

Source: HMMH, 2025

Figure 4-2. Land Use and Noise Study Area

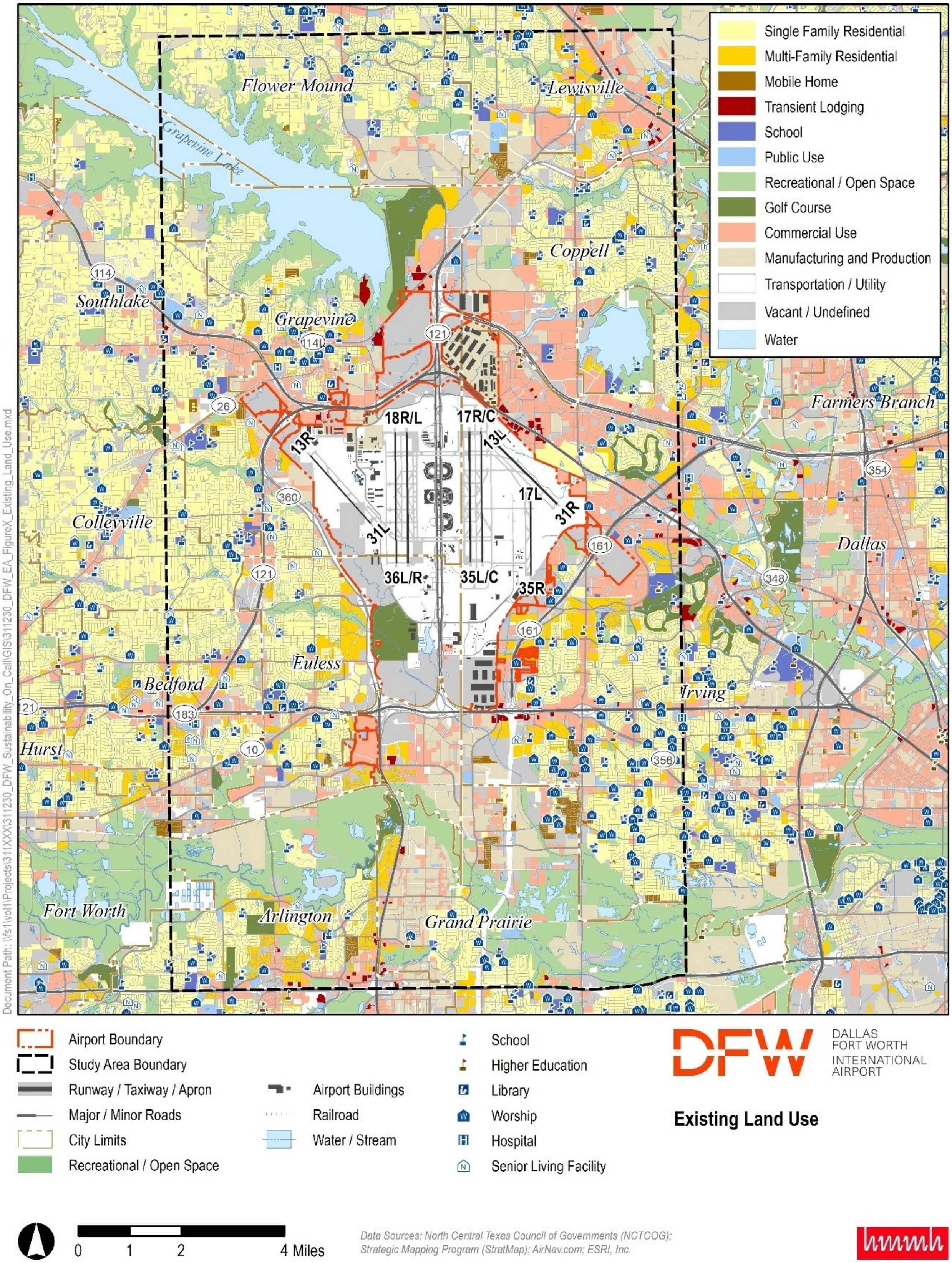


Table 4-6 provides the average daily operations, by aircraft type, that were used in the Airport Environmental Design Tool (AEDT) to model the Existing Condition. The average daily number of aircraft arrivals and departures for 2024 are calculated by dividing the total annual operations by 366 (days in a year). The Existing Condition AAD includes 2,030.6 total operations, 8.5 percent of which occurred during the DNL nighttime hours of 10:00 p.m. to 6:59 a.m.

Table 4-6. DFW Modeled Average Daily Aircraft Operations for the Existing Conditions (2024)

Tower Category	Propulsion	AEDT ANP Type	Arrivals Day	Arrivals Night	Departures Day	Departures Night	Total
Air Carrier Passenger	Jet	747400	0.8	0.4	0.8	0.4	2.5
		7478	0.9	0.7	1.0	0.6	3.2
		757PW	0.8	<0.1	0.8	0.1	1.8
		757RR	1.2	0.1	1.1	0.2	2.6
		7673ER	5.5	2.5	4.3	3.8	16.1
		777300	1.8	1.1	1.1	1.8	5.7
		A300-622R	2.5	0.2	2.3	0.4	5.4
		MD11GE	1.1	0.9	1.2	0.8	4.0
		MD11PW	1.0	1.0	1.2	0.8	4.0
		737700	17.5	2.6	18.4	1.7	40.2
		737800	203.9	28.1	210.8	21.1	463.8
		7378MAX	7.7	2.7	9.3	1.0	20.7
		747400	0.9	0.4	0.9	0.4	2.5
		7478	<0.1	0.3	0.2	0.1	0.6
		777200	5.8	0.7	6.2	0.3	13.0
		7773ER	5.3	<0.1	4.6	0.7	10.7
		7878R	5.8	2.5	8.2	<0.1	16.5
		7879	9.2	1.5	9.2	1.5	21.4
		A319-131	65.5	6.6	65.5	6.5	144.1
		A320-211	18.5	3.3	19.0	2.8	43.6
		A320-232	30.0	4.2	30.9	3.3	68.3
		A320-270N	22.0	8.3	22.2	8.1	60.6
		A321-232	175.5	28.9	180.9	23.5	408.8
		A330-301	0.8	<0.1	<0.1	0.8	1.7
		A330-343	0.4	0.0	0.4	<0.1	0.8
		A340-211	0.5	0.0	0.5	0.0	1.0
		A350-941	3.1	<0.1	2.4	0.7	6.2
		A380-841	0.9	<0.1	0.8	<0.1	1.8
	Regional Jet	CRJ9-ER	82.3	12.6	86.8	8.1	189.7
		EMB170	33.3	4.5	34.4	3.5	75.8
		EMB175	152.1	15.2	153.6	13.7	334.6
		EMB190	1.0	<0.1	1.0	<0.1	2.0
		Air Carrier Total	**857.5**	**129.4**	**880.3**	**106.6**	**1,973.8**

Tower Category	Propulsion	AEDT ANP Type	Arrivals Day	Arrivals Night	Departures Day	Departures Night	Total
Air Taxi Cargo	***Non-Jet***	1900D	1.0	<0.1	0.7	0.3	2.1
		CNA208	2.8	0.7	3.0	0.4	6.9
		DHC6	0.7	<0.1	0.6	0.1	1.5
		SF340	0.4	0.2	0.6	<0.1	1.3
Air Taxi Passenger	***Jet***	CL600	0.8	<0.1	0.8	<0.1	1.7
		CNA55B	1.5	<0.1	1.5	<0.1	3.2
		CNA560XL	0.8	<0.1	0.9	<0.1	1.8
		CNA680	2.3	0.1	2.3	<0.1	4.9
	Regional Jet	CL600	1.0	<0.1	1.0	<0.1	2.0
		EMB145	0.7	<0.1	0.7	<0.1	1.3
		EMB14L	1.8	0.0	1.8	<0.1	3.7
	Non-Jet	CNA208	5.1	<0.1	5.0	0.1	10.4
		Air Taxi Total	13.2	0.1	13.2	0.1	27.3
General Aviation	***Jet***	CL600	0.9	<0.1	0.9	<0.1	1.8
		CL601	2.0	0.1	2.1	<0.1	4.3
		CNA55B	1.0	<0.1	0.9	<0.1	2.0
		CNA560XL	1.6	<0.1	1.6	0.1	3.4
	Non-Jet	CNA172	0.6	0.2	0.5	0.3	1.5
		CNA208	0.7	<0.1	0.7	<0.1	1.5
		DHC6	0.6	0.0	0.5	<0.1	1.1
		General Aviation Total	**7.3**	**0.5**	**7.1**	**0.7**	**15.6**
Military	***Jet***	C17	0.1	0.0	0.1	<0.1	0.3
		LEAR35	0.1	<0.1	0.1	0.0	0.2
	Non-Jet	C130AD	<0.1	0.0	<0.1	0.0	<0.1
		Military Total	**0.3**	**<0.1**	**0.3**	**<0.1**	**0.6**
		Grand Total for all Tower Categories	**884.0**	**131.3**	**906.6**	**108.7**	**2,030.6**

Sources: DFW NOMS, FAA OPSNET, FAA Terminal Area Forecast, HMMH 2025 analysis
Note: Totals may not match exactly due to rounding. ANP: Aircraft Noise Performance

4.4.4.2 Aircraft Stage Length and Operational Profiles

Within the AEDT database, aircraft departure profiles are defined by a range of trip distances identified as “stage lengths.” Higher stage lengths (longer trip distances) are associated with heavier aircraft due to the increase in fuel requirements for the flight. **Table 4-7** provides the stage length classifications by their associated trip distances and **Appendix D** presents the modeled stage length distribution by AEDT aircraft type, developed from the NOMS data. Typically, widebody aircraft which operate on long haul routes have the highest stage lengths. Many smaller aircraft have only a stage length one profile defined in the AEDT database. AEDT includes standard flight procedure data for each aircraft that represents each phase of flight to or from the airport. Information related to aircraft speed, altitude, thrust settings, flap settings, and distance are available and used by AEDT to calculate noise levels on the ground. Standard aircraft departure profiles are supplied from the runway (field elevation) up to 10,000 feet above ground level (AGL).

Aircraft arrival profiles are supplied from 6,000 feet AGL down to the runway including the application of reverse thrust and rollout.

Table 4-7. AEDT Stage Length Categories

Category	Stage Length (nmi)
1	0-500
2	500-1000
3	1000-1500
4	1500-2500
5	2500-3500
6	3500-4500
7	4500-5500
8	5500-6500
9	6500+

Sources: HMMH 2025

4.4.4.3 Runway End Utilization

Runway end utilization refers to the percent of time that a particular runway end is used for departures or arrivals. It is a principal element in the definition of the noise exposure pattern. Aircraft normally will take off and land into the wind. Proportional use of a runway is based largely on conditions of wind direction and velocity and the length of the runway. However, runway end utilization can also be affected by aircraft type, type of activity, and if applicable any airport runway use plans.

DFW has seven runways: four on the east airfield and three on the west airfield. Aircraft typically arrive on the outermost main north/south runways as well as some of the outboards and depart on the innermost runways main north/south runways (inboards). Historic data shows that DFW operates in one of two main operating configurations—south flow (departing to the south and arriving from the north) approximately 70 percent and north flow (departing to the north and arriving from the south) approximately 30 percent.

Although calendar year 2024 runway utilization data was available, the noise analysis for this EA used runway utilization for a recent 12-month period without any extended runway closures [October 2021 through September 2022, fiscal year (FY) 2022] to reflect typical annual runway use. This is because DFW has had several runway reconstruction projects in the past two years, with the latest completed in October 2024. **Table 4-8** summarizes the modeled Existing Condition runway use. The outboard runways (Runways 17L/35R, 13R/31L and 13L/31R) are open daily until 11.00 p.m. Nighttime runway utilization reflects the predominant use of the main parallel runways for arrivals and departures.[3] Long haul departure flights, greater than Stage Length 5, for example widebody aircraft such as the 747s , 777s, 787s, A380s and A350s were limited to the four long parallel runways for departures to provide sufficient runway length.

[3] Per FAA, nighttime operations are defined as 10:00 p.m. to 6:59 a.m. in the calculation of DNL.

Table 4-8. Runway Use Percentages, Existing Condition

Runway	Day Arrivals	Night Arrivals	Day Departures	Night Departures
13L	<1%	--	<1%	<1%
13R	4%	<1%	<1%	--
17C	27%	32%	<1%	1%
17L	11%	1%	<1%	--
17R	<1%	7%	39%	32%
18L	<1%	4%	31%	30%
18R	28%	25%	<1%	7%
31L	<1%	--	<1%	<1%
31R	1%	<1%	<1%	--
35C	11%	14%	<1%	<1%
35L	<1%	3%	16%	14%
35R	5%	<1%	<1%	--
36L	12%	11%	<1%	3%
36R	<1%	1%	14%	12%
Total	**100%**	**100%**	**100%**	**100%**

Sources: DFW NOMS FY2022, HMMH 2025

4.4.4.4 Flight Tracks

The FAA has established routes for aircraft arriving and departing from DFW. Flight tracks represent the path along the ground over which aircraft generally fly. Flight tracks modeled for the existing conditions are shown in **Appendix D**, **Figure 3-3** (Arrival Tracks) and **Figure 3-4** (Departure Tracks).

4.4.4.5 Existing Noise Exposure Contours

The DNL contours shown in **Figure 4-3** show the annual noise exposure pattern at DFW for the existing conditions. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL. DNL contours are a graphic representation of how the noise from DFW's average annual daily aircraft operations is distributed over the surrounding area. The size and shape of the noise exposure contours are reflective of the south and north flow at DFW. Noise contour patterns extend from DFW along each extended runway centerline, reflective of the flight tracks used by all aircraft. The relative distance of a contour from DFW along each route is a function of the frequency of use of each runway end for total aircraft arrivals and departures, and the type of aircraft assigned to the respective runways. On the north side, the contours extend off DFW property over noise-compatible land use and, on the south side, the contour lobes remain on airport property. A separate area of the 65 DNL contour extends slightly off airport property over noise-compatible land use north and south of Runway 17L/35R. The 70 DNL contour for the Existing Condition does not extend off DFW property.

Table 4-9 provides estimates of the total area split between on-airport and off-airport areas exposed to aircraft noise of at least 65 DNL for the Existing Condition.

Approximately 12.05 square miles of land fall within the Existing Condition 65 DNL or higher noise exposure area. Of the total land area, approximately 0.60 square miles exposed to 65 DNL or higher is located off-Airport (the remaining 11.45 square miles are located on DFW property).

Table 4-9. Estimated Land Area within the Existing Condition 65 DNL Contour

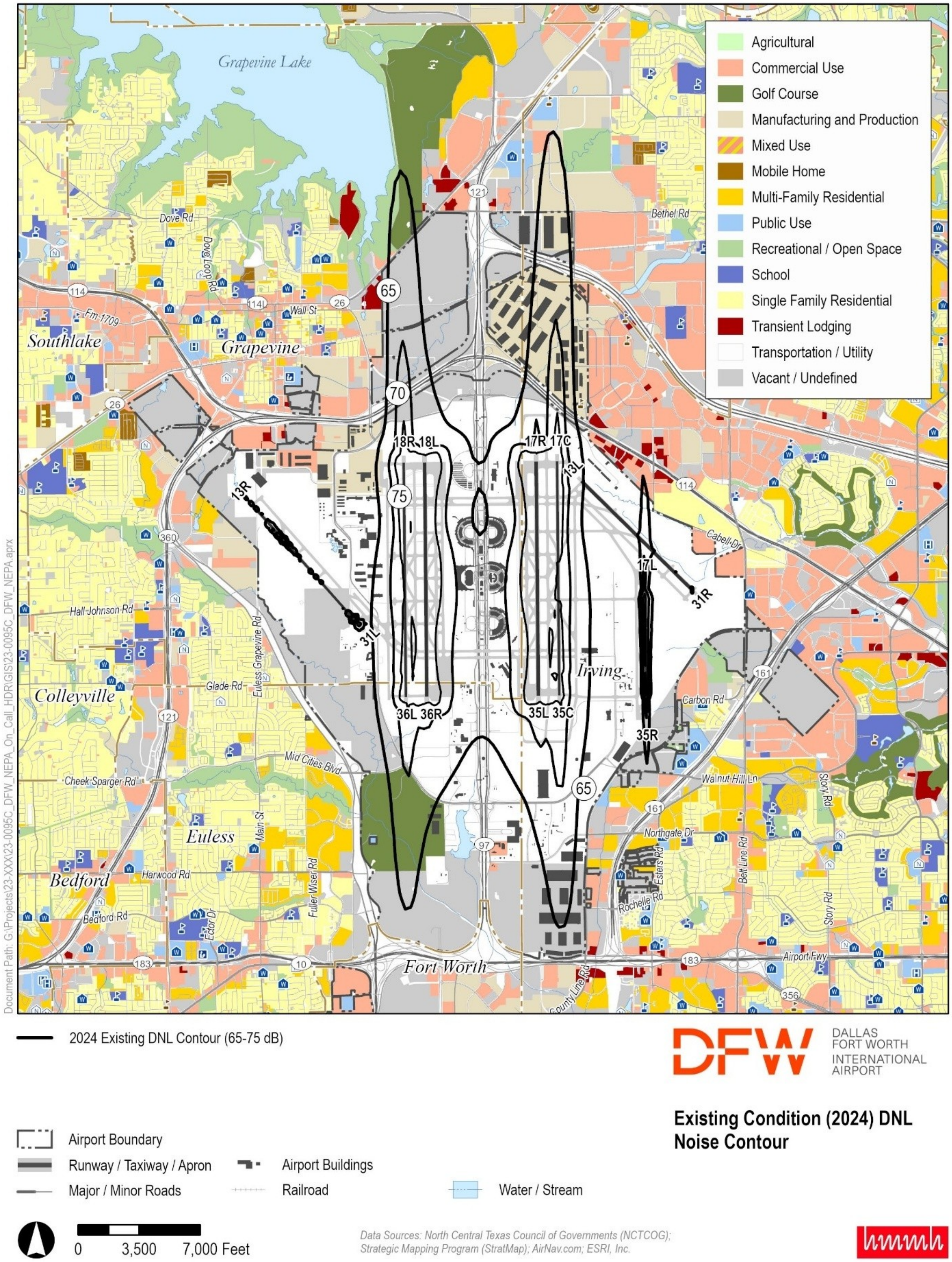
Contour Range	Airport Property Estimated Land Area (sq mi)	Non-Airport Property Estimated Land Area (sq mi)	Total Estimated Land Area (sq mi)
DNL 65-70 dB	6.98	0.55	7.52
DNL 70-75 dB	2.22	0.05	2.27
DNL 75+ dB	2.25	0.00	2.25
Total	**11.45**	**0.60**	**12.05**

Source: HMMH 2025

4.4.4.6 Noise Compatible Land Use

There are no schools, churches, nursing homes, hospitals, or libraries within the Existing Condition 65 DNL or greater contours. Furthermore, there are no single family, multifamily, or manufactured housing within the Existing Condition 65 DNL contours.

Figure 4-3. Existing Condition Noise Exposure Contours with Land Use



4.5 Water Resources

4.5.1 Surface Water and Stormwater Treatment

4.5.1.1 Regulatory Background

The Federal Water Pollution Control Act of 1948, as amended in 1972, known as the Clean Water Act (CWA), was enacted to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The CWA established a federal permitting system to regulate discharges into the waters of the United States (WOTUS), certify the protection of water quality, implement and enforce the National Pollutant Discharge Elimination System (NPDES) program, and identify and characterize impaired water bodies that do not meet, or are not expected to meet, water quality standards. The TCEQ's 2024 Integrated Report for CWA Sections 303(d) and 305(b) characterizes the quality of Texas surface waters and identifies those waters that do not meet water quality standards on the Section 303(d) list, an inventory of impaired waters.

4.5.1.2 Existing Conditions

Surface water runoff on DFW Airport flows into one of six sub-watersheds (Hackberry Creek, South Hackberry Creek, Estelle Creek, Grapevine Creek, Bear Creek, or Cottonwood Creek) or directly into two larger watersheds (West Fork Trinity River or Elm Fork Trinity River). Field surveys of WOTUS have been conducted on a large portion of DFW property. These field surveys have identified jurisdictional waters, tributaries, man-made drainage channels, ponds, and potential wetlands on various portions of DFW's property. No tributaries, wetlands, or waterbodies were identified in the proposed project areas of disturbance. One freshwater stream, Grapevine Creek (Segment 0822B_01) located to the north and northeast of the proposed project, is listed on the TCEQ Section 303(d) list (TCEQ 2024). The water quality management practices implemented for Grapevine Creek over the past few years have resulted in a change in the impairment listing from Category 5 (full TMDL) to Category 4, which means the water quality measures were effective in resolving the impairment and the management strategies will help maintain good water quality.

Drainage on DFW Airport is directed to stormwater collection pipes and storm drains. The stormwater management system also includes infiltration trenches, detention basins, type-D inlets, and oil-water separators. Additionally, DFW operates a stormwater pretreatment collection system and retreatment facility for stormwater associated with industrial activities—the first-flush stormwater discharge from the fuel farm, aircraft parking aprons, gates, hangars, operations and maintenance facilities, and vehicle parking lots. The first-flush stormwater is directed by diverter boxes to the on-site pretreatment facility. After pretreatment, stormwater is conveyed to the Trinity River Authority Central Plant in Irving, Texas, although there is an option to discharge to Bear Creek.

SECTION 5.0 ENVIRONMENTAL CONSEQUENCES

The potential environmental impacts resulting from the construction and operation of the reasonable alternatives and measures taken for mitigation of these effects are presented in the following section of this Draft EA (**SECTION 5.0**). The following alternative scenarios are examined:

- NAA, which assumes the proposed project would not be implemented at DFW, and
- Proposed Action Alternative, which is the sponsor's preferred alternative runway rehabilitation project, as detailed in **Section 3.3**.

5.1 Air Quality

Per FAA Order 1050.1, the threshold for significance for air quality impacts is defined as when "*the action would cause pollutant concentrations to exceed one or more of the NAAQS, as established by the USEPA under the CAA, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations*." Because the Proposed Action is in a Severe Nonattainment area for O_3, the FAA is required under the CAA General Conformity regulation to ensure that the action conforms to the applicable SIP. If the analysis of project-related air emissions is equal to or exceed the NOx and VOC *de minimis* thresholds established under the CAA, a General Conformity Determination would be required to demonstrate conformity with the SIP. Conversely, if project-related emissions are below *de minimis* thresholds no further analysis would be required under NEPA and the CAA.

5.1.1 No Action Alternative

Under the NAA, DFW would not implement the Proposed Action. The NAA would not involve any construction activities; therefore, there would be no project-related construction emissions. As such, there would be no additional air quality effects other than those currently produced through existing operational emissions. The NAA operational emissions are shown in **Table 5-1.**

Table 5-1. Estimated Operational Emissions Under the No Action Alternative

Year	Operational Category	NOx (tpy)	VOC (tpy)
2026	Aircraft	4,580.71	501.73
	GSE Landing-Take Off (LTO) cycle	32.57	24.58
	APU	131.40	9.99
	Total	**4,744.68**	**536.29**
2027	Aircraft	4,713.17	508.72
	GSE LTO-cycle	28.63	21.17
	APU	133.23	10.34
	Total	**4,875.03**	**540.22**

Source: HMMH 2025
Note: Estimated emissions shown in **Table 5-1** are based on construction operations in 2026 and 2027.
tpy: tons per year.

5.1.2 Proposed Action Alternative

The Proposed Action emissions would be from construction activities as well as aircraft taxiing operations. Pollutant emissions expected from the project include NOx and VOCs (ozone precursors), and criteria air pollutants such as Pb, O_3, CO, NOx, $PM_{2.5}$, PM_{10}, and SOx. The Dallas-Fort Worth metropolitan area is designated as attainment for all criteria pollutants except O_3, and as such this EA focuses on presenting emissions inventories for the ozone precursors, NOx and VOCs.

5.1.2.1 Construction-Related Emissions

The Proposed Action construction emissions were analyzed for anticipated construction years 2026 and 2027; **Table 5-2** shows the construction phasing and durations in each calendar year (see **Appendix B** for detailed construction emissions analysis). The Proposed Action would result in temporary air quality effects during demolition and construction activities. Greenhouse gases (GHGs), ozone precursor, and criteria air pollutant emissions would be generated from heavy-duty construction equipment activity, material hauling trips, and construction worker and vendor truck trips to and from the project areas. Construction emissions include both on-road mobile and off-road source categories. Mobile source exhaust and fugitive dust emissions would be generated from on-road vehicles and construction equipment. Fugitive VOC emissions would be generated by asphalt drying.

Table 5-2. Proposed Action Phasing and Estimated Construction Dates

Phase	Calendar Year and Project Activity	Estimated Start and End Dates	Duration (days)
Phase 1	**2026** - Relocate Runway Threshold (work on south end of Runway 18L/36R, south of Taxiway B)	05/01/2026 to 08/13/2026	60 days
Phase 2	**2026 -** Full Runway Closure	8/14/2026 to 12/31/2026	140 days
	2027 - Full Runway Closure	01/01/2027 to 04/30/2027	133 days

Source: DFW Airport Planning and Design Code and Construction Departments

A construction emissions inventory was prepared in accordance with the requirements outlined in the latest FAA Air Quality Handbook and Guidance Document (version 4), which provides both regulatory context and technical direction for completing airport-related air quality impact assessments. Construction emissions were modeled using the TCEQ Texas NONROAD version 2.5 (TexN2 Utility) and EPA's Motor Vehicle Emissions Simulator, version 5 (MOVES). **Table 5-3** shows the estimated construction emissions; the Proposed Action construction emissions are below the *de minimis* threshold of 25 tons per year (tpy) for NOx or VOC.

The construction of the Proposed Action would also require the operation of up to three batch plants, two concrete and one for hot mix asphalt (HMA). Batch plants are stationary sources of air emissions permitted through the TCEQ New Source Review (NSR) permit program. The NSR permitting process is on-going and would be completed prior to the start of construction. The emissions from batch plant stationary sources permitted through the NSR and Standard Permit (SP) programs are accounted for in the SIP and would not adversely impact the state's ability to comply with NAAQS.

Table 5-3. Summary of Estimated Construction Emissions for Proposed Action

Calendar Year	Source of Project Emissions	NOx (tpy)	VOC (tpy)
2026	On-road vehicle	7.83	0.72
	Non-road vehicle emissions	6.41	3.41
	Fugitive emissions	-	2.54
	2026 Total	**14.24**	**6.68**
2027	On-road vehicle	5.22	0.48
	Non-road vehicle emissions	4.27	2.27
	Fugitive emissions	-	1.70
	2027 Total	**9.49**	**4.45**

Source: HDR, 2025.
Note: Estimated emissions shown in **Table 5-3,** are based on construction operations in 2026 and 2027.

5.1.2.2 Operational-Related Emissions

The Proposed Action is expected to result in changes in aircraft operational emissions as result of temporary changes in aircraft taxi times during construction. Due to the closure of Runway 18L/36R, departing aircraft would need to use other DFW runways, thus slightly changing the taxiing times and fuel burn. **Table 5-4** provides the operational emissions by category, by year.

Table 5-4. Estimated Total Operational Emissions including the Proposed Action

Year	Operational Category	Pollutant (tons per year)	
		NOx	VOC
2026	Aircraft	4,610.97	513.17
	GSE LTO	32.57	24.58
	APU	131.40	9.99
	Total	**4,774.94**	**547.73**
2027	Aircraft	4,746.06	520.40
	GSE LTO	28.63	21.17
	APU	133.23	10.34
	Total	**4,907.92**	**551.91**

Source: HMMH 2025 (Aircraft Emissions Analysis)

Under the Proposed Action, typical DFW operations would continue; however, the closure of Runway 18L/36R would result in temporary changes in runway utilization and taxiing times. As previously noted, **Table 5-1** shows the NAA estimated emissions; and **Table 5-4** shows the estimated emissions associated with the typical operations in addition to the proposed runway closure. As shown in **Table 5-4**, aircraft operational emissions increase slightly when the runway is closed, this is because aircraft must taxi further to reach the terminals or the available runways. **Table 5-5** shows a comparison of the estimated operational emissions with and without the implementation of the Proposed Action.

Table 5-5. Project-Related Change in Operational Emissions

Year	Alternative	Pollutant (tons per year)	
		NOx	VOC
2026	Total Operational Emissions including Proposed Action (Table 5-4)	4,774.94	547.73
	NAA Total Operational Emissions (Table 5-1)	4,744.68	536.29
	2026 Net Change in Operational Emissions (Proposed Action)	**30.26**	**11.44**
2027	Total Operational Emissions including Proposed Action (Table 5-4)	4,907.92	551.91
	NAA Total Operational Emissions (Table 5-1)	4,875.03	540.22
	2027 Net Change in Operational Emissions (Proposed Action)	**32.89**	**11.69**

Source: HMMH 2025 (Aircraft Emissions Analysis)

5.1.2.3 Total Project-Related Emissions

Construction and operational activities would contribute 44.50 tpy NOx and 18.11 tpy VOCs in 2026 and 42.38 tpy NOx and 16.14 tpy VOCs in 2027. In both 2026 and 2027, the total project-related NOx emissions exceed the *de minimis* threshold of 25 tpy (**Table 5-6**).

Table 5-6. Estimated Total Proposed Action Emissions

Calendar Year	Emissions Category	NOx (tpy)	VOC (tpy)
2026	On-Road Construction	7.83	0.72
	Non-Road Construction	6.41	3.41
	Fugitives Construction	-	2.54
	Aircraft Operations	30.26	11.44
	Total Construction and Operational Emissions	**44.50**	**18.11**
2027	On-Road Construction	5.22	0.48
	Non-Road Construction	4.27	2.27
	Fugitives Construction	-	1.70
	Aircraft Operations	32.89	11.69
	Total Construction and Operational Emissions	**42.38**	**16.14**

Source: HDR, 2025 and HMMH, 2025.
Note: Numbers in **Table 5-6** are rounded to two decimal points.

Table 5-7 provides a comparison of the project-related NOx and VOC emissions to the applicable General Conformity *de minimis* thresholds. As shown in **Table 5-7** NOx emissions exceed the *de minimis* thresholds in 2026 and 2027. VOC emissions do not exceed the *de minimis* threshold of 25 tpy.

Table 5-7. Comparison of Project-Related Emissions to Severe O_3 *de minimis* Threshold

Year	Total Project Emissions		*De Minimis* Thresholds for Severe O_3 Nonattainment Areas		Are Project Emissions more than the *De Minimis* Thresholds?	
	NOx	VOCs	NOx	VOCs	NOx	VOCs
2026	44.50 tpy	18.11 tpy	25 tpy	25 tpy	Yes	No
2027	42.38 tpy	16.14 tpy	25 tpy	25 tpy	Yes	No

Source: HDR, 2025 and HMMH, 2025

5.1.3 General Conformity Applicability

The General Conformity process is conducted in three phases: applicability, evaluation, and determination. The applicability phase included determining if the proposed federal action is located in an EPA-designated nonattainment or maintenance area regulated criteria pollutants. The evaluation phase requires estimating the annual project-related emissions and comparing them to the *de minimis* thresholds. If a project's net emissions are less than the *de minimis* levels, then the federal action is considered to be too small to adversely affect the air quality and is automatically considered to conform with the applicable SIP. If the project-related emissions exceed the *de minimis* threshold, then a formal General Conformity determination must be prepared.

The Proposed Project is located in a severe ozone nonattainment area; it is a federal action requiring FAA review and approval. FAA's decision through issuance of a FONSI or Record of Decision (ROD) must be preceded by a CAA General Conformity evaluation and determination. Total emissions associated with the Proposed Action were estimated using MOVES5, TexN2.5, and FAA's AEDT 3g. Although portions of the scope of the Proposed Project were routine maintenance listed on the FAA Presumed to Conform list, meaning that the *associated air emissions are low and do not cause or contribute to any new violation of the NAAQS or interfere with provisions contained in applicable SIPs*, other portions of the scope of work were not found on the list of actions that are presumed to conform. In accordance with the CAA General Conformity Rule, an applicability analysis was conducted to determine if emissions would be below or above the applicable *de minimis* thresholds.

General Conformity Determination

The Proposed Project emissions were compared to the *de minimis* threshold for the DFW ozone severe non-attainment area (25 tpy for NOx or VOCs). As shown in **Table 5-7,** the combined project-related construction and operational NOx emissions exceed the applicable *de minimis* threshold in 2026 and 2027. Therefore, in accordance with the General Conformity Rule, DFW, on behalf of FAA, prepared a Draft General Conformity Determination for the Proposed Project. The purpose of a General Conformity Determination is to document the results of the General Conformity applicability analysis, and to demonstrate that the emissions associated with the Proposed Action conform to the current SIP. The applicable SIP revision is the DFW portion of the *Dallas-Fort Worth* *and Houston-Galveston-Brazoria Serious Classification Reasonable Further Progress State Implementation Plan Revision for the 2008 Eight-Hour Ozone National Ambient Air Quality Standard* (DFW 2008 Ozone NAAQS Serious RFP SIP Revision) adopted March 4, 2020, and approved by the EPA effective May 24, 2023 (88 FR 24693).

Per the General Conformity Rule, 40 CFR 93 Subpart B, one approach or criteria to demonstrate conformance with the applicable SIP is to *obtain a statement from the applicable state, tribal, or local air quality agency that the emissions from the action along with all other emissions in the area do not exceed the budget for those emissions in the implementation plan (see 40 CFR § 93.158(a))*. FAA and DFW met with the TCEQ Air Quality Division to discuss the Proposed Project and initiate the general conformity coordination process. On October 20, 2025, DFW and FAA submitted the Draft General Conformity Determination and estimated project emissions to TCEQ for review. On December 4, 2025 DFW and FAA resubmitted the revised Draft General Conformity Determination. TCEQ reviewed the Draft General Conformity Determination and supporting data showing that the Proposed Action would result in NOx emissions exceeding the 25 tpy *de minimis* threshold in 2026 and 2027.

TCEQ compared the estimated project-related emissions with the overall excess creditable reasonable further progress (RFP) emissions reductions in the applicable SIP revision that would be available after (i) meeting the 2020 RFP emissions reduction target, (ii) establishing a motor vehicle emissions budget safety margin for transportation conformity (40 CFR §93.101), and (iii) accounting for previously proposed federal actions that relied on the current applicable SIP revision to demonstrate conformity. TCEQ confirmed that the maximum available excess emission reductions in the applicable SIP are 27.85 tons per day (tpd) for NOx and 17.10 tpd for VOCs (see **Table 5-8**). This accounts for previously submitted federal actions that relied on 40 CFR §93.158(a)(5)(i)(a) to demonstrate conformity with the DFW 2008 Ozone NAAQS Serious RFP SIP Revision. On December 17, 2025, TCEQ provided a letter to FAA stating that TCEQ concurs that the Proposed Project conforms to the Texas SIP. The Draft General Conformity Determination and the concurrence letter from TCEQ are included in **Appendix C.** The Draft General Conformity Determination will be provided to the EPA Region 6 Office and will be published for public review for a period of 30 calendar days from February 1, 2026, through March 3, 2026. Responses to comments received from the public and or agencies will be included in the Final General Conformity Determination and published on the DFW Airport website.

Table 5-8. Project-Related NOx Emissions

Emission Source	Annual Emissions (tpy)	Daily Emissions (tpd)	Available Excess Creditable RFP Emissions Reductions (tpd)
2026 Non-Road Mobile	36.67	0.100	27.85
2026 On-Road Mobile	7.83	0.021	
2027 Non-Road Mobile	37.16	0.102	17.10
2027 On-Road Mobile	5.22	0.014	

Source: HDR 2025, HMMH 2025, and TCEQ 2025
Notes: The current applicable SIP is the 2020 Dallas-Fort Worth *Serious* RFP SIP Revision under the 2008 NAAQS. To calculate project-related daily emissions, the annual emissions can be divided by 365

days per year for example: 2026 Non-Road Emissions: 36.67 tpy divided by 365 days per year = 0.100 tpd NOx.

5.1.4 Mitigation

The Proposed Action will include construction and operational activities that will result in temporary air quality effects. Net emissions from the Proposed Action would temporarily exceed the NOx *de minimis* threshold of 25 tpy. As discussed in the Draft General Conformity Determination, the Proposed Action would not delay attainment of the ozone standard. TCEQ reviewed the Draft General Conformity Determination in accordance with the general conformity requirements established in Title 40 Code of Federal Regulations (CFR) Part 93, Subpart B and on December 17, 2025, TCEQ concurred with the Draft General Conformity Determination and informed FAA that the Proposed Action conforms to the Texas SIP. Specific measures to mitigate and reduce the NOx or VOC emissions, as precursors to ozone formation, would not be necessary.

All construction activities would be conducted in compliance with federal, state, and local, regulations, standards, and requirements. The Proposed Action would be constructed in accordance with the provisions of the current version of FAA AC 150/5370-10, Standard Specifications for Construction of Airports. Standard applicable engineering controls and best management practices (BMPs) would be implemented to reduce air quality effects. BMPs and measures that could be implemented to reduce pollutant emissions and minimize any temporary adverse effects on air quality include:

- Implementation of Dust Control Plan to reduce construction dust; control measures may include spraying water on dirt piles and streets/roads and reducing dust-generating activities in periods of high winds
- Use of onsite dumpsters for scrap metal from construction, repair, and demolition activities
- Use of the East Materials Management Site (East MMS) for onsite recycling or construction and demolition debris
- Limiting unnecessary idling times on diesel-powered engines
- Use of highly efficient off-road construction equipment

5.2 Hazardous Materials, Solid Waste, and Pollution Prevention

According to the FAA Order 1050.1 Desk Reference, the FAA has not established a significance threshold for hazardous materials, solid waste, or pollution prevention.

5.2.1 No Action Alternative

No impacts from hazardous materials and solid waste are expected as a result of the NAA, as no construction activities would occur. Therefore, there would be no hazardous materials or solid waste impacts not already occurring or expected to occur.

5.2.2 Proposed Action Alternative

5.2.2.1 Hazardous Materials

Construction activities associated with the Proposed Action are expected to include the short-term use of hazardous and non-hazardous materials and generation waste common to construction including reclaimed concrete, asbestos containing materials (ACM), concrete wash-out liquids, petroleum hydrocarbon-based fuels, lubricants, oils, paints, and cleaning solvents. These materials would be handled and stored in accordance with all applicable federal, state, or local regulations. DFW will comply with all federal, state, and local requirements regarding generation, handling, and disposing of any waste produced during construction. As part of the DFW construction permitting process, DFW will require all contractors to submit detailed waste management reports and abide by those plans along with all applicable regulatory requirements. DFW maintains a Contaminated Media Management Plan (CMMP) that provides information and guidance on potential environmental concerns that may be encountered during the disturbance, excavation and relocation of soils. All activities that involve disturbing or excavating soils will be performed in accordance with the CMMP and other applicable requirements.

5.2.2.2 Solid Waste

Solid waste would be generated from construction and demolition activities associated with the proposed runway rehabilitation project. The Proposed Action would neither generate an unmanageable volume of solid waste nor affect DFW's existing solid waste management program. This solid waste would be disposed of in compliance with all applicable regulations. Waste management and disposal facilities are available in the Dallas Fort Worth area to accommodate the proper disposal of solid waste. There are several active, permitted landfills near DFW. Recycling materials from demolition activities would be performed to the extent possible.

5.2.2.3 Pollution Prevention

A Spill Prevention, Control, and Countermeasures (SPCC) Plan would be developed to document the measures that will be taken to prevent accidental release of any hazardous or regulated substances to the environment. In the event of a release, the SPCC would also include the corrective actions that would be deployed to minimize the environmental impact. Furthermore, appropriate materials management measures would be followed to prevent pollution and to minimize the use and manage disposal of hazardous and non-hazardous substances. With these measures, no significant impacts related to hazardous materials would occur as a result of the Proposed Action.

5.2.3 Mitigation

No significant impacts related to hazardous materials or solid waste would occur as a result of the Proposed Action because the Proposed Action would not have the potential to violate applicable laws and regulations; does not involve a site listed on the NPL; does not produce an appreciably different quantity or type of hazardous waste; does not generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal and/or would not exceed local capacity; or does not adversely affect human health and the environment.

DFW will comply with all federal, state, and local requirements with regard to generation, handling, and disposing of any waste produced during the construction of the proposed project. As part of the DFW Airport construction permitting process, DFW Airport will require all contractors to submit detailed soil management and waste management plans and abide by those plans along with all applicable regulatory requirements. The contractor will develop a waste management plan and any contaminated media encountered during the construction of the Proposed Action will be handled in accordance with the CMMP.

All activities that involve disturbing or excavating soils will be performed in accordance with all federal, state, and local regulations.

If the Proposed Action requires handling of ACM, the asbestos abatement activities will be monitored by an Asbestos Inspector licensed by the Texas Department of State Health Services (DSHS) to aid identification methods and procedures. The construction contractor would take appropriate measures to prevent, minimize, and control spills and release of hazardous materials in the construction staging yards and throughout the project area. Special provisions and contingency language would be included in the project's construction plans and specifications to manage hazardous materials and/or petroleum contaminated media according to applicable federal, state, and local regulations.

The Proposed Action would not have a significant impact on solid waste collection, landfill capacity, and waste disposal operations; therefore, mitigation is not required.

5.3 Noise and Noise Compatible Land Uses

According to FAA Order 1050.1G, the significance determination for noise is presented in the following statement: *The action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the NAA for the same timeframe. For example, an increase from DNL 65.5 dB to 67 dB is considered a significant impact, as is an increase from DNL 63.5 dB to 65 dB. The determination of significance must be obtained through the use of noise contours and/or grid point analysis along with local land use information and general guidance contained in Appendix A of 14 CFR Part 150. Compatible or non-compatible land use is determined by comparing aircraft DNL value at the site to the values in the FAA Part 150 land use compatibility guidelines.*

5.3.1 Noise Analysis

A noise exposure analysis was conducted to determine the potential noise effects of the Proposed Action. Noise contours and a grid point analysis were used to determine average annual DNL at locations around DFW. The noise analysis compared the NAA and Proposed Action using FAA's thresholds of significance (*a noise increase of at least 1.5 dB in the DNL 65 dB noise exposure contour).*

Aircraft noise levels were evaluated and compared between the future construction period NAA and Proposed Action (2026 and 2027) to determine the effect of the shift in runway utilization during the closure. The noise analysis was prepared using existing and forecast operational data for DFW and AEDT Version 3g in compliance with FAA Order 1050.1 and FAA Order 5050.4B.

5.3.1.1 Forecast and Aircraft Activity Levels

The Proposed Project is expected to be completed in two construction phases. Phase 1 includes all the preparation work, contractor mobilization, and the temporary relocated threshold of Runway 36R, maintaining approximately 9,273 feet of usable runway length. Phase 2 involves the reduced full runway closure. Both Phase 1 and 2 are the subject of this noise analysis. Together, Phase 1 and Phase 2 cover 12 months from May 2026 to April 2027 and are split as follows:

- Phase 1 – Runway 36R end closure – May 1, 2026 through July 31, 2026 (3 months)
- Phase 2 – Full Closure of Runway 18L/36R – August 1, 2026 to April 30, 2027 (9 months)

On August 15, 2025 DFW submitted an operational activity forecast to FAA for review; FAA approved the operational activity forecast on September 17, 2025 (**Appendix A**). The forecast operations are based on the FAA's 2024 Terminal Area Forecast (TAF) issued in January 2025. The forecast included detailed operations tables for AEDT noise and emissions modeling for calendar years 2026 and 2027. The NAA and Proposed Action Alternative assume the same level of operations for both scenarios because the Proposed Action is a runway rehabilitation project that does not alter the length of the runway or its expected use in the future. **Table 5-9** summarizes the annual operations for 2024, 2026, and 2027. The Existing Conditions 2024 operations represent the baseline and are included for comparison purposes. The fifth column of the table shows the operations for the 12-month construction period, calculated by combining eight months of 2026 and four months of 2027.[4] The final column presents the same data, divided by the number of days in the year to obtain the AAD operations. Further details on the forecast development can be found in **Appendix A**.

Table 5-9. Forecast Operations for Noise Model Input

Aircraft Category	2024 Existing Condition	NAA and Proposed Action Alternative		12-Month Construction Period (May 2026 – April 2027)	
		2026 Forecast	2027 Forecast	Annual Operations	Average Daily Operations
Air Carrier Cargo	16,573	26,727	28,189	27,214	74.6
Air Carrier Passenger	705,825	773,887	794,319	780,698	2,138.9
Air Taxi Cargo	4,290	4,676	4,738	4,697	12.9
Air Taxi Passenger	10,580	11,584	11,693	11,620	31.8
General Aviation	5,724	6,233	6,252	6,239	17.1
Military	211	197	197	197	0.5
Total	**743,203**	**823,304**	**845,388**	**830,665**	**2,275.8**

Sources: DFW NOMS 2025, FAA OPSNET 2025, HMMH 2025

The 830,665 annual operations translate to 2,275.8 AAD operations to be modeled for both the No Action and Proposed Action noise analysis. **Table 5-10** provides the representative aircraft and engine combinations and the number of average daily operations that were modeled in AEDT for the Future (2026/2027) NAA and Proposed Action Alternative.[5] The future AAD forecast includes 2,275.8 operations per day, and assumed that 8.0 percent of the operations will occur during the DNL nighttime hours of

[4] May 2026 through April 2027
[5] The future fleet mix was developed from the DFW NOMS information used for the Existing Condition and a review of known aircraft fleet retirements.

10:00 p.m. to 6:59 a.m. See **Appendix D** for the detailed methodology used to complete the noise modeling.

The trip length and operational profiles for the forecast (2026/2027) operations are the same for the Existing Conditions, NAA, and the Proposed Action Alternative because the Proposed Action is a runway rehabilitation project that does not alter the length of the runway or its expected use in the future (see **Appendix A)**. The aircraft fleet mix and operations by time of day are also provided in the Operations Memo in **Appendix A**.

Table 5-10. DFW Modeled AAD Aircraft Operations for the No Action and Proposed Action Alternatives

Tower Category	Propulsion	AEDT ANP Type	Arrivals Day	Arrivals Night	Departures Day	Departures Night	Total AAD
Air Carrier Cargo	***Jet***	747400	3.5	1.8	3.5	1.8	10.5
		7478	0.9	0.7	1.1	0.6	3.3
		757PW	0.8	<0.1	0.8	0.1	1.8
		757RR	1.2	0.1	1.1	0.2	2.6
		7673ER	6.7	4.8	5.7	5.8	23.1
		777300	5.9	3.9	3.8	6.1	19.8
		A300-622R	2.5	0.2	2.3	0.4	5.4
		MD11GE	1.1	0.9	1.2	0.8	4.0
		MD11PW	1.0	1.0	1.3	0.8	4.0
Air Carrier Passenger	***Jet***	737700	19.2	3.0	20.3	1.8	44.4
		737800	202.4	28.8	210.2	21.0	462.4
		7378MAX	12.4	4.3	14.9	1.7	33.3
		747400	0.9	0.4	0.9	0.4	2.5
		7478	<0.1	0.3	0.2	0.1	0.6
		777200	5.8	0.8	6.2	0.3	13.0
		7773ER	6.9	<0.1	6.0	0.9	13.9
		7878R	7.7	3.5	11.1	<0.1	22.4
		7879	12.4	2.1	12.5	2.0	29.0
		A319-131	63.9	6.5	64.1	6.3	140.8
		A320-211	16.1	2.7	16.6	2.2	37.5
		A320-232	25.6	3.3	26.4	2.6	57.9
		A320-270N	30.4	12.2	31.2	11.4	85.2
		A321-232	195.1	35.4	203.9	26.5	460.9
		A330-301	0.8	<0.1	<0.1	0.8	1.7
		A330-343	0.4	0.0	0.4	<0.1	0.8
		A340-211	0.5	0.0	0.5	0.0	1.0
		A350-941	4.1	<0.1	3.3	0.9	8.4
		A380-841	0.9	<0.1	0.8	<0.1	1.8
	Regional Jet	CRJ9-ER	82.0	13.1	87.0	8.1	190.2
		EMB170	33.3	4.7	34.5	3.5	76.0

Tower Category	Propulsion	AEDT ANP Type	Arrivals Day	Arrivals Night	Departures Day	Departures Night	Total AAD
		EMB175	205.2	21.5	208.1	18.5	453.3
		EMB190	1.0	<0.1	1.0	<0.1	2.0
		Air Carrier Total	950.5	156.2	981.2	125.6	2,213.5
Air Taxi Cargo	***Non-Jet***	1900D	1.0	<0.1	0.7	0.3	2.1
		CNA208	3.2	0.8	3.5	0.5	8.0
		DHC6	0.7	<0.1	0.6	0.1	1.5
		SF340	0.4	0.2	0.6	<0.1	1.3
Air Taxi Passenger	***Jet***	CL600	0.9	<0.1	0.9	<0.1	2.0
		CNA55B	1.7	0.1	1.7	<0.1	3.7
		CNA560XL	1.0	<0.1	1.0	<0.1	2.0
		CNA680	2.7	0.2	2.7	0.1	5.7
	Regional Jet	CL600	0.7	<0.1	0.7	<0.1	1.4
		EMB145	0.7	<0.1	0.7	<0.1	1.3
		EMB14L	1.8	0.0	1.8	<0.1	3.6
	Non-Jet	CNA208	6.0	<0.1	5.9	0.2	12.1
		Air Taxi Total	20.8	1.6	20.9	1.5	44.7
General Aviation	***Jet***	CL600	1.0	<0.1	1.0	<0.1	2.0
		CL601	2.2	0.1	2.3	<0.1	4.7
		CNA55B	1.1	<0.1	1.0	<0.1	2.2
		CNA560XL	1.8	<0.1	1.8	<0.1	3.7
	Non-Jet	CNA172	0.7	0.2	0.6	0.2	1.7
		CNA208	0.8	<0.1	0.8	<0.1	1.6
	Non-Jet	DHC6	0.6	0.0	0.6	<0.1	1.2
		General Aviation Total	**8.1**	**0.5**	**8.0**	**0.6**	**17.1**
Military	***Jet***	C17	0.1	0.0	0.1	<0.1	0.3
		LEAR35	<0.1	<0.1	0.1	0.0	0.2
	Non-Jet	C130AD	<0.1	0.0	<0.1	0.0	<0.1
		Military Total	**0.3**	**<0.1**	**0.3**	**<0.1**	**0.5**
		Grand Total	**979.6**	**158.3**	**1,010.3**	**127.6**	**2,275.8**

Sources: DFW NOMS 2025, FAA OPSNET 2025, HMMH 2025
Note: Totals may not match exactly due to rounding.

5.3.2 No Action Alternative

Under the NAA, the Proposed Project would not occur and there would be no changes to the typical runway use at DFW for 2026/2027. The aircraft fleet mix, runway end utilization, and flight tracks and use in 2026 and 2027 would be the same as the Existing Condition (see **Section 4.4.4** and **Appendix A**).

5.3.2.1 Noise Exposure Contours for the No Action Alternative in 2026 and 2027

Figure 5-1 shows the 12-month noise exposure contours for the NAA. Noise contours are presented for 65 DNL, 70 DNL, and 75 DNL. Under the NAA, the DNL contours extend away from DFW slightly further than the Existing Condition on both the north and south sides of the airport due to the expected increase in operations for 2026 and 2027. The 65 DNL contour also extends off airport property to the north and south of Runway 17L/35R; the 70 DNL contour does not extend off DFW property.

Table 5-11 provides estimated total area, on-airport area, and off-airport area exposed to aircraft noise of at least 65 DNL for the NAA. Approximately 13.95 square miles of land fall within the 65 DNL or higher noise exposure area. Of the total land area, approximately 1.01 square miles of land exposed to 65 DNL or higher, is located off-airport (the remaining 12.94 square miles are located on DFW property).

Table 5-11. Estimated Land Area within NAA Noise Exposure Contour

Contour Range	Airport Property Estimated Land Area (sq mi)	Non-Airport Property Estimated Land Area (sq mi)	Total Estimated Land Area (sq mi)
DNL 65-70 dB	7.76	0.95	8.71
DNL 70-75 dB	2.66	0.06	2.73
DNL 75+ dB	2.52	0.00	2.52
Total	**12.94**	**1.01**	**13.95**

Source: HMMH 2025

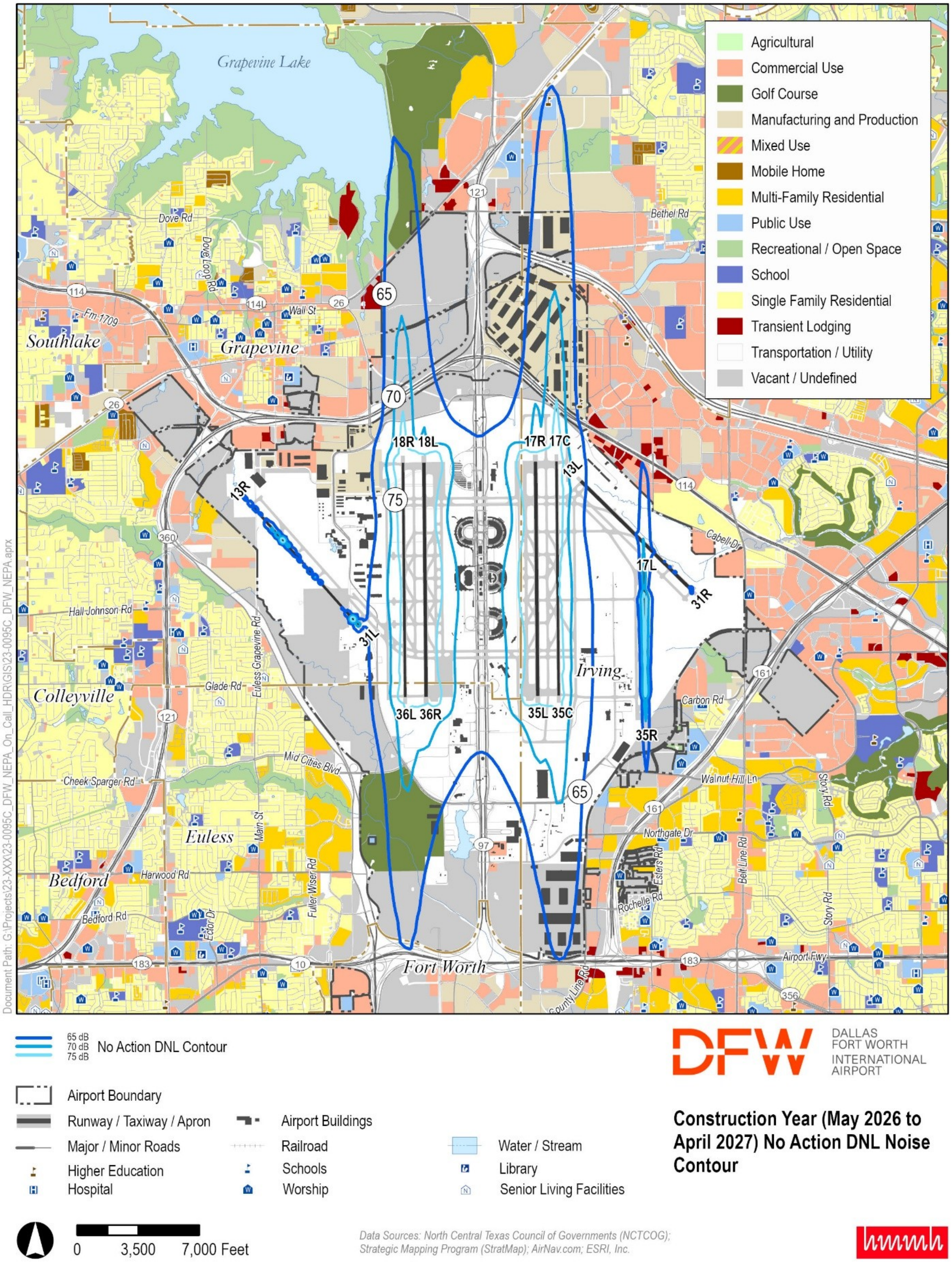
5.3.2.2 Noise Compatible Land Use for No Action Alternative

There is one school (community college) north of Runway 17C within the 65 DNL contour. There are no churches, nursing homes, hospitals, or libraries within any of the 65 DNL or greater contours. Furthermore, there are no single family, multifamily, or manufactured housing within the NAA 65 DNL contours (see **Figure 5-1**).

5.3.3 Proposed Action Alternative

As noted in **Section 4.4**, the Proposed Action Alternative is comprised of the rehabilitation of Runway 18L/36R and its shoulders, upgrades to the electrical systems and components, and a full asphalt overlay. The Proposed Action would cause temporary changes in runway use, during construction only. The proposed runway closure would potentially result in temporary changes in aircraft noise for some communities near the airport. One future construction year (2026/2027) was used to analyze the potential noise impacts based on the anticipated partial runway closure, full runway closure, and overall project schedule. As presented in **Section 5.3.1**, the Runway 18L/36R Rehabilitation is expected to be completed in two construction phases, over the 12-month period from May 2026 to April 2027.

Figure 5-1. No Action Alternative (2026/2027) Noise Contours with Land Use



5.3.3.1 Runway Utilization for Proposed Action Alternative

During Phase 1 (three months), the runway threshold for the Runway 36R end will be relocated 4,128 feet northward (to Taxiway WM) to allow continuing departure operations on the remaining 9,273 feet while the south end is under construction. Runway use for construction Phase 1 would be the same as the Existing Condition but with a few operations shifted proportionally to other runways.

Runway use for construction Phase 2 (full closure of Runway 18L/36R for nine months) was provided by DFW for arrivals and departures overall. During Phase 2, arrivals would shift mainly to Runways 17L/35R, 17C/35C, and 13R, while departures would shift to Runways 17R/35L, 18R/36L, and 31L. The study team used historical runway utilization data and the 2024 existing conditions runway use to determine the day and night percentages for Phase 2. **Table 5-12** presents the runway use percentages for each construction phase and for the 12-month construction period overall. **Appendix A** provides detailed runway utilization.

Table 5-12. Proposed Action Alternative Runway Utilization Percentages

Runway	During Construction Phase 1				During Construction Phase 2				Combined (12 Month)			
	Day Arr	Night Arr	Day Dep	Night Dep	Day Arr	Night Arr	Day Dep	Night Dep	Day Arr	Night Arr	Day Dep	Night Dep
13L	<1%	0%	<1%	<1%	0%	0%	0%	0%	<1%	0%	<1%	<1%
13R	4%	<1%	<1%	0%	11%	2%	0%	0%	9%	1%	<1%	0%
17C	27%	34%	<1%	1%	27%	50%	0%	0%	27%	43%	<1%	<1%
17L	11%	2%	<1%	0%	26%	5%	0%	0%	22%	3%	<1%	0%
17R	<1%	8%	39%	32%	0%	0%	59%	5%	<1%	3%	53%	8%
18L	0%	0%	31%	30%	0%	0%	0%	0%	0%	0%	9%	3%
18R	28%	26%	<1%	7%	7%	13%	11%	65%	12%	19%	8%	59%
31L	<1%	0%	<1%	<1%	0%	0%	7%	<1%	<1%	0%	5%	<1%
31R	1%	<1%	<1%	0%	3%	<1%	0%	0%	3%	<1%	<1%	0%
35C	11%	15%	<1%	<1%	11%	22%	0%	0%	11%	19%	<1%	<1%
35L	<1%	3%	16%	14%	0%	0%	0%	0%	<1%	2%	5%	2%
35R	5%	1%	<1%	0%	11%	2%	22%	0%	10%	2%	15%	0%
36L	12%	11%	<1%	3%	4%	6%	2%	30%	6%	8%	1%	27%
36R	0%	0%	14%	12%	0%	0%	0%	0%	0%	0%	4%	1%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Sources: DFW NOMS 2025, FAA OPSNET 2025, HMMH 2025

5.3.3.2 Flight Tracks for Proposed Action Alternative

Flight track locations and percent utilization for the future (2026/2027) Proposed Action Alternative are expected to be the same as the Existing Condition (see **Section 4.4.4.4**).

5.3.3.3 Proposed Action Alternative Noise Exposure Contours

Figure 5-2 shows the calculated annual noise exposure at DFW for the Proposed Action Alternative 12-month construction period. Noise contours are presented for 65 DNL, 70 DNL, and 75 DNL. Under the Proposed Action Alternative, the DNL contours are similar in size but reflect the shifts in operations away from Runway 18L/36R while it would be under construction. The 65 DNL contour extends off airport property over non-compatible land use south of Runway 17L/35R. The 70 DNL contour for the Proposed Action Alternative includes no noise sensitive land use and does not extend off DFW property.

Table 5-13 provides the estimated total land area, on-airport area, and off-airport area within the 65 DNL noise exposure contour, under the Proposed Action Alternative. Approximately 14.08 square miles of land fall within the 65 DNL or higher noise exposure contours. Of the total land area, approximately 1.07 square miles exposed to 65 DNL or higher is located off-airport (the remaining 13.01 square miles are located on DFW property).

Table 5-13. Estimated Land Area within the Proposed Action Alternative Noise Exposure Contours

Contour Range	Estimated On-Airport Land Area (sq mi)	Estimated Non-Airport Land Area (sq mi)	Estimated Total Land Area (sq mi)
DNL 65-70 dB	7.76	1.02	8.78
DNL 70-75 dB	2.79	0.05	2.84
DNL 75+ dB	2.46	0.00	2.46
Total	13.01	1.07	14.08

Source: HMMH, 2025

5.3.3.4 Noise Compatible Land Use

There is one school (community college) north of Runway 17C within the 65 DNL contour. There are no churches, nursing homes, hospitals, or libraries within any of the contours. Furthermore, there are no single-family houses or manufactured housing within any of the Proposed Action Alternative (2026/2027) noise contours. There is one area south of Runway 17L/35R where the 65 DNL contour extends off airport property and over residential (multi-family) land use. This results in the exposure of 154 housing units (279 people) to 65 DNL or higher from the Proposed Action. This area would be exposed to higher DNL levels for approximately nine months during the full runway closure portion of the project (Phase 2). **Table 5-14** summarizes the residential population and housing units affected by noise levels exceeding 65 DNL for the Proposed Action Alternative (2026/2027) noise exposure contours.

Figure 5-2. Proposed Action Alternative (2026/2027) Noise Exposure Contours with Land Use

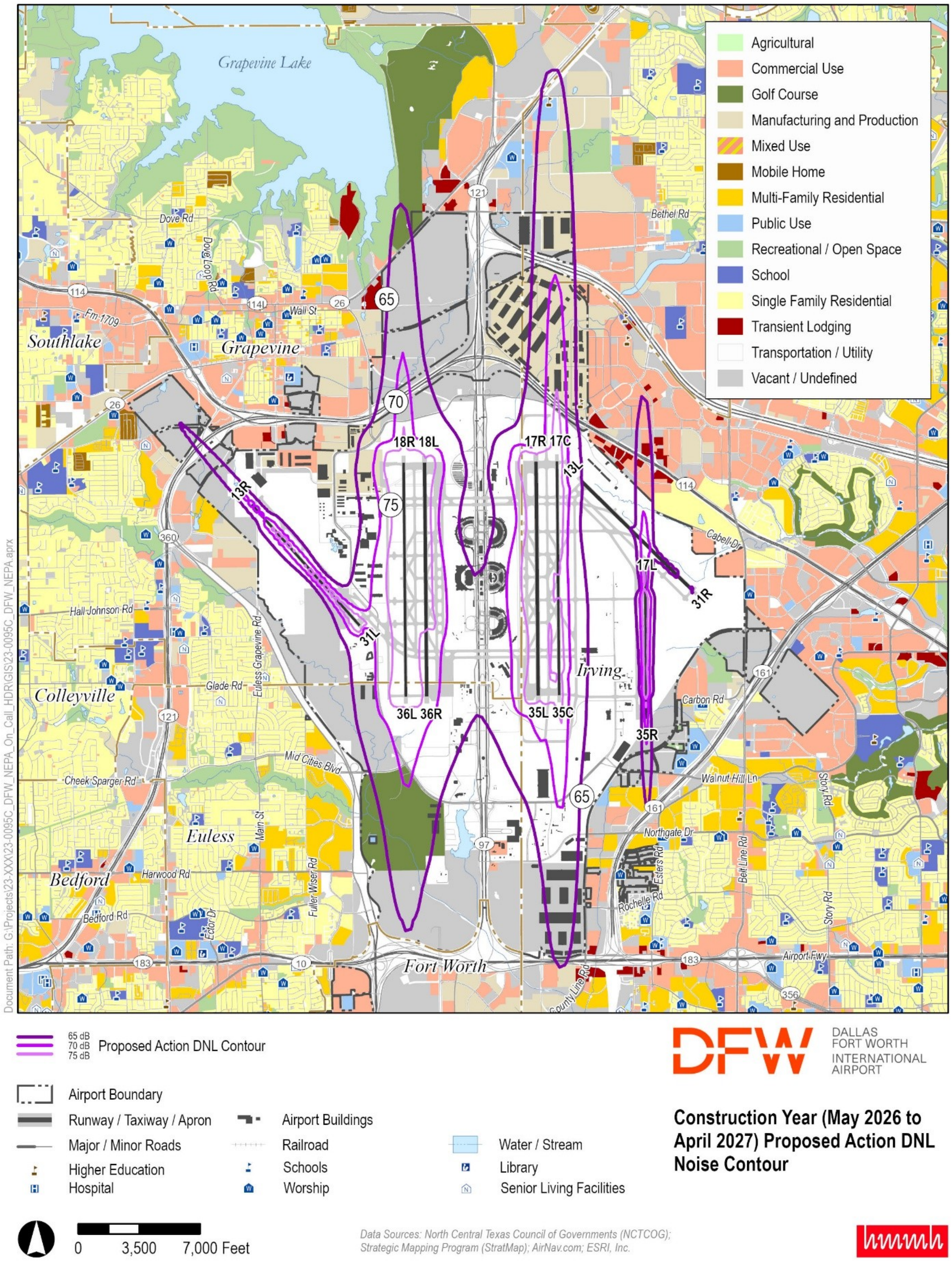


Table 5-14. Non-Compatible Land Use, Housing Units and Population–Comparison of Future Year (2026/2027) Alternatives

Category	Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB
Housing	Single-Family	0	0	0
	Multi-Family	154	0	0
	Manufactured Housing	0	0	0
	Total Housing Units	154	0	0
Population	Single-Family	279	0	0
	Multi-Family	0	0	0
	Manufactured	279	0	0
	Total Population	0	0	0

Source: HMMH, 2025

5.3.4 Comparison Between the NAA and Proposed Action Alternative

Table 5-15 provides a comparison of the estimates of the total area, on-airport area, and off-airport area exposed to aircraft noise of at least 65 DNL for the NAA and Proposed Action Alternative. The noise exposure analysis results show a slight increase in both the on-airport and off-airport land areas due to the changes in runway utilization during the construction of the Proposed Action.

Table 5-15. Non-Compatible Land Use, Housing Units and Population–Comparison of Future Year (2026/2027) Alternatives

Alternative	Contour Range	Estimated On-Airport Land Area (sq mi)	Estimated Non-Airport Land Area (sq mi)	Estimated Total Land Area (sq mi)
NAA	DNL 65-70 dB	7.76	0.95	8.71
	DNL 70-75 dB	2.66	0.06	2.73
	DNL 75+ dB	2.52	0.00	2.52
	Total	**12.94**	**1.01**	**13.95**
Proposed Action	DNL 65-70 dB	7.76	1.02	8.78
	DNL 70-75 dB	2.79	0.05	2.84
	DNL 75+ dB	2.46	0.00	2.46
	Total	**13.01**	**1.07**	**14.08**
Difference (Proposed Action – NAA)	DNL 65-70 dB	0.00	0.07	0.07
	DNL 70-75 dB	0.12	-0.01	0.11
	DNL 75+ dB	-0.06	0.00	-0.05
	Total	**0.06**	**0.06**	**0.13**

Source: HMMH 2025

5.3.4.1 Proposed Action Alternative Non-Compatible Land Use Evaluation

Figure 5-3 shows the comparison between the NAA and Proposed Action Alternative DNL contours (i.e., the 65 DNL, 70 DNL, and 75 DNL contours). On the north side of the airport, the eastern contour lobes (associated with 17R/35L, 17C/35C and 17L/35R) extend further to the north under the Proposed Action Alternative, while the western contour lobe is smaller due to shifting operations away from Runway 18L/36R during construction activities. Similarly, on the south side of the airport, the changes in runway use would shift operations from Runway 18L/36R during the construction years; this would result in increases to the size of the eastern contour lobes and a reduction in noise on the western side of the airport. Expected construction period increases in the use of Runway 31L for departures and Runway 13R for arrivals would result in changes in noise on the northwest side of the airport.

The 65 DNL contour extended to the south and would encompass residential uses; these are not noise-compatible land uses, within the 65 DNL contour. There would be temporary noise impacts to the apartment buildings to the south of Runway 17L/35R during the construction period, with the largest increase during construction. The non-compatible uses located directly along the extended centerline of Runway 35R would be impacted as aircraft operations are temporarily shifted during the runway closure.

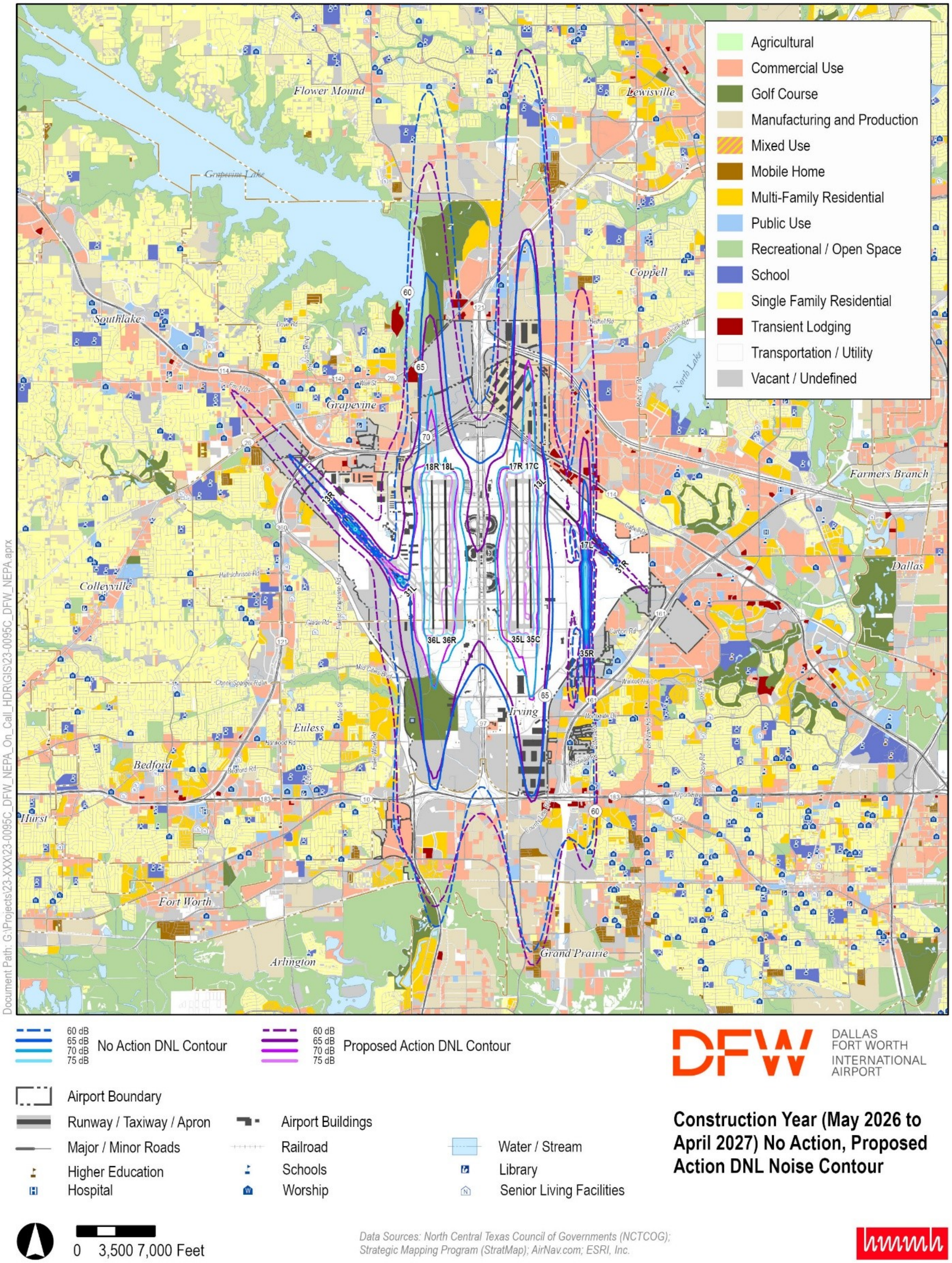
The analysis indicated that there are 154 multi-family residential units, with an estimated population of 279 people, that would be exposed to noise levels of 65 DNL or greater as a result of the Proposed Action. Comparisons of the residential population and housing units exposed to noise levels at or exceeding DNL 65 dB for the future (2026/2027) alternatives are provided in **Table 5-16.** There are no schools, churches, nursing homes, hospitals, or libraries within the 65 DNL or greater contours.

Table 5-16. Non-Compatible Land Use, Housing Units and Population–Comparison of Future Year (2026/2027) Alternatives

Alternative	Contour Range	Housing Units	Population	Non-Airport Land Area (sq mi)	Total Land Area (sq mi)
NAA	DNL 65-70 dB	0	0	0	0
	DNL 70-75 dB	0	0	0	0
	DNL 75+ dB	0	0	0	0
	Total	**0**	**0**	**0**	**0**
Proposed Action	DNL 65-70 dB	154	279	0	0
	DNL 70-75 dB	0	0	0	0
	DNL 75+ dB	0	0	0	0
	Total	**154**	**279**	**0**	**0**
Difference (Proposed Action – NAA)	DNL 65-70 dB	154	279	0	0
	DNL 70-75 dB	0	0	0	0
	DNL 75+ dB	0	0	0	0
	Total	**154**	**279**	**0**	**0**

Source: HMMH 2025

Figure 5-3. Comparison of NAA and Proposed Action Alternative (2026/2027) Noise Exposure Contours



5.3.4.2 Proposed Action Alternative Grid Point Evaluation

The study team evaluated the change in noise using two different grids. The NSA grid was used to determine any significant changes within the 65 DNL contours or any reportable changes between 60 DNL and 65 DNL. The Secondary Study Grid was used to determine any reportable changes within the 45 DNL to 60 DNL contour.

A grid point evaluation covering the NSA evaluated any change between the 60 DNL to 65 DNL contours. Under the Proposed Action Alternative, one area with residential units, south of Runway 35R would experience changes in noise exposure during the construction of the Proposed Action.

5.3.4.3 Analysis of 1.5 dB Change Within the 65 DNL or Greater Noise Contour

The Proposed Action Alternative would cause short-term, temporary elevated noise levels during the construction period of approximately 12 months (3 months of partial runway closure and 9 months of full closure). The temporary noise increases resulting from construction of the Proposed Action Alternative would affect one multi-family development in the City of Irving, the Bridgeport Apartments. The apartment buildings, located directly along the extended centerline of Runway 35R, would be temporarily exposed to a significant increase in noise during the runway closure and construction activities. **Figure 5-4** uses color-coded grid points to indicate changes in noise levels between the NAA and Proposed Action Alternative. A significant change, as defined by the FAA criteria discussed in **Section 4.2.1** and shown in **Table 4-4** is an increase of 1.5 dB or more in DNL in areas within the 65 DNL contours. The green grid points on **Figure 5-4** represent areas of 1.5 dB decrease and the orange grid points represent areas of 1.5 dB increase due to the Proposed Action Alternative. Only one off-airport area meeting the significant change criteria is identified as a noise-sensitive land use; it is south of Runway 35R along that runway's extended centerline.

Figure 5-5 displays a closer view of the area south of Runway 35R where the Proposed Action Alternative 65 DNL contour extends over residential land use. The pink contour line identifies the area that would be exposed to levels greater than 65 DNL during the Proposed Action construction period. The grid points showing a noise increase of 1.5 dB or greater outside of the 65 DNL contour are not classified as significant because the DNL is less than 65 dB.

As shown in **Figure 5-6**, there are three additional off-airport areas with a potentially significant noise change; the orange or green dots indicate a change of 1.5 dB or more to an area within the 65 DNL contour. As indicated by green dots, a small area directly north of Runway 18L/36R would experience a decrease in noise of 1.5 dB or more within the 65 DNL contour. Those grid points are partially over airport property and partially over noise-compatible land use. As indicated by orange dots, the area directly north of Runway 17L/35R, would experience an increase in noise of 1.5 dB or more. This land is used for commercial purposes, so it is classified as noise compatible. The areas to the northwest of Runway 18R and to the southwest of Runway 36L also shows with orange dots, an increase in DNL of 1.5 dB or more. The areas are characterized as DFW Airport owned property and highway right-of-way; therefore, these areas are classified as noise compatible.

Figure 5-4. Area Exposed to Significant Noise Change (+/-1.5 dB) from the Proposed Action Alternative

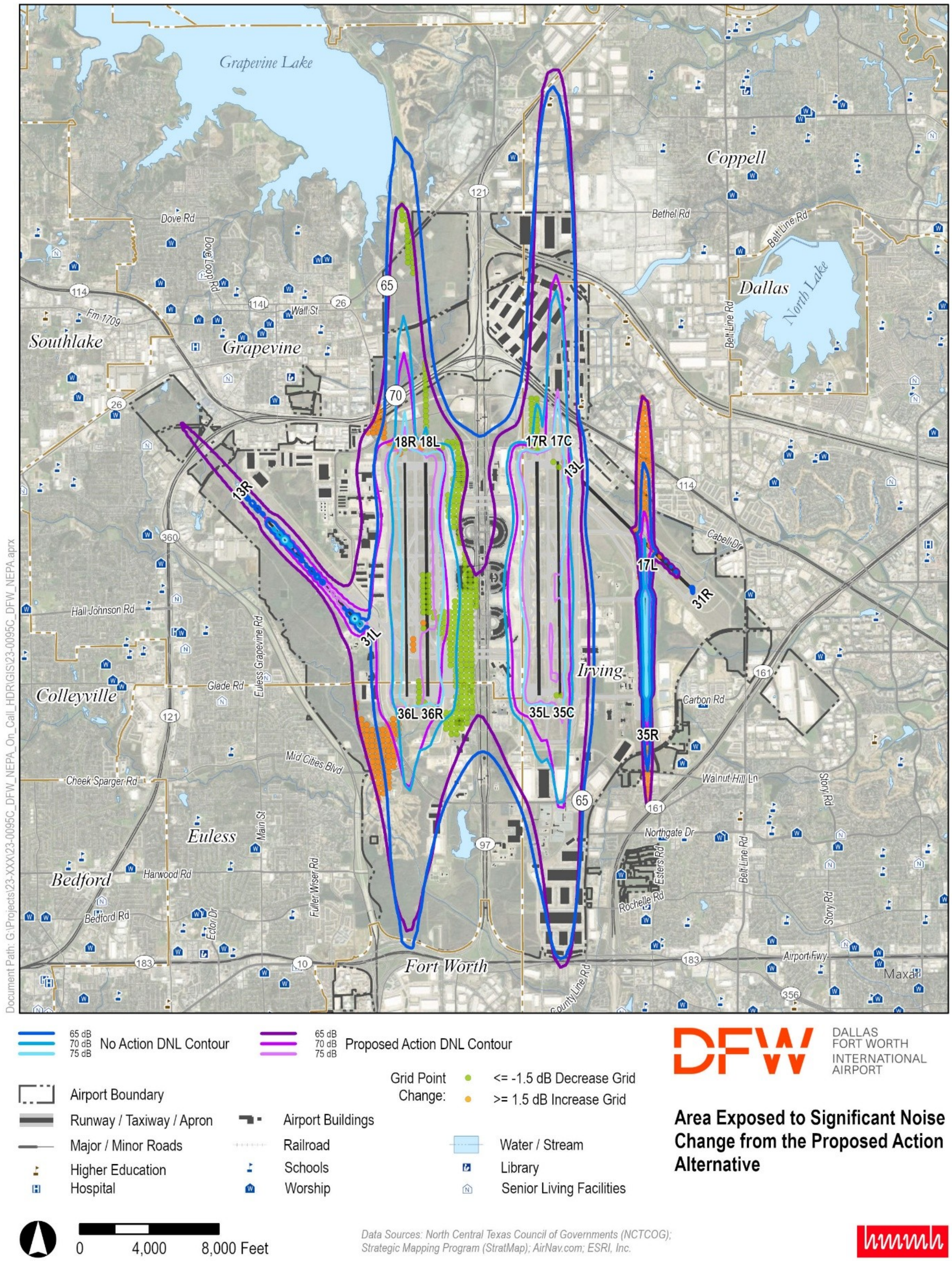


Figure 5-5. Noncompatible Land Use Areas Exposed to an Increase in Noise from the Proposed Action Alternative

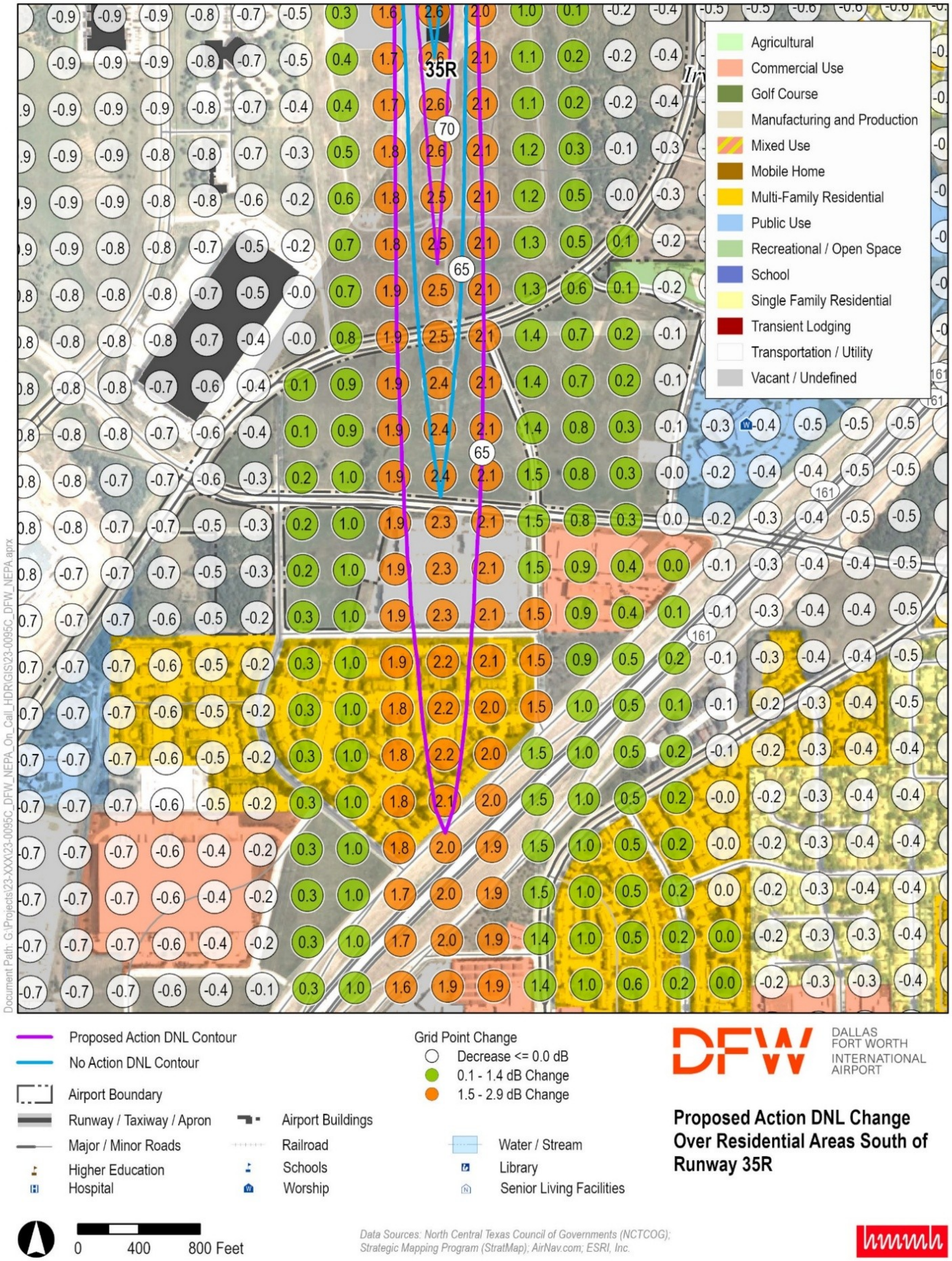
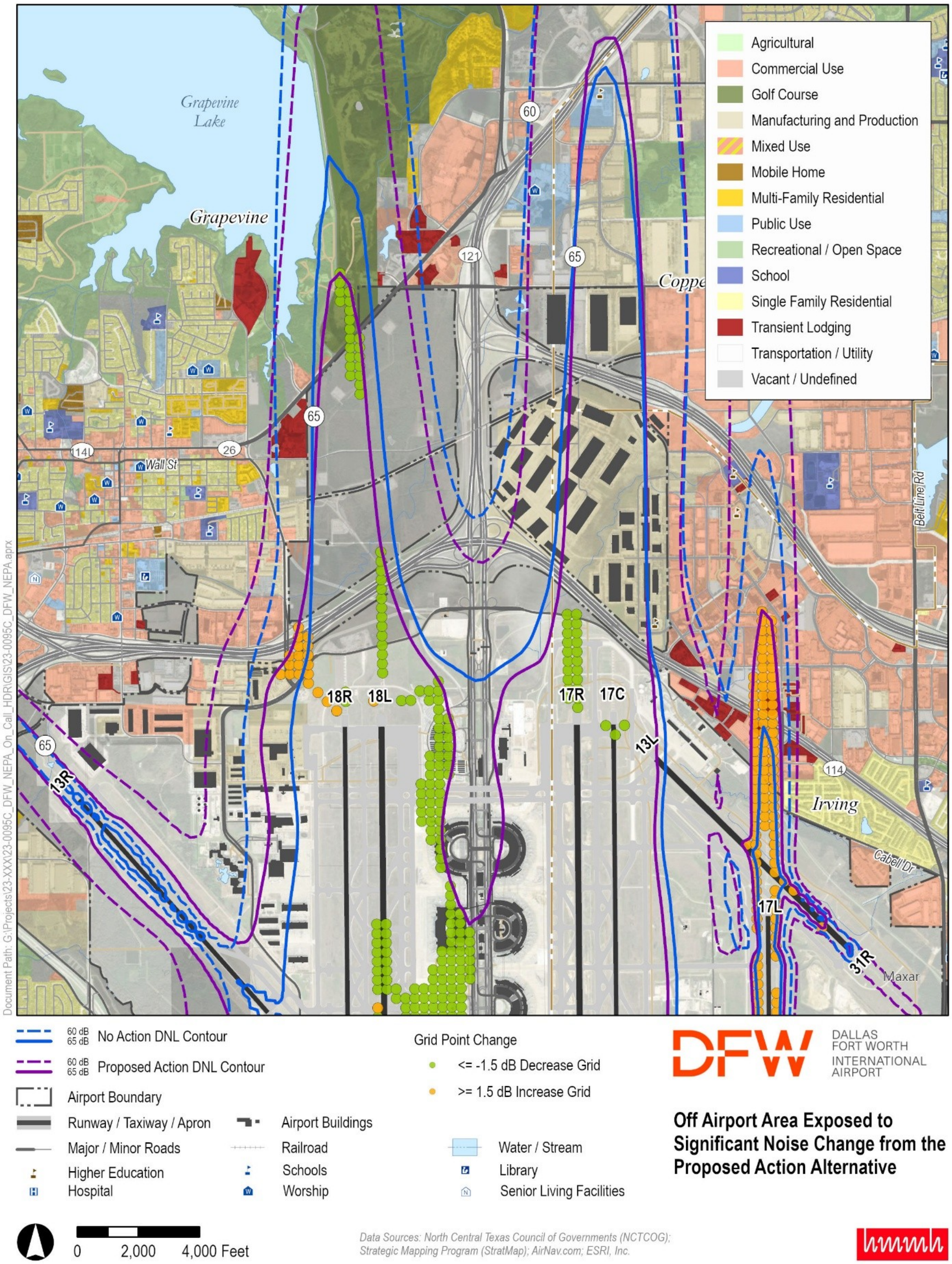


Figure 5-6. Compatible Land Use Areas Exposed to a Significant Change in Noise from the Proposed Action Alternative



5.3.5 Mitigation and Minimization

A significant noise impact would occur if the analysis showed that the Proposed Action would result in noise-sensitive areas experiencing an increase in noise of DNL 1.5 dB or more, at or above DNL 65 dB noise exposure when compared to the NAA for the same timeframe. As identified in **Section 5.2.1**, the Proposed Action Alternative results in three areas experiencing a significant noise increase. Two of these, the areas north of Runway 17L/35R and immediately northwest of Runway 18R, are compatible land uses; therefore, they are not considered significantly exposed. The other area located south of Runway 17L/35R extends over non-compatible multi-family residential buildings at the Bridgeport Apartments. Therefore, there would be a temporary significant noise impact due to the Proposed Action Alternative at this location. Residents would experience an increase in DNL (up to 2.2 dB) as aircraft operations are temporarily shifted during the full closure of Runway 18L/36R. Residents in the affected areas would be provided with mailings/utility bill inserts/flyers notifying them of the temporary closure of Runway 18L/36R and the proposed construction timeline.

The elevated noise levels under the Proposed Action Alternative would be short-term and temporary, limited to during the construction period. Because the Proposed Action Alternative is temporary, no long-term mitigation is required. DFW plans to mitigate the temporary noise increases through meeting with community leaders, city council members, and city managers, and by conducting community outreach specific to the affected residents. Notification of impacted communities will be done well in advance of the Proposed Action’s start date. DFW plans to work with the apartment managers to provide letters of notification to each resident, by mail, or on each door prior to the start of the Proposed Action Alternative. The letters would describe the Proposed Action Alternative, the potential timeframe, and the temporary noise impacts due to the full closure of Runway 18L/36R. The affected community members will also be presented with the project information, its temporary effects on the residents, and the significant benefits this runway reconstruction project will yield to the community. DFW staff will request written acknowledgement from apartment residents.

DFW is both a technical stakeholder due to its role in the long-term planning for infrastructure improvements, and a non-technical stakeholder due to its role as a community partner. DFW will ensure that community members are informed of the temporary noise impacts well in advance of any project work or changes caused by the runway closure. DFW will maintain transparency in its dissemination of information related to the proposed runway closure. Additionally, the DFW Noise Compatibility personnel will provide project updates/briefings to the communities. The implementation of standard applicable engineering controls and BMPs will reduce any construction noise increases.

5.4 Water Resources

5.4.1 Surface and Stormwater Treatment

Consistent with FAA guidelines from the FAA Order 1050.1G (FAA, 2025) and FAA Order 1050.1 Desk Reference (FAA, 2023), this assessment was conducted with the primary aim of identifying the principal sources of water pollution and/or consumption connected with the construction and operation of the Proposed Project (FAA, 1985).

The FAA's significance threshold for surface water is presented in the following statement:

A significant impact exists if the action would: exceed water quality standards established by Federal, state, local, and tribal regulatory agencies; or contaminate public drinking water supply such that public health may be adversely affected. In addition to the threshold above, Exhibit 4-1 of FAA Order 1050.1G provides additional factors to consider when evaluating the context and intensity of potential environmental impacts for surface waters, including where there is potential to adversely affect natural and beneficial water resource values to a degree that substantially diminishes or destroys such values; adversely affect surface waters such that the beneficial uses and values of such waters are appreciably diminished or can no longer be maintained and such impairment cannot be avoided or satisfactorily mitigated; or present difficulties based on water quality impacts when obtaining a permit or authorization.

5.4.1.1 No Action Alternative

Under the NAA, there would be no impacts on water quality, as no construction activities would occur. As a result, the quantity and quality of stormwater runoff, impacts to groundwater, and production of wastewater would remain largely unaffected. Therefore, there would be no impacts on stormwater treatment, as no construction or other activities would occur.

5.4.1.2 Proposed Action Alternative

Most of the proposed project area is impervious; the remaining pervious area is characterized by maintained mixed-grass cover. This pervious area would largely remain in its existing pervious state. Since the proposed project area is characterized by an existing runway and associated airfield pavement, the construction of the Proposed Action would not be expected to result in a material change in the stormwater runoff rates, discharge volumes, and pollutant characteristics of the stormwater runoff. DFW's existing stormwater treatment facilities (the first flush stormwater pre-treatment system) would be able to accommodate the stormwater runoff quantities. Further, the proposed relocation and reconstruction of the stormwater pipe and the rehabilitation of the underdrain system would improve the existing system's capacity and improve overall stormwater conveyance and drainage.

The construction and operation of the proposed action will involve the continued use of fuel and other petroleum-based products within the airfield area, DFW maintains spill response plans in case of a release, spill, or accidental discharge to protect water quality and environmental resources.

Construction activities associated with the Proposed Action could result in minor temporary impacts to surface water quality, due to erosion and siltation from soil disturbance activities. To minimize the potential for impacts to water quality, DFW and its selected contractors would develop and implement a Storm Water Pollution Prevention Plan (SWPPP), with BMPs and structural controls, in compliance with the CWA, Texas Pollutant Discharge Elimination System (TPDES) permit requirements, as well as any other federal, state, and local requirements. Therefore, no significant adverse impacts would occur relative to surface waters.

The drainage system for the runway would be connected to the existing first-flush stormwater treatment system prior to discharging to the storm water sewer system. The Proposed Action will comply with the guidelines and recommendations contained in the FAA AC for Surface Drainage Design (FAA AC 150/5320-5D). Maintenance activities would include controls to clean pavement surface from any leaked fluids to reduce contamination of storm water. The Proposed Action would have no impacts on water quality, wetlands and/or WOTUS because the proposed reconstruction and rehabilitation would take place on the existing airfield and will use the existing storm water management system that was designed to accommodate Runway 18L/36R.

5.4.2 Mitigation

At DFW, construction-related surface water quality impacts from stormwater runoff are minimized using BMPs as required by DFW's Design Criteria Manual (DFW, 2022). These BMPs are designed to minimize soil erosion and the transport of debris and sediment in stormwater runoff. Implemented BMPs include silts fences, rock check dams, settling ponds, and good general housekeeping practices. In addition, all stormwater discharges from construction activities at DFW that result in the disturbance of one or more acres must comply with the TPDES permit conditions already established for the airport. A construction general permit (CGP) SWPPP, and all associated requirements would be implemented for the Proposed Project. Because of these water resource management policies and programs that are already in place at DFW, impacts to surface waters associated with the Proposed Project would not be expected to be significant; therefore, no mitigation would be required.

SECTION 6.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

The development of this Draft EA included coordination with affected federal and state agencies. This coordination process informs the public and agencies and allows an opportunity to identify any possible environmental concerns during the EA process.

6.1 Agency Coordination

DFW consulted with FAA, TCEQ, and THC during the development of the Draft EA. Agency coordination with TCEQ has included virtual coordination meetings with the TCEQ Air Quality Division for the General Conformity process. Prior to the start of construction activities, DFW will coordinate with the TCEQ Water Quality Division to secure the stormwater construction general permit.

6.1.1 Coordination with TCEQ

On September 23, 2025, DFW and FAA informed TCEQ about the Proposed Action and the air quality analysis findings that showed the estimated air emissions associated with the Proposed Action would be above the applicable *de minimis* thresholds for ozone precursor pollutants: NOx and VOCs. TCEQ requested to review the air quality analysis report and advised DFW of the need for a General Conformity Analysis. On October 20, 2025, DFW submitted the air quality analysis and draft General Conformity Determination to TCEQ and received TCEQ concurrence on December 17, 2025 (**Appendix C**).

6.1.2 Coordination with THC (SHPO)

In compliance with the NHPA, a Section 106 Cultural and Historic Resources Evaluation Report was prepared for the Proposed Action (**Appendix F**). The Section 106 report concluded that no historically significant or resources eligible for listing on the NRHP were found within the direct and indirect area of potential effects (APE). On September 12, 2025, the THC/SHPO concurred with the conclusions of the report and also stated that the project would not adversely affect any historic-age resources. As such, the Proposed Project could proceed as planned. However, if cultural materials are encountered during construction or disturbance activities, work should cease in the immediate area. Work can continue where no cultural materials are present, and DFW would contact the THC's Archeology Division at 512-463-6096 to consult on further actions that may be necessary to protect the cultural remains (**Appendix F**).

6.1.3 Coordination with FAA Lines of Business

Coordination with FAA lines of business (LOBs) is ongoing. In accordance with FAA Advisory Circular (AC) 150/5370-2G, DFW submitted the 7460 Airspace Application detailing temporary and permanent changes associated with the proposed runway rehabilitation project. Additionally, on October 7, 2025, DFW submitted the Construction Safety and Phasing Plan (CSPP) to FAA Engineering and Technical Operations LOBs, for review and approval. FAA is reviewing the project design plans and specifications to assess for impacts, adjustments, and modifications to FAA infrastructure, NAVAIDs and equipment. All work pertaining to the FAA NAVAIDs would be coordinated with FAA prior to, and during construction. Modification, relocation, and/or upgrade of FAA-owned NAVAIDS are described in **Section 3.3** as part of the Proposed Action.

DFW and the designated contractor would protect all NAVAIDs and FAA infrastructure during construction activities. All de-energizing and re-energizing of the NAVAIDS would be performed by the FAA. NAVAIDs are to be re-energized at project conclusion. Any NAVAID that has been determined to have been impacted or damaged due to construction activities will be repaired to the satisfaction of the FAA. Flight checks would be performed to confirm completion of modifications to FAA infrastructure, NAVAIDs, and equipment, to return Runway 18L/36R back into service. FAA coordination on inspections and successful flight checks of the runway would be required prior to completion of the final construction phase.

6.2 Public Involvement

To meet the NEPA and CAA requirements for public involvement, the Draft EA and Draft General Conformity Determination will be published on DFW's website, and printed hard copies will be made available for public review after FAA and TCEQ review and acceptance. The Draft EA and Draft General Conformity Determination will be made available for a 30-day public comment period. To inform the public about the availability of the Draft EA and Draft General Conformity Determination, notifications will be published in local newspapers in general circulation (Dallas Morning News, Fort Worth Star Telegram, and Al Dia) and on DFW's website and social media pages. Hard copies of the Draft EA will be available for viewing at DFW's Environmental Affairs Department office located at 3003 South Service Road, Dallas, Texas 75261. Additionally, hard copies of the Draft EA and Draft General Conformity Determination will be available at local public libraries in Irving, Coppell, Euless, Grapevine, and Southlake. Library locations listed in **Table 6-1** below will have hard copies of the Draft EA and Draft General Conformity Determination in their government or public documents section.

Table 6-1. Local Libraries where Draft EA and Draft General Conformity Determination will be available for Viewing

Library Name	Address
West Irving Library	4444 W Rochelle Road Irving, Texas 75062
Valley Ranch Library	401 Cimarron Trail Irving, Texas 75063
Dallas College North Lake Campus Library	5001 N MacArthur Boulevard Irving, Texas 75038
Cozby Library and Community Commons	177 N Hertz Road Coppell, Texas 75019
Euless Library	201 N Ector Drive Euless, Texas 76039
Grapevine Public Library	1201 Municipal Way Grapevine, Texas 76057
Southlake Public Library	1400 Main Street #130 Southlake, Texas 76092

In addition to providing the Draft EA and Draft General Conformity Determination on the website and at local libraries, DFW will also send public outreach materials such as postcards, comment forms, and project fact sheets, to residents that would experience a temporary significant noise impact. As discussed in **Section 5.2.1**, residents in the multi-family residential buildings at the Bridgeport Apartments, located south of Runway 17L/35R, would experience a temporary increase in noise of up to 2.2 dB. Prior to the start of construction, the residents will be provided with postcards, utility bill inserts, or project fact sheets that notify them of the temporary closure of Runway 18L/36R, the proposed construction timeline, anticipated noise changes, and opportunities to meet with the DFW Noise Compatibility Office Staff. DFW will also work with the Bridgeport Apartment managers to notify affected residents prior to the start of construction. The notifications will describe the project, construction schedule, temporary noise impacts due to the Proposed Project, and the benefits of the Proposed Project.

The public notices and outreach materials will be provided in both English and Spanish, to ensure that individuals with a limited proficiency in reading, writing, or understanding the English language are provided with meaningful opportunities and access to project information. To improve access for populations requiring materials in languages other than English or Spanish, DFW will provide opportunities for those individuals to request access to materials in other languages, and DFW will make a good faith effort to accommodate requests submitted within the 30-day public comment period.

After the 30-day public comment period, DFW will address public comments and will include all responses as an appendix to the Final EA. The Final EA and FONSI will be available digitally on the DFW Airport website and physically at the DFW Environmental Affairs Department office located at 3003 South Service Road, DFW Airport, Texas 75261.

As a longstanding community partner, DFW will extend the opportunity to meet with local community leaders, city council members, and city manager offices, notifying them of the Proposed Project and anticipated temporary impacts. DFW will ensure that community members are informed of the temporary noise impacts well in advance of any project work or changes caused by the runway closure.

SECTION 7.0 PREPARERS

As required by FAA Order 5050.4A, paragraph 77, the names and qualifications of the principal persons contributing information to this EA are identified. It should be noted, in accordance with CEQ regulations (Section 1502.06), the efforts of an interdisciplinary team, consisting of technicians and experts in various fields were required to accomplish this study. Specialists involved in this EA included those in such fields as airport planning; noise assessment and abatement; land use planning; air quality; biology; historic, architectural, and archaeological resources; and other disciplines. It should also be noted, while an interdisciplinary approach has been used, all decisions made regarding the content and scope of this EA are those of DFW.

FAA Texas Airports District Office (ADO):

- John MacFarlane, Regional Environmental Protection Specialist, ASW-610
- Kristi Ponozzo, Environmental Protection Specialist, ASW-650

DFW International Airport (Sponsor)

- Sandy Lancaster, AVP Environmental Programs
- Lauren Hensen, Construction and Building Sciences Program Manager
- Sam Tan, NEPA Environmental Program Manager
- Cristian Sigala, NEPA Environmental Project Manager
- Jamila Murchison, NEPA Environmental Project Manager
- Robert Terrell, Planning Manager, DFW Planning
- Rafat Sadat, Element Manager – Airfield Civil Design

HDR Engineering, Inc.

- Kristine Lloyd, NEPA Principal, EA Preparation and NEPA Strategy
- Esther Chitsinde, Project Manager, EA Preparation
- Terri Asendorf Hyde, NEPA Support, Document Preparation
- Darren Dodson, NEPA Document Quality Control
- Jeff Smith, GIS and Mapping
- Vicky Hsu, Air Quality Modeling
- Ronald Ying, Air Quality Modeling Quality Control
- Steve Dong, Section 508 Compliance
- Michelle Brimmer, Section 508 Compliance
- Gwen Jurisich, Strategic Communications and Public Involvement
- Cristina Mena, Strategic Communications and Graphic Design
- Caroline Trigger, Strategic Communications and Public Involvement

Harris Miller Miller & Hanson Inc. (HMMH)

- Kate Larson, Noise Analysis
- Robert Mentzer, Noise and Operational Emissions Lead

Integrated Environmental Solutions (IES)

- Rae Lynn Schneider, NEPA Support
- Anne Gibson, Archaeology Desktop Evaluation
- Rafael Gomez, Environmental Field Studies and Technical Reports

Komatsu Architecture, Inc.

- Karl Komatsu, President, Cultural Resources
- Marie Oehlerking, Cultural Resources

Synergy Consultants

- Mary Vigilante, Senior Advisor – NEPA and General Conformity

Viridis Consulting, Inc.

- Richelle Sampson, Administration and Public Involvement Support

SECTION 8.0 REFERENCES

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Appendix A – Operations Forecast Memo and FAA Approval

U.S. Department
of Transportation
**Federal Aviation
Administration**

Federal Aviation Administration
Southwest Region, Airports Division
Texas Airports Development Office

FAA-ASW-650
10101 Hillwood Pkwy.
Fort Worth, Texas 76177

September 17, 2025

Sandy Lancaster, C.M.
AVP, Environmental Development Programs
DFW International Airport
3003 S. Service Road, Annex A
DFW Airport, TX 75261

Federal Aviation Administration (FAA)
DFW International Airport (DFW) Aviation Activity Forecast Approval

The Federal Aviation Administration (FAA) approves the baseline scenario through year ten in the DFW International Airport (DFW) Environmental Assessment for the Runway 18L/36R Rehabilitation Project Forecast, submitted on July 7,2025 for use in the environmental assessment. The review included coordination with APP-400 and APO-100 in FAA Headquarters. We found the forecast to be generally consistent with the 2024 TAF. It uses current data and supported by generally accepted forecasting methodologies.

The approval of the forecast does not automatically constitute a commitment on the part of the United States to participate in any development shown on the ALP. FAA approval of the baseline scenario in this forecast does not constitute justification for future projects. Justification for future projects will be made based on activity levels at the time the project is requested for development, in accordance with criteria in FAA Orders 5090.5 and 5100.38. Documentation of actual activity levels meeting planning activity levels will be necessary to justify AIP funding for eligible projects. Further, the approved forecast may be subject to additional analyses if the fundamental rationale of the forecast or the critical aircraft changes materially.

If you have any questions about this forecast approval, please call me at (817) 222-5687.

Regards,

Andrew Tamanaha
Lead Planner, Texas ADO

DFW Operations Memo

July 7, 2025

To: Federal Aviation Administration (FAA) Southwest Region, Texas (ADO)

Subject: DFW Environmental Assessment for the Runway 18L/36R Rehabilitation Project Forecast

The purpose of this memorandum is to provide rationale for Federal Aviation Administration (FAA) approval for the aircraft operational activity levels used for the DFW Environmental Assessment (EA) for the Runway 18L/36R Rehabilitation Project (DFW Runway 18L/36R Rehab EA), which is being conducted in accordance with FAA Order 1050.1G. The impact analysis within the DFW Runway 18L/36R Rehab EA will be based upon aircraft operational levels representing existing conditions (2024) and forecast conditions for the two years of construction (2026 and 2027).

The FAA Operations Network (OPSNET) tower counts by category for calendar year 2024 will be used to represent the aircraft operation totals modeled for the existing condition. The FAA's 2024 Terminal Area Forecast (TAF), issued in January 2025 thus representing the most recent TAF, will be used as the basis for the aircraft operation totals modeled in the DFW Runway 18L/36R Rehab EA, for the future year noise exposure contours. The forecast data presented in this memo are consistent with the TAF with respect to passenger enplanements, commercial aircraft operations, and total operations. This memo documents how DFW translated the FAA's most recent TAF forecast into a data set necessary to conduct the environmental impact analysis, requiring aircraft fleet mix and day-night splits.

Dallas Fort Worth
International Airport
P.O. Box 619428
DFW Airport, TX 75261-9428

1. Historical Data

The following tables include an overview of the historical activity from 2015 to 2024 for both enplanements and annual operations to be forecasted. The data sources referenced include:

- Airport activity records from https://www.dfwairport.com/business/about/stats/
- US DOT T100 data
- FAA Traffic Flow Management System Counts (TFMSC)
- FAA Operations Network (OPSNET)

Table 1 presents historical enplanements for the ten-year period from 2015 to 2024. As shown, enplanements have grown at a compound annual growth rate (CAGR) of 3.31 percent since 2015. Prior to the pandemic, over the five-year period from 2015 to 2019, the CAGR was slightly higher at 3.44 percent.

Table 1. DFW Passenger Calendar Year Enplanement Data 2015-2024

Source: DFW Statistics, accessed on June 12, 2025

Calendar Year	Enplanements
2015	32,756,236
2016	32,799,309
2017	33,546,374
2018	34,559,005
2019	37,504,780
2020	19,682,495
2021	31,232,878
2022	36,681,473
2023	40,877,769
2024	43,908,932
CAGR 2015 -2024	**3.31%**

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P.O. Box 619428
DFW Airport, TX 75261-9428

Table 2 presents historical aircraft operations from 2015 to 2024 for the Airport. As shown, airport operations have grown at a CAGR of 0.97 percent, with commercial operations increasing by 1.0 percent CAGR over the ten-year period. Prior to the pandemic, over the five-year period from 2015 to 2019, the CAGR for airport operations was 1.39 percent and for commercial operations 1.44 percent.

Table 2. DFW Aircraft Operations Data 2015-2024

Source: FAA OPSNET accessed June 16,2025.

Year	Commercial Operations			General Aviation	Military	Total
	Air Carrier	Air Taxi	Subtotal			
2015	506,095	168,125	674,220	6,829	212	681,261
2016	526,563	139,267	665,830	6,688	230	672,748
2017	569,674	77,637	647,311	6,888	145	654,344
2018	578,692	81,855	660,547	6,482	184	667,213
2019	625,731	88,137	713,868	5,937	202	720,007
2020	443,855	66,723	510,578	3,904	220	514,702
2021	568,259	77,927	646,186	5,507	202	651,895
2022	591,660	58,888	650,548	5,974	154	656,676
2023	667,759	16,419	684,178	5,250	141	689,569
2024	722,398	14,870	737,268	5,724	211	743,203
CAGR 2015 -2024	**4.03%**	**-23.62%**	**1.00%**	**-1.94%**	**-0.05%**	**0.97%**

2. Forecasts of Aviation Activity

The following section summarizes the FAA 2024 TAF as published in 2025. The TAF assumes a demand-driven forecast for aviation services based upon local and national economic conditions as well as conditions within the aviation industry. The domestic enplanements are forecast by generating origin and destination (O&D) market demand forecasts to model for passenger flow on a quarterly basis. The O&D passenger demand forecasts are based on regression analysis using fares, regional demographics, and metropolitan level economic factors as independent variables. The O&D forecasts are then combined with DOT T-100 segment data to generate passenger forecasts by airport pair and segment pair. The segment pair passenger forecasts are assigned to aircraft equipment to produce segment pair operation forecasts. The quarterly segment pair forecasts are aggregated to produce annual airport forecasts.

Separate models are used to forecast international passenger enplanements, passenger operations, and cargo operations. The international passenger enplanements are forecast on a quarterly basis using time series analysis and T-100 segment data. The segment pair passenger enplanement forecasts are used to generate segment pair passenger operation forecasts. The cargo operation forecasts are also generated on a quarterly basis using time series analysis and T-100 segment data. The segment pair forecasts for international passenger enplanements, passenger operations, and cargo operations are aggregated to the market pair and airport level on an annual basis.[1] The TAF process also considers the replacement of the 50 and smaller seat Regional Jets (RJs) with the larger 70 to 90-seat RJs. As defined by the FAA, the TAF data sets for DFW do not include any airport or airspace constraints and therefore represents an unconstrained forecast for DFW.

Enplanements and Operations: The 2024 TAF reflects the increase in operations and enplanements through 2023 at DFW. The TAF operation and enplanement numbers for 2024 are forecast numbers and are lower than the actual reported for calendar year 2024. According to DFW passenger statistics, the actual enplanement numbers[2] for calendar year 2024 were approximately five percent higher than what is reflected for fiscal year 2024 TAF while actual 2024 total operations numbers as reported by the FAA OPSNET database were approximately two percent higher than what is forecasted in the 2024 TAF as shown in **Table 3**. The actual total operations and enplanements reported for calendar year 2024 will be used for the DFW Runway 18L/3R Rehab EA existing condition operations.

For the forecast operations and enplanements, the DFW Runway 18L/3R Rehab EA forecast numbers for 2026 and 2027 were calculated from the 2024 TAF. Since the TAF forecast numbers represent the fiscal year an adjustment to the TAF totals is made to develop the forecast numbers for the calendar year. The future forecast Calendar Year (CY) operations were derived by dividing the fiscal year (FY) TAF totals by 12 months and then combining 9 months (January – September) of that FY and 3 months (October – December) of the following FY. This was done as follows for each year:

- CY 2026 operations = last 9 months of FY 2026 + first 3 months of FY 2027
- CY 2027 operations = last 9 months of FY 2027 + first 3 months of FY 2028

The resulting DFW Runway 18L/36R Rehab EA forecast operation and enplanement numbers for the two construction years reflect slightly higher operational levels than the 2024 FAA TAF (less than one percent in both 2026 and 2027). **Table 3** presents a comparison of the 2024 TAF and the DFW Runway 18L/36R Rehab EA forecast. In comparison to the 2024 TAF, the DFW Rehab EA forecast variances are within two percent for operations and five percent for enplanements. The FAA considers forecasts

[1] Forecast Process for the 2024 TAF https://taf.faa.gov/downloads/finalforecastprocessfor2024taf.pdf
[2] Provided by DFW

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technically consistent with the TAF when the variance is less than 10 percent in 5 years and less than 15 percent in 10 years.[3]

Table 3. DFW Comparison of Forecasts

Source: FAA OPSNET, DFW Statistics, FAA TAF

Year	2024 TAF (FY)	DFW Rehab EA (CY)[1]	Difference (Rehab EA vs 2024 TAF)
Passenger Enplanements			
2024	41,838,498	*43,908,932	4.9%
2026	46,145,969	46,487,625	0.7%
2027	47,512,592	47,741,188	0.5%
Commercial Operations			
2024	725,747	**737,268	1.6%
2026	810,831	816,874	0.7%
2027	835,004	838,939	0.5%
Total Operations			
2024	731,518	**743,203	1.6%
2026	817,256	823,304	0.7%
2027	841,448	845,388	0.5%

Notes
1 - The DFW Rehab EA forecast represents Calendar Year operations (CY = FY1*0.75+FY2*0.25) for 2026 & 2027
* - For 2024, the DFW Rehab EA column uses the actual enplanement number provided by DFW
** - For 2024, the DFW Rehab EA column uses actual operations counts from the FAA's OPSNET data

2.1 Forecast Operations by Operational Category

Table 4 shows the existing and forecast operations to be used in noise and air quality modeling for the DFW Runway 18L/36R Rehab EA, listed by FAA operational category. Annual operation totals and Average Annual Day (AAD) totals are provided. These annual and AAD numbers will be used to develop the fleet mix for the EA.

[3] FAA Forecast Review and Approval Instructions, August 12, 2024

Table 4. DFW Rehab EA Annual and AAD Operational Levels

Source: FAA OPSNET, FAA TAF

Scenario	Modeling Scenario	Air Carrier	Air Taxi	General Aviation	Military	Total
Existing Conditions	2024	722,398	14,870	5,724	211	743,203
	AAD 2024	1,979.2	40.7	15.7	0.6	2,036.2
Construction Year	2026	800,614	16,260	6,233	197	823,304
	AAD 2024	2,193.5	44.5	17.1	0.5	2,255.6
Construction Year	2027	822,507	16,431	6,252	197	845,387
	AAD 2027	2,253.4	45.0	17.1	0.5	2,316.1
Note: Totals may not match exactly due to rounding. AAD = Average Annual Day						

2.2 Fleet Mix Forecast for Noise Analysis

HMMH obtained aircraft identification and flight track data from the DFW Noise and Operations Monitoring System (NOMS) for CY 2024 and assigned representative aircraft and engine types from the FAA's Aviation Environmental Design Tool (AEDT) database. The operations were then balanced by type (Arrivals = Departures), grouped into the FAA operational categories, and scaled to the 2024 operational totals from FAA OPSNET for each category.

The operational totals for each category shown in **Table 4** provided the numbers of operations for each future year. **Table 5** presents fleet mix inputs for the AEDT model. Starting with the fleet mix for 2024, fleet mix compositions were prepared for 2026 and 2027 to the forecast category totals developed from the 2024 TAF. The following describes the changes between the years that were included in the analysis.

From 2024 to 2026:

1. The operations were scaled proportionally to the 2026 total operations by category, reflecting future conditions for the 2026 construction year.
2. The Air Carrier category fleet mix was adjusted to reflect expected increased use of newer aircraft models.
3. The Air Taxi category share of the Regional Jet activity decreased (e.g. CRJ-200 modeled as the CL600), and the Air Taxi Jet category increased (e.g. CL35 modeled as the CL600).
4. The General Aviation and Military fleet mix was largely unchanged.

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From 2026 to 2027:

1. The operations were scaled proportionally to the 2027 total operations by category, reflecting future conditions for the 2027 construction year.
2. The Air Carrier category fleet mix was further adjusted to reflect increases in newer aircraft models.
3. The Air Taxi category share of the Regional Jet activity decreased further, while the Air Taxi Jet category increased further.
4. The General Aviation and Military fleet mix was largely unchanged.

The full breakdown of average annual day operations to be modeled in the DFW Runway 18L/36L Rehab EA are provided in **Attachment A**.

Table 5. DFW Operations Fleet Mix 2024-2027

Source: DFW NOMS, FAA OPSNET, FAA TAF

Aircraft		2024		2026		2027	
		Operations	% of Fleet	Operations	% of Fleet	Operations	% of Fleet
Air Carrier							
Cargo	747400	904.9	0.13%	3,843.1	0.48%	3,852.3	0.47%
	7478	1,180.0	0.16%	1,203.8	0.15%	1,215.8	0.15%
	757PW	663.6	0.09%	663.6	0.08%	663.6	0.08%
	757RR	954.3	0.13%	954.3	0.12%	954.3	0.12%
	7673ER	5,889.6	0.82%	8,038.9	1.00%	9,262.6	1.13%
	777300	2,094.0	0.29%	7,136.5	0.89%	7,354.0	0.89%
	A300-622R	1,969.9	0.27%	1,969.9	0.25%	1,969.9	0.24%
	MD11GE	1,454.0	0.20%	1,454.0	0.18%	1,454.0	0.18%
	MD11PW	1,462.4	0.20%	1,462.4	0.18%	1,462.4	0.18%
Pass. Jet	737700	14,723.2	2.04%	16,021.9	2.00%	16,524.5	2.01%
	737800	169,752.6	23.50%	169,454.9	21.17%	167,402.4	20.35%
	7378MAX	7,592.8	1.05%	11,596.8	1.45%	13,255.2	1.61%
	747400	917.5	0.13%	917.5	0.11%	917.5	0.11%
	7478	234.8	0.03%	234.8	0.03%	234.8	0.03%
	777200	4,753.0	0.66%	4,753.0	0.59%	4,753.0	0.58%
	7773ER	3,933.6	0.54%	4,979.1	0.62%	5,267.6	0.64%
	7878R	6,050.3	0.84%	7,964.7	0.99%	8,593.1	1.04%
	7879	7,830.9	1.08%	10,308.6	1.29%	11,121.9	1.35%
	A319-131	52,737.4	7.30%	51,525.5	6.44%	51,121.5	6.22%
	A320-211	15,968.5	2.21%	13,946.8	1.74%	13,193.3	1.60%
	A320-232	25,014.0	3.46%	21,739.5	2.72%	19,914.0	2.42%

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Aircraft		2024		2026		2027	
		Operations	% of Fleet	Operations	% of Fleet	Operations	% of Fleet
	A320-270N	22,179.9	3.07%	30,086.7	3.76%	33,088.9	4.02%
	A321-232	149,609.9	20.71%	166,371.4	20.78%	171,993.7	20.91%
	A330-301	609.1	0.08%	609.1	0.08%	609.1	0.07%
	A330-343	296.9	0.04%	296.9	0.04%	296.9	0.04%
	A340-211	362.9	0.05%	359.3	0.04%	357.5	0.04%
	A350-941	2,260.3	0.31%	2,975.5	0.37%	3,210.2	0.39%
	A380-841	646.7	0.09%	646.7	0.08%	646.7	0.08%
Reg. Jet	CRJ9-ER	69,439.4	9.61%	69,439.4	8.67%	69,439.4	8.44%
	EMB170	27,727.9	3.84%	27,727.9	3.46%	27,727.9	3.37%
	EMB175	122,461.9	16.95%	161,209.7	20.14%	173,928.2	21.15%
	EMB190	721.7	0.10%	721.7	0.09%	721.7	0.09%
Air Carrier Total		**722,398.0**	**100.00%**	**800,614.0**	**100.00%**	**822,508.0**	**100.00%**
Air Taxi							
Cargo Non-Jet	1900D	756.0	5.08%	756.0	4.65%	756.0	4.60%
	CNA208	2,514.1	16.91%	2,899.8	17.83%	2,962.0	18.03%
	DHC6	545.9	3.67%	545.9	3.36%	545.9	3.32%
	SF340	474.3	3.19%	474.3	2.92%	474.3	2.89%
Pass. Jet	CL600	637.1	4.28%	734.8	4.52%	750.6	4.57%
	CNA55B	1,160.0	7.80%	1,338.0	8.23%	1,366.7	8.32%
	CNA560XL	642.9	4.32%	741.6	4.56%	757.5	4.61%
	CNA680	1,779.1	11.96%	2,052.0	12.62%	2,096.1	12.76%
Pass. Reg. Jet	CL600	742.2	4.99%	536.3	3.30%	455.8	2.77%
	EMB145	489.8	3.29%	484.9	2.98%	482.5	2.94%
	EMB14L	1,338.1	9.00%	1,324.8	8.15%	1,318.1	8.02%
Pass. Non-Jet	CNA208	3,790.4	25.49%	4,371.8	26.89%	4,465.6	27.18%
Air Taxi Total		**14,870.0**	**100.00%**	**16,260.0**	**100.00%**	**16,431.0**	**100.00%**
General Aviation							
Jet	CL600	673.1	11.76%	732.9	11.76%	735.1	11.76%
	CL601	1,577.1	27.55%	1,717.3	27.55%	1,722.5	27.55%
	CNA55B	729.7	12.75%	794.6	12.75%	797.0	12.75%
	CNA560XL	1,241.8	21.69%	1,352.2	21.69%	1,356.3	21.69%
Non-Jet	CNA172	557.5	9.74%	607.1	9.74%	608.9	9.74%
	CNA208	540.1	9.44%	588.2	9.44%	590.0	9.44%
	DHC6	404.8	7.07%	440.8	7.07%	442.1	7.07%

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Aircraft		2024		2026		2027	
		Operations	% of Fleet	Operations	% of Fleet	Operations	% of Fleet
General Aviation Total		**5,724.0**	**100.00%**	**6,233.0**	**100.00%**	**6,252.0**	**100.00%**
Military							
Jet	C17	103.3	48.97%	96.5	48.97%	96.5	48.97%
	LEAR35	82.1	38.91%	76.7	38.91%	76.7	38.91%
Non-jet	C130AD	25.6	12.12%	23.9	12.12%	23.9	12.12%
Military Total		**211.0**	**100.00%**	**197.0**	**100.00%**	**197.0**	**100.00%**
Total		**743,203.0**		**823,304.0**		**845,388.0**	

Notes:
An increase in Boeing 747400 and 777300 operations is incorporated based on the growth in cargo operations detailed in the 2023 19th Street Project EA.
Total Operations = Air Carrier Operations + Air Taxi Operations + General Aviation Operations + Military Operations

2.2 Review of Forecast Enplanements

Using the FAA TFMSC data for 2024, the reported average seats per aircraft type were assigned to each passenger aircraft operation in **Table 5**. The average number of seats per type was multiplied by the number of departures for each year to arrive at the number of available seats.

A review of load factors from the US DOT T-100 data for the last three years indicates an average load factor of 83.6 percent. Applying this historical load factor to the number of available departure seats provides the estimated number of enplanements for the future years derived from the forecast fleet mix. These results and the comparison to the 2024 TAF are shown in **Table 6.** The number of enplanements for 2024 in **Table 6** differs from the reported total in **Table 3** because the number for 2024 in **Table 6** is calculated using average seats per aircraft (not actual which may differ by airline) and the historical load factor (not actual may differ per flight). The calculated enplanement numbers for each year for the DFW Runway 18L/36R Rehab EA are within two percent of the TAF forecast and well within the forecast guidelines. The enplanement numbers in **Table 6** are developed from the fleet mix to demonstrate that the fleet mix developed for each year is technically consistent with the TAF.

Table 6. DFW Comparison of Enplanements

Source: FAA TFMSC, US DOT T-100, FAA TAF

Year	DFW Rehab EA Forecast (CY) [1]	2024 TAF (FY)	Difference (Rehab EA vs 2024 TAF)
2024	**41,736,836	41,838,498	-0.2%
2026	45,599,885	46,145,969	-1.2%
2027	46,743,714	47,512,592	-1.6%

Notes: Assumes an 83.6 percent load factor
1 –The enplanements for all three years are calculated from the fleet mix and load factor
** - Differs from the reported actual value shown in Table 3 since this is calculated from the fleet mix, average numbers of seats per aircraft type and historical load factor.

2.3 List of Preparers

- Prepared for DFW Environmental Affairs Department (Cristian Sigala, NEPA PM and Sam Tan, Environmental Planning and Development Programs Manager)
- Prepared by Robert C. Mentzer, HMMH Principal Consultant and David Crandall, HMMH Principal Consultant. As a subconsultant to HDR, Harris Miller Miller & Hanson Inc. (HMMH) is assisting Dallas-Fort Worth Airport (DFW) with aircraft noise and operational emissions modeling for the DFW Runway 18L/36R Rehab EA.
- Reviewed by Esther Chitsinde, HDR, Kristine Lloyd, HDR, and Mary Vigilante, Synergy.
- HMMH Project Number 23-0095C.003

Attachment A

Table 7. DFW Operational Fleet Mix 2024 (Average Annual Day)

Source: HMMH, FAA OPSNET, FAA TAF

Tower Category	Propulsion	AEDT ANP Type	Arrivals Day	Arrivals Night	Arrivals Total	Departures Day	Departures Night	Departures Total	Total
Air Carrier Cargo	Jet	747400	0.8	0.4	1.2	0.8	0.4	1.2	2.5
		7478	0.9	0.7	1.6	1.0	0.6	1.6	3.2
		757PW	0.8	<0.1	0.9	0.8	0.1	0.9	1.8
		757RR	1.2	0.1	1.3	1.1	0.2	1.3	2.6
		7673ER	5.5	2.6	8.1	4.3	3.8	8.1	16.1
		777300	1.8	1.1	2.9	1.1	1.8	2.9	5.7
		A300-622R	2.5	0.2	2.7	2.3	0.4	2.7	5.4
		MD11GE	1.1	0.9	2.0	1.2	0.8	2.0	4.0
		MD11PW	1.0	1.0	2.0	1.3	0.8	2.0	4.0
Air Carrier Passenger	Jet	737700	17.6	2.6	20.2	18.5	1.7	20.2	40.3
		737800	204.4	28.1	232.5	211.4	21.1	232.5	465.1
		7378MAX	7.7	2.7	10.4	9.4	1.0	10.4	20.8
		747400	0.9	0.4	1.3	0.9	0.4	1.3	2.5
		7478	<0.1	0.3	0.3	0.2	0.1	0.3	0.6
		777200	5.8	0.7	6.5	6.2	0.3	6.5	13.0
		7773ER	5.4	<0.1	5.4	4.7	0.7	5.4	10.8
		7878R	5.8	2.5	8.3	8.2	<0.1	8.3	16.6
		7879	9.2	1.5	10.7	9.3	1.5	10.7	21.5
		A319-131	65.7	6.6	72.2	65.7	6.6	72.2	144.5
		A320-211	18.5	3.3	21.9	19.1	2.8	21.9	43.7
		A320-232	30.1	4.2	34.3	31.0	3.3	34.3	68.5
		A320-270N	22.0	8.3	30.4	22.3	8.1	30.4	60.8
		A321-232	176.0	29.0	204.9	181.4	23.6	204.9	409.9
		A330-301	0.8	<0.1	0.8	<0.1	0.8	0.8	1.7
		A330-343	0.4	0.0	0.4	0.4	<0.1	0.4	0.8
		A340-211	0.5	0.0	0.5	0.5	0.0	0.5	1.0
		A350-941	3.1	<0.1	3.1	2.4	0.7	3.1	6.2
		A380-841	0.9	<0.1	0.9	0.8	<0.1	0.9	1.8
	Regional Jet	CRJ9-ER	82.5	12.6	95.1	87.0	8.1	95.1	190.2
		EMB170	33.4	4.5	38.0	34.5	3.5	38.0	76.0
		EMB175	152.5	15.2	167.8	154.1	13.7	167.8	335.5
		EMB190	1.0	<0.1	1.0	1.0	<0.1	1.0	2.0

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Tower Category	Propulsion	AEDT ANP Type	Arrivals Day	Arrivals Night	Arrivals Total	Departures Day	Departures Night	Departures Total	Total
Air Carrier total			**860.0**	**129.6**	**989.6**	**882.8**	**106.8**	**989.6**	**1979.2**
Air Taxi Cargo	**Non-jet**	1900D	1.0	<0.1	1.0	0.7	0.3	1.0	2.1
		CNA208	2.8	0.7	3.4	3.0	0.4	3.4	6.9
		DHC6	0.7	<0.1	0.7	0.6	0.1	0.7	1.5
		SF340	0.4	0.2	0.6	0.6	<0.1	0.6	1.3
Air Taxi Passenger	**Jet**	CL600	0.8	<0.1	0.9	0.8	<0.1	0.9	1.7
		CNA55B	1.5	<0.1	1.6	1.5	<0.1	1.6	3.2
		CNA560XL	0.8	<0.1	0.9	0.9	<0.1	0.9	1.8
		CNA680	2.3	0.1	2.4	2.3	<0.1	2.4	4.9
	Regional Jet	CL600	1.0	<0.1	1.0	1.0	<0.1	1.0	2.0
		EMB145	0.7	<0.1	0.7	0.7	<0.1	0.7	1.3
		EMB14L	1.8	0.0	1.8	1.8	<0.1	1.8	3.7
	Non-jet	CNA208	5.1	<0.1	5.2	5.1	0.1	5.2	10.4
Air Taxi total			**19.0**	**1.3**	**20.4**	**19.0**	**1.3**	**20.4**	**40.7**
General Aviation	**Jet**	CL600	0.9	<0.1	0.9	0.9	<0.1	0.9	1.8
		CL601	2.0	0.1	2.2	2.1	<0.1	2.2	4.3
		CNA55B	1.0	<0.1	1.0	0.9	<0.1	1.0	2.0
		CNA560XL	1.6	<0.1	1.7	1.6	0.1	1.7	3.4
	Non-jet	CNA172	0.6	0.2	0.8	0.5	0.3	0.8	1.5
		CNA208	0.7	<0.1	0.7	0.7	<0.1	0.7	1.5
		DHC6	0.6	0.0	0.6	0.5	<0.1	0.6	1.1
General Aviation Total			**7.3**	**0.5**	**7.8**	**7.2**	**0.7**	**7.8**	**15.7**
Military	**Jet**	C17	0.1	0.0	0.1	0.1	<0.1	0.1	0.3
		LEAR35	0.1	<0.1	0.1	0.1	0.0	0.1	0.2
	Non-jet	C130AD	<0.1	0.0	<0.1	<0.1	0.0	<0.1	<0.1
Military Total			**0.3**	**<0.1**	**0.3**	**0.3**	**<0.1**	**0.3**	**0.6**
Total			**886.6**	**131.5**	**1018.1**	**909.3**	**108.8**	**1018.1**	**2036.2**

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Table 8. DFW Operational Fleet Mix 2026 (Average Annual Day)

Source: HMMH, FAA OPSNET, FAA TAF

Tower Category	Propulsion	AEDT ANP Type	Arrivals Day	Arrivals Night	Arrivals Total	Departures Day	Departures Night	Departures Total	Total
Air Carrier Cargo	Jet	747400	3.5	1.7	5.3	3.5	1.8	5.3	10.5
		7478	1.0	0.7	1.6	1.1	0.6	1.6	3.3
		757PW	0.8	<0.1	0.9	0.8	0.1	0.9	1.8
		757RR	1.2	0.1	1.3	1.1	0.2	1.3	2.6
		7673ER	6.7	4.3	11.0	5.5	5.5	11.0	22.0
		777300	6.0	3.8	9.8	3.8	6.0	9.8	19.6
		A300-622R	2.5	0.2	2.7	2.3	0.4	2.7	5.4
		MD11GE	1.1	0.9	2.0	1.2	0.8	2.0	4.0
		MD11PW	1.0	1.0	2.0	1.3	0.8	2.0	4.0
Air Carrier Passenger	Jet	737700	19.1	2.8	21.9	20.1	1.8	21.9	43.9
		737800	204.1	28.0	232.1	211.1	21.1	232.1	464.3
		7378MAX	12.0	3.9	15.9	14.3	1.6	15.9	31.8
		747400	0.9	0.4	1.3	0.9	0.4	1.3	2.5
		7478	<0.1	0.3	0.3	0.2	0.1	0.3	0.6
		777200	5.8	0.7	6.5	6.2	0.3	6.5	13.0
		7773ER	6.8	<0.1	6.8	5.9	0.9	6.8	13.6
		7878R	7.6	3.3	10.9	10.8	<0.1	10.9	21.8
		7879	12.2	2.0	14.1	12.2	1.9	14.1	28.2
		A319-131	64.3	6.3	70.6	64.3	6.3	70.6	141.2
		A320-211	16.4	2.7	19.1	16.9	2.2	19.1	38.2
		A320-232	26.4	3.4	29.8	27.1	2.7	29.8	59.6
		A320-270N	29.9	11.3	41.2	30.2	11.0	41.2	82.4
		A321-232	194.4	33.5	227.9	201.7	26.2	227.9	455.8
		A330-301	0.8	<0.1	0.8	<0.1	0.8	0.8	1.7
		A330-343	0.4	0.0	0.4	0.4	<0.1	0.4	0.8
		A340-211	0.5	0.0	0.5	0.5	0.0	0.5	1.0
		A350-941	4.0	<0.1	4.1	3.2	0.9	4.1	8.2
		A380-841	0.9	<0.1	0.9	0.8	<0.1	0.9	1.8
	Regional Jet	CRJ9-ER	82.5	12.6	95.1	87.0	8.1	95.1	190.2
		EMB170	33.4	4.5	38.0	34.5	3.5	38.0	76.0
		EMB175	200.8	20.1	220.8	202.8	18.0	220.8	441.7
		EMB190	1.0	<0.1	1.0	1.0	<0.1	1.0	2.0
Air Carrier total			**948.2**	**148.6**	**1096.7**	**972.6**	**124.2**	**1096.7**	**2193.5**
	Non-jet	1900D	1.0	<0.1	1.0	0.7	0.3	1.0	2.1

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Tower Category	Propulsion	AEDT ANP Type	Arrivals Day	Arrivals Night	Arrivals Total	Departures Day	Departures Night	Departures Total	Total
Air Taxi Cargo		CNA208	3.2	0.8	4.0	3.5	0.5	4.0	7.9
		DHC6	0.7	<0.1	0.7	0.6	0.1	0.7	1.5
		SF340	0.4	0.2	0.6	0.6	<0.1	0.6	1.3
Air Taxi Passenger	Jet	CL600	0.9	<0.1	1.0	0.9	<0.1	1.0	2.0
		CNA55B	1.7	<0.1	1.8	1.7	<0.1	1.8	3.7
		CNA560XL	1.0	<0.1	1.0	1.0	<0.1	1.0	2.0
		CNA680	2.7	0.1	2.8	2.7	0.1	2.8	5.6
	Regional Jet	CL600	0.7	<0.1	0.7	0.7	<0.1	0.7	1.5
		EMB145	0.7	<0.1	0.7	0.7	<0.1	0.7	1.3
		EMB14L	1.8	0.0	1.8	1.8	<0.1	1.8	3.6
	Non-jet	CNA208	5.9	<0.1	6.0	5.8	0.2	6.0	12.0
Air Taxi total			**20.8**	**1.5**	**22.3**	**20.8**	**1.5**	**22.3**	**44.5**
General Aviation	Jet	CL600	1.0	<0.1	1.0	1.0	<0.1	1.0	2.0
		CL601	2.2	0.1	2.4	2.3	<0.1	2.4	4.7
		CNA55B	1.1	<0.1	1.1	1.0	<0.1	1.1	2.2
		CNA560XL	1.8	<0.1	1.9	1.8	<0.1	1.9	3.7
	Non-jet	CNA172	0.7	0.2	0.8	0.6	0.2	0.8	1.7
		CNA208	0.8	<0.1	0.8	0.8	<0.1	0.8	1.6
		DHC6	0.6	0.0	0.6	0.6	<0.1	0.6	1.2
General Aviation Total			**8.1**	**0.4**	**8.5**	**8.0**	**0.6**	**8.5**	**17.1**
Military	Jet	C17	0.1	0.0	0.1	0.1	<0.1	0.1	0.3
		LEAR35	<0.1	<0.1	0.1	0.1	0.0	0.1	0.2
	Non-jet	C130AD	<0.1	0.0	<0.1	<0.1	0.0	<0.1	<0.1
Military Total			**0.3**	**<0.1**	**0.3**	**0.3**	**<0.1**	**0.3**	**0.5**
Total			**977.3**	**150.5**	**1127.8**	**1001.6**	**126.2**	**1127.8**	**2255.6**

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Table 9. DFW Operational Fleet Mix 2027 (Average Annual Day)

Source: HMMH, FAA OPSNET, FAA TAF

Tower Category	Propulsion	AEDT ANP Type	Arrivals Day	Arrivals Night	Arrivals Total	Departures Day	Departures Night	Departures Total	Total
Air Carrier Cargo	Jet	747400	3.3	1.9	5.3	3.5	1.8	5.3	10.6
		7478	0.9	0.8	1.7	1.1	0.6	1.7	3.3
		757PW	0.8	0.1	0.9	0.8	0.1	0.9	1.8
		757RR	1.2	0.1	1.3	1.1	0.2	1.3	2.6
		7673ER	6.9	5.8	12.7	6.3	6.4	12.7	25.4
		777300	5.7	4.3	10.1	3.9	6.2	10.1	20.1
		A300-622R	2.5	0.2	2.7	2.3	0.4	2.7	5.4
		MD11GE	1.0	1.0	2.0	1.2	0.8	2.0	4.0
		MD11PW	0.9	1.1	2.0	1.3	0.8	2.0	4.0
Air Carrier Passenger	Jet	737700	19.3	3.3	22.6	20.8	1.9	22.6	45.3
		737800	198.9	30.4	229.3	208.5	20.8	229.3	458.6
		7378MAX	13.2	5.0	18.2	16.3	1.9	18.2	36.3
		747400	0.8	0.4	1.3	0.9	0.4	1.3	2.5
		7478	<0.1	0.3	0.3	0.2	0.1	0.3	0.6
		777200	5.7	0.8	6.5	6.2	0.3	6.5	13.0
		7773ER	7.2	<0.1	7.2	6.2	1.0	7.2	14.4
		7878R	7.8	4.0	11.8	11.7	0.1	11.8	23.5
		7879	12.9	2.4	15.2	13.1	2.1	15.2	30.5
		A319-131	63.1	7.0	70.0	63.8	6.2	70.0	140.1
		A320-211	15.4	2.7	18.1	16.1	2.0	18.1	36.1
		A320-232	24.0	3.2	27.3	24.9	2.3	27.3	54.6
		A320-270N	31.4	13.9	45.3	33.2	12.1	45.3	90.7
		A321-232	196.4	39.3	235.6	208.5	27.1	235.6	471.2
		A330-301	0.8	<0.1	0.8	<0.1	0.8	0.8	1.7
		A330-343	0.4	0.0	0.4	0.4	<0.1	0.4	0.8
		A340-211	0.5	0.0	0.5	0.5	0.0	0.5	1.0
		A350-941	4.4	<0.1	4.4	3.5	0.9	4.4	8.8
		A380-841	0.9	<0.1	0.9	0.8	<0.1	0.9	1.8
	Regional Jet	CRJ9-ER	81.0	14.1	95.1	87.0	8.1	95.1	190.2
		EMB170	32.9	5.1	38.0	34.5	3.5	38.0	76.0
		EMB175	214.0	24.2	238.3	218.8	19.5	238.3	476.5
		EMB190	1.0	<0.1	1.0	1.0	<0.1	1.0	2.0
Air Carrier total			**955.2**	**171.6**	**1126.7**	**998.4**	**128.3**	**1126.7**	**2253.4**
	Non-jet	1900D	1.0	<0.1	1.0	0.7	0.3	1.0	2.1

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Tower Category	Propulsion	AEDT ANP Type	Arrivals Day	Arrivals Night	Arrivals Total	Departures Day	Departures Night	Departures Total	Total
Air Taxi Cargo		CNA208	3.2	0.9	4.1	3.6	0.5	4.1	8.1
		DHC6	0.7	<0.1	0.7	0.6	0.1	0.7	1.5
		SF340	0.4	0.3	0.6	0.6	<0.1	0.6	1.3
Air Taxi Passenger	Jet	CL600	1.0	<0.1	1.0	1.0	<0.1	1.0	2.1
		CNA55B	1.8	0.1	1.9	1.8	0.1	1.9	3.7
		CNA560XL	1.0	<0.1	1.0	1.0	<0.1	1.0	2.1
		CNA680	2.7	0.2	2.9	2.8	0.1	2.9	5.7
	Regional Jet	CL600	0.6	<0.1	0.6	0.6	<0.1	0.6	1.2
		EMB145	0.7	<0.1	0.7	0.7	<0.1	0.7	1.3
		EMB14L	1.8	0.0	1.8	1.8	<0.1	1.8	3.6
	Non-jet	CNA208	6.0	<0.1	6.1	6.0	0.2	6.1	12.2
Air Taxi total			**20.8**	**1.7**	**22.5**	**21.0**	**1.5**	**22.5**	**45.0**
General Aviation	Jet	CL600	1.0	<0.1	1.0	1.0	<0.1	1.0	2.0
		CL601	2.2	0.1	2.4	2.3	<0.1	2.4	4.7
		CNA55B	1.1	<0.1	1.1	1.0	<0.1	1.1	2.2
		CNA560XL	1.8	<0.1	1.9	1.8	<0.1	1.9	3.7
	Non-jet	CNA172	0.7	0.2	0.8	0.6	0.2	0.8	1.7
		CNA208	0.8	<0.1	0.8	0.8	<0.1	0.8	1.6
		DHC6	0.6	0.0	0.6	0.6	<0.1	0.6	1.2
General Aviation Total			**8.1**	**0.5**	**8.6**	**8.0**	**0.6**	**8.6**	**17.1**
Military	Jet	C17	0.1	0.0	0.1	0.1	<0.1	0.1	0.3
		LEAR35	<0.1	<0.1	0.1	0.1	0.0	0.1	0.2
	Non-jet	C130AD	<0.1	0.0	<0.1	<0.1	0.0	<0.1	<0.1
Military Total			**0.3**	**<0.1**	**0.3**	**0.3**	**<0.1**	**0.3**	**0.5**
Total			**984.3**	**173.7**	**1158.1**	**1027.7**	**130.4**	**1158.1**	**2316.1**

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Appendix B – Construction and Operational Emissions Technical Reports

Appendix B1: DRAFT DFW Runway 18L/36R Rehabilitation Project Construction Emissions Summary

August 2025

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Executive Summary

This technical report provides an assessment of the construction air quality impacts associated with the Runway 18L/36R Rehabilitation Project (proposed action) at Dallas Fort Worth International Airport (the Airport or DFW). The proposed project consists of airside improvements to Runway 18L/36R that would involve demolition of existing taxiway pavement, installation of an asphalt overlay and no-taxi islands, utility improvements, and rehabilitation of runway stormwater drainage.

HDR evaluated impacts to air quality due to the proposed project for National Environmental Policy Act (NEPA) purposes in accordance with the guidelines provided in the Federal Aviation Administration (FAA) Aviation Emissions and Air Quality Handbook Version 4 (FAA Handbook); FAA Order 5050.4B: *NEPA Implementing Instructions for Airport Actions*; FAA Order 1050.1G: *NEPA Implementing Procedures*, and FAA Order 1050.1 *Desk Reference, Environmental Impacts: Policies and Procedures*.

HDR estimated criteria air pollutant (CAP) emissions associated with construction of the proposed project during the years 2026 and 2027. Proposed project construction emission estimates were developed based on 1) activity estimates for vehicle, nonroad equipment, and fugitive dust provided by DFW and 2) emission factors from the United States Environmental Protection Agency (USEPA) Motor Vehicle Emission Simulator (MOVES5), Texas Commission on Environmental Quality (TCEQ) TexN2.5, and USEPA AP-42 guidance.

HDR evaluated the proposed project's significance with respect to air pollutant emissions by comparing the estimated emissions to applicable USEPA *de minimis* levels under General Conformity Rules (40 CFR 93, Subpart B). As of September 3, 2025, DFW is in a Severe Ozone Non-Attainment Area for the 2008 8-hour ozone standard. Therefore, the proposed project is subject to 25 tons per year (tpy) volatile organic compounds (VOC) and nitrogen oxides (NO_x) *de minimis* thresholds under the General Conformity Rules. This analysis was initiated to determine compliance with the Clean Air Act (CAA) and the TCEQ Dallas-Fort Worth Eight-Hour Ozone State Implementation Plan (SIP). Executive Summary **ES: Table** 1 shows that annual construction emissions from the proposed project are below applicable *de minimis* thresholds of 25 tpy for NOx or VOCs. However, when the construction and aircraft operational emissions are combined, the total project emissions would exceed the *de minimis* thresholds for NOx and VOCs. Aircraft operational emissions were modeled using the FAA Aviation Environmental Design Tool (AEDT version 3g). The aircraft operational emissions were modeled by HMMH and are detailed in the Operational Emissions Technical Report (Appendix B)

ES: Table 1. Proposed Project Construction Emissions

Project Year	Project Emissions (tpy)		General Conformity De Minimis Threshold1 (tpy)	
	NO_x	VOC	NO_x	VOC
2026	14.24	6.68	25	25
2027	9.49	4.45	25	25

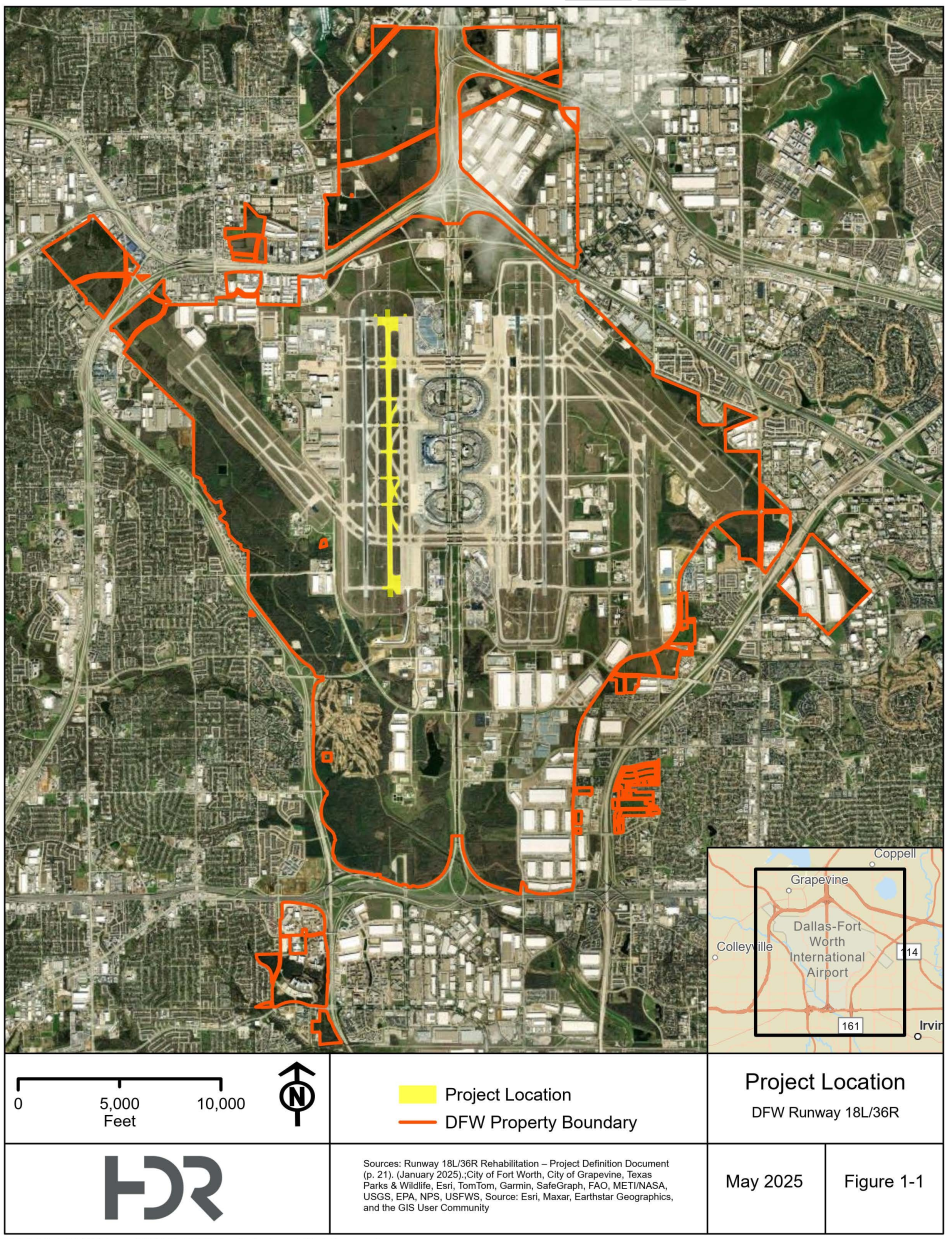
Source: HDR 2025

1 Introduction

This construction emissions technical report presents the construction emissions modeling results for the proposed Runway 18L/36R Rehabilitation Project at DFW, located in Dallas and Tarrant counties, Texas (**Figure 1**). This summary report provides an assessment of the air quality impacts associated with the construction of the proposed project. This summary report describes the scope and methodology for evaluation of air quality from construction sources and compares the construction emissions to the standards of significance identified by the Federal Clean Air Act. The estimated construction emissions were calculated using the TexN2.5 Utility which is compatible with USEPA's MOVES5. The analysis was completed based on the Civil Design Plans and other project data provided by the DFW Airport team, on behalf of the project developer.

The purpose of the summary report is to support compliance with the NEPA and other applicable federal, state, and location regulatory requirements.

Figure 1. Project Location Map



O:\10431164_10189_DFW Runway 18L35R EA\7.2_WIP\Deliverables\Environmental\ProjectLocation.pdf

1.1 Overall Approach and Regulatory Setting

NEPA provides for an environmental review process to disclose the potential impacts, including on air quality, from a proposed federal action on the human environment. Per the USEPA, NEPA's policy is to assure that all branches of government properly consider the environment prior to undertaking any major federal action that significantly affects the environment.

The impacts to air quality due to the proposed project for NEPA purposes are determined in accordance with the guidelines provided in the FAA Handbook; FAA Order 5050.4B, NEPA Implementing Instructions for Airport Actions; and FAA Order 1050.1G, Environmental Impacts: Policies and Procedures. Potential air quality impacts are required to be analyzed per these orders and guidance.

FAA 1050.1F, Exhibit 4-1, Significance Determination for FAA Actions, defines the significance threshold for air quality as when "[t]he action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the USEPA under the CAA, for any of the time period analyzed, or to increase the frequency or severity of any such existing violations." This analysis develops emissions inventories to determine the projected net annual increase in emissions consistent with the FAA Handbook. The General Conformity Rule ensures that federal activities do not cause or contribute to a violation of NAAQS.

The CAA requires adoption of NAAQS, which are periodically updated, to protect public health and welfare from the effects of air pollution. Current federal standards are set for sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter less than 10 microns in diameter (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and Lead (Pb). The NAAQS are expressed in terms of pollutant concentration measured over a defined period of time and are two-tiered, with the primary standard intended to protect public health and the secondary standard intended to protect public welfare and the environment. The primary and secondary NAAQS standards for the CAPs are shown in **Table 2**.

Table 2. National Ambient Air Quality Standards

Pollutant	Averaging Time	Primary Standards	Secondary Standards
CO	Eight-hour	9 parts per million (ppm)	None
	One-hour	35 ppm	None
Pb	Rolling Three-Month Average	0.15 $\mu g/m^3$	Same as Primary
NO_2	Annual Arithmetic Mean	53 parts per billion (ppb)	Same as Primary
	One-hour	100 ppb Note 2	None
O_3	Eight-hour (2015 standard) Note 4	0.070 ppm	Same as Primary
$PM_{2.5}$	Annual Arithmetic Mean	9 $\mu g/m^3$ Note 5	15 $\mu g/m^3$
	24-hour	35 $\mu g/m^3$	Same as Primary
PM_{10}	24-hour	150 $\mu g/m^3$ Note 1	Same as Primary
SO_2	One-hour	75 ppb Note 3	None
	Three-hour	None	10 ppb

Source: USEPA. 2025. NAAQS Table. Available at: https://www.epa.gov/criteria-air-pollutants/naaqs-table. Accessed: September 2025.

Notes:

1. For PM_{10}, the 24-hour standard is not to be exceeded more than once per year on average over three years. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or are less than the standard.
2. To attain this standard, the three-year average of the 98th percentile of the daily maximum one-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).
3. Final rule signed June 2, 2010. To attain this standard, the three-year average of the 99th percentile of the daily maximum one-hour average at each monitor within an area must not exceed 75 ppb.
4. US EPA updated the NAAQS for O_3 to strengthen the primary eight-hour standard to 0.07 ppm on October 1, 2015. An area will meet the standard if the fourth-highest maximum daily eight-hour O_3 concentration per year, averaged over three years is equal to or less than 70 ppb.
5. US EPA strengthened the annual PM2.5 standard to 9 $\mu g/m^3$ on February 7, 2024. https://www.epa.gov/newsreleases/epa-finalizes-stronger-standards-harmful-soot-pollution-significantly-increasing

Specific geographic areas are classified as either "attainment" or "non-attainment" areas for each pollutant, based on comparing ambient air monitoring data with NAAQS. Those areas designated as "non-attainment" for purposes of NAAQS compliance are required to prepare regional air quality plans, which set forth a strategy for bringing an area into compliance with the standards. These regional air quality plans are developed to meet federal requirements and are included in an overall program referred to as the SIP.

The proposed DFW Runway 18L/36R Rehabilitation Project site is located in Dallas County, within the Dallas-Fort Worth metropolitan area and according to the USEPA, the Dallas-Fort Worth metropolitan area is designated as:

- *Attainment or Unclassified* for CO (1-hour (hr), 8-hr), NO_2 (1-hr, Annual), Sulfur Dioxide (SO_2) (1-hr, 3-hr.), PM_{10} (24-hr), $PM_{2.5}$ (24-hr, Annual), and Pb (Rolling 3-month average)
- *Severe Nonattainment* [1] for O_3 under the 2008 standard 8-hr averaging period
- *Serious Nonattainment* for O_3, under the 2015 standard 8-hr averaging period

As indicated above, the *Nonattainment* designation for the project area is limited to O_3, a secondary air pollutant formed in the atmosphere when NO_x and VOCs react under exposure to solar radiation. O_3 is considered a regional pollutant because NO_x and VOC emissions throughout the airshed are involved in the formation of O_3. A regional photochemical model that considers emissions throughout the airshed is used to model ozone concentrations. The potential project related impacts to ozone concentrations are typically based on estimates of annual or daily emissions of NO_x and VOC, measured in tpy or grams per day (gpd).

1.2 Existing Conditions

DFW is a commercial service airport that currently encompasses 17,207 acres (approximately 27 square miles) in Dallas and Tarrant counties. In the National Plan of Integrated Airport Systems, the FAA classifies the Airport as a large hub primary commercial service airport[2]. DFW's airfield system consists of seven runways (13L/31R, 13R/31L, 17C/35C, 17L/35R, 17R/35L, 18L/36R, and 18R/36L) separated by a spine road, International Parkway, into the east and west airfield complexes. DFW has five passenger terminals named Terminals A, B, C, D, and E.

Runway 18L/36R is 13,401 foot long and serves as DFW's west airfield primary departure runway. Runway 18L/36R is 200 feet wide with 40-foot-wide asphalt shoulders and accommodates Airplane Design Group (ADG) VI. The Runway 18L/36R Rehabilitation Project is part of DFW's Comprehensive Runway Rehabilitation Program, which started in 2018. This comprehensive rehabilitation program started with the rehabilitation of Runway 17C/35C from May 2018 to March 2019. In June 2020, DFW then initiated a project to rehabilitate Runway 18R/36L, which was completed in April 2021. In August 2023, DFW started the Runway 17R/35L Rehabilitation Project and completed it in October 2024. Runway 18L/36R is the fourth runway in the rehabilitation program; based on the 2019 pavement condition index (PCI) report, the condition of the keel section received a "fair" score of 66 and needed rehabilitation to restore the asset to good condition, reduce the number of unplanned runway closures and reduce maintenance costs. Since 2019, the Runway 18L/36R pavement has continued to deteriorate and evaluations of the pavement conditions sered signs of continued distress and deficiencies attributed to age infrastructure and inadequate drainage conditions. Similar to the recently completed projects in Comprehensive Runway Rehabilitation Program, the Runway 18L/36R Rehabilitation Project will also include installation of an asphalt overlay that will provide a reliable operational surface and standard maintenance cycle that aligns with the previous runway rehabilitation projects.

1.3 Project Description

Under the proposed project, the rehabilitation of Runway 18L/36R would consist of a closure of the runway from May 2026 through April 2027. During the period when the runway is closed, all aircraft operations would be moved from Runway 18L/36R; this change in aircraft operations and runway

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[1] USEPA. Greenbook. 2024. Texas Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. Available at: https://www3.epa.gov/airquality/greenbook/anayo_tx.html. Accessed: November 2024.

[2] FAA. Appendix A: List of NPIAS Airports. 2024. Available at: https://www.faa.gov/sites/faa.gov/files/airports/planning_capacity/npias/current/ARP-NPIAS-2025-2029-Appendix-A.pdf. Accessed September 2025.

utilization operations would be temporary, during the construction period only. The proposed project would include two phases:

- ***Phase 1*** would generally consist of construction of the PSLs at the north end of the project area. Near the end of Phase 1, Runway 18L/36R would be closed nightly for partial depth saw cutting. Phase 1 would also include the relocation of the Runway 36R threshold and partial demolition of Runway 36R Run-Up Area. The temporary relocation of the threshold would maintain a usable runway length of approximately 9,000 feet for ADG-III operations. Phase 1 would be scheduled to start in May 2026 and finish in August 2026.
- ***Phase 2*** would consist of the construction of an additional PSL and the demolition and reconstruction of the runway, connecting taxiways and rehabilitation of the NWHP. This phase would require the full closure of the runway. Taxiway WM would remain open at all times. Phase 2 would be scheduled to start in August 2026 and finish in April 2027.

The detailed project scope includes the following:

- Pavement and rehabilitation
  - Select panel replacement, joint seal, and spall repair
  - Reduce width of runway from 200 feet to 150 feet
  - Full-depth reconstruction of shoulder pavements to meet FAA AC 150/53000-13B Change 1 requirement
  - Full depth reconstruction of the blast pad to meet ADG VI runway design standards
  - Application of 6-inch Hot Mix Asphalt (HMA) overlay
- Non-FAA circuit rehabilitation (will be removed and either moved to a new location or returned to current location)
  - Touchdown zone, centerline, and edge light emitting diode (LED) upgrades
  - Manholes replaced with junction can plazas
  - Replacement of in-pavement can lights including taxiways
  - Non-standard signs with pig tails
  - Temperature sensors
  - Electrical box relocation (ADG-VI obstruction)
  - Removal of old electrical infrastructure in the Southwest Holdpad (SWHP)
- Utility improvements and rehabilitation of runway stormwater drainage
  - Relocate stormwater inlets
  - Relocate stormwater inlets within Taxiway F safety area
- Reset runway hold position markings
- Northwest Holdpad (NWHP) Rehabilitation and Taxiway Design Group (TDG) 6 Fillet Modifications
- SWHP TDG 6 Fillet Modifications
- TDG 6 fillet modifications and select panel replacement of all taxiways and high-speed taxiway exits within the Runway 18L/36R Object Free Area (OFA)
- Demolition of existing taxiway pavement on Taxiway WK, between Taxiways E and F
- Demolition of taxiway pavement on Taxiway G8, between Taxiways E and F
- Demolition of taxiway pavement on Taxiway WL, between Taxiways E and F
- Demolition of taxiway pavement on Taxiway F4, between Runway 18L/36R and Taxiway F
- Rehabilitation of Taxiway WF pavement, south of taxiway centerline
- Construction of the Northwest End Around Taxiway (NW EAT) pavement, north of Runway 18L within Runway Safety Area (RSA)
- Partial demolition of the Runway 36R run-up threshold
- Installation of No-Taxi islands at the following locations:
  - East of the Runway 18L threshold between Taxiway WF and Taxiway WG
  - East of the Runway 18L threshold between Taxiway WG and Taxiway WH
  - West of the Runway 18L threshold between Taxiway WF and Taxiway WG
  - East of the Runway 36R threshold between Taxiway WP and Taxiway WQ
  - East of the Runway 36R threshold between Taxiway WQ and Taxiway WR
  - East of Runway 18L/36R, between Taxiway Y and Taxiway Z
- Construction of requisite utilities and improvements to lighting, signage, and stormwater drainage infrastructure

- Final site-area grading, topsoil, seed/sod, and other erosion controls, as necessary. Limits of grading, topsoil, and sodding to encompass areas beyond the inlets/drains to mitigate infield problem areas; and
- Temporary lighting, signage, and pavement markings installation, as necessary, to support temporary taxiway routing during various phases of construction.

1.4 Project Construction Schedule

The construction of the proposed rehabilitation of Runway 18L/36R is anticipated to begin in May 2026 and be completed in April 2027. It is assumed that 60% of the construction activities would occur in 2026 and 40% of the construction activities would occur in 2027. There would be two main phases: shorten runway phase and full runway closure phase. The breakdown of the two phases by calendar year are shown in **Table 3**.

Table 3. Project Construction Schedule

Phase (Year)	Estimated Start and End Dates	Duration (days)
Shorten Runway (2026)	5/1/2026 to 8/13/2026	60 days
Full Runway Closure (2026)	8/14/2026 to 12/31/2026	140 days
Full Runway Closure (2027)	1/1/2027 to 4/30/2027	133 days

Source: DFW Airport Planning and DCC Departments

2 Methodology and Inventory

2.1.1 Air Quality Assessment Procedure

The FAA Handbook lays out steps needed to complete an air quality assessment under NEPA. This assessment process is intended for projects requiring a Federal Action, which are defined as aviation-related projects that require FAA funding, licensing, permitting, or approval. The NEPA air quality assessment can determine if Federal Action-generated emissions would exceed one or more of NAAQS and provide sufficient documentation of that assessment. The following steps are as follows:

1. Determine if the Federal Action falls within an exemption to General Conformity.
2. Does the Federal Action qualify as Presumed to Conform?
3. Determine if the Federal Action is in an EPA-designated nonattainment area or maintenance area
4. Evaluate if Attainment Screening Criteria is exceeded[3].

The proposed project is neither exempt nor presumed to conform. The proposed project is located in a severe nonattainment area for ozone. Therefore, based on the results of Steps 1 through 4 above, an air quality assessment has been conducted.

2.1.2 Construction Scenario Evaluated

HDR evaluated the ozone precursors, NO_x and VOCs, emissions associated with construction of the proposed project. The proposed project, which is the only scenario evaluated, would include demolition of taxiway pavement, pavement and circuit rehabilitation, and utility improvements. Construction emissions depend on activity levels for heavy-duty construction equipment, truck haul trips (bulk deliveries and demo debris to local landfill), and vehicle trips made by construction workers and vendors/material deliveries (cement mixer) traveling to and from the proposed project site.

2.1.3 Construction Emissions Inventory

Construction of the proposed project would generate emissions from construction equipment, material delivery trips, concrete and asphalt haul trips, construction worker- and vendor trips, asphalt drying, and

[3] FAA. 2024. Aviation Emissions and Air Quality Handbook Version 4. Available at: https://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/files/airquality_handbook_version_4.pdf. Accessed: September 2025

concrete storage and batching. Emissions would be generated from on-road vehicles and nonroad construction equipment, including but not limited to excavators, rollers, compressors, skid steer loaders, rubber tire loaders, concrete saws, pumps, bore drill rigs, trenchers, striping machines, backhoes, hoe rams, paint sprayers, cement mixers, cement delivery trucks, water trucks, passenger vehicles/trucks, and heavy-duty dump trucks. A full list of construction equipment and vehicles is included in **Appendix A**. The project details, construction schedule, and design plans were provided by DFW.

2.1.4 Emission Factors

For this analysis, emission factors were generated using MOVES5 and the TexN2.5 database to develop on-road and nonroad emission factors specific to Dallas County. These emission factors were applied to estimates of vehicle miles traveled (VMT) and construction equipment (hours, horsepower, load factor), respectively, for each construction activity and year. Spreadsheet calculations for construction are presented in **Appendix A**.

2.1.4.1 On-Road Equipment

HDR used MOVES5 to estimate on-road equipment emission factors for calendar year 2026. It is conservatively assumed that emission factors in 2027 would be similar to 2026. MOVES5 was run at a default (national) scale for Dallas County. Emissions and activity were output from MOVES by vehicle type, fuel type, road type, and process type for each calendar year. Passenger vehicles (light duty trucks and cars) are assumed to be gasoline fueled while dump trucks are assumed to be diesel fueled. One way trip lengths were assumed to be 20 miles to the nearest landfill and 30 miles for vendor and worker trips. Emissions were aggregated over several emission process types to facilitate application to activity for development of proposed project emissions.

2.1.4.2 Nonroad Equipment

To model the proposed project construction emissions from nonroad equipment, HDR used TexN2.5 with MOVES5 for calendar year 2026. It is conservatively assumed that emission factors in 2027 would be similar to 2026. TexN2.5 was run at a default scale for Dallas County. HDR utilized the construction schedule and project activity data such as equipment operating hours, equipment types, fuel types, and equipment size (horsepower). Most equipment provided was from model year 2000-2007. DFW-provided equipment activity was cross referenced to TexN2.5 equipment types based on name matching and experience in assigning appropriate types. Equipment emission factors matching those equipment proposed for the project were taken from the TexN2.5 database by dividing emission quantities by activity hours.

2.1.4.3 Fugitive VOC Emissions

Fugitive VOC emissions would be generated during the asphalt drying process, as VOCs are released when asphalt is laid at high temperatures and cools down. These fugitive VOC emissions were calculated using the FAA Handbook.

2.1.4.4 PM Emissions

PM_{10} and $PM_{2.5}$ emissions would be generated during concrete storage and batching. PM emissions were calculated using emission factors from AP-42 Section 11.12 “Concrete Batching” and the volume of asphalt for the proposed project.

2.1.4.5 Dust Emissions

Both fugitive dust and resuspended road dust emissions were calculated. Fugitive dust emissions were estimated using the Western Governors’ Association Western Regional Air Partnership (WRAP) Handbook. WRAP Level 1, which relies on the acreage affected, was used to determine PM emissions from soil disturbance and wind erosion. WRAP Level 4, which relies on mileage, was used to determine PM emissions from vehicle travel on unpaved roads. A limited 1/2 mi of on-site haulage (on unpaved work areas) is assumed for each dump truck roundtrip. DFW typically does not allow unpaved roads on the Airport Operations Area. For travel on paved roads, resuspended road dust emissions were calculated using AP-42 Section 13.2.1 “Paved Roads”.

3 Significance Thresholds

This section discusses the criteria and general methods used to evaluate the proposed Project's significance with respect to air quality impacts under NEPA. Emissions inventories are used to determine a proposed project's potential impact on air quality. The emissions inventories are compared to pollutant-specific *de minimis* thresholds established by the EPA. Per FAA Order 1050.1 Desk Reference, a significant air quality impact occurs when the proposed project *would cause pollutant concentrations to exceed one or more of the NAAQS, as established by the EPA under the CAA [Clean Air Act] section 176(c)146*, *for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations*[4].

The CAA conformity requirement integrates air quality planning on the state level with project planning on a federal level, to protect the integrity of state plans for improving air quality in in areas that do not meet the NAAQS—nonattainment and maintenance areas. The General Conformity Rule ensures that federal actions, such as airport development projects in nonattainment or maintenance areas, comply with the CAA and do not cause or contribute to a violation of NAAQS. When performing a General Conformity analysis, the FAA considers a range of factors, including:

- If action will occur in a Non-attainment or Maintenance Area
- If specific exemptions in the General Conformity Rule apply
- If the action is on the federal agency's list of "presumed to conform" activities
- If total emissions exceed General Conformity *de minimis* levels, and
- If an EPA-approved SIP has an emissions budget for which emissions with the action could be compared

As previously stated, the DFW metropolitan area is designated as a *Severe* nonattainment area for O_3, based on the 2008 eight-hour ozone standard and *Serious* nonattainment area for O_3, based on the 2015 eight-hour ozone standard. The applicable de minimis threshold based on the *Severe* nonattainment area designation is 25 tpy for each ozone precursor pollutant (NO_x and VOCs).

4 Results

4.1 Estimated Construction Emissions Inventory Results

HDR estimated NO_x and VOCs emissions associated with construction of the proposed DFW Runway 18L/36R Rehabilitation Project. The construction emissions inventory was developed using construction activity data provided by DFW on behalf of the project developer and emission factors from the TexN2.5 model. The proposed project's estimated emissions were compared to applicable *de minimis* thresholds (25 tpy for each ozone precursor), to determine compliance with the CAA and conformance to the TCEQ Dallas-Fort Worth Eight-Hour Ozone SIP, as required by the General Conformity Rule (40 CFR 93, Subpart B).

Table 4 shows that estimated NOx and VOC emissions that would result for the construction of the proposed DFW Runway 18L/36R Rehabilitation Project. As shown in Table 4 the estimated Runway 18L/36R Rehabilitation Project annual construction emissions are below applicable *de minimis* thresholds for 2026 and 2027. However, the estimated project aircraft operational emissions detailed in the **Runway 18L/36R Rehabilitation Project Aircraft Emissions Analysis Memorandum (Appendix A2)** exceed the applicable *de minimis* threshold. Aircraft operational emissions were modeled using the FAA Aviation Environmental Design Tool (AEDT version 3g). The aircraft operational emissions were modeled by HMMH and are detailed in the Operational Emissions Technical Report. As detailed in the Operational Emissions Technical Report the estimated emissions associated with the changes in aircraft operations due to the proposed project are as follows:

- In calendar year 2026 the estimated NOx emissions would be 30.26 tpy and the estimated VOCs emissions are 11.44 tpy.

[4] FAA. 2020. 1050.1 Desk Reference. Available at: https://www.faa.gov/sites/faa.gov/files/about/office_org/headquarters_offices/apl/1-air-quality.pdf. Accessed: September 2025

- In calendar year 2027 the estimated NOx emissions would be 32.89 tpy and the estimated VOCs are 11.68 tpy.

When the construction and aircraft operational emissions are combined, the total project-related emissions would exceed the applicable *de minimis* thresholds for NOx and VOCs in 2026 and 2027. Therefore, the proposed project would be subject of General Conformity Determination; Under the federal General Conformity Rule, DFW must submit a General Conformity Determination for the Proposed Action. The General Conformity Determination must demonstrate that emissions from the Proposed Action would not exceed the emissions budgets in the SIP for the years when the proposed project's emissions exceed applicable *de minimis* thresholds. The General Conformity Determination must be reviewed and approved by TCEQ.

Table 4. Summary of Emissions and Comparison to General Conformity *de minimis* thresholds.

Project Year and Emissions Source	Construction Emissions (tpy)		General Conformity *De Minimis* Threshold (tpy)	
	NOx	VOCs	NOx	VOC
2026 Non-Road	7.83	0.72	25 tpy	25 tpy
2026 On-Road	6.41	3.41		
Asphalt Fugitives	-	2.54		
2026 Total Emissions	**14.24**	**6.68**		
2027 Non-Road	5.22	0.48		
2027 On-Road	4.27	2.27		
Asphalt Fugitives	-	1.70		
2027 Total Emissions	**9.49**	**4.45**		

Note: Totals may not add up due to rounding.

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Appendix A. Project Data Inputs and TexN2.5, MOVES Output Tables – **Available Upon Request**

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Appendix B2: Runway 18L/36R Rehabilitation Project Aircraft (Operational) Emissions Analysis Memorandum

To:	Esther Chitsinde HDR Inc.
From:	Robert C. Mentzer, Jr. Kate Larson
Date:	September 17, 2025
Subject:	DRAFT - Dallas Fort Worth Airport Runway 18L/36R Rehabilitation Environmental Assessment: Aircraft Emissions Inventory DRAFT
Reference:	HMMH Project Number 23-0095C.003

As a subconsultant to HDR, Harris Miller Miller & Hanson Inc. (HMMH) is assisting Dallas-Fort Worth Airport (DFW) with the aircraft noise and emissions elements of the Environmental Assessment (EA) for the Runway 18L/36R Rehabilitation Project. The purpose of this technical memorandum is to provide the aircraft operations emissions inventory results for the existing conditions (calendar year 2024) and forecast conditions for the construction years (2026 and 2027).

The remainder of this memo is written for inclusion in HDR's Air Quality Technical Report with minimal editing required.

Air Quality: Aircraft Operational Emissions

This section provides the description of current and forecast aircraft operations at DFW used for the development of existing emission inventories. The existing condition inventory represents a 12-month period from the calendar year of 2024 (January 1 – December 31). The construction period is expected to begin in 2026 and end in 2027, so there are two forecast analysis years. The forecast emissions analysis compares No Action pollutant calculations to the Proposed Action calculations for each year, calculated using the Federal Aviation Administration's (FAA's) Aviation Environmental Design Tool (AEDT), Version 3g[1], in compliance with FAA Order 1050.1G and FAA Order 5050.4B.

1.0 Existing Conditions

The existing aircraft emission inventory for DFW was evaluated based upon the calendar year 2024 aircraft operations and the associated airport operational characteristics. Flight track and aircraft identification data from DFW's Noise and Operations Monitoring System (NOMS) and provided the aircraft fleet mix and runway use. The fleet mix developed from the DFW NOMS data was grouped into FAA operational categories (Air

[1] AEDT Version 3g released on August 28, 2024. FAA: AEDT Support Website

Carrier, Air Taxi, and General Aviation) and the totals were scaled to match the tower count for that period, provided by the FAA's Operational Network (OPSNET) operational data.

1.1 Aircraft Fleet Mix and Operations

During the existing conditions period, 743,203 annual operations occurred at DFW. **Table 1** presents the annual operations modeled in the AEDT for the existing conditions, where arrivals and departures are counted as separate operations. **Table 2** provides the annual operations, by AEDT aircraft type, that were used in AEDT to represent the existing conditions. The arrivals and departures are divided into day and night categories for the purposes of noise assessment, listed here in the same manner for consistency.

Table 1. Existing Conditions Annual Operations

Category	2024 Operations
Air Carrier Cargo	16,573
Air Carrier Passenger	705,825
Air Taxi Cargo	4,290
Air Taxi Passenger	10,580
General Aviation	5,724
Military	211
Total	**743,203**

Sources: DFW NOMS, FAA OPSNET, *HMMH analysis, 2025*

Table 2. DFW Modeled Annual Operations for Existing Conditions (Calendar Year 2024)

Tower Category	Propulsion Category	AEDT Aircraft Type	Arrivals Day	Arrivals Night	Departures Day	Departures Night	Total
Air Carrier Cargo	**Jet**	747400	304	148	298	154	905
		7478	344	246	375	215	1,180
		757PW	299	33	288	44	664
		757RR	435	42	417	60	954
		7673ER	2,012	933	1,569	1,376	5,890
		777300	645	402	405	642	2,094
		A300-622R	916	69	849	136	1,970
		MD11GE	405	322	444	283	1,454
		MD11PW	370	361	456	275	1,462
Air Carrier Passenger	**Jet**	737700	6,406	956	6,735	627	14,723
		737800	74,609	10,267	77,160	7,716	169,753
		7378MAX	2,826	970	3,418	378	7,593
		747400	324	135	323	136	917
		7478	22	95	74	43	235
		777200	2,109	267	2,268	108	4,753
		7773ER	1,953	14	1,699	268	3,934
		7878R	2,112	913	2,998	27	6,050
		7879	3,373	542	3,376	539	7,831
		A319-131	23,959	2,410	23,972	2,397	52,737
		A320-211	6,765	1,219	6,960	1,024	15,968
		A320-232	10,972	1,535	11,297	1,210	25,014
		A320-270N	8,045	3,045	8,123	2,967	22,180

Tower Category	Propulsion Category	AEDT Aircraft Type	Arrivals Day	Arrivals Night	Departures Day	Departures Night	Total
		A321-232	64,216	10,589	66,193	8,612	149,610
		A330-301	302	3	24	281	609
		A330-343	148	-	146	2	297
		A340-211	181	-	181	-	363
		A350-941	1,120	10	891	239	2,260
		A380-841	321	2	308	15	647
	Regional Jet	CRJ9-ER	30,118	4,602	31,760	2,960	69,439
		EMB170	12,205	1,659	12,581	1,283	27,728
		EMB175	55,668	5,563	56,228	5,003	122,462
		EMB190	359	2	358	3	722
Air Carrier total			**313,845**	**47,354**	**322,176**	**39,023**	**722,398**
Air Taxi Cargo	Non-jet	1900D	361	17	255	123	756
		CNA208	1,014	243	1,108	149	2,514
		DHC6	268	5	227	46	546
		SF340	149	88	214	23	474
Air Taxi Passenger	Jet	CL600	298	21	296	23	637
		CNA55B	549	31	548	32	1,160
		CNA560XL	308	13	311	10	643
		CNA680	842	48	855	35	1,779
	Regional Jet	CL600	368	3	368	3	742
		EMB145	243	2	243	2	490
		EMB14L	669	-	666	3	1,338
	Non-jet	CNA208	1,870	25	1,846	49	3,790
Air Taxi total			**6,939**	**496**	**6,937**	**498**	**14,870**
General Aviation	Jet	CL600	318	19	321	16	673
		CL601	740	49	765	24	1577
		CNA55B	355	10	333	32	730
		CNA560XL	593	28	581	40	1242
	Non-jet	CNA172	210	69	174	105	557
		CNA208	257	13	249	21	540
		DHC6	202	0	186	16	405
General Aviation Total			**2,674**	**188**	**2,608**	**254**	**5,724**
Military	Jet	C17	52	-	46	6	103
		LEAR35	38	3	41	-	82
	Non-jet	C130AD	13	-	13	-	26
Military Total			**103**	**3**	**100**	**6**	**211**
Grand Total			**323,561**	**48,041**	**331,821**	**39,781**	**743,203**

Note: Totals may not match exactly due to rounding
Sources: DFW NOMS, FAA OPSNET, FAA TAF, HMMH analysis 2025

Other parameters used in the AEDT model inputs which do not change from the existing to the forecast scenarios (aircraft noise and performance profile selection, flight tracks, meteorological, and terrain data) are described in the noise assessment documentation. Specific aircraft engine types and taxi times are needed to determine air quality pollutant emissions and to make fuel burn calculations. Since there is no change in aircraft operations between the No Action and Proposed Action scenarios, ground support equipment and auxiliary power unit usage are modeled using AEDT default assignments. The following two sections discuss the runway use and taxi-times inputs which would be affected by the proposed project.

1.2 Runway Use

DFW has two runway complexes: the east side and west side, comprised of seven runways; four to the east and three to the west. Aircraft typically arrive on the outermost main north/south runways as well as some of the outboards and depart on the innermost runways main north/south runways (inboards). Aircraft normally take off and land into the wind. Choice of runway can be affected by aircraft type, type of activity, and where applicable, airport runway use plans. Historic data shows that DFW has two main operating configurations—south flow (departing to the south and arriving from the north) approximately 70 percent of the time and north flow (departing to the north and arriving from the south) approximately 30 percent of the time.

Table 3 summarizes the runway usage AEDT inputs developed from the DFW NOMS data for a recent 12-month period without any extended runway closures: October 2021 through September 2022, which is fiscal year (FY) 2022. DFW has had several runway reconstruction projects in the past two years, with the latest completed in October 2024. The air quality analysis for the EA should reflect typical annual runway use; therefore, the study team determined that FY 2022 rates would be used. The aircraft operations, separated into jets and non-jets, departures and arrivals, and day and nighttime periods determine the runway use distribution. The FY 2022 usage was normalized to the historical north flow (30 percent), south flow (70 percent) split.

Table 3. Runway Use Percentages, Existing Condition

Propulsion	Runway	Arrivals		Departures	
		Day	Night	Day	Night
Jet	13L	0%	0%	<1%	0%
	13R	3%	<1%	<1%	0%
	17C	27%	32%	<1%	1%
	17L	11%	1%	<1%	0%
	17R	<1%	7%	39%	33%
	18L	<1%	4%	31%	31%
	18R	28%	24%	<1%	6%
	31L	<1%	0%	<1%	0%
	31R	<1%	<1%	<1%	0%
	35C	11%	14%	<1%	<1%
	35L	<1%	3%	16%	15%
	35R	5%	<1%	<1%	0%
	36L	12%	10%	<1%	2%
	36R	<1%	1%	14%	13%
	SUBTOTAL	**100%**	**100%**	**100%**	**100%**
Non-Jet	13L	<1%	0%	<1%	<1%
	13R	28%	<1%	<1%	0%
	17C	9%	16%	3%	2%
	17L	23%	<1%	<1%	0%
	17R	<1%	4%	38%	15%
	18L	<1%	5%	24%	18%
	18R	9%	44%	5%	34%
	31L	<1%	0%	9%	2%
	31R	13%	0%	<1%	0%
	35C	2%	8%	2%	<1%
	35L	<1%	1%	15%	7%
	35R	3%	<1%	0%	0%
	36L	12%	18%	<1%	15%
	36R	<1%	1%	3%	5%
	SUBTOTAL	**100%**	**100%**	**100%**	**100%**

Sources: DFW NOMS FY2022, HMMH analysis 2025

1.3 Taxi-Times

DFW Design Code and Construction (DCC) provided the average taxi times (in minutes) for this analysis, which are shown in **Table 4**, supplemented with FY 2022 average taxi times obtained from the FAA Aviation System Performance Metrics (ASPM) database[2]. Annual aircraft taxiing emissions are a function of the number of aircraft operations, expressed as landing and takeoff (LTO) cycles, the aircraft fleet mix (specific types of aircraft/engines used), and the length of time aircraft spend in the taxiing mode of operation defined in AEDT.

[2] FY 2022 taxi times (and runway usage) were used in this analysis because FY 2022 is a recent 12-month period with no extended runway closures.

Table 4. Existing Condition Taxi Times, by Runway End

Scenario	Runway End	Taxi-In Time (Minutes)	Taxi-Out Time (Minutes)
Existing Condition and No Action	13L	11.2	16.0
	13R	14.2	16.0
	17C	12.8	8.4
	17L	14.7	16.4
	17R	7.0	17.5
	18L	8.2	16.9
	18R	10.5	9.6
	31L	14.2	24.6
	31R	11.1	40.1
	35C	12.3	16.7
	35L	8.4	18.4
	35R	14.9	17.8
	36L	11.7	16.5
	36R	11.4	17.7

Sources: DFW DCC, FAA Aviation System Performance Metrics (ASPM), accessed on July 14, 2025, HMMH analysis 2025

1.4 Aircraft-Related Operational Emissions

AEDT can calculate operational emissions from aircraft operations, ground service equipment (GSE), and auxiliary power units (APU). AEDT default data for APU and GSE equipment and duration was used in the modeling. The pollutant inventory calculations include aircraft emissions associated with taxi-in, taxi-out, and in-flight operations below mixing height[3]. **Table 5** provides the calculated operational emissions for the existing conditions, based on the operations in **Table 2**.

Table 5. Total Operational Emissions for Existing Conditions

Year	Operational Category	Pollutant (tons per year)						
		NO_x	CO	$PM_{2.5}$	PM_{10}	SO_x	VOC	CO_2
2024	Aircraft	3,988.80	4,077.97	38.553	38.553	442.90	451.25	1,468,172.40
	GSE LTO	25.67	727.28	1.388	1.494	0.22	19.64	14,881.56
	APU	122.70	106.33	16.135	16.135	16.45	8.81	60,000.21
	Total	**4,137.16**	**4,911.58**	**56.08**	**56.18**	**459.58**	**479.71**	**1,543,054.17**

Source: HMMH AEDT analysis, 2025

2.0 Forecast Years Conditions

The Proposed Action Alternative is comprised of the rehabilitation of Runway 18L/36R and its shoulders, upgrades to the electrical systems and components, and a full asphalt overlay. The Proposed Action Alternative would cause temporary changes in runway use, during construction only. As the construction is not expected to affect the number and type of aircraft operations using the airport, the only aircraft-related emissions changes would stem from changes in taxi times for the affected runways and changes in airport-

[3] The AEDT Default mixing height of 3,000 feet above field elevation was used.

wide runway usage rates during the construction period. The analysis years, 2026 and 2027, include periods prior to construction and after construction is completed when runway usage and taxi times are assumed to be the same as for the existing conditions. Once construction is complete in 2027, runway use and taxi times would return to normal conditions.

The Runway 18L/36R Rehabilitation is expected to be completed in three construction phases. Phase 1 would include all the preparation work and staging (not impacting runway operations) needed to begin Phase 2. Phases 2 and 3 would involve reduced length or full runway closures and are the subject of this emission inventory. Together, Phase 2 and Phase 3 cover 12 months from May 2026 to April 2027.

- Phase 2 – Runway 36R end closure – May 1, 2026 through July 31, 2026 (3 months)
- Phase 3 – Full Closure of Runway 18L/36R – August 1, 2026 to April 30, 2027 (9 months)

2.1 Aircraft Fleet Mix and Operations

An operational forecast prepared in the early stages of this EA was submitted to FAA for approval on July 7, 2025, including detailed operations tables for AEDT noise and emissions modeling for calendar years 2026 and 2027. The forecast operations are based on the FAA's 2024 Terminal Area Forecast (TAF) issued in January 2025 for DFW. The No Action and Proposed Action Alternatives assume the same level of operations for both scenarios because the Proposed Action is a runway rehabilitation project that does not alter the length of the runway or its expected use in the future. **Table 6** provides the proposed level of operations to be modeled for the EA forecast years 2026 and 2027, in comparison to the existing conditions year, 2024.

Table 6. Forecast Annual Operations

Category	2024 Existing Conditions	2026 Forecast (No Action and Proposed Action)	2027 Forecast (No Action and Proposed Action)
Air Carrier Cargo	16,573	26,727	28,189
Air Carrier Passenger	705,825	773,887	794,319
Air Taxi Cargo	4,290	4,676	4,738
Air Taxi Passenger	10,580	11,584	11,693
General Aviation	5,724	6,233	6,252
Military	211	197	197
Total	**743,203**	**823,304**	**845,388**

Sources: DFW NOMS, FAA OPSNET, *HMMH analysis, 2025*

Table 7 lists the annual operations, by AEDT aircraft type, that were input to AEDT to represent the two forecast years' operations, respectively. The fleet mix for each forecast year (2026, 2027) was initially based on the 2024 fleet mix operations. Overall flights were scaled proportionally to the future year's total operations by category and then air carrier fleets were adjusted to reflect expected increased use of newer aircraft models. For example, from 2024 to 2026, the air taxi category share of the regional jet activity is expected to decrease (e.g., CRJ-200 modeled as the CL600), and the air taxi jet category to increase (e.g., CL35 modeled as the CL600). From 2026 to 2027, the air taxi category share of the regional jet activity is predicted to decrease further, while the air taxi jet category is expected to increase further. The general aviation and military fleet mix is assumed to remain largely unchanged from 2024 to 2027. For additional information on the forecast, see Appendix xx.

Table 7. DFW Modeled Forecast Operations for Construction Years (2026 and 2027)

Tower Category	Propulsion Category	AEDT ANP Type	2026 Operations	2027 Operations
Air Carrier Cargo	Jet	747400	3,843	3,852
		7478	1,204	1,216
		757PW	664	664
		757RR	954	954
		7673ER	8,039	9,263
		777300	7,137	7,354
		A300-622R	1,970	1,970
		MD11GE	1,454	1,454
		MD11PW	1,462	1,462
Air Carrier Passenger	Jet	737700	16,022	16,525
		737800	169,455	167,402
		7378MAX	11,597	13,255
		747400	917	917
		7478	235	235
		777200	4,753	4,753
		7773ER	4,979	5,268
		7878R	7,965	8,593
		7879	10,309	11,122
		A319-131	51,526	51,122
		A320-211	13,947	13,193
		A320-232	21,739	19,914
		A320-270N	30,087	33,089
		A321-232	166,371	171,994
		A330-301	609	609
		A330-343	297	297
		A340-211	359	358
		A350-941	2,975	3,210
		A380-841	647	647
	Regional Jet	CRJ9-ER	69,439	69,439
		EMB170	27,728	27,728
		EMB175	161,210	173,928
		EMB190	722	722
Air Carrier Total			**800,614**	**822,508**
Air Taxi Cargo	Non-jet	1900D	756	756
		CNA208	2,900	2,962
		DHC6	546	546
		SF340	474	474
Air Taxi Passenger	Jet	CL600	735	751
		CNA55B	1,338	1,367
		CNA560XL	742	757
		CNA680	2,052	2,096
	Regional Jet	CL600	536	456
		EMB145	485	482
		EMB14L	1,325	1,318
	Non-jet	CNA208	4,372	4,466
Air Taxi Total			**16,260**	**16,431**

Tower Category	Propulsion Category	AEDT ANP Type	2026 Operations	2027 Operations
General Aviation	Jet	CL600	733	735
		CL601	1,717	1,723
		CNA55B	795	797
		CNA560XL	1,352	1,356
	Non-jet	CNA172	607	609
		CNA208	588	590
		DHC6	441	442
General Aviation Total			**6,233**	**6,252**
Military	Jet	C17	96	96
		LEAR35	77	77
	Non-jet	C130AD	24	24
Military Total			**197**	**197**
Grand Total			**823,304**	**845,388**

Note: Totals may not match exactly due to rounding.
Sources: DFW NOMS, FAA OPSNET, FAA TAF, HMMH analysis 2025

2.2 Runway Use

2.2.1 No Action Alternative

Under the No Action Alternative, the runway rehabilitation project would not occur and there would be no changes to the typical runway use at DFW for 2026 and 2027. Therefore, the runway use provided in **Table 3** for the existing conditions was used to represent the runway use in both forecast years' No Action scenarios.

2.2.2 Proposed Action Alternative

At DFW the outboard runways (Runways 17L/35R, 13R/31L, and 13L/31R) are open daily until 11 p.m. The modeled runway percentages includes the assumption that the outboard runways are not typically used between 10 p.m. or before 6 a.m. Nighttime runway utilization reflects the predominant use of the main parallel runways for arrivals and departures[4].

The Proposed Action assumes a 12-month active construction period in two phases for the Runway 18L/36R rehabilitation, following completion of the Phase 1 preparatory work. During Phase 2 (three months), the runway threshold for the Runway 36R end would be relocated 4,128 feet northward (to Taxiway WM) to allow the runway to continue departure operations on the remaining 9,273 feet while the south end is under construction. Runway use for construction Phase 2 is assumed to be the essentially same as for the Existing Conditions but with the few arrivals that would normally occur to Runway 18L/36R shifted proportionally to other runways. Runway use for construction Phase 3 (full closure of Runway 18L/36R for nine months) was provided by DFW for arrivals and departures overall. During Phase 3, arrivals would shift mainly to Runways 17L/35R, 17C/35C, and 13R while departures would shift to Runways 17R/35L, 18R/36L, and 31L. HMMH determined the separate day and night percentages for this period by applying the day/night proportions as seen in the Existing Conditions usage. **Table 8** presents the runway use percentages for each construction phase.

[4] Per FAA, nighttime operations are defined as 10:00 p.m. to 6:59 a.m. in the calculation of DNL.

Table 8. Runway Use Percentages, Forecast Years 2026 and 2027, Proposed Action Scenario

Category	Runway	During Construction Phase 2				During Construction Phase 3			
		Arrivals		Departures		Arrivals		Departures	
		Day	Night	Day	Night	Day	Night	Day	Night
Jet	13L	0%	0%	<1%	0%	0%	0%	0%	0%
	13R	3%	1%	<1%	0%	11%	2%	0%	0%
	17C	27%	34%	<1%	1%	27%	50%	0%	0%
	17L	11%	2%	<1%	0%	26%	5%	0%	0%
	17R	<1%	8%	39%	33%	0%	0%	60%	9%
	18L	**0%**	**0%**	**31%**	**31%**	**0%**	**0%**	**0%**	**0%**
	18R	28%	26%	<1%	6%	7%	12%	10%	60%
	31L	<1%	0%	<1%	0%	0%	0%	7%	0%
	31R	1%	<1%	<1%	0%	3%	<1%	0%	0%
	35C	11%	15%	<1%	<1%	11%	22%	0%	0%
	35L	<1%	3%	16%	15%	0%	0%	21%	3%
	35R	5%	1%	<1%	0%	11%	2%	0%	0%
	36L	12%	11%	<1%	2%	4%	6%	2%	27%
	36R	**0%**	**0%**	**14%**	**13%**	**0%**	**0%**	**0%**	**0%**
	SUBTOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Non-Jet	13L	<1%	0%	<1%	<1%	0%	0%	0%	0%
	13R	28%	<1%	<1%	0%	12%	<1%	0%	0%
	17C	9%	17%	3%	2%	26%	46%	0%	0%
	17L	23%	1%	<1%	0%	27%	1%	0%	0%
	17R	1%	5%	38%	15%	0%	0%	54%	12%
	18L	**0%**	**0%**	**24%**	**18%**	**0%**	**0%**	**0%**	**0%**
	18R	9%	47%	5%	34%	5%	23%	16%	58%
	31L	<1%	0%	9%	2%	0%	0%	7%	<1%
	31R	13%	0%	<1%	0%	4%	0%	0%	0%
	35C	2%	9%	2%	<1%	9%	25%	0%	0%
	35L	<1%	1%	15%	7%	0%	0%	21%	4%
	35R	3%	1%	0%	0%	12%	2%	0%	0%
	36L	12%	19%	1%	15%	5%	4%	2%	26%
	36R	**0%**	**0%**	**3%**	**5%**	**0%**	**0%**	**0%**	**0%**
	SUBTOTAL	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Note: Runway 18L/36R in Bold - it would only handle departures in construction Phase 2, woudl be closed during construction Phase 3.

2.3 Taxi-Times

2.3.1 No Action Alternative

Under the No Action Alternative, the runway rehabilitation project would not occur and there would be no changes to the typical taxi times at DFW for 2026 and 2027. Therefore, the taxi times data provided in **Table 4** for the existing conditions was used to represent the taxi times in both forecast years' No Action scenarios.

2.3.2 Proposed Action Alternative

For runway ends where taxi times are anticipated to be changed in the Proposed Action, DFW DCC provided the taxi times to be used. **Table 9** presents the average taxi-in and taxi-out times by runway end for both phases of active construction. From the existing condition to construction phase 2 (partial closure of Runway

18L/36R), changes in average taxi times are generally less than 1 minute for any given runway, with the greatest change being a two-minute decrease in taxi out time for Runway 36R departures, due to its temporarily relocated runway threshold. From construction phase 2 to phase 3 (full closure of Runway 18L/36R), the most notable change in taxi-in times is an additional four minutes for arrivals to Runway 13R; changes for all other runways are one minute or less. Taxi-out time changes from construction phase 2 to phase 3 are expected to be larger, with increases of about one minute for several runways, over six additional minutes for Runway 36L departures and over 11 additional minutes for Runway 18R departures. The taxi-out time for Runway 31L departures is expected to decrease by over 6 minutes.

Table 9. Proposed Action Alternative Construction Period Taxi Times, by Runway End

Scenario	Runway End	Taxi-In Time	Taxi-Out Time
Proposed Action Phase 2 (Partial Closure)	13L	11.2	16.0
	13R	13.5	16.0
	17C	13.0	8.3
	17L	14.8	16.4
	17R	7.0	18.4
	18L*	N/A	16.5
	18R	10.1	9.8
	31L	14.2	24.6
	31R	11.2	40.1
	35C	12.5	16.7
	35L	8.4	19.2
	35R	15.4	17.8
	36L	11.4	16.5
	36R*	N/A	15.7
Proposed Action Phase 3 (Full Closure)	13L	11.2	16.0
	13R	17.7	16.0
	17C	13.0	9.6
	17L	14.6	16.4
	17R	7.0	19.6
	18L**	N/A	N/A
	18R	10.4	21.0
	31L	14.2	18.3
	31R	12.2	40.1
	35C	12.6	17.3
	35L	8.4	20.5
	35R	15.0	17.8
	36L	10.4	22.8
	36R**	N/A	N/A

Notes: * Departures only during partial runway closure.
**Not available during full runway closure.
Sources: DFW DCC, FAA Aviation System Performance Metrics (ASPM), accessed on July 14, 2025, HMMH analysis 2025

2.4 Aircraft-Related Operational Emissions

2.4.1 No Action Alternative

As was done for the Existing Conditions analysis, AEDT default data for APU and GSE equipment and duration were used in the modeling for the No Action Alternative and the pollutant inventory calculations include aircraft emissions associated with taxi-in, taxi-out, and in-flight operations below mixing height. **Table 10** provides the calculated operational emissions for the No Action Alternative, based on the operations in **Table 7** and the same assumptions for runway use and taxi times as the existing condition.

Table 10. Total Operational Emissions for Construction Years, No Action Alternative

Year	Operational Category	Pollutant (tons per year)						
		NO_x	CO	$PM_{2.5}$	PM_{10}	SO_x	VOC	CO_2
2026	Aircraft	4,580.71	4,614.51	40.906	40.906	497.53	501.73	1,651,241.75
	GSE LTO	32.57	805.45	1.788	1.903	0.24	24.58	18,096.52
	APU	131.40	118.39	18.159	18.159	17.88	9.99	64,895.18
	Total	**4,744.68**	**5,538.34**	**60.85**	**60.97**	**515.65**	**536.29**	**1,734,233.44**
2027	Aircraft	4,713.17	4,721.09	41.201	41.201	509.08	508.72	1,690,187.25
	GSE LTO	28.63	779.51	1.374	1.492	0.25	21.17	16,428.47
	APU	133.23	121.87	18.734	18.734	18.24	10.34	66,002.95
	Total	**4,875.03**	**5,622.48**	**61.31**	**61.43**	**527.57**	**540.22**	**1,772,618.67**

Source: HMMH AEDT analysis, 2025

2.4.2 Proposed Action Alternative

As was done for the Existing Conditions analysis, AEDT default data for APU and GSE equipment and duration were used in the modeling for the Proposed Action Alternative and the pollutant inventory calculations include aircraft emissions associated with taxi-in, taxi-out, and in-flight operations below mixing height. **Table 11** provides the calculated operational emissions for the Proposed Action Alternative, based on the operations in **Table 7** and the construction-phase runway use and taxi times applicable to portions of each forecast year described in Sections 2.2 and 2.3.

Table 11. Total Operational Emissions for Construction Years, Proposed Action Alternative

Year	Operational Category	Pollutant (tons per year)						
		NO_x	CO	$PM_{2.5}$	PM_{10}	SO_x	VOC	CO_2
2026	Aircraft	4,610.97	4,765.44	41.533	41.533	506.58	513.17	1,672,612.50
	GSE LTO	32.57	805.45	1.788	1.903	0.24	24.58	18,096.52
	APU	131.40	118.39	18.159	18.159	17.88	9.99	64,895.18
	Total	**4,774.94**	**5,689.27**	**61.48**	**61.59**	**524.71**	**547.73**	**1,755,604.19**
2027	Aircraft	4,746.06	4,881.88	41.874	41.874	518.85	520.40	1,713,091.00
	GSE LTO	28.63	779.51	1.374	1.492	0.25	21.17	16,428.47
	APU	133.23	121.87	18.734	18.734	18.24	10.34	66,002.95
	Total	**4,907.92**	**5,783.26**	**61.98**	**62.10**	**537.33**	**551.91**	**1,795,522.42**

Source: HMMH AEDT analysis, 2025

2.4.3 Difference between No Action and Proposed Action Alternatives

Table 12 presents the calculation of the differences in emissions between the No Action and Proposed Action Alternatives. Because the modeling for each of the scenarios assumes no change to the number and mix of aircraft flight operations in the year, the differences stem from the runway use changes and the associated taxi times changes.

Table 12 . Difference in Aircraft-Related Operational Emissions for Construction Years

Year	Alternative	Pollutant (tons per year)						
		NO_x	CO	$PM_{2.5}$	PM_{10}	SO_x	VOC	CO_2
2026	Proposed Action	4,774.94	5,689.27	61.48	61.59	524.71	547.73	1,755,604.19
	No Action	4,744.68	5,538.34	60.85	60.97	515.65	536.29	1,734,233.44
	Difference	**30.26**	**150.93**	**0.63**	**0.63**	**9.05**	**11.44**	**21,370.75**
2027	Proposed Action	4,907.92	5,783.26	61.98	62.10	537.33	551.91	1,795,522.42
	No Action	4,875.03	5,622.48	61.31	61.43	527.57	540.22	1,772,618.67
	Difference	**32.89**	**160.78**	**0.67**	**0.67**	**9.76**	**11.69**	**22,903.75**

Source: HMMH AEDT analysis, 2025

Appendix C – General Conformity Determination and TCEQ Concurrence Letter

DALLAS
FORT WORTH
INTERNATIONAL
AIRPORT

DRAFT GENERAL CONFORMITY DETERMINATION

RUNWAY 18L/36R REHABILITATION PROJECT

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Acronyms and Abbreviations

ACEIT	Airport Construction Emissions Inventory Tool
ACRP	Airport Cooperative Research Program
AEDT	Aviation Environmental Design Tool version 3g
AOA	Airfield Operations Area
AP-42	Compilation of Air Pollutant Emissions Factors
APU	Auxiliary Power Unit
ASPM	Aviation System Performance Metrics
CAA	Federal Clean Air Act
CFR	Code of Federal Regulations
CTA	Central Terminal Area
CO	Carbon Monoxide
CY	Calendar Year
DCE	Diesel Construction Equipment
DFW	Dallas Fort Worth International Airport
EA	Environmental Assessment
EAD	Environmental Affairs Department
eCUP	Electric Central Utility Plant
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
FAA	Federal Aviation Administration
FAA Handbook	FAA Aviation Emissions and Air Quality Handbook version 4
FR	Federal Register
FY	Fiscal Year
GCD	General Conformity Determination
GSE	Ground Support Equipment
LFA	Lead Federal Agency
LTO	Landing and Takeoff Operation
MOVES5	MOtor Vehicle Emission Simulator Version 5
NAA	Nonattainment Area
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
NSR	New Source Review
$\mu g/m^3$	Micrograms per Cubic Meter
Pb	Lead
PM_{10}	Particulate Matter Less Than 10 Microns in Diameter
$PM_{2.5}$	Particulate Matter Less Than 2.5 Microns
ppb	Parts per Billion
ppm	Parts per Million
RACM	Reasonably Available Control Measures
RACT	Reasonably Available Control Technologies
RFP	Reasonable Further Progress
SIP	State Implementation Plan
SO_2	Sulfur Dioxide

TAF	Terminal Area Forecast
TexN2.5	Texas NONROAD version 2.5
TCEQ	Texas Commission on Environmental Quality
TIP	Transportation Improvement Program
tpd	Short Tons per Day
tpy	Short Tons per Year
TRB	Transportation Research Board
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound

Executive Summary

Pursuant to the requirements of the National Environmental Policy Act, the Federal Aviation Administration (FAA) has prepared a Draft Environmental Assessment to assess the Runway 18L/36R Rehabilitation project (the "Proposed Action") at Dallas Fort Worth International Airport (DFW).

The Proposed Action is located in the Dallas-Fort Worth Air Quality Control Region (AQCR 215) nonattainment area for the ozone (O_3) national ambient air quality standard. Section 176(c) of the Clean Air Act, known as the General Conformity Rule [42 U.S. Code [USC] 7506(c)], requires federal actions in nonattainment areas conform to the purpose of the applicable State Implementation Plan (SIP). Federal actions occurring in a nonattainment or maintenance area that are not covered under the Clean Air Act Transportation Conformity rules must be evaluated under General Conformity. The General Conformity Rules are not applicable to certain federal actions, such as those that would result in no emissions increase or an increase that is clearly *de minimis,* actions where the emissions are not reasonably foreseeable, actions on a list of Presumed to Conform, and actions that implement a decision to conduct or carry out a conforming program. In addition, General Conformity determinations are not required for portions of actions that include major new or modified stationary sources that require a permit under the New Source Review program. The FAA has determined that the General Conformity Rules are applicable to the Runway 18L/36R Rehabilitation project. As this document shows, the project-related emissions would exceed the General Conformity Rule *de minimis* thresholds for O_3 precursors: volatile organic compounds (VOCs) and nitrogen oxides (NO_X); thus, a General Conformity Determination has been prepared for this Proposed Action.

This Draft General Conformity Determination documents the methods by which General Conformity was evaluated for the DFW Runway 18L/36R Rehabilitation project, in accordance with the Federally approved SIP. The current applicable SIP developed by the Texas Commission on Environmental Quality (TCEQ), is the *SIP Revision: Dallas-Fort Worth and Houston-Galveston-Brazoria Serious Classification Reasonable Further Progress (RFP) for the 2008 Eight-Hour Ozone National Ambient Air Quality Standard [Project No. 2019-079-SIP-NR; 04 March 2020]*. .

The general methodology for developing the emission inventories are documented in the Construction Emissions and Operational Emissions Technical Reports, in **Appendix A**. **Table ES**.1 compares the total direct and indirect project-related emissions to the applicable *de minimis* thresholds under the current severe designation for the Dallas-Fort Worth Ozone Nonattainment Area. In accordance with the General Conformity Rule, a *de minimis* level has been established for each nonattainment and maintenance designation for the O_3 precursors: NO_X and VOCs. For the DFW region, that *de minimis* level is 25 tons per year (tpy) of each NOx and VOCs. The annual estimated emissions from the Proposed Action would exceed the *de minimis* thresholds of 25 tpy for NO_X in years 2026 and 2027; while the VOC *de minimis* threshold of 25 tpy would not be exceeded in either of the two years studied.

A General Conformity Determination is required when emissions are above the *de minimis* thresholds. Conformity under the General Conformity Rules can be demonstrated by the following approaches:

1) Conformity Approach A: A written determination from the state/local air quality agency stating that the emissions from the proposed action, together with all other emissions in the nonattainment or maintenance area would not exceed the emissions budget in the SIP.
2) Conformity Approach B: A written commitment from the Governor, or the Governor's designed for SIP actions, to include the emissions in a revised SIP (this automatically results in a call for a SIP revision).
3) Conformity Approach C: Offsetting or mitigating proposed action emissions so there is no net increase within the nonattainment or maintenance area.
4) Conformity Approach D: The applicable Metropolitan Planning Organization determines that the emissions from the project or portion of the project, are included in a conforming transportation plan and transportation improvement program.

Table ES.1 Proposed Action Total Direct and Indirect Project-Related Emissions Compared to General Conformity *De Minimis* Thresholds

Year	Project Activity	Pollutant Emissions (tons/yr)	
		NO_X	VOC
2026	On-Road (Construction)	7.83	0.72
	Non-Road (Construction and Aircraft)	36.67	17.39
	Total Project-related Emissions	**44.50**	**18.11**
	De Minimis Threshold	25.0	25.0
	Does Project-related Emissions Exceed *De Minimis*?	Yes	No
2027	On-Road (Construction)	5.22	0.48
	Non-Road (Construction and Aircraft)	37.16	15.66
	Total Project-related Emissions	**42.38**	**16.14**
	De Minimis Threshold	25.0	25.0
	Does Project-related Emissions Exceed *De Minimis*?	Yes	No

Sources: 40 Code of Federal Regulations (CFR) 93.153(b), HDR, 2025, and HMMH 2025.

DFW Airport staff met with TCEQ to review the Proposed Action and its expected emissions. During those coordination meetings, TCEQ noted the attainment year emissions inventories approved in the SIP (*Dallas-Fort Worth and Houston-Galveston-Brazoria Serious Classification RFP SIP Revision for the 2008 Eight-Hour Ozone National Ambient Air Quality Standard [Project No. 2019-079-SIP-NR; 04 March 2020]*) as well as the quantification of overall excess creditable RFP emissions reductions available after meeting the milestone-year emissions reduction targets for NO_X and VOC and establishing motor vehicle emissions budgets for transportation conformity (40 CFR §93.101). To assess conformity to the SIP for the Proposed Action, TCEQ allocated the overall excess creditable RFP emissions reductions quantified in the applicable SIP according to source categories based on the RFP emissions reductions attributed to each source category. TCEQ compared emissions for the Proposed Action to those allocations. TCEQ confirmed that the maximum available excess emission reductions in the applicable SIP are 27.85 tpd for NOx and 17.10 tpd for VOC. This accounts for previously submitted federal actions that relied on 40 CFR §93.158(a)(5)(i)(a) to demonstrate conformity with the DFW 2008 Ozone NAAQS Serious RFP SIP.

As summarized in **Table ES-1**, project-related VOC emissions would not exceed the applicable *de minimis* threshold and therefore under the General Conformity rules, no further review is required for VOC emissions. Project-related NOx emissions would exceed the applicable *de minimis* threshold and are therefore subject to the General Conformity Rule and determination. In accordance with the Texas SIP, the annual projected-related emissions were translated into daily NOx emissions listed below:

- **2026**:
  - On-Road Emissions: 0.021 tpd NOx [*i.e., 7.83 tpy divided by 365 days per year*]
  - Non-Road Emissions: 0.100 tpd NOx [*i.e., 36.67 tpy divided by 365 days per year*]
- **2027**:
  - On-Road Emissions: 0.014 tpd NOx [*i.e., 5.22 tpy divided by 365 days per year]*
  - Non-Road Emissions: 0.102 tpd NOx [*i.e., 37.16 tpy divided by 365 days per year*]

On October 20, 2025, DFW and FAA submitted the Draft General Conformity Determination to TCEQ for review; on December 4, 2025, DFW and FAA resubmitted the revised Draft General Conformity Determination. On December 17, 2025, TCEQ provided a letter to FAA stating that TCEQ concurs that the Proposed Project conforms to the Texas SIP.

1. Introduction

Pursuant to the requirements of National Environmental Policy Act (NEPA), the Federal Aviation Administration (FAA), as the Lead Federal Agency (LFA), has overseen Dallas Fort Worth (DFW) International Airport's preparation of the Draft Environmental Assessment (EA) of potential environmental impacts associated with the proposed Runway 18L/36R Rehabilitation Project (Proposed Action) at DFW. The Proposed Action is located in the Dallas-Fort Worth Air Quality Control Region (AQCR 215) nonattainment area (NAA) for the ozone (O_3) National Ambient Air Quality Standard (NAAQS). Federal actions triggering NEPA review must be evaluated under federal Clean Air Act (CAA) conformity rules if located in a nonattainment or maintenance area.

The purpose of this Draft General Conformity Determination (GCD) and accompanying appendices is to present the supporting analysis and methodology for evaluating air emissions from the proposed Runway 18L/36R Rehabilitation project and demonstrate how the project conforms to the Texas State Implementation Plan (SIP).

The emissions inventory presented in this Draft GCD are the estimated project-related emissions in short tons per year (tpy) reflecting emissions to rehabilitate (construct) the runway and operate aircraft during the rehabilitation. The emissions inventory was prepared in accordance with the guidelines provided in FAA Order 1050.1G, *Environmental Impacts: Policies and Procedures*; FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*; and FAA's *Aviation Emissions and Air Quality Handbook Version 4*.

1.1 Purpose

The purpose of the proposed Runway 18L/36R Rehabilitation Project is to extend the runway's structural life and reduce operational impacts and maintenance costs.

1.2 Need

The proposed Runway 18L/36R Rehabilitation Project is needed to reinstate Runway 18L/36R to good condition and reduce the number of unplanned runway closures of this mission-critical asset. Furthermore, the Proposed Action is needed to update the runway and adjacent taxiways to meet the current FAA design standards and FAA Advisory Circular (AC) guidelines. Runway 18L/36R supports more than 40 percent of all departing aircraft operations at DFW. In 2023, Runway 18L/36R served more than 156,000 departure operations, representing approximately 46 percent of all departures at DFW. As air travel demand continues to grow, Runway 18L/36R is projected to support over 208,000 annual departure operations by 2038. Pavement Condition Index (PCI) surveys conducted in 2020 indicated that the original (1974) runway pavement was deteriorating and required rehabilitation to restore and preserve the asset.

1.3 Project Description

The Runway 18L/36R Rehabilitation Project includes the reconstruction and rehabilitation of select pavement panels, and the installation of an asphalt overlay that will provide a reliable operational surface and standard maintenance cycle that aligns with the previous runway rehabilitation projects. The Proposed Action consists of a closure of the runway from May 2026 through April 2027. During the period when the runway is closed, all aircraft operations would be moved from Runway 18L/36R to other DFW runways. This change in runway utilization operations will be temporary during construction. The proposed Runway 18L/36R Rehabilitation project will be completed in two phases listed below; the detailed project scope is included in **Section 3.1.2**.

Phase 1 includes contractor mobilization, setup of project support locations, night closures of Runway 18L/36R, the relocation of the Runway 36R threshold, and the partial demolition of Runway 36R Run-Up Area. The temporary relocated threshold would maintain a usable runway length of approximately 9,000 feet. Phase 1 is scheduled to start in May 2026 and finish in August 2026. ***Phase 2*** includes the closure of the entire runway, construction of additional project support locations, the demolition and reconstruction of the runway and connecting taxiways, and the rehabilitation of the Northwest Hold Pad (NWHP). Phase 2 would be scheduled to start in August 2026 and finish in April 2027.

2. Conformity Rules and Criteria

Section 176(c) of the CAA (42 United States Code (USC) 7506(C)), known as the General Conformity Rule, requires any entity of the federal government that engages in, supports, or in any way provides financial support for, licenses or permits, or approves any activity, to demonstrate that the action conforms to the applicable SIP required under Section 110(a) of the CAA (42 USC 7410(a)). In this context, conformity means federal actions must be "consistent with a SIP's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of those standards." Federal agencies, including FAA, must determine that any action proposed by the agency "conforms" to the applicable SIP by ensuring that the action does not:

- Cause or contribute to any new violations of any NAAQS;
- Increase the frequency or severity of any existing violations of any NAAQS;
- Delay the timely attainment of any NAAQS or any required interim emission reductions or other milestones.

Federal actions subject to conformity are divided into two categories: *Transportation Conformity* actions and *General Conformity* actions. The Transportation Conformity Regulations (40 CFR Part 51 and Part 93 Subpart A[1]) cover certain highway and transit surface transportation actions. General Conformity regulations (40 CFR Part 93 Subpart B)[2] cover all other federal actions in nonattainment and maintenance areas that are not covered by Transportation Conformity Regulations.

2.1 Transportation Conformity Requirements

As described in 40 CFR 51 and 93, issued by the U.S. Environmental Protection Agency (EPA), the Transportation Conformity Rule applies to highway or transit surface transportation projects that receive Federal funding or require a Federal decision/ approval. The Transportation Conformity Rule does not apply to the proposed Runway 18L/36L Rehabilitation Project because it is not a highway or transit project. However, because the Dallas-Fort Worth metropolitan area is designated as a nonattainment area, the Proposed Action must be evaluated under the General Conformity Rule.

2.2 General Conformity Requirements

Federal actions that are not covered under Transportation Conformity are evaluated under General Conformity, a stepwise process that contains the following elements:

1. Determining if the project is exempt (40 CFR 93.153(c)(2)).
2. Determining if the project is presumed to conform (72 Federal Register (FR) 41565).
3. Completion of an applicability analysis that compares the total direct and indirect project-related emissions to the regulation's *de minimis* thresholds.
4. Preparation of a general conformity determination for projects that exceed a *de minimis* threshold.

To streamline federal decisions and approvals for airport projects, the FAA has a list of actions that would result in minimal criteria air pollutant emissions and would not cause new violations of air quality standards or interfere with the maintenance of existing standards (conform to the applicable SIP). The FAA's list is known as the *Federal Presumed to Conform Actions Under General Conformity*.

2.3 General Conformity Applicability

General Conformity applies to any criteria pollutants for which an area is designated as nonattainment or maintenance. Per 40 CFR 93.102, an applicability analysis under General Conformity consists of preparing

[1] eCFR: 40 CFR Part 93 Subpart A -- Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 U.S.C. or the Federal Transit Laws.

[2] eCFR: 40 CFR Part 93 Subpart B -- Determining Conformity of General Federal Actions to State or Federal Implementation Plans.

an emissions inventory for all project-related direct and indirect emissions and comparing those results with the respective *de minimis* thresholds. The Dallas-Fort Worth metropolitan area Air Quality Control Region (AQCR 215) is designated as *Severe* nonattainment for O_3. Therefore, an inventory of total direct and indirect project-related emissions must be modeled and then compared to the applicable *de minimis* thresholds for O_3 precursors: NOx and VOCs. 40 CFR Part 93.159(d) notes that when comparing emissions to *de minimis* thresholds, the following requirements must be considered:

a. Emissions in the year of attainment or the farthest year for which emissions are projected in the maintenance plan.
b. The year in which the total of direct and indirect emissions from the action are expected to be the greatest on an annual basis.
c. Any year for which the SIP has an applicable emissions budget. If total direct and indirect project-related emissions in all of these scenarios are less than *de minimis*, no further analysis is needed. If total direct and indirect project-related emissions are above *de minimis*, a General Conformity Determination is required.

If the total annual project-related emissions are below the applicable *de minimis* thresholds for the reasonably foreseeable horizon, then all three requirements listed above are also met. If emissions in any of these years are above *de minimis,* a General Conformity Determination is required.

As described in 40 CFR Part 51 and 40 CFR Part 93, the General Conformity analysis evaluates both direct emissions and indirect emissions. Per 40 CFR § 93.152:

> "Direct emissions are those that occur at the same time and place as the Federal action. Indirect emissions are defined as emissions or precursors that are caused or initiated by the Federal action and originate in the same nonattainment or maintenance area but occur at a different time or place from the action, are reasonably foreseeable, that the agency can practically control, and for which the agency has continuing program responsibility."

The focus of the General Conformity analysis is on these direct and indirect project-related emissions during the proposed temporary construction and operational changes in 2026 and 2027.

2.4 State Implementation Plan

Per the General Conformity Rule, the applicable SIP for general conformity purposes is: "the portion (or portions) of the SIP or most recent revision thereof, which has been approved under section 110(k) of the Act … and which implements the relevant requirements of the Act." Per TCEQ[3], the *Dallas-Fort Worth Serious Classification Reasonable Further Progress (RFP) SIP Revision for the 2008 Eight-Hour O_3 National Ambient Air Quality Standard*, SIP Revision adopted by the TCEQ on 4 March 2020, approved by the EPA on 24 April 2023, and effective 24 May 2023, currently qualifies as applicable for General Conformity purposes in the Dallas-Fort Worth area designated as *Severe* nonattainment for the 2008 O_3 standard. TCEQ adopted and submitted an *Attainment Demonstration SIP Revision for the Dallas-Fort Worth, 2008 Eight-Hour Ozone Severe Area on April 24, 2024* and as of October 20, 2025, EPA has not yet approved the SIP Revisions.

[3] TCEQ, FAA, and DFW Coordination Meeting, September 23, 2025.

3. Description of Proposed Federal Action

This Draft GCD and the supporting construction and aircraft emissions analyses technical reports in **Appendix A** present an overview of the technical approach for the General Conformity analysis. This document was reviewed by the DFW Airport, FAA, TCEQ, and any other stakeholders designated by the FAA. The air quality analysis approach and technical methodologies for this Draft GCD received consensus from the applicable State and Federal agencies. The Alternatives analyzed in this Draft GCD include the No Action Alternative, and the two-phase Proposed Action Alternative (Phase 1-partial closure and relocation of the runway threshold; Phase 2- full closure of the runway).

3.1 No Action Alternative

Under the No Action Alternative, DFW would not implement the proposed Runway 18L/36R Rehabilitation Project; the project-related construction and operational emissions would not occur. The runway would continue to deteriorate and DFW would not be able to preserve the structural integrity of the runway. Furthermore, the potential for Foreign Object Debris (FOD) would increase which would impact safe airfield operations. The No Action Alternative does not meet the stated purpose and need for this project. The No Action Alternative itself is not subject to General Conformity. However, the quantification of emissions associated with the No Action enables the identification of the project-related emissions when the two alternatives are compared; the project-related emissions are determined by subtracting the emissions of the No Action from that of the Proposed Action Alternative.

3.2 Proposed Action Alternative

The Proposed Action Alternative includes the rehabilitation of Runway 18L/36R. It would consist of a closure of the runway from May 2026 through April 2027 during which time all aircraft operations would be moved from Runway 18L/36R to other DFW runways. **Figure 3.1** shows the general airport location and surroundings and Error! Reference source not found. shows the Proposed Action project phasing plan. The project-related change in runway utilization operations would be temporary, during the construction period only. The Proposed Action would be constructed in two phases: ***Phase 1,*** scheduled to start in May 2026 and finish in August 2026, and ***Phase 2*** scheduled to start in August 2026 and finish in April 2027. The Proposed Action includes the following scope items:

- Pavement rehabilitation and select panel replacement, joint seal, and spall repair
- Modification of the runway width from 200 feet to 150 feet
- Full-depth reconstruction of shoulder pavements to meet FAA AC 150/53000-13B Change 1 requirement
- Full-depth reconstruction of the blast pad to meet ADG VI runway design standards
- Application of 6-inch Hot Mix Asphalt (HMA) overlay
- Non-FAA and FAA Circuit rehabilitation
- Installation of Touchdown zone, centerline, and edge light emitting diode (LED) upgrades
- Replacement of manholes with junction can plazas
- Replacement of in-pavement can-lights, requisite signage, and temperature sensors
- Electrical box relocation (ADG-VI obstruction)
- Removal of old electrical infrastructure in the Southwest Holdpad (SWHP)
- Modification, relocation, and/or upgrade of FAA-owned NAVAIDS
  - Runway 18L/36R Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) systems: Approach light plane adjustment due to new runway surface/grading with new MALSR field equipment to be provided by the FAA for installation by DFW contractor as a target of opportunity collaboration. Work includes new underground infrastructure including foundations and electrical ductbank from MALSR shelter to light lane (Station 10+00) and between the threshold and Station 24+00. As part of this project, a new runway MALSR equipment shelter will be replaced as funds allow.

- Runway 18L/36R Precision Approach Path Indicator Lights (PAPI) systems: Due to the reduction in runway width, both PAPIs will be relocated closer to the runway requiring new underground infrastructure which includes foundations and electrical ductbank. Due to the new runway surface/grading, both PAPIs will require vertical adjustments of lamp housing assemblies due to new runway surface height.
  - Runway 18L/36R Runway Status Light System (RWSLs) will be removed and replaced in-kind throughout the rehabilitated pavement areas for both runway and taxiway surfaces.
  - Runway 18L/36R Glideslope (GS) systems shelter, antenna and tower – old facilities to be removed and replaced as funds allow.
- Utility improvements and rehabilitation of runway stormwater drainage including relocation of stormwater inlets
- Installation of runway hold position markings
- Rehabilitation of the Northwest Holdpad (NWHP)
- SWHP Taxiway Design Group (TDG) 6 fillet modifications
- Taxiway fillet modifications and select panel replacement of all taxiways and high-speed taxiway exits within the Runway 18L/36R Object Free Area (OFA)
- Demolition of taxiway pavement on Taxiway WK between Taxiways E and F, Taxiway G8 between Taxiways E and F, Taxiway WL between Taxiways E and F, and Taxiway F4 between Runway 18L/36R and Taxiway F
- Rehabilitation of Taxiway WF pavement south of taxiway centerline
- Construction of the Northwest End Around Taxiway (NW EAT) pavement stubs, north of Runway 18L within Runway Safety Area (RSA)
- Partial demolition of the Runway 36R run-up threshold
- Installation of no-taxi islands east and west of the Runway 18L and 36R thresholds
- Installation of the Runway 18L/36R Runway Weather Information System (RWIS) to effectively monitor pavement and weather conditions and support maintenance operations
- Final site-area grading, topsoil, seed/sod, and other erosion controls, as necessary (limits of grading, topsoil, and sodding to encompass areas beyond the inlets/drains to mitigate infield problem areas)
- Temporary lighting, signage, and pavement markings installation, as necessary, to support temporary taxiway routing during various phases of construction

3.3 Connected Actions

Connected actions per 40 CFR 1508.25, are actions,

> "… that are closely related and therefore should be discussed in the same impact statement. Actions are connected if they: (i) automatically trigger other actions which may require environmental impact statements, (ii) cannot or will not proceed unless other actions are taken previously or simultaneously, or (iii) are interdependent parts of a larger action and depend on the larger action for their justification."

DFW has looked at other actions that occur simultaneously as supporting actions to the Proposed Action or would occur near the Proposed Action, either before or immediately after. These connected actions include: Project support locations (PSLs) which include proposed staging areas, contractor yards, and batch plant sites for the Proposed Action construction (**Figure 3.3**).

3.4 Proposed Action Implementation Schedule

The proposed rehabilitation of Runway 18L/36R is anticipated to begin in May 2026 and be completed in April 2027. It is assumed that 60% of the construction activities would occur in 2026 and 40% of the construction activities would occur in 2027. There would be two main phases: shorten runway phase and full runway closure phase. The breakdown of the two phases by calendar year are shown in **Table 3.1**. The phases shown in **Table 3.1** are discussed in more detail in **Appendix A**.

Table 3.1 Project Construction Schedule

Phase, Year, and Activity	Estimated Start and End Dates	Duration (days)
Phase 1 - 2026: Mobilization and Shortened Runway	5/1/2026 to 8/13/2026	60 days
Phase 2 -2026: Full Runway Closure	8/14/2026 to 12/31/2026	140 days
Phase 2- 2027: Full Runway Closure	1/1/2027 to 4/30/2027	133 days

Source: DFW Airport Planning and DCC Departments 2025

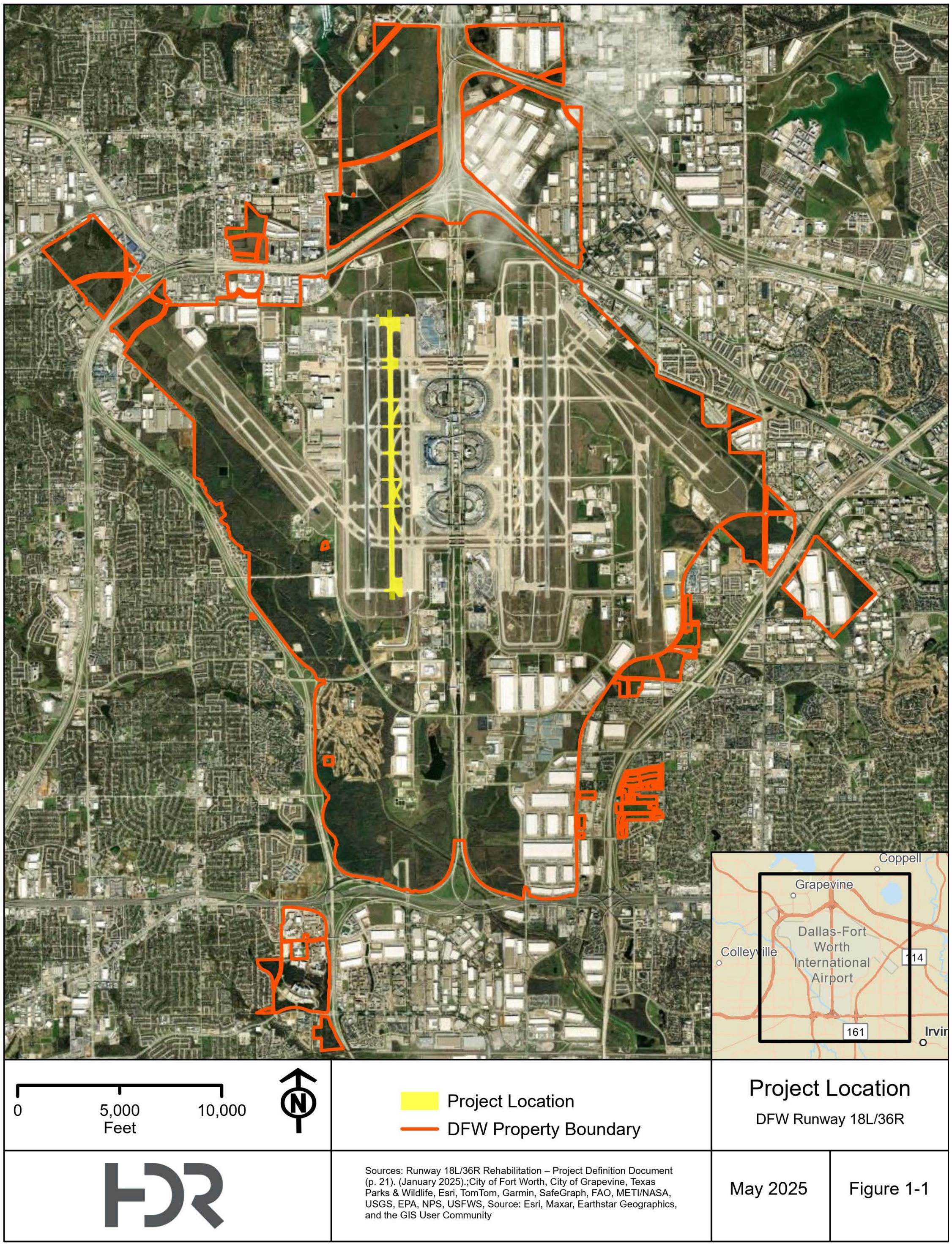

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Figure 3.1 DFW General Location

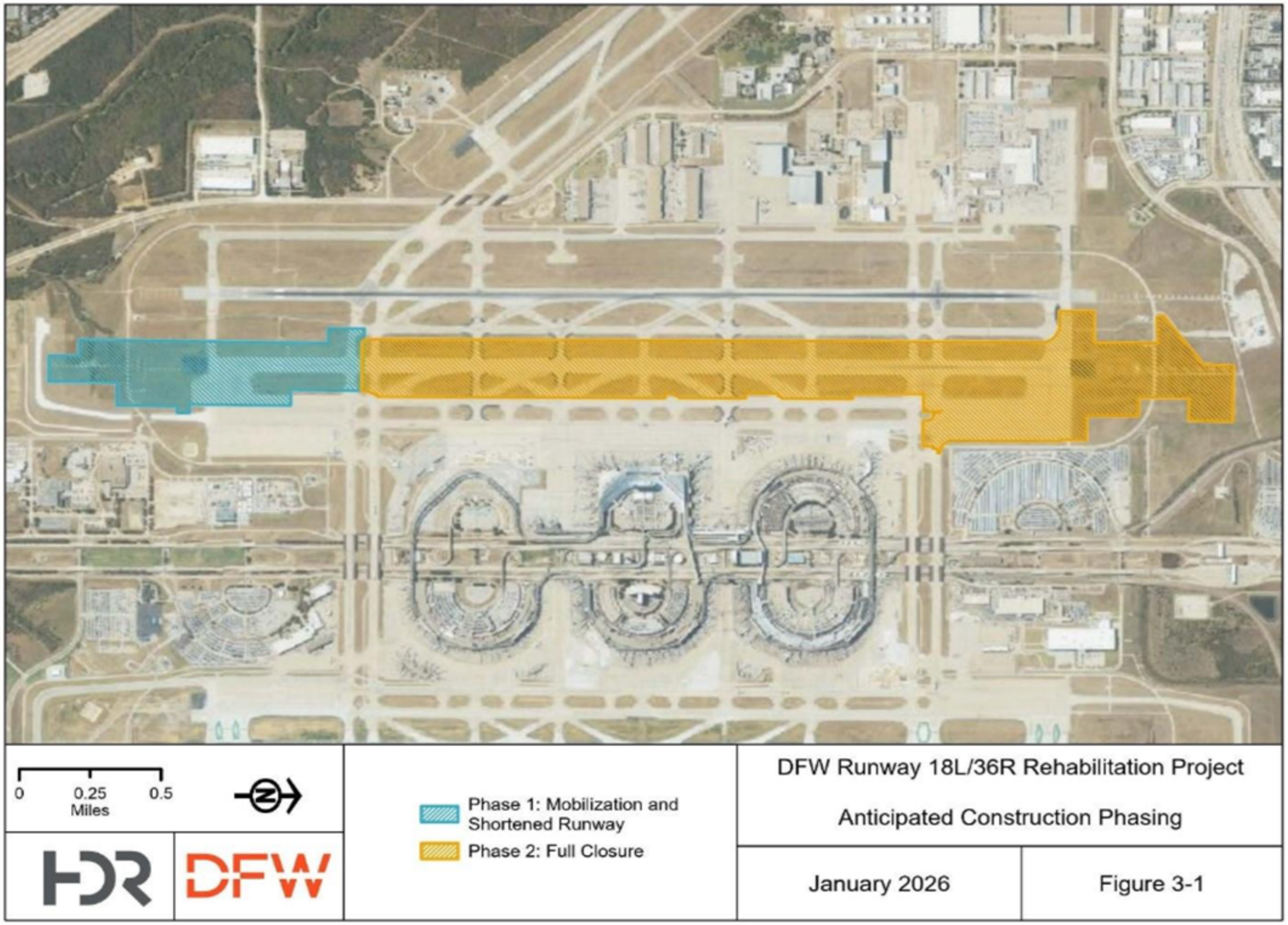

Figure 3.2 Runway 18L/36R Rehabilitation Project Construction Phasing

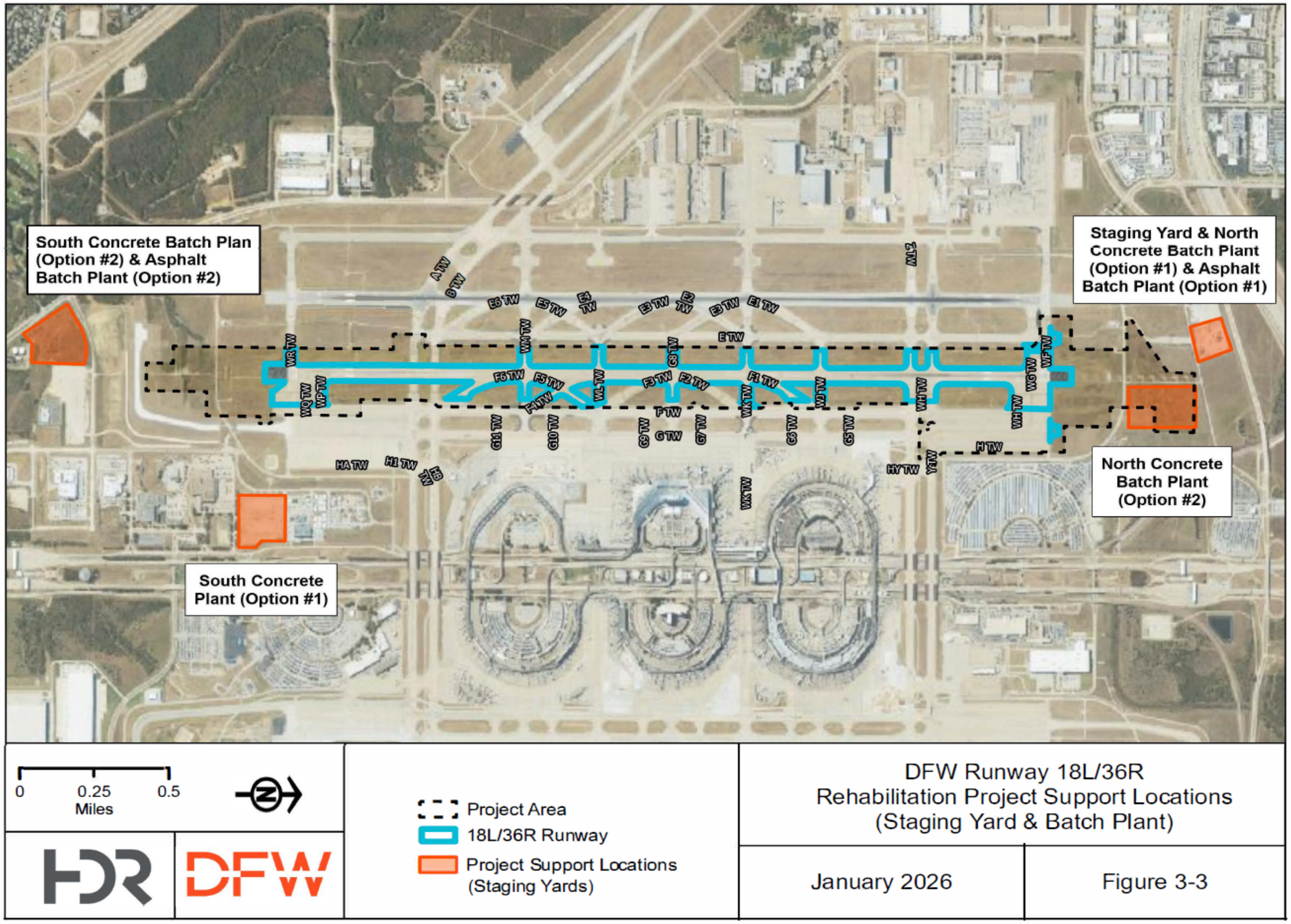

Figure 3-3. Runway 18L/36R Project Support Locations

4. General Conformity Applicability Analysis

As stated above, for the applicability analysis, the impacts to air quality due to the Proposed Action were evaluated under NEPA in accordance with the guidelines provided in the FAA *Aviation Emissions and Air Quality Handbook Version 4* (FAA Handbook); FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*; and FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*.

Criteria pollutant emissions associated with construction and operation of the Proposed Action in 2026 and 2027 were estimated for the applicability analysis. Proposed Action construction emission estimates were developed based on (i) construction equipment activity estimates for vehicles and non-road equipment, and project dimensions provided by DFW and based on the Airport Construction Emissions Inventory Tool ACEIT) and (ii) emission factors from the EPA Motor Vehicle Emission Simulator, version 5 (MOVES5) and EPA AP-42 guidance. The TCEQ Texas NONROAD version 2.5 (TexN2.5 Utility) model was used to estimate Texas-specific (at the county level) emissions from nonroad mobile sources. Proposed Action operational emission estimates were developed based on (i) aircraft, ground support equipment (GSE), auxiliary power unit (APU), and vehicle traffic activity estimates for the Proposed Action and No Action and (ii) FAA's Aviation Environmental Design Tool (AEDT) Version 3g. Net operational emissions were evaluated by comparing the Proposed Action and the No Action Alternative. The Proposed Action construction and operational emissions technical reports are included in **Appendix A.**

In performing the applicability analysis, resulting emissions from the Proposed Action are examined as required by 40 CFR 51 and 93 and once *de minimis* is exceeded, conformity with the SIP can be demonstrated the following ways:

1. A written determination from the state/local air quality agency stating that the emissions from the proposed action, together with all other emissions in the nonattainment or maintenance area would not exceed the emissions budget in the SIP.
2. A written commitment from the Governor, or the Governor's designed for SIP actions, to include the emissions in a revised SIP (this automatically results in a call for a SIP revision).
3. Offsetting or mitigating proposed action emissions so there is no net increase within the nonattainment or maintenance area.
4. The applicable Metropolitan Planning Organization (MPO) determines that the emissions from the project or portion of the project, are included in a conforming transportation plan and transportation improvement program.

4.1 Attainment Status of the Dallas-Fort Worth Area - Air Quality Control Region 215

The Dallas-Fort Worth metropolitan area has been designated as an attainment area for all EPA criteria pollutants except for O_3 based on air quality monitoring data collected by the TCEQ[4,5]. The Dallas-Fort Worth AQCR 215 ozone nonattainment area is shown in **Figure 4.1**. The current air quality design values and attainment statuses are shown in **Table 4.12**. The Dallas-Fort Worth metropolitan area is designated as a "*Severe*" nonattainment area for the 2008 8-hour, 0.075 parts per million (ppm) O_3 standard. The Dallas-Fort Worth metropolitan area is also designated as a "serious" nonattainment area under the 2015 8-hour, 0.070 ppm Ozone standard.

4.2 Exemptions from General Conformity Requirements

The General Conformity requirements apply to Federal actions in nonattainment or maintenance areas if the total criteria pollutant or precursor emissions would equal or exceed the *de minimis* thresholds, except for the exemptions under 40 CFR Part 93 Subpart B as summarized below[6]:

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4 TCEQ. 2022. Texas Air Monitoring Information System (TAMIS) Web Interface. Site List. Available online: https://www17.tceq.texas.gov/tamis/index.cfm?fuseaction=report.site_list. Accessed: August 2023.

5 EPA. 2023. Design Value Interactive Tool. Available: https://www.epa.gov/air-trends/design-value-interactive-tool. Accessed: August 2023.

6 EPA. 40 CFR Part 93 Subpart B. Available at: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C/part-93/subpart-B.

- Actions, such as administrative actions and routine maintenance and repair, which would result in no emissions increase or an increase in emissions that is clearly below the *de minimis* threshold.
- Actions where the emissions are not reasonably foreseeable.
- The portion of an action that include major or minor stationary sources that require a permit under the New Source Review (NSR) program or the prevention of significant deterioration program.
- Actions in response to emergencies or natural disasters.
- Actions, such as air quality research and investigations, which would incur no environmental detriment.
- Actions that include alteration and addition of existing structures as required by environmental legislation or regulations.
- Actions that include direct emissions from remedial and removal measures carried out under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and other applicable regulations.

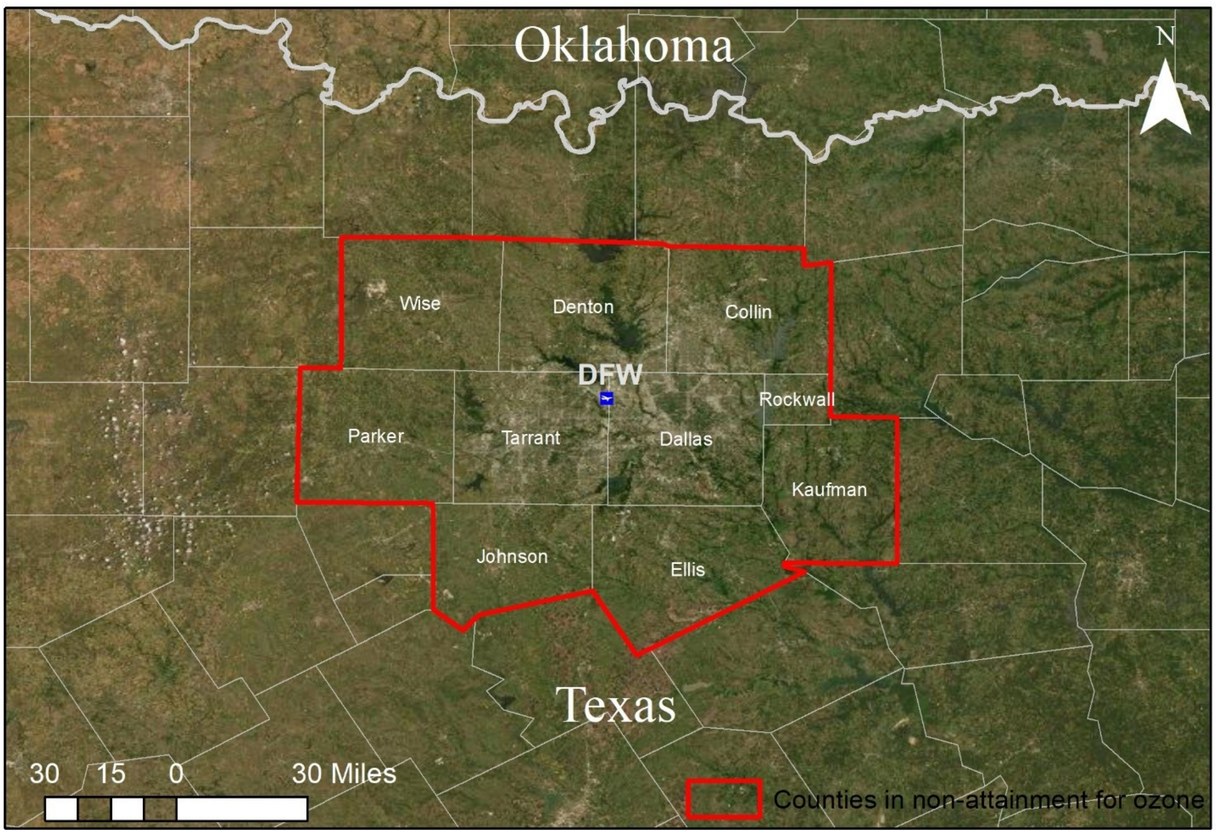

Figure 4.1 Location of DFW Airport within the Dallas Fort-Worth AQCR 215

The proposed Runway 18L/36R Rehabilitation Project includes pavement demolition, reconstruction and rehabilitation along with other infrastructure updates such as relocating stormwater inlets, replacing manholes, and improving utilities. The Proposed Action is not Presumed to Conform. Two (2) concrete batch plants and one (1) asphalt batch plant are included in the construction activities. Batch plants are stationary sources of air emissions permitted through the TCEQ NSR permit program. The NSR permit process would be completed and approved for each batch plant before construction begins. Emissions from permitted stationary sources are accounted for in the SIP and are therefore not included in the General Conformity analysis.

Table 4.12 Current Air Quality at Dallas-Fort Worth-Arlington, Texas

Pollutant	Federal Standard	Design Value	Monitoring Years	Current Status
Carbon Monoxide (CO)	9 ppm (8-hour)	1.3 ppm	2023-2024	Attainment[(a)]
	35 ppm (1-hour)	3.7 ppm	2023-2024	Attainment
Lead (Pb)	0.15 µg/m³ (3-month)	0.08 µg/m³	2022-2024	Attainment
Nitrogen Dioxide (NO_2)	53 ppb (annual)	9 ppb	2024	Attainment
	100 ppb (1-hour)	48 ppb	2022-2024	Attainment
Ozone (O_3)	0.070 ppm (8-hour)	0.083 ppm	2022-2024	Severe Nonattainment[(b)] (2008 Standard)
Fine Particulate Matter ($PM_{2.5}$)	15 µg/m³ (annual)	10.1 µg/m³	2022-2024	Attainment
	35 µg/m³ (24h primary)	25 µg/m³	2022-2024	Attainment
Coarse Particulate Matter (PM_{10})	150 µg/m³ (24-hour)	N.A.[(c)]	N.A.	Attainment
Sulfur Dioxide (SO_2)	75 ppb (1-hour)	15 ppb	2022-2024	Attainment
	0.5 ppm (3-hour)	N.A.	N.A.	Attainment

Source**:** EPA 2025 and EPA 2022.

Notes:
ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter
$PM_{2.5}$ = particulate matter with a diameter less than 2.5 micrometers (µm); PM_{10} = particulate matter with a diameter less than 10 micrometers (µm)
[a] An attainment area is a geographic area that meets or does better than the primary standard defined in the NAAQS.
[b] A nonattainment area is a homogeneous geographical area (usually referred to as an air quality control region) that is in violation of one or more NAAQS and has been designated as nonattainment by the EPA.
[c] N.A.= Not available; no design value is available for the monitoring location. An area with no design value available is automatically in attainment since design values are used to classify nonattainment areas.
EPA Design Value Interactive Tool. Available: https://www.epa.gov/air-trends/design-value-interactive-tool.

4.3 De minimis Thresholds

The General Conformity regulations, under Section 176(c) of the CAA, dictate the process federal agencies use to demonstrate how their actions will not interfere with the prevention and control of air pollution within states' and tribes' nonattainment and maintenance areas for timely attainment of the NAAQS. In accordance with General Conformity regulations, the maximum annual potential Project emissions were compared against *de minimis* thresholds for NOx and VOCs (see **Table 4.3**). As of October 2025, the Dallas-Fort Worth nonattainment area is designated as a "*Severe*" O_3 nonattainment area for the 2008 8-hour O_3 standard; therefore, the 25 tpy *de minimis* threshold for either VOCs or NOx applies.

Table 4.3 General Conformity *De Minimis* Thresholds for Nonattainment Areas

Pollutant	*De Minimis* Threshold[7] (tons/year)
O_3 (VOCs or NOx):	
Serious NAA's	*50*
Severe NAA's	*25*
Extreme NAA's	*10*
Other O_3 NAA's outside an O_3 transport region	*100*
Other O_3 NAA's outside an O_3 transport region:	
VOC	*50*
NOx	*100*
Carbon Monoxide: All maintenance areas	100
SO_2 or NO_2: All NAA's	100
PM_{10}:	
Moderate NAA's	*100*
Serious NAA's	*70*
$PM_{2.5}$ (direct emissions, SO_2, NOx, VOC, and Ammonia):	
Moderate NAA's	*100*
Serious NAA's	*70*
Pb: All NAA's	25

Source: 40 CFR Part 93.153(b)

[7] EPA *de minimis* thresholds are available at https://www.epa.gov/general-conformity/de-minimis-tables. Accessed: August 2023.

5. Applicability Analysis for the Proposed Federal Action

The Dallas-Fort Worth metroplex is classified as a Severe NAA under the 2008 eight-hour Ozone standard, and the resulting *de minimis* level is 25 tons per year (tpy) for NOx or VOCs. The emissions associated with DFW operations have been quantified by TCEQ as part of the SIP development and approval process (TCEQ 2015). This General Conformity Determination evaluates ozone precursor emissions (NOx and VOC), because the Dallas-Fort Worth area is only designated as nonattainment for ozone. In preparing the applicability analysis, two key types of emissions are included: direct (construction of the Proposed Action) and indirect (operation of the facilities once completed). The total direct and indirect project-related emissions is then compared to the applicable *de minimis* threshold for the purposes of determining if a General Conformity Determination is required.

Per the General Conformity Rule, the technical analysis for projects in the Dallas-Fort Worth ozone nonattainment area are:

- Quantification of NOx and VOC emissions during construction
- Quantification of NOx and VOC emissions resulting from project-related changes in aircraft operations
- Comparison of annual project-related emissions to the *Severe* nonattainment area *de minimis* thresholds[8]

Construction and operational emissions inventories associated with temporary construction activities and changes in runway utilization are discussed in **Section 4.1** and **Section 4.2**. Air dispersion modeling is not anticipated. The general methodology for developing the Proposed Action's construction and operational emission inventories are summarized in **Appendix A**. Additionally, on Tuesday September 23, 2025, TCEQ and FAA met together with DFW team members and TCEQ concurred with utilizing the General Conformity previously developed for recent DFW airport projects. Therefore, the emissions inventories and General Conformity evaluation have been prepared in accordance with the *DFW Airport General Conformity Protocol Documents* reviewed and accepted by TCEQ for recent DFW airport projects (in 2023 and 2024).

5.1 Sources of Emissions

In general, sources of airport air emissions include construction equipment, motor vehicles (employees and passenger vehicles, airport fleet, etc.), heating and cooling systems, aircraft taxiing, ground support equipment (GSE), and auxiliary power units (APU).

Emissions from the proposed Runway 18L/36R Project are expected to include emissions from construction equipment, motor vehicles (employee trips and material delivery), construction site disturbance (fugitive dust), aircraft taxi-in and taxi-out, GSE, and APU. Both construction emissions and operational emissions are subject to the CAA General Conformity requirements.

5.2 Construction Emissions Analysis

The Proposed Action would result in temporary air quality effects during the demolition and construction activities. The Proposed Action construction emissions were analyzed for anticipated construction years 2026 and 2027. Generally, construction activities would involve heavy-duty construction equipment, haul truck trips, and vehicle trips made by construction workers and vendors traveling to and from the project site. NO_X and VOCs (O_3 precursors) are generated by project-related construction activities, such as asphalt drying and mobile source exhaust. Construction emissions depend on the activity levels of on-road mobile and off-road source categories; therefore, both are included in this analysis. Mobile source exhaust and fugitive dust emissions would be generated from on-road vehicles and construction equipment, including but not limited to dump trucks, mixers, passenger vehicles, flatbed trucks, and tractor trailers. Fugitive VOC emissions would be generated by asphalt drying.

[8] EPA. General Conformity De Minimis Tables. Available at: https://www.epa.gov/general-conformity/de-minimis-tables.

A construction emissions inventory was prepared in accordance with the requirements outlined in the latest *FAA Air Quality Handbook and Guidance Document* (version 4), which provides both regulatory context and technical direction for completing airport-related air quality impact assessments. Construction emissions were modeled using TexN2.5 Utility and MOVES5.

Table 5.1 presents the estimated NOx and VOC emissions associated with all construction elements of the Proposed Action by emissions source and year. The details of the construction emissions inventory are provided in **Appendix A**. As shown in **Table 5.1**, the estimated maximum annual emissions associated with the construction of the Proposed Action would be well below the *Severe* nonattainment ozone *de minimis* threshold of 25 tpy for NO_X or VOC. Concrete and Hot-Mix Asphalt batch plants would be necessary to support the construction of the Proposed Action. The batch plants would be authorized under the TCEQ NSR permitting program and are therefore not evaluated under the General Conformity requirements (40 CFR 93.153 (d)(1)).

Table 5.1 Project-Related Construction Emissions Inventory

Project Year and Emissions Source	Construction Emissions (tpy)	
	NOx	VOCs
2026 Non-Road	7.83	0.72
2026 On-Road	6.41	3.41
Asphalt Fugitives	-	2.54
2026 Total Emissions	**14.24**	**6.67**
2027 Non-Road	5.22	0.48
2027 On-Road	4.27	2.27
Asphalt Fugitives	-	1.70
2027 Total Emissions	**9.49**	**4.45**

Source: HDR, 2025

5.3 Operational (Aircraft) Emissions Analysis

To identify potential operational air emissions from the Proposed Action, an emissions inventory was prepared using FAA's AEDT 3g. The Proposed Action is expected to result in changes in aircraft operational emissions as a result of temporary changes in runway utilization and aircraft taxi times during construction. Also, during construction, Runway 18L/36R will be temporarily closed for an extended time; as such, departing aircraft would need to use other DFW runways, thus slightly changing the taxiing times and fuel-burn. The operational emissions from aircraft for the No Action and Proposed Action Alternatives were evaluated for years 2026 and 2027. The operational emissions inventory for the No Action Alternative are summarized in **Table 5.2** and the total airport operational emissions, inclusive of the Proposed Action, are summarized in **Table 5.3.** Aircraft emissions during the Proposed Action are expected to increase when compared to the No Action Alternative. However, GSE and APUs are projected to stay the same when comparing the emissions under the No Action and the Proposed Action Alternatives. **Table 5.4** presents the net project-related operational emissions (see **Appendix A** for the detailed operational emissions analysis).

Table 5.2 No Action Alternative Estimated Operational Emissions

Year	Operational Category	Pollutant (tons per year)	
		NO_x	VOC
2026	Aircraft	4,580.71	501.73
	GSE LTO	32.57	24.58
	APU	131.40	9.99
	Total	**4,744.68**	**536.30**
2027	Aircraft	4,713.17	508.72
	GSE LTO	28.63	21.17
	APU	133.23	10.34
	Total	**4,875.03**	**540.23**

Source: HMMH, 2025

Table 5.3 Total Airport Operational Emissions including the Proposed Action Alternative's Estimated Operational Emissions

Year	Operational Category	Pollutant (tons per year)	
		NO_x	VOC
2026	Aircraft	4,610.97	513.17
	GSE LTO	32.57	24.58
	APU	131.40	9.99
	Total	**4,774.94**	**547.73**
2027	Aircraft	4,746.06	520.40
	GSE LTO	28.63	21.17
	APU	133.23	10.34
	Total	**4,907.92**	**551.91**

Source: HMMH, 2025

Table 5.4 Project-Related Operational Emissions Inventory[9]

Year	Alternative	Pollutant (tons per year)	
		NO_x	VOC
2026	Total Airport Operations including the Proposed Action	4,774.94	547.73
	No Action Alternative	4,744.68	536.29
	Net Change (Proposed Action Ops Emissions)	**30.26**	**11.44**
2027	Total Airport Operations including the Proposed Action	4,907.92	551.91
	No Action Alternative	4,875.03	540.22
	Net Change (Proposed Action Ops Emissions)	**32.89**	**11.69**

Source: HMMH 2025

[9] Emissions totals represent the net operational emissions (i.e., Proposed Action minus No Action operational emissions).

5.4 Total Project-related Emissions

As shown in **Table 5.5**, in 2026, the project-related construction and aircraft operations would result in approximately 44.50 tons of NO_X emissions and 18.11 tons of VOC emissions. In 2027, the construction and aircraft operations would result in approximately 42.38 tons of NO_X emissions and 16.14 tons VOC emissions.

Table 5.5 Estimated Total Proposed Action Construction and Operational Emissions

Calendar Year	Emissions Category	NO_x (tpy)	VOC (tpy)
2026	On-Road	7.83	0.72
	Non-Road	6.41	3.41
	Fugitives	-	2.54
	Aircraft	30.26	11.44
	Total	**44.50**	**18.11**
2027	On-Road	5.22	0.48
	Non-Road	4.27	2.27
	Fugitives	-	1.70
	Aircraft	32.89	11.69
	Total	**42.38**	**16.14**

Source: HDR, 2025 and HMMH, 2025

5.5 Comparison to the de minimis Thresholds

As previously stated, the Dallas-Fort Worth metropolitan area is designated as “severe” nonattainment for the 2008 8-hour O_3 standard, and the resulting *de minimis* thresholds is 25 tpy for each ozone-precursor pollutant: NO_X or VOCs. As shown in **Table 5.6,** the Proposed Action-related emissions were compared to the applicable *de minimis* threshold. As is noted in **Table 5.6**, peak year of project-related emissions would expected to be 44.50 tons of NOx in 2026. While the *de minimis* threshold for VOC would not be expected to be exceeded in the reasonably foreseeable horizon, the *de minimis* threshold for NOx would be exceeded beginning in year 2026. Thus, a General Conformity Determination is required for NOx.

The combined direct and indirect project-related NO_X emissions from the Proposed Action are expected to exceed the *de minimis* thresholds for 2026 and 2027, which triggers the need for a General Conformity Determination for NO_X. The detailed construction and operational emissions inventories are reported in the September 2025 Air Quality Assessment Technical Report, included in **Appendix A**. **Table 5.6** below compares net project-related emissions to the applicable *de minimis* thresholds.

Table 5.6 Net Project-Related Emissions

Year	Source	NO_X (tpy)	VOCs (tpy)
2026	Total Construction and Operational Emissions	44.50	18.11
	De Minimis Threshold	25.0	25.0
	Does Project-related Emissions Exceed *De Minimis*?	**Yes**	**No**
2027	Total Construction and Operational Emissions	42.38	16.14
	De Minimis Threshold	25.0	25.0
	Does Project-related Emissions Exceed *De Minimis*?	**Yes**	**No**

Source: HMMH, 2025 and HDR, 2025

6. Draft General Conformity Determination

As discussed in **Section 5.4.**, the air emissions associated with the proposed Runway 18L/36R Rehabilitation Project would exceed the applicable *de minimis* threshold for NOx; therefore, a General Conformity Determination is required. This section discusses the approach and methods used to evaluate the Proposed Action and demonstrate conformity with the current SIP.

6.1 Designation of Applicable SIP

The applicable SIP for general conformity purposes in the Dallas-Fort Worth ozone nonattainment area is the *Dallas-Fort Worth Serious Classification RFP SIP Revision for the 2008 Eight-Hour O_3 NAAQS*, SIP Revision adopted by the TCEQ on 4 March 2020, approved by the EPA on 24 April 2023, and effective 24 May (also referred to as the 2020 *Serious* RFP SIP Revision *Project No. 2019-079-SIP-NR; 04 March 2020*). TCEQ adopted and submitted an *Attainment Demonstration SIP Revision for the Dallas-Fort Worth, 2008 Eight-Hour Ozone Severe Area on April 24, 2024* and; as of October 20, 2025, EPA has not yet approved the SIP Revisions.

6.2 Comparison to the Applicable SIP for General Conformity

DFW Airport staff met with TCEQ to review the Proposed Action estimated emissions. During those coordination meetings, TCEQ noted the attainment year emissions inventories approved in the 2020 *Serious* RFP SIP as well as the quantification of overall excess creditable RFP emissions reductions available after meeting the milestone-year emissions reduction targets for NOx and VOC and establishing motor vehicle emissions budgets (MVEB) for transportation conformity (40 CFR §93.101).

To assess the Proposed Action's conformity to the SIP, TCEQ will allocate the overall excess creditable RFP emissions reductions quantified in the applicable SIP according to source categories based on the RFP emissions reductions attributed to each source category and accounting for previously proposed federal actions that relied on the current applicable SIP revision to demonstrate conformity. TCEQ will compare emissions for the Proposed Action to those allocations. TCEQ confirmed that the maximum available excess emission reductions in the applicable SIP are 27.85 tpd for NOx and 17.10 tpd for VOC. This accounts for previously submitted federal actions that relied on 40 CFR §93.158(a)(5)(i)(a) to demonstrate conformity with the DFW 2008 Ozone NAAQS Serious RFP SIP Revision.

To identify whether the Proposed Action-related emissions are less than the 2020 *Serious* RFP SIP excess emissions, the total project-related NO_X emissions in tpy were converted to an average annual day in tpd. VOC emissions are not included in the conformity determination because the project-related VOC emissions are well below the *de minimis* threshold. **Table 6.1** shows the average annual day's NO_X emissions associated with the Proposed Action. To calculate the average daily pollutant emissions, annual emissions were divided by 365 days for example: *36.67 tpy divided by 365 days per year* equals 0.100 tpd. **Table 6.1** also compares the average annual day pollutant emissions to the available excess creditable RFP emission reductions. The total direct and indirect project-related NO_X and VOC emissions were compared to the excess emissions for all years. The Proposed Action would exceed applicable *de minimis* thresholds for NO_X in 2025 through 2036 and for VOCs in 2031 through 2036. Based on the comparison, the Proposed Action-related non-road and on-road emissions are less than the 2020 *Serious* RFP SIP excess emissions for the respective source category emissions.

Table 6.1 Project-Related NO_x Emissions

Source of Project Emissions	Total Emissions		Available Excess Creditable RFP Emissions Reductions (tpd)
	Annual Emissions (tpy)	Daily Emissions (tpd)	
2026			
Non-Road Mobile Sources	36.67	0.100	27.85
On-Road Mobile Sources	7.83	0.021	

Source of Project Emissions	Total Emissions		Available Excess Creditable RFP Emissions Reductions (tpd)
	Annual Emissions (tpy)	Daily Emissions (tpd)	
2027			
Non-Road Mobile Sources	37.16	0.102	17.10
On-Road Mobile Sources	5.22	0.014	

Source: HDR 2025, HMMH 2025, and TCEQ 2025

Notes: The current applicable SIP is the 2020 Dallas-Fort Worth *Serious* RFP SIP Revision under the 2008 NAAQS. Currently available excess emissions reductions for general conformity use under 2020 Dallas-Fort Worth *Serious* RFP SIP revision are: 27.85 tpd NOX (10,166.35 tpy) and 17.10 tpd VOC (6,240.90 tpy). This accounts for previously submitted federal actions that relied on 40 CFR §93.158(a)(5)(i)(a) to demonstrate conformity with the DFW 2008 Ozone NAAQS Serious RFP SIP Revision

- 2026: On-Road Emissions: 7.83 tpy divided by 365 days per year = 0.021 tpd NOx.
- 2026 Non-Road Emissions: 36.67 tpy divided by 365 days per year = 0.100 tpd NOx
- 2027 On-Road Emissions: 5.22 tpy divided by 365 days per year = 0.014 tpd NOx
- 2027 Non-Road Emissions: 37.16 tpy divided by 365 days per year = 0.102 tpd NOx

6.3 Comparison to the NAAQS

Conformity means that a proposed federal action will: (1) not cause or contribute to any new violation of any NAAQS; (2) not increase the frequency or severity of any existing violation of any NAAQS; and (3) not delay timely attainment of any NAAQS or any required interim emissions reductions or other milestones (42 USC 7506(c)(1)(B)).

General conformity regulations (40 CFR 93.158(a)(3) and 40 CFR 93.158(a)(4)(i)) allow the use of local and/or area-wide air quality modeling results to demonstrate that conformity requirements are met in support of a General Conformity Determination. Project-related construction and operational emissions were modeled using MOVES5, TexN2.5, and AEDT 3G, and the emissions inventory results indicated that there could be a *de minimis* exceedance for the ozone precursor NOx, in both 2026 and 2027. The project-related VOC emissions would not exceed the *de minimis* threshold.

6.4 Consistency with Requirements and Milestones in the Applicable SIP

The General Conformity Regulations state that, notwithstanding the other requirements of the rule, a Proposed Action may not be determined to conform unless the total of direct and indirect emissions from the action complies or is consistent with all relevant requirements and milestones in the applicable SIP (40 CFR 93.158(c)). This includes but is not limited to such issues as reasonable further progress schedules, assumptions specified in the attainment or maintenance demonstration, prohibitions, numerical emission limits, and work practice standards. This section briefly addresses how the Proposed Action was assessed for SIP consistency for this evaluation.

6.4.1 Applicable Requirements from the EPA

The EPA has promulgated and will continue to promulgate numerous requirements to support the goals of the CAA, with respect to the NAAQS. Typically, these requirements take the form of rules regulating emissions from significant new sources, including emissions standards for major stationary point sources and classes of mobile sources, and permitting requirements for new major stationary point sources. Since states have the primary responsibility for implementation and enforcement of requirements under the CAA and can impose stricter limitations than the EPA, the EPA requirements often serve as guidance to the states in formulating their air quality management strategies.

6.4.2 Consistency with Applicable Requirements

In operating the airport, the DFW Airport Board already complies with, and will continue to comply with the rules and regulations implemented and enforced by federal, state, regional, and local agencies to protect and enhance ambient air quality in the AQCR 215. DFW Airport will continue to comply with all existing applicable air quality regulatory requirements for activities over which it has direct control and will meet, in a timely manner, all regulatory requirements that become applicable in the future. Likewise, DFW Airport actively encourages all tenants and users of its facilities to comply with applicable federal, state, and local air quality requirements.

6.5 Conclusions

Within areas designated nonattainment or maintenance for any of the NAAQS, the CAA requires that federal agencies ensure that their actions conform to the applicable SIP. The requirements for determining conformity to SIPs, including preparing air emission inventories are detailed in 40 CFR 51 and 40 CFR 93. In accordance with Section 176(c) of the CAA, the FAA has assessed whether pollutant and pollutant-precursor emissions (in this case NO_x or VOCs) that would result from the FAA's actions with respect to the Proposed Action are in conformance with the SIP.

The emission estimates in this Draft GCD were prepared using the latest project-planning assumptions, the most accurate emission estimation techniques, and based on the applicable air quality models, databases, and other requirements specified in the most recent version of the *EPA's Guideline on Air Quality Models*, including supplements. Based on the emissions modeling and the results of the evaluation, the total project-related emissions of NO_X are accounted for in the excess creditable RFP emissions reductions available after meeting the milestone-year emissions reduction targets for NO_X and VOC, establishing MVEB for transportation conformity (40 CFR §93.101), and after considering previously proposed federal actions that relied on the current applicable SIP revision to demonstrate conformity.

The Draft GCD will be published concurrently with the Draft EA to provide interested members of the public and agencies to comment on the Draft NEPA and General Conformity documentation. While the Draft EA and the Draft GCD are evaluating the same Proposed Action, these documents are being prepared to satisfy the requirements of NEPA and the CAA, respectively. The conformity status of a federal action automatically lapses after a period of five years (from the date a Final General Conformity Determination is reported) unless the federal action has been completed or a continuous program has been commenced to implement the federal action within a reasonable time. Additionally, if, after the Final General Conformity Determination is made, the federal action is changed so that there is an increase in the total direct or indirect project-related emissions, above the *de minimis* levels, a new General Conformity Determination would be required.

On October 20, 2025, DFW and FAA submitted the Draft General Conformity Determination and estimated project emissions to TCEQ for review. On December 4, 2025 DFW and FAA resubmitted the revised Draft General Conformity Determination. TCEQ reviewed the Draft General Conformity Determination and supporting data showing that the Proposed Action would result in NOx emissions exceeding the 25 tpy *de minimis* threshold in 2026 and 2027. TCEQ compared the estimated project-related emissions with the overall excess creditable reasonable further progress (RFP) emissions reductions in the applicable SIP revision that would be available after (i) meeting the 2020 RFP emissions reduction target, (ii) establishing a motor vehicle emissions budget safety margin for transportation conformity (40 CFR §93.101), and (iii) accounting for previously proposed federal actions that relied on the current applicable SIP revision to demonstrate conformity. TCEQ confirmed that the maximum available excess emission reductions in the applicable SIP are 27.85 tons per day (tpd) for NOx and 17.10 tpd for VOCs (see **Table 6.1**). In a letter to FAA, dated December 17, 2025, TCEQ issued written concurrence stating that the emissions from the proposed action, together with all other emissions in the nonattainment or maintenance area would not exceed the emissions budget in the SIP. TCEQ's concurrence letter stating that the proposed Runway 18L/36R Rehabilitation project conforms to the Texas SIP is included in **Appendix C.**

7. Public and Agency Participation

The General Conformity Regulation (40 CFR Part 93.156) has a requirement for public participation that is similar to the NEPA process. Section 93.156 (b) states:

> *A federal agency must make public its draft conformity determination under Section 93.158 by placing a notice by prominent advertisement in a daily newspaper of general circulation in the area affected by the action and by providing 30 days for written public comment prior to taking any formal action on the determination. This comment period may be concurrent with any other public involvement, such as occurs in the NEPA process.*

FAA and DFW have committed to publishing the Draft General Conformity Determination concurrently with the Draft EA and will provide adequate time for the public to review and submit written comments prior to taking formal action on the determination.

Section 93.155 (Reporting Requirements) states:

> *(a) A federal agency making a conformity determination under Sec. 93.158 must provide to the appropriate EPA Regional Office(s), State and local air quality agencies and, where applicable, affected Federal land managers, the agency designated under section 174 of the Act and the MPO a 30-day notice which describes the proposed action and the federal agency's draft conformity determination on the action.*
>
> *(b) A Federal agency must notify the appropriate EPA Regional Office(s), State and local air quality agencies and, where applicable, affected federal land managers, the agency designated under Section 174 of the Clean Air Act and the MPO within 30 days after making a final conformity determination under Sec. 93.158.*

To meet these requirements, the Draft General Conformity Determination will be included as an appendix to the Draft EA. A public notice of availability of the Draft EA and determination will be published in the following local publications: *Dallas Morning News, Fort Worth Star Telegram, Fort Worth Report* (if they publish notices), and *Al Día*. This notification will mark the beginning of the public review and comment period (**Appendix B**).

Additionally, the Draft EA, with the Draft General Conformity Determination may be sent to the EPA Region 6 Office, and TCEQ. The General Conformity Rules (40 CFR 93.155) require notifying federal land managers of Class 1 lands within 100 km of the determination. There are currently no federal Class 1 lands within 100 kilometers of the Proposed Action project and study area.

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APPENDIX A: AIR QUALITY TECHNICAL REPORT

- Appendix A1: Construction Emissions Analysis Summary
- Appendix A2: Aircraft Emissions Analysis Memo

Appendix A1: DRAFT DFW Runway 18L/36R Rehabilitation Project Construction Emissions Summary

August 2025

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Executive Summary

This technical report provides an assessment of the construction air quality impacts associated with the Runway 18L/36R Rehabilitation Project (proposed action) at Dallas Fort Worth International Airport (the Airport or DFW). The proposed project consists of airside improvements to Runway 18L/36R that would involve demolition of existing taxiway pavement, installation of an asphalt overlay and no-taxi islands, utility improvements, and rehabilitation of runway stormwater drainage.

HDR evaluated impacts to air quality due to the proposed project for National Environmental Policy Act (NEPA) purposes in accordance with the guidelines provided in the Federal Aviation Administration (FAA) Aviation Emissions and Air Quality Handbook Version 4 (FAA Handbook); FAA Order 5050.4B: *NEPA Implementing Instructions for Airport Actions*; FAA Order 1050.1G: *NEPA Implementing Procedures*, and FAA Order 1050.1 *Desk Reference, Environmental Impacts: Policies and Procedures*.

HDR estimated criteria air pollutant (CAP) emissions associated with construction of the proposed project during the years 2026 and 2027. Proposed project construction emission estimates were developed based on 1) activity estimates for vehicle, nonroad equipment, and fugitive dust provided by DFW and 2) emission factors from the United States Environmental Protection Agency (USEPA) Motor Vehicle Emission Simulator (MOVES5), Texas Commission on Environmental Quality (TCEQ) TexN2.5, and USEPA AP-42 guidance.

HDR evaluated the proposed project's significance with respect to air pollutant emissions by comparing the estimated emissions to applicable USEPA *de minimis* levels under General Conformity Rules (40 CFR 93, Subpart B). As of September 3, 2025, DFW is in a Severe Ozone Non-Attainment Area for the 2008 8-hour ozone standard. Therefore, the proposed project is subject to 25 tons per year (tpy) volatile organic compounds (VOC) and nitrogen oxides (NO_x) *de minimis* thresholds under the General Conformity Rules. This analysis was initiated to determine compliance with the Clean Air Act (CAA) and the TCEQ Dallas-Fort Worth Eight-Hour Ozone State Implementation Plan (SIP). Executive Summary **ES: Table** 1 shows that annual construction emissions from the proposed project are below applicable *de minimis* thresholds of 25 tpy for NOx or VOCs. However, when the construction and aircraft operational emissions are combined, the total project emissions would exceed the *de minimis* thresholds for NOx and VOCs. Aircraft operational emissions were modeled using the FAA Aviation Environmental Design Tool (AEDT version 3g). The aircraft operational emissions were modeled by HMMH and are detailed in the Operational Emissions Technical Report (Appendix B)

ES: Table 1. Proposed Project Construction Emissions

Project Year	Project Emissions (tpy)		General Conformity De Minimis Threshold1 (tpy)	
	NO_x	VOC	NO_x	VOC
2026	14.24	6.68	25	25
2027	9.49	4.45	25	25

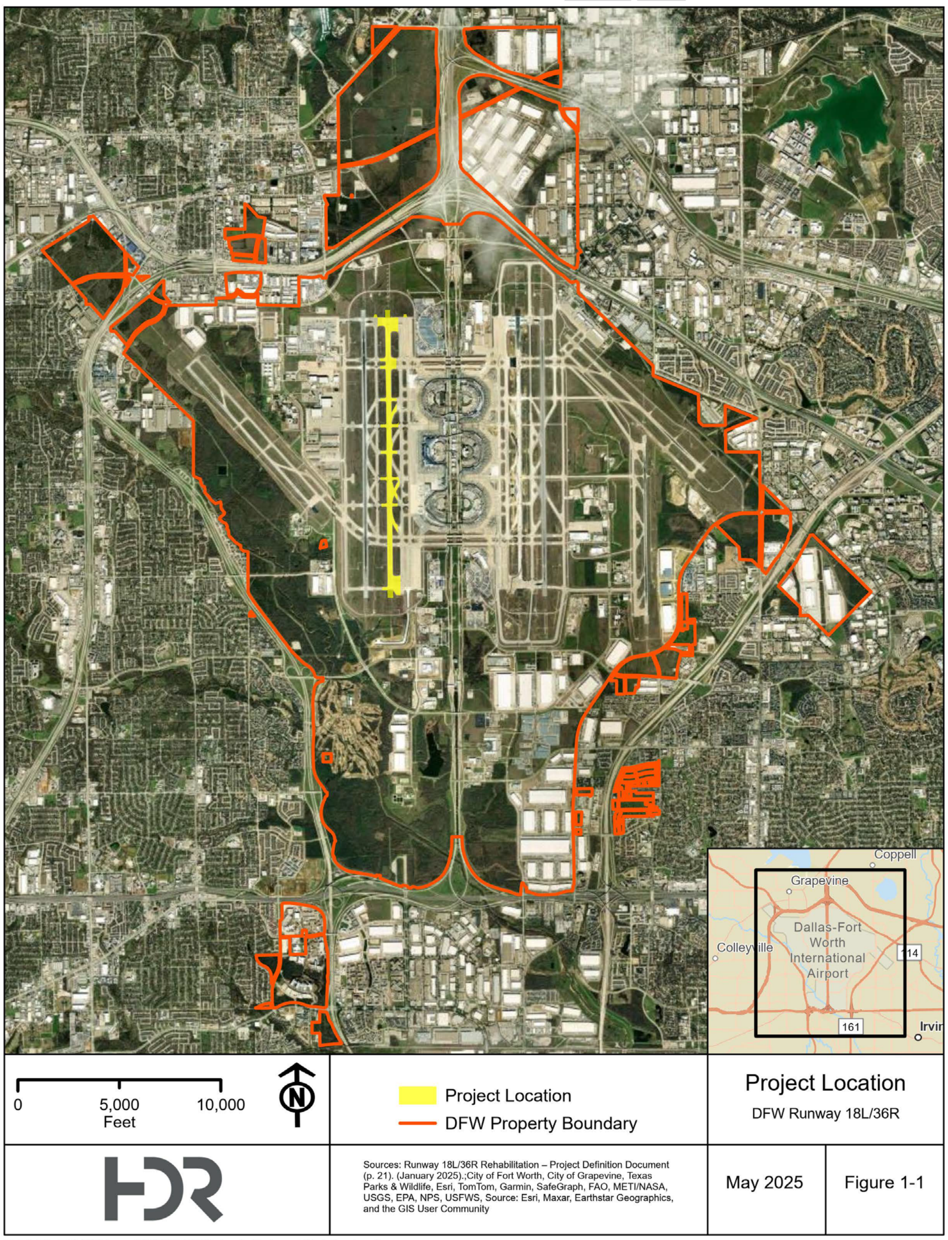
Source: HDR 2025

1 Introduction

This construction emissions technical report presents the construction emissions modeling results for the proposed Runway 18L/36R Rehabilitation Project at DFW, located in Dallas and Tarrant counties, Texas (**Figure 1**). This summary report provides an assessment of the air quality impacts associated with the construction of the proposed project. This summary report describes the scope and methodology for evaluation of air quality from construction sources and compares the construction emissions to the standards of significance identified by the Federal Clean Air Act. The estimated construction emissions were calculated using the TexN2.5 Utility which is compatible with USEPA's MOVES5. The analysis was completed based on the Civil Design Plans and other project data provided by the DFW Airport team, on behalf of the project developer.

The purpose of the summary report is to support compliance with the NEPA and other applicable federal, state, and location regulatory requirements.

Figure 1. Project Location Map



O:\10431164_10189_DFW Runway 18L35R EA\7.2_WIP\Deliverables\Environmental\ProjectLocation.pdf

1.1 Overall Approach and Regulatory Setting

NEPA provides for an environmental review process to disclose the potential impacts, including on air quality, from a proposed federal action on the human environment. Per the USEPA, NEPA's policy is to assure that all branches of government properly consider the environment prior to undertaking any major federal action that significantly affects the environment.

The impacts to air quality due to the proposed project for NEPA purposes are determined in accordance with the guidelines provided in the FAA Handbook; FAA Order 5050.4B, NEPA Implementing Instructions for Airport Actions; and FAA Order 1050.1G, Environmental Impacts: Policies and Procedures. Potential air quality impacts are required to be analyzed per these orders and guidance.

FAA 1050.1F, Exhibit 4-1, Significance Determination for FAA Actions, defines the significance threshold for air quality as when "[t]he action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the USEPA under the CAA, for any of the time period analyzed, or to increase the frequency or severity of any such existing violations." This analysis develops emissions inventories to determine the projected net annual increase in emissions consistent with the FAA Handbook. The General Conformity Rule ensures that federal activities do not cause or contribute to a violation of NAAQS.

The CAA requires adoption of NAAQS, which are periodically updated, to protect public health and welfare from the effects of air pollution. Current federal standards are set for sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter less than 10 microns in diameter (PM_{10}), particulate matter less than 2.5 microns ($PM_{2.5}$), and Lead (Pb). The NAAQS are expressed in terms of pollutant concentration measured over a defined period of time and are two-tiered, with the primary standard intended to protect public health and the secondary standard intended to protect public welfare and the environment. The primary and secondary NAAQS standards for the CAPs are shown in **Table 2**.

Table 2. National Ambient Air Quality Standards

Pollutant	Averaging Time	Primary Standards	Secondary Standards
CO	Eight-hour	9 parts per million (ppm)	None
	One-hour	35 ppm	None
Pb	Rolling Three-Month Average	0.15 µg/m^3	Same as Primary
NO_2	Annual Arithmetic Mean	53 parts per billion (ppb)	Same as Primary
	One-hour	100 ppb Note 2	None
O_3	Eight-hour (2015 standard) Note 4	0.070 ppm	Same as Primary
$PM_{2.5}$	Annual Arithmetic Mean	9 µg/m^3 Note 5	15 µg/m^3
	24-hour	35 µg/m^3	Same as Primary
PM_{10}	24-hour	150 µg/m^3 Note 1	Same as Primary
SO_2	One-hour	75 ppb Note 3	None
	Three-hour	None	10 ppb

Source: USEPA. 2025. NAAQS Table. Available at: https://www.epa.gov/criteria-air-pollutants/naaqs-table. Accessed: September 2025.

Notes:

1. For PM_{10}, the 24-hour standard is not to be exceeded more than once per year on average over three years. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or are less than the standard.
2. To attain this standard, the three-year average of the 98th percentile of the daily maximum one-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).
3. Final rule signed June 2, 2010. To attain this standard, the three-year average of the 99th percentile of the daily maximum one-hour average at each monitor within an area must not exceed 75 ppb.
4. US EPA updated the NAAQS for O_3 to strengthen the primary eight-hour standard to 0.07 ppm on October 1, 2015. An area will meet the standard if the fourth-highest maximum daily eight-hour O_3 concentration per year, averaged over three years is equal to or less than 70 ppb.
5. US EPA strengthened the annual PM2.5 standard to 9 µg/m^3 on February 7, 2024. https://www.epa.gov/newsreleases/epa-finalizes-stronger-standards-harmful-soot-pollution-significantly-increasing

Specific geographic areas are classified as either "attainment" or "non-attainment" areas for each pollutant, based on comparing ambient air monitoring data with NAAQS. Those areas designated as "non-attainment" for purposes of NAAQS compliance are required to prepare regional air quality plans, which set forth a strategy for bringing an area into compliance with the standards. These regional air quality plans are developed to meet federal requirements and are included in an overall program referred to as the SIP.

The proposed DFW Runway 18L/36R Rehabilitation Project site is located in Dallas County, within the Dallas-Fort Worth metropolitan area and according to the USEPA, the Dallas-Fort Worth metropolitan area is designated as:

- *Attainment or Unclassified* for CO (1-hour (hr), 8-hr), NO_2 (1-hr, Annual), Sulfur Dioxide (SO_2) (1-hr, 3-hr.), PM_{10} (24-hr), $PM_{2.5}$ (24-hr, Annual), and Pb (Rolling 3-month average)
- *Severe Nonattainment* [1] for O_3 under the 2008 standard 8-hr averaging period
- *Serious Nonattainment* for O_3, under the 2015 standard 8-hr averaging period

As indicated above, the *Nonattainment* designation for the project area is limited to O_3, a secondary air pollutant formed in the atmosphere when NO_x and VOCs react under exposure to solar radiation. O_3 is considered a regional pollutant because NO_x and VOC emissions throughout the airshed are involved in the formation of O_3. A regional photochemical model that considers emissions throughout the airshed is used to model ozone concentrations. The potential project related impacts to ozone concentrations are typically based on estimates of annual or daily emissions of NO_x and VOC, measured in tpy or grams per day (gpd).

1.2 Existing Conditions

DFW is a commercial service airport that currently encompasses 17,207 acres (approximately 27 square miles) in Dallas and Tarrant counties. In the National Plan of Integrated Airport Systems, the FAA classifies the Airport as a large hub primary commercial service airport[2]. DFW's airfield system consists of seven runways (13L/31R, 13R/31L, 17C/35C, 17L/35R, 17R/35L, 18L/36R, and 18R/36L) separated by a spine road, International Parkway, into the east and west airfield complexes. DFW has five passenger terminals named Terminals A, B, C, D, and E.

Runway 18L/36R is 13,401 foot long and serves as DFW's west airfield primary departure runway. Runway 18L/36R is 200 feet wide with 40-foot-wide asphalt shoulders and accommodates Airplane Design Group (ADG) VI. The Runway 18L/36R Rehabilitation Project is part of DFW's Comprehensive Runway Rehabilitation Program, which started in 2018. This comprehensive rehabilitation program started with the rehabilitation of Runway 17C/35C from May 2018 to March 2019. In June 2020, DFW then initiated a project to rehabilitate Runway 18R/36L, which was completed in April 2021. In August 2023, DFW started the Runway 17R/35L Rehabilitation Project and completed it in October 2024. Runway 18L/36R is the fourth runway in the rehabilitation program; based on the 2019 pavement condition index (PCI) report, the condition of the keel section received a "fair" score of 66 and needed rehabilitation to restore the asset to good condition, reduce the number of unplanned runway closures and reduce maintenance costs. Since 2019, the Runway 18L/36R pavement has continued to deteriorate and evaluations of the pavement conditions sered signs of continued distress and deficiencies attributed to age infrastructure and inadequate drainage conditions. Similar to the recently completed projects in Comprehensive Runway Rehabilitation Program, the Runway 18L/36R Rehabilitation Project will also include installation of an asphalt overlay that will provide a reliable operational surface and standard maintenance cycle that aligns with the previous runway rehabilitation projects.

1.3 Project Description

Under the proposed project, the rehabilitation of Runway 18L/36R would consist of a closure of the runway from May 2026 through April 2027. During the period when the runway is closed, all aircraft operations would be moved from Runway 18L/36R; this change in aircraft operations and runway

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[1] USEPA. Greenbook. 2024. Texas Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. Available at: https://www3.epa.gov/airquality/greenbook/anayo_tx.html. Accessed: November 2024.

[2] FAA. Appendix A: List of NPIAS Airports. 2024. Available at: https://www.faa.gov/sites/faa.gov/files/airports/planning_capacity/npias/current/ARP-NPIAS-2025-2029-Appendix-A.pdf. Accessed September 2025.

utilization operations would be temporary, during the construction period only. The proposed project would include two phases:

- ***Phase 1*** would generally consist of construction of the PSLs at the north end of the project area. Near the end of Phase 1, Runway 18L/36R would be closed nightly for partial depth saw cutting. Phase 1 would also include the relocation of the Runway 36R threshold and partial demolition of Runway 36R Run-Up Area. The temporary relocation of the threshold would maintain a usable runway length of approximately 9,000 feet for ADG-III operations. Phase 1 would be scheduled to start in May 2026 and finish in August 2026.
- ***Phase 2*** would consist of the construction of an additional PSL and the demolition and reconstruction of the runway, connecting taxiways and rehabilitation of the NWHP. This phase would require the full closure of the runway. Taxiway WM would remain open at all times. Phase 2 would be scheduled to start in August 2026 and finish in April 2027.

The detailed project scope includes the following:

- Pavement and rehabilitation
    - Select panel replacement, joint seal, and spall repair
    - Reduce width of runway from 200 feet to 150 feet
    - Full-depth reconstruction of shoulder pavements to meet FAA AC 150/53000-13B Change 1 requirement
    - Full depth reconstruction of the blast pad to meet ADG VI runway design standards
    - Application of 6-inch Hot Mix Asphalt (HMA) overlay
- Non-FAA circuit rehabilitation (will be removed and either moved to a new location or returned to current location)
    - Touchdown zone, centerline, and edge light emitting diode (LED) upgrades
    - Manholes replaced with junction can plazas
    - Replacement of in-pavement can lights including taxiways
    - Non-standard signs with pig tails
    - Temperature sensors
    - Electrical box relocation (ADG-VI obstruction)
    - Removal of old electrical infrastructure in the Southwest Holdpad (SWHP)
- Utility improvements and rehabilitation of runway stormwater drainage
    - Relocate stormwater inlets
    - Relocate stormwater inlets within Taxiway F safety area
- Reset runway hold position markings
- Northwest Holdpad (NWHP) Rehabilitation and Taxiway Design Group (TDG) 6 Fillet Modifications
- SWHP TDG 6 Fillet Modifications
- TDG 6 fillet modifications and select panel replacement of all taxiways and high-speed taxiway exits within the Runway 18L/36R Object Free Area (OFA)
- Demolition of existing taxiway pavement on Taxiway WK, between Taxiways E and F
- Demolition of taxiway pavement on Taxiway G8, between Taxiways E and F
- Demolition of taxiway pavement on Taxiway WL, between Taxiways E and F
- Demolition of taxiway pavement on Taxiway F4, between Runway 18L/36R and Taxiway F
- Rehabilitation of Taxiway WF pavement, south of taxiway centerline
- Construction of the Northwest End Around Taxiway (NW EAT) pavement, north of Runway 18L within Runway Safety Area (RSA)
- Partial demolition of the Runway 36R run-up threshold
- Installation of No-Taxi islands at the following locations:
    - East of the Runway 18L threshold between Taxiway WF and Taxiway WG
    - East of the Runway 18L threshold between Taxiway WG and Taxiway WH
    - West of the Runway 18L threshold between Taxiway WF and Taxiway WG
    - East of the Runway 36R threshold between Taxiway WP and Taxiway WQ
    - East of the Runway 36R threshold between Taxiway WQ and Taxiway WR
    - East of Runway 18L/36R, between Taxiway Y and Taxiway Z
- Construction of requisite utilities and improvements to lighting, signage, and stormwater drainage infrastructure

- Final site-area grading, topsoil, seed/sod, and other erosion controls, as necessary. Limits of grading, topsoil, and sodding to encompass areas beyond the inlets/drains to mitigate infield problem areas; and
- Temporary lighting, signage, and pavement markings installation, as necessary, to support temporary taxiway routing during various phases of construction.

1.4 Project Construction Schedule

The construction of the proposed rehabilitation of Runway 18L/36R is anticipated to begin in May 2026 and be completed in April 2027. It is assumed that 60% of the construction activities would occur in 2026 and 40% of the construction activities would occur in 2027. There would be two main phases: shorten runway phase and full runway closure phase. The breakdown of the two phases by calendar year are shown in **Table 3**.

Table 3. Project Construction Schedule

Phase (Year)	Estimated Start and End Dates	Duration (days)
Shorten Runway (2026)	5/1/2026 to 8/13/2026	60 days
Full Runway Closure (2026)	8/14/2026 to 12/31/2026	140 days
Full Runway Closure (2027)	1/1/2027 to 4/30/2027	133 days

Source: DFW Airport Planning and DCC Departments

2 Methodology and Inventory

2.1.1 Air Quality Assessment Procedure

The FAA Handbook lays out steps needed to complete an air quality assessment under NEPA. This assessment process is intended for projects requiring a Federal Action, which are defined as aviation-related projects that require FAA funding, licensing, permitting, or approval. The NEPA air quality assessment can determine if Federal Action-generated emissions would exceed one or more of NAAQS and provide sufficient documentation of that assessment. The following steps are as follows:

1. Determine if the Federal Action falls within an exemption to General Conformity.
2. Does the Federal Action qualify as Presumed to Conform?
3. Determine if the Federal Action is in an EPA-designated nonattainment area or maintenance area
4. Evaluate if Attainment Screening Criteria is exceeded[3].

The proposed project is neither exempt nor presumed to conform. The proposed project is located in a severe nonattainment area for ozone. Therefore, based on the results of Steps 1 through 4 above, an air quality assessment has been conducted.

2.1.2 Construction Scenario Evaluated

HDR evaluated the ozone precursors, NO_x and VOCs, emissions associated with construction of the proposed project. The proposed project, which is the only scenario evaluated, would include demolition of taxiway pavement, pavement and circuit rehabilitation, and utility improvements. Construction emissions depend on activity levels for heavy-duty construction equipment, truck haul trips (bulk deliveries and demo debris to local landfill), and vehicle trips made by construction workers and vendors/material deliveries (cement mixer) traveling to and from the proposed project site.

2.1.3 Construction Emissions Inventory

Construction of the proposed project would generate emissions from construction equipment, material delivery trips, concrete and asphalt haul trips, construction worker- and vendor trips, asphalt drying, and

[3] FAA. 2024. Aviation Emissions and Air Quality Handbook Version 4. Available at: https://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/files/airquality_handbook_version_4.pdf. Accessed: September 2025

concrete storage and batching. Emissions would be generated from on-road vehicles and nonroad construction equipment, including but not limited to excavators, rollers, compressors, skid steer loaders, rubber tire loaders, concrete saws, pumps, bore drill rigs, trenchers, striping machines, backhoes, hoe rams, paint sprayers, cement mixers, cement delivery trucks, water trucks, passenger vehicles/trucks, and heavy-duty dump trucks. A full list of construction equipment and vehicles is included in **Appendix A**. The project details, construction schedule, and design plans were provided by DFW.

2.1.4 Emission Factors

For this analysis, emission factors were generated using MOVES5 and the TexN2.5 database to develop on-road and nonroad emission factors specific to Dallas County. These emission factors were applied to estimates of vehicle miles traveled (VMT) and construction equipment (hours, horsepower, load factor), respectively, for each construction activity and year. Spreadsheet calculations for construction are presented in **Appendix A**.

2.1.4.1 On-Road Equipment

HDR used MOVES5 to estimate on-road equipment emission factors for calendar year 2026. It is conservatively assumed that emission factors in 2027 would be similar to 2026. MOVES5 was run at a default (national) scale for Dallas County. Emissions and activity were output from MOVES by vehicle type, fuel type, road type, and process type for each calendar year. Passenger vehicles (light duty trucks and cars) are assumed to be gasoline fueled while dump trucks are assumed to be diesel fueled. One way trip lengths were assumed to be 20 miles to the nearest landfill and 30 miles for vendor and worker trips. Emissions were aggregated over several emission process types to facilitate application to activity for development of proposed project emissions.

2.1.4.2 Nonroad Equipment

To model the proposed project construction emissions from nonroad equipment, HDR used TexN2.5 with MOVES5 for calendar year 2026. It is conservatively assumed that emission factors in 2027 would be similar to 2026. TexN2.5 was run at a default scale for Dallas County. HDR utilized the construction schedule and project activity data such as equipment operating hours, equipment types, fuel types, and equipment size (horsepower). Most equipment provided was from model year 2000-2007. DFW-provided equipment activity was cross referenced to TexN2.5 equipment types based on name matching and experience in assigning appropriate types. Equipment emission factors matching those equipment proposed for the project were taken from the TexN2.5 database by dividing emission quantities by activity hours.

2.1.4.3 Fugitive VOC Emissions

Fugitive VOC emissions would be generated during the asphalt drying process, as VOCs are released when asphalt is laid at high temperatures and cools down. These fugitive VOC emissions were calculated using the FAA Handbook.

2.1.4.4 PM Emissions

PM_{10} and $PM_{2.5}$ emissions would be generated during concrete storage and batching. PM emissions were calculated using emission factors from AP-42 Section 11.12 “Concrete Batching” and the volume of asphalt for the proposed project.

2.1.4.5 Dust Emissions

Both fugitive dust and resuspended road dust emissions were calculated. Fugitive dust emissions were estimated using the Western Governors’ Association Western Regional Air Partnership (WRAP) Handbook. WRAP Level 1, which relies on the acreage affected, was used to determine PM emissions from soil disturbance and wind erosion. WRAP Level 4, which relies on mileage, was used to determine PM emissions from vehicle travel on unpaved roads. A limited 1/2 mi of on-site haulage (on unpaved work areas) is assumed for each dump truck roundtrip. DFW typically does not allow unpaved roads on the Airport Operations Area. For travel on paved roads, resuspended road dust emissions were calculated using AP-42 Section 13.2.1 “Paved Roads”.

3 Significance Thresholds

This section discusses the criteria and general methods used to evaluate the proposed Project's significance with respect to air quality impacts under NEPA. Emissions inventories are used to determine a proposed project's potential impact on air quality. The emissions inventories are compared to pollutant-specific *de minimis* thresholds established by the EPA. Per FAA Order 1050.1 Desk Reference, a significant air quality impact occurs when the proposed project *would cause pollutant concentrations to exceed one or more of the NAAQS, as established by the EPA under the CAA [Clean Air Act] section 176(c)146*, *for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations*[4].

The CAA conformity requirement integrates air quality planning on the state level with project planning on a federal level, to protect the integrity of state plans for improving air quality in in areas that do not meet the NAAQS—nonattainment and maintenance areas. The General Conformity Rule ensures that federal actions, such as airport development projects in nonattainment or maintenance areas, comply with the CAA and do not cause or contribute to a violation of NAAQS. When performing a General Conformity analysis, the FAA considers a range of factors, including:

- If action will occur in a Non-attainment or Maintenance Area
- If specific exemptions in the General Conformity Rule apply
- If the action is on the federal agency's list of "presumed to conform" activities
- If total emissions exceed General Conformity *de minimis* levels, and
- If an EPA-approved SIP has an emissions budget for which emissions with the action could be compared

As previously stated, the DFW metropolitan area is designated as a *Severe* nonattainment area for O_3, based on the 2008 eight-hour ozone standard and *Serious* nonattainment area for O_3, based on the 2015 eight-hour ozone standard. The applicable de minimis threshold based on the *Severe* nonattainment area designation is 25 tpy for each ozone precursor pollutant (NO_x and VOCs).

4 Results

4.1 Estimated Construction Emissions Inventory Results

HDR estimated NO_x and VOCs emissions associated with construction of the proposed DFW Runway 18L/36R Rehabilitation Project. The construction emissions inventory was developed using construction activity data provided by DFW on behalf of the project developer and emission factors from the TexN2.5 model. The proposed project's estimated emissions were compared to applicable *de minimis* thresholds (25 tpy for each ozone precursor), to determine compliance with the CAA and conformance to the TCEQ Dallas-Fort Worth Eight-Hour Ozone SIP, as required by the General Conformity Rule (40 CFR 93, Subpart B).

Table 4 shows that estimated NOx and VOC emissions that would result for the construction of the proposed DFW Runway 18L/36R Rehabilitation Project. As shown in Table 4 the estimated Runway 18L/36R Rehabilitation Project annual construction emissions are below applicable *de minimis* thresholds for 2026 and 2027. However, the estimated project aircraft operational emissions detailed in the **Runway 18L/36R Rehabilitation Project Aircraft Emissions Analysis Memorandum (Appendix A2)** exceed the applicable *de minimis* threshold. Aircraft operational emissions were modeled using the FAA Aviation Environmental Design Tool (AEDT version 3g). The aircraft operational emissions were modeled by HMMH and are detailed in the Operational Emissions Technical Report. As detailed in the Operational Emissions Technical Report the estimated emissions associated with the changes in aircraft operations due to the proposed project are as follows:

- In calendar year 2026 the estimated NOx emissions would be 30.26 tpy and the estimated VOCs emissions are 11.44 tpy.

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[4] FAA. 2020. 1050.1 Desk Reference. Available at: https://www.faa.gov/sites/faa.gov/files/about/office_org/headquarters_offices/apl/1-air-quality.pdf. Accessed: September 2025

- In calendar year 2027 the estimated NOx emissions would be 32.89 tpy and the estimated VOCs are 11.68 tpy.

When the construction and aircraft operational emissions are combined, the total project-related emissions would exceed the applicable *de minimis* thresholds for NOx and VOCs in 2026 and 2027. Therefore, the proposed project would be subject of General Conformity Determination; Under the federal General Conformity Rule, DFW must submit a General Conformity Determination for the Proposed Action. The General Conformity Determination must demonstrate that emissions from the Proposed Action would not exceed the emissions budgets in the SIP for the years when the proposed project's emissions exceed applicable *de minimis* thresholds. The General Conformity Determination must be reviewed and approved by TCEQ.

Table 4. Summary of Emissions and Comparison to General Conformity *de minimis* thresholds.

Project Year and Emissions Source	Construction Emissions (tpy)		General Conformity *De Minimis* Threshold (tpy)	
	NOx	VOCs	NOx	VOC
2026 Non-Road	7.83	0.72	25 tpy	25 tpy
2026 On-Road	6.41	3.41		
Asphalt Fugitives	-	2.54		
2026 Total Emissions	**14.24**	**6.68**		
2027 Non-Road	5.22	0.48		
2027 On-Road	4.27	2.27		
Asphalt Fugitives	-	1.70		
2027 Total Emissions	**9.49**	**4.45**		

Note: Totals may not add up due to rounding.

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Appendix A. Project Data Inputs and TexN2.5, MOVES Output Tables – **Available Upon Request**

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Appendix A2: Runway 18L/36R Rehabilitation Project Aircraft (Operational) Emissions Analysis Memorandum

To:	Esther Chitsinde HDR Inc.
From:	Robert C. Mentzer, Jr. Kate Larson
Date:	September 17, 2025
Subject:	DRAFT - Dallas Fort Worth Airport Runway 18L/36R Rehabilitation Environmental Assessment: Aircraft Emissions Inventory DRAFT
Reference:	HMMH Project Number 23-0095C.003

As a subconsultant to HDR, Harris Miller Miller & Hanson Inc. (HMMH) is assisting Dallas-Fort Worth Airport (DFW) with the aircraft noise and emissions elements of the Environmental Assessment (EA) for the Runway 18L/36R Rehabilitation Project. The purpose of this technical memorandum is to provide the aircraft operations emissions inventory results for the existing conditions (calendar year 2024) and forecast conditions for the construction years (2026 and 2027).

The remainder of this memo is written for inclusion in HDR's Air Quality Technical Report with minimal editing required.

Air Quality: Aircraft Operational Emissions

This section provides the description of current and forecast aircraft operations at DFW used for the development of existing emission inventories. The existing condition inventory represents a 12-month period from the calendar year of 2024 (January 1 – December 31). The construction period is expected to begin in 2026 and end in 2027, so there are two forecast analysis years. The forecast emissions analysis compares No Action pollutant calculations to the Proposed Action calculations for each year, calculated using the Federal Aviation Administration's (FAA's) Aviation Environmental Design Tool (AEDT), Version 3g[1], in compliance with FAA Order 1050.1G and FAA Order 5050.4B.

1.0 Existing Conditions

The existing aircraft emission inventory for DFW was evaluated based upon the calendar year 2024 aircraft operations and the associated airport operational characteristics. Flight track and aircraft identification data from DFW's Noise and Operations Monitoring System (NOMS) and provided the aircraft fleet mix and runway use. The fleet mix developed from the DFW NOMS data was grouped into FAA operational categories (Air

[1] AEDT Version 3g released on August 28, 2024. FAA: AEDT Support Website

Carrier, Air Taxi, and General Aviation) and the totals were scaled to match the tower count for that period, provided by the FAA's Operational Network (OPSNET) operational data.

1.1 Aircraft Fleet Mix and Operations

During the existing conditions period, 743,203 annual operations occurred at DFW. **Table 1** presents the annual operations modeled in the AEDT for the existing conditions, where arrivals and departures are counted as separate operations. **Table 2** provides the annual operations, by AEDT aircraft type, that were used in AEDT to represent the existing conditions. The arrivals and departures are divided into day and night categories for the purposes of noise assessment, listed here in the same manner for consistency.

Table 1. Existing Conditions Annual Operations

Category	2024 Operations
Air Carrier Cargo	16,573
Air Carrier Passenger	705,825
Air Taxi Cargo	4,290
Air Taxi Passenger	10,580
General Aviation	5,724
Military	211
Total	**743,203**

Sources: DFW NOMS, FAA OPSNET, *HMMH analysis, 2025*

Table 2. DFW Modeled Annual Operations for Existing Conditions (Calendar Year 2024)

Tower Category	Propulsion Category	AEDT Aircraft Type	Arrivals Day	Arrivals Night	Departures Day	Departures Night	Total
Air Carrier Cargo	Jet	747400	304	148	298	154	905
		7478	344	246	375	215	1,180
		757PW	299	33	288	44	664
		757RR	435	42	417	60	954
		7673ER	2,012	933	1,569	1,376	5,890
		777300	645	402	405	642	2,094
		A300-622R	916	69	849	136	1,970
		MD11GE	405	322	444	283	1,454
		MD11PW	370	361	456	275	1,462
Air Carrier Passenger	Jet	737700	6,406	956	6,735	627	14,723
		737800	74,609	10,267	77,160	7,716	169,753
		7378MAX	2,826	970	3,418	378	7,593
		747400	324	135	323	136	917
		7478	22	95	74	43	235
		777200	2,109	267	2,268	108	4,753
		7773ER	1,953	14	1,699	268	3,934
		7878R	2,112	913	2,998	27	6,050
		7879	3,373	542	3,376	539	7,831
		A319-131	23,959	2,410	23,972	2,397	52,737
		A320-211	6,765	1,219	6,960	1,024	15,968
		A320-232	10,972	1,535	11,297	1,210	25,014
		A320-270N	8,045	3,045	8,123	2,967	22,180

Tower Category	Propulsion Category	AEDT Aircraft Type	Arrivals Day	Arrivals Night	Departures Day	Departures Night	Total
		A321-232	64,216	10,589	66,193	8,612	149,610
		A330-301	302	3	24	281	609
		A330-343	148	-	146	2	297
		A340-211	181	-	181	-	363
		A350-941	1,120	10	891	239	2,260
		A380-841	321	2	308	15	647
	Regional Jet	CRJ9-ER	30,118	4,602	31,760	2,960	69,439
		EMB170	12,205	1,659	12,581	1,283	27,728
		EMB175	55,668	5,563	56,228	5,003	122,462
		EMB190	359	2	358	3	722
Air Carrier total			**313,845**	**47,354**	**322,176**	**39,023**	**722,398**
Air Taxi Cargo	Non-jet	1900D	361	17	255	123	756
		CNA208	1,014	243	1,108	149	2,514
		DHC6	268	5	227	46	546
		SF340	149	88	214	23	474
Air Taxi Passenger	Jet	CL600	298	21	296	23	637
		CNA55B	549	31	548	32	1,160
		CNA560XL	308	13	311	10	643
		CNA680	842	48	855	35	1,779
	Regional Jet	CL600	368	3	368	3	742
		EMB145	243	2	243	2	490
		EMB14L	669	-	666	3	1,338
	Non-jet	CNA208	1,870	25	1,846	49	3,790
Air Taxi total			**6,939**	**496**	**6,937**	**498**	**14,870**
General Aviation	Jet	CL600	318	19	321	16	673
		CL601	740	49	765	24	1577
		CNA55B	355	10	333	32	730
		CNA560XL	593	28	581	40	1242
	Non-jet	CNA172	210	69	174	105	557
		CNA208	257	13	249	21	540
		DHC6	202	0	186	16	405
General Aviation Total			**2,674**	**188**	**2,608**	**254**	**5,724**
Military	Jet	C17	52	-	46	6	103
		LEAR35	38	3	41	-	82
	Non-jet	C130AD	13	-	13	-	26
Military Total			**103**	**3**	**100**	**6**	**211**
Grand Total			**323,561**	**48,041**	**331,821**	**39,781**	**743,203**

Note: Totals may not match exactly due to rounding
Sources: DFW NOMS, FAA OPSNET, FAA TAF, HMMH analysis 2025

Other parameters used in the AEDT model inputs which do not change from the existing to the forecast scenarios (aircraft noise and performance profile selection, flight tracks, meteorological, and terrain data) are described in the noise assessment documentation. Specific aircraft engine types and taxi times are needed to determine air quality pollutant emissions and to make fuel burn calculations. Since there is no change in aircraft operations between the No Action and Proposed Action scenarios, ground support equipment and auxiliary power unit usage are modeled using AEDT default assignments. The following two sections discuss the runway use and taxi-times inputs which would be affected by the proposed project.

1.2 Runway Use

DFW has two runway complexes: the east side and west side, comprised of seven runways; four to the east and three to the west. Aircraft typically arrive on the outermost main north/south runways as well as some of the outboards and depart on the innermost runways main north/south runways (inboards). Aircraft normally take off and land into the wind. Choice of runway can be affected by aircraft type, type of activity, and where applicable, airport runway use plans. Historic data shows that DFW has two main operating configurations—south flow (departing to the south and arriving from the north) approximately 70 percent of the time and north flow (departing to the north and arriving from the south) approximately 30 percent of the time.

Table 3 summarizes the runway usage AEDT inputs developed from the DFW NOMS data for a recent 12-month period without any extended runway closures: October 2021 through September 2022, which is fiscal year (FY) 2022. DFW has had several runway reconstruction projects in the past two years, with the latest completed in October 2024. The air quality analysis for the EA should reflect typical annual runway use; therefore, the study team determined that FY 2022 rates would be used. The aircraft operations, separated into jets and non-jets, departures and arrivals, and day and nighttime periods determine the runway use distribution. The FY 2022 usage was normalized to the historical north flow (30 percent), south flow (70 percent) split.

Table 3. Runway Use Percentages, Existing Condition

Propulsion	Runway	Arrivals		Departures	
		Day	Night	Day	Night
Jet	13L	0%	0%	<1%	0%
	13R	3%	<1%	<1%	0%
	17C	27%	32%	<1%	1%
	17L	11%	1%	<1%	0%
	17R	<1%	7%	39%	33%
	18L	<1%	4%	31%	31%
	18R	28%	24%	<1%	6%
	31L	<1%	0%	<1%	0%
	31R	<1%	<1%	<1%	0%
	35C	11%	14%	<1%	<1%
	35L	<1%	3%	16%	15%
	35R	5%	<1%	<1%	0%
	36L	12%	10%	<1%	2%
	36R	<1%	1%	14%	13%
	SUBTOTAL	**100%**	**100%**	**100%**	**100%**
Non-Jet	13L	<1%	0%	<1%	<1%
	13R	28%	<1%	<1%	0%
	17C	9%	16%	3%	2%
	17L	23%	<1%	<1%	0%
	17R	<1%	4%	38%	15%
	18L	<1%	5%	24%	18%
	18R	9%	44%	5%	34%
	31L	<1%	0%	9%	2%
	31R	13%	0%	<1%	0%
	35C	2%	8%	2%	<1%
	35L	<1%	1%	15%	7%
	35R	3%	<1%	0%	0%
	36L	12%	18%	<1%	15%
	36R	<1%	1%	3%	5%
	SUBTOTAL	**100%**	**100%**	**100%**	**100%**

Sources: DFW NOMS FY2022, HMMH analysis 2025

1.3 Taxi-Times

DFW Design Code and Construction (DCC) provided the average taxi times (in minutes) for this analysis, which are shown in **Table 4**, supplemented with FY 2022 average taxi times obtained from the FAA Aviation System Performance Metrics (ASPM) database[2]. Annual aircraft taxiing emissions are a function of the number of aircraft operations, expressed as landing and takeoff (LTO) cycles, the aircraft fleet mix (specific types of aircraft/engines used), and the length of time aircraft spend in the taxiing mode of operation defined in AEDT.

[2] FY 2022 taxi times (and runway usage) were used in this analysis because FY 2022 is a recent 12-month period with no extended runway closures.

Table 4. Existing Condition Taxi Times, by Runway End

Scenario	Runway End	Taxi-In Time (Minutes)	Taxi-Out Time (Minutes)
Existing Condition and No Action	13L	11.2	16.0
	13R	14.2	16.0
	17C	12.8	8.4
	17L	14.7	16.4
	17R	7.0	17.5
	18L	8.2	16.9
	18R	10.5	9.6
	31L	14.2	24.6
	31R	11.1	40.1
	35C	12.3	16.7
	35L	8.4	18.4
	35R	14.9	17.8
	36L	11.7	16.5
	36R	11.4	17.7

Sources: DFW DCC, FAA Aviation System Performance Metrics (ASPM), accessed on July 14, 2025, HMMH analysis 2025

1.4 Aircraft-Related Operational Emissions

AEDT can calculate operational emissions from aircraft operations, ground service equipment (GSE), and auxiliary power units (APU). AEDT default data for APU and GSE equipment and duration was used in the modeling. The pollutant inventory calculations include aircraft emissions associated with taxi-in, taxi-out, and in-flight operations below mixing height[3]. **Table 5** provides the calculated operational emissions for the existing conditions, based on the operations in **Table 2**.

Table 5. Total Operational Emissions for Existing Conditions

Year	Operational Category	Pollutant (tons per year)						
		NO_x	CO	$PM_{2.5}$	PM_{10}	SO_x	VOC	CO_2
2024	Aircraft	3,988.80	4,077.97	38.553	38.553	442.90	451.25	1,468,172.40
	GSE LTO	25.67	727.28	1.388	1.494	0.22	19.64	14,881.56
	APU	122.70	106.33	16.135	16.135	16.45	8.81	60,000.21
	Total	**4,137.16**	**4,911.58**	**56.08**	**56.18**	**459.58**	**479.71**	**1,543,054.17**

Source: HMMH AEDT analysis, 2025

2.0 Forecast Years Conditions

The Proposed Action Alternative is comprised of the rehabilitation of Runway 18L/36R and its shoulders, upgrades to the electrical systems and components, and a full asphalt overlay. The Proposed Action Alternative would cause temporary changes in runway use, during construction only. As the construction is not expected to affect the number and type of aircraft operations using the airport, the only aircraft-related emissions changes would stem from changes in taxi times for the affected runways and changes in airport-

[3] The AEDT Default mixing height of 3,000 feet above field elevation was used.

wide runway usage rates during the construction period. The analysis years, 2026 and 2027, include periods prior to construction and after construction is completed when runway usage and taxi times are assumed to be the same as for the existing conditions. Once construction is complete in 2027, runway use and taxi times would return to normal conditions.

The Runway 18L/36R Rehabilitation is expected to be completed in three construction phases. Phase 1 would include all the preparation work and staging (not impacting runway operations) needed to begin Phase 2. Phases 2 and 3 would involve reduced length or full runway closures and are the subject of this emission inventory. Together, Phase 2 and Phase 3 cover 12 months from May 2026 to April 2027.

- Phase 2 – Runway 36R end closure – May 1, 2026 through July 31, 2026 (3 months)
- Phase 3 – Full Closure of Runway 18L/36R – August 1, 2026 to April 30, 2027 (9 months)

2.1 Aircraft Fleet Mix and Operations

An operational forecast prepared in the early stages of this EA was submitted to FAA for approval on July 7, 2025, including detailed operations tables for AEDT noise and emissions modeling for calendar years 2026 and 2027. The forecast operations are based on the FAA's 2024 Terminal Area Forecast (TAF) issued in January 2025 for DFW. The No Action and Proposed Action Alternatives assume the same level of operations for both scenarios because the Proposed Action is a runway rehabilitation project that does not alter the length of the runway or its expected use in the future. **Table 6** provides the proposed level of operations to be modeled for the EA forecast years 2026 and 2027, in comparison to the existing conditions year, 2024.

Table 6. Forecast Annual Operations

Category	2024 Existing Conditions	2026 Forecast (No Action and Proposed Action)	2027 Forecast (No Action and Proposed Action)
Air Carrier Cargo	16,573	26,727	28,189
Air Carrier Passenger	705,825	773,887	794,319
Air Taxi Cargo	4,290	4,676	4,738
Air Taxi Passenger	10,580	11,584	11,693
General Aviation	5,724	6,233	6,252
Military	211	197	197
Total	**743,203**	**823,304**	**845,388**

Sources: DFW NOMS, FAA OPSNET, *HMMH analysis, 2025*

Table 7 lists the annual operations, by AEDT aircraft type, that were input to AEDT to represent the two forecast years' operations, respectively. The fleet mix for each forecast year (2026, 2027) was initially based on the 2024 fleet mix operations. Overall flights were scaled proportionally to the future year's total operations by category and then air carrier fleets were adjusted to reflect expected increased use of newer aircraft models. For example, from 2024 to 2026, the air taxi category share of the regional jet activity is expected to decrease (e.g., CRJ-200 modeled as the CL600), and the air taxi jet category to increase (e.g., CL35 modeled as the CL600). From 2026 to 2027, the air taxi category share of the regional jet activity is predicted to decrease further, while the air taxi jet category is expected to increase further. The general aviation and military fleet mix is assumed to remain largely unchanged from 2024 to 2027. For additional information on the forecast, see Appendix xx.

Table 7. DFW Modeled Forecast Operations for Construction Years (2026 and 2027)

Tower Category	Propulsion Category	AEDT ANP Type	2026 Operations	2027 Operations
Air Carrier Cargo	**Jet**	747400	3,843	3,852
		7478	1,204	1,216
		757PW	664	664
		757RR	954	954
		7673ER	8,039	9,263
		777300	7,137	7,354
		A300-622R	1,970	1,970
		MD11GE	1,454	1,454
		MD11PW	1,462	1,462
Air Carrier Passenger	**Jet**	737700	16,022	16,525
		737800	169,455	167,402
		7378MAX	11,597	13,255
		747400	917	917
		7478	235	235
		777200	4,753	4,753
		7773ER	4,979	5,268
		7878R	7,965	8,593
		7879	10,309	11,122
		A319-131	51,526	51,122
		A320-211	13,947	13,193
		A320-232	21,739	19,914
		A320-270N	30,087	33,089
		A321-232	166,371	171,994
		A330-301	609	609
		A330-343	297	297
		A340-211	359	358
		A350-941	2,975	3,210
		A380-841	647	647
	Regional Jet	CRJ9-ER	69,439	69,439
		EMB170	27,728	27,728
		EMB175	161,210	173,928
		EMB190	722	722
Air Carrier Total			**800,614**	**822,508**
Air Taxi Cargo	**Non-jet**	1900D	756	756
		CNA208	2,900	2,962
		DHC6	546	546
		SF340	474	474
Air Taxi Passenger	**Jet**	CL600	735	751
		CNA55B	1,338	1,367
		CNA560XL	742	757
		CNA680	2,052	2,096
	Regional Jet	CL600	536	456
		EMB145	485	482
		EMB14L	1,325	1,318
	Non-jet	CNA208	4,372	4,466
Air Taxi Total			**16,260**	**16,431**

Tower Category	Propulsion Category	AEDT ANP Type	2026 Operations	2027 Operations
General Aviation	**Jet**	CL600	733	735
		CL601	1,717	1,723
		CNA55B	795	797
		CNA560XL	1,352	1,356
	Non-jet	CNA172	607	609
		CNA208	588	590
		DHC6	441	442
General Aviation Total			**6,233**	**6,252**
Military	**Jet**	C17	96	96
		LEAR35	77	77
	Non-jet	C130AD	24	24
Military Total			**197**	**197**
Grand Total			**823,304**	**845,388**

Note: Totals may not match exactly due to rounding.
Sources: DFW NOMS, FAA OPSNET, FAA TAF, HMMH analysis 2025

2.2 Runway Use

2.2.1 No Action Alternative

Under the No Action Alternative, the runway rehabilitation project would not occur and there would be no changes to the typical runway use at DFW for 2026 and 2027. Therefore, the runway use provided in **Table 3** for the existing conditions was used to represent the runway use in both forecast years' No Action scenarios.

2.2.2 Proposed Action Alternative

At DFW the outboard runways (Runways 17L/35R, 13R/31L, and 13L/31R) are open daily until 11 p.m. The modeled runway percentages includes the assumption that the outboard runways are not typically used between 10 p.m. or before 6 a.m. Nighttime runway utilization reflects the predominant use of the main parallel runways for arrivals and departures[4].

The Proposed Action assumes a 12-month active construction period in two phases for the Runway 18L/36R rehabilitation, following completion of the Phase 1 preparatory work. During Phase 2 (three months), the runway threshold for the Runway 36R end would be relocated 4,128 feet northward (to Taxiway WM) to allow the runway to continue departure operations on the remaining 9,273 feet while the south end is under construction. Runway use for construction Phase 2 is assumed to be the essentially same as for the Existing Conditions but with the few arrivals that would normally occur to Runway 18L/36R shifted proportionally to other runways. Runway use for construction Phase 3 (full closure of Runway 18L/36R for nine months) was provided by DFW for arrivals and departures overall. During Phase 3, arrivals would shift mainly to Runways 17L/35R, 17C/35C, and 13R while departures would shift to Runways 17R/35L, 18R/36L, and 31L. HMMH determined the separate day and night percentages for this period by applying the day/night proportions as seen in the Existing Conditions usage. **Table 8** presents the runway use percentages for each construction phase.

[4] Per FAA, nighttime operations are defined as 10:00 p.m. to 6:59 a.m. in the calculation of DNL.

Table 8. Runway Use Percentages, Forecast Years 2026 and 2027, Proposed Action Scenario

Category	Runway	During Construction Phase 2				During Construction Phase 3			
		Arrivals		Departures		Arrivals		Departures	
		Day	Night	Day	Night	Day	Night	Day	Night
Jet	13L	0%	0%	<1%	0%	0%	0%	0%	0%
	13R	3%	1%	<1%	0%	11%	2%	0%	0%
	17C	27%	34%	<1%	1%	27%	50%	0%	0%
	17L	11%	2%	<1%	0%	26%	5%	0%	0%
	17R	<1%	8%	39%	33%	0%	0%	60%	9%
	18L	**0%**	**0%**	**31%**	**31%**	**0%**	**0%**	**0%**	**0%**
	18R	28%	26%	<1%	6%	7%	12%	10%	60%
	31L	<1%	0%	<1%	0%	0%	0%	7%	0%
	31R	1%	<1%	<1%	0%	3%	<1%	0%	0%
	35C	11%	15%	<1%	<1%	11%	22%	0%	0%
	35L	<1%	3%	16%	15%	0%	0%	21%	3%
	35R	5%	1%	<1%	0%	11%	2%	0%	0%
	36L	12%	11%	<1%	2%	4%	6%	2%	27%
	36R	**0%**	**0%**	**14%**	**13%**	**0%**	**0%**	**0%**	**0%**
	SUBTOTAL	100%	100%	100%	100%	100%	100%	100%	100%
Non-Jet	13L	<1%	0%	<1%	<1%	0%	0%	0%	0%
	13R	28%	<1%	<1%	0%	12%	<1%	0%	0%
	17C	9%	17%	3%	2%	26%	46%	0%	0%
	17L	23%	1%	<1%	0%	27%	1%	0%	0%
	17R	1%	5%	38%	15%	0%	0%	54%	12%
	18L	**0%**	**0%**	**24%**	**18%**	**0%**	**0%**	**0%**	**0%**
	18R	9%	47%	5%	34%	5%	23%	16%	58%
	31L	<1%	0%	9%	2%	0%	0%	7%	<1%
	31R	13%	0%	<1%	0%	4%	0%	0%	0%
	35C	2%	9%	2%	<1%	9%	25%	0%	0%
	35L	<1%	1%	15%	7%	0%	0%	21%	4%
	35R	3%	1%	0%	0%	12%	2%	0%	0%
	36L	12%	19%	1%	15%	5%	4%	2%	26%
	36R	**0%**	**0%**	**3%**	**5%**	**0%**	**0%**	**0%**	**0%**
	SUBTOTAL	100%	100%	100%	100%	100%	100%	100%	100%

Note: Runway 18L/36R in Bold - it would only handle departures in construction Phase 2, woudl be closed during construction Phase 3.

2.3 Taxi-Times

2.3.1 No Action Alternative

Under the No Action Alternative, the runway rehabilitation project would not occur and there would be no changes to the typical taxi times at DFW for 2026 and 2027. Therefore, the taxi times data provided in **Table 4** for the existing conditions was used to represent the taxi times in both forecast years' No Action scenarios.

2.3.2 Proposed Action Alternative

For runway ends where taxi times are anticipated to be changed in the Proposed Action, DFW DCC provided the taxi times to be used. **Table 9** presents the average taxi-in and taxi-out times by runway end for both phases of active construction. From the existing condition to construction phase 2 (partial closure of Runway

18L/36R), changes in average taxi times are generally less than 1 minute for any given runway, with the greatest change being a two-minute decrease in taxi out time for Runway 36R departures, due to its temporarily relocated runway threshold. From construction phase 2 to phase 3 (full closure of Runway 18L/36R), the most notable change in taxi-in times is an additional four minutes for arrivals to Runway 13R; changes for all other runways are one minute or less. Taxi-out time changes from construction phase 2 to phase 3 are expected to be larger, with increases of about one minute for several runways, over six additional minutes for Runway 36L departures and over 11 additional minutes for Runway 18R departures. The taxi-out time for Runway 31L departures is expected to decrease by over 6 minutes.

Table 9. Proposed Action Alternative Construction Period Taxi Times, by Runway End

Scenario	Runway End	Taxi-In Time	Taxi-Out Time
Proposed Action Phase 2 (Partial Closure)	13L	11.2	16.0
	13R	13.5	16.0
	17C	13.0	8.3
	17L	14.8	16.4
	17R	7.0	18.4
	18L*	N/A	16.5
	18R	10.1	9.8
	31L	14.2	24.6
	31R	11.2	40.1
	35C	12.5	16.7
	35L	8.4	19.2
	35R	15.4	17.8
	36L	11.4	16.5
	36R*	N/A	15.7
Proposed Action Phase 3 (Full Closure)	13L	11.2	16.0
	13R	17.7	16.0
	17C	13.0	9.6
	17L	14.6	16.4
	17R	7.0	19.6
	18L**	N/A	N/A
	18R	10.4	21.0
	31L	14.2	18.3
	31R	12.2	40.1
	35C	12.6	17.3
	35L	8.4	20.5
	35R	15.0	17.8
	36L	10.4	22.8
	36R**	N/A	N/A

Notes: * Departures only during partial runway closure.
**Not available during full runway closure.
Sources: DFW DCC, FAA Aviation System Performance Metrics (ASPM), accessed on July 14, 2025, HMMH analysis 2025

2.4 Aircraft-Related Operational Emissions

2.4.1 No Action Alternative

As was done for the Existing Conditions analysis, AEDT default data for APU and GSE equipment and duration were used in the modeling for the No Action Alternative and the pollutant inventory calculations include aircraft emissions associated with taxi-in, taxi-out, and in-flight operations below mixing height. **Table 10** provides the calculated operational emissions for the No Action Alternative, based on the operations in **Table 7** and the same assumptions for runway use and taxi times as the existing condition.

Table 10. Total Operational Emissions for Construction Years, No Action Alternative

Year	Operational Category	Pollutant (tons per year)						
		NO_x	CO	$PM_{2.5}$	PM_{10}	SO_x	VOC	CO_2
2026	Aircraft	4,580.71	4,614.51	40.906	40.906	497.53	501.73	1,651,241.75
	GSE LTO	32.57	805.45	1.788	1.903	0.24	24.58	18,096.52
	APU	131.40	118.39	18.159	18.159	17.88	9.99	64,895.18
	Total	**4,744.68**	**5,538.34**	**60.85**	**60.97**	**515.65**	**536.29**	**1,734,233.44**
2027	Aircraft	4,713.17	4,721.09	41.201	41.201	509.08	508.72	1,690,187.25
	GSE LTO	28.63	779.51	1.374	1.492	0.25	21.17	16,428.47
	APU	133.23	121.87	18.734	18.734	18.24	10.34	66,002.95
	Total	**4,875.03**	**5,622.48**	**61.31**	**61.43**	**527.57**	**540.22**	**1,772,618.67**

Source: HMMH AEDT analysis, 2025

2.4.2 Proposed Action Alternative

As was done for the Existing Conditions analysis, AEDT default data for APU and GSE equipment and duration were used in the modeling for the Proposed Action Alternative and the pollutant inventory calculations include aircraft emissions associated with taxi-in, taxi-out, and in-flight operations below mixing height. **Table 11** provides the calculated operational emissions for the Proposed Action Alternative, based on the operations in **Table 7** and the construction-phase runway use and taxi times applicable to portions of each forecast year described in Sections 2.2 and 2.3.

Table 11. Total Operational Emissions for Construction Years, Proposed Action Alternative

Year	Operational Category	Pollutant (tons per year)						
		NO_x	CO	$PM_{2.5}$	PM_{10}	SO_x	VOC	CO_2
2026	Aircraft	4,610.97	4,765.44	41.533	41.533	506.58	513.17	1,672,612.50
	GSE LTO	32.57	805.45	1.788	1.903	0.24	24.58	18,096.52
	APU	131.40	118.39	18.159	18.159	17.88	9.99	64,895.18
	Total	**4,774.94**	**5,689.27**	**61.48**	**61.59**	**524.71**	**547.73**	**1,755,604.19**
2027	Aircraft	4,746.06	4,881.88	41.874	41.874	518.85	520.40	1,713,091.00
	GSE LTO	28.63	779.51	1.374	1.492	0.25	21.17	16,428.47
	APU	133.23	121.87	18.734	18.734	18.24	10.34	66,002.95
	Total	**4,907.92**	**5,783.26**	**61.98**	**62.10**	**537.33**	**551.91**	**1,795,522.42**

Source: HMMH AEDT analysis, 2025

2.4.3 Difference between No Action and Proposed Action Alternatives

Table 12 presents the calculation of the differences in emissions between the No Action and Proposed Action Alternatives. Because the modeling for each of the scenarios assumes no change to the number and mix of aircraft flight operations in the year, the differences stem from the runway use changes and the associated taxi times changes.

Table 12 . Difference in Aircraft-Related Operational Emissions for Construction Years

Year	Alternative	Pollutant (tons per year)						
		NO_x	CO	$PM_{2.5}$	PM_{10}	SO_x	VOC	CO_2
2026	Proposed Action	4,774.94	5,689.27	61.48	61.59	524.71	547.73	1,755,604.19
	No Action	4,744.68	5,538.34	60.85	60.97	515.65	536.29	1,734,233.44
	Difference	**30.26**	**150.93**	**0.63**	**0.63**	**9.05**	**11.44**	**21,370.75**
2027	Proposed Action	4,907.92	5,783.26	61.98	62.10	537.33	551.91	1,795,522.42
	No Action	4,875.03	5,622.48	61.31	61.43	527.57	540.22	1,772,618.67
	Difference	**32.89**	**160.78**	**0.67**	**0.67**	**9.76**	**11.69**	**22,903.75**

Source: HMMH AEDT analysis, 2025

APPENDIX B: PUBLIC NOTICE

Notice of Availability of the Draft Environmental Assessment and Draft General Conformity Determination for the Proposed Runway 18L/36R Rehabilitation Project at Dallas Fort Worth International Airport

Agency: Federal Aviation Administration (FAA)

Airport Sponsor: Dallas Fort Worth International Airport Board

FAA Unique Identifier: EAXX-021-12-ARP-1755678924

In accordance with the National Environmental Policy Act of 1969, as amended (NEPA), FAA Order 1050.1G, FAA Order 5050.4B, and the Clean Air Act (CAA) General Conformity requirements in 40 CFR Part 93 (CAA Section 176(c)), the FAA is announcing the availability of and requesting comments on the Draft Environmental Assessment (Draft EA) and Draft General Conformity Determination for the Proposed Runway 18L/36R Rehabilitation Project at Dallas Fort Worth International Airport (DFW).

DFW Airport is proposing to complete the Runway 18L/36R Rehabilitation Project (Project). Runway 18L/36R is a mission critical asset, and the proposed rehabilitation will extend its structural life, improve safety, reduce costs, and reduce operational impacts associated with maintenance activities.

The Draft EA evaluates the potential environmental effects of the Proposed Project, in accordance with NEPA, FAA Order 1050.1G, and FAA Order 5050.4B. The Draft EA includes an analysis of reasonable alternatives, potential environmental impacts, and mitigation measures. Because the Proposed Project is in an area designated as nonattainment for Ozone, the FAA has also prepared a Draft General Conformity Determination pursuant to Section 176(c) of the Clean Air Act and 40 CFR Part 93. The Draft General Conformity Determination evaluates whether the project conforms to the applicable Texas State Implementation Plan (SIP).

From February 1, 2026 to March 3, 2026, the Draft EA and Draft General Conformity Determination will be available for public review online at https://www.dfwairport.com/business/about/publications/ and in person, during normal business hours, at the DFW Environmental Affairs Department located at 3003 S. Service Road, Annex A, DFW Airport, Texas 75261. Please call 972-973-5560 to schedule an appointment for an in-person review. Additionally, hard copies of the Draft EA and Draft General Conformity Determination are available at the public libraries listed below; please contact the local library to schedule viewing times.

1. West Irving Library at 4444 W Rochelle Road, Irving, Texas 75062, Phone: (972) 721-2600
2. Valley Ranch Library at 401 Cimarron Trail, Irving, Texas 75063, Phone: (972) 721-4669
3. Dallas College North Lake Campus Library, 5001 N MacArthur Boulevard, Irving, Texas 75038, Phone: (972) 273-3400
4. Cozby Library and Community Commons, 177 N Heartz Road, Coppell, Texas 75019, Phone: (972) 304-3658
5. Euless Library, 201 N Ector Drive Euless, Texas 76039, Phone: (817) 685-1400
6. Grapevine Public Library, 1201 Municipal Way Grapevine, Texas 76057, Phone: (817) 410-3400
7. Southlake Public Library, 1400 Main Street #130 Southlake, Texas 76092, Phone: (817) 748-8243

FAA and DFW invite the public to review and comment on the Draft EA and Draft General Conformity Determination. Comments can be submitted electronically using the online comment form, or via e-mail at publiccomment@dfwairport.com, or by postal mail to the address provided on the comment form. The public comment period extends from February 1, 2026 through March 3, 2026. All comments on the Draft EA and Draft General Conformity Determination must be received by 11:59 p.m. Central Standard Time (CST) on March 3, 2026, to be considered. Substantive comments received during the public comment period will be thoroughly reviewed and taken into consideration in the preparation of the Final EA.

APPENDIX C: TCEQ LETTER OF CONCURRENCE WITH THE DRAFT GENERAL CONFORMITY DETERMINATION

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

December 17, 2025

John MacFarlane
Federal Aviation Administration
Airports Division, Planning and Programming Branch
10101 Hillwood Parkway, Fort Worth, TX 76177
VIA EMAIL

Subject: General Conformity Concurrence for the Dallas-Fort Worth International Airport Runway 18L/36R Rehabilitation Project

Dear John MacFarlane:

The Texas Commission on Environmental Quality (TCEQ) completed its review of the Draft General Conformity Determination for the Dallas-Fort Worth International Airport (DFWIA) Runway 18L/36R Rehabilitation Project received October 20, 2025, with final revisions received December 4, 2025. The draft determination was prepared by DFWIA for the Federal Aviation Administration (FAA). TCEQ reviewed the action in accordance with the general conformity requirements established in Title 40 Code of Federal Regulations (CFR) Part 93, Subpart B and concurs that the project conforms to the Texas State Implementation Plan (SIP).

The proposed action is located in the Dallas-Fort Worth (DFW) ozone nonattainment area, which is currently classified by the U.S. Environmental Protection Agency as severe for the 2008 eight-hour ozone standard and serious for the 2015 eight-hour ozone standard. The general conformity demonstration for this action relies on 40 CFR §93.158(a)(5)(i)(a), and the applicable SIP revision is the DFW portion of the *Dallas-Fort Worth and Houston-Galveston-Brazoria Serious Classification Reasonable Further Progress State Implementation Plan Revision for the 2008 Eight-Hour Ozone National Ambient Air Quality Standard* (DFW 2008 Ozone NAAQS Serious RFP SIP Revision), adopted March 4, 2020, and approved by the EPA effective May 24, 2023 (88 FR 24693).

DFWIA presented data showing that the proposed action would result in nitrogen oxides emissions exceeding the 25 tons per year *de minimis* threshold for general conformity in 2026 and 2027. Based on comparing the emissions estimated for this action with the quantification of overall excess creditable reasonable further progress (RFP) emissions reductions in the applicable SIP revision that would be available after meeting the 2020 RFP emissions reduction target, establishing a motor vehicle emissions budget safety margin for transportation conformity (40 CFR §93.101), and accounting for previously proposed federal actions that relied on the current applicable SIP revision to demonstrate conformity, TCEQ concurs with the determination.[1]

[1] TCEQ provided general conformity concurrence on two previous FAA actions at the Dallas-Fort Worth International Airport and one action at the McKinney National Airport that relied on 40 CFR §93.158(a)(5)(i)(a) to demonstrate conformity with the DFW 2008 Ozone NAAQS Serious RFP SIP Revision.

If you require further assistance on this matter, please contact Sarah Thomas of the Air Quality Division at 512-239-4939 or sarah.thomas@tceq.texas.gov.

Sincerely,

Donna F. Huff

Digitally signed by Donna F. Huff
Date: 2025.12.17 16:21:51 -06'00'

Donna F. Huff
Deputy Director Air Quality Division

cc: Melanie Magee, U.S. Environmental Protection Agency, Region 6

Appendix D – Noise Technical Report

Draft

Noise Technical Report

DFW Runway 18L/36R Rehabilitation EA

October 2025

Prepared for:

Dallas-Fort Worth International Airport
DFW Airport, Texas 75261

Prepared by:

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HMMH Report No: 23-0095C.003.001

Quality Assurance Review

This document has been reviewed for accuracy and completeness to meet quality assurance standards established by HMMH. A signature indicates approval of this document.

As primary author, I have reviewed the document for accurate technical content.

Sept. 24, 2025

Kate Larson, Senior Managing Consultant — Date
Primary Author

I have reviewed the document for compliance with HMMH's quality assurance/quality control standards.

Oct. 22, 2025

Robert Mentzer, Principal Consultant — Date
Technical Reviewer

I have reviewed the document for copyediting and formatting purposes.

Oct. 22, 2025

Erin Greenfield, Technical Editor — Date
Editorial Reviewer

As Project Manager, I have reviewed the document for overall structure, content, and accuracy.

Oct. 22, 2025

Kate Larson, Senior Managing Consultant — Date
Project Manager

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1. Background

The Dallas Fort Worth International Airport (DFW or Airport) is proposing a project to rehabilitate Runway 18L/36R. DFW's airfield is over 40 years old. In order to maintain safe and efficient airfield operations periodic runway closures to address pavement issues are required. The proposed project is comprised of the rehabilitation of Runway 18L/36R and its shoulders, upgrades to the electrical systems and components, and a full asphalt overlay. The proposed Runway 18L/36R rehabilitation project is expected to change the operations of aircraft with respect to runway use during construction only. A primary concern related to the runway closure during rehabilitation of the runway relates to the potential changes to aircraft noise impacts over noise-sensitive land uses. Because the proposed project would impact flight operations, a detailed noise analysis is required per Federal Aviation Administration (FAA) Orders 5050.4B and 1050.1G, which specify the procedures for evaluating aircraft noise impacts.

The purpose of this Noise Technical Report is to provide analyses and documentation to support the DFW Environmental Affairs Department's (EAD) development of an Environmental Assessment (EA) for the Runway 18L/36R Rehabilitation project. The focus of this document is to present the findings of the Existing Condition and any future impacts associated with the Proposed Action.

1.1 Introduction to Noise Terminology

Information presented in this document relies upon a reader's understanding of the characteristics of noise (unwanted sound), the effects noise has on people and communities, and the metrics or descriptors commonly used to quantify noise. The properties, measurement, and presentation of noise involve specialized terminology that can be difficult to understand. This section presents an overview and **Appendix A** contains more information on noise metrics.

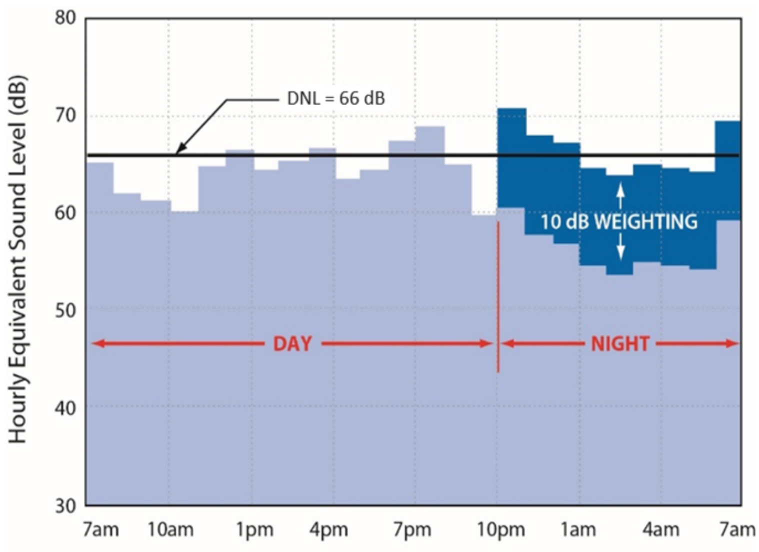
Sound is a physical phenomenon consisting of very small vibrations (waveforms) that travel through a medium such as air or water. **Noise** is sound that is unwelcome because of its undesirable effects on people (e.g., speech interference, sleep disturbance) or on entire communities (annoyance).

Noise metrics may be thought of as measures of noise 'dose.' There are two main types of noise metrics, which describe (1) single noise events (single-event noise metrics) and (2) total noise experienced over longer time periods (cumulative noise metrics). Single-event metrics indicate the intrusiveness, loudness, or noisiness of individual aircraft noises. Cumulative metrics, used to measure long-term noise, indicate community annoyance. Unless otherwise noted, all noise metrics presented in the EA documentation are reported in terms of the A-weighted decibel (dBA or dB).

Annoyance is greater when an intrusive sound occurs at night. As is implied in its name, the Day-Night Average Sound Level (DNL) represents the noise energy present during a 24-hour period. However, for purposes of the National Environmental Policy Act (NEPA), it is calculated through use of aircraft operations data averaged over the course of a year . The DNL reported in NEPA documentation is often referred to as the annual-average DNL.

DNL represents noise as it occurs over a 24-hour period, treating noise events occurring at night (10 p.m. to 6:59 a.m.) with a 10 dB weighting.[1] This weighting is applied to account for greater sensitivity to nighttime noise and the fact that events at night are often perceived to be more intrusive than daytime. **Figure 1-1** illustrates the application of the weighting. An alternative way of describing this adjustment is that each event occurring during the nighttime period is calculated as if it were equivalent to 10 daytime events.

Figure 1-1. Example of a Day-Night Average Sound Level Calculation



Source: HMMH

1.2 Regulatory Setting

The analysis of aviation noise impacts from federal actions is the FAA's responsibility. Federal statutes, FAA regulations, and FAA guidance related to the consideration of noise impacts include the following.

14 CFR Part 36 Noise Standards: Aircraft Type and Airworthiness Certification

FAA's FAR Part 36 sets noise limits for aircraft certification and the procedures by which aircraft noise emission levels must be measured to determine compliance.[2] The regulation defines noise emission limits for turbojets, turboprops, and helicopters, classifying turbojets into categories referred to as stages based on noise levels at each of three locations: takeoff, landing, and to the side of the runway during takeoff (sideline). The categories are:

- Stage 1 aircraft are the oldest and usually have the loudest operations, having preceded the existence of any noise emission regulation. Rare examples include old, restored civil or military aircraft. There are no Stage 1 aircraft operating at DFW.

[1] For the regulatory definition of DNL see 14CFR Part 150 §150.7 Definitions eCFR :: 14 CFR Part 150 -- Airport Noise Compatibility Planning (FAR Part 150)

[2] https://www.ecfr.gov/current/title-14/part-36

- Stage 2 aircraft are less old and less noisy than Stage 1; they were the first aircraft types required to meet a noise limit. Subsequent regulation prohibits the operation of a Stage 2 aircraft in the continental U.S. There are no Stage 2 aircraft operating at DFW.
- Stage 3 aircraft were certified for service before 2006 and have relatively quiet jets, although some are Stage 2 aircraft that have been re-engined, or have been fitted with hushkits, enabling them to meet Stage 3 noise limits. Most of these, typically Boeing 727, 737-200, and McDonald Douglas DC9s, no longer operate in the U.S.
- Stage 4 aircraft are required to operate with a cumulative noise level at least 10 dB quieter than Stage 3 aircraft at the three prescribed measurement points. Jet aircraft certificated between January 1, 2006, and December 31, 2017, must meet the Stage 4 limits.
- Stage 5 aircraft are the newest and quietest aircraft. All aircraft certificated after January 1, 2018, must meet Stage 5 limits, which are a cumulative 7 dB below Stage 4 and 17 dB below Stage 3 aircraft limits. The Boeing 737MAX, 787, 747-8, and Airbus A220, A320 NEO, A350, and A380 are examples of aircraft that meet Stage 5 limits.

49 U.S.C. 44715, The Control and Abatement of Aircraft Noise and Sonic Boom Act of 1968, as amended

The Control and Abatement of Aircraft Noise and Sonic Boom Act authorizes the FAA to prescribe standards for the measurement of aircraft noise and establish regulations to abate noise.[3]

49 U.S.C. 4901-4918, The Noise Control Act of 1972

The Noise Control Act amends The Control and Abatement of Aircraft Noise Sonic Boom Act of 1968 to add consideration of the protection of public health and welfare and to add the EPA to the rulemaking process for aircraft noise and sonic boom standards.

Federal Aviation Noise Abatement Policy

In 1976, the Secretary of Transportation and the Administrator of the FAA issued the Aviation Noise Abatement Policy (ANAP), the first comprehensive aviation noise abatement policy in the U.S. In defining the "aircraft noise problem," this policy characterized aircraft noise exposure of DNL 65 to 75 dBA in residential areas as "significant" and DNL 75 dBA or more as "severe," and related these noise exposure levels to previously used interpretations of expected community actions based on case studies. The ANAP also identified DNL 65 dBA as the noise exposure level above which aircraft noise "create[s] a significant annoyance for most residents," but it did not provide any additional information supporting this characterization.

49 U.S.C. 47501 et seq., The Aviation Safety and Noise Abatement Act of 1979, as amended

The Aviation Safety and Noise Abatement Act of 1979 (ASNA) was enacted in February 1980 to provide assistance to encourage airport operators to prepare and carry out noise compatibility programs, among other purposes. ASNA required the FAA to promulgate regulations to meet three key requirements:

[3] https://www.govinfo.gov/content/pkg/USCODE-2020-title49/pdf/USCODE-2020-title49-subtitleVII-partA-subpartiii-chap447-sec44715.pdf

- Establish a single, uniform, repeatable system for considering aviation noise around airport communities.
- Establish a single system for determining noise exposure from aircraft, which takes into account noise intensity, duration of exposure, frequency of operations, and time of occurrence.
- Identify land uses which are normally compatible with various exposures of individuals to noise.

To implement the requirements established under ASNA, the FAA then published 14 Code of Federal Regulations (CFR) Part 150, more commonly known as "Part 150."

49 U.S.C. 47101 et seq., The Airport and Airway Improvement Act of 1982, as amended

The Airport and Airway Improvement Act authorizes funding for noise mitigation and noise compatibility planning and projects, and establishes certain requirements related to noise-compatible land use for federally-funded airport development projects.

49 U.S.C. 47521-47534, The Airport Noise and Capacity Act of 1990

The Airport Noise and Capacity Act of 1990 (ANCA) directed the U.S. Secretary of Transportation to undertake three key noise-related actions:

- Establish a schedule for a phase out of Part 36 Stage 2 aircraft by the year 2000.
- Establish a program for FAA review of all new airport noise and access restrictions limiting operations of Stage 2 aircraft.
- Establish a program for FAA review and approval of any restriction that limits operations of Stage 3 aircraft, including public notice requirements.

FAA addressed these requirements through amendment of existing federal regulation and establishment of a new regulation, “Part 161.”

14 CFR Part 150, Airport Noise Compatibility Planning

First implemented in February 1981, FAR Part 150 defines procedures that an airport operator must follow if it chooses to conduct and implement an airport noise and land use compatibility plan.[4] Part 150 Noise Compatibility studies require the use of DNL to evaluate the airport noise environment. FAR Part 150 identifies noise compatibility guidelines for different land uses depending on their sensitivity. Key values include a DNL of 75 dB, above which no residences, schools, hospitals, or churches are considered compatible, and a DNL of 65 dB, above which those land uses are considered compatible only if they are sound insulated.

14 CFR Part 161, Notice and Approval of Airport Noise and Access Restrictions

FAA implemented the ANCA requirements related to notice, analysis, and approval of use restrictions affecting Stage 2 and Stage 3 aircraft through the establishment of a new regulation, 14 CFR Part 161.[5] In simple terms, Part 161 requires an airport operator that proposes to implement a restriction on Stage 2 or Stage 3 aircraft operations to undertake, document, and publicize certain benefit-cost analyses, comparing the noise benefits

[4] https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-150

[5] https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-161

of the restriction to its economic costs. Operators must obtain specific FAA approvals of the analysis, documentation, and notice processes, and – for Stage 3 restrictions – approval of the restriction itself.

Part 161 and ANCA define more demanding requirements and explicit guidance for Stage 3 restrictions. To implement a Stage 3 restriction, formal FAA approval is required. FAA's role for Stage 2 restrictions is limited to commenting on compliance with Part 161 notice and analysis procedural requirements. ANCA and Part 161 specifically exempt Stage 3 use restrictions that were effective on or before October 1, 1990, and Stage 2 restrictions that were proposed before that date.

49 U.S.C. 47534, Prohibition on Operating Certain Aircraft Weighing 75,000 Pounds or Less Not Complying with Stage 3 Noise Levels [section 506 of the FAA Modernization and Reform Act of 2012]

After December 31, 2015, a person may not operate a civil subsonic jet airplane with a maximum weight of 75,000 pounds or less unless the Secretary of Transportation finds that the aircraft complies with Stage 3 noise levels.

FAA Order 1050.1G, Environmental Impacts: Policies and Procedures

This Order serves as the FAA policy and procedures for compliance with NEPA. The provisions of this Order apply to actions directly undertaken by the FAA and to actions undertaken by a non-Federal entity where the FAA has authority to condition a permit, license, or other approval. The requirements in this Order apply to, but are not limited to, the following actions: grants, loans, contracts, leases, construction and installation actions, procedural actions, research activities, rulemaking and regulatory actions, certifications, licensing, permits, plans submitted to the FAA by state and local agencies for approval, and legislation proposed by the FAA. Order 1050.1G provides the specific requirements for this EA.

FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions

The Federal Aviation Administration’s Office of Airports (ARP) is responsible for identifying major Federal actions involving the Nation’s public-use airports. After determining that an airport sponsor is proposing a major Federal action such as this EA, ARP is responsible for analyzing the environmental effects of that action and its alternatives. Order 5050.4B provides instruction on evaluating those environmental effects. Order 5050.4B supplements FAA Order 1050.1G, “Environmental Impacts: Policies and Procedures.”

These laws and guidance documents specify the use of DNL—the Day-Night Average Sound Level—as the noise metric used in all FAA aviation noise studies in airport communities. DNL, a cumulative sound level, provides a measure of total sound energy. DNL is a logarithmic average of the sound levels of multiple events at one location over a 24-hour period. A 10 dB weighting is added to all sounds occurring during nighttime hours (between 10:00 p.m. and 6:59 a.m.). The weighting for nighttime noise events is intended to account for the added intrusiveness of noise during typical sleeping hours, as ambient sound levels during nighttime hours are typically about 10 dB lower than during daytime hours.

For a NEPA noise analysis, the FAA requires that the 24-hour analysis period represent the average annual day (AAD). The AAD reflects the daily aircraft operations averaged over a 365-day period. Further details on noise metrics, including DNL, can be found in **Appendix A**.

Estimates of noise effects resulting from aircraft operations can be interpreted in terms of the probable effects on human activities that typically occur within specific land uses. The FAA has adopted guidelines for evaluating land-use compatibility with noise exposure. In general, most land uses are considered compatible with DNL less than 65 dB, but only certain uses are compatible with DNL greater than or equal to 65 dB. **Section 1.3** contains further details on land use compatibility.

The noise analysis compares the No Action and Proposed Action Alternative for the forecast conditions using the FAA's thresholds of significance. **Table 1-1** defines the significance threshold for changes in noise in accordance with FAA Order 1050.1G. When an action (compared to the No Action Alternative for the same timeframe) would cause noise-sensitive areas to have a DNL greater than or equal to 65 dB and experience a change in noise of at least 1.5 dB, the impact is considered significant. For example, an increase from No Action 65.5 DNL to Proposed Action 67 DNL is considered a significant impact, as is an increase from No Action 63.5 DNL to Proposed Action 65 DNL. **Table 1-1** also lists FAA defined reportable changes in noise levels.

Table 1-1. Aircraft DNL Thresholds and Impact Categories

Impact Category	65 DNL or Greater	Greater than or equal to 60 DNL but less than 65 DNL	Greater than or equal to 45 DNL but less than 60 DNL
Minimum Change in DNL when compared to the higher of the Proposed Action or No Action Alternative DNL	1.5 dB	3.0 dB	5.0 dB
Level of Change	Significant	Reportable	Reportable

Source: FAA Order 1050.1G and the 1050.1 Desk Reference[6]

1.3 Noise Compatible Land Use

NEPA requires the review of land uses located in the airport environs to understand the relationship between those land uses and the noise exposure associated with arriving and departing aircraft. This includes delineation of land uses within the 65 DNL and higher aircraft noise exposure contours on the noise contour exhibits and identification of noise sensitive uses that may be noncompatible with that level of noise exposure. Identification of a noise sensitive use within the 65 DNL contour does not necessarily mean that the use is either considered noncompatible or that it is eligible for mitigation. Rather, identification merely indicates that the use is generally considered noncompatible but requires further investigation. Factors that influence compatibility and/or eligibility may include but are not limited to previous sound reduction treatments, current interior noise levels, structure condition, ambient and self-generated noise levels, whether a given use is considered temporary or permanent, and the timeframe within which a given structure was constructed.

This chapter provides a description of recommended land uses that are deemed generally compatible under Appendix A of Part 150.

1.3.1 Land Use Compatibility Guidelines

The objective of airport noise compatibility planning is to promote compatible land use in communities surrounding airports. The FAA has published land use compatibility designations, as set forth in Part 150,

[6] 1050.1 Desk Reference

Appendix A, Table 1 (reproduced here as **Table 1-2**)[7]. As the table indicates, the FAA generally considers all land uses to be compatible with aircraft-related DNL below 65 dB, including residential, hotels, retirement homes, intermediate care facilities, hospitals, nursing homes, schools, preschools, and libraries. These categories are referenced throughout the EA. Institutional or Public land use consists of schools, hospitals, nursing homes, churches, auditoriums, concert halls, governmental services, transportation, and parking. While all these uses are compatible with aircraft-related DNL below 65 dB, schools without noise mitigation are not compatible in areas exposed to DNL 65 and above; therefore, schools are listed separately in the EA.

Table 1-2. Part 150 Land Use Compatibility with Yearly Day-Night Average Sound Levels

Land Use	Yearly Day-Night Average Sound Level [DNL] in Decibels (Key and notes on following page)					
	<65	65-70	70-75	75-80	80-85	>85
Residential Use						
Residential other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail–building materials, hardware, and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade–general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Table Source: FAA Part 150, Appendix A, Table 1, 2007

SLUCM: Standard Land Use Coding Manual
Y(Yes): Land use and related structures compatible without restrictions.
N(No): Land use and related structures are not compatible and should be prohibited.
NLR: Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

[7] Appendix A, Part 150 Table 1 can be found in 14 CFR Part 150, Airport Noise Compatibility Planning https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-150

25, 30, or 35: Land use and related structures generally compatible; measures to achieve NLR of 25 dBA, 30 dBA, or 35 dBA must be incorporated into design and construction of structure.

Table Notes:

The designations contained in this table do not constitute a federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dBA and 30 dBA should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dBA, thus, the reduction requirements are often stated as 5 dBA, 10 dBA, or 15 dBA over standard construction and normally assume mechanical ventilation and closed windows year-round. However, the use of NLR criteria will not eliminate outdoor noise problems.
(2) Measures to achieve NLR of 25 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
(3) Measures to achieve NLR of 30 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.
(4) Measures to achieve NLR of 35 dBA must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas, or where the normal noise level is low.
(5) Land use compatible provided special sound reinforcement systems are installed.
(6) Residential buildings require an NLR of 25 dBA.
(7) Residential buildings require an NLR of 30 dBA.
(8) Residential buildings not permitted.

1.3.2 Study Area and Existing Land Use

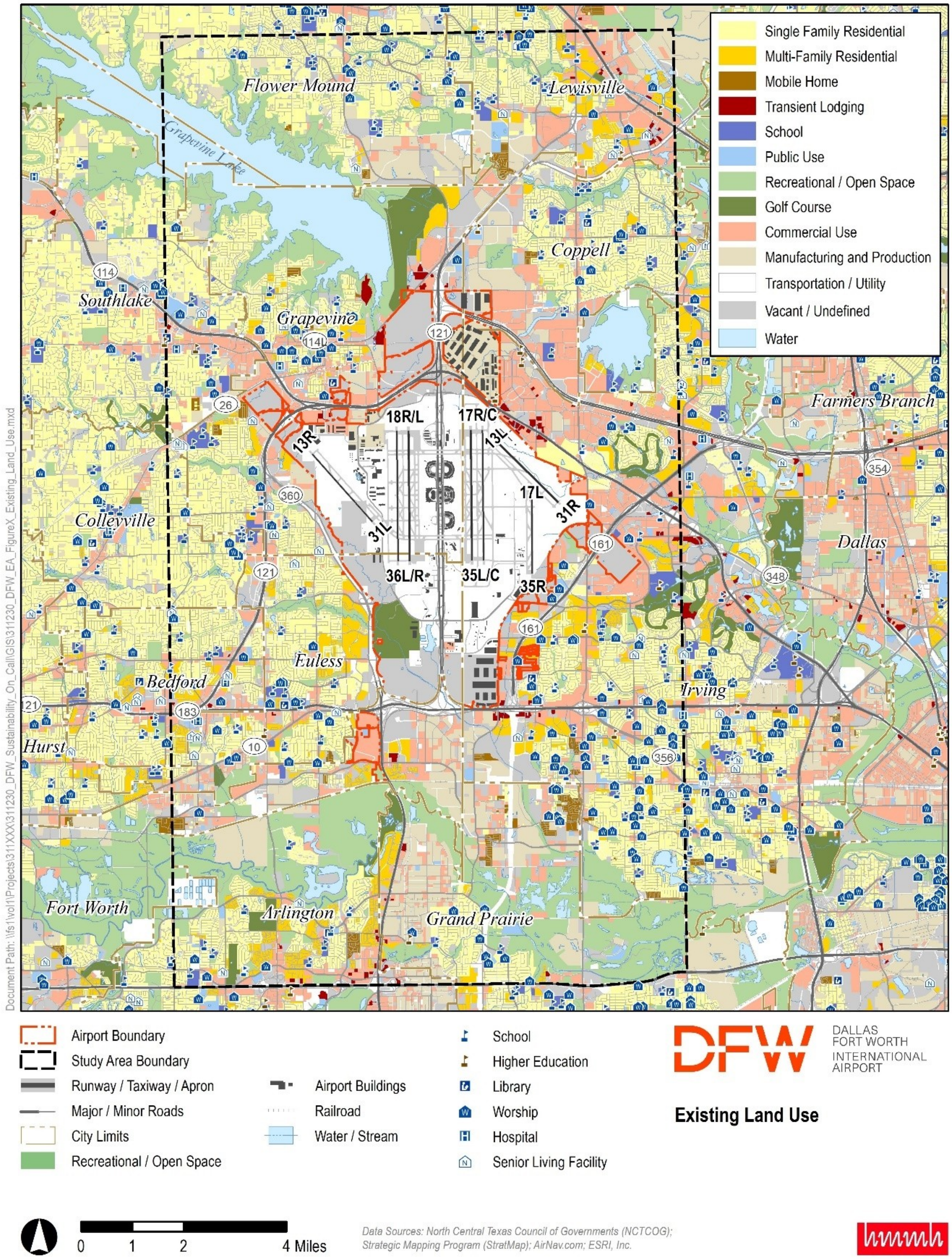
To adequately capture the effects of aircraft noise, the noise study area (NSA) must include not only the immediate airport environs, where aircraft flight paths are aligned with the runways, but also other potentially affected areas over which aircraft would fly as they follow any modified flight corridors that join the surrounding airspace. The NSA was developed to encompass an area that would contain at least the lateral extent of the estimated 60 DNL contour resulting from aircraft flight and ground operations contemplated under the Proposed Action, with an adequate buffer to accommodate potential changes in the contour between the No Action and the Proposed Action Alternatives. **Figure 1-2** displays the NSA on the land use map. The NSA is approximately 4 nautical miles (nmi) to the east and west and 8 nmi to the north and south.

DFW is located on over 17,200 acres between the two Texas cities it is named for, approximately 12 miles northwest of downtown Dallas, in Dallas County, and 12 miles northeast of downtown Fort Worth, in Tarrant County. The Airport is located north of Texas State Highway (SH) 183 and south of SH 114.

Existing land use in the study area consists of the DFW property, residential uses, commercial, and industrial land uses, as shown on **Figure 1-2**. DFW is surrounded to the west and southeast by residential areas consisting of single-family and multi-family residences. The area to the north is primarily industrial and commercial facilities with areas of residential land use located in Coppell to the northeast. The area directly south is commercial and industrial with residential areas located further south in Grand Prairie.

All non-residential noise sensitive sites in the NSA (such as schools, nursing homes, hospitals and places of worship) have been identified and are shown on **Figure 1-2**. Any potential noncompatible land use and the noise sensitive sites within the study area are evaluated in the EA.

Figure 1-2. Land Use and Noise Study Area



2. Noise Modeling Methodology

The following sections describe the modeling methodology for the noise analysis of the Existing Condition, future No Action, and future Proposed Action Alternatives.

2.1 Aviation Environmental Design Tool (AEDT)

For an action occurring on, or in the vicinity of a single airport, or as part of an air traffic action, FAA requires the use of the latest version of the Aviation Environmental Design Tool (AEDT) for detailed noise modeling or another model, as approved by FAA. The model must be used to produce 65 DNL, 70 DNL, and 75 DNL contours, and other noise calculations as needed.

The aircraft noise analysis for this EA uses AEDT Version 3g (released August 28, 2024). All AEDT modeling conducted for this study adheres to “Guidance on Using the AEDT to Conduct Environmental modeling for FAA Actions Subject to NEPA” (FAA 2017). AEDT is a combined noise and emission model that uses a database of aircraft noise and performance characteristics. The AEDT predicts ground based DNL values from user input for aircraft types, AAD aircraft operations, airport operating conditions, aircraft performance, and flight patterns. AEDT also calculates air pollutant emissions from aircraft engines for air quality analyses, enables noise and air quality calculations on a regional basis (as opposed to in the immediate airport environment only), and includes updated databases for newer aircraft models.

The noise pattern calculated by the AEDT for an airport is a function of several factors, including: the number of aircraft operations during the period evaluated, the types of aircraft flown, the time of day when they are flown, the way they are flown, how frequently each runway is used for landing and takeoff, and the routes of flight used to and from the runways. Substantial variations in any one of these factors may, when extended over a long period of time, cause marked changes to the noise pattern.

The primary data input categories for the AEDT are:

- **Airfield layout**, which includes the coordinates of each runway centerline endpoint, runway widths, approach threshold crossing heights, and runway end elevations.
- **Meteorological data**, which refers to weather conditions affecting sound propagation and aircraft performance. AEDT’s database of airports was accessed to obtain annual average daily DFW weather conditions. AEDT’s airport database contains 10-year average meteorological data (from 2014 through 2023), which AEDT uses to adjust aircraft performance and sound propagation parameters from standard day conditions.
    - Temperature: 66.94° F
    - Station Pressure: 994.62 mbar
    - Sea Level Pressure: 1015.68 mbar
    - Dew point: 52.89° F
    - Relative humidity: 60.75%
    - Wind Speed: 9.33 knots

- **Terrain data**, which refers to ground elevations. AEDT uses terrain data to adjust the aircraft-to-ground path length, which is the distance between the modeled location on the ground and the aircraft in flight, making the ground closer to or farther from the aircraft relative to flat-earth conditions. AEDT does not use terrain data to account for shielding or reflective effects of terrain.
- Specific aircraft types in DFW's **fleet mix, defined by airframe and engine type combinations**. All aircraft types evaluated for the DFW modeling are either in the AEDT database or have approved substitutions within the model.
- **Aircraft flight operations**, which are numbers of AAD aircraft operations by DNL time periods and by aircraft type. **Daytime is defined as 7:00 a.m. to 9:59 p.m**. **and nighttime is defined as 10:00 p.m. to 6:59 a.m**. Departures and arrivals were the two types of flight operations modeled for the EA. Touch-and-go or circuit operations are not conducted at DFW.
- **Aircraft noise and performance characteristics**. The AEDT database contains noise and performance data for more than 300 different fixed-wing aircraft types. AEDT accesses the noise and performance data for takeoff, landing, and pattern operations by those aircraft. The database provides single-event noise levels for slant distances from 200 feet to 25,000 feet for several thrust or power settings for each aircraft type. Performance data includes thrust, speed, and altitude profiles for takeoffs and landings. For those aircraft types operating at DFW which are not directly represented in the AEDT database, the AEDT contains FAA-approved substitutions for noise modeling.
- **Stage length**, which is a surrogate for an aircraft's weight that varies according to its fuel load. Stage length is assigned according to each departure's trip distance to its destination, using city-pair information from the Noise and Operations Monitoring System (NOMS) data and calculating the great-circle distance from DFW to the indicated destination airport. The assigned stage length then determines the appropriate flight performance profile from the AEDT database.
- **Flight profiles**, which are based on standard flight procedures for each aircraft type contained in the AEDT database. Information in the flight profiles describe the sequence of altitudes, thrust/power settings, and airspeeds for departure and arrival operations.
- **Runway use**, which is the allocation of flight operations to each runway, on an AAD basis, by DNL time periods, operation type, and aircraft type.
- **Flight tracks and their usage**. A flight track is the two-dimensional projection of the aircraft's three-dimensional flight path onto the ground. A modeled flight track represents one or more actual flight tracks. Modeled flight tracks for a given flight corridor typically consist of a backbone track and sub-tracks which represent the average location and dispersion of the actual flights in the corridor. Each backbone flight track typically represents a general heading for departures or originating point for arrivals. As each runway usually has multiple headings and originating points, the distribution of operations, or track use, on an AAD basis, must be specified. Operations are further spread across backbone tracks and sub-tracks via statistical distribution percentages.

2.2 Noise Exposure Contours

Noise contours (i.e., lines of equal noise exposure, usually expressed in terms of DNL) are typically used to illustrate average daily noise exposure around an airport. Noise contours are conceptually similar to topographic contour maps. A set of concentric contours, representing successively lower DNL, usually extends away from the airport's runways. DNL contours are typically presented in 5 dB increments on a base map, with each successive contour representing a 5 dB decrease in noise exposure on an AAD basis. Contours developed for the EA represent 60 DNL, 65 DNL, 70 DNL, and 75 DNL. The 60 DNL contour is provided for informational purposes; FAA guidelines for noise compatibility begin at the 65 DNL contour.

For purposes of the EA, the noise contours show areas exposed to each DNL level. **Section 3.6** presents the Existing Condition contours; **Sections 4.3** and **4.4** present the noise contours for the future year alternatives. It is important to recognize that a line drawn on a map does not imply that a particular noise condition exists on one side of the line and not the other. **Appendix A** contains further information on noise and its effects on people.

2.3 Grid Point Noise Calculations

Besides noise contours, the AEDT provides another way to show noise levels in the airport environs. DNL (or other metrics supported by the AEDT) can be calculated for specific locations, defined as grid points, and can be presented in a number of formats. Grid point analyses can show the change in noise levels over specific locations and are helpful in determining where significant or reportable noise changes may occur.

For the EA, noise levels are developed for two area-wide grid sets. The NSA grid points are defined to cover the complete NSA area and an outer set of points (the Secondary Study Grid) is defined to generally capture areas that would be exposed to levels in the range of 45 DNL to 60 DNL for one or more of the analyzed alternatives. The NSA grid consists of a rectangle with points spaced 0.05 nmi (303 feet) apart, extending approximately 5 nmi to the east and west and 9 nmi to the north and south from the Airport Reference Point (which is near the geographic center of DFW's runways). The Secondary Study Grid consists of a rectangle with points spaced 0.1 nmi (608 feet) apart, extending approximately 10 nmi to the east and west and 20 nmi to the north and south from the Airport Reference Point (which is near the geographic center of DFW's runways).

3. Existing Conditions

This section provides a description of current aircraft noise conditions within the study area. The Existing Conditions for this EA represent aircraft operations for calendar year 2024.

3.1 Aircraft Activity Levels and Fleet Mix

Data from DFW's NOMS and from the FAA's Operations Network (OPSNET) form the basis of the Existing Condition noise model inputs. The NOMS data provided the aircraft fleet mix and runway use. The operations were grouped into FAA operational categories (Air Carrier, Air Taxi, General Aviation, and Military) and the totals were scaled to match the annual OPSNET counts. The commercial categories (air carrier and air taxi) were separated to display both passenger and cargo operations as shown in **Table 3-1.**

The total operations count for 2024 was 743,203. **Table 3-1** presents the annual operations modeled for the Existing Conditions. Further details on the existing level of operations can be found in **Appendix C**.

Table 3-1. Existing Conditions (2024) Operations

Time frame	Air Carrier Passenger	Air Carrier Cargo	Air Taxi Passenger	Air Taxi Cargo	General Aviation	Military	Total
Full Year	705,825	16,573	10,580	4,290	5,724	211	743,203
Annual Average Day	1,928.5	45.3	28.9	11.7	15.6	0.6	2,030.6

Sources: DFW NOMS, FAA OPSNET, FAA TAF, HMMH analysis

Table 3-2 provides the average daily operations, by aircraft type, that were used in AEDT to model the Existing Conditions. The average daily number of aircraft arrivals and departures for 2024 are calculated by dividing the total annual operations by 366 (days in the year). The Existing Conditions annual average day includes 2,030.6 total operations, 11.8 percent of which occurred during the DNL nighttime hours of 10:00 p.m. to 6:59 a.m.

Table 3-2. DFW Modeled Average Daily Aircraft Operations for Existing Conditions (2024)

Tower Category	Propulsion	AEDT ANP Type	Arrivals Day	Arrivals Night	Departures Day	Departures Night	Total
Air Carrier Cargo	Jet	747400	0.8	0.4	0.8	0.4	2.5
Air Carrier Cargo	Jet	7478	0.9	0.7	1.0	0.6	3.2
Air Carrier Cargo	Jet	757PW	0.8	<0.1	0.8	0.1	1.8
Air Carrier Cargo	Jet	757RR	1.2	0.1	1.1	0.2	2.6
Air Carrier Cargo	Jet	7673ER	5.5	2.5	4.3	3.8	16.1
Air Carrier Cargo	Jet	777300	1.8	1.1	1.1	1.8	5.7
Air Carrier Cargo	Jet	A300-622R	2.5	0.2	2.3	0.4	5.4
Air Carrier Cargo	Jet	MD11GE	1.1	0.9	1.2	0.8	4.0
Air Carrier Cargo	Jet	MD11PW	1.0	1.0	1.2	0.8	4.0
Air Carrier Passenger	Jet	737700	17.5	2.6	18.4	1.7	40.2
Air Carrier Passenger	Jet	737800	203.9	28.1	210.8	21.1	463.8
Air Carrier Passenger	Jet	7378MAX	7.7	2.7	9.3	1.0	20.7
Air Carrier Passenger	Jet	747400	0.9	0.4	0.9	0.4	2.5
Air Carrier Passenger	Jet	7478	<0.1	0.3	0.2	0.1	0.6

Tower Category	Propulsion	AEDT ANP Type	Arrivals Day	Arrivals Night	Departures Day	Departures Night	Total
Air Carrier Passenger	Jet	777200	5.8	0.7	6.2	0.3	13.0
Air Carrier Passenger	Jet	7773ER	5.3	<0.1	4.6	0.7	10.7
Air Carrier Passenger	Jet	7878R	5.8	2.5	8.2	<0.1	16.5
Air Carrier Passenger	Jet	7879	9.2	1.5	9.2	1.5	21.4
Air Carrier Passenger	Jet	A319-131	65.5	6.6	65.5	6.5	144.1
Air Carrier Passenger	Jet	A320-211	18.5	3.3	19.0	2.8	43.6
Air Carrier Passenger	Jet	A320-232	30.0	4.2	30.9	3.3	68.3
Air Carrier Passenger	Jet	A320-270N	22.0	8.3	22.2	8.1	60.6
Air Carrier Passenger	Jet	A321-232	175.5	28.9	180.9	23.5	408.8
Air Carrier Passenger	Jet	A330-301	0.8	<0.1	<0.1	0.8	1.7
Air Carrier Passenger	Jet	A330-343	0.4	0.0	0.4	<0.1	0.8
Air Carrier Passenger	Jet	A340-211	0.5	0.0	0.5	0.0	1.0
Air Carrier Passenger	Jet	A350-941	3.1	<0.1	2.4	0.7	6.2
Air Carrier Passenger	Jet	A380-841	0.9	<0.1	0.8	<0.1	1.8
Air Carrier Passenger	Regional Jet	CRJ9-ER	82.3	12.6	86.8	8.1	189.7
Air Carrier Passenger	Regional Jet	EMB170	33.3	4.5	34.4	3.5	75.8
Air Carrier Passenger	Regional Jet	EMB175	152.1	15.2	153.6	13.7	334.6
Air Carrier Passenger	Regional Jet	EMB190	1.0	<0.1	1.0	<0.1	2.0
Air Carrier Total	-	-	**857.5**	**129.4**	**880.3**	**106.6**	**1,973.8**
Air Taxi Cargo	Non-Jet	1900D	1.0	<0.1	0.7	0.3	2.1
Air Taxi Cargo	Non-Jet	CNA208	2.8	0.7	3.0	0.4	6.9
Air Taxi Cargo	Non-Jet	DHC6	0.7	<0.1	0.6	0.1	1.5
Air Taxi Cargo	Non-Jet	SF340	0.4	0.2	0.6	<0.1	1.3
Air Taxi Passenger	Jet	CL600	0.8	<0.1	0.8	<0.1	1.7
Air Taxi Passenger	Jet	CNA55B	1.5	<0.1	1.5	<0.1	3.2
Air Taxi Passenger	Jet	CNA560XL	0.8	<0.1	0.9	<0.1	1.8
Air Taxi Passenger	Jet	CNA680	2.3	0.1	2.3	<0.1	4.9
Air Taxi Passenger	Regional Jet	CL600	1.0	<0.1	1.0	<0.1	2.0
Air Taxi Passenger	Regional Jet	EMB145	0.7	<0.1	0.7	<0.1	1.3
Air Taxi Passenger	Regional Jet	EMB14L	1.8	0.0	1.8	<0.1	3.7
Air Taxi Passenger	Non-Jet	CNA208	5.1	<0.1	5.0	0.1	10.4
Air Taxi Total	-	-					
General Aviation	Jet	CL600	0.9	<0.1	0.9	<0.1	1.8
General Aviation	Jet	CL601	2.0	0.1	2.1	<0.1	4.3
General Aviation	Jet	CNA55B	1.0	<0.1	0.9	<0.1	2.0
General Aviation	Jet	CNA560XL	1.6	<0.1	1.6	0.1	3.4
General Aviation	Non-Jet	CNA172	0.6	0.2	0.5	0.3	1.5
General Aviation	Non-Jet	CNA208	0.7	<0.1	0.7	<0.1	1.5
General Aviation	Non-Jet	DHC6	0.6	0.0	0.5	<0.1	1.1
General Aviation Total	-	-	**7.3**	**0.5**	**7.1**	**0.7**	**15.6**
Military	Jet	C17	0.1	0.0	0.1	<0.1	0.3
Military	Jet	LEAR35	0.1	<0.1	0.1	0.0	0.2
Military	Non-Jet	C130AD	<0.1	0.0	<0.1	0.0	<0.1
Military Total	-	-	**0.3**	**<0.1**	**0.3**	**<0.1**	**0.6**
Grand Total	-	-	**884.0**	**131.3**	**906.6**	**108.7**	**2,030.6**

Note: Totals may not match exactly due to rounding.

Sources: DFW NOMS, FAA OPSNET, FAA TAF, HMMH analysis

3.2 Aircraft Stage Length and Operational Profiles

Within the AEDT database, aircraft departure profiles are defined by a range of trip distances identified as "stage lengths." Higher stage lengths (longer trip distances) are associated with heavier aircraft due to the increase in fuel requirements for the flight. For example, a departure aircraft with a trip distance less than 500 nmi would be assigned a stage length value of one, where a departure aircraft with a trip distance of 3,000 nmi would be assigned a stage length value of five. **Table 3-3** provides the stage length classifications by their associated trip distances and **Table 3-4** presents the modeled stage length distribution by AEDT aircraft type, developed from the NOMS data. Typically, widebody aircraft which operate on long haul routes have the highest stage lengths. Many smaller aircraft have only a "stage length 1" profile defined in the AEDT database. For some aircraft types, AEDT uses an "M" stage length designation to indicate the maximum weight departure profile defined for that aircraft.

Table 3-3. AEDT Stage Length Categories

Category	Stage Length (nmi)
1	0-500
2	500-1000
3	1000-1500
4	1500-2500
5	2500-3500
6	3500-4500
7	4500-5500
8	5500-6500
9	6500+

Source: FAA's AEDT 3g User Manual

AEDT includes standard flight procedure data for each aircraft that represents each phase of flight to or from the airport. Information related to aircraft speed, altitude, thrust settings, flap settings, and distance are available and used by AEDT to calculate noise levels on the ground. Standard aircraft departure profiles are supplied from the runway (field elevation) up to 10,000 feet above ground level (AGL). Aircraft arrival profiles are supplied from 6,000 feet AGL down to the runway including the application of reverse thrust and rollout. The FAA requires that these standard arrival and departure profiles be used unless there is evidence that they are not applicable. The noise calculations presented in this document used the standard AEDT departure profiles.

Table 3-4. Existing Conditions - Modeled Departure Stage Length Distribution by Aircraft Type

Propulsion	AEDT ANP Type	1	2	3	4	5	6	7	8	9	M
Jet	737700	3%	26%	71%	-	-	-	-	-	-	-
Jet	737800	21%	46%	32%	2%	-	-	-	-	-	-
Jet	7378MAX	12%	24%	58%	6%	-	-	-	-	-	-
Jet	747400	2%	5%	33%	-	33%	14%	-	13%	-	-
Jet	7478	-	69%	3%	-	28%	-	-	-	-	-
Jet	757PW	44%	35%	21%	-	-	-	-	-	-	-
Jet	757RR	44%	34%	22%	-	-	-	-	-	-	-
Jet	7673ER	22%	57%	21%	-	-	-	-	-	-	-
Jet	777200	1%	13%	10%	2%	8%	46%	13%	8%	-	-
Jet	777300	1%	21%	-	-	19%	30%	29%	-	-	-
Jet	7773ER	1%	4%	2%	-	-	58%	-	14%	21%	-
Jet	7878R	1%	10%	10%	-	24%	19%	5%	31%	-	-
Jet	7879	0%	11%	4%	-	3%	27%	9%	20%	-	25%
Jet	A300-622R	20%	56%	24%	-	-	-	-	-	-	-
Jet	A319-131	28%	49%	22%	1%	-	-	-	-	-	-
Jet	A320-211	18%	59%	23%	-	-	-	-	-	-	-
Jet	A320-232	20%	49%	31%	0%	-	-	-	-	-	-
Jet	A320-270N	7%	65%	25%	4%	-	-	-	-	-	-
Jet	A321-232	6%	59%	33%	1%	0%	-	-	-	-	-
Jet	A330-301	-	-	-	-	-	100%	-	-	-	-
Jet	A330-343	-	-	-	-	-	100%	-	-	-	-
Jet	A340-211	-	-	-	-	-	100%	-	-	-	-
Jet	A350-941	-	-	-	-	-	-	26%	17%	-	57%
Jet	A380-841	-	-	-	-	-	100%	-	-	-	-
Jet	CL600	100%	-	-	-	-	-	-	-	-	-
Jet	CL601	100%	-	-	-	-	-	-	-	-	-
Jet	CNA55B	100%	-	-	-	-	-	-	-	-	-
Jet	CNA560XL	100%	-	-	-	-	-	-	-	-	-
Jet	CNA680	100%	-	-	-	-	-	-	-	-	-
Jet	CRJ9-ER	65%	35%	0%	-	-	-	-	-	-	-
Jet	EMB145	100%	-	-	-	-	-	-	-	-	-
Jet	EMB14L	100%	-	-	-	-	-	-	-	-	-
Jet	EMB170	77%	23%	0%	-	-	-	-	-	-	-
Jet	EMB175	63%	36%	1%	-	-	-	-	-	-	-
Jet	EMB190	-	94%	6%	-	-	-	-	-	-	-
Jet	MD11GE	33%	57%	10%	-	-	-	-	-	-	-
Jet	MD11PW	-	84%	16%	-	-	-	-	-	-	-
Jet	C17	100%	-	-	-	-	-	-	-	-	-
Jet	LEAR35	100%	-	-	-	-	-	-	-	-	-
Non-Jet	C130AD	100%	-	-	-	-	-	-	-	-	-
Non-Jet	1900D	100%	-	-	-	-	-	-	-	-	-
Non-Jet	CNA172	100%	-	-	-	-	-	-	-	-	-
Non-Jet	CNA208	100%	-	-	-	-	-	-	-	-	-
Non-Jet	DHC6	100%	-	-	-	-	-	-	-	-	-
Non-Jet	SF340	88%	12%	-	-	-	-	-	-	-	-

Source: DFW NOMS, HMMH analysis

3.3 Runway Definition

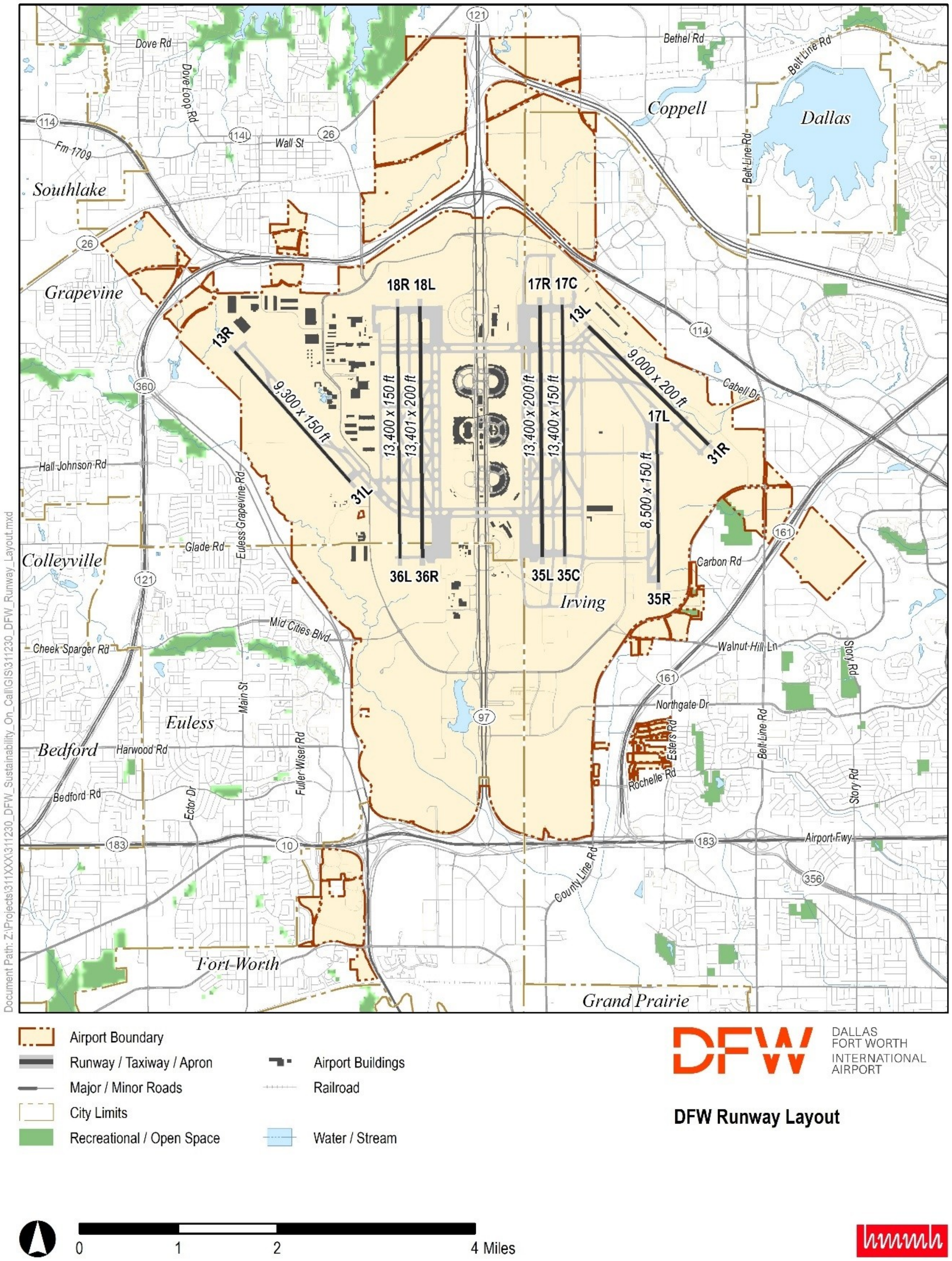
DFW has two main runway complexes: the east side and west side, comprised of seven runways oriented primarily in a north-south direction; four on the east side (13L/31R, 17C/35C, 17L/35R, 17R/35L) and three on the west side (13R/31L, 18L/36R, and 18R/36L). **Table 3-5** provides the length and width of the current runways at DFW. The current runway layout can be seen in **Figure 3-1.**

Table 3-5. DFW Runways - Existing Conditions

Runway	Length (feet)	Width (feet)
13L/31R	9,000	200
13R/31L	9,300	150
17C/35C	13,400	150
17L/35R	8,500	150
17R/35L	13,400	200
18L/36R	13,401	200
18R/36L	13,400	150

Source: FAA Airport Data and Information Portal (ADIP), accessed May 29, 2025

Figure 3-1. DFW Runway Layout



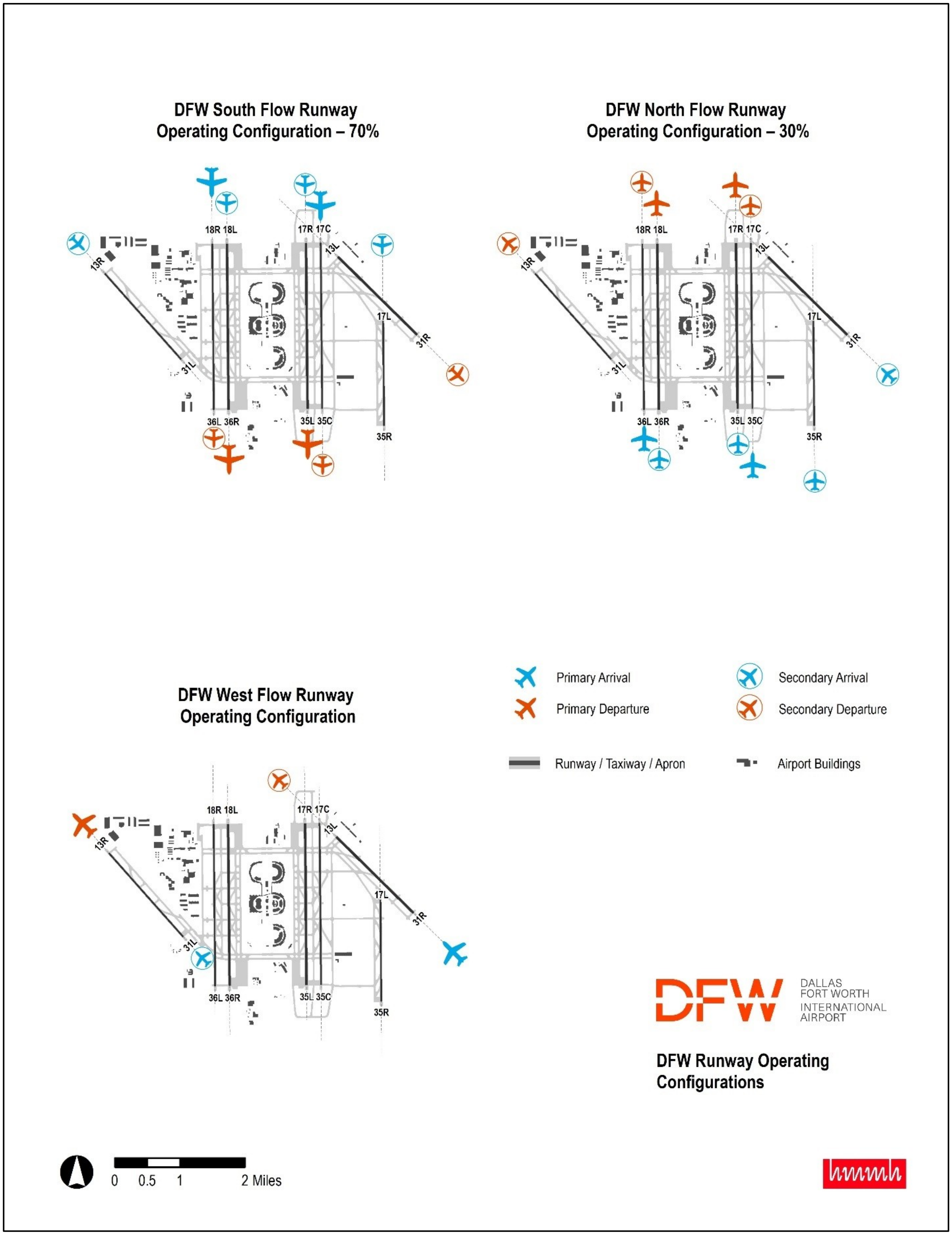
DFW typically uses its north/south parallel runways for most arrivals and departures. Aircraft typically arrive on the outermost main north/south runways, as well as some of the outboards, and depart on the innermost main north/south runways (inboards). Based on historical conditions, the Airport is operated in one of two main operating configurations – south flow (approximately 70 percent of the time) or north flow (approximately 30 percent of the time) as shown in **Figure 3-2**. Aircraft normally take off and land into the wind. However, runway end utilization can also be affected by aircraft type, type of activity, and if applicable any airport runway use plans. **Table 3-6** provides a brief description of how each runway shown in **Figure 3-1** and **Figure 3-2** is typically used at DFW.

Table 3-6. DFW Runways – Typical Runway Use

Runway	South Flow	North Flow
Runway 13R	Diagonal runway in the west airfield used as a secondary arrival runway. Typically, no departures.	
Runway 18R	Primary arrival runway in the west airfield. It is also used as a secondary departure runway.	
Runway 18L	Primary departure runway in the west airfield. It is also used as a secondary arrival runway.	
Runway 17R	Primary departure runway in the east airfield. It is also used as a secondary arrival runway.	
Runway 17C	Primary arrival runway in the east airfield. It is also used as a secondary departure runway.	
Runway 17L	Used as a secondary arrival runway in the east airfield. Typically, no departures.	
Runway 13L	Diagonal runway in the east airfield used as a secondary departure runway. Typically, no arrivals.	
Runway 31L		Diagonal runway in the west airfield not typically used unless needed due to runway closures, strong W/NW wind conditions (West Flow) or other factors. Typically, no arrivals unless needed during West Flow.
Runway 36L		Primary arrival runway in the west airfield. It is also used as a secondary departure runway.
Runway 36R		Primary departure runway in the west airfield. It is also used as a secondary arrival runway.
Runway 35L		Primary departure runway in the east airfield. It is also used as a secondary arrival runway.
Runway 35C		Primary arrival runway in the east airfield. It is also used as a secondary departure runway.
Runway 35R		Used as a secondary arrival runway in the east airfield. Typically, no departures.
Runway 31R		Diagonal runway in the east airfield used as a secondary arrival runway. Typically, no departures.

Source: DFW Runway Use Plan, 1996

Figure 3-2. DFW Runway Operating Configurations



3.4 Runway End Utilization

Runway end utilization refers to the percent of time that a particular runway end is used for departures or arrivals. It is a principal element in the definition of the noise exposure pattern. Proportional use of a runway is based largely on conditions of wind direction and velocity and the length of the runway.

HMMH calculated runway usage rates using operations data from the DFW NOMS for a recent 12-month period without any extended runway closures. DFW has had several runway reconstruction projects in the past two years, with the latest completed in October 2024. Because the EA noise analysis should reflect typical annual runway use, the modeling incorporated runway usage rates from October 2021 through September 2022, which is fiscal year [FY] 2022.[8]

The outboard runways (Runways 17L/35R, 13R/31L and 13L/31R) are open daily until 11.00 p.m. The development of runway usage noise model inputs for day and night includes the assumption that the outboard runways (Runways 17L/35R, 13L/31R and 13R/31L) are not typically used after 10 p.m. or before 6 a.m. Nighttime runway utilization reflects the predominant use of the main parallel runways for arrivals and departures[9].

The year's aircraft operations in the NOMS data were separated into jets and non-jets, then percentages calculated for departures and arrivals for the day and nighttime periods used in the calculation of DNL. The FY 2022 usage was normalized to the historical north flow (30 percent), south flow (70 percent) split. **Table 3-7** summarizes the modeled Existing Condition runway use.

Long haul departure flights (greater than Stage Length 5) for widebody aircraft types (747 types, 777 types, 787 types, A380 and A350) were limited to the four long parallels for departures to provide sufficient runway length.

[8] HMMH compared FY 2022 runway use data to the runway usage from November 2024 through September 2025; the values are within three percent or less.

[9] Per FAA, nighttime operations are defined as 10:00 p.m. to 6:59 a.m. in the calculation of DNL.

Table 3-7. Runway Use Percentages, Existing Condition

Propulsion	Runway	Day Arrivals	Night Arrivals	Day Departures	Night Departures
Jet	13L	--	--	<1%	--
Jet	13R	3%	<1%	<1%	--
Jet	17C	27%	32%	<1%	1%
Jet	17L	11%	1%	<1%	--
Jet	17R	<1%	7%	39%	33%
Jet	18L	<1%	4%	31%	31%
Jet	18R	28%	24%	<1%	6%
Jet	31L	<1%	0%	<1%	--
Jet	31R	<1%	<1%	<1%	--
Jet	35C	11%	14%	<1%	<1%
Jet	35L	<1%	3%	16%	15%
Jet	35R	5%	<1%	<1%	--
Jet	36L	12%	10%	<1%	2%
Jet	36R	<1%	1%	14%	13%
Jet Subtotal	**-**	**100%**	**100%**	**100%**	**100%**
Non-Jet	13L	<1%	--	<1%	<1%
Non-Jet	13R	28%	<1%	<1%	0%
Non-Jet	17C	9%	16%	3%	2%
Non-Jet	17L	23%	<1%	<1%	--
Non-Jet	17R	<1%	4%	38%	15%
Non-Jet	18L	<1%	5%	24%	18%
Non-Jet	18R	9%	44%	5%	34%
Non-Jet	31L	<1%	--	9%	2%
Non-Jet	31R	13%	--	<1%	--
Non-Jet	35C	2%	8%	2%	<1%
Non-Jet	35L	<1%	1%	15%	7%
Non-Jet	35R	3%	<1%	--	--
Non-Jet	36L	12%	18%	<1%	15%
Non-Jet	36R	<1%	1%	3%	5%
Non-Jet Subtotal	**-**	**100%**	**100%**	**100%**	**100%**
Overall	13L	<1%	--	<1%	<1%
Overall	13R	4%	<1%	<1%	--
Overall	17C	27%	32%	<1%	1%
Overall	17L	11%	1%	<1%	--
Overall	17R	<1%	7%	39%	32%
Overall	18L	<1%	4%	31%	30%
Overall	18R	28%	25%	<1%	7%
Overall	31L	<1%	--	<1%	<1%
Overall	31R	1%	<1%	<1%	--
Overall	35C	11%	14%	<1%	<1%
Overall	35L	<1%	3%	16%	14%
Overall	35R	5%	<1%	<1%	--
Overall	36L	12%	11%	<1%	3%
Overall	36R	<1%	1%	14%	12%
Overall Subtotal	**-**	**100%**	**100%**	**100%**	**100%**

Sources: DFW NOMS FY2022, HMMH analysis

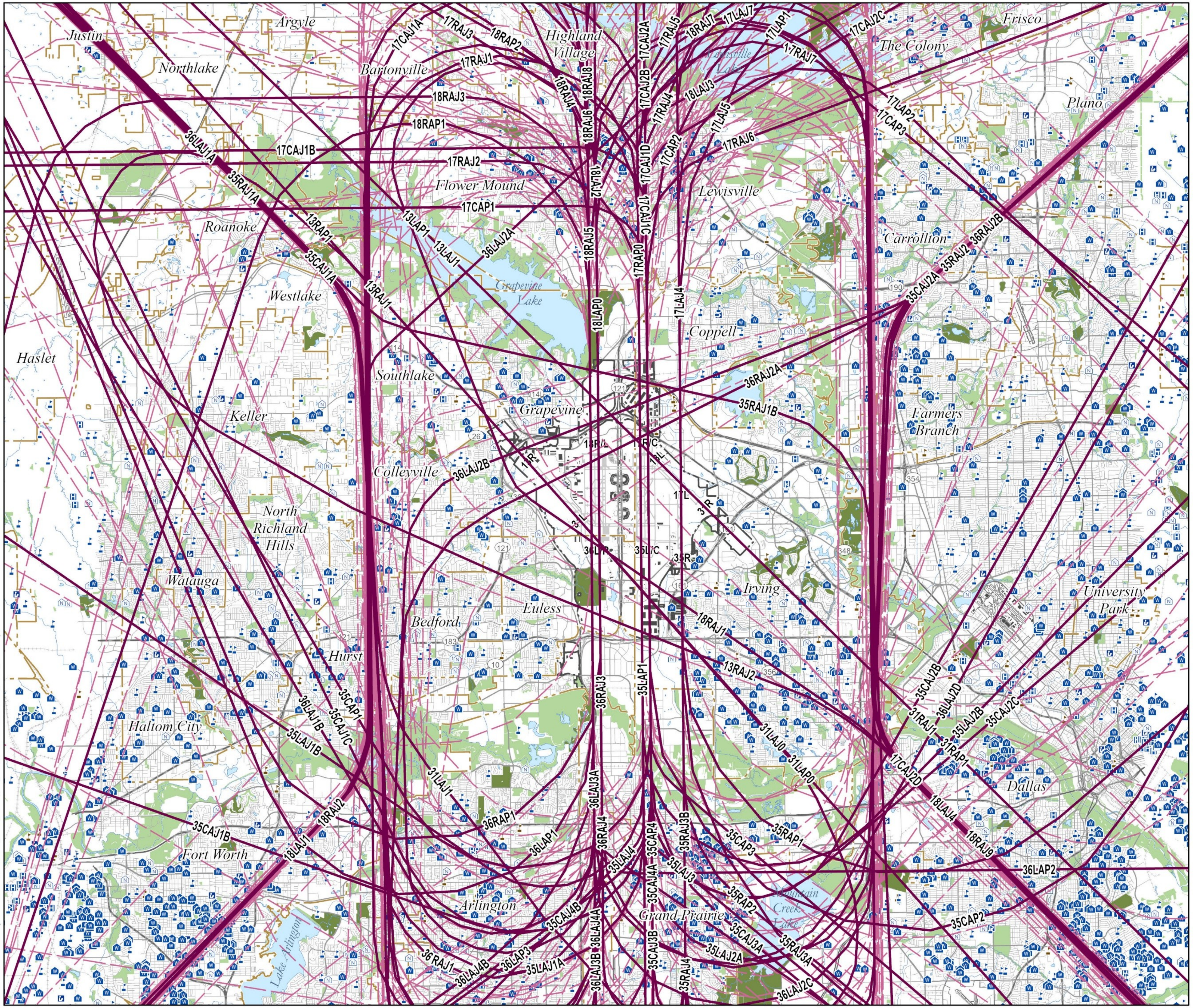
3.5 Flight Tracks

The flight tracks used in the modeling were originally developed from DFW NOMS data (under previous DFW noise analysis projects[10]), verified and revised where necessary based on the calendar year 2024 flight track data. HMMH used an industry-standard method to review the model tracks: analyzing a full year of DFW's current NOMS data, first separating the flight tracks into manageable groups by operation type, (i.e., arrival, departure), runway end, aircraft type (i.e., jet, non-jet) and destination/direction. For this EA, HMMH used radar data for the Existing Conditions period (calendar year 2024) to update the pre-existing AEDT model tracks to ensure that the tracks used in modeling are representative of how aircraft currently fly in and out of the airport. A total of 755 model tracks were obtained from the prior AEDT, consisting of 352 arrival tracks and 403 departure tracks. Two arrival tracks and three departure tracks were added to the prior AEDT model track set for a total of 760 model tracks. Slight modifications were made to the prior AEDT model track set based on the radar data evaluation. The FAA's established routes for aircraft arriving and departing from DFW are readily apparent in the analysis process.

The track data analysis verified the location, density, and width of existing flight corridors. Departure corridors are defined by a series of individual flight tracks located across the width of the corridor. Generally, aircraft on approach to a given runway end follow a narrower corridor due to the use of navigational instruments. To represent DFW flight corridors in AEDT, consolidated flight tracks were originally developed from the radar data and assigned a track ID. The resulting adjusted model flight tracks are shown in **Figure 3-3** (Arrival Tracks) and **Figure 3-4** (Departure Tracks). Geometrically similar groups with wide dispersion are represented as a track "bundle" with a 'backbone' track and one to four 'dispersion' sub tracks on either side of the backbone, resulting in three, five, seven, or nine total model tracks representing the corridor. All model tracks for jet and non-jet aircraft are presented in **Figure 3-3** and **Figure 3-4.**

Figure 3-5 through **Figure 3-8** illustrate the track analysis process, comparing the model track bundles to the actual radar flight tracks for the most heavily used arrival runway and departure runway under each traffic flow direction. **Figure 3-5** and **Figure 3-6** show south flow arrivals and departures, respectively; **Figure 3-7** and **Figure 3-8** show north flow arrivals and departures, respectively. **Appendix B** provides tables of the modeled flight track percentages by runway end and operation.

[10] DFW Runway 17R/35L Rehabilitation EA (2022) and revised as part of the 2024 Central Terminal Area Expansion Project.



DFW DALLAS FORT WORTH INTERNATIONAL AIRPORT

All Arrival Model Tracks

- Modeled Backbone Arrival Track (98)
- Modeled Dispersed Arrival Track (256)

- Airport Boundary
- Noise Study Area
- Runway / Taxiway / Apron
- Major / Minor Roads
- City Limits
- Airport Buildings
- Railroad
- Water / Stream

- School
- Higher Education
- Library
- Worship
- Hospital
- Senior Living Facility

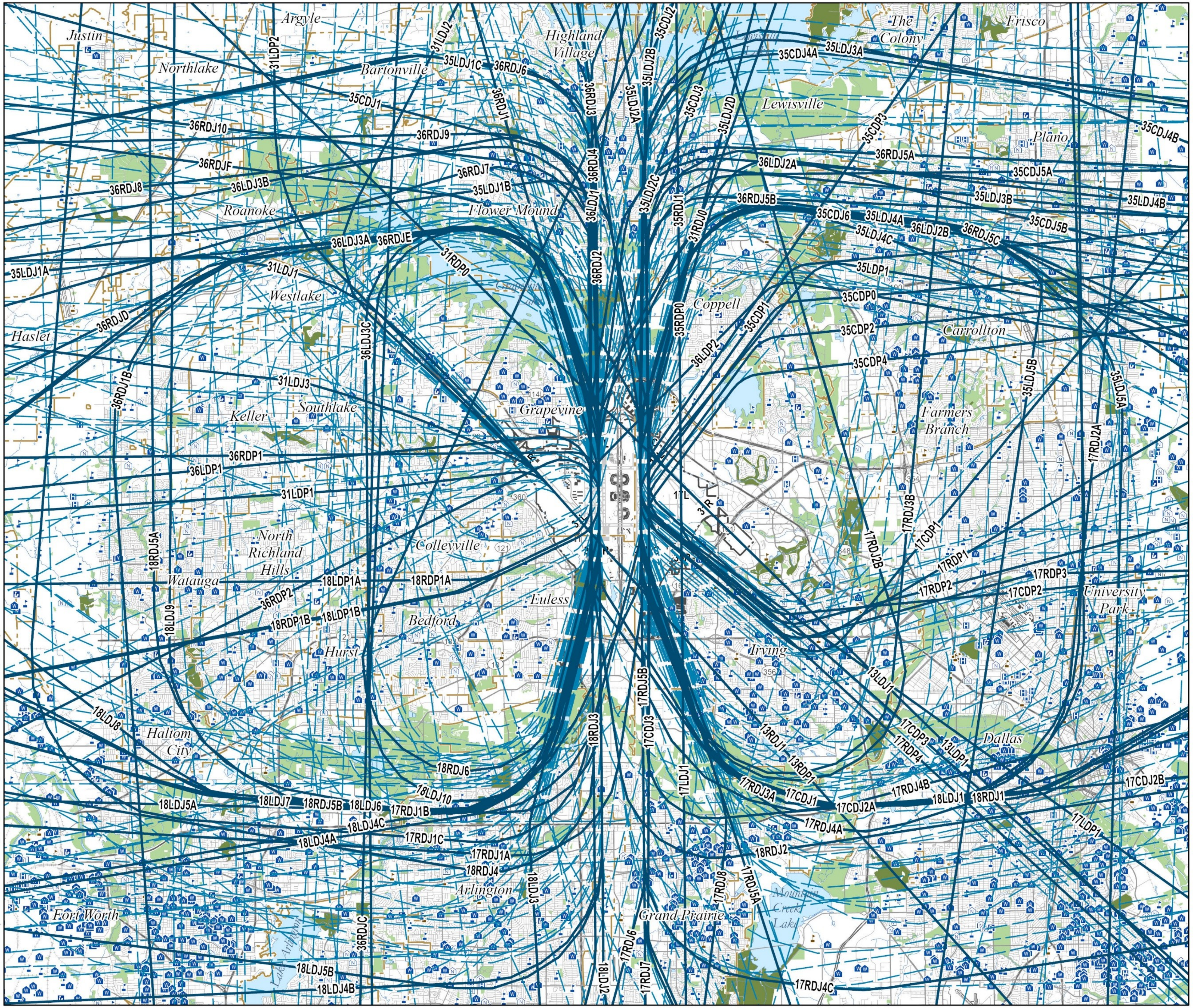
- Recreational / Open Space
- Golf Course

Figure 3-3. Modeled Arrival Flight Tracks

Data Sources: North Central Texas Council of Governments (NCTCOG); Strategic Mapping Program (StratMap); AirNav.com; ESRI, Inc.

0 1 2 4 Miles

hmmh



DALLAS FORT WORTH INTERNATIONAL AIRPORT

All Departure Model Tracks

- Modeled Backbone Departure Track (120)
- Modeled Dispersed Departure Track (286)

- Airport Boundary
- Noise Study Area
- Runway / Taxiway / Apron
- Major / Minor Roads
- City Limits
- Airport Buildings
- Railroad
- Water / Stream

- School
- Higher Education
- Library
- Worship
- Hospital
- Senior Living Facility

- Recreational / Open Space
- Golf Course

Figure 3-4. Modeled Departure Flight Tracks

Data Sources: North Central Texas Council of Governments (NCTCOG); Strategic Mapping Program (StratMap); AirNav.com; ESRI, Inc.

0 1 2 4 Miles

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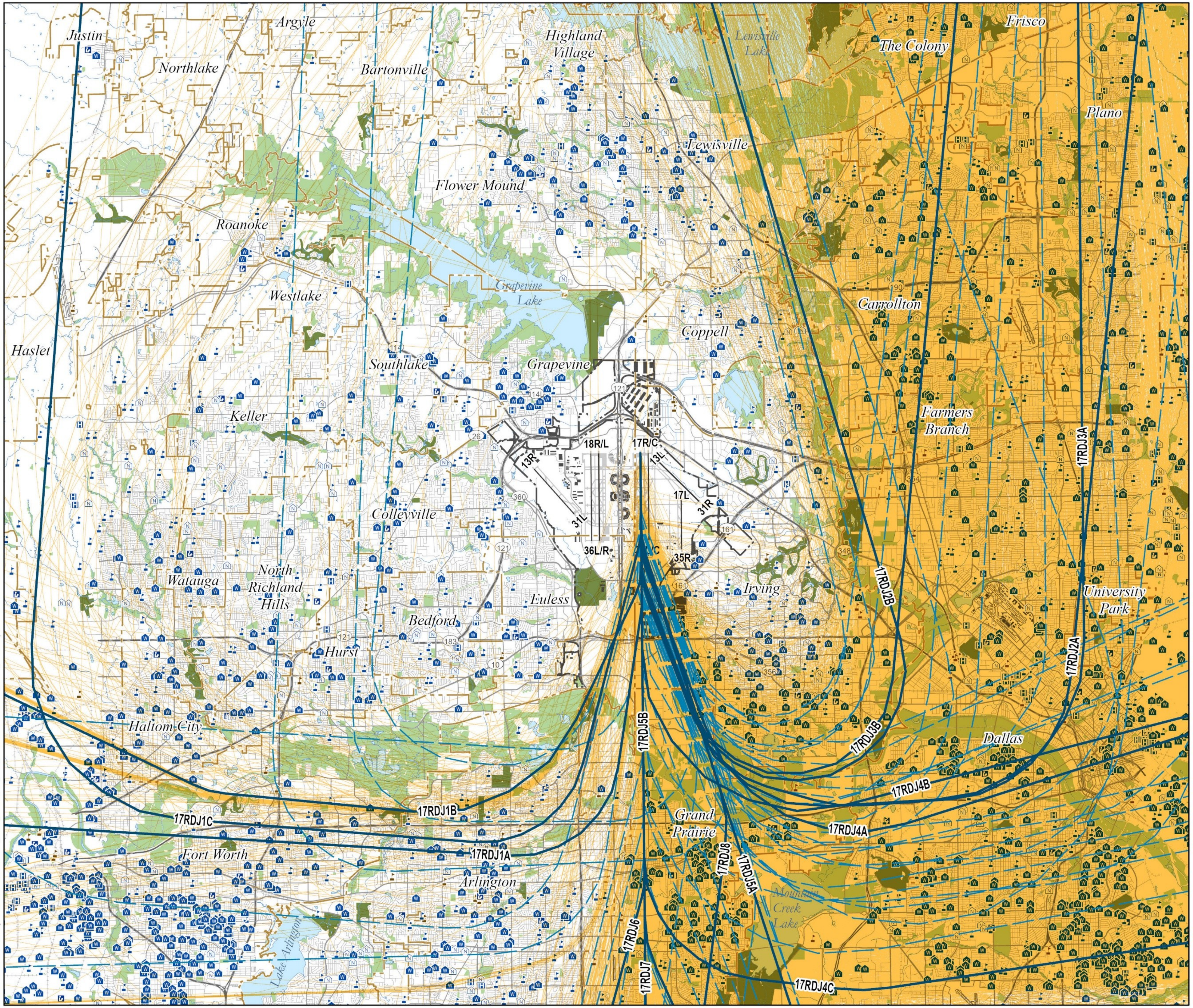


DFW DALLAS FORT WORTH INTERNATIONAL AIRPORT

Runway 17R Jet Departure Radar & Model Tracks

- Modeled Backbone Departure Track
- Modeled Dispersed Departure Track
- Radar Track

- Airport Boundary
- Noise Study Area
- Runway / Taxiway / Apron
- Major / Minor Roads
- City Limits
- Airport Buildings
- Railroad
- Water / Stream

- School
- Higher Education
- Library
- Worship
- Hospital
- Senior Living Facility

- Recreational / Open Space
- Golf Course

Figure 3-5. Sample South Flow Arrival Flight Tracks

Data Sources: North Central Texas Council of Governments (NCTCOG); Strategic Mapping Program (StratMap); AirNav.com; ESRI, Inc.

0 1 2 4 Miles

hmmh

DALLAS FORT WORTH INTERNATIONAL AIRPORT

Runway 18R Jet Arrival Radar & Model Tracks

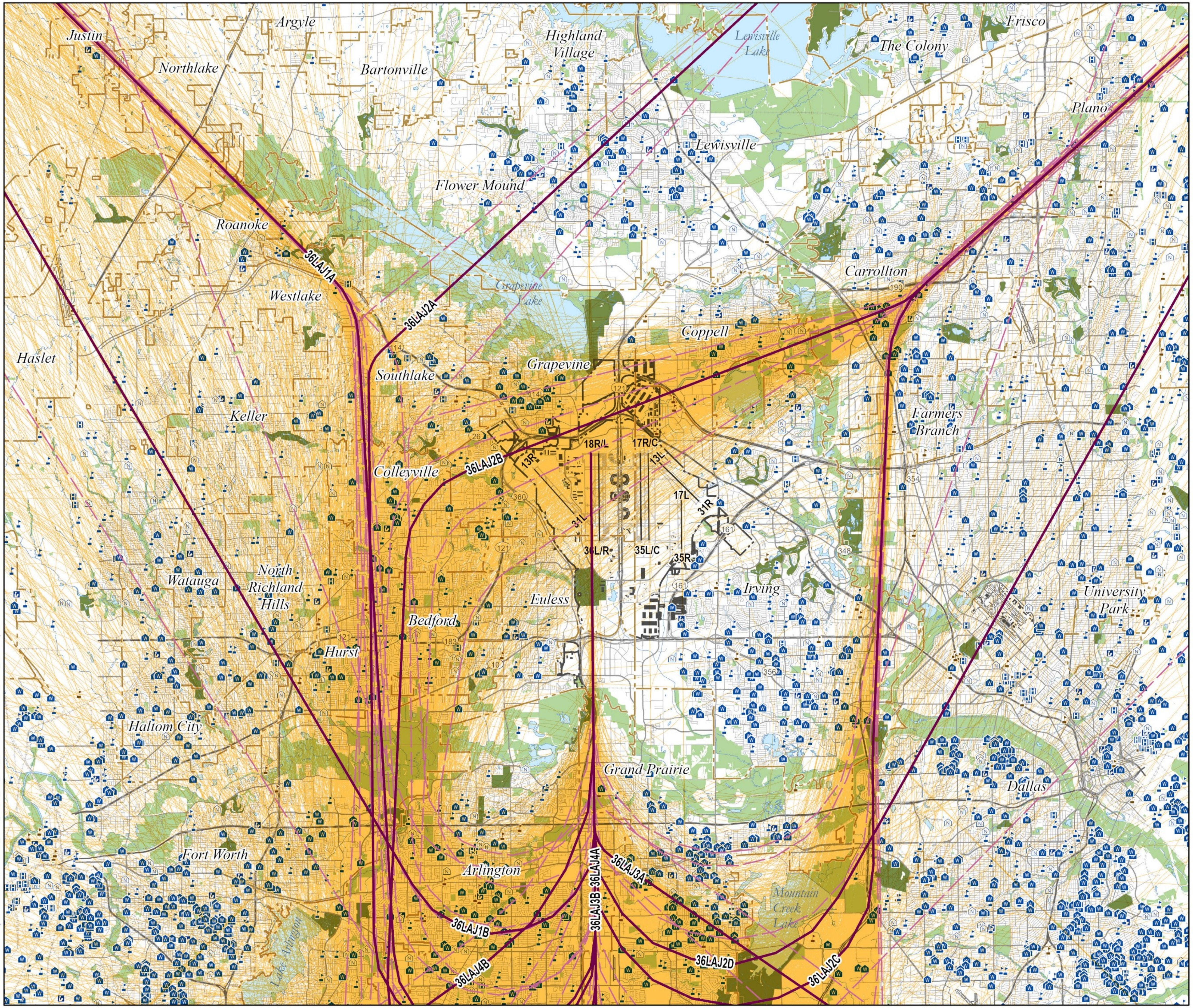
- Modeled Backbone Arrival Track
- Modeled Dispersed Arrival Track
- Radar Track
- Airport Boundary
- Noise Study Area
- Runway / Taxiway / Apron
- Major / Minor Roads
- City Limits
- Airport Buildings
- Railroad
- Water / Stream
- School
- Higher Education
- Library
- Worship
- Hospital
- Senior Living Facility
- Recreational / Open Space
- Golf Course

Figure 3-6. Sample South Flow Departure Flight Tracks

Data Sources: North Central Texas Council of Governments (NCTCOG); Strategic Mapping Program (StratMap); AirNav.com; ESRI, Inc.

0 1 2 4 Miles

hmmh



DFW
DALLAS FORT WORTH INTERNATIONAL AIRPORT

Runway 36L Jet Arrival Radar & Model Tracks

Modeled Backbone Arrival Track
Modeled Dispersed Arrival Track
Radar Track

Airport Boundary
Noise Study Area
Runway / Taxiway / Apron
Major / Minor Roads
City Limits
Airport Buildings
Railroad
Water / Stream

School
Higher Education
Library
Worship
Hospital
Senior Living Facility

Recreational / Open Space
Golf Course

Figure 3-7. Sample North Flow Arrival Flight Tracks

Data Sources: North Central Texas Council of Governments (NCTCOG); Strategic Mapping Program (StratMap); AirNav.com; ESRI, Inc.

0 1 2 4 Miles

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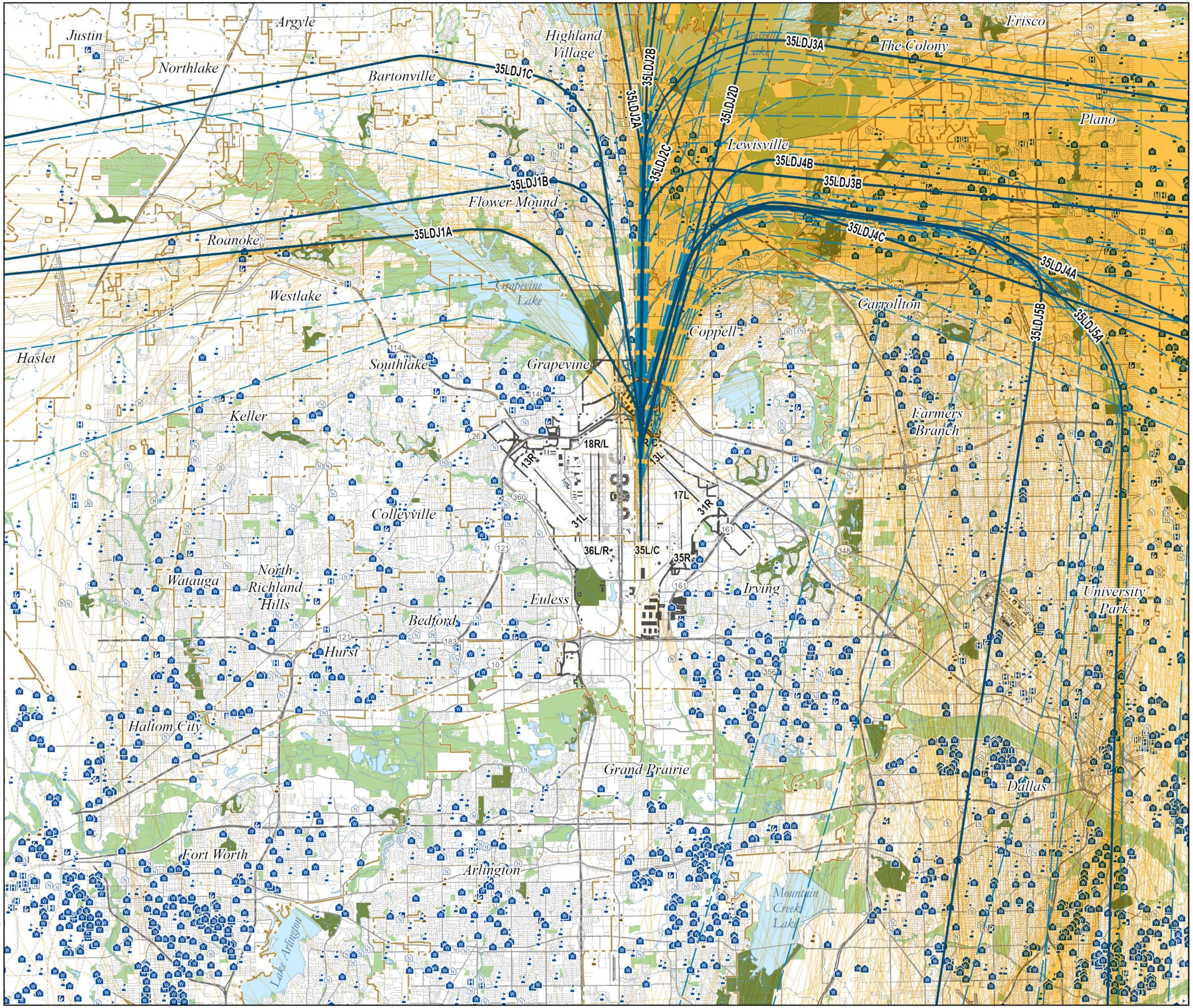

DFW DALLAS FORT WORTH INTERNATIONAL AIRPORT

Runway 35L Jet Departure Radar & Model Tracks

Modeled Backbone Departure Track
Modeled Dispersed Departure Track
Radar Track

Airport Boundary
Noise Study Area
Runway / Taxiway / Apron
Major / Minor Roads
City Limits
Airport Buildings
Railroad
Water / Stream

School
Higher Education
Library
Worship
Hospital
Senior Living Facility

Recreational / Open Space
Golf Course

Figure 3-8. Sample North Flow Departure Flight Tracks

Data Sources: North Central Texas Council of Governments (NCTCOG); Strategic Mapping Program (StratMap); AirNav.com; ESRI, Inc.

0 1 2 4 Miles

hmmh

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3.6 Existing Noise Exposure Contours

DNL contours are a graphic representation of how the noise from DFW's annual average daily aircraft operations is distributed over the surrounding area. The size and shape of the noise exposure contours are reflective of the south and north flow at DFW. Noise contour patterns extend from DFW along each extended runway centerline, reflective of the flight tracks used by all aircraft. The relative distance of a contour from DFW along each route is a function of the frequency of use of each runway end for total aircraft arrivals and departures, and the type of aircraft assigned to the respective runways.

Figure 3-9 shows the annual noise exposure pattern at DFW for the Existing Conditions. Noise contours are presented for 65 DNL, 70 DNL, and 75 DNL. For the Existing Conditions, the DNL contours reach away from DFW to both the north and south sides of the airport in two main lobes along the extended centerlines of the outboard main parallel runways. On the north side, the contours extend off DFW property over noise-compatible land use and, on the south side, the contour lobes remain on airport property. A separate area of the 65 DNL contour extends slightly off airport property over noise-compatible land use north and south of Runway 17L/35R. The 70 DNL contour for the Existing Conditions does not extend off DFW property.

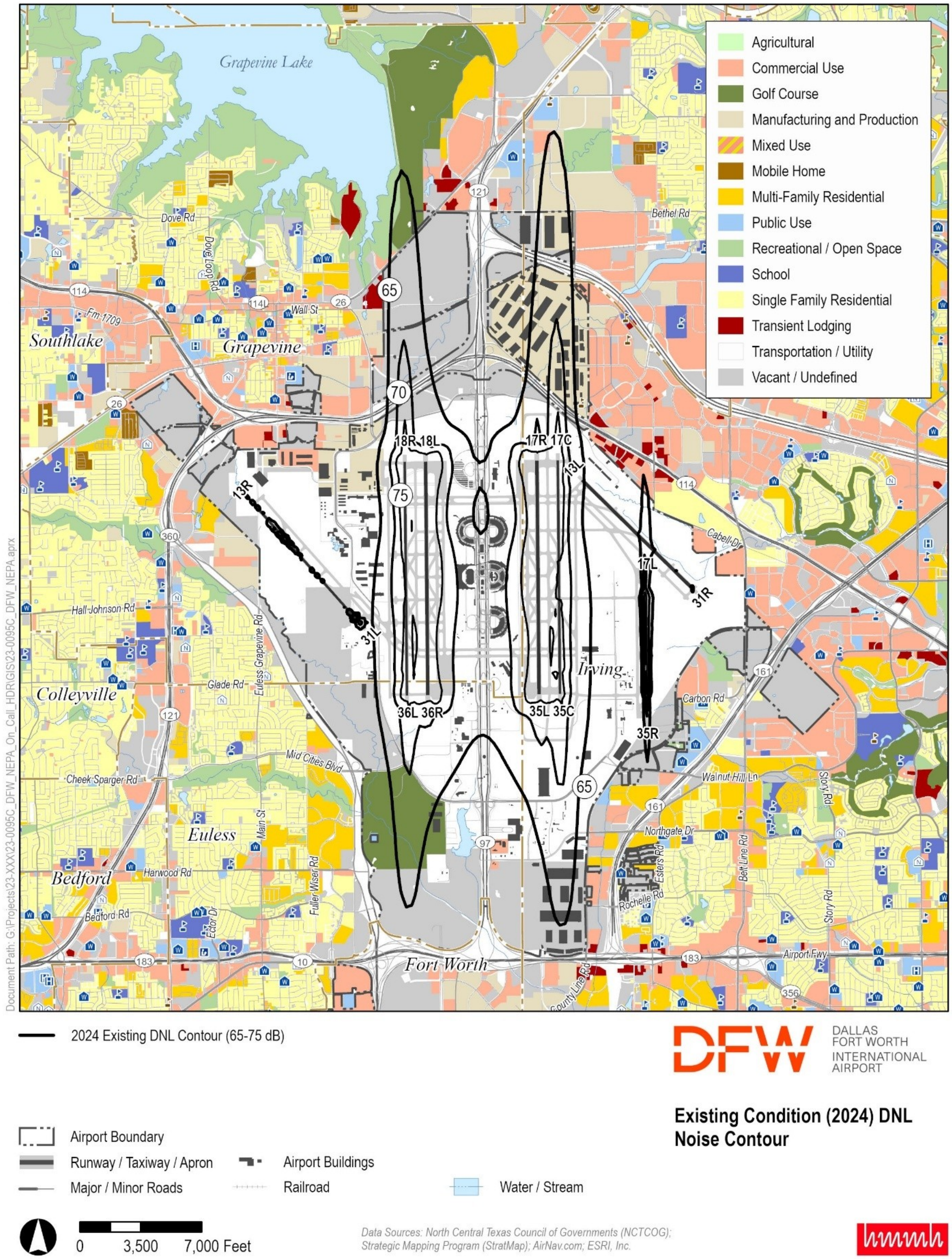
Table 3-8 provides estimates of the total area, on-airport area, and off-airport area exposed to aircraft noise of at least 65 DNL for the Existing Conditions. Approximately 12.05 square miles of land fall within the Existing Conditions 65 DNL or higher noise exposure area. Of the total land area, approximately 0.60 square miles exposed to 65 DNL or higher is located off-Airport (the remaining 11.45 square miles are located on DFW property).

Table 3-8. Estimated Land Area within Existing Conditions 65 DNL Contour

Contour Range	Airport Property Estimated Land Area (sq mi)	Non-Airport Property Estimated Land Area (sq mi)	Total Estimated Land Area (sq mi)
DNL 65-70 dB	6.98	0.55	7.52
DNL 70-75 dB	2.22	0.05	2.27
DNL 75+ dB	2.25	0.00	2.25
Total	**11.45**	**0.60**	**12.05**

Source: HMMH analysis, 2025

Figure 3-9. Existing Conditions Noise Exposure Contours with Land Use



3.7 Existing Conditions Noise Compatible Land Use

There are no schools, churches, nursing homes, hospitals, or libraries within the Existing Conditions 65 DNL or greater contours. Furthermore, there are no single family, multifamily, or manufactured housing within the Existing Conditions 65 DNL contours (see **Figure 3-9**). **Table 3-9** summarizes the residential population and housing units exposed to noise levels exceeding 65 DNL for the Existing Conditions.

Table 3-9. Estimated Land Area within Existing Conditions Noise Exposure Contour

Analysis Category	Housing Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	Total (DNL 65 dB or greater)
Housing Units	Single-Family Residential	0	0	0	0
Housing Units	Multi-Family Residential	0	0	0	0
Housing Units	Manufactured Housing	0	0	0	0
Total Units	**-**	0	0	0	0
Population	Single-Family Residential	0	0	0	0
Population	Multi-Family Residential	0	0	0	0
Population	Manufactured Housing	0	0	0	0
Total Units	**-**	0	0	0	0

Source: 2020 US Census Block Data, HMMH analysis, 2025

4. Future Alternatives

The following sections discuss the development of the aircraft operational forecast, runway use, flight tracks and flight track usage for the future No Action and Proposed Action Alternatives. Chapter 5 provides the comparison between the resulting noise calculations for the two alternatives.

4.1 Forecast Aircraft Operations

The Runway 18L/36R Rehabilitation is expected to be completed in two construction phases. Phase 1 includes all the preparation work, contractor mobilization, and the temporary relocated threshold of Runway 36R, maintaining approximately 9,273 feet of usable runway length. Phase 2 involves the full runway closure. Both Phase 1 and 2 are the subject of this noise analysis. Together, Phase 1 and Phase 2 cover 12 months from May 2026 to April 2027.

- Phase 1 – Runway 36R end closure – May 1, 2026 through July 31, 2026 (3 months)
- Phase 2 – Full Closure of Runway 18L/36R – August 1, 2026 to April 30, 2027 (9 months)

The study team prepared an operational forecast in the early stages of this EA which the airport submitted to FAA for approval on July 7, 2025, including detailed operations tables for AEDT noise and emissions modeling for calendar years 2026 and 2027. The forecast operations are based on the FAA's 2024 Terminal Area Forecast (TAF) issued in January 2025 for DFW. The No Action and Proposed Action Alternatives assume the same level of operations for both scenarios because the Proposed Action is a runway rehabilitation project that does not alter the length of the runway or its expected use in the future. **Table 4-1** lists the annual operations by category for 2024, 2026, and 2027. The Existing Conditions (2024) operational totals are included for comparison purposes. The fifth column of the table shows the operations for the 12-month construction period, calculated by combining eight months of 2026 and four months of 2027.[11] The final column presents the same data, divided by the number of days in the year to obtain the annual average day operations. Further details on the forecast development can be found in **Appendix C**.

Table 4-1. Forecast Operations for Noise Model Input

Aircraft Category	2024 Existing Condition	No Action and Proposed Action		12-Month Construction Period (May 2026 – April 2027)	
		2026 Forecast	2027 Forecast	Annual Operations	Average Daily Operations
Air Carrier Cargo	16,573	26,727	28,189	27,214	74.6
Air Carrier Passenger	705,825	773,887	794,319	780,698	2,138.9
Air Taxi Cargo	4,290	4,676	4,738	4,697	12.9
Air Taxi Passenger	10,580	11,584	11,693	11,620	31.8
General Aviation	5,724	6,233	6,252	6,239	17.1
Military	211	197	197	197	0.5
Total	**743,203**	**823,304**	**845,388**	**830,665**	**2,275.8**

Sources: DFW NOMS, FAA OPSNET, HMMH Analysis 2025

[11] May 2026 through April 2027

The 830,665 annual operations translate to 2,275.8 AAD operations to be modeled for both the No Action and Proposed Action noise analysis. **Table 4-2** provides the representative aircraft and engine combinations and the number of average daily operations that were modeled in AEDT for the Future (2026/2027) No Action Alternative and Proposed Action Alternative.[12] In the forecast fleet mix assumptions, the air carrier category fleet mix was adjusted to reflect increases in newer aircraft models, the air taxi category share of the regional jet activity is expected to decrease (e.g., CRJ-200 modeled as the CL600), and the air taxi jet category to increase (e.g., CL35 modeled as the CL600). The future AAD forecast assumes that 12.6 percent of the operations will occur during the DNL nighttime hours of 10:00 p.m. to 6:59 a.m.

Table 4-2. DFW Modeled AAD Aircraft Operations for No Action Alternative and Proposed Action Alternative

Tower Category	Propulsion	AEDT ANP Type	Arrivals Day	Arrivals Night	Departures Day	Departures Night	Total Operations
Air Carrier Cargo	Jet	747400	3.5	1.8	3.5	1.8	10.5
Air Carrier Cargo	Jet	7478	0.9	0.7	1.1	0.6	3.3
Air Carrier Cargo	Jet	757PW	0.8	<0.1	0.8	0.1	1.8
Air Carrier Cargo	Jet	757RR	1.2	0.1	1.1	0.2	2.6
Air Carrier Cargo	Jet	7673ER	6.7	4.8	5.7	5.8	23.1
Air Carrier Cargo	Jet	777300	5.9	3.9	3.8	6.1	19.8
Air Carrier Cargo	Jet	A300-622R	2.5	0.2	2.3	0.4	5.4
Air Carrier Cargo	Jet	MD11GE	1.1	0.9	1.2	0.8	4.0
Air Carrier Cargo	Jet	MD11PW	1.0	1.0	1.3	0.8	4.0
Air Carrier Passenger	Jet	737700	19.2	3.0	20.3	1.8	44.4
Air Carrier Passenger	Jet	737800	202.4	28.8	210.2	21.0	462.4
Air Carrier Passenger	Jet	7378MAX	12.4	4.3	14.9	1.7	33.3
Air Carrier Passenger	Jet	747400	0.9	0.4	0.9	0.4	2.5
Air Carrier Passenger	Jet	7478	<0.1	0.3	0.2	0.1	0.6
Air Carrier Passenger	Jet	777200	5.8	0.8	6.2	0.3	13.0
Air Carrier Passenger	Jet	7773ER	6.9	<0.1	6.0	0.9	13.9
Air Carrier Passenger	Jet	7878R	7.7	3.5	11.1	<0.1	22.4
Air Carrier Passenger	Jet	7879	12.4	2.1	12.5	2.0	29.0
Air Carrier Passenger	Jet	A319-131	63.9	6.5	64.1	6.3	140.8
Air Carrier Passenger	Jet	A320-211	16.1	2.7	16.6	2.2	37.5
Air Carrier Passenger	Jet	A320-232	25.6	3.3	26.4	2.6	57.9
Air Carrier Passenger	Jet	A320-270N	30.4	12.2	31.2	11.4	85.2
Air Carrier Passenger	Jet	A321-232	195.1	35.4	203.9	26.5	460.9
Air Carrier Passenger	Jet	A330-301	0.8	<0.1	<0.1	0.8	1.7
Air Carrier Passenger	Jet	A330-343	0.4	0.0	0.4	<0.1	0.8
Air Carrier Passenger	Jet	A340-211	0.5	0.0	0.5	0.0	1.0
Air Carrier Passenger	Jet	A350-941	4.1	<0.1	3.3	0.9	8.4
Air Carrier Passenger	Jet	A380-841	0.9	<0.1	0.8	<0.1	1.8
Air Carrier Passenger	Regional Jet	CRJ9-ER	82.0	13.1	87.0	8.1	190.2
Air Carrier Passenger	Regional Jet	EMB170	33.3	4.7	34.5	3.5	76.0
Air Carrier Passenger	Regional Jet	EMB175	205.2	21.5	208.1	18.5	453.3
Air Carrier Passenger	Regional Jet	EMB190	1.0	<0.1	1.0	<0.1	2.0
Air Carrier Total	**-**	**-**	**950.5**	**156.2**	**981.2**	**125.6**	**2,213.5**
Air Taxi Cargo	Non-Jet	1900D	1.0	<0.1	0.7	0.3	2.1

[12] The future fleet mix was developed from the DFW NOMS information used for the Existing Condition and a review of known aircraft fleet retirements.

Tower Category	Propulsion	AEDT ANP Type	Arrivals Day	Arrivals Night	Departures Day	Departures Night	Total Operations
Air Taxi Cargo	Non-Jet	CNA208	3.2	0.8	3.5	0.5	8.0
Air Taxi Cargo	Non-Jet	DHC6	0.7	<0.1	0.6	0.1	1.5
Air Taxi Cargo	Non-Jet	SF340	0.4	0.2	0.6	<0.1	1.3
Air Taxi Passenger	Jet	CL600	0.9	<0.1	0.9	<0.1	2.0
Air Taxi Passenger	Jet	CNA55B	1.7	0.1	1.7	<0.1	3.7
Air Taxi Passenger	Jet	CNA560XL	1.0	<0.1	1.0	<0.1	2.0
Air Taxi Passenger	Jet	CNA680	2.7	0.2	2.7	0.1	5.7
Air Taxi Passenger	Regional Jet	CL600	0.7	<0.1	0.7	<0.1	1.4
Air Taxi Passenger	Regional Jet	EMB145	0.7	<0.1	0.7	<0.1	1.3
Air Taxi Passenger	Regional Jet	EMB14L	1.8	0.0	1.8	<0.1	3.6
Air Taxi Passenger	Non-Jet	CNA208	6.0	<0.1	5.9	0.2	12.1
Air Taxi Total	-	-	**20.8**	**1.6**	**20.9**	**1.5**	**44.7**
General Aviation	Jet	CL600	1.0	<0.1	1.0	<0.1	2.0
General Aviation	Jet	CL601	2.2	0.1	2.3	<0.1	4.7
General Aviation	Jet	CNA55B	1.1	<0.1	1.0	<0.1	2.2
General Aviation	Jet	CNA560XL	1.8	<0.1	1.8	<0.1	3.7
General Aviation	Non-Jet	CNA172	0.7	0.2	0.6	0.2	1.7
General Aviation	Non-Jet	CNA208	0.8	<0.1	0.8	<0.1	1.6
General Aviation	Non-Jet	DHC6	0.6	0.0	0.6	<0.1	1.2
General Aviation Total	-	-	**8.1**	**0.5**	**8.0**	**0.6**	**17.1**
Military	Jet	C17	0.1	0.0	0.1	<0.1	0.3
Military	Jet	LEAR35	<0.1	<0.1	0.1	0.0	0.2
Military	Non-Jet	C130AD	<0.1	0.0	<0.1	0.0	<0.1
Military Total	-	-	**0.3**	**<0.1**	**0.3**	**<0.1**	**0.5**
Grand Total	-	-	**979.6**	**158.3**	**1,010.3**	**127.6**	**2,275.8**

Note: Totals may not match exactly due to rounding.
Sources: DFW NOMS, FAA OPSNET, HMMH Analysis 2025

4.2 Forecast Aircraft Stage Length and Operational Profiles

The trip length assumptions for DFW departures for the forecast (2026/2027) operations are the same for the No Action Alternative as for the Proposed Action Alternative because the Proposed Action is a runway rehabilitation project that does not alter the length of the runway or its expected use in the future. **Table 4-3** presents the modeled stage length distribution by AEDT aircraft type, developed with the operational forecast data.

Table 4-3. Forecast Operations Modeled Departure Stage Length Usage by Aircraft Type

Propulsion	AEDT ANP Type	1	2	3	4	5	6	7	8	9	M
Jet	737700	2%	25%	73%	-	-	-	-	-	-	-
Jet	737800	21%	45%	32%	2%	-	-	-	-	-	-
Jet	7378MAX	12%	26%	55%	7%	-	-	-	-	-	-
Jet	747400	3%	9%	20%	-	24%	23%	-	22%	-	-
Jet	7478	-	69%	3%	-	28%	-	-	-	-	-
Jet	757PW	44%	36%	21%	-	-	-	-	-	-	-
Jet	757RR	44%	34%	22%	-	-	-	-	-	-	-
Jet	7673ER	22%	64%	14%	-	-	-	-	-	-	-
Jet	777200	1%	13%	10%	2%	8%	46%	13%	8%	-	-
Jet	777300	1%	21%	-	-	19%	30%	29%	-	-	-
Jet	7773ER	1%	3%	2%	-	-	58%	-	14%	21%	-
Jet	7878R	1%	10%	10%	-	24%	19%	5%	30%	-	-
Jet	7879	0%	11%	4%	-	3%	27%	9%	20%	-	26%
Jet	A300-622R	20%	56%	25%	-	-	-	-	-	-	-
Jet	A319-131	29%	49%	21%	1%	-	-	-	-	-	-
Jet	A320-211	21%	55%	24%	-	-	-	-	-	-	-
Jet	A320-232	23%	47%	30%	0%	-	-	-	-	-	-
Jet	A320-270N	7%	65%	25%	4%	-	-	-	-	-	-
Jet	A321-232	6%	58%	34%	1%	1%	-	-	-	-	-
Jet	A330-301	-	-	-	-	-	100%	-	-	-	-
Jet	A330-343	-	-	-	-	-	100%	-	-	-	-
Jet	A340-211	-	-	-	-	-	100%	-	-	-	-
Jet	A350-941	-	-	-	-	-	-	26%	17%	-	58%
Jet	A380-841	-	-	-	-	-	100%	-	-	-	-
Jet	CL600	100%	-	-	-	-	-	-	-	-	-
Jet	CL601	100%	-	-	-	-	-	-	-	-	-
Jet	CNA55B	100%	-	-	-	-	-	-	-	-	-
Jet	CNA560XL	100%	-	-	-	-	-	-	-	-	-
Jet	CNA680	100%	-	-	-	-	-	-	-	-	-
Jet	CRJ9-ER	65%	35%	0%	-	-	-	-	-	-	-
Jet	EMB145	100%	-	-	-	-	-	-	-	-	-
Jet	EMB14L	100%	-	-	-	-	-	-	-	-	-
Jet	EMB170	77%	23%	0%	-	-	-	-	-	-	-
Jet	EMB175	63%	36%	1%	-	-	-	-	-	-	-
Jet	EMB190	-	94%	6%	-	-	-	-	-	-	-
Jet	MD11GE	33%	58%	10%	-	-	-	-	-	-	-
Jet	MD11PW	-	84%	16%	-	-	-	-	-	-	-
Jet	C17	100%	-	-	-	-	-	-	-	-	-
Jet	LEAR35	100%	-	-	-	-	-	-	-	-	-
Non-Jet	C130AD	100%	-	-	-	-	-	-	-	-	-
Non-Jet	1900D	100%	-	-	-	-	-	-	-	-	-
Non-Jet	CNA172	100%	-	-	-	-	-	-	-	-	-
Non-Jet	CNA208	100%	-	-	-	-	-	-	-	-	-
Non-Jet	DHC6	100%	-	-	-	-	-	-	-	-	-
Non-Jet	SF340	88%	12%	-	-	-	-	-	-	-	-

Source: DFW NOMS, HMMH analysis

4.3 Future (2026/2027) No Action Alternative

Under the No Action Alternative, the runway rehabilitation project would not occur and there would be no changes to the typical runway use at DFW for 2023/2024.

4.3.1 Runway Utilization for No Action Alternative

Runway end utilization for the future (2026/2027) No Action Alternative is assumed to be the same as for the Existing Condition (see **Section 3.4**).

4.3.2 Flight Tracks for No Action Alternative

Flight track locations and percent utilization for the Future (2026/2027) No Action Alternative would be expected to be the same as the Existing Condition (see **Section 3.5**).

4.3.3 Noise Exposure Contours - No Action Alternative

Figure 4-1 shows the 12-month noise exposure at DFW for the No Action Alternative. Noise contours are presented for 65 DNL, 70 DNL, and 75 DNL. Under the No Action Alternative, the DNL contours are similar to Existing Condition, extending away from DFW slightly further than the Existing Condition on both the north and south sides of the airport due to the expected increase in operations for 2026 and 2027. The 65 DNL contour also extends off airport property over compatible land use north and south of Runway 17L/35R. The 70 DNL contour for the No Action Alternative includes no noise sensitive land use and does not extend off DFW property.

Table 4-4 provides estimates of the total area, on-airport area, and off-airport area exposed to aircraft noise of at least 65 DNL for the No Action Alternative. Approximately 13.95 square miles of land fall within the 65 DNL or higher noise exposure area. Of the total land area, approximately 1.01 square miles exposed to 65 DNL or higher, is located off-Airport (the remaining 12.94 square miles are located on DFW property).

Table 4-4. Estimated Land Area within No Action Alternative (2026/2027) Noise Exposure Contour

Contour Range	Airport Property Estimated Land Area (sq mi)	Non-Airport Property Estimated Land Area (sq mi)	Total Estimated Land Area (sq mi)
DNL 65-70 dB	7.76	0.95	8.71
DNL 70-75 dB	2.66	0.06	2.73
DNL 75+ dB	2.52	0.00	2.52
Total	**12.94**	**1.01**	**13.95**

Source: HMMH analysis, 2025

4.3.4 Noise/Land Use Compatibility - No Action Alternative

There would be one school (community college)[13] and the western edge of the Coppell Nature Center (a large portion of this area within the center are public ball fields) north of Runway 17C within the 65 DNL contour. There would be no churches, nursing homes, hospitals, or libraries within any of the 65 DNL or greater

[13] Dallas College Coppell Center

contours. Furthermore, there would be no single family, multifamily, or manufactured housing within the No Action Alternative 65 DNL contours (see **Figure 4-1**). **Table 4-5** summarizes the residential population and housing units exposed to noise levels exceeding 65 DNL for the No Action Alternative.

Table 4-5. Non-Compatible Land Use Housing and Population – Future No Action Alternative (2026/2027)

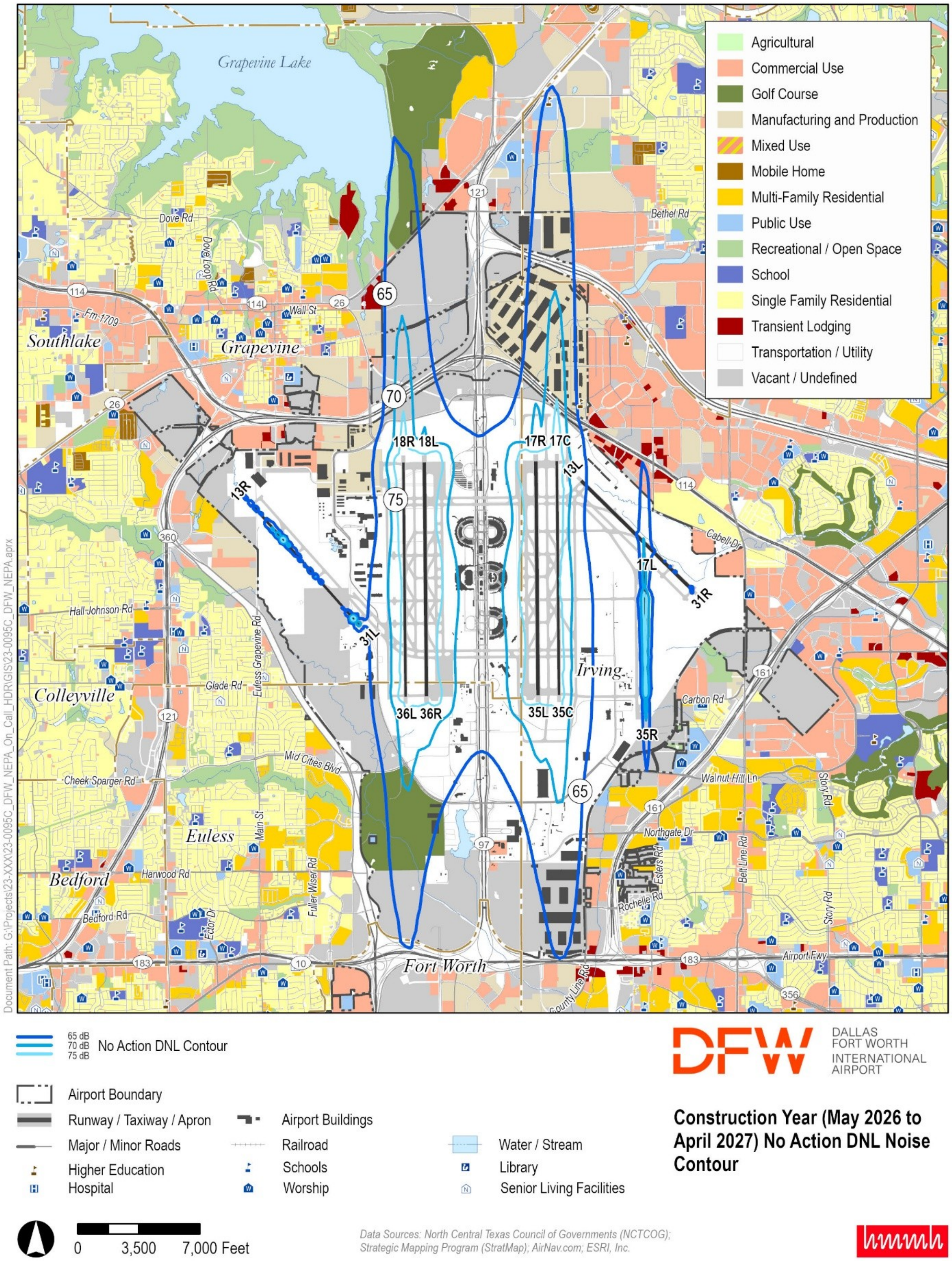
Analysis Category	Housing Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	Total (DNL 65 dB or greater)
Housing Units	Single-Family Residential	0	0	0	0
Housing Units	Multi-Family Residential	0	0	0	0
Housing Units	Manufactured Housing	0	0	0	0
Total Units	-	0	0	0	0
Population	Single-Family Residential	0	0	0	0
Population	Multi-Family Residential	0	0	0	0
Population	Manufactured Housing	0	0	0	0
Total Units	-	0	0	0	0

Source: 2020 US Census Block Data, HMMH analysis, 2025

Even though the school (Dallas College Coppell Center) and portions of the Coppell Nature Center are within the DNL 65 dB contour, they are considered compatible with aircraft noise, and no mitigation is required. The school was constructed in 2007, and FAA considers buildings constructed after October 1, 1998, as compatible with aircraft noise.[14] The portion of the Coppell Nature Center within the DNL 65 dB contour is primarily recreational (pickleball courts to the south and baseball fields to the north) and the remaining area consists of woodland walking trails. As shown in **Table 1-2** these types of land use are compatible with aircraft noise levels below 70 DNL.

[14] Final Policy on Part 150 Approval of Noise Mitigation Measures: Effect on the Use of Federal Grants for Noise Mitigation Projects", Federal Register 63:46 (April 3, 1998) p.16409.

Figure 4-1. No Action Alternative (2026/2027) Noise Exposure Contour with Land Use



4.4 Future (2026/2027) Proposed Action Alternative

As noted in **Section 1**, the Proposed Action Alternative is comprised of the rehabilitation of Runway 18L/36R and its shoulders, upgrades to the electrical systems and components, and a full asphalt overlay. The Proposed Action would cause temporary changes in runway use, during construction only. The proposed runway closure would potentially result in temporary changes in aircraft noise for some communities near the airport. One future construction year (2026/2027) Proposed Action Alternative was used to analyze the potential noise impacts based on the anticipated partial runway closure, full runway closure, and overall project schedule.

As described in **Section 4.1**, the Runway 18L/36R Rehabilitation is expected to be completed in two construction phases. Phase 1 includes the preparation work, contractor mobilization, and the temporary relocated threshold of Runway 36R, maintaining over 9,000 feet of usable runway length. Phase 2 involves full runway closure. Together, Phase 1 and Phase 2 cover 12 months from May 2026 to April 2027.

- Phase 1 – Runway 36R end closure – May 1, 2026 through July 31, 2026 (3 months)
- Phase 2 – Full Closure of Runway 18L/36R – August 1, 2026 to April 30, 2027 (9 months)

4.4.1 Runway Utilization for Proposed Action Alternative

During Phase 1 (three months), the runway threshold for the Runway 36R end will be relocated 4,128 feet northward (to Taxiway WM) to allow continuing departure operations on the remaining 9,273 feet while the south end is under construction. Runway use for construction Phase 1 is assumed to be essentially the same as the Existing Condition but with the few arrivals that would normally occur on Runway 18L/36R being shifted proportionally to other runways.

Runway use for construction Phase 2 (full closure of Runway 18L/36R for nine months) was provided by DFW for arrivals and departures overall. During Phase 2, arrivals would shift mainly to Runways 17L/35R, 17C/35C, and 13R, while departures would shift to Runways 17R/35L, 18R/36L, and 31L. HMMH determined the separate day and night percentages for this period by applying the day/night proportions as seen in the Existing Condition usage. **Table 4-6** presents the runway use percentages for each construction phase and for the 12-month construction period overall.

Table 4-6. Runway Use Percentages, Proposed Action Scenario

Propulsion	Runway	During Construction Phase 1				During Construction Phase 2				Combined (12 Month)			
		Day Arr	Night Arr	Day Dep	Night Dep	Day Arr	Night Arr	Day Dep	Night Dep	Day Arr	Night Arr	Day Dep	Night Dep
Jet	13L	0%	0%	<1%	0%	0%	0%	0%	0%	0%	0%	<1%	0%
Jet	13R	3%	1%	<1%	0%	11%	2%	0%	0%	9%	2%	<1%	0%
Jet	17C	27%	34%	<1%	1%	27%	50%	0%	0%	27%	43%	<1%	<1%
Jet	17L	11%	2%	<1%	0%	26%	5%	0%	0%	22%	4%	<1%	0%
Jet	17R	<1%	8%	39%	33%	0%	0%	59%	5%	<1%	4%	53%	8%
Jet	18L	0%	0%	31%	31%	0%	0%	0%	0%	0%	0%	9%	3%
Jet	18R	28%	26%	<1%	6%	7%	12%	11%	65%	12%	19%	8%	59%
Jet	31L	<1%	0%	<1%	0%	0%	0%	7%	0%	<1%	0%	5%	0%
Jet	31R	1%	<1%	<1%	0%	3%	<1%	0%	0%	3%	<1%	<1%	0%
Jet	35C	11%	15%	<1%	<1%	11%	22%	0%	0%	11%	18%	<1%	<1%
Jet	35L	<1%	3%	16%	15%	0%	0%	0%	0%	<1%	2%	5%	2%
Jet	35R	5%	1%	<1%	0%	11%	2%	22%	0%	10%	2%	15%	0%
Jet	36L	12%	11%	<1%	2%	4%	6%	2%	30%	6%	8%	1%	27%
Jet	36R	0%	0%	14%	13%	0%	0%	0%	0%	0%	0%	4%	1%
Jet	**Subtotal**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Non-Jet	13L	<1%	0%	<1%	<1%	0%	0%	0%	0%	<1%	0%	<1%	<1%
Non-Jet	13R	28%	<1%	<1%	0%	12%	<1%	0%	0%	16%	<1%	<1%	0%
Non-Jet	17C	9%	17%	3%	2%	26%	46%	0%	0%	21%	40%	1%	<1%
Non-Jet	17L	23%	1%	<1%	0%	27%	1%	0%	0%	26%	1%	<1%	0%
Non-Jet	17R	1%	5%	38%	15%	0%	0%	54%	12%	<1%	1%	49%	12%
Non-Jet	18L	0%	0%	24%	18%	0%	0%	0%	0%	0%	0%	7%	2%
Non-Jet	18R	9%	47%	5%	34%	5%	23%	16%	58%	6%	28%	13%	56%
Non-Jet	31L	<1%	0%	9%	2%	0%	0%	6%	1%	<1%	0%	7%	1%
Non-Jet	31R	13%	0%	<1%	0%	4%	0%	0%	0%	6%	0%	<1%	0%
Non-Jet	35C	2%	9%	2%	<1%	9%	25%	0%	0%	7%	22%	1%	<1%
Non-Jet	35L	<1%	1%	15%	7%	0%	0%	0%	0%	<1%	<1%	4%	1%
Non-Jet	35R	3%	1%	0%	0%	12%	2%	22%	0%	10%	1%	15%	0%
Non-Jet	36L	12%	19%	1%	15%	5%	4%	2%	29%	7%	7%	2%	28%
Non-Jet	36R	0%	0%	3%	5%	0%	0%	0%	0%	0%	0%	1%	1%
Non-Jet	**Subtotal**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Overall	13L	<1%	0%	<1%	<1%	0%	0%	0%	0%	<1%	0%	<1%	<1%
Overall	13R	4%	<1%	<1%	0%	11%	2%	0%	0%	9%	1%	<1%	0%
Overall	17C	27%	34%	<1%	1%	27%	50%	0%	0%	27%	43%	<1%	<1%
Overall	17L	11%	2%	<1%	0%	26%	5%	0%	0%	22%	3%	<1%	0%
Overall	17R	<1%	8%	39%	32%	0%	0%	59%	5%	<1%	3%	53%	8%
Overall	18L	0%	0%	31%	30%	0%	0%	0%	0%	0%	0%	9%	3%
Overall	18R	28%	26%	<1%	7%	7%	13%	11%	65%	12%	19%	8%	59%
Overall	31L	<1%	0%	<1%	<1%	0%	0%	7%	<1%	<1%	0%	5%	<1%
Overall	31R	1%	<1%	<1%	0%	3%	<1%	0%	0%	3%	<1%	<1%	0%
Overall	35C	11%	15%	<1%	<1%	11%	22%	0%	0%	11%	19%	<1%	<1%
Overall	35L	<1%	3%	16%	14%	0%	0%	0%	0%	<1%	2%	5%	2%
Overall	35R	5%	1%	<1%	0%	11%	2%	22%	0%	10%	2%	15%	0%
Overall	36L	12%	11%	<1%	3%	4%	6%	2%	30%	6%	8%	1%	27%
Overall	36R	0%	0%	14%	12%	0%	0%	0%	0%	0%	0%	4%	1%
Overall	**Subtotal**	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Source: DFW DCC, 2025; HMMH analysis

4.4.2 Flight Tracks for Proposed Action Alternative

Flight track locations and percent utilization for the future (2026/2027) Proposed Action Alternative are expected to be the same as the Existing Condition (see **Section 3.5**).

4.4.3 Noise Exposure Contours - Proposed Action Alternative

Figure 4-2 shows the calculated annual noise exposure at DFW for the Proposed Action Alternative 12-month construction period. Noise contours are presented for 65 DNL, 70 DNL, and 75 DNL. Under the Proposed Action Alternative, the DNL contours are similar in size but reflect the shifts in operations away from Runway 18L/36R while it would be under construction. The 65 DNL contour extends off airport property over non-compatible land use south of Runway 17L/35R. The 70 DNL contour for the Proposed Action Alternative includes no noise sensitive land use and does not extend off DFW property.

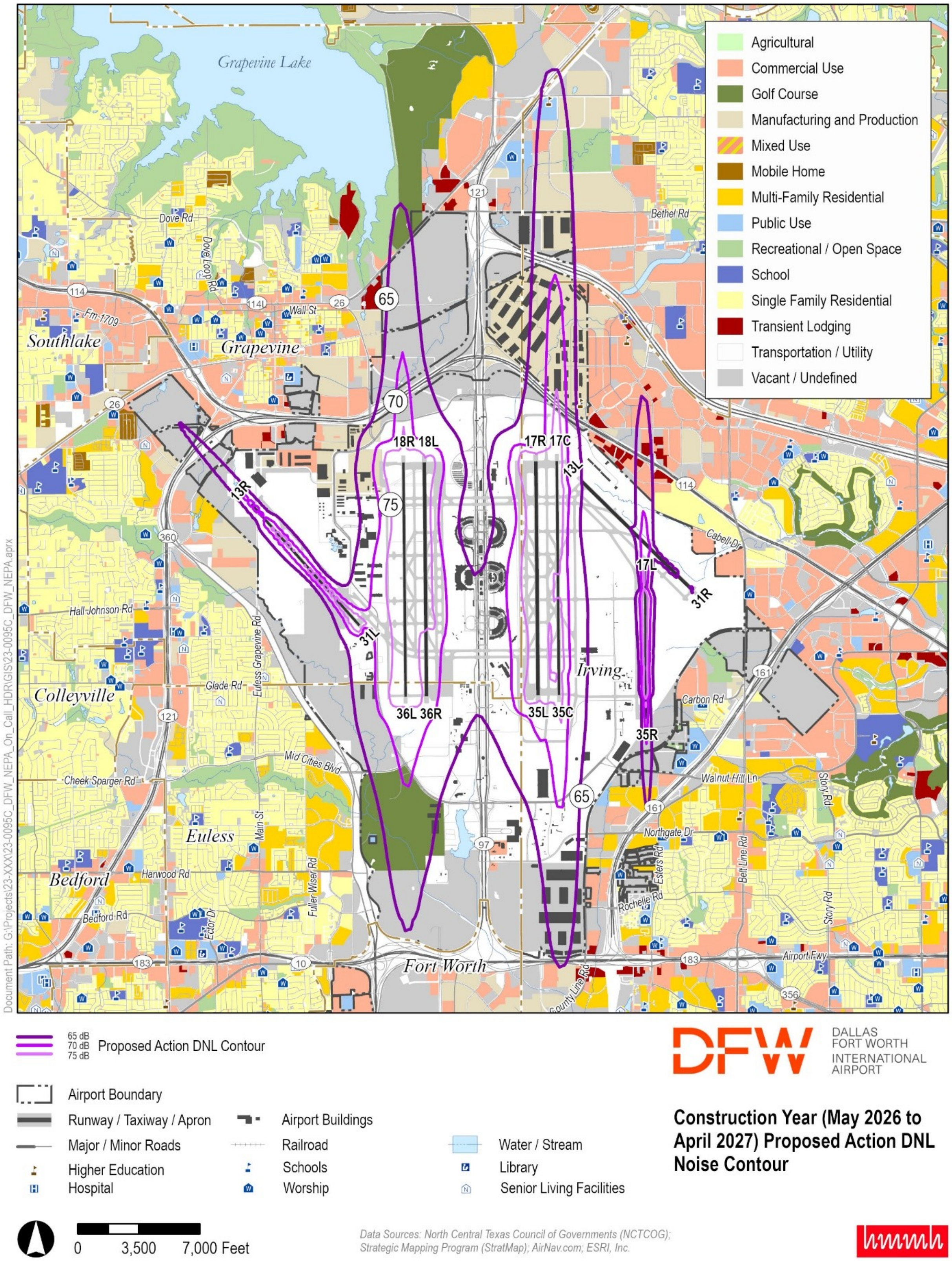
Table 4-7 provides estimates of the total area, on-airport area, and off-airport area exposed to aircraft noise of at least 65 DNL for the Proposed Action Alternative. Approximately 14.09 square miles of land fall within the 65 DNL or higher noise exposure area. Of the total land area, approximately 1.07 square miles exposed to 65 DNL or higher are located off-airport (the remaining 13.01 square miles are located on DFW property).

Table 4-7. Estimated Land Area within the Proposed Action Alternative Noise Exposure Contours

Contour Range	Airport Property Estimated Land Area (sq mi)	Non-Airport Property Estimated Land Area (sq mi)	Total Estimated Land Area (sq mi)
DNL 65-70 dB	7.76	1.02	8.78
DNL 70-75 dB	2.79	0.05	2.84
DNL 75+ dB	2.46	0.00	2.47
Total	**13.01**	**1.07**	**14.09**

Source: HMMH analysis, 2025

Figure 4-2. Proposed Action Alternative (2026/2027) Noise Exposure Contours with Land Use



4.4.4 Noise/Land Use Compatibility - Proposed Action Alternative

There would be one school (a community college) and the western edge of the Coppell Nature Center (a large portion of this area within the center are public ball fields) north of Runway 17C within the 65 DNL contour under the Proposed Action Alternative. There would be no churches, nursing homes, hospitals, or libraries within any of the Proposed Action DNL contours. Furthermore, there would be no single-family houses or manufactured housing within any of the Proposed Action Alternative (2026/2027) noise contours. There would be one area south of Runway 17L/35R where the Proposed Action DNL 65 contour extends off airport property and over residential (multi-family) land use. This would result in the exposure of 154 housing units (279 people) to 65 DNL or higher under the Proposed Action Alternative. This area would be exposed to the higher DNL levels for approximately nine months, during the full runway closure portion of the project (Phase 2). **Table 4-8** summarizes the residential population and housing units affected by noise levels exceeding 65 DNL for the Proposed Action Alternative (2026/2027) noise exposure contours.

Table 4-8. Non-Compatible Land Use Housing and Population under Proposed Action Alternative

Analysis Category	Housing Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	Total (DNL 65 dB or greater)
Housing Units	Single-Family Residential	0	0	0	0
Housing Units	Multi-Family Residential	154	0	0	154
Housing Units	Manufactured Housing	0	0	0	0
Total Units	-	154	0	0	154
Population	Single-Family Residential	0	0	0	0
Population	Multi-Family Residential	279	0	0	279
Population	Manufactured Housing	0	0	0	0
Total Units	-	279	0	0	279

Source: 2020 US Census Block Data, HMMH analysis, 2025
The US Census Block intersecting the 65 DNL contour has 1.81 people per unit

5. Comparison of the No Action Alternative and Proposed Action Alternative

Table 5-1 provides a comparison of the estimates of the total area, on-airport area, and off-airport area exposed to aircraft noise of at least 65 DNL for the No Action Alternative and Proposed Action Alternatives. The noise exposure analysis results show a slight increase in both the on-airport and off-airport land areas due to the changes in runway utilization during the construction of the Proposed Action.

Table 5-1. Estimated Land Area within Future (2026/2027) Noise Exposure Contour Alternatives

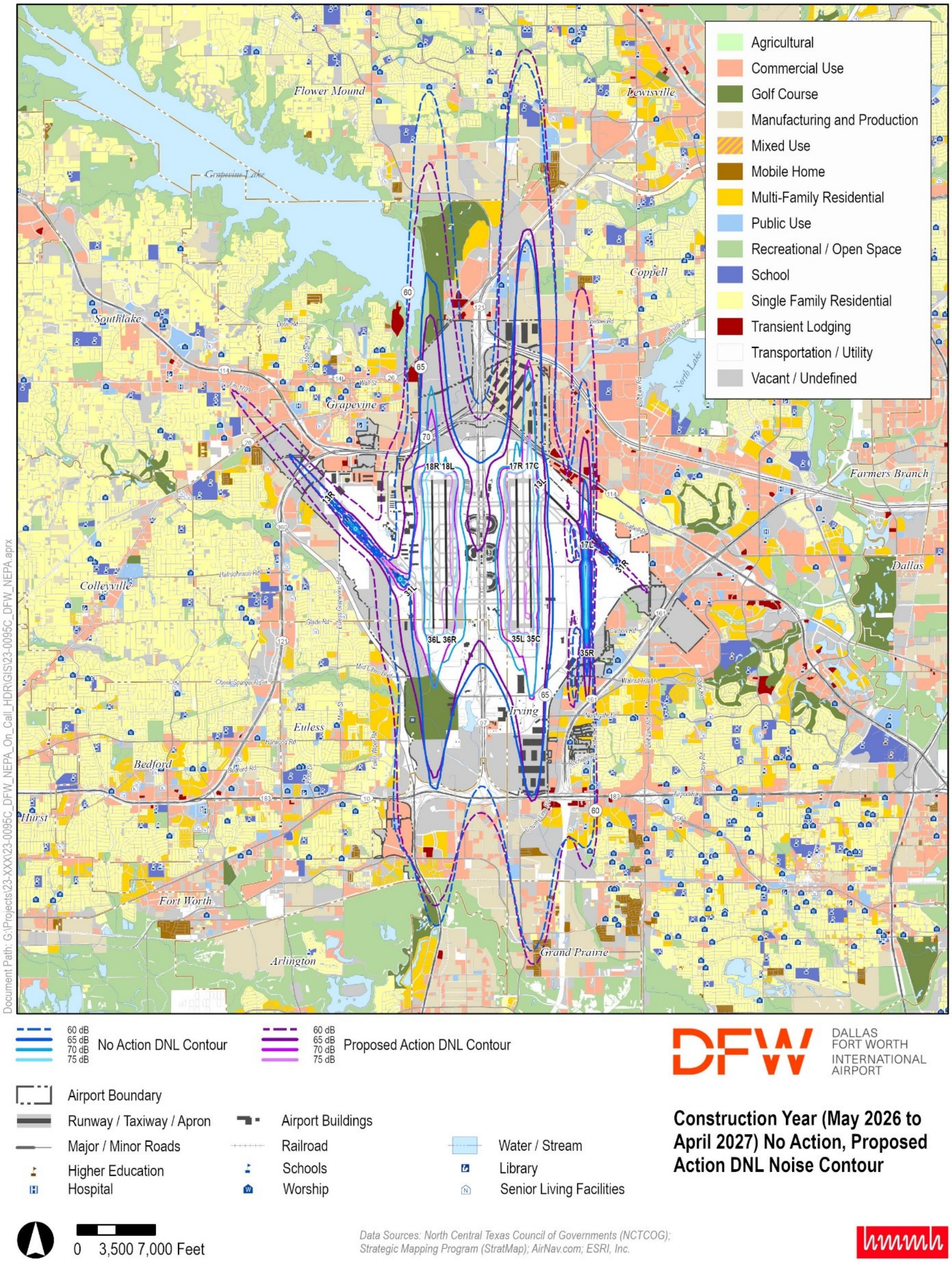
Alternative	Contour Range	Airport Property Estimated Land Area (sq mi)	Non-Airport Property Estimated Land Area (sq mi)	Total Estimated Land Area (sq mi)
No Action	DNL 65-70 dB	7.76	0.95	8.71
	DNL 70-75 dB	2.66	0.06	2.73
	DNL 75+ dB	2.52	0.00	2.52
	Total	12.94	1.01	13.95
Proposed Action	DNL 65-70 dB	7.76	1.02	8.78
	DNL 70-75 dB	2.79	0.05	2.84
	DNL 75+ dB	2.46	0.00	2.47
	Total	13.01	1.07	14.09
Difference (Proposed Action minus No Action Alternative)	DNL 65-70 dB	0.00	0.07	0.07
	DNL 70-75 dB	0.12	-0.01	0.11
	DNL 75+ dB	-0.06	0.00	-0.05
	Total	0.07	0.06	0.13

Source: HMMH analysis, 2025

5.1 Future Alternative Noise/Land Use Compatibility Evaluation

Figure 5-1 shows the comparison between the Future No Action Alternative and Proposed Action Alternative DNL contours. In addition to displaying the 65 DNL, 70 DNL, and 75 DNL contours as shown in **Figure 4-1** and **Figure 4-2** , the calculated 60 DNL contours for each scenario are also shown, for informational purposes only. On the north side of the airport, the eastern contour lobes (associated with Runways 17R/35L, 17C/35C and 17L/35R) extend further to the north for the Proposed Action scenario, while the western contour lobe is smaller due to shifting operations away from Runway 18L/36R while construction would be occurring. Similarly, on the south side of the airport, the runway use shifts in operations away from Runway 18L/36R during the proposed construction year would result in increases to the size of the eastern contour lobes and a reduction in noise represented by the western contour lobe. Expected construction-period increases in the use of Runway 31L for departures and Runway 13R for arrivals would result in an increase in noise on the northwest side of the airport, as evidenced by the larger Proposed Action DNL contour lobe aligned with that runway.

Figure 5-1. No Action Alternative and Proposed Action Alternative (2026/2027) Noise Exposure Contours



The only residential non-compatible land use within the 65 DNL contour for either future alternative is south of Runway 17L/35R. There would be temporary noise impacts to the apartment buildings to the south of Runway 17L/35R during the construction period, with the largest increase during Phase 2 (approximately nine months). These buildings, located directly along the extended centerline of Runway 35R, would be impacted as aircraft operations are temporarily shifted during the closure of Runway 18L/36R. The analysis indicates that there are 154 multi-family residential units, with an estimated population of 279 people, that would be exposed to noise levels of 65 DNL or greater as a result of construction of the Proposed Action. Comparisons of the residential population and housing units exposed to noise levels at or exceeding DNL 65 dB for the future (2026/2027) alternatives are provided in **Table 5-2**. There are no schools, churches, nursing homes, hospitals, or libraries within the 65 DNL or greater contours.

Table 5-2. Non-Compatible Land Use, Housing Units – Comparison of Future Year (2026/2027) Alternatives

Alternative	Housing Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	Total (DNL 65 dB or greater)
No Action	Single-Family Residential	0	0	0	0
	Multi-Family Residential	0	0	0	0
	Manufactured Housing	0	0	0	0
	Total Units	0	0	0	0
Proposed Action	Single-Family Residential	0	0	0	0
	Multi-Family Residential	154	0	0	154
	Manufactured Housing	0	0	0	0
	Total Units	154	0	0	154
Difference (Proposed Action minus No Action Alternative)	Single-Family Residential	0	0	0	0
	Multi-Family Residential	154	0	0	154
	Manufactured Housing	0	0	0	0
	Total Units	154	0	0	154
Notes: Housing units numbers are estimates based on the 2020 United States Census block data					

Source: HMMH analysis, 2025

Table 5-3. Non-Compatible Land Use, Residential Population – Comparison of Future Year (2026/2027) Alternatives

Alternative	Contour Range	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	Total (DNL 65 dB or greater)
No Action	Single-Family Residential	0	0	0	0
	Multi-Family Residential	0	0	0	0
	Manufactured Housing	0	0	0	0
	Total Units	0	0	0	0
Proposed Action	Single-Family Residential	0	0	0	0
	Multi-Family Residential	279	0	0	279
	Manufactured Housing	0	0	0	0
	Total Units	279	0	0	279
Difference (Proposed Action minus No Action Alternative)	Single-Family Residential	0	0	0	0
	Multi-Family Residential	279	0	0	279
	Manufactured Housing	0	0	0	0
	Total Units	279	0	0	279
Notes: Population numbers are estimates based on the 2020 United States Census block data. The US Census Block intersecting the 65 DNL contour has 1.81 people per unit					

Source: HMMH analysis, 2025

As described in sections 4.3.4 and 4.4.4, one school (Dallas College Coppell Center)[15] and the western edge of the Coppell Nature Center, both north of Runway 17C are within the DNL 65 dB contour for both the No Action and the Proposed Action Alternatives. Both of these land uses are considered compatible with aircraft noise, and no noise mitigation is required. **Table 5-4** provides the decibel values calculated for each site under each of the future alternatives.

Table 5-4. Noise Sensitive Sites - Comparison of Future Year (2026/2027) Alternatives

Alternative	Dallas College Coppell Center	Coppell Nature Center, southwest corner
No Action	65.2 dB	65.7 dB
Proposed Action	65.6 dB	66.2 dB
Difference (Proposed Action minus No Action Alternative)	0.4 dB	0.5 dB

5.2 Future Alternative Grid Point Evaluation

HMMH evaluated the change in noise using two different grids as described in **Section 2.3**. The NSA grid was used to determine any significant changes within the 65 DNL contours or any reportable changes between 60 DNL and 65 DNL. The Secondary Study Grid was used to determine any reportable changes within the 45 DNL to 60 DNL contour.

5.2.1 Analysis of 1.5 dB Change Within the 65 DNL or Greater Noise Contour

Figure 5-2 uses color-coded grid points to indicate changes in noise levels between the No Action Alternative and Proposed Action Alternative. A significant change in noise, as defined by the FAA criteria discussed in **Section 1.2** and shown in **Table 1-1,** is a change of 1.5 dB or more in DNL in areas within the DNL 65 dB contours. The green grid points on **Figure 5-2** represent areas of 1.5 dB decrease and the orange grid points represent areas of 1.5 dB increase due to the Proposed Action Alternative.

Only one off-airport area meeting the FAA significance threshold criteria is identified as a noise-sensitive land use; it is south of Runway 35R along that runway's extended centerline. **Figure 5-3** displays a closer view of the area south of Runway 35R where the Proposed Action Alternative 65 DNL contour extends over residential land use. The pink contour line identifies the area that would be exposed to levels greater than 65 DNL during the Proposed Action construction period. The calculated noise change value for each grid point is indicated in the circles; those points with a calculated change of 1.5 dB or greater are colored orange. At the southern tip of the 65 DNL contour lobe, the yellow shading of the land use map identifies a multi-family residential development. The area of significant impact would be the residential area within the Proposed Action Alternative 65 DNL where the indicated noise change is greater than 2 dB. The grid points showing a noise increase of 1.5 dB or greater outside of the 65 DNL contour are not classified as significant because the DNL is less than 65 dB.

[15] Dallas College Coppell Center

As shown in **Figure 5-4**, there would be three additional off-airport areas with a potentially significant noise change; the orange or green dots indicate a change of 1.5 dB or more to an area within the 65 DNL contour.

- As indicated by green dots, a small area directly north of Runway 18L/36R would experience a decrease in noise of 1.5 dB or more within the 65 DNL. Those grid points are partially over airport property and partially over noise-compatible land use.
- As indicated by orange dots, the area directly north of Runway 17L/35R, would experience an increase in noise of 1.5 dB or more. This land is used for commercial purposes so is classified as noise compatible.
- An area immediately northwest of Runway 18R also shows with orange dots, an increase in DNL of 1.5 dB or more. That area is either airport property or highway, and thus noise compatible.

Figure 5-2. Area Exposed to Significant Noise Change (+/-1.5 dB) from the Proposed Action Alternative

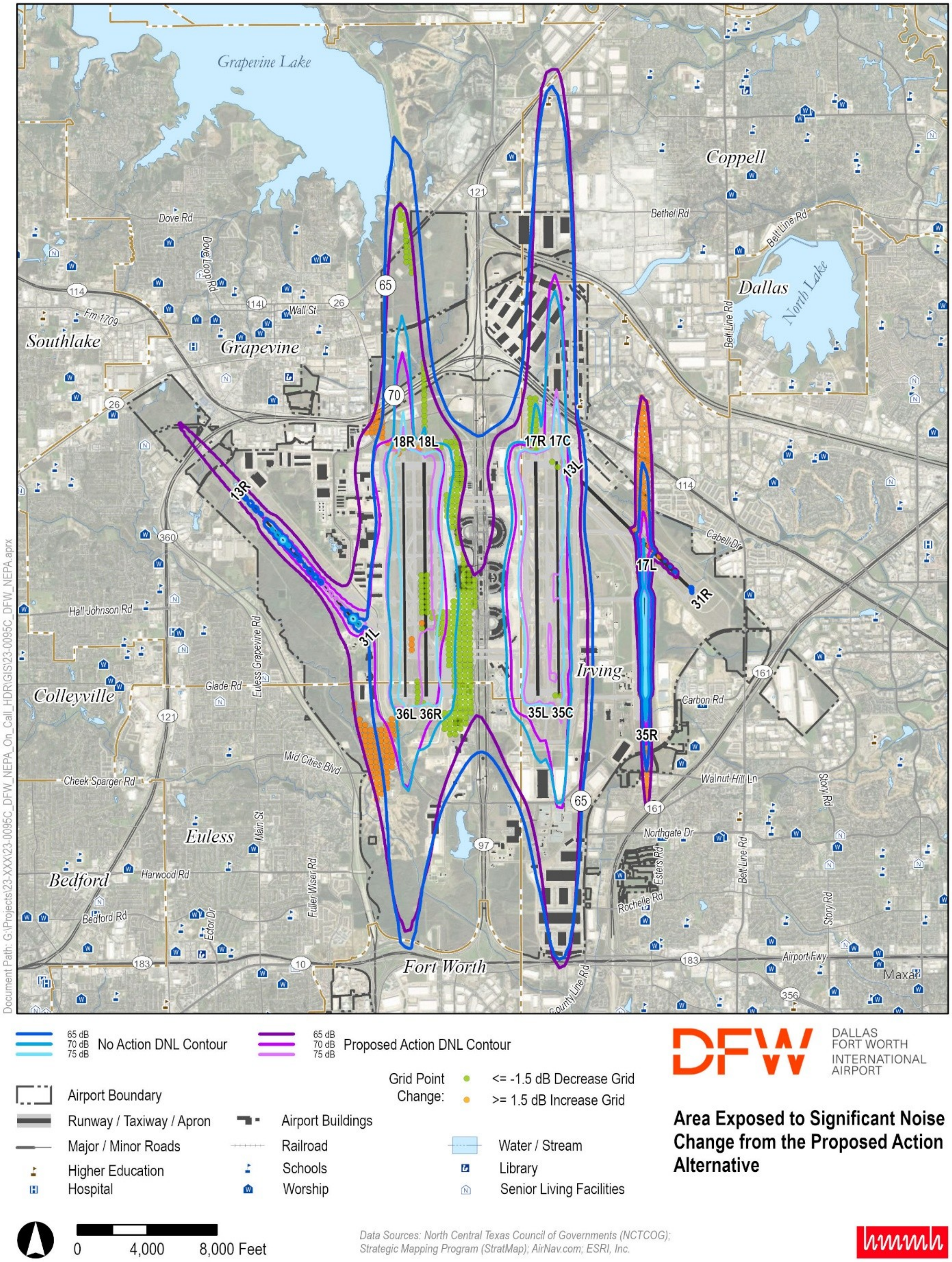


Figure 5-3. Noncompatible Land Use Areas Exposed to an Increase in Noise from the Proposed Action Alternative

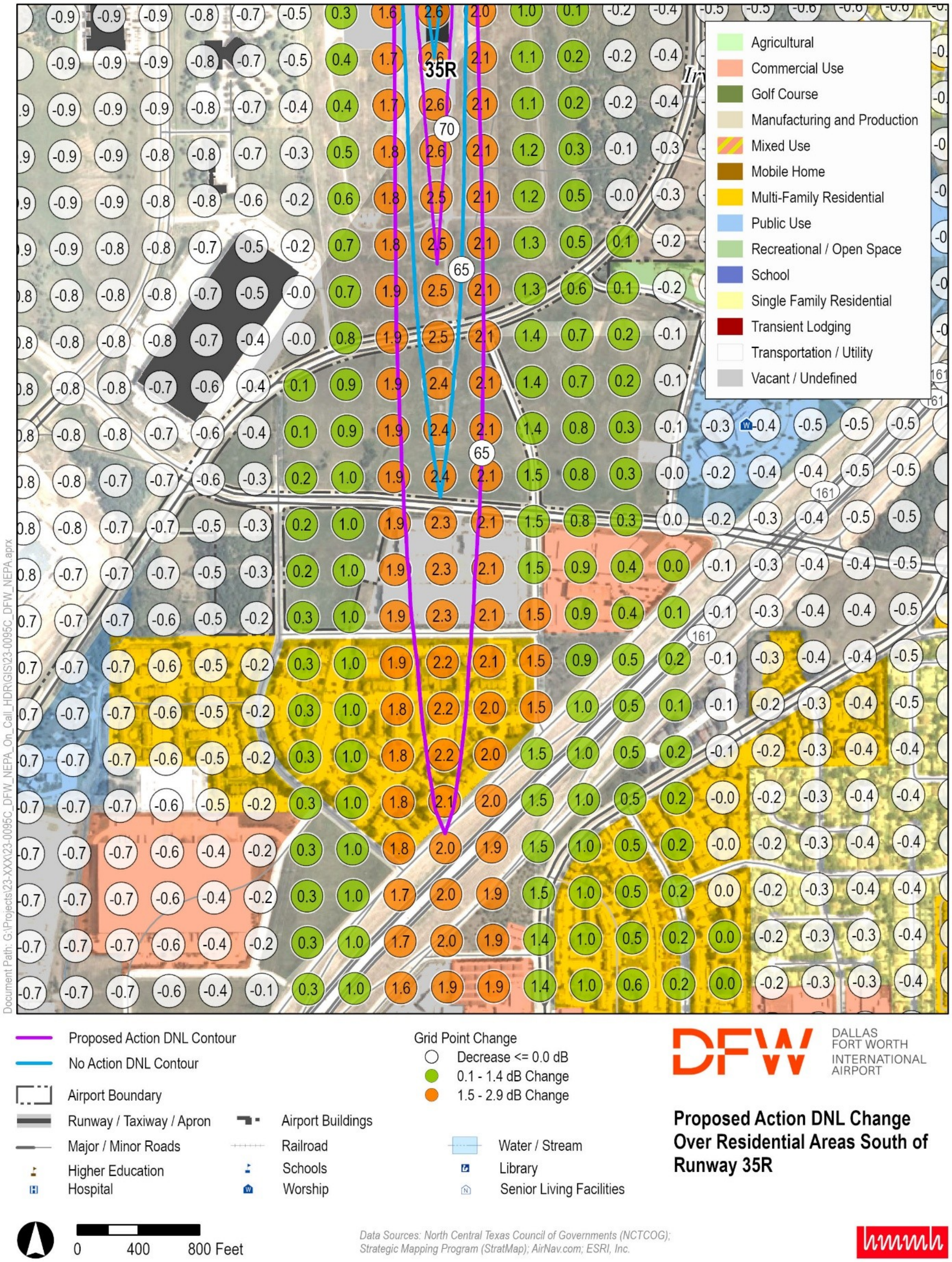
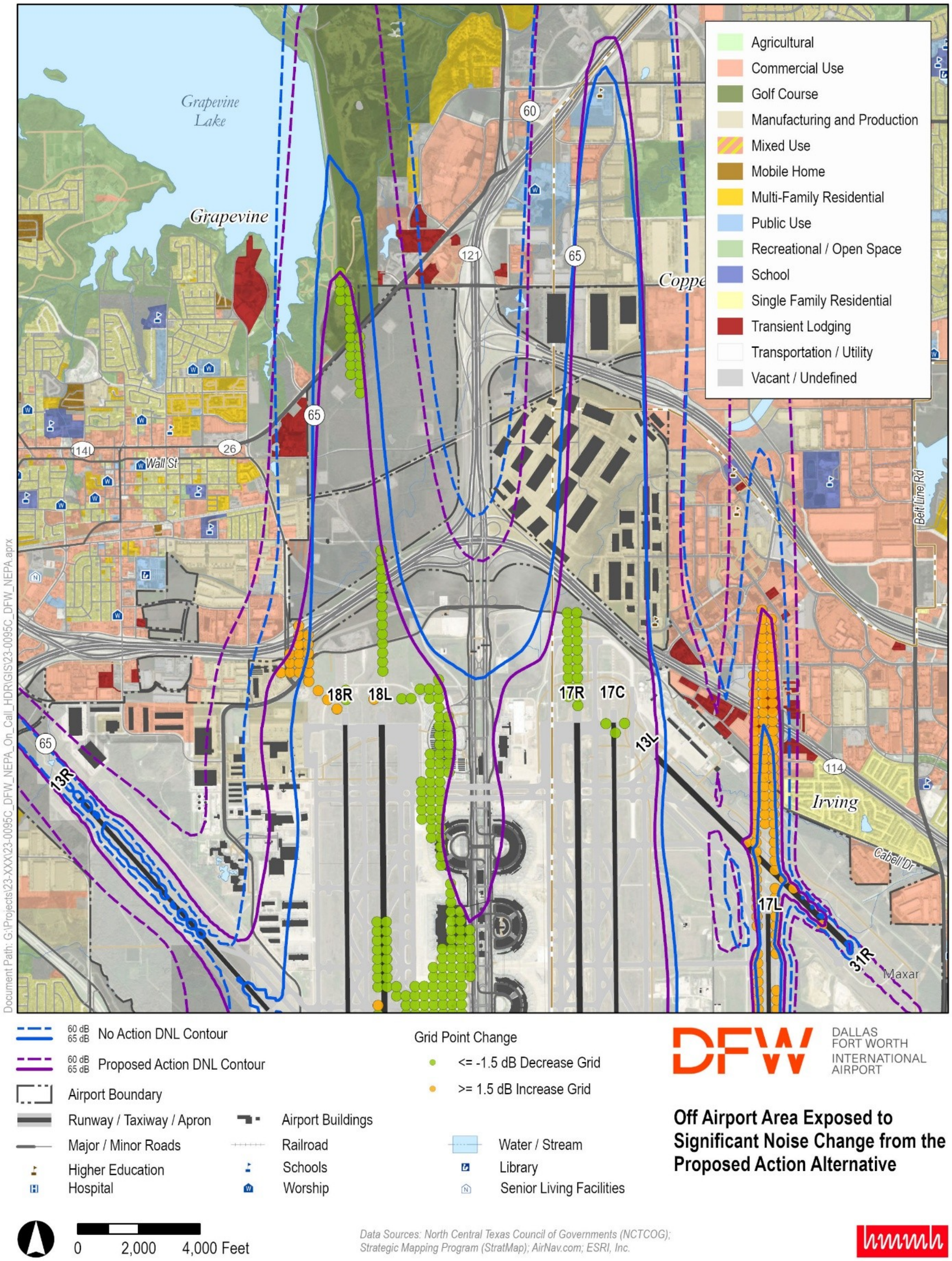


Figure 5-4. Compatible Land Use Areas Exposed to a Significant Change in Noise from the Proposed Action Alternative



5.2.2 Analysis of 3 dB and 5 dB Reportable Changes due to the Proposed Action Alternative

Grid point analyses identify any reportable change in noise using a similar process to the identification of significant changes. Reportable changes are defined as:

- A change of 3 dB or more where DNL is between 60 and 65
- A change of 5 dB or more where DNL is between 45 and 60

There is only one section of the noise study area where there is a 3 dB or greater change between the 60 and 65 DNL contours, as shown in pink in **Figure 5-5**. That area of increase is mainly on airport property along Runway 13R-31L but also extends northwest off airport property over commercial (noise compatible) land use.

A larger secondary study grid identified any change in DNL of 5 dB or greater in the area outside of the 60 DNL contour. There is one area of a 5 dB or greater increase that encompasses either side of the Runway 13R/31L extended centerline, as shown in yellow in Figure 5-5. The noise increase in this area is due to the runway use shifts during construction of the Proposed Action Alternative, to accommodate the temporary closure of Runway 18L/36R. **Figure 5-6** provides a larger-scale view of the reportable change area. The noise-sensitive land uses in this area include residential neighborhoods with schools and places of worship.

Figure 5-5. Areas Exposed to Reportable Noise Changes from the Proposed Action Alternative

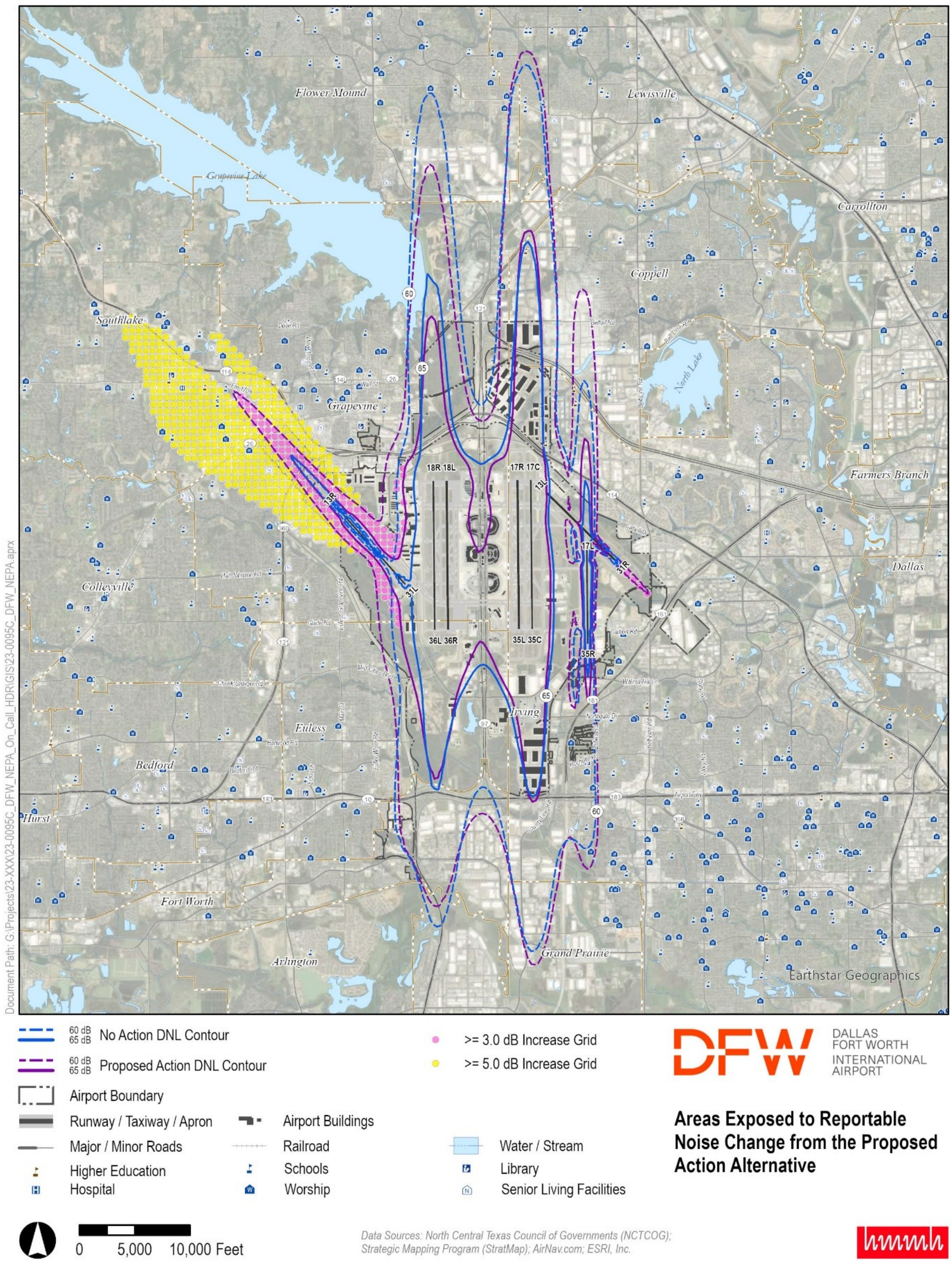


Figure 5-6. Areas North of DFW Exposed to Reportable Noise Changes from the Proposed Action Alternative

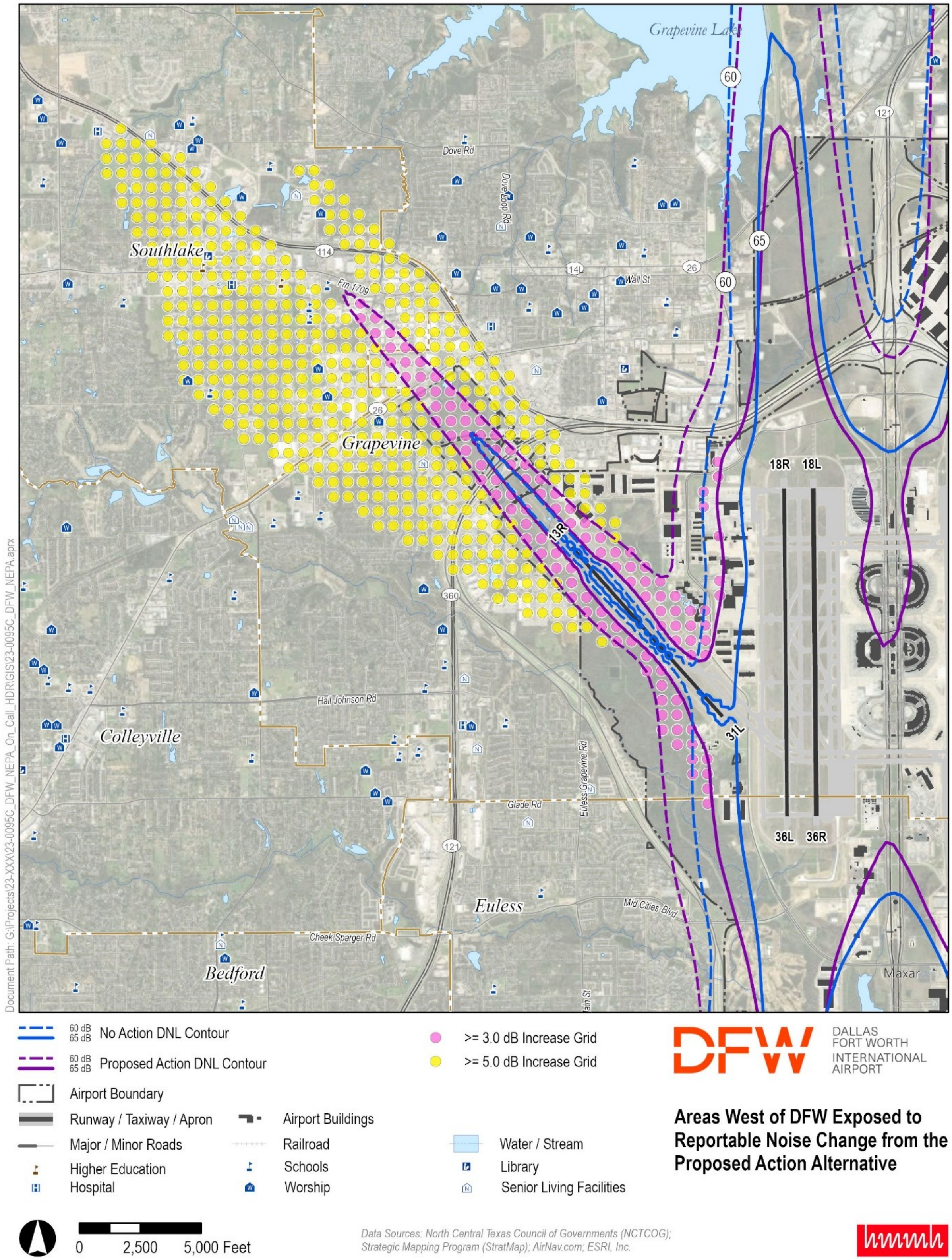


Figure 5-7, Figure 5-8, and **Figure 5-9** provide a geographic overview of the increases in noise due to the Proposed Action, overlaid on the land use base map in areas west, north, and south of DFW, respectively. Residential and other noise sensitive land uses are labeled on each figure. The difference in noise is shown with colored grid points representing different levels of decibel change.

Figure 5-7 focuses on the area west of DFW near Runway 13R/31L. Most of this area would experience some change in noise during the construction period with areas on either side of the runway, extending to the northwest, experiencing the largest change in noise. Portions of Grapevine north of Timberline Road, including a mobile home park, are within the reportable noise change is identified on **Figure 5-7**. Reportable noise change extend across portions of Southlake past Route 114.

Figure 5-8 provides the change in noise in areas north of DFW where the 60 DNL contour intersects with residential land use in Lewisville. As shown in the figure, areas north of Runways 17R and 17C would experience a small increase in noise (less than 1.5 dB) during the construction period. In contrast, areas north of Runways 18L and 18R would experience a decrease in noise during this same period.

Figure 5-9 depicts noise changes in areas south of DFW where the 60 DNL contour intersects with residential land use in Irving. As shown in the figure, most areas off airport property south of Runways 35C and 35L would experience a small increase in noise (less than 1.5 dB) during the construction period. Areas south of Runways 36L and 36R would experience a decrease in noise during this same period.

Figure 5-7. Changes in Noise Levels due to the Proposed Action Alternative – West of DFW

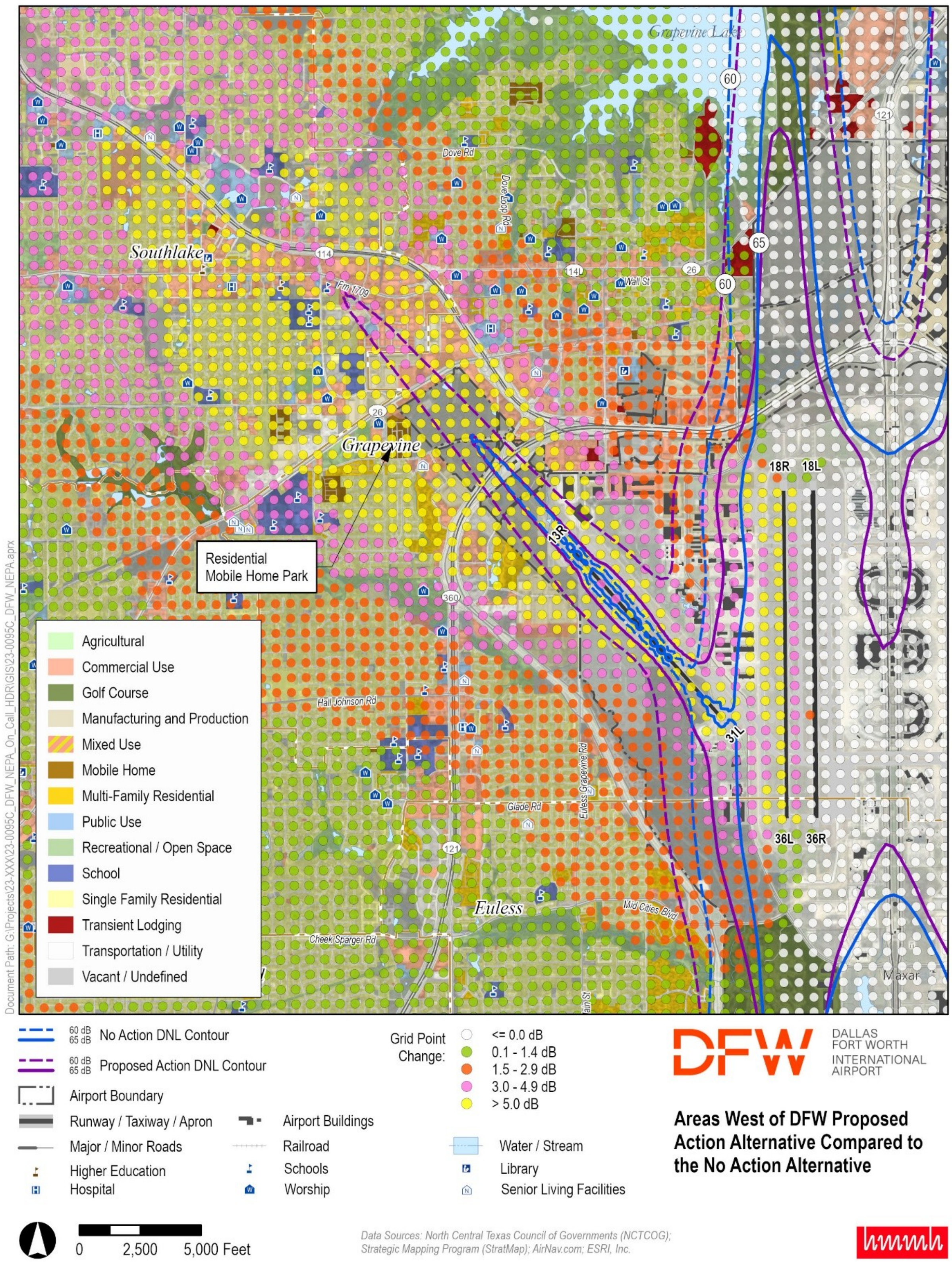


Figure 5-8. Changes in Noise Levels due to the Proposed Action Alternative – North of DFW

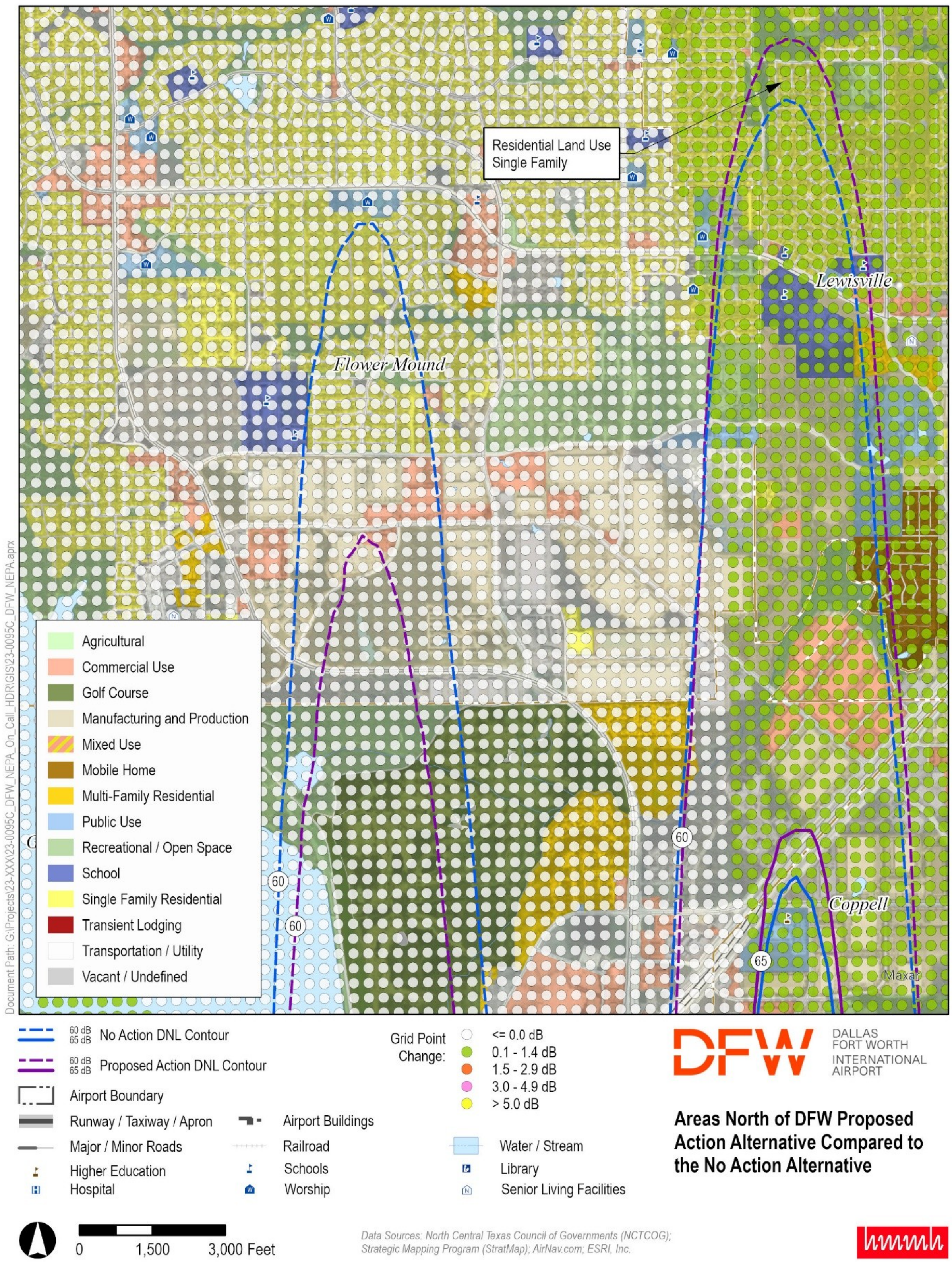
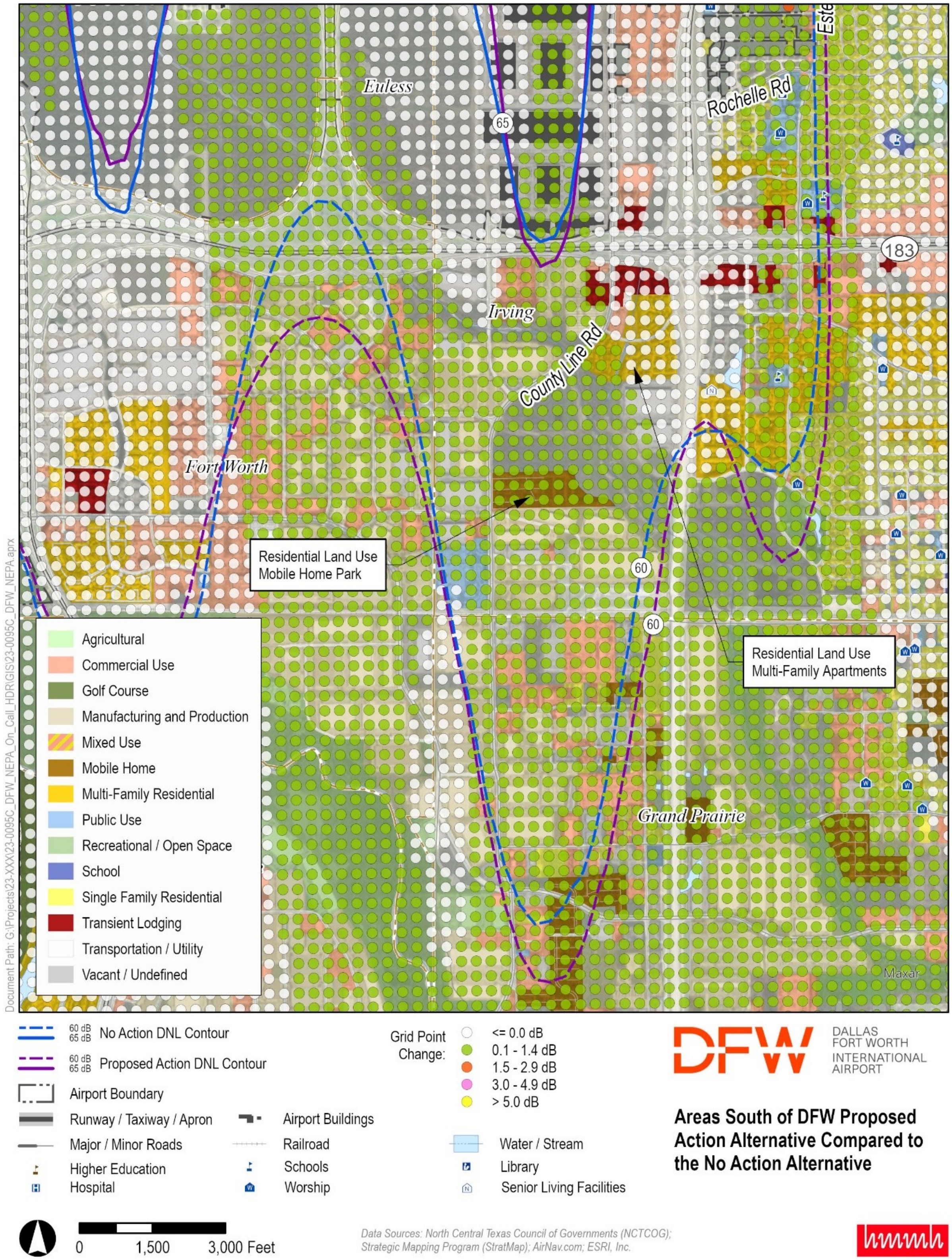


Figure 5-9. Changes in Noise Levels due to the Proposed Action Alternative – South of DFW



6. Mitigation

By definition, a significant noise impact would occur where the analysis shows that the Proposed Action Alternative would result in noise-sensitive areas experiencing an increase in noise of DNL 1.5 dB or more (as compared to the No Action Alternative for the same timeframe) in areas at or above DNL 65 dB noise exposure. As identified in **Section 5.2.1**, the Proposed Action Alternative results in three such areas of significant noise increase. Two of these, the areas north of Runway 17L/35R and immediately northwest of Runway 18R, are compatible land uses, so they are not considered to be significantly exposed. The other area that would experience a significant noise increase is located south of Runway 17L/35R and extends over multi-family residential land use (as shown in **Figure 5-3**). Therefore, there is a temporary significant noise impact due to the Proposed Action Alternative.

The Proposed Action Alternative would cause short-term, temporary elevated noise levels during the construction period of approximately 12 months (3 months of partial runway closure and 9 months of full closure). The temporary noise increases resulting from aircraft operations under the Proposed Action Alternative would affect one multi-family residential development in the City of Irving, the Bridgeport Apartments. The apartment buildings, located directly along the extended centerline of Runway 35R, would be exposed to a temporary significant increase in aircraft noise during construction Phase 2. Residents would experience an increase in DNL (up to 2.2 dB) as aircraft operations are temporarily shifted during the full closure of Runway 18L/36R. Residents in the affected areas would be provided with mailings/utility bill inserts/flyers notifying them of the temporary closure of Runway 18L/36R and the proposed construction timeline.

Because the Proposed Action Alternative is temporary, no long-term mitigation is required. Similar to the efforts during the Runway 17R/35L Rehabilitation project, DFW plans to mitigate the temporary noise increases through meeting with community leaders, city council members, and city managers, and by conducting community outreach specific to the affected residences. Notification of impacted communities will be done well in advance of the Proposed Action's start date. DFW plans to work with the apartment managers to provide letters of notification to each resident, by mail, or on each door prior to the start of the Proposed Action Alternative. The letters would describe the Proposed Action Alternative, the potential timeframe, and the temporary noise impacts due to the full closure of Runway 18L/36R. The affected community members will also be presented with the project information, its temporary effects on the residents, and the significant benefits this runway reconstruction project will yield to the community. DFW staff will request written acknowledgement from apartment residents.

DFW Airport is both a technical stakeholder due to its role in the long-term planning for infrastructure improvements, and a non-technical stakeholder due to its role as a community partner. DFW Airport will ensure that community members are informed of the temporary noise impacts well in advance of any project work or changes caused by the runway closure. DFW will maintain transparency in its dissemination of information related to the proposed runway closure. Additionally, the DFW Noise Compatibility personnel will provide project updates/briefings to the communities.

Appendix A Fundamentals of Characterizing Sound, Noise Effects, and Metrics

A.1 Introduction

Noise is a very complex physical quantity. The properties, measurement, and presentation of noise involve specialized terminology that is often difficult to understand. To assist reviewers in interpreting the complex noise metrics used in evaluating airport noise, this appendix introduces six acoustical descriptors of noise, roughly in increasing degree of complexity:

- Decibel, dB
- A-Weighted Decibel, dBA
- Maximum A-Weighted Sound Level, Lmax
- Sound Exposure Level, SEL
- Equivalent A-Weighted Sound Level, Leq
- Day-Night Average Sound Level, DNL

These noise metrics form the basis for the majority of noise analyses conducted at U.S. airports.

A.2 Decibel, dB

All sounds come from a sound source -- a musical instrument, a voice speaking, an airplane passing overhead. It takes energy to produce sound. The sound energy produced by any sound source is transmitted through the air in sound waves -- tiny, quick oscillations of pressure just above and just below atmospheric pressure. The ear detects these oscillating pressures interpreting it as “sound.”

Our ears are sensitive to a wide range of sound pressures. Although the loudest sounds that we hear without pain have about one million times more energy than the quietest sounds we hear, our ears are incapable of detecting small differences in these pressures. Thus, to better match how we hear this sound energy, we compress the total range of sound pressures to a more meaningful range by introducing the concept of sound pressure level.

Sound pressure level (SPL) is measured in decibels (dB). Decibels are logarithms of a ratio, the numerator being the pressure of the sound source of interest, and the denominator being the reference pressure (equivalent to the quietest sound that an average healthy young adult can hear):

The logarithmic conversion of sound pressure to sound pressure level means that the quietest sound that we can hear (the reference pressure) has a sound pressure level of about 0 dB, while the loudest sounds that we hear without pain have sound pressure levels of about 120 dB. Most sounds in our day-to-day environment have sound pressure levels on the order of 30 dB to 100 dB.

Because decibels are logarithmic, combining decibels is unlike common arithmetic. For example, if two sound sources each produce 100 dB and they are then operated together, they produce 103 dB -- not the 200 decibels we might expect. Four equal sources operating simultaneously produce another three decibels of noise, resulting in a total sound pressure level of 106 dB. For every doubling of the number of equal sources, the sound pressure level goes up another three decibels.

A tenfold increase in the number of sources makes the sound pressure level go up 10 dB. A hundredfold increase makes the level go up 20 dB, and it takes a thousand equal sources to increase the level 30 dB.

If one noise source is much louder than another, the two sources together will produce virtually the same sound pressure level (and sound to our ears) as the louder source alone. For example, a 100 dB source plus an 80 dB source produce approximately 100 dB when operating together (actually, 100.04 dB). The louder source "masks" the quieter one. But if the quieter source gets louder, it will have an increasing effect on the total sound pressure level such that, when the two sources are equal, as described above, they produce a level three decibels above the sound of either one by itself.

Conveniently, people also hear or interpret sound pressure in a logarithmic fashion. Two useful rules of thumb to remember when comparing sound pressure levels are: (1) a 6 dB to 10 dB increase is generally perceived to be about a doubling of loudness, and (2) changes in sound pressure level of less than about 3 dB are not readily detectable outside of a laboratory environment.

A.3 A-Weighted Decibel, sometimes denoted dBA

An important characteristic of sound is its frequency, or "pitch." This is the per-second rate of repetition of the sound pressure oscillations as they reach our ear, expressed in units known as Hertz (Hz), formerly called cycles per second.

When analyzing the total noise of any source, acousticians often break the noise into frequency bands to determine how much is low-frequency noise, how much is middle-frequency noise, and how much is high-frequency noise. This breakdown is important for two reasons:

• Our ear is better equipped to hear mid and high frequencies and is less sensitive to lower frequencies. Thus, we find mid- and high-frequency noise more annoying.

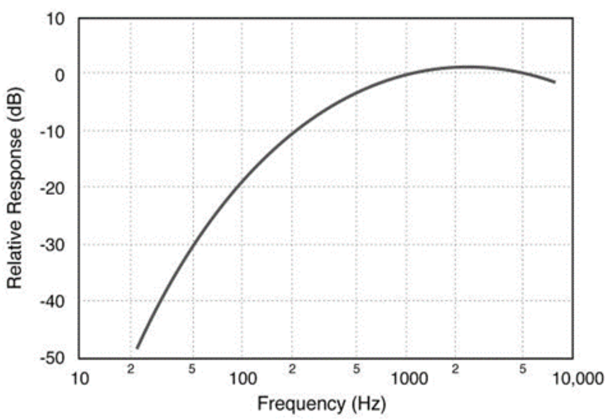
• Engineering solutions to a noise problem are different for different frequency ranges. Low-frequency noise is generally harder to control.

The normal frequency range of hearing for most people extends from a low of about 20 Hz to a high of about 10,000 Hz to 15,000 Hz. People respond to sound most readily when the predominant frequency is in the range of normal conversation, typically around 1,000 Hz to 2,000 Hz. The acoustical community has defined several “filters,” which approximate this sensitivity of our ear and thus, help us to judge the relative loudness of various sounds made up of many different frequencies.

The "A" filter (or “A-weighting”) does this best for most environmental noise sources. A-weighted sound levels are measured in decibels, just like unweighted. To avoid ambiguity, A-weighted sound levels should be identified as such (e.g., "an A-weighted sound level of 85 dB") or in an abbreviated form (e.g., "a sound level of 85 dBA") where the "A" indicates the sound level has been A-weighted.

Government agencies in the U.S. (and most governments worldwide) recommend or require the use of A-weighted sound levels for measuring, modeling, describing, and assessing aircraft sound levels (and sound levels from most other transportation and environmental sources). **Figure A-1** depicts A-weighting adjustments to sound from approximately 20 Hz to 10,000 Hz.

Figure A-1: Frequency-Response Characteristics of Various Weighting Networks

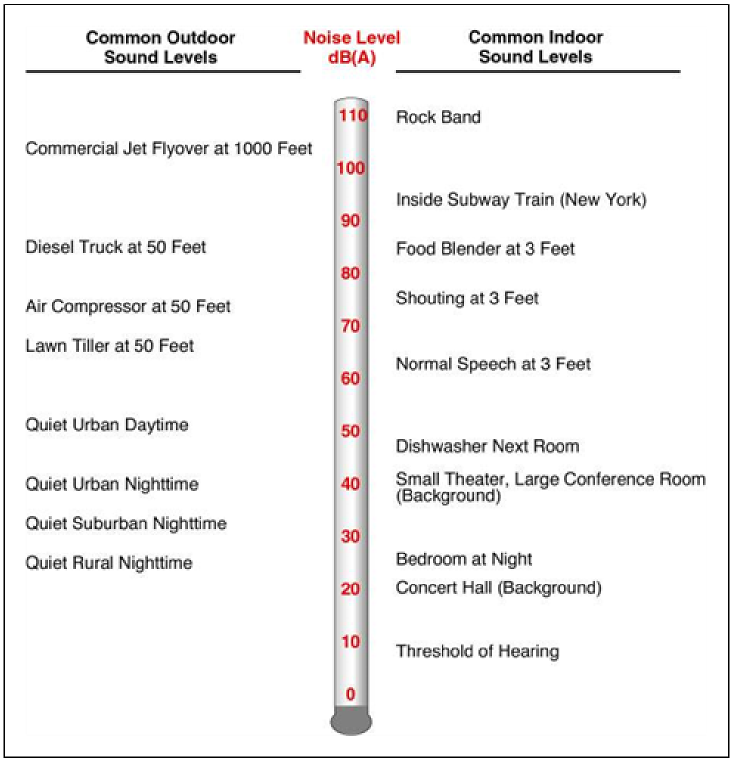


Source: HMMH, 2011

The A-weighted filter significantly de-emphasizes those parts of the total noise at lower and higher frequencies (below about 500 Hz and above about 10,000 Hz) where we do not hear as well. The filter has very little effect, or is nearly "flat," in the middle range of frequencies between 500 Hz and 10,000 Hz where we hear quite easily. Because this filter generally matches our ears' sensitivity, sounds having higher A-weighted sound levels are usually judged to be louder than those with lower A-weighted sound levels, a relationship which otherwise might not be true. It is for this reason that acousticians normally use A-weighted sound levels to evaluate environmental noise sources.

Figure A-2 depicts representative A-weighted sound levels for a variety of common sounds.

Figure A-2: Representative A-Weighted Sound Levels

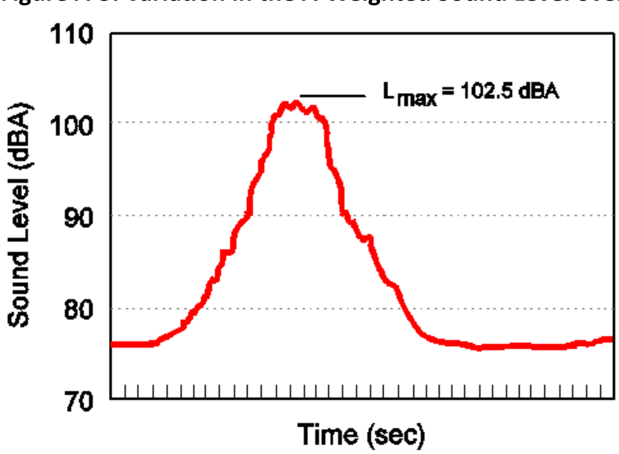


Source: HMMH, 2011

A.4 Maximum A-Weighted Sound Level, Lmax

An additional dimension to environmental noise is that A-weighted levels vary with time. For example, the sound level increases as an aircraft approaches, then falls and blends into the background as the aircraft recedes into the distance (though even the background varies as birds chirp, the wind blows, or a vehicle passes by). This is illustrated in **Figure A-3**.

Figure A-3: Variation in the A-Weighted Sound Level over Time



Source: HMMH, 2011

Because of this variation, it is often convenient to describe a particular noise "event" by its maximum sound level, abbreviated as Lmax (or LAmax, if the decibel abbreviation dB is used). In **Figure A-3** the Lmax is approximately 102.5 dB.

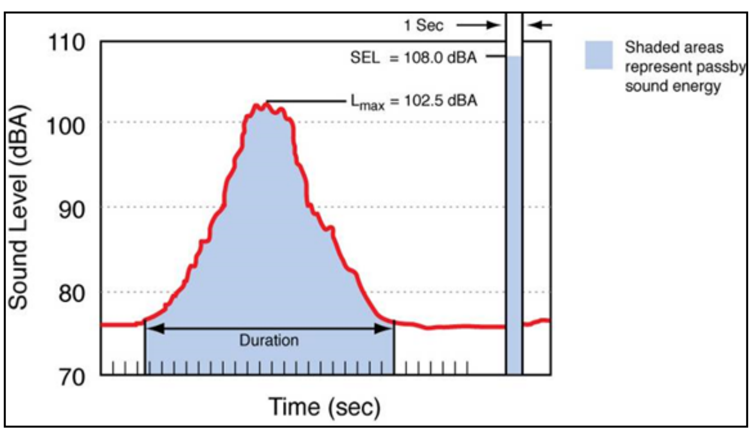
While the maximum level is easy to understand, it suffers from a serious drawback when used to describe the relative “noisiness” of an event such as an aircraft flyover; i.e., it describes only one dimension of the event and provides no information on the event’s overall, or cumulative, noise exposure. In fact, two events with identical maximum levels may produce very different total exposures. One may be of very short duration, while the other may continue for an extended period and be judged much more annoying. The next sections introduce two closely related measures that account for this concept of a noise "dose," or the cumulative exposure associated with an individual “noise event” such as an aircraft flyover.

A.5 Sound Exposure Level, SEL

The most commonly used measure of cumulative noise exposure for an individual noise event, such as an aircraft flyover, is the Sound Exposure Level, or SEL. SEL is a summation of the A-weighted sound energy over the entire duration of a noise event. SEL expresses the accumulated energy in terms of the one-second-long steady-state sound level that would contain the same amount of energy as the actual time-varying level.

In simple terms, SEL “compresses” the energy into a single second. **Figure A-4** depicts this compression:

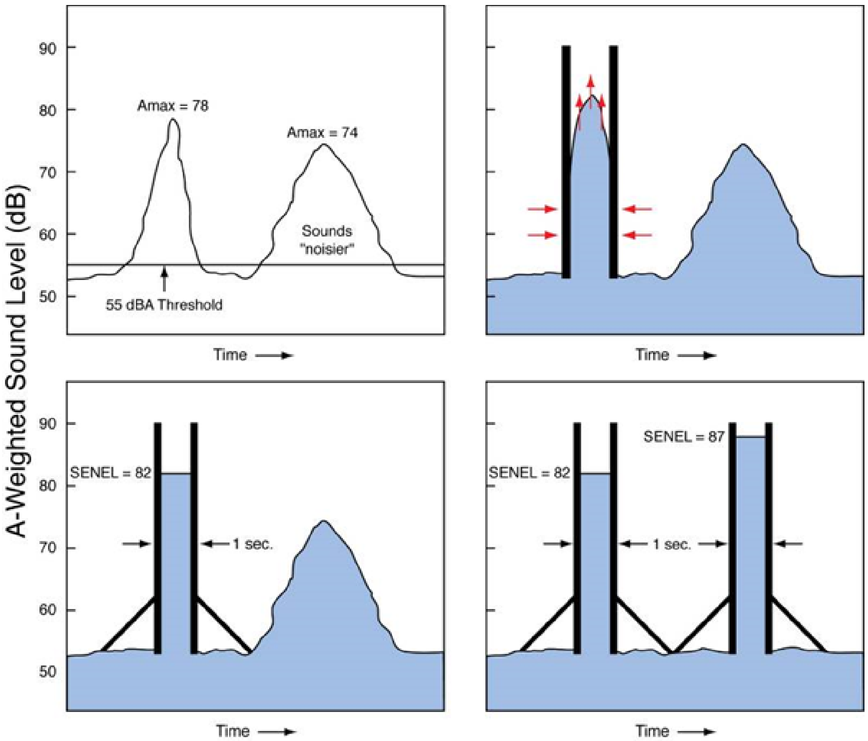
Figure A-4: Graphical Depiction of Sound Exposure Level



Source: HMMH, 2011

Note that because SEL is normalized to one second, it almost always will be higher than the event’s Lmax. In fact, for most aircraft flyovers, SEL is on the order of 5 dB to 12 dB higher than Lmax. SEL provides a basis for comparing noise events that generally match our impression of their overall “noisiness,” including the effects of both duration and level; the higher the SEL, the more annoying a noise event is likely to be. **Figure A-5** shows a comparison of two different noise events: the first has a shorter duration but a greater maximum level. More noise energy is contained in the second event, which has a higher SEL value.

Figure A-5: Graphical Comparison of SEL for Two Noise Events with Different Maximums and Durations



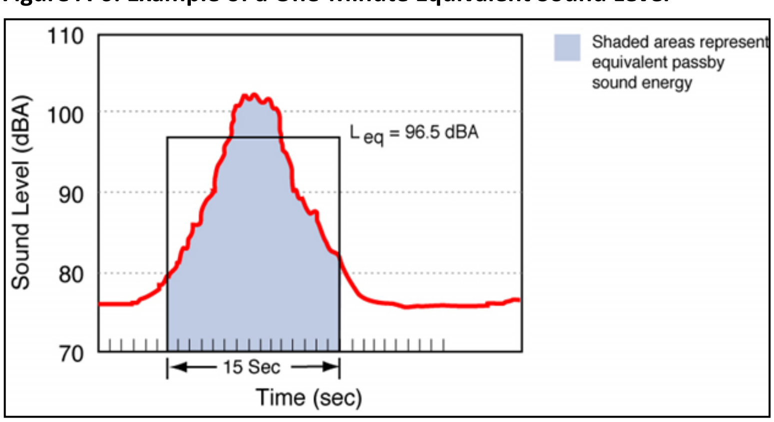
Source: HMMH, 2011

A.6 Equivalent A-Weighted Sound Level, Leq

The Equivalent Sound Level, abbreviated Leq, is a measure of the exposure resulting from the accumulation of sound levels over a particular period of interest; e.g., an hour, an 8-hour school day, nighttime, or a full 24-hour day. The applicable period should always be identified or clearly understood when discussing the metric.

Leq may be thought of as a constant sound level over the period of interest that contains as much sound energy as the actual varying level. It is a way of assigning a single number to a time-varying sound level. This is illustrated in **Figure A-6.**

Figure A-6: Example of a One-Minute Equivalent Sound Level



Source: HMMH, 2011

In airport noise applications, Leq is often presented for consecutive one-hour periods to illustrate how the hourly noise dose rises and falls throughout a 24-hour period as well as how certain hours are significantly affected by a few loud aircraft.

A.7 Day-Night Average Sound Level, DNL or Ldn

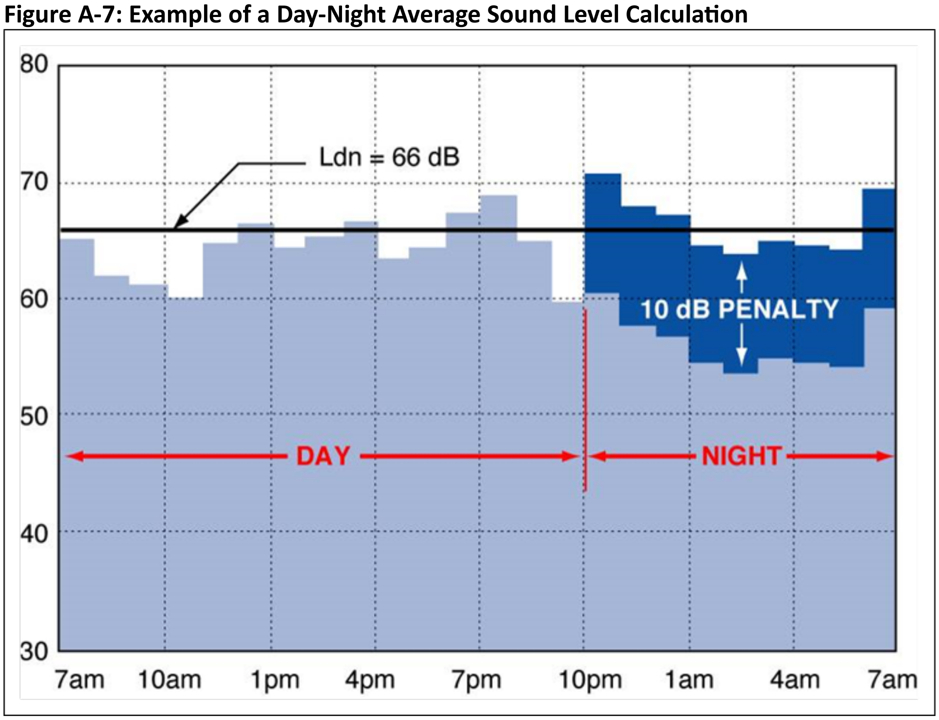
The previous sections address noise measures that account for short term fluctuations in A-weighted levels as sound sources come and go affecting the overall noise environment. The Day-Night Average Sound Level (DNL or Ldn) represents a 24-hour A-weighted noise dose. DNL is essentially equal to the 24-hour A-weighted Leq, with one important adjustment: noise occurring at night – from 10 p.m. through 6:59 a.m. – is "factored up." The factoring up can be made in one of two ways:

- Weighting, by counting each nighttime noise contribution 10 times; e.g., if DNL is calculated by summing the SEL of aircraft operations over a 24-hour period, each nighttime operation is represented by 10 identical daytime operations.
- Penalizing, by adding 10 dB to all nighttime noise contributions; e.g., if DNL is calculated from the SEL of aircraft operations occurring over a 24-hour period, 10 dB are added to the SEL values for nighttime operations.

The 10 dB adjustment accounts for our greater sensitivity to nighttime noise and the fact lower ambient levels at night tend to make noise events, such as aircraft flyovers, more intrusive.

Figure A-7 depicts this adjustment graphically.

Figure A-7: Example of a Day-Night Average Sound Level Calculation



Source: HMMH, 2011

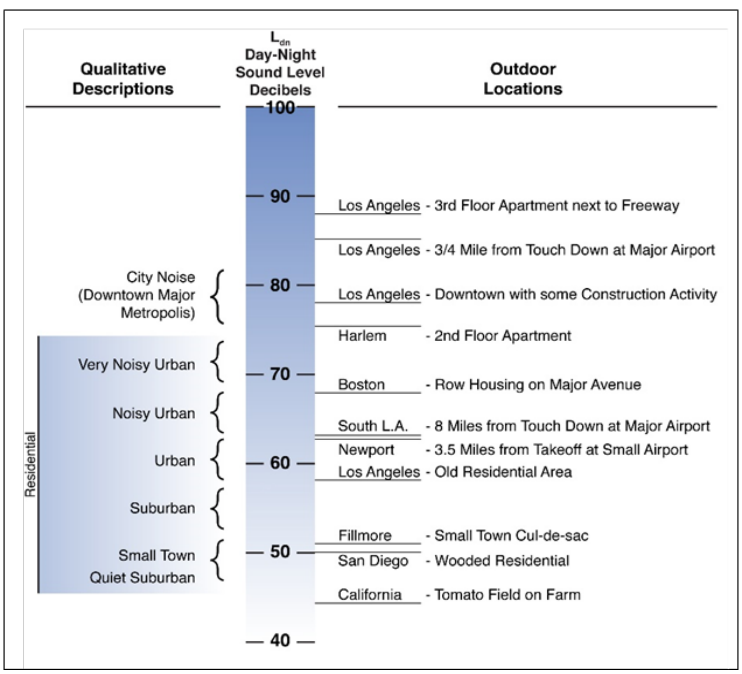
Most aircraft noise studies utilize computer-generated estimates of DNL, determined by adding up the energy from the SELs from each event, with the 10 dB penalty / weighting applied to night operations. Computed values of DNL are often depicted as noise contours reflecting lines of equal exposure around an airport (much as topographic maps indicate contours of equal elevation). The contours usually reflect long-term (annual average) operating conditions, taking into account the average flights per day, how often each runway is used throughout the year, and where over the surrounding communities the aircraft normally fly. Alternative time frames may also be helpful in understanding shorter term aspects of a noise environment.

Why is DNL used to describe noise around airports? The U.S. Environmental Protection Agency identified DNL as the most appropriate measure of evaluating airport noise based on the following considerations:

- It is applicable to the evaluation of pervasive long-term noise in various defined areas and under various conditions over long periods of time.
- It correlates well with known effects of noise on individuals and the public.
- It is simple, practical, and accurate. In principle, it is useful for planning as well as for enforcement or monitoring purposes.
- The required measurement equipment, with standard characteristics is commercially available.
- It was closely related to existing methods currently in use.

Representative values of DNL in our environment range from a low of 40 dB to 45 dB in extremely quiet, isolated locations, to highs of 80 dB or 85 dB immediately adjacent to a busy truck route. DNL would typically be in the range of 50 dB to 55 dB in a quiet residential community and 60 dB to 65 dB in an urban residential neighborhood. **Figure A-8** presents representative outdoor DNL values measured at various U.S. locations.

Figure A-8: Examples of Measured Day-Night Average Sound Levels



Source: HMMH, 2011

When preparing environmental noise analyses, the FAA considers a change of 1.5 dB within the DNL 65 dB contour to be "significant." If a change of 1.5 dB is observed, analysts should look between the 60 dB and 65 dB contours to see if there are areas of change of 3 dB or more; this is considered a "reportable impact."

Section A.2 provided rules of thumb for interpreting moment-to-moment changes in sound level. **Table A-1** presents guidelines for interpreting changes in cumulative exposure:

Table A-1: Guidelines for Interpreting Changes in Cumulative Exposure

DNL Change	Community Response	Mitigation
0 dB – 2 dB	May be noticeable	Abatement may be beneficial
2 dB – 5 dB	Generally noticeable	Abatement should be beneficial
Over 5 dB	A change in community reaction is likely	Abatement definitely beneficial

Source: HMMH, 2021

Most public agencies dealing with noise exposure, including the FAA, Department of Defense, and Department of Housing and Urban Development (HUD), have adopted DNL in their guidelines and regulations.

Appendix B AEDT Flight Track Utilization

The assigned model flight track percentages by runway end and operation are shown in the following tables. Track bundles (a backbone and multiple dispersion tracks) are listed with one master bundle name in the tables; each bundle consists of up to 9 modeled flight tracks. Geographic depictions of the flight track locations are provided in **section 3.5**.

Table B-1. AEDT Arrival Flight Track Utilization, Crosswind Runways

Runway	Track Group	Air Carrier Jet	Air Carrier Regional Jet	Air Taxi Jet	Air Taxi Non-Jet	General Aviation Jet	General Aviation Non-Jet
13L	13LAJ1	100%	100%	100%	0%	100%	0%
13L	13LAP1	0%	0%	0%	100%	0%	100%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
13R	13RAJ1	95%	95%	95%	0%	95%	0%
13R	13RAJ2	5%	5%	5%	0%	5%	0%
13R	13RAP1	0%	0%	0%	100%	0%	100%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
31L	31LAJ0	20%	20%	20%	0%	20%	0%
31L	31LAJ1	80%	80%	80%	0%	80%	0%
31L	31LAP0	0%	0%	0%	100%	0%	100%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
31R	31RAJ1	100%	100%	100%	0%	100%	0%
31R	31RAP1	0%	0%	0%	100%	0%	100%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Sources: DFW 2018 AEDT Study and HMMH Analysis 2025

Table B-2. AEDT Departure Flight Track Utilization, Crosswind Runways

Runway	Track Group	Air Carrier Jet	Air Carrier Regional Jet	Air Taxi Jet	Air Taxi Non-Jet	General Aviation Jet	General Aviation Non-Jet
13L	13LDJ1	100%	100%	100%	0%	100%	0%
13L	13LDP1	0%	0%	0%	100%	0%	100%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
13R	13RDJ1	100%	100%	100%	0%	100%	0%
13R	13RDP1	0%	0%	0%	100%	0%	100%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
31L	31LDJ1	61%	61%	61%	0%	61%	0%
31L	31LDJ2	25%	25%	25%	0%	25%	0%
31L	31LDJ3	14%	14%	14%	0%	14%	0%
31L	31LDP1	0%	0%	0%	94%	0%	94%
31L	31LDP2	0%	0%	0%	6%	0%	6%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
31R	31RDJ0	100%	100%	100%	0%	100%	0%
31R	31RDP0	0%	0%	0%	100%	0%	100%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Sources: DFW 2018 AEDT Study and HMMH Analysis 2025

Table B-3. AEDT Arrival Flight Track Utilization, North Flow

Runway	Track Group	Air Carrier Jet	Air Carrier Regional Jet	Air Taxi Jet	Air Taxi Non-Jet	General Aviation Jet	General Aviation Non-Jet
17C	17CAJ1A	16%	16%	16%	0%	16%	0%
17C	17CAJ1B	<1%	<1%	<1%	0%	<1%	0%
17C	17CAJ1C	12%	12%	12%	0%	12%	0%
17C	17CAJ1D	4%	4%	4%	0%	4%	0%
17C	17CAJ2A	5%	5%	5%	0%	5%	0%
17C	17CAJ2B	13%	13%	13%	0%	13%	0%
17C	17CAJ2C	10%	10%	10%	0%	10%	0%
17C	17CAJ2D	39%	39%	39%	0%	39%	0%
17C	17CAP1	0%	0%	0%	12%	0%	12%
17C	17CAP2	0%	0%	0%	73%	0%	73%
17C	17CAP3	0%	0%	0%	15%	0%	15%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
17L	17LAJ4	15%	15%	15%	0%	15%	0%
17L	17LAJ5	51%	51%	51%	0%	51%	0%
17L	17LAJ7	35%	35%	35%	0%	35%	0%
17L	17LAP1	0%	0%	0%	89%	0%	89%
17L	17LAP2	0%	0%	0%	11%	0%	11%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
17R	17RAJ1	6%	6%	6%	0%	6%	0%
17R	17RAJ2	18%	18%	18%	0%	18%	0%
17R	17RAJ3	26%	26%	26%	0%	26%	0%
17R	17RAJ4	7%	7%	7%	0%	7%	0%
17R	17RAJ5	21%	21%	21%	0%	21%	0%
17R	17RAJ6	9%	9%	9%	0%	9%	0%
17R	17RAJ7	13%	13%	13%	0%	13%	0%
17R	17RAP0	0%	0%	0%	100%	0%	100%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
18L	18LAJ1	31%	31%	31%	0%	31%	0%
18L	18LAJ2	37%	37%	37%	0%	37%	0%
18L	18LAJ3	11%	11%	11%	0%	11%	0%
18L	18LAJ4	21%	21%	21%	0%	21%	0%
18L	18LAP0	0%	0%	0%	100%	0%	100%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
18R	18RAJ1	4%	4%	4%	0%	4%	0%
18R	18RAJ2	31%	31%	31%	0%	31%	0%
18R	18RAJ3	<1%	<1%	<1%	0%	<1%	0%
18R	18RAJ4	51%	51%	51%	0%	51%	0%
18R	18RAJ5	2%	2%	2%	0%	2%	0%
18R	18RAJ6	<1%	<1%	<1%	0%	<1%	0%
18R	18RAJ7	2%	2%	2%	0%	2%	0%
18R	18RAJ8	4%	4%	4%	0%	4%	0%
18R	18RAJ9	5%	5%	5%	0%	5%	0%
18R	18RAP1	0%	0%	0%	41%	0%	41%
18R	18RAP2	0%	0%	0%	59%	0%	59%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Note: Totals may not match exactly due to rounding.
Sources: DFW 2018 AEDT Study and HMMH Analysis 2025

Table B-4. AEDT Arrival Flight Track Utilization, South Flow

Runway	Track Group	Air Carrier Jet	Air Carrier Regional Jet	Air Taxi Jet	Air Taxi Non-Jet	General Aviation Jet	General Aviation Non-Jet
35C	35CAJ1A	15%	15%	15%	0%	15%	0%
35C	35CAJ1B, C	<1%	<1%	<1%	0%	<1%	0%
35C	35CAJ2A	53%	53%	53%	0%	53%	0%
35C	35CAJ2B, C	<1%	<1%	<1%	0%	<1%	0%
35C	35CAJ3A	17%	17%	17%	0%	17%	0%
35C	35CAJ3B	6%	6%	6%	0%	6%	0%
35C	35CAJ4A	4%	4%	4%	0%	4%	0%
35C	35CAJ4B	3%	3%	3%	0%	3%	0%
35C	35CAP1	0%	0%	0%	19%	0%	19%
35C	35CAP2	0%	0%	0%	45%	0%	45%
35C	35CAP3	0%	0%	0%	13%	0%	13%
35C	35CAP4	0%	0%	0%	23%	0%	23%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
35L	35LAJ1A	20%	20%	20%	0%	20%	0%
35L	35LAJ1B	22%	22%	22%	0%	22%	0%
35L	35LAJ2A	24%	24%	24%	0%	24%	0%
35L	35LAJ2B	6%	6%	6%	0%	6%	0%
35L	35LAJ3	15%	15%	15%	0%	15%	0%
35L	35LAJ4	13%	13%	13%	0%	13%	0%
35L	35LAP1	0%	0%	0%	100%	0%	100%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
35R	35RAJ1A	1%	1%	1%	0%	1%	0%
35R	35RAJ1B	<1%	<1%	<1%	0%	<1%	0%
35R	35RAJ2	32%	32%	32%	0%	32%	0%
35R	35RAJ3A	35%	35%	35%	0%	35%	0%
35R	35RAJ3B	31%	31%	31%	0%	31%	0%
35R	35RAJ4	<1%	<1%	<1%	0%	<1%	0%
35R	35RAP1	0%	0%	0%	69%	0%	69%
35R	35RAP2	0%	0%	0%	31%	0%	31%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
36L	36LAJ1A	40%	40%	40%	0%	40%	0%
36L	36LAJ1B	<1%	<1%	<1%	0%	<1%	0%
36L	36LAJ2A	<1%	<1%	<1%	0%	<1%	0%
36L	36LAJ2B	4%	4%	4%	0%	4%	0%
36L	36LAJ2C	7%	7%	7%	0%	7%	0%
36L	36LAJ2D	<1%	<1%	<1%	0%	<1%	0%
36L	36LAJ3A	2%	2%	2%	0%	2%	0%
36L	36LAJ3B	5%	5%	5%	0%	5%	0%
36L	36LAJ4A	26%	26%	26%	0%	26%	0%
36L	36LAJ4B	16%	16%	16%	0%	16%	0%
36L	36LAP1	0%	0%	0%	64%	0%	64%
36L	36LAP2	0%	0%	0%	11%	0%	11%
36L	36LAP3	0%	0%	0%	25%	0%	25%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
36R	36RAJ1	26%	26%	26%	0%	26%	0%
36R	36RAJ2A	3%	3%	3%	0%	3%	0%
36R	36RAJ2B	14%	14%	14%	0%	14%	0%
36R	36RAJ3	21%	21%	21%	0%	21%	0%
36R	36RAJ4	36%	36%	36%	0%	36%	0%
36R	36RAP1	0%	0%	0%	100%	0%	100%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Note: Totals may not match exactly due to rounding.
Sources: DFW 2018 AEDT Study and HMMH Analysis 2025

Table B-5. AEDT Departure Flight Track Utilization, South Flow

Runway	Track Group	Air Carrier Jet	Air Carrier Regional Jet	Air Taxi Jet	Air Taxi Non-Jet	General Aviation Jet	General Aviation Non-Jet
17C	17CDJ1	21%	21%	21%	0%	21%	0%
17C	17CDJ2A	39%	39%	39%	0%	39%	0%
17C	17CDJ2B	35%	35%	35%	0%	35%	0%
17C	17CDJ3	5%	5%	5%	0%	5%	0%
17C	17CDP1	0%	0%	0%	15%	0%	15%
17C	17CDP2	0%	0%	0%	65%	0%	65%
17C	17CDP3	0%	0%	0%	21%	0%	21%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
17L	17LDJ1	100%	100%	100%	0%	100%	0%
17L	17LDP1	0%	0%	0%	100%	0%	100%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
17R	17RDJ1A	<1%	<1%	<1%	0%	<1%	0%
17R	17RDJ1B	<1%	<1%	<1%	0%	<1%	0%
17R	17RDJ1C	<1%	<1%	<1%	0%	<1%	0%
17R	17RDJ2A	2%	2%	2%	0%	2%	0%
17R	17RDJ2B	1%	1%	1%	0%	1%	0%
17R	17RDJ3A	13%	13%	13%	0%	13%	0%
17R	17RDJ3B	3%	3%	3%	0%	3%	0%
17R	17RDJ4A	35%	35%	35%	0%	35%	0%
17R	17RDJ4B	11%	11%	11%	0%	11%	0%
17R	17RDJ4C	18%	18%	18%	0%	18%	0%
17R	17RDJ5A	3%	3%	3%	0%	3%	0%
17R	17RDJ5B	7%	7%	7%	0%	7%	0%
17R	17RDJ6	2%	2%	2%	0%	2%	0%
17R	17RDJ7	3%	3%	3%	0%	3%	0%
17R	17RDJ8	1%	1%	1%	0%	1%	0%
17R	17RDP1	0%	0%	0%	20%	0%	20%
17R	17RDP2	0%	0%	0%	33%	0%	33%
17R	17RDP3	0%	0%	0%	39%	0%	39%
17R	17RDP4	0%	0%	0%	8%	0%	8%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
18L	18LDJ1	<1%	<1%	<1%	0%	<1%	0%
18L	18LDJ10	6%	6%	6%	0%	6%	0%
18L	18LDJ2	7%	7%	7%	0%	7%	0%
18L	18LDJ3	2%	2%	2%	0%	2%	0%
18L	18LDJ4A	8%	8%	8%	0%	8%	0%
18L	18LDJ4B	8%	8%	8%	0%	8%	0%
18L	18LDJ4C	3%	3%	3%	0%	3%	0%
18L	18LDJ5A	4%	4%	4%	0%	4%	0%
18L	18LDJ5B	4%	4%	4%	0%	4%	0%
18L	18LDJ6	19%	19%	19%	0%	19%	0%
18L	18LDJ7	15%	15%	15%	0%	15%	0%
18L	18LDJ8	2%	2%	2%	0%	2%	0%
18L	18LDJ9	21%	21%	21%	0%	21%	0%
18L	18LDP1A	0%	0%	0%	58%	0%	58%
18L	18LDP1B	0%	0%	0%	42%	0%	42%
Subtotal	-	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
18R	18RDJ1	20%	20%	20%	0%	20%	0%
18R	18RDJ2	14%	14%	14%	0%	14%	0%
18R	18RDJ3	15%	15%	15%	0%	15%	0%

Runway	Track Group	Air Carrier Jet	Air Carrier Regional Jet	Air Taxi Jet	Air Taxi Non-Jet	General Aviation Jet	General Aviation Non-Jet
18R	18RDJ4	9%	9%	9%	0%	9%	0%
18R	18RDJ5A	15%	15%	15%	0%	15%	0%
18R	18RDJ5B	17%	17%	17%	0%	17%	0%
18R	18RDJ6	10%	10%	10%	0%	10%	0%
18R	18RDP1A	0%	0%	0%	79%	0%	79%
18R	18RDP1B	0%	0%	0%	21%	0%	21%
Subtotal	**-**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Note: Totals may not match exactly due to rounding.
Sources: DFW 2018 AEDT Study and HMMH Analysis 2025

Table B-6. AEDT Departure Flight Track Utilization, North Flow

Runway	Track Group	Air Carrier Jet	Air Carrier Regional Jet	Air Taxi Jet	Air Taxi Non-Jet	General Aviation Jet	General Aviation Non-Jet
35C	35CDJ1	4%	4%	4%	0%	4%	0%
35C	35CDJ2	13%	13%	13%	0%	13%	0%
35C	35CDJ3	3%	3%	3%	0%	3%	0%
35C	35CDJ4A	10%	10%	10%	0%	10%	0%
35C	35CDJ4B	5%	5%	5%	0%	5%	0%
35C	35CDJ5A	11%	11%	11%	0%	11%	0%
35C	35CDJ5B	9%	9%	9%	0%	9%	0%
35C	35CDJ6	45%	45%	45%	0%	45%	0%
35C	35CDP0	0%	0%	0%	39%	0%	39%
35C	35CDP1	0%	0%	0%	24%	0%	24%
35C	35CDP2	0%	0%	0%	24%	0%	24%
35C	35CDP3	0%	0%	0%	6%	0%	6%
35C	35CDP4	0%	0%	0%	6%	0%	6%
Subtotal	**-**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
35L	35LDJ1A	<1%	<1%	<1%	0%	<1%	0%
35L	35LDJ1B	<1%	<1%	<1%	0%	<1%	0%
35L	35LDJ1C	<1%	<1%	<1%	0%	<1%	0%
35L	35LDJ2A	1%	1%	1%	0%	1%	0%
35L	35LDJ2B	13%	13%	13%	0%	13%	0%
35L	35LDJ2C	2%	2%	2%	0%	2%	0%
35L	35LDJ2D	<1%	<1%	<1%	0%	<1%	0%
35L	35LDJ3A	21%	21%	21%	0%	21%	0%
35L	35LDJ3B	12%	12%	12%	0%	12%	0%
35L	35LDJ4A	33%	33%	33%	0%	33%	0%
35L	35LDJ4B	2%	2%	2%	0%	2%	0%
35L	35LDJ4C	3%	3%	3%	0%	3%	0%
35L	35LDJ5A	10%	10%	10%	0%	10%	0%
35L	35LDJ5B	2%	2%	2%	0%	2%	0%
35L	35LDP1	0%	0%	0%	100%	0%	100%
Subtotal	**-**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
35R	35RDJ1	100%	100%	100%	0%	100%	0%
35R	35RDP0	0%	0%	0%	100%	0%	100%
Subtotal	**-**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
36L	36LDJ1	31%	31%	31%	0%	31%	0%
36L	36LDJ2A	14%	14%	14%	0%	14%	0%
36L	36LDJ2B	11%	11%	11%	0%	11%	0%
36L	36LDJ3A	14%	14%	14%	0%	14%	0%
36L	36LDJ3B	20%	20%	20%	0%	20%	0%

Runway	Track Group	Air Carrier Jet	Air Carrier Regional Jet	Air Taxi Jet	Air Taxi Non-Jet	General Aviation Jet	General Aviation Non-Jet
36L	36LDJ3C	10%	10%	10%	0%	10%	0%
36L	36LDP1	0%	0%	0%	88%	0%	88%
36L	36LDP2	0%	0%	0%	12%	0%	12%
Subtotal	**-**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
36R	36RDJ1	<1%	<1%	<1%	0%	<1%	0%
36R	36RDJ10	1%	1%	1%	0%	1%	0%
36R	36RDJ1B	17%	17%	17%	0%	17%	0%
36R	36RDJ2	6%	6%	6%	0%	6%	0%
36R	36RDJ3	19%	19%	19%	0%	19%	0%
36R	36RDJ4	5%	5%	5%	0%	5%	0%
36R	36RDJ5A	1%	1%	1%	0%	1%	0%
36R	36RDJ5B	<1%	<1%	<1%	0%	<1%	0%
36R	36RDJ5C	<1%	<1%	<1%	0%	<1%	0%
36R	36RDJ6	16%	16%	16%	0%	16%	0%
36R	36RDJ7	2%	2%	2%	0%	2%	0%
36R	36RDJ8	3%	3%	3%	0%	3%	0%
36R	36RDJ9	3%	3%	3%	0%	3%	0%
36R	36RDJC	3%	3%	3%	0%	3%	0%
36R	36RDJD	19%	19%	19%	0%	19%	0%
36R	36RDJE	<1%	<1%	<1%	0%	<1%	0%
36R	36RDJF	1%	1%	1%	0%	1%	0%
36R	36RDP1	0%	0%	0%	88%	0%	88%
36R	36RDP2	0%	0%	0%	12%	0%	12%
Subtotal	**-**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Note: Totals may not match exactly due to rounding.
Sources: DFW 2018 AEDT Study and HMMH Analysis 2025

Appendix C Aviation Forecast

The following pages reproduce the operational forecast memorandum that was provided to the FAA for review and approval for the EA. FAA approved the use of this forecast on September 17, 2025. A copy of FAA's approval letter follows the memorandum.

Appendix E – Protected Species Habitat Assessment, Waters of the United States Delineation, and Tree Survey Reports

Runway 18L/36R Rehabilitation -Protected Species Habitat Assessment

21 July 2025

Ms. Esther Chitsinde
HDR Engineering, INC.
17111 Preston Rd., Suite 300
Dallas, Texas 75284

Re: Runway 18L/36R Rehabilitation - Protected Species Habitat Assessment
Four parcels totaling approximately 55.96 acres located throughout Dallas-Fort Worth International Airport, Dallas, Tarrant County, Texas

Dear Ms. Chitsinde,

Integrated Environmental Solutions, LLC (IES) performed a protected species habitat assessment on four parcels totaling approximately 55.96 acres located throughout Dallas-Fort Worth International Airport (DFW), Dallas, Tarrant County, Texas (**Attachment A, Figure 1**) to satisfy Endangered Species Act (ESA) requirements. The following report includes a list of the federally and state protected species for Tarrant County, their preferred vegetation assemblages, a summary of vegetation communities identified on the site, an evaluation of whether the vegetation communities present on the site could support a protected species, and whether future proposed actions would affect listed species.

INTRODUCTION

Federally Protected Species

Endangered Species Act

The ESA of 1973 (Public Law [P.L.] 93-205) and amendments of 1988 (P.L. 100-578) were enacted to provide a program of preservation for endangered and threatened species and to provide protection for ecosystems upon which these species depend for their survival. The ESA requires all federal agencies to implement protection programs for designated species and to use their authorities to further the purposes of the Act. Responsibility for the listing of an endangered or threatened species and for the development of recovery plans lies with the Secretary of Interior and Secretary of Commerce. The U.S. Fish and Wildlife Service (USFWS) is responsible for implementing the ESA within the United States.

An endangered species is defined as a species in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as a species likely to become endangered within the near future throughout all or a significant portion of its range. Proposed species are defined as those that have been formally submitted to Congress for official listing as endangered or threatened.

The USFWS has identified species that are candidates for possible addition to the list of Endangered and Threatened Wildlife and Plants (50 Code of Federal Regulations [CFR] 17.11 and 17.12) under the ESA. The USFWS maintains a candidate list to: (1) provide advance knowledge of potential listings that could affect land planning decisions, (2) solicit input to identify candidate species that may require protection under the ESA, and (3) solicit information needed to prioritize the order in which species will be proposed for listing. Candidate species have no legal protection under the ESA.

Migratory Bird Treaty Act

The Migratory Bird Treaty Act of 1918 (MBTA) states that it is unlawful to kill, capture, collect, possess, buy, sell, trade, or transport any migratory bird, nest, young, feather, or egg in part or in whole, without a federal permit issued in accordance with the Act's policies and regulations. The USFWS maintains a list of migratory birds (50 CFR 10.13), which includes, as of the date of this report, over 1,000 species. Under Director's Order 225 (05 October 2021), the USFWS interprets the MBTA to prohibit the incidental take of migratory bird and will enforce the statute accordingly, which went into effect 03 December 2021. In this order incidental take means, "the taking or killing of migratory birds that results from, but is not the purpose of, an activity." The USFWS acknowledges that a wide range of activities may result in incidental take of migratory birds, as such, they have developed a priority list for those actions that would require enforcement activities.

a) The following types of conduct are not a priority for enforcement.
   (1) A member of the general public conducting otherwise legal activities that incidentally take migratory birds;
   (2) A federal agency conducting activities in accordance with a signed memorandum of understanding with the USFWS developed under Executive Order (EO) 13186 for conservation of migratory birds; or
   (3) A public or private sector entity conducting activities in accordance with applicable beneficial practices for avoiding and minimizing incidental take.
b) The USFWS prioritizes the following types of conduct for enforcement.
   (1) Incidental take that is the result of an otherwise illegal activity; or
   (2) Incidental take that:
      a. Results from activities by a public or private sector entity that are otherwise legal;
      b. Is foreseeable; and
      c. Occurs where known general or activity-specific beneficial practices were not implemented.

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) (16 U.S. Code [USC] 668-668d) prohibits anyone, without a permit issued by the Secretary of the Interior, from "talking" bald or golden eagles, including their parts (including feathers), nests, or eggs. Under the BGEPA, there are criminal penalties for persons who, "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part (including feathers), nests, or egg thereof." The BGEPA defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb." Disturb is further defined as, "to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle, (2) decrease its productivity, by substantially interfering with normal breeding, feeding, or sheltering behaviors, or (3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behaviors" (50 CFR 22.6). In addition to immediate actions, the BGEPA definition also covers the effects from human-induced alterations around previously used nest sites during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death, or nest abandonment. Revisions to the BGEPA went into effect on 12 April 2024, that included new specific and general permits for unavoidable nest taking for species protection and incidental take permits associated with disturbance, wind energy, and power lines. Additionally, mitigation credits for incidental eagle takings have been created and could be required for certain incidental take permits (e.g., wind energy).

<u>State Protected Species</u>

The Texas Parks and Wildlife Department (TPWD) Wildlife Diversity Program (WDP) maintains a list of threatened and endangered species by county. The State of Texas does not list threatened and endangered species using the same criteria as the federal government. When the USFWS lists a plant species, the State of Texas then lists that plant. Thus, the list of threatened and endangered plants in Texas directly reflects the federal list. However, the state has separate laws governing the listing of wildlife species as threatened or endangered. In Texas, wildlife species are designated as threatened or endangered according to Chapters 67 and 68 of the Texas Parks and Wildlife Code and Section 65.171 - 65.184 of Title 31 of the Texas Administrative Code. Species that are not currently listed by the Federal government may be listed as threatened or endangered by the TPWD.

METHODOLOGY

Prior to conducting fieldwork, the list of Endangered and Threatened Wildlife and Plants under the ESA was obtained through the USFWS Information, Planning, and Conservation System (IPaC), the TPWD WDP, and the Texas Natural Diversity Database (TXNDD). Information on the vegetation communities used by each wildlife species is detailed below. During the field survey, vegetation composition within and adjacent to the project site was noted to determine whether there was potential for protected species habitat. This survey was not designed to identify the presence of protected species; however, if species were observed, they were recorded. Photographs were taken at representative points, illustrating common vegetation communities within the survey area (**Attachment B**).

RESULTS

Literature Review

According to the USFWS, three species; Piping Plover (*Charadrius melodus*), Red Knot (*Calidris canutus rufa*), and Whooping Crane (*Grus americana*) are listed as federally protected (i.e., threatened or endangered) with the potential to occur within the survey area. Two of these species are conditionally listed as threatened within Tarrant County on the basis that the proposed project is for wind energy production, Red Knot and Piping Plover. The tricolored bat (*Perimyotis subflavus*) and Texas heelsplitter (*Potamilus amphichaenus*) are listed as proposed endangered. The alligator snapping turtle (*Macrochelys temminckii*) and monarch butterfly (*Danaus plexippus*) are listed as proposed threatened. No federally listed critical habitat for these species is located within the survey area vicinity.

The TPWD lists 12 state protected species that could occur within Tarrant County, three of which are also federally listed avian species. The TPWD lists the following protected species for Tarrant County, Black Rail (*Laterallus jamaicensis*), Interior Least Tern (*Sternula antillarum athalassos*), Piping Plover, Red Knot, White-faced Ibis (*Plegadis chihi*), Whooping Crane, black bear (*Ursus americanus*), Louisiana pigtoe (*Pleurobema riddellii*), sandbank pocketbook (*Lampsilis satura*), Texas heelsplitter (*Potamilus amphichaenus*), alligator snapping turtle, and Texas horned lizard (*Phrynosoma cornutum*). The review of the TXNDD files did not indicate any unique vegetation communities, parks, or natural managed areas within the survey area.

Attachment C identifies the state and federally protected species that could potentially occur within Tarrant County or the survey area from the Rare and Threatened Endangered Species of Texas (RTEST) and IPaC lists.

Site Survey

Mr. Rafael Gomez of IES evaluated the survey area on 01 July 2025. This survey was designed to provide a habitat evaluation of the overall survey area with the primary focus on the vegetation communities.

The survey area was characterized by a distinct vegetation community of **disturbed grassland**. The **disturbed grassland** was observed across all four parcels. Three of the parcels were actively used as staging areas and were largely void of vegetation due to ongoing activity. The parcel in the northeast was mowed. Dominant herbaceous species throughout all four parcels included Bermudagrass (*Cynodon dactylon*), common sunflower *(Helianthus annuus*), eastern poison ivy (*Toxicodendron radicans*), giant ragweed (*Ambrosia trifida*), Johnsongrass (*Sorghum halepense*), Kleingrass (*Panicum coloratum*), prairie bundleflower (*Desmanthus illinoensis*), prairie tea (*Croton monanthogynus*), silver bluestem (*Bothriochloa saccharoides*), smooth switchgrass (*Panicum virgatum*), and southern dewberry (*Rubus trivialis*). Woody species present included honey mesquite (*Prosopis glandulosa*) and sugarberry (*Celtis laevigata*).

CONCLUSIONS

Preferred Habitat for Federally Protected Species

Table 1 provides a summary of the federally and state listed species that could potentially occur within the survey area or Tarrant County, as well as a brief description of their habitat, if their habitat is present within the survey area, and whether the proposed project would potentially affect the listed species.

- Piping Plover and Red Knot are protected conditionally on the basis that a proposed project involves the production of wind energy. Because this project does not meet that condition, no further consideration was required for these species.
- Whooping Cranes occur only in North America with the only known habitats in three locations, Wood Buffalo National Park, Canada; Aransas National Wildlife Refuge, Texas; and a non-migratory population in central Florida. Whooping Cranes utilize estuaries, prairie marshes, savannah, grasslands, croplands, pastures; they also use large wetland areas associated with lakes for roosting and feeding. The site does not contain adequate structure for this species. USFWS has determined that Whooping Cranes generally prefer croplands and grassland interspersed with wetlands that are generally shallow (less than 20 inches). As such, it is not likely that Whooping Cranes would occupy the site as the conditions present do not meet the parameters of their habitat.
- The tricolored bat in the Southern United States, hibernates in caves, mines, and potentially in culverts, tree cavities, and abandoned water wells, where caves or mines are scare. In the Spring, Summer, and Fall, the bat is usually found in forests, primarily roosting among deciduous hardwood tree leaves, but also has been found in Spanish moss (*Tillandsia usneoides*), pines, eastern red cedar, and occasionally artificial roosts like barns, beneath porch roofs, bridges, and concrete bunkers. The tricolored bat maintains the status of proposed endangered. It is not currently afforded protection under the ESA, at the time of this report, and no further consideration is required for this species.
- The alligator snapping turtle prefers perennial water bodies including rivers, canals, lakes, and oxbows as well as swamps, bayous, and ponds near running water. It sometimes enters brackish coastal waters. No aquatic features were identified within the survey areas. Additionally, the alligator snapping turtle maintains the status of proposed threatened. It is not currently afforded protection under the ESA, at the time of this report, and no further consideration is required for this species.
- There were no headwaters, small streams to large rivers consisting of sand, gravel, mud, or cobble within the survey area to provide habitat for the Texas heelsplitter.
- Monarch butterflies are found in a variety of habitats including native prairies, pastures, open woodlands and savannas, desert scrub, roadsides, and other habitats with abundant nectar plants, including urbanized areas. The disturbed grassland community identified within the site may comprise a suitable habitat for this species. However, the monarch butterfly is a proposed threatened species. It is not currently afforded protection under the ESA, at the time of this report, and no further consideration is required for this species.

The habitats present within the survey area were not suitable for any of the federally listed threatened or endangered species. Nor were the habitats suitable for nesting, feeding, or stopover migration for these species.

Table 1. Federally and State listed Threatened and Endangered
Species Occurring or Potentially Occurring in the Survey Area or Tarrant County, Texas

Species	Federal Status	State Status	Description of Habitat	Habitat Present[1]	Species Effect[2]
MAMMALS					
Black Bear (*Ursus americanus*)	---	T	Generalist. Historically found throughout Texas. In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.	**No**	**
Tricolored Bat (*Perimyotis subflavus*)	PE	---	Forest, woodland, and riparian areas are important. Caves are very important to this species.	**No**	**
BIRDS					
Black Rail (*Laterallus jamaicensis*	---	T	Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia.	**No**	**
Interior Least Tern (*Sternula antillarum athalassos*)	---	E	Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc.); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony	**No**	**
Piping Plover (*Charadrius melodus*)	LT	T	Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.	**No**	**No**
Red Knot (*Calidris canutus rufa*)	LT	T	Red Knots migrate long distances in flocks northward through the contiguous U.S. mainly April-June, southward July-October. Prefers shorelines of coast and bays, uses mudflats during rare inland encounters. Primary habitats include seacoasts on tidal flats and shores, beaches, and herbaceous wetland.	**No**	**No**
White-Faced Ibis (*Plegadis chihi*)	---	T	Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.	**No**	**
Whooping Crane (*Grus americana*)	LE	E	Potential migrants via plains throughout most of the state to the coast. Winters in coastal marshes of Aransas, Calhoun, and Refugio counties. Utilizes small ponds, marshes, and flooded grain fields for roosting and foraging.	**No**	**No**
REPTILES					
Alligator Snapping Turtle (*Macrochelys temminckii*)	PT	T	Aquatic: Perennial water bodies; rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near running water; sometimes enters brackish coastal waters. Females emerge to lay eggs close to the water's edge.	**No**	**
Texas Horned Lizard (*Phrynosoma cornutum*)	---	T	Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.	**No**	**
INSECTS					
Monarch Butterfly (*Danaus plexippus*)	PT	---	Adult monarch butterflies are large and conspicuous, with bright orange wings surrounded by a black border and covered with black veins. During the breeding season, monarchs lay their eggs on their obligatory milkweed host plant (primarily Asclepias spp.), and larvae emerge after 2 to 5 days. Larvae develop through five larval	**Yes**	**

Species	Federal Status	State Status	Description of Habitat	Habitat Present[1]	Species Effect[2]
			instars (intervals between molts) over a period of 9 to 18 days, feeding on milkweed and sequestering toxic chemicals (cardenolides) as a defense against predators. The larva then pupates into a chrysalis before emerging 6 to 14 days later as an adult butterfly. There are multiple generations of monarchs produced during the breeding season, with most adult butterflies living approximately 2 to 5 weeks; overwintering adults enter into reproductive diapause (suspended reproduction) and live 6 to 9 months. Individual monarchs in temperate climates, such as eastern and western North America, undergo long-distance migration, and live for an extended period of time. In the fall, in both eastern and western North America, monarchs begin migrating to their respective overwintering sites.		
MOLLUSKS					
Louisiana Pigtoe (*Pleurobema riddellii*)	PT	T	Occurs in small streams to large rivers in slow to moderate currents in substrates of clay, mud, sand, and gravel. Not known from impoundments (Howells 2010f; Randklev et al. 2013b; Troia et al. 2015). [Mussels of Texas 2019]	**No**	**
Sandbank Pocketbook (*Lampsilis satura*)	---	T	Occurs in small streams to large rivers in slow to moderate current in sandy mud to sand and gravel substrate. Can occur in a variety of habitats but most common in littoral habitats such as banks or backwaters or in protected areas along point bars (Randklev et al. 2013b; Randklev et al. 2014a; Troia et al. 2015). [Mussels of Texas 2019]	**No**	**
Texas Heelsplitter (*Potamilus amphichaenus*)	PE	T	Occurs in small streams to large rivers in standing to slow-flowing water; most common in banks, backwaters and quiet pools; adapts to some reservoirs. Often found in soft substrates such as mud, silt or sand (Howells et al. 1996; Randklev et al. 2017a). [Mussels of Texas 2019]	**No**	**

LE – Federally Listed Endangered, LT – Federally Listed Threatened, PE – Federally Proposed Endangered, PT – Federally Proposed Threatened, C – Federally Listed Candidate, E – State Listed Endangered, T – State Listed Threatened
** - This species is not currently afforded federal protection as of the date of this report
[1]*Habitat Present – Does the habitat located within the survey area match the habitat requirements for that particular protected species?*
[2]*Species Effect – Will the proposed project potentially affect a protected species?*
Data Sources: USFWS IpaC (published and accessed 16 July 2025), TPWD (published and accessed 16 July 2025), and field survey of the project site

<u>Preferred Habitat for State Protected Species</u>

There were 12 threatened and endangered species listed for Tarrant County, including three federally listed avian species.

- Black Rails utilize freshwater marshes and grassy swamps with dense emergent vegetation. No aquatic features were identified within the survey area. As a result, the project area does not provide suitable habitat for the Black Rail.
- The Interior Least Tern is typically found in habitats such as sand and gravel bars along braided rivers, inland beaches, and man-made structures like wastewater treatment plants and gravel mines. This species requires open, sparsely vegetated areas near water bodies to nest and forage, primarily feeding on small fish and crustaceans within proximity to nesting sites. The project area consists of disturbed grassland with no nearby large water bodies, sand or gravel bars, or other suitable nesting substrates. Given the absence of aquatic foraging habitat and appropriate nesting conditions, the project limits do not provide suitable habitat for the Interior Least Tern.
- Any occurrence of the Piping Plover, Red Knot, White-faced Ibis, and Whooping Crane would be in relation to stopover during migration; however, no suitable stopover habitat was observed within the survey area.
- Black bears occur in higher elevations where pinyon-oaks predominate, desert scrub, upland hardwoods with mixed pine, marsh, bottomland hardwoods, and large tracts of inaccessible forested areas. The black bear has been considered extirpated for this part of Texas.

- Louisiana pigtoe, sandbank pocketbook, Texas heelsplitter, and alligator snapping turtle occur in small streams and large rivers. No aquatic features were identified within any of the four parcels. Therefore, suitable habitat for these species would not be present.
- The Texas horned lizard prefers sandy bare ground with scattered clumps of vegetation which does not occur within the four parcels.

Migratory Birds

Migratory birds are located throughout Tarrant County in a variety of preferred and non-preferred habitats. The USFWS has developed a basic set of nationwide standard conservation measures to reduce impacts to migratory birds and their habitats. These conservation measures can reduce the potential for incidental take of migratory birds. USFWS does not currently have an incidental take permitting process for migratory birds. As such, conservation measures should be utilized, if practicable, to reduce the potential for incidental take.

There are three general areas of conservation measures – (1) General, (2) Habitat Protection, and (3) Stressor Management.

1) General Measures
   a) Educate all employees, contractors, and site visitors of relevant rules and regulations that protect wildlife in the State of Texas.
   b) Prior to removal of an inactive nest, ensure that the nest is not protected under the ESA or BGEPA.
   c) Do not collect birds, their parts, or nests without a valid permit.
   d) Provide enclosed solid waste receptacles at all project areas. Non-hazardous and solid wastes should be collected and deposited in on-site receptacles, which is then disposed of in accordance with all local regulations.
2) Habitat Protection
   a) Minimize project creep by clearly delineating and maintaining project boundaries.
   b) Maintain appropriate buffer distance between development activities and any wetlands or waterways protected under Clean Water Act Sections 401 and 404.
   c) Maximize the use of disturbed land for all project activities.
   d) Implement standard soil erosion and dust control measures.
3) Stressor Management
   a) Avoid direct take of adults, chicks, or eggs by scheduling vegetation removal, trimming, and grading outside of peak bird breeding season to the maximum extent practicable. If activities cannot be conducted outside of breeding season, a nest survey should be undertaken to identify active nests and remove fully documented inactive/abandoned nests. Nest removal should follow USFWS guidance, Destruction and Relocation of Migratory Bird Nest Contents (14 June 2018). Active nests should be buffered from construction activities with species-specific conditions.
   b) Avoid the introduction of invasive plants.
   c) Prevent increased lighting of native habitats during bird breeding season. Limit construction activities to the maximum extent practicable between dawn and dusk to avoid illuminating adjacent habitat areas. Avoid the use of bright white lights.
   d) Minimize prolonged human presence near nesting birds during construction and maintenance activities.
   e) Minimize collision risk with project infrastructure and vehicles.
   f) Prevent birds from becoming trapped in project structures or perching and nesting in project areas that may endanger them.
   g) Prevent the increase in noise above ambient levels during the nesting bird breeding season.
   h) Prevent the introduction of chemical contaminants into the environment.
   i) Minimize fire potential from project-related activities.

Bald and Golden Eagles

The USFWS IPaC indicated that Bald and Golden Eagles could be located within the project area; this is likely due to the proximity to the Trinity River and associated drainages. The closest Bald Eagle observation occurred approximately 9.4 miles to the southwest along the West Fork Trinity River. The project area showed no indication of use by Bald or Golden Eagles at the time of evaluation. The TXNDD Elements of Occurrence Records did not indicate past use or knowledge of occurrence of these species in the project vicinity. The likelihood of these species occurring in the project vicinity would be considered low.

VEGETATION COMMUNITIES

None of the vegetation observed within the survey areas would be considered unique or compose a unique vegetation type for the region. The vegetation communities described were composed of species that are common to grassland areas, as well as the Cross Timbers and Blackland Prairie ecoregions of North Central Texas. It is IES's professional opinion that the proposed project will not have an effect on any unique vegetation, vegetation communities, or habitat types.

POTENTIAL TO AFFECT PROTECTED SPECIES

No preferred habitat for any of the federally or state-listed species was present within the survey area. As such, the proposed project is not expected to have any impact on the federally or state-listed threatened or endangered species.

IES appreciates the opportunity to work with you and HDR Engineering, Inc. on this project and hopes we may be of assistance to you in the future. If you have any comments, questions, or concerns, please do not hesitate to contact me at (972) 562-7672 or rgomez@intenvsol.com, or Executive Vice President Rudi Reinecke at rreinecke@intenvsol.com.

Sincerely,

Integrated Environmental Solutions, LLC.

Mr. Rafael Gomez

Biologist

File ref: 04.165.013

ATTACHMENT A
Figures

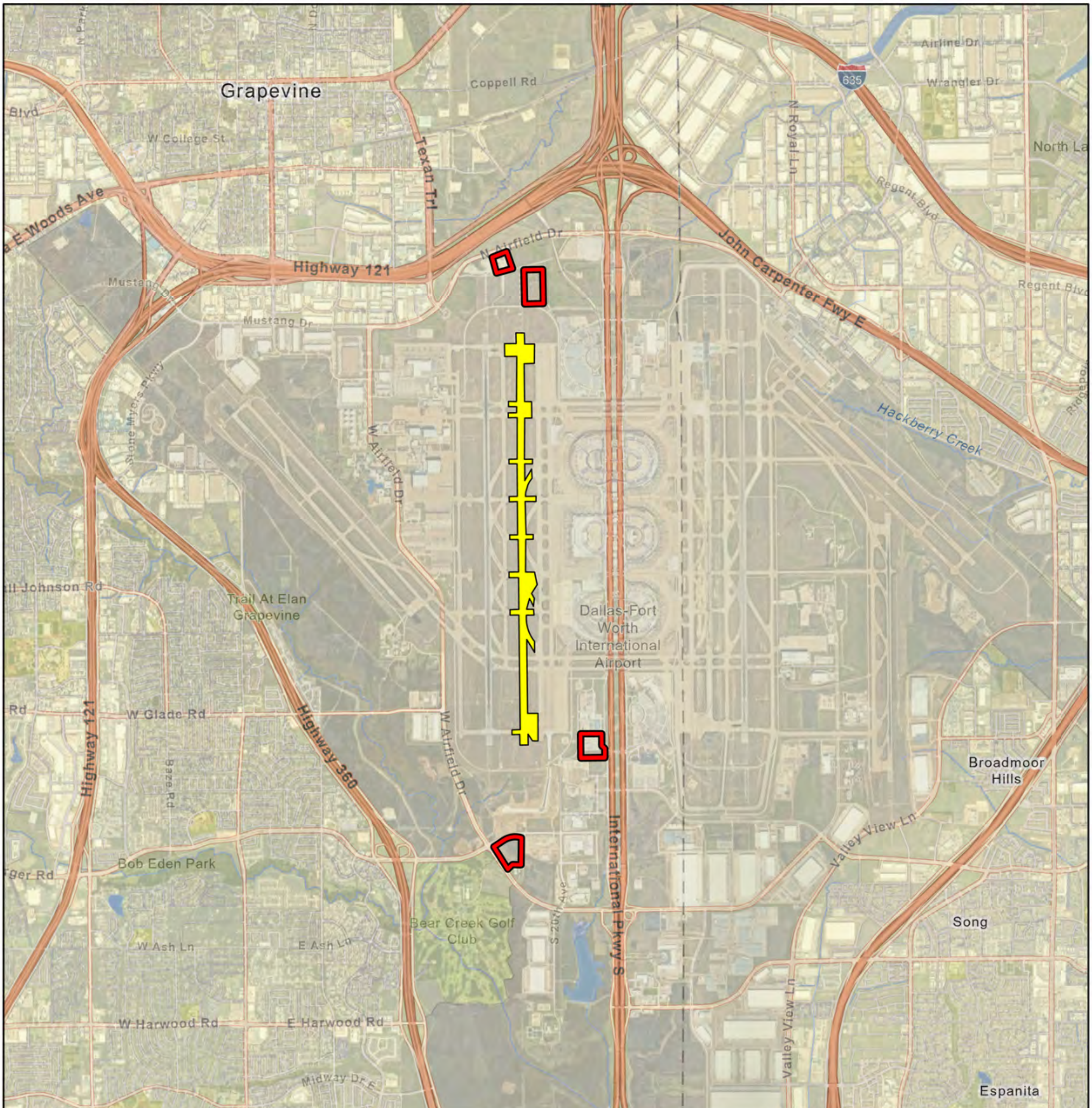


Figure 1.
General Location Map

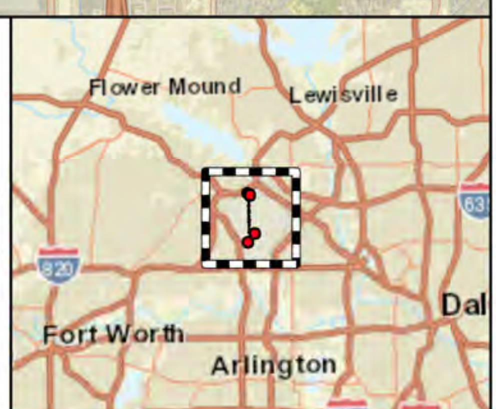
Runway 18L/36R Rehabilitation
Dallas-Fort Worth International Airport
Tarrant County, Texas

1 in = 4,500 ft

Feet
0 4,500

N W E S

File Ref. 04.165.013
Date: 7/30/2025



Area of Detail **Scale: 1 inch equals 15 miles**

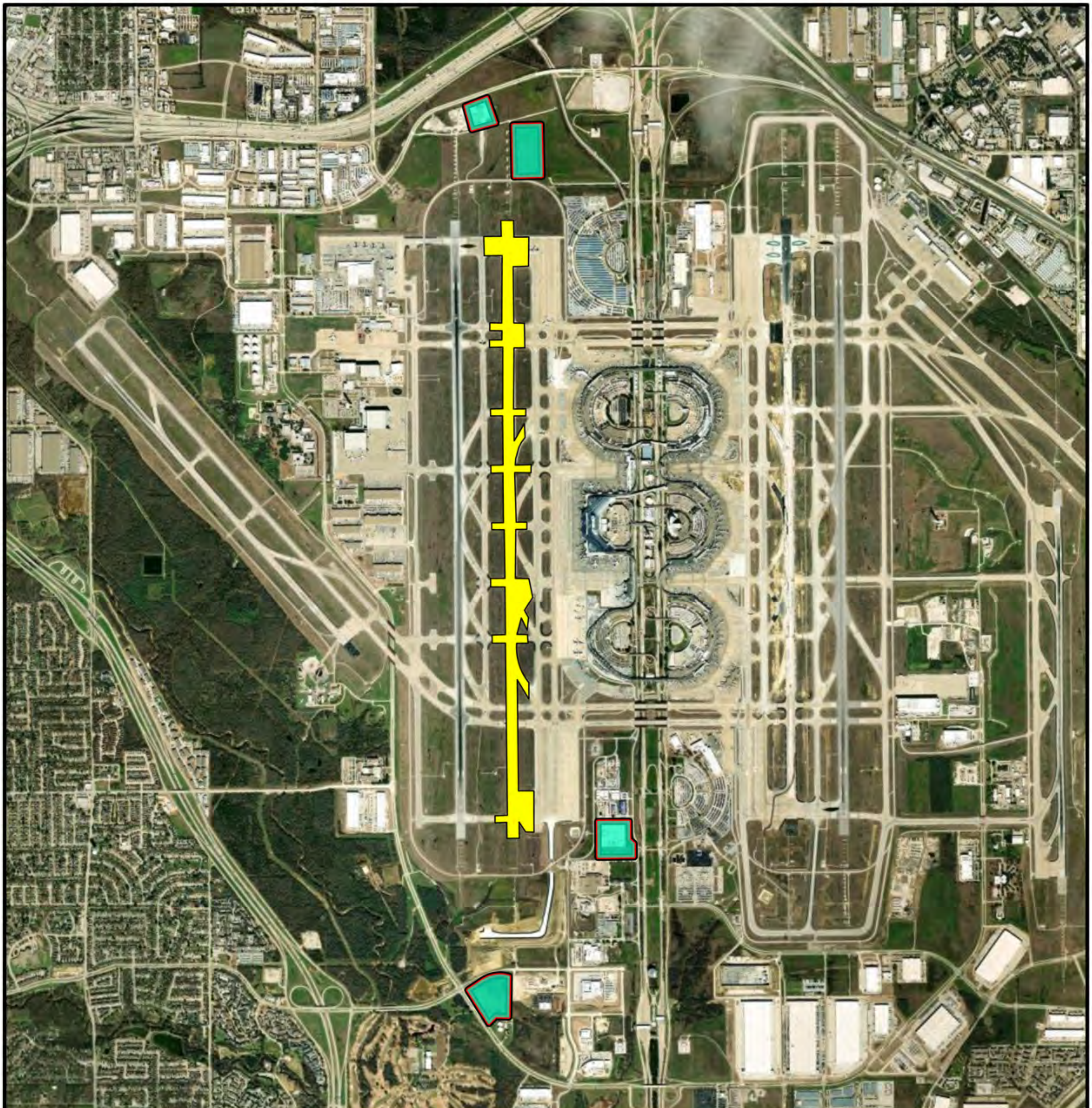


Figure 2.
Vegetation Communities

Runway 18L/36R Rehabilitation
Dallas-Fort Worth International Airport
Tarrant County, Texas

1 in = 3,000 ft

Feet
0 3,000

N
W E
S

File Ref. 04.165.013
Date: 7/30/2025

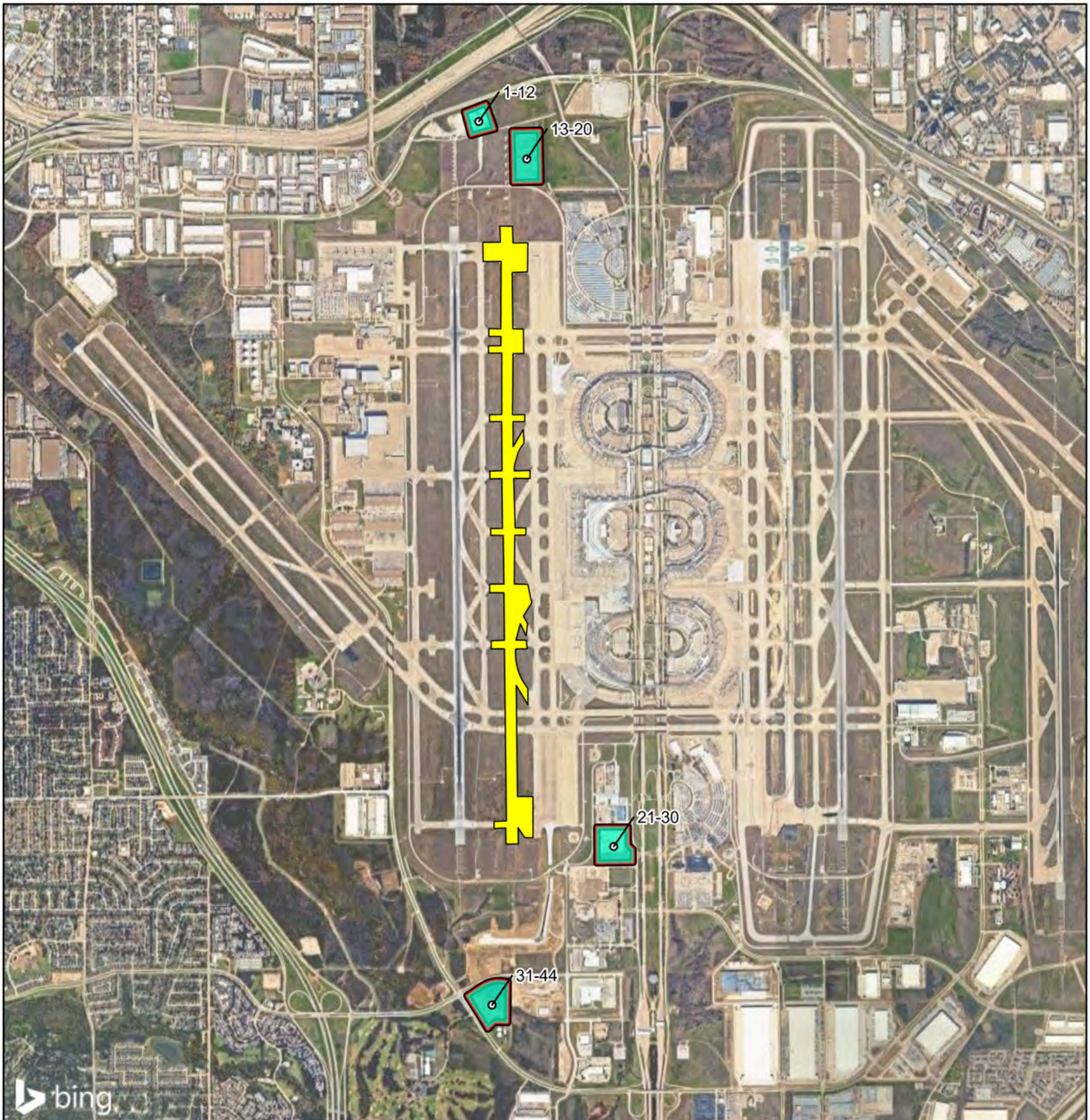
Survey Area

Runway 18L/36R

Vegetation Community

Disturbed Grassland

ATTACHMENT B
Site Photographs



Photograph Location Map

Runway 18L/36R Rehabilitation
Dallas-Fort Worth International Airport
Tarrant County, Texas

Survey Area

Runway 18L/36R

Photograph Location

Vegetation Community

Disturbed Grassland

1 in = 3,000 ft

Feet

0 3,000

N W E S

File Ref. 04.165.013
Date: 7/30/2025

Photograph 1

Photograph 2

Photograph 3

Photograph 4

Photograph 5

Photograph 6

Photograph 7

Photograph 8

Photograph 9

Photograph 10

Photograph 11

Photograph 12

Photograph 13

Photograph 14

Photograph 15

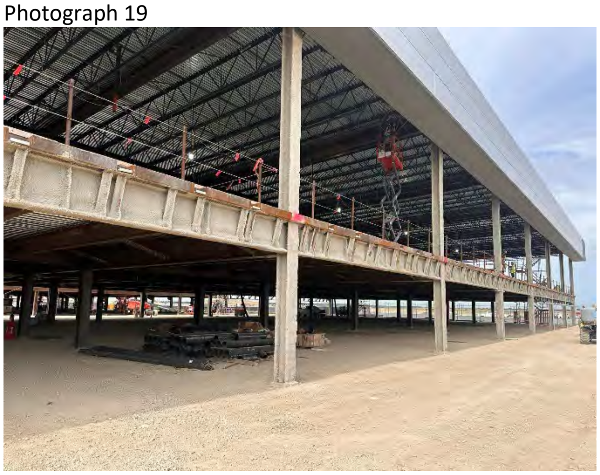
Photograph 16

Photograph 17

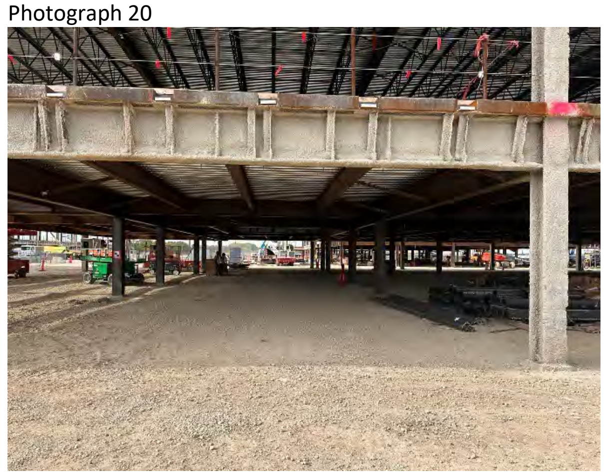
Photograph 18

Photograph 19

Photograph 20

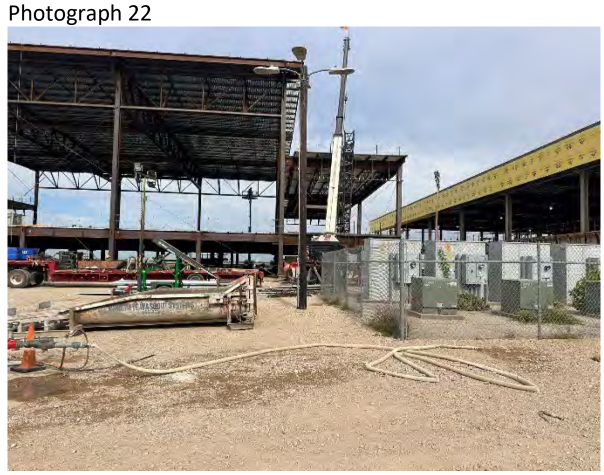


Photograph 21



Photograph 22

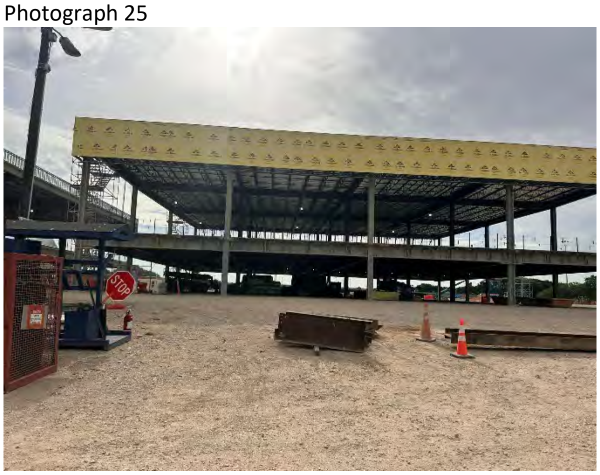
Photograph 23



Photograph 24

Photograph 25

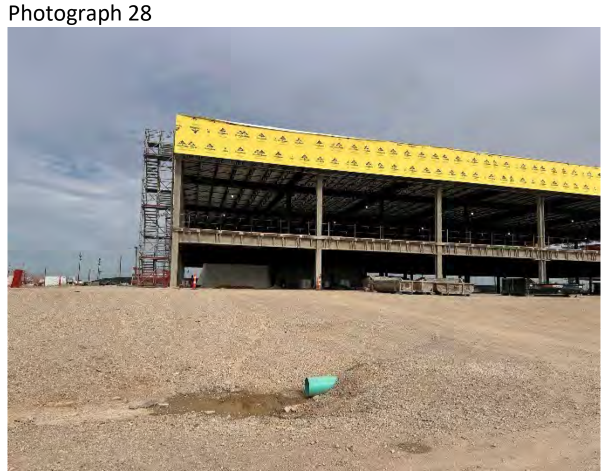
Photograph 26



Photograph 27

Photograph 28

Photograph 29



Photograph 30

Photograph 31

Photograph 32

Photograph 33

Photograph 34

Photograph 35

Photograph 36

Photograph 37

Photograph 38

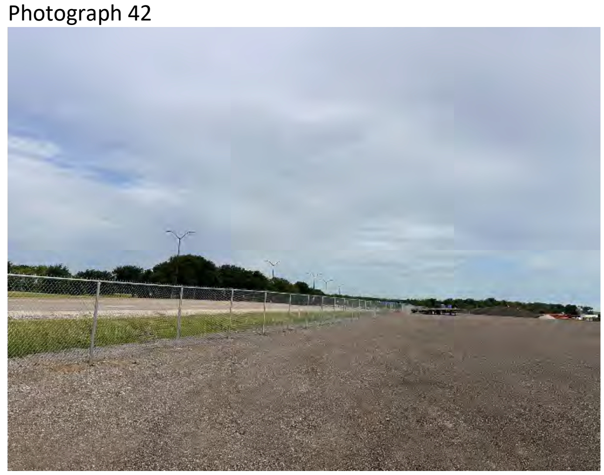
Photograph 39

Photograph 40


Photograph 41


Photograph 42


Photograph 43


Photograph 44

ATTACHMENT C

Protected Species Lists

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arlington Ecological Services Field Office
17629 El Camino Real, Suite 211
Houston, TX 77058-3051
Phone: (817) 277-1100 Fax: (817) 277-1129
Email Address: arles@fws.gov

In Reply Refer To: 07/16/2025 17:59:12 UTC
Project Code: 2025-0122553
Project Name: Runway 18L/36R Rehabilitation

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, which may occur within the boundary of your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under section 7(a)(1) of the Act, Federal agencies are directed to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Under and 7(a)(2) and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether their actions may affect threatened and endangered species and/or designated critical habitat. A Federal action is an activity or program authorized, funded, or carried out, in whole or in part, by a Federal agency (50 CFR 402.02).

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For Federal actions other than major construction activities, the Service suggests that a biological evaluation (similar to a Biological Assessment) be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

After evaluating the potential effects of a proposed action on federally listed species, one of the following determinations should be made by the Federal agency:

1. *No effect* - the appropriate determination when a project, as proposed, is anticipated to have no effects to listed species or critical habitat. A "no effect" determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, the action agency should maintain a complete record of their evaluation, including the steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information.
2. *May affect, but is not likely to adversely affect* - the appropriate determination when a proposed action's anticipated effects to listed species or critical habitat are insignificant, discountable, or completely beneficial. Insignificant effects relate to the size of the impact and should never reach the scale where "take" of a listed species occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not be able to meaningfully measure, detect, or evaluate insignificant effects, or expect discountable effects to occur. This determination requires written concurrence from the Service. A biological evaluation or other supporting information justifying this determination should be submitted with a request for written concurrence.
3. *May affect, is likely to adversely affect* - the appropriate determination if any adverse effect to listed species or critical habitat may occur as a consequence of the proposed action, and

the effect is not discountable or insignificant. This determination requires formal section 7 consultation.

The Service has performed up-front analysis for certain project types and species in your project area. These analyses have been compiled into *determination keys*, which allows an action agency, or its designated non-federal representative, to initiate a streamlined process for determining a proposed project's potential effects on federally listed species. The determination keys can be accessed through IPaC.

The Service recommends that candidate species, proposed species, and proposed critical habitat be addressed should consultation be necessary. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found at: https://www.fws.gov/service/section-7-consultations

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan (https://www.fws.gov/library/collections/bald-and-golden-eagle-management). Additionally, wind energy projects should follow the wind energy guidelines (https://www.fws.gov/media/land-based-wind-energy-guidelines) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: https://www.fws.gov/media/recommended-best-practices-communication-tower-design-siting-construction-operation. The Federal Aviation Administration (FAA) released specifications for and made mandatory flashing L-810 lights on new towers 150-350 feet AGL, and the elimination of L-810 steady-burning side lights on towers above 350 feet AGL. While the FAA made these changes to reduce the number of migratory bird collisions (by as much as 70%), extinguishing steady-burning side lights also reduces maintenance costs to tower owners. For additional information concerning migratory birds and eagle conservation plans, please contact the Service's Migratory Bird Office at 505-248-7882.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Arlington Ecological Services Field Office
17629 El Camino Real, Suite 211
Houston, TX 77058-3051
(817) 277-1100

PROJECT SUMMARY

Project Code: 2025-0122553
Project Name: Runway 18L/36R Rehabilitation
Project Type: New Constr - Above Ground
Project Description: Staging Areas
Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@32.867688799999996,-97.05273760620875,14z

Counties: Tarrant County, Texas

ENDANGERED SPECIES ACT SPECIES

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 2 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/6039	Threatened
Rufa Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. This species only needs to be considered under the following conditions: ▪ Wind Energy Projects Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane *Grus americana* Population: Wherever found, except where listed as an experimental population There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758	Endangered

REPTILES

NAME	STATUS
Alligator Snapping Turtle *Macrochelys temminckii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4658	Proposed Threatened

CLAMS

NAME	STATUS
Texas Heelsplitter *Potamilus amphichaenus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/299	Proposed Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency:	Private Entity
Name:	Rafael Gomez
Address:	301 W eldorado pkwy
Address Line 2:	suite 101
City:	McKinney
State:	TX
Zip:	75069
Email	rgomez@intenvsol.com
Phone:	9565795417

Last Update: 1/15/2025

TARRANT COUNTY

BIRDS

black rail *Laterallus jamaicensis*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of Salicornia

Federal Status: T State Status: T SGCN: Y
Endemic: N Global Rank: G3 State Rank: S2

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: State Status: E SGCN: N
Endemic: N Global Rank: G4T3Q State Rank: S1B

piping plover *Charadrius melodus*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: T State Status: T SGCN: Y
Endemic: N Global Rank: G3 State Rank: S2N

rufa red knot *Calidris canutus rufa*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Habitat: Primarily seacoasts on tidal flats and beaches, herbaceous wetland, and Tidal flat/shore. Bolivar Flats in Galveston County, sandy beaches Mustang Island, few on outer coastal and barrier beaches, tidal mudflats and salt marshes.

Federal Status: T State Status: T SGCN: Y
Endemic: N Global Rank: G4T2 State Rank: S2N

white-faced ibis *Plegadis chihi*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status: State Status: T SGCN: N
Endemic: N Global Rank: G5 State Rank: S4B

whooping crane *Grus americana*

The county distribution for this species includes geographic areas that the species may use during migration. Time of year should be factored into evaluations to determine potential presence of this species in a specific county. Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: E | State Status: E | SGCN: Y
Endemic: N | Global Rank: G1 | State Rank: S1S2N

INSECTS

migratory monarch butterfly *Danaus plexippus plexippus*

Habitat description is not available at this time.

Federal Status: C | State Status: | SGCN: Y
Endemic: | Global Rank: G4T3 | State Rank: SNR

MAMMALS

black bear *Ursus americanus*

Generalist. Historically found throughout Texas. In Chisos, prefers higher elevations where pinyon-oaks predominate; also occasionally sighted in desert scrub of Trans-Pecos (Black Gap Wildlife Management Area) and Edwards Plateau in juniper-oak habitat. For ssp. luteolus, bottomland hardwoods, floodplain forests, upland hardwoods with mixed pine; marsh. Bottomland hardwoods and large tracts of inaccessible forested areas.

Federal Status: | State Status: T | SGCN: Y
Endemic: N | Global Rank: G5 | State Rank: S3

tricolored bat *Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status: PE | State Status: | SGCN: Y
Endemic: N | Global Rank: G3G4 | State Rank: S2

MOLLUSKS

Louisiana pigtoe *Pleurobema riddellii*

Occurs in small streams to large rivers in slow to moderate currents in substrates of clay, mud, sand, and gravel. Not known from impoundments (Howells 2010f; Randklev et al. 2013b; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status: PT | State Status: T | SGCN: Y
Endemic: N | Global Rank: G1G2 | State Rank: S1

sandbank pocketbook *Lampsilis satura*

Occurs in small streams to large rivers in slow to moderate current in sandy mud to sand and gravel substrate. Can occur in a variety of habitats but most common in littoral habitats such as banks or backwaters or in protected areas along point bars (Randklev et al. 2013b; Randklev et al. 2014a; Troia et al. 2015). [Mussels of Texas 2019]

Federal Status: | State Status: T | SGCN: Y
Endemic: N | Global Rank: G2? | State Rank: S1

Texas heelsplitter *Potamilus amphichaenus*

Occurs in small streams to large rivers in standing to slow-flowing water; most common in banks, backwaters and quiet pools; adapts to some reservoirs. Often found in soft substrates such as mud, silt or sand (Howells et al. 1996; Randklev et al. 2017a). [Mussels of Texas 2019]

Federal Status: PE State Status: T SGCN: Y

Endemic: N Global Rank: G1G3 State Rank: S1

REPTILES

alligator snapping turtle *Macrochelys temminckii*

Aquatic: Perennial water bodies; rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near running water; sometimes enters brackish coastal waters. Females emerge to lay eggs close to the waters edge.

Federal Status: PT State Status: T SGCN: Y

Endemic: N Global Rank: G3 State Rank: S2

American alligator *Alligator mississippiensis*

Aquatic: Coastal marshes; inland natural rivers, swamps and marshes; manmade impoundments.

Federal Status: SAT State Status: SGCN: N

Endemic: N Global Rank: G5 State Rank: S4

Texas horned lizard *Phrynosoma cornutum*

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status: State Status: T SGCN: Y

Endemic: N Global Rank: G4G5 State Rank: S3

Runway 18L/36R Rehabilitation -Waters of the United States Delineation

21 July 2025

Ms. Esther Chitsinde
HDR Engineering, INC.
17111 Preston Rd., Suite 300
Dallas, Texas 75284

Re: Runway 18L/36R Rehabilitation - Waters of the United States Delineation
Four parcels totaling approximately 55.96 acres located throughout Dallas-Fort Worth International Airport, Dallas, Tarrant County, Texas

Dear Ms. Chitsinde,

Integrated Environmental Solutions, LLC (IES) performed a site survey to identify any aquatic features that meet a definition of a water of the United States on four parcels totaling approximately 55.96 acres located throughout Dallas-Fort Worth International Airport (DFW), Dallas, Tarrant County, Texas (**Attachment A, Figure 1**). This report will ultimately assess and delineate potentially jurisdictional aquatic features to ensure compliance with Clean Water Act (CWA) Sections 401 and 404.

INTRODUCTION

Waters of the United States are protected under guidelines outlined in CWA Sections 401 and 404, in Executive Order (EO) 11990 (Protection of Wetlands), and by the review process of the Texas Commission on Environmental Quality (TCEQ). Agencies that regulate impacts to the nation's water resources within Texas include the U.S. Army Corps of Engineers (USACE), the U.S. Environmental Protection Agency (USEPA), the U.S. Fish and Wildlife Service (USFWS), and the TCEQ. The USACE has the primary regulatory authority for enforcing CWA Section 404 requirements for waters of the United States.

The decision for whether a CWA Section 404 permit is required on a property is determined if there are waters of the United States present and the extent of losses of those features. The USACE and USEPA have gone through rulemaking to define what is a water of the United States, independently and jointly, several times since the initial CWA. The longest standing definitions of waters of the United States were those published in 1986; however, these definitions were challenged in 2001, 2007, and 2023 U.S. Supreme Court (SCOTUS) decisions. In addition to this, the Obama, Trump, and Biden administrations completed rulemaking to modify the definitions of waters of the United States. The 2023 SCOTUS decision defined a water of the United States as "a relatively permanent body of water connected to traditional interstate navigable waters." The SCOTUS also included wetlands that have a continuous surface connection with that water, in the definition of a water of the United States. This wetland connection was described as the boundary where it was difficult to determine where the 'water' ends, and the 'wetland' begins.

This 2023 SCOTUS decision is consistent with the relatively permanent water (RPW) standard identified in the previous 2007 SCOTUS decision. Until further guidance is published from the USACE or USEPA, the 2007 USACE and USEPA guidance defining a "relatively permanent water" will be used. According to this guidance, RPW are non-navigable tributaries of traditional navigable waters (TNW) that flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). In addition to this, the guidance also stipulated regulation over wetlands that directly abut such tributaries.

DEFINTIONS USED WITHIN THIS REPORT

Seasonal (intermittent) streams – The USEPA (https://www.epa.gov/cwa-404/learn-about-streams) has defined seasonal or intermittent streams as those that flow during certain times of the year when smaller upstream waters are flowing and when groundwater provides enough water for stream flow. Runoff from rainfall or other precipitation supplements the flow of seasonal stream. During dry periods, seasonal streams may not have flowing surface water. Larger seasonal streams are more common in dry areas.

Rain-dependent (ephemeral) streams – the USEPA defines rain-dependent streams as those that flow only after precipitation. Runoff from rainfall is the primary source of water for these streams. Like seasonal streams, they can be found anywhere but are most prevalent in arid areas.

Year-round (perennial) streams – the USEPA defines year-round streams as those that typically have water flowing in them year-round. Most of the water comes from smaller upstream waters or groundwater while runoff from rainfall or other precipitation is supplemental.

Pre-2015 Regulatory Framework under 33 CFR 328.3 (01 July 2014) (https://www.govinfo.gov/content/pkg/CFR-2014-title33-vol3/pdf/CFR-2014-title33-vol3-sec328-3.pdf).

(a)(1) Traditional Navigable Waters (TNW) – Waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide.

(a)(2) Interstate Waters including wetlands

(a)(3) Other Waters – All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii)Which are used or could be used for industrial purpose by industries in interstate commerce;"

(a)(4) Impoundments – impoundments of waters otherwise identified as waters of the United States.

(a)(5) Tributaries – tributaries of waters identified in paragraphs (a)(1) through (a)(4)

(a)(6) Territorial Seas

(a)(7) Adjacent Wetlands – wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6).

USEPA Updates for Tribes and States on "Waters of the United States" 15 November 2023 – Pre-2015 Regulatory Regime Terminology (https://www.epa.gov/system/files/documents/2023-11/wotus-overview_tribes-and-states_11-15-23_508.pdf).

Relatively Permanent Waters – include tributaries that typically have flowing or standing water year-round or flowing water continuously at least seasonally (e.g., typically 3 months). The duration of seasonal flowing or standing water may vary regionally, but the tributary must have predictable flowing water seasonally.

Non-Relatively Permanent Waters – include tributaries that have flowing or standing water only in response to precipitation or that do not have continuously flowing or standing water at least seasonally.

Continuous Surface Connection

Under the *Rapanos* guidance (https://usace.contentdm.oclc.org/utils/getfile/collection/p16021coll5/id/1411), a continuous surface connection per the plurality opinion required a physical connection. In the case of wetlands, a continuous surface connection would exist between a RPW tributary and a wetland that directly abuts, that being not separated by uplands, a berm, dike, or other similar features. It is noted that per 33 CFR 328.3 (b), wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, which does not require surface water to be continuously present between the wetland and the tributary.

The Sixth Circuit U.S. Court of Appeals in United States v. Cundiff (05-5469, 05-5905, 07-5630, 04 February 2009) (https://caselaw.findlaw.com/court/us-6th-circuit/1098928.html) determined that, "Although the term continuous surface connection clearly requires surface flow, it does not mean that only perpetually flowing creeks satisfy the (Rapanos) plurality test." Given that wetlands, by definition are inundated or saturated soils that can support under normal circumstances a prevalence of vegetation typically adapted to those soil conditions, then the "… connection requires some kind of dampness such that polluting a wetland would have a proportionate effect on the traditional waterway." Additionally, Cundiff created a continuous surface connection through the excavation of ditches with "largely uninterrupted permanent surface water flow" that rerouted flow away from the wetland directly into the adjacent creeks. The Court found that there was no difference whether the channel that provides the relatively permanent flow was man-made or naturally formed.

Sackett (https://www.supremecourt.gov/opinions/22pdf/21-454_4g15.pdf) reinforced this definition by clearly indicating that a continuous surface connection must be established at the point where it is difficult to determine where the 'water' (RPW) and 'wetland' begins. The Fifth Circuit U.S. Court of Appeals in Lewis vs. United States (21-30163, 18 December 2023) (https://cases.justia.com/federal/appellate-courts/ca5/21-30163/21-30163-2023-12-18.pdf?ts=1702945817) further identified that a continuous surface connection from wetlands to a RPW tributary could not be established through non-waters of the United States with a distant and speculative connection to a RPW, then a TNW, following the Sackett definition that the CWA "extends to only those wetlands with a continuous surface connection to bodies that are waters of the United States in their own right, so that they are indistinguishable from those waters."

METHODOLOGY

Prior to conducting fieldwork, the U.S. Geological Survey (USGS) topographic map (**Attachment A, Figures 2A** and **2B**), the *Soil Survey of Tarrant County, Texas*, and the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) digital soil databases for Tarrant County (**Attachment A, Figure 3**), the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) (**Attachment A, Figure 4**), and recent and historic aerial photographs of the proposed survey area were studied to identify possible aquatic features that could meet the definition of waters of the United States and areas prone to wetland development. Mr. Rafael Gomez of IES conducted the delineation in the field in accordance with the USACE procedures on 01 July 2025.

Wetland determinations and delineations were performed on location using the methodology outlined in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineer Wetland Delineation Manual: Great Plains Region (Version 2.0). The presence of a wetland is determined by the positive indication of three criteria (i.e., hydrophytic vegetation, hydrology, and hydric soils). Potential jurisdictional boundaries for other water features (i.e., non-wetland) were delineated in the field at the ordinary high-water mark (OHWM). The 33 CFR 328.3 (c)(7) defines OHWM as the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Water feature boundaries were recorded on a Juniper Systems Geode GNS3S Global Positioning System (GPS) unit capable of sub-meter accuracy. Photographs were also taken at representative points within the survey area (**Attachment B**).

RESULTS

Background Review

<u>Topographic Setting</u>

The USGS topographic maps (Grapevine 7.5' Quadrangle 1959, revised 1982, and 2022; Euless 7.5' Quadrangle 1959, revised 1960, and 2022) do not depict any water features within the four parcels (*see* **Attachment A, Figure 2A** and **2B**). The overall site topography was illustrated with slopes oriented southeast-to-northwest in the northern two parcels and south and west in the southern two parcels. The maximum site elevation was approximately 600 feet above mean sea level (amsl) with a minimum site elevation of approximately 540 feet amsl.

Soils

The USDA NRCS Web Soil Survey identified five soil map units within the survey area, Houston Black clay, 1 to 3 percent slopes; Urban land, 0 to 16 percent slopes; Heiden clay, 1 to 3 percent slopes; Houston Black-Urban land complex, 1 to 4 percent slopes; and Ferris-Heiden complex, 2 to 5 percent slopes. The Houston Black clay, 1 to 3 percent slopes occur throughout the largest portion of the survey area (42 percent coverage). This series consists of moderately deep, well drained, very slowly permeable soils, with very high runoff, and high water availability capacity. None of these soil map units were listed as hydric soil on the Hydric Soils of Texas list prepared by the National Technical Committee for Hydric Soils (accessed 11 July 2025, Tarrant County, Texas) (*see* **Attachment A, Figure 3**). Hydric soils are described as soils that are sufficiently wet in the upper part to develop anaerobic conditions during the growing season.

FEMA FIRM

The FEMA FIRM (Tarrant County; Map Panel 48439C0120K; effective 25 September 2009) shows all four parcels within Zone X (Areas determined to be outside the 0.2 percent annual chance floodplain) (*see* **Attachment A, Figure 4**).

Weather History

The weather history for Wunderground.com Silent Dave WX weather station (KTXEULES41) recorded 0.30 inch of precipitation during the 7-day period and a total of 2.25 inches during the 30-day period, prior to the site visit (**Attachment C**). An analysis of the data indicates two multiple-day rain events within the past 30 days (0.94 inch on 08 and 09 June and 0.89 inch on 11 and 12 June). The Antecedent Precipitation Tool (APT) indicated that the conditions on-site at the time of the evaluation were considered hydrologically "normal" based on the 30-year climactic average (32.9374942, -97.0624960W) (*see* **Attachment C**).

Field Investigation

The survey area was characterized by a distinct vegetation community of **disturbed grassland**. The **disturbed grassland** was observed across all four parcels. Three of the parcels were actively used as staging areas and were largely void of vegetation due to ongoing activity. The parcel in the northeast was mowed at the time of evaluation. Dominant herbaceous species throughout all four parcels included Bermudagrass (*Cynodon dactylon*), common sunflower *(Helianthus annuus*), eastern poison ivy (*Toxicodendron radicans*), giant ragweed (*Ambrosia trifida*), Johnsongrass (*Sorghum halepense*), Kleingrass (*Panicum coloratum*), prairie bundleflower (*Desmanthus illinoensis*), prairie tea (*Croton monanthogynus*), silver bluestem (*Bothriochloa saccharoides*), smooth switchgrass (*Panicum virgatum*), and southern dewberry (*Rubus trivialis*). Woody species present included honey mesquite (*Prosopis glandulosa*) and sugarberry (*Celtis laevigata*).

No water features nor any water were observed exiting the survey area. Water from the local watershed around the two northwestern parcels flows northwest into the Cottonwood Branch, which flows northeast into Denton Creek. Denton Creek flows east into the Elm Fork Trinty River which converges with the West Fork Trinity River, flowing into the Trinity River, a TNW. Water from the local watershed around the two southern parcels flows west into Big Bear Creek, which flows south into Bear Creek. Bear Creek flows southeast into the West Fork Trinity River which ultimately flows into the Trinity River, a TNW.

CONCLUSIONS

To summarize the delineation, no water features were identified within the site boundary (*see* **Attachment A, Figure 5**).

This delineation is based on professional experience in the approved methodology and from experience with the USACE Fort Worth District regulators; however, this delineation does not constitute a jurisdictional determination of waters of the United States. This delineation has been based on the professional experience of IES staff and our interpretation of the 2023 SCOTUS decision, USACE regulations at 33 CFR 328.3, the joint USACE/USEPA guidance relating to the definition of an RPW and the Regulatory Guidance Letter (RGL) 08-02. While IES believes our delineation to be accurate, the final authority to interpret the regulations lies solely with the USACE and USEPA. The USACE Headquarters in association USEPA often issue guidance that changes the interpretation of published regulations. USACE/USEPA guidance issued after the date of this report has the potential to invalidate the report conclusions and/or recommendations, which may create the need to reevaluate the report conclusions. IES has no regulatory authority, and as such, proceeding based solely upon this report does not protect the Client from potential sanction or fines from the USACE/USEPA. The Client acknowledges that they can submit this report to the USACE for a preliminary jurisdictional determination for concurrence prior to proceeding with any work within aquatic features located on the survey area. If the Client elects not to do so, then the Client proceeds at their sole risk.

IES appreciates the opportunity to work with you and HDR Engineering, INC. on this project, and we hope we may be of assistance to you in the future. If you have any comments, questions, or concerns, please do not hesitate to contact myself or Rudi Reinecke at 972-562-7672 (rgomez@intenvsol.com or rreinecke@intenvsol.com).

Sincerely,

Integrated Environmental Solutions, LLC.

Mr. Rafael Gomez
Biologist

Attachments

File ref: 04.165.013

ATTACHMENT A
Figures

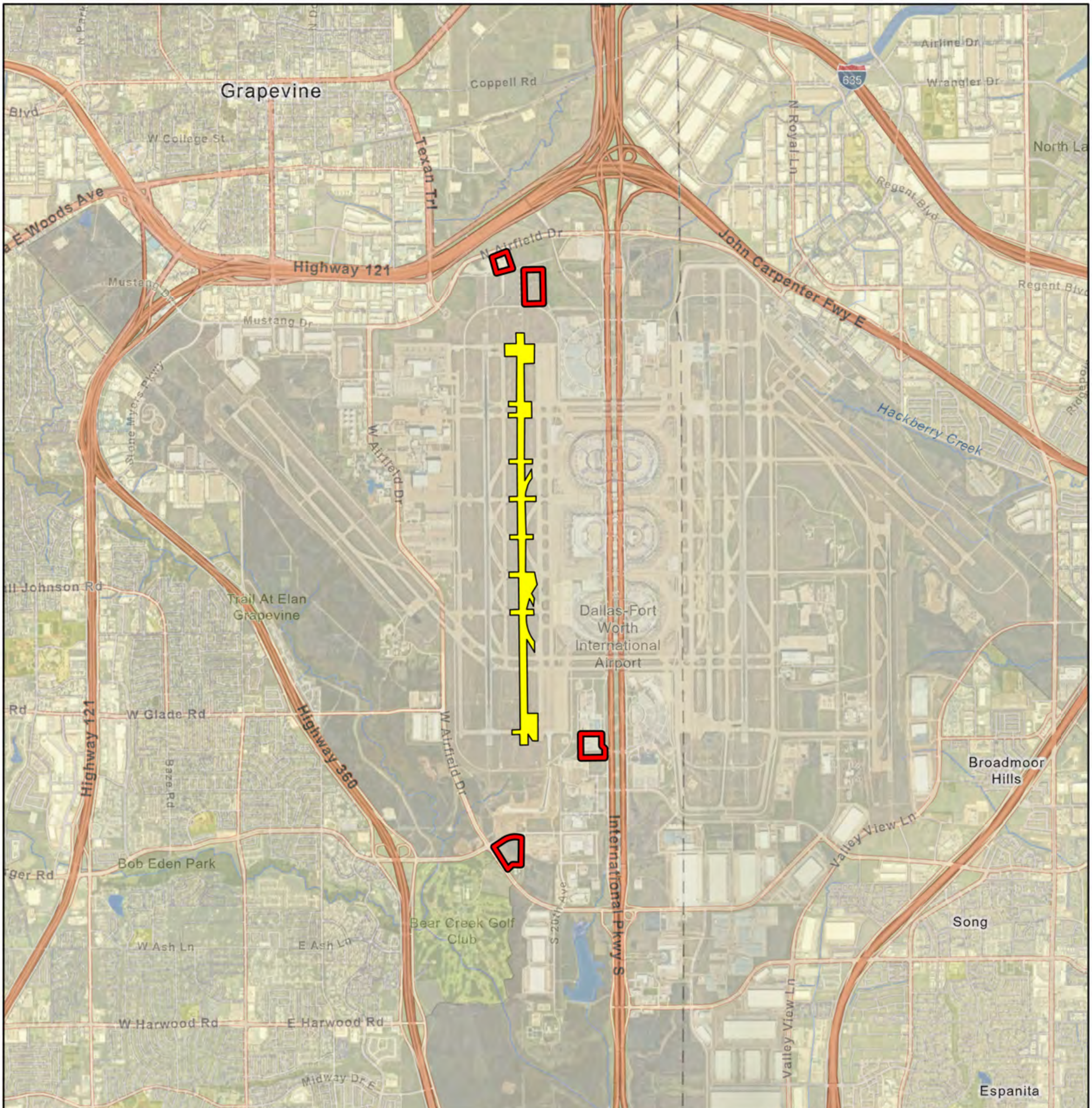


Figure 1.
General Location Map

Survey Area

Runway 18L/36R

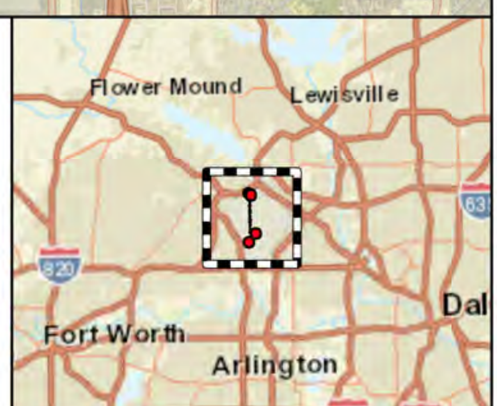
Runway 18L/36R Rehabilitation
Dallas-Fort Worth International Airport
Tarrant County, Texas

1 in = 4,500 ft

Feet
0 4,500

N
W E
S

File Ref. 04.165.013
Date: 7/30/2025



Area of Detail **Scale: 1 inch equals 15 miles**

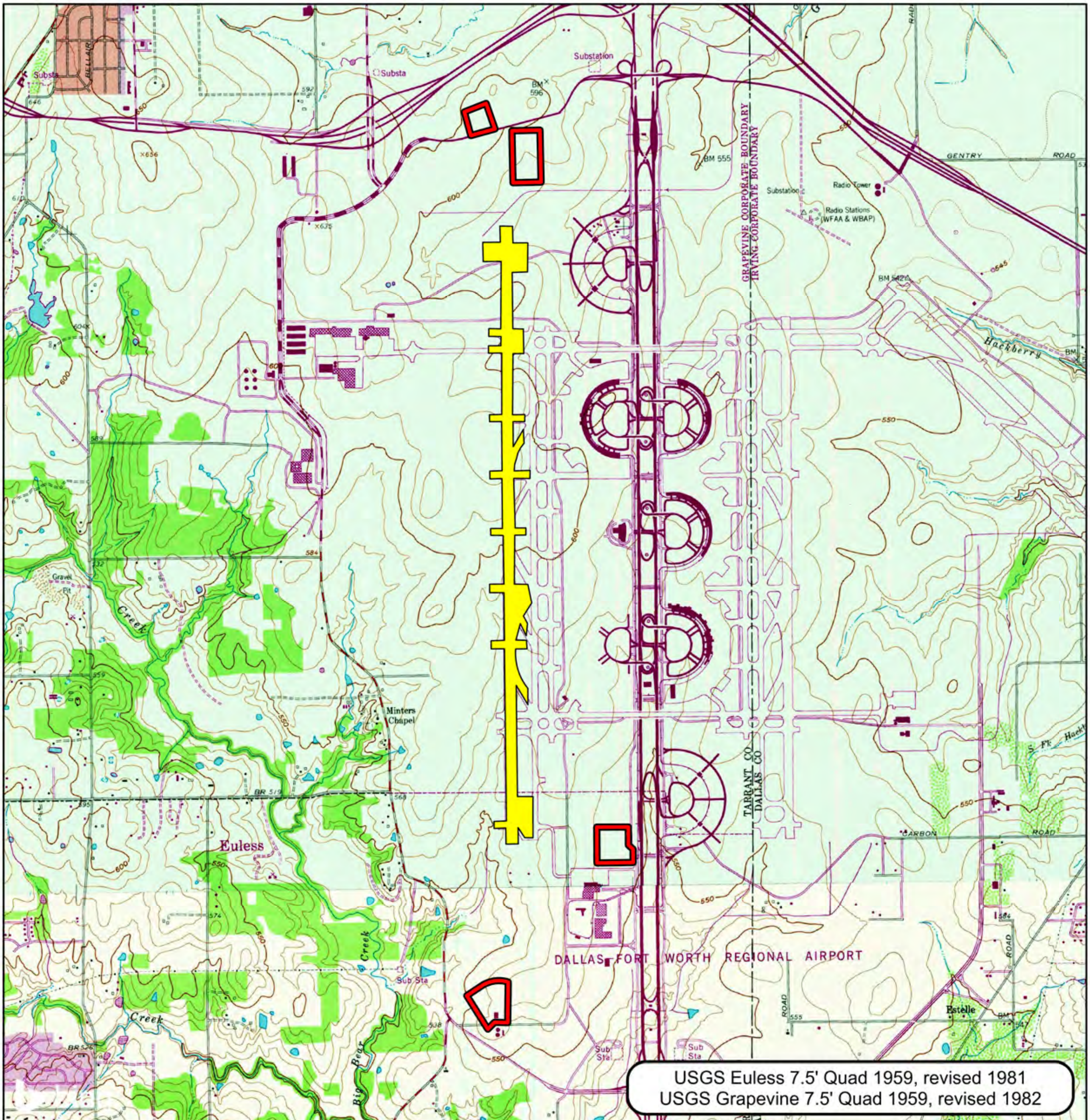


Figure 2A.
Topographic Setting

Runway 18L/36R Rehabilitation
Dallas-Fort Worth International Airport
Tarrant County, Texas

1 in = 3,000 ft

Feet
0 3,000

N W E S

File Ref. 04.165.013
Date: 7/30/2025

Survey Area

Runway 18L/36R

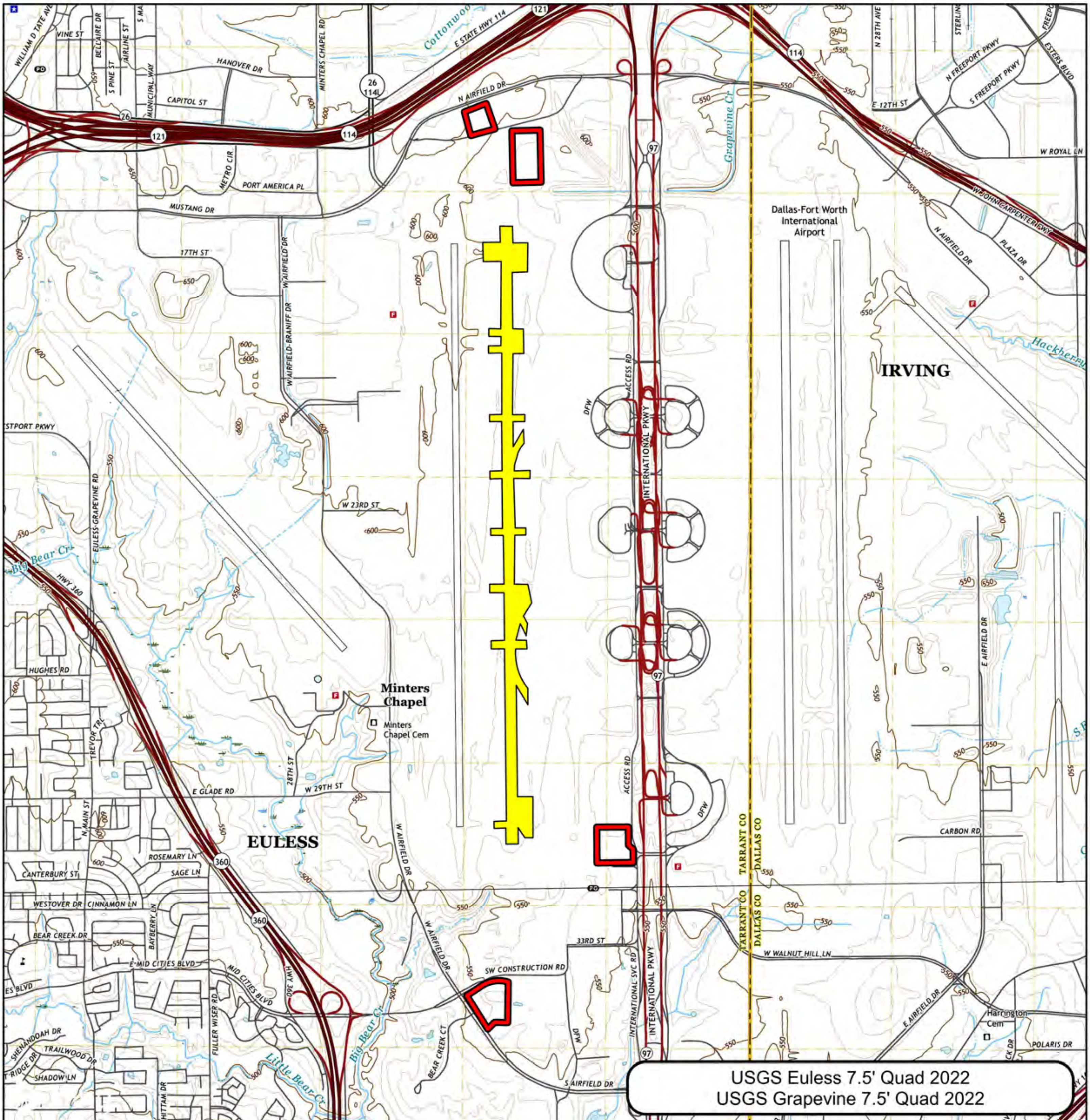


Figure 2B. Topographic Setting

Runway 18L/36R Rehabilitation
Dallas-Fort Worth International Airport
Tarrant County, Texas

Survey Area

Runway 18L/36R

1 in = 3,000 ft

Feet 0 3,000

File Ref. 04.165.013
Date: 7/30/2025

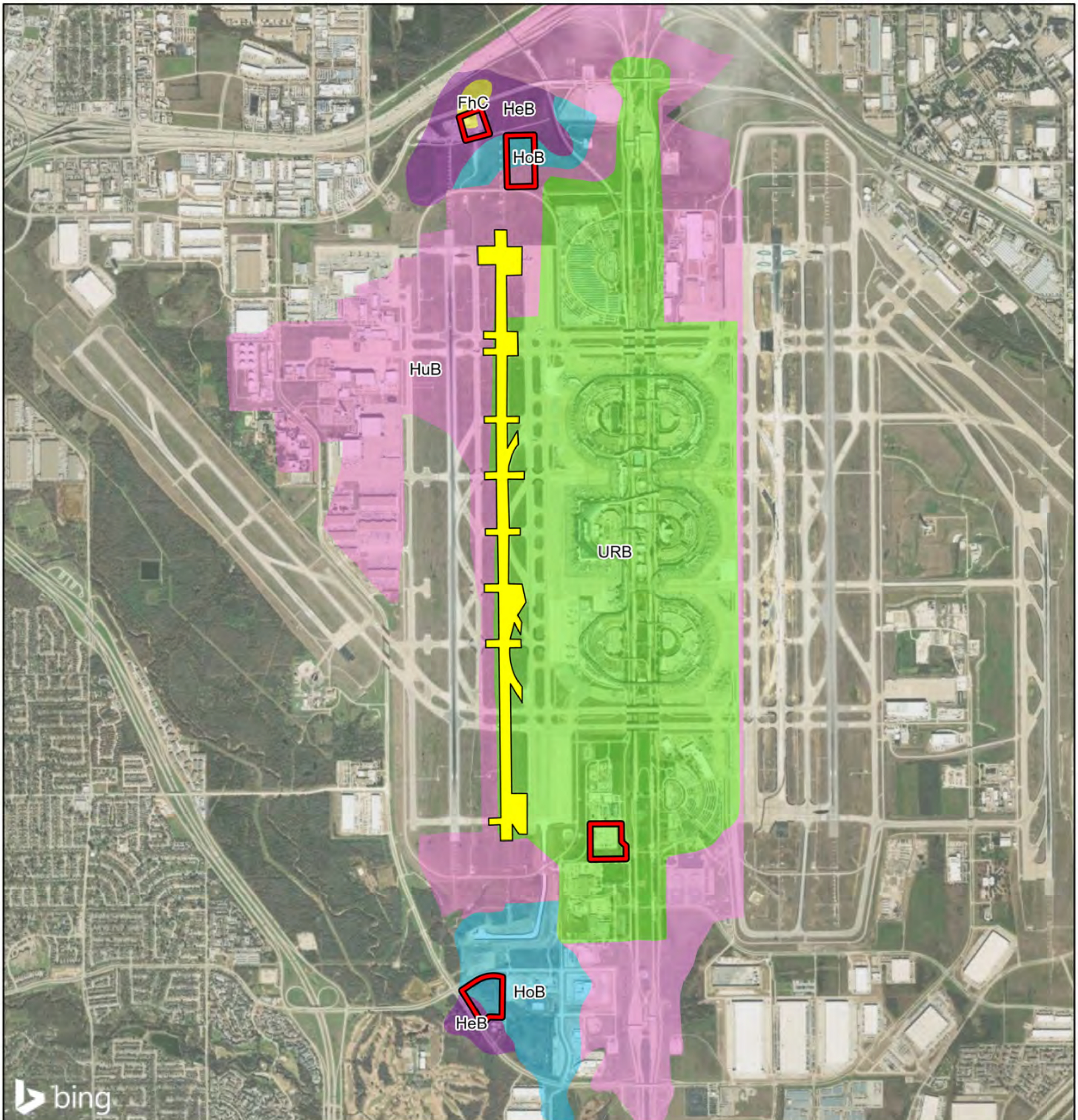


Figure 3.
Soils Map

Runway 18L/36R Rehabilitation
Dallas-Forth Worth International Airport
Tarrant County, Texas

1 in = 3,000 ft

Feet
0 3,000

N
W E
S

File Ref. 04.165.013
Date: 7/30/2025

Survey Area

Runway 18L/36R

Soil map units outside of the survey area

Soil Map Units

FhC - Ferris-Heiden complex, 2 to 5 percent slopes

HeB - Heiden clay, 1 to 3 percent slopes

HoB - Houston Black clay, 1 to 3 percent slopes

HuB - Houston Black-Urban land complex, 1 to 4 percent slopes

URB - Urban land, 0 to 16 percent slopes

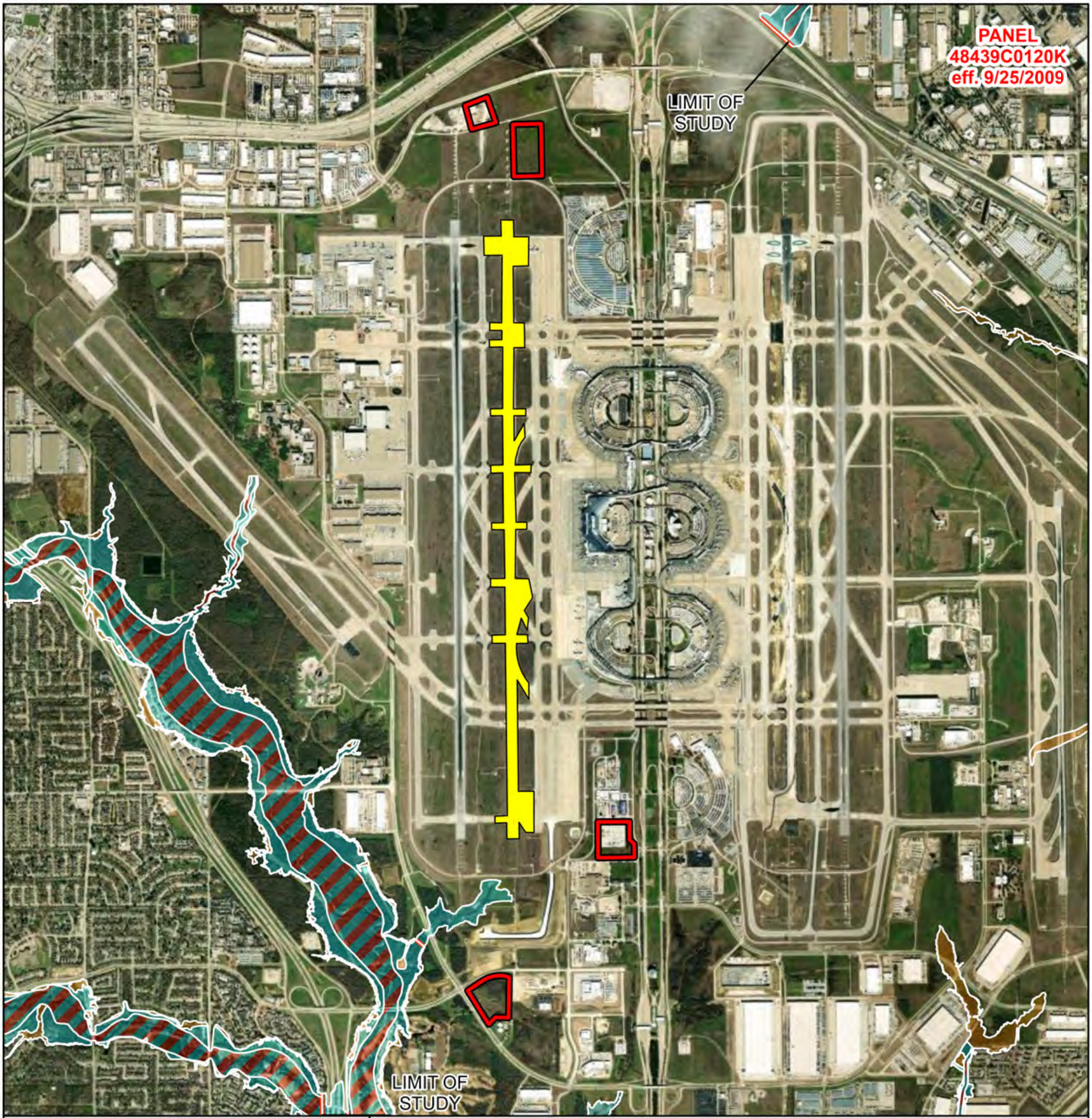


Figure 4.
Federal Emergency Management Agency Flood Insurance Rate Map

Runway 18L/36R Rehabilitation
Dallas-Fort Worth International Airport
Tarrant County, Texas

1 in = 3,000 ft

Feet
0 3,000

N
W E
S

File Ref. 04.165.013
Date: 7/30/2025

Survey Area

Runway 18L/36R

FEMA FIRM Zone Descriptions

Zone X - Areas determined to be outside the 0.2% annual chance floodplain

Zone X - Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood

Zone A - Special Flood Hazard Areas subject to inundation by the 1% annual chance flood; No base flood elevations determined

Zone AE - Special Flood Hazard Areas subject to inundation by the 1% annual chance flood; Base flood elevations determined

Zone AE - Floodway areas in Zone AE

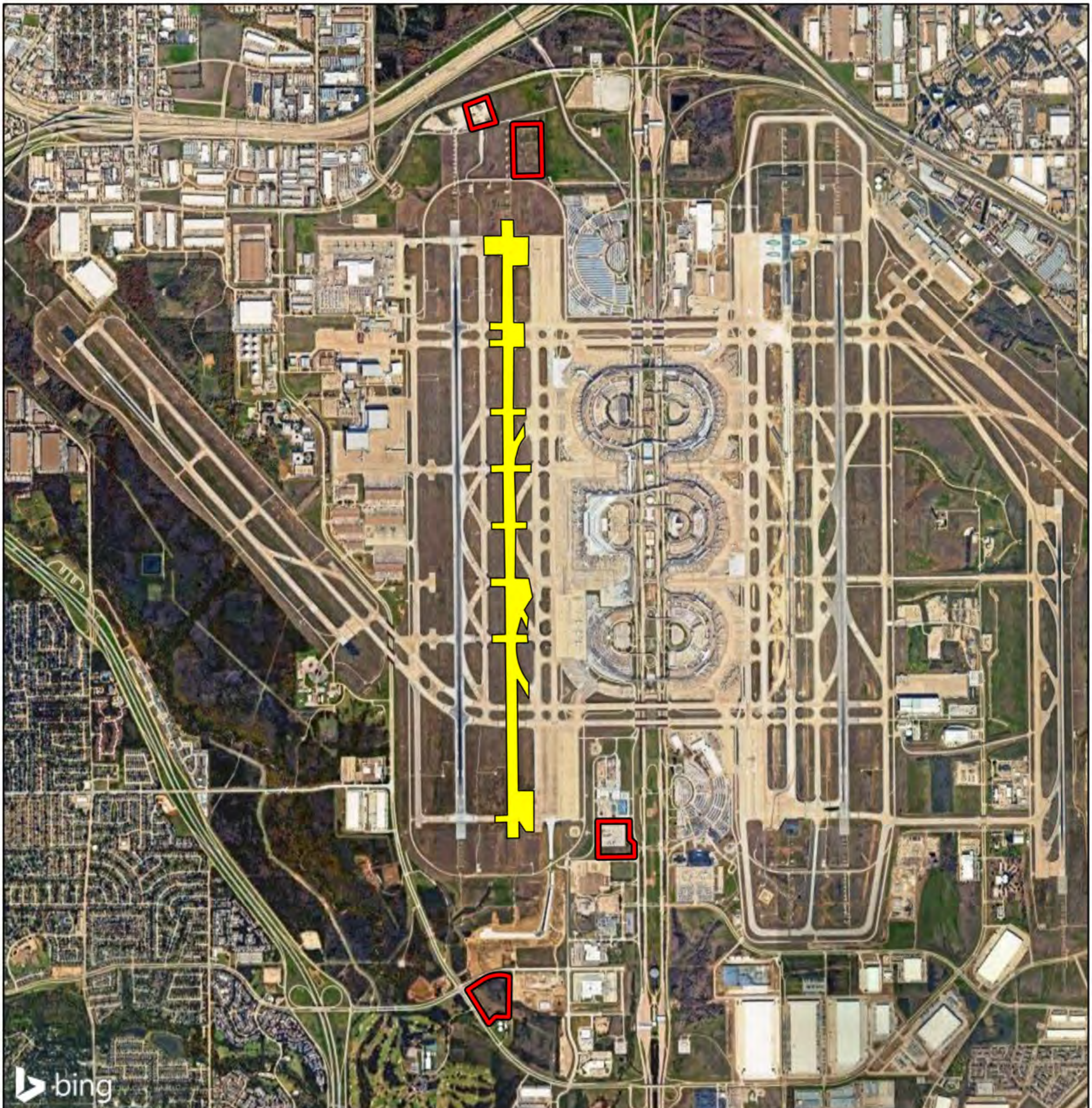


Figure 5.
Aquatic Features Identified within the Survey Area

Survey Area

Runway 18L/36R

Runway 18L/36R Rehabilitation
Dallas-Fort Worth International Airport
Tarrant County, Texas

1 in = 3,000 ft

Feet

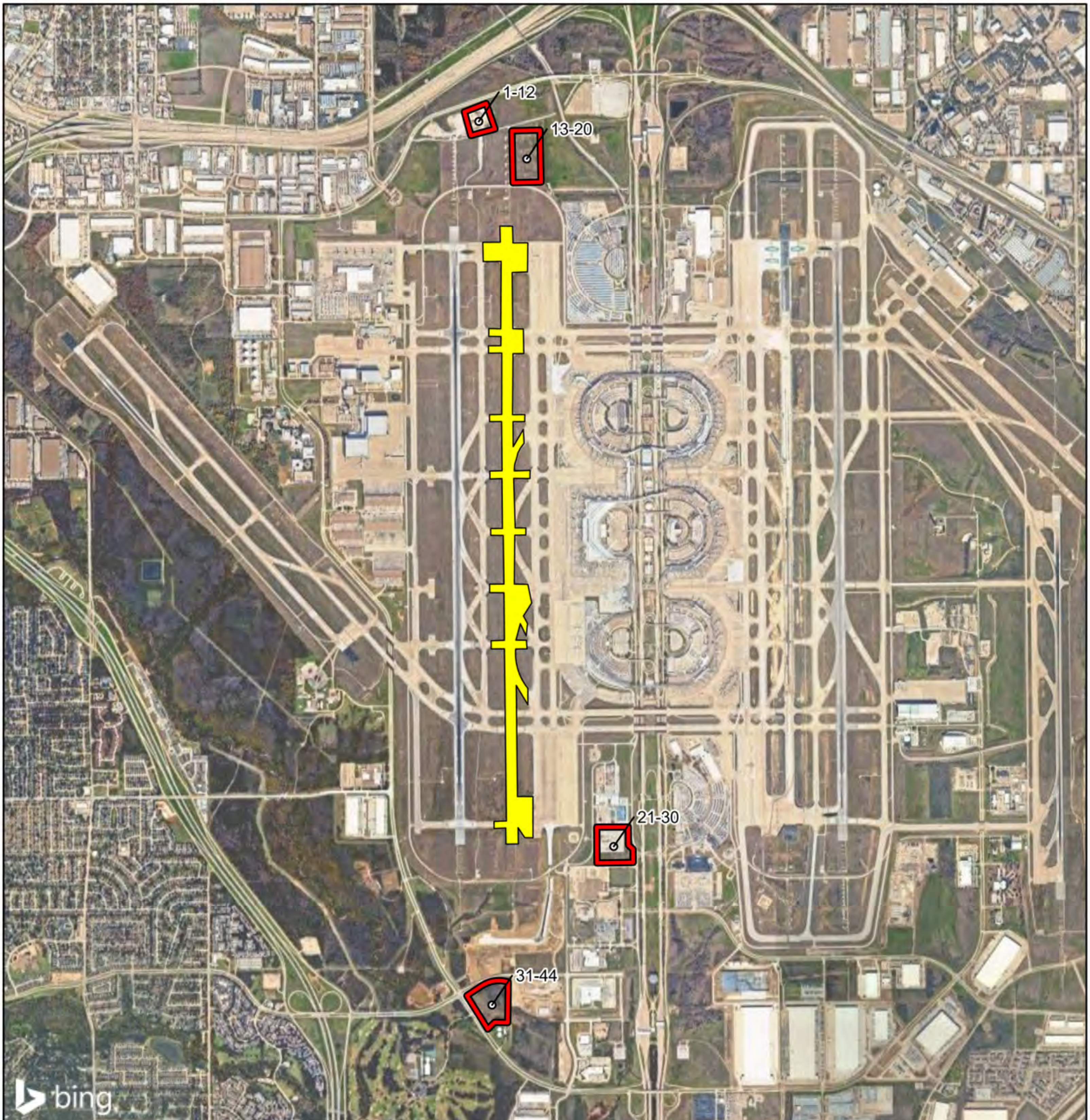
0 3,000

N
W E
S

File Ref. 04.165.013
Date: 7/30/2025

* No Aquatic Features were identified within the Survey Areas

ATTACHMENT B
Site Photographs



Photograph Location Map

Survey Area

Runway 18L/36R

Photograph Location

Runway 18L/36R Rehabilitation
Dallas-Fort Worth International Airport
Tarrant County, Texas

1 in = 3,000 ft

Feet
0 3,000

N
W E
S

File Ref. 04.165.013
Date: 7/30/2025

Photograph 1

Photograph 2

Photograph 3

Photograph 4

Photograph 5

Photograph 6

Photograph 7

Photograph 8

Photograph 9

Photograph 10

Photograph 11

Photograph 12

Photograph 13

Photograph 14

Photograph 15

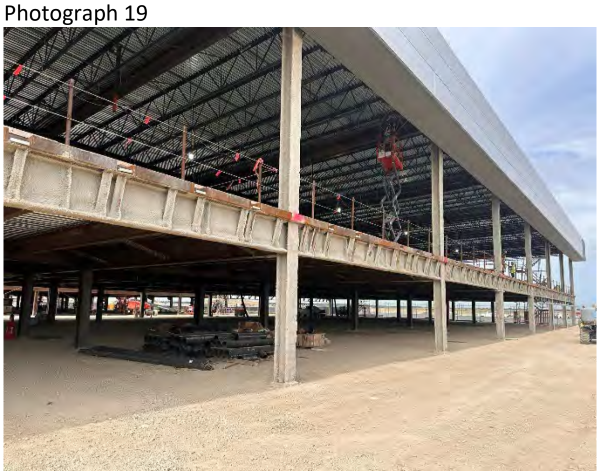
Photograph 16

Photograph 17

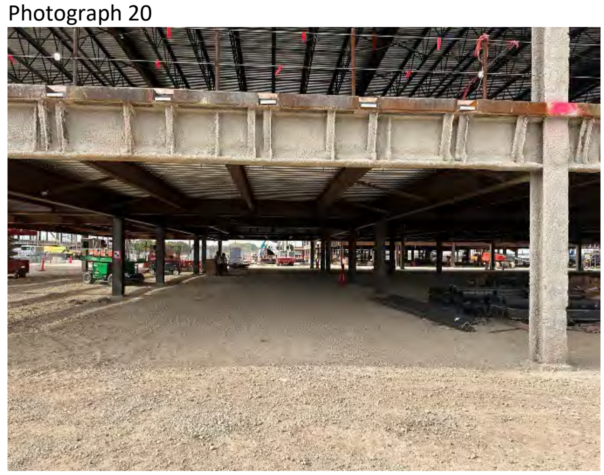
Photograph 18

Photograph 19

Photograph 20

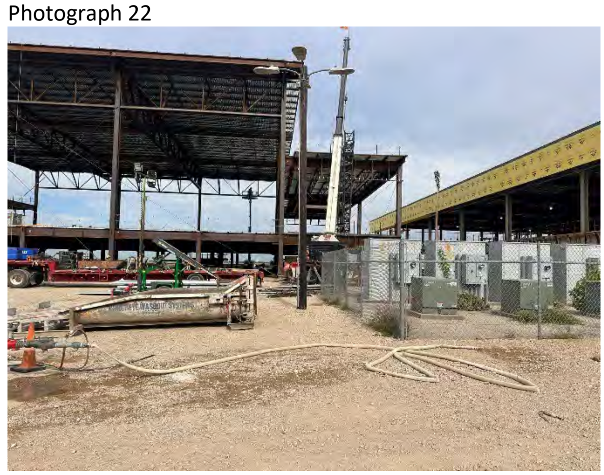


Photograph 21



Photograph 22

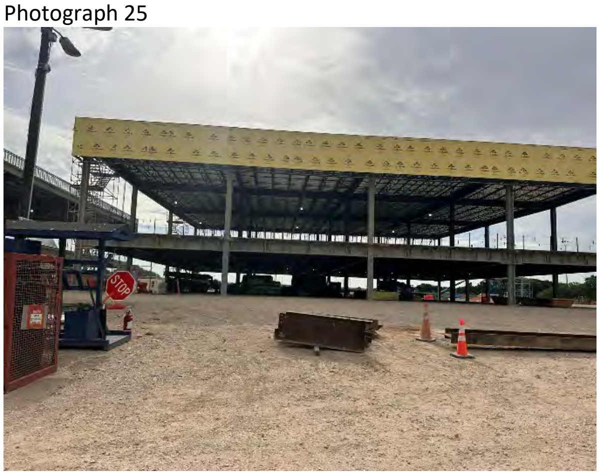
Photograph 23



Photograph 24

Photograph 25

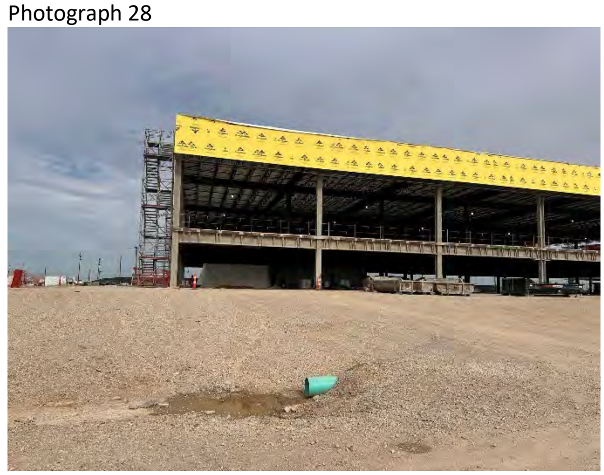
Photograph 26



Photograph 27

Photograph 28

Photograph 29



Photograph 30

Photograph 31

Photograph 32

Photograph 33

Photograph 34

Photograph 35

Photograph 36

Photograph 37

Photograph 38

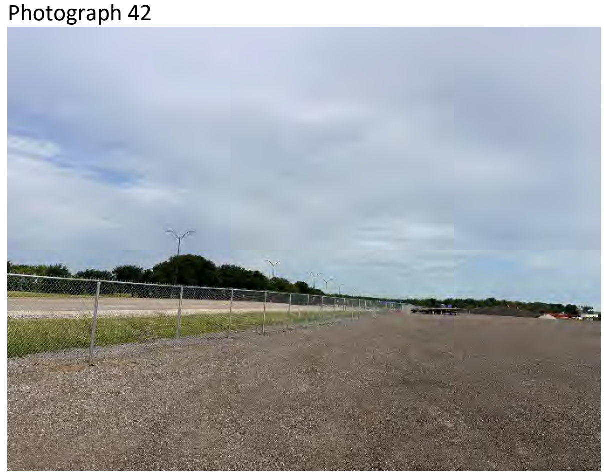
Photograph 39

Photograph 40


Photograph 41


Photograph 42


Photograph 43

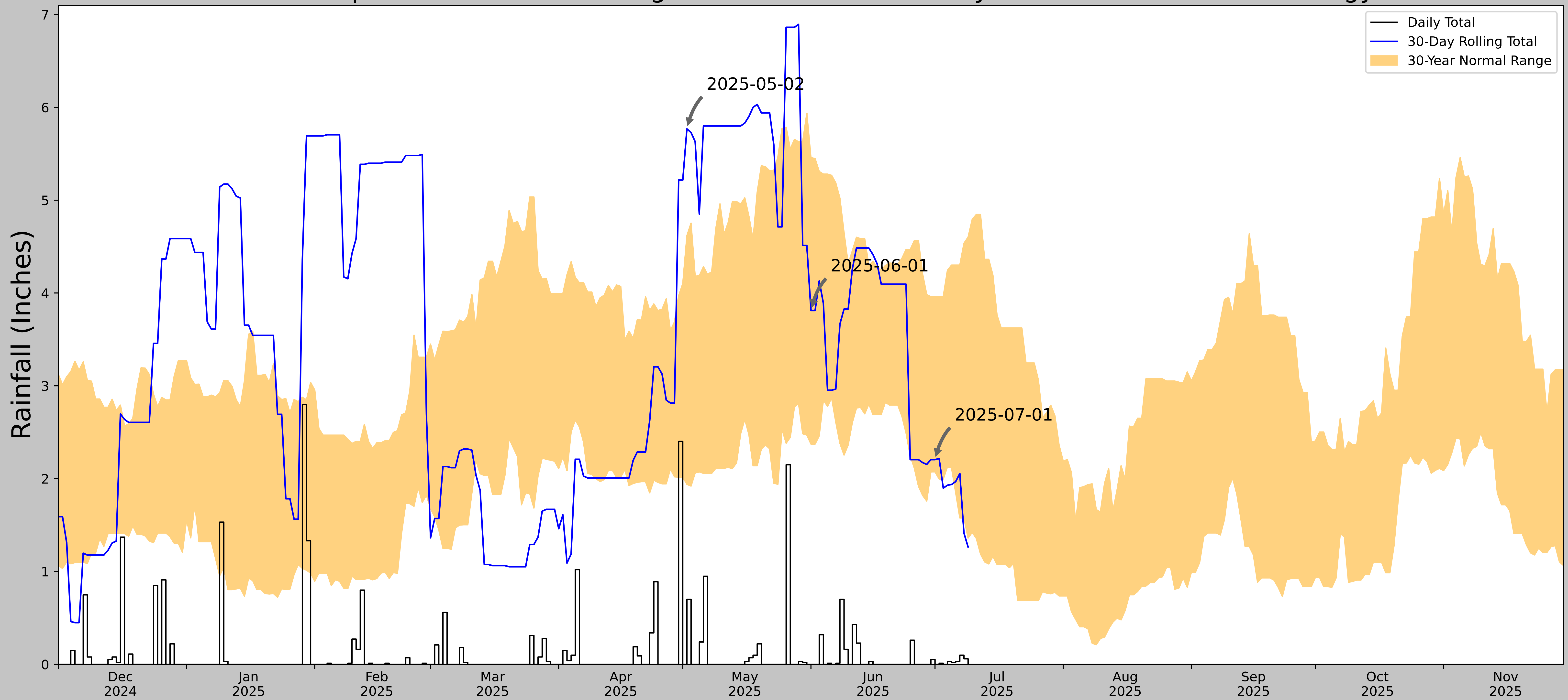

Photograph 44

ATTACHMENT C
Climatological Data

Silent Dave WX - KTXEULES41 30-Day Meteorlogical Weather Data
City of Fort Worth, Tarant County

	Temperature			Dew Point			Humidity			Speed			Pressure		Precip. Accum.
Date	High	Avg	Low	High	Avg	Low	High	Avg	Low	High	Avg	Low	High	Low	Sum
6/1/2025	91.6 °F	77.4 °F	68.4 °F	76.3 °F	68.1 °F	62.8 °F	92 %	74 %	59 %	16.1 mph	2.1 mph	0.0 mph	29.98 in	29.82 in	0.00 in
6/2/2025	94.1 °F	82.8 °F	73.4 °F	76.1 °F	72.9 °F	70.5 °F	93 %	74 %	48 %	15.4 mph	3.5 mph	0.0 mph	29.96 in	29.84 in	0.00 in
6/3/2025	91.2 °F	82.1 °F	74.7 °F	76.6 °F	73.7 °F	71.8 °F	94 %	77 %	58 %	19.7 mph	4.7 mph	0.0 mph	29.94 in	29.76 in	0.02 in
6/4/2025	80.2 °F	72.6 °F	65.5 °F	72.3 °F	67.7 °F	63.3 °F	97 %	85 %	69 %	12.5 mph	3.0 mph	0.0 mph	30.02 in	29.86 in	0.00 in
6/5/2025	91.2 °F	78.6 °F	70.7 °F	77.7 °F	71.8 °F	67.6 °F	92 %	80 %	61 %	11.0 mph	2.4 mph	0.0 mph	30.11 in	29.90 in	0.02 in
6/6/2025	94.5 °F	85.4 °F	78.6 °F	76.1 °F	74.4 °F	72.5 °F	86 %	71 %	52 %	15.7 mph	3.3 mph	0.0 mph	30.01 in	29.87 in	0.00 in
6/7/2025	94.8 °F	86.0 °F	78.4 °F	78.6 °F	75.1 °F	73.6 °F	88 %	71 %	54 %	14.1 mph	2.9 mph	0.0 mph	29.98 in	29.84 in	0.00 in
6/8/2025	98.2 °F	85.9 °F	68.4 °F	79.5 °F	75.0 °F	67.6 °F	97 %	71 %	51 %	39.6 mph	3.0 mph	0.0 mph	29.95 in	29.74 in	0.62 in
6/9/2025	92.5 °F	78.8 °F	68.0 °F	72.5 °F	69.5 °F	67.1 °F	99 %	75 %	49 %	19.7 mph	2.9 mph	0.0 mph	30.02 in	29.72 in	0.32 in
6/10/2025	79.7 °F	76.0 °F	70.3 °F	74.3 °F	70.0 °F	66.0 °F	93 %	82 %	67 %	20.4 mph	1.3 mph	0.0 mph	30.09 in	29.94 in	0.00 in
6/11/2025	79.3 °F	72.9 °F	69.6 °F	73.2 °F	70.0 °F	68.2 °F	99 %	91 %	78 %	13.9 mph	1.9 mph	0.0 mph	30.07 in	29.97 in	0.65 in
6/12/2025	85.5 °F	75.5 °F	69.3 °F	72.7 °F	70.4 °F	68.7 °F	99 %	85 %	61 %	10.5 mph	1.7 mph	0.0 mph	29.99 in	29.85 in	0.24 in
6/13/2025	93.2 °F	80.1 °F	70.2 °F	77.4 °F	72.7 °F	68.9 °F	98 %	79 %	57 %	13.0 mph	2.8 mph	0.0 mph	29.98 in	29.88 in	0.00 in
6/14/2025	94.3 °F	83.8 °F	74.5 °F	79.9 °F	74.7 °F	68.4 °F	87 %	75 %	57 %	12.5 mph	2.9 mph	0.0 mph	30.03 in	29.93 in	0.00 in
6/15/2025	87.3 °F	77.8 °F	69.4 °F	75.9 °F	71.5 °F	65.7 °F	95 %	82 %	51 %	19.7 mph	2.8 mph	0.0 mph	30.17 in	29.88 in	0.10 in
6/16/2025	96.8 °F	82.6 °F	69.3 °F	78.4 °F	73.4 °F	68.5 °F	98 %	76 %	53 %	9.6 mph	1.6 mph	0.0 mph	30.02 in	29.86 in	0.00 in
6/17/2025	93.6 °F	85.6 °F	76.5 °F	76.1 °F	73.4 °F	71.2 °F	85 %	68 %	53 %	19.2 mph	4.4 mph	0.0 mph	29.94 in	29.77 in	0.00 in
6/18/2025	94.5 °F	85.5 °F	78.3 °F	77.2 °F	74.0 °F	71.1 °F	86 %	70 %	49 %	15.7 mph	3.8 mph	0.0 mph	30.02 in	29.81 in	0.00 in
6/19/2025	96.1 °F	86.1 °F	76.1 °F	78.1 °F	74.8 °F	72.9 °F	91 %	70 %	50 %	16.6 mph	2.9 mph	0.0 mph	30.12 in	30.00 in	0.00 in
6/20/2025	95.9 °F	86.8 °F	79.2 °F	76.8 °F	75.2 °F	73.0 °F	89 %	69 %	51 %	18.6 mph	3.9 mph	0.0 mph	30.09 in	29.94 in	0.00 in
6/21/2025	93.9 °F	85.5 °F	77.4 °F	75.9 °F	73.5 °F	70.5 °F	89 %	69 %	48 %	17.0 mph	5.1 mph	0.0 mph	30.05 in	29.93 in	0.00 in
6/22/2025	94.3 °F	85.0 °F	76.5 °F	75.2 °F	73.1 °F	69.6 °F	90 %	69 %	47 %	17.9 mph	4.9 mph	0.0 mph	30.11 in	30.00 in	0.00 in
6/23/2025	94.3 °F	84.8 °F	76.5 °F	76.5 °F	73.9 °F	70.5 °F	92 %	71 %	49 %	16.3 mph	3.4 mph	0.0 mph	30.16 in	30.06 in	0.00 in
6/24/2025	94.8 °F	85.1 °F	76.5 °F	75.0 °F	72.8 °F	70.2 °F	88 %	68 %	47 %	19.2 mph	2.8 mph	0.0 mph	30.21 in	30.07 in	0.00 in
6/25/2025	89.2 °F	79.8 °F	72.1 °F	78.6 °F	73.1 °F	69.1 °F	99 %	80 %	60 %	13.0 mph	2.0 mph	0.0 mph	30.17 in	30.03 in	0.30 in
6/26/2025	93.0 °F	82.8 °F	74.7 °F	75.9 °F	73.3 °F	70.5 °F	93 %	75 %	50 %	13.6 mph	3.1 mph	0.0 mph	30.10 in	29.94 in	0.00 in
6/27/2025	94.5 °F	84.2 °F	74.8 °F	76.5 °F	72.9 °F	70.3 °F	92 %	70 %	50 %	13.2 mph	2.9 mph	0.0 mph	30.08 in	29.97 in	0.00 in
6/28/2025	95.0 °F	86.2 °F	77.9 °F	76.5 °F	73.3 °F	71.1 °F	86 %	67 %	49 %	14.3 mph	3.5 mph	0.0 mph	30.09 in	29.96 in	0.00 in
6/29/2025	95.5 °F	86.7 °F	78.1 °F	75.2 °F	72.6 °F	69.3 °F	83 %	64 %	47 %	15.2 mph	3.3 mph	0.0 mph	30.05 in	29.93 in	0.00 in
6/30/2025	96.1 °F	85.0 °F	75.2 °F	75.2 °F	72.7 °F	69.1 °F	87 %	68 %	47 %	19.5 mph	3.8 mph	0.0 mph	30.10 in	29.92 in	0.00 in

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	32.9374942, -97.0624960
Observation Date	2025-07-01
Elevation (ft)	606.841
Drought Index (PDSI)	Mild wetness (2025-06)
WebWIMP H_2O Balance	Dry Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2025-07-01	2.073228	3.961024	2.204724	Normal	2	3	6
2025-06-01	2.372441	5.457087	3.811024	Normal	2	2	4
2025-05-02	1.938583	4.616929	5.767717	Wet	3	1	3
Result							Normal Conditions - 13

US Army Corps of Engineers

ERDC

Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
DAL-FTW WSCMO AP	32.8975, -97.0219	543.963	3.63	62.878	1.862	11353	90

Runway 18L/36R Rehabilitation Tree Survey

integrated environmental solutions

21 July 2025

Ms. Esther Chitsinde
HDR Engineering, INC.
17111 Preston Rd., Suite 300
Dallas, Texas 75284

Re: Runway 18L/36R Rehabilitation Tree Survey – Approximately 55.96 acres associated with 4 parcels located throughout Dallas-Fort Worth International Airport, Tarrant County, Texas

Dear Ms. Chitsinde:

Integrated Environmental Solutions, LLC (IES) conducted a tree survey in accordance with the Dallas Fort Worth International Airport (DFW) Tree Ordinance. Through coordination with the client, all trees 6 inches diameter breast height (DBH) (except Chinaberry, honey locust, and red mulberry) are to be surveyed within the 55.96-acre tracts located at DFW, Tarrant County, Texas (**Attachment A, Figure 1**). The survey limits were developed from a graphic provided by your office depicting the boundary of the development. IES investigated the limits of the survey area on 01 July 2025 for all trees with the above-specified diameter (**Attachment A, Figure 2**). The trees were measured, recorded, and marked with aluminum tags that specify a number corresponding to the attached maps and data tables.

Table 1. Unprotected Tree Species

Common Name	Botanical Name
Chinaberry	*Melia azedarach*
honey locust	*Gleditsia triacanthos*
red mulberry	*Morus rubra*

During the survey, IES identified and located 2 trees within the survey area totaling 28.8 diameter inches. Total canopy coverage was estimated to be 0.02 percent of the total area between all four parcels. Tree species recorded included honey mesquite (*Prosopis glandulosa*) and sugarberry (*Celtis laevigata*) (**Attachment B**).

IES appreciates the opportunity to work with you and HDR Engineering, INC. on this project. Please note that the results of this tree survey are only valid for 12 months as trees are living organisms and in North Texas, depending upon species, grow between 1 to 4 feet per year (on average could achieve 1.2 inches DBH per year) under normal climatic conditions. Tree locations were recorded using a Juniper Systems Geode GNS3S Global Positioning System (GPS) unit, which can provide sub-meter accuracy, but should not be considered equivalent to a Registered Professional Land Surveyor (RPLS) survey grade data. IES recommends that prior to development planning, a RPLS tie in all tree locations for engineering plan development to ensure location accuracy on design plans. In the event there are any questions or if we can provide any further assistance, please contact me at rreinecke@intenvsol.com or (972) 562-7672.

Sincerely,

Integrated Environmental Solutions, LLC.

Rudi Reinecke
ISA Certified Arborist #TX-3922A

I Rudi Reinecke, being a landscape architect, certified arborist, certified forester, certified ecologist, or professional with a degree in a related field and the required experience, attest that the identification, size, and location of trees noted on this survey are correct and that all trees six (6) or more inches in diameter at breast height have been shown.

Signature: ______________________ *Date:* *21 July 2025*

Attachments
File ref: 04.165.013

ATTACHMENT A

Figures

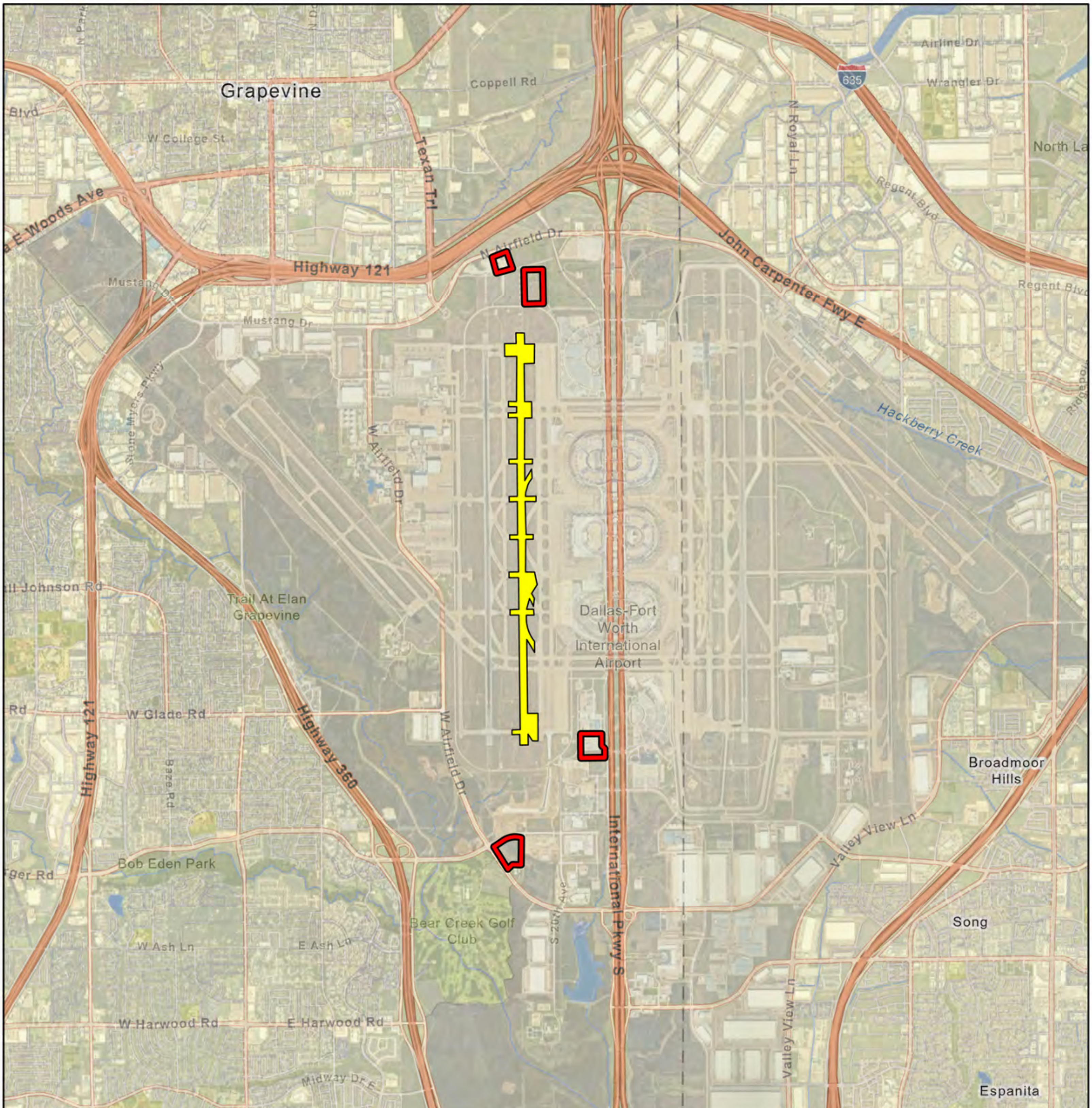


Figure 1.
General Location Map

Runway 18L/36R Rehabilitation
Dallas-Fort Worth International Airport
Tarrant County, Texas

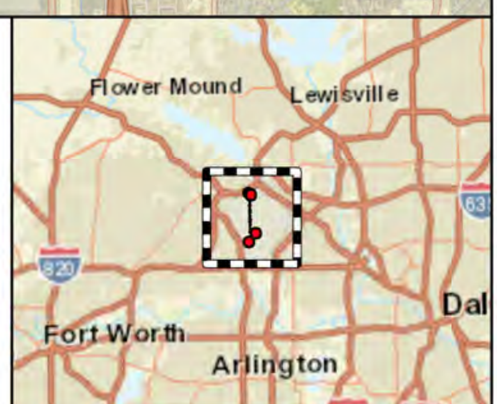
1 in = 4,500 ft

Feet
0 4,500

N
W E
S

File Ref. 04.165.013
Date: 7/30/2025

Survey Area
Runway 18L/36R



Area of Detail **Scale: 1 inch equals 15 miles**

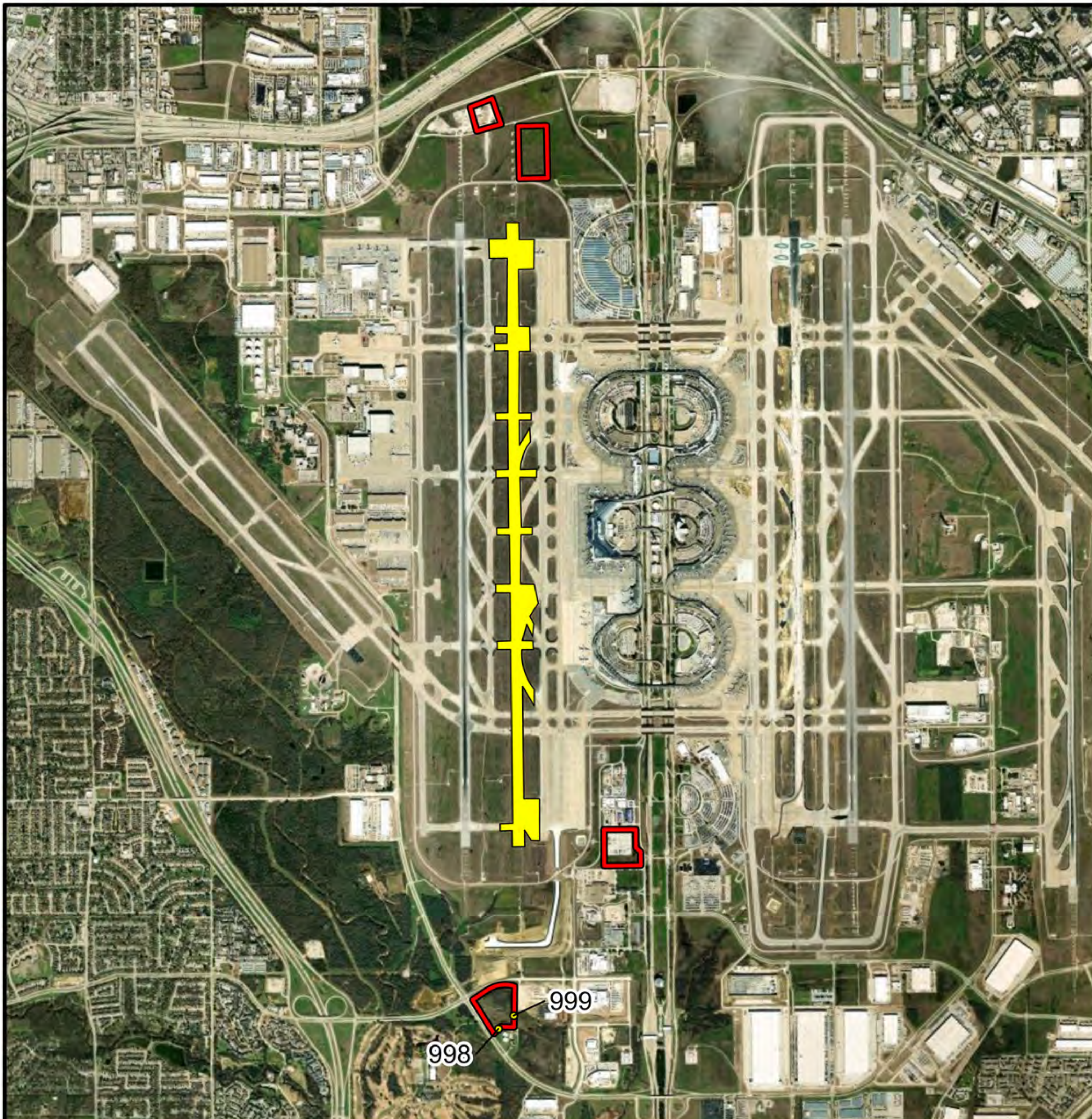


Figure 2.
Tree Locations Identified Within the Survey Area

Survey Area
Runway 18L/36R
Tree Location

Runway 18L/36R Rehabilitation
Dallas-Fort Worth International Airport
Tarrant County, Texas

1 in = 3,000 ft
Feet
0 3,000

N
W E
S

File Ref. 04.165.013
Date: 7/30/2025

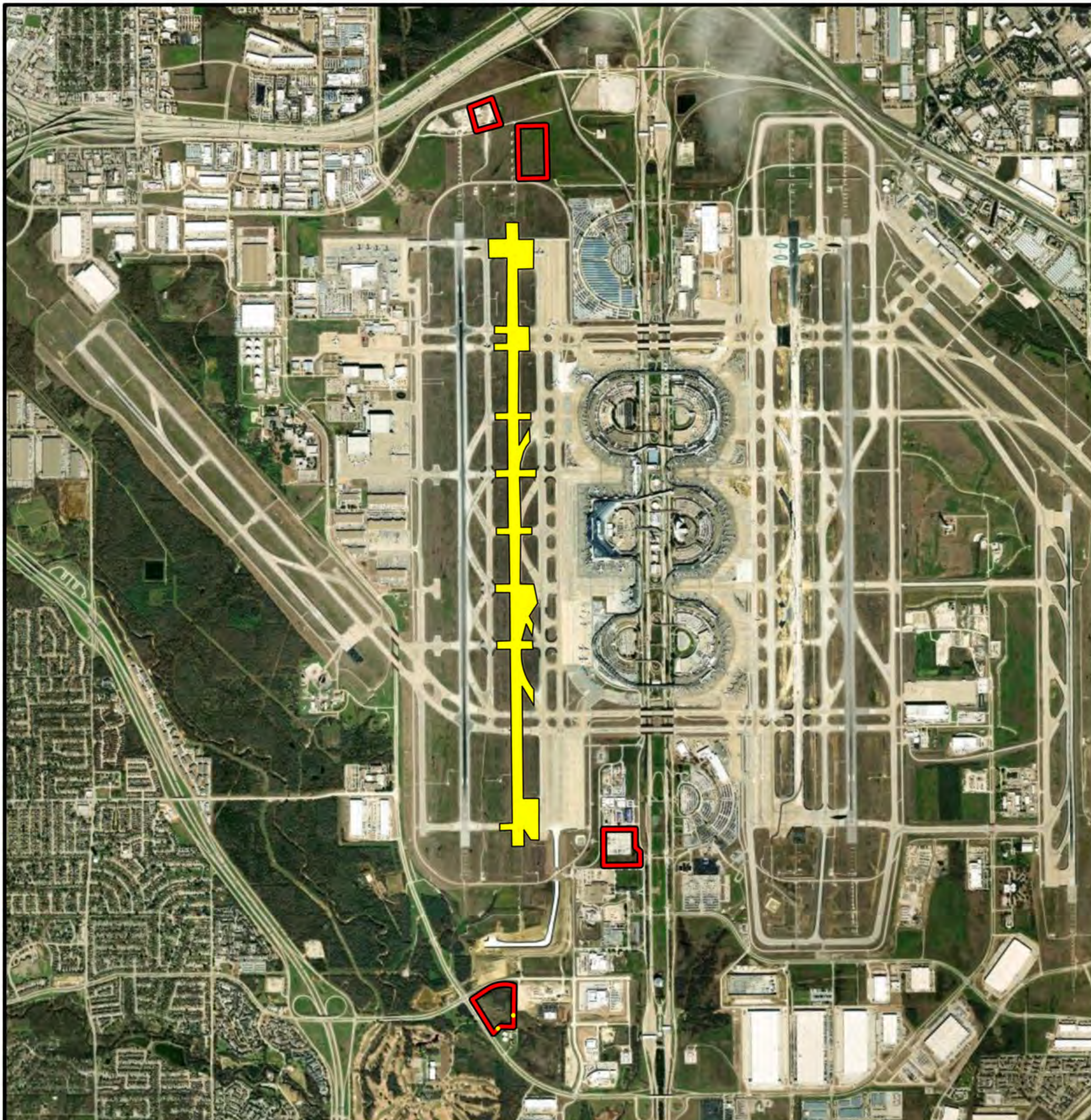


Figure 3.
Canopy Coverage

Survey Area

Runway 18L/36R

Canopy Coverage (0.02%)

Runway 18L/36R Rehabilitation
Dallas-Fort Worth International Airport
Tarrant County, Texas

1 in = 3,000 ft

Feet

0 3,000

N E S W

File Ref. 04.165.013
Date: 7/30/2025

Figure 3A.
Canopy Coverage

Survey Area
Canopy Coverage (0.02%)

Runway 18L/36R Rehabilitation
Dallas-Fort Worth International Airport
Tarrant County, Texas

1 in = 250 ft

Feet
0 250

N
W E
S

File Ref. 04.165.013
Date: 7/30/2025

ATTACHMENT B

Tabular Tree Data

Runway 18L/36R Rehabilitation Tree Survey Tabular Data
Dallas-Fort Worth International Airport

Tree Number	Diameter at Breast Height (Inches)	Species	Scientific Name	Nativity	Canopy Radius (Feet)	Multiple Trunks	Critical Root Zone (Feet)	General Condition	Lean (%)	Dead / Missing Bark	Sapwood Damage	Heartwood Damage	Latitude	Longitude
999	12.1	sugarberry	*Celtis laevigata*	Native	12	Yes	12	Healthy	61-90	No	No	No	32.86726821	-97.05145158
998	16.7	honey mesquite	*Prosopis glandulosa*	Native	12	Yes	17	Healthy	61-90	No	No	No	32.86645708	-97.05260309

Appendix F – Section 106 Historic and Cultural Resources Evaluation Report and Texas Historic Commission (THC) Concurrence Letter

FINAL DRAFT 8.6.2025

Section 106 Assessment and Texas Historic Commission (THC) State Historic Preservation Officer (SHPO) Coordination

for the

Runway 18L/36R Rehabilitation Project

at

Dallas Fort Worth International Airport

From: noreply@thc.state.tx.us <noreply@thc.state.tx.us>
Sent: Friday, September 12, 2025 2:24 PM
To: Marie Oehlerking <MOehlerking@komatsu-inc.com>; reviews@thc.state.tx.us
Subject: DFW Airport Runway 18L/36R Rehabilitation Project

TEXAS HISTORICAL COMMISSION
real places telling real stories

Re: Project Review under Section 106 of the National Historic Preservation Act
THC Tracking #202513582
Date: 09/12/2025
DFW Airport Runway 18L/36R Rehabilitation Project
2400 Aviation Drive
Dallas,TX 75261

Description: DFW Airport will be replacing the existing Runway 18L/36R in its exact location with new pavement requirements for contemporary aircraft safety.

Dear Marie Oehlerking:
Thank you for your submittal regarding the above-referenced project. This response represents the comments of the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission (THC), pursuant to review under Section 106 of the National Historic Preservation Act.

The review staff, led by Justin Kockritz and Danielle Julien, has completed its review and has made the following determinations based on the information submitted for review:

Above-Ground Resources

- THC/SHPO concurs with information provided.
- No adverse effects on historic properties.

Archeology Comments

- No historic properties affected. However, if cultural materials are encountered during construction or disturbance activities, work should cease in the immediate area; work can continue where no cultural materials are present. Please contact the THC's Archeology Division at 512-463-6096 to consult on further actions that may be necessary to protect the cultural remains.
- THC/SHPO concurs with information provided.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. If the project changes, or if new historic properties are found, please contact the review staff. If you have any questions concerning our review or if we can be of further assistance, please email the following reviewers: justin.kockritz@thc.texas.gov, danielle.julien@thc.texas.gov.

This response has been sent through the electronic THC review and compliance system (eTRAC). Submitting your project via eTRAC eliminates mailing delays and allows you to check the status of the review, receive an electronic response, and generate reports on your submissions. For more information, visit http://thc.texas.gov/etrac-system.

Sincerely,

for Joseph Bell, State Historic Preservation Officer
Executive Director, Texas Historical Commission

Please do not respond to this email.

August 06, 2025

Joseph Bell
State Historic Preservation Officer
Texas Historical Commission
P.O. Box 12276
Austin, TX 78711-2276

RE: Initiation of Section 106 Consultation for DFW Airport Runway 18L/36R Rehabilitation

Dear Mr. Bell:

On behalf of the Dallas Fort Worth International Airport (DFW) and the Federal Aviation Administration (FAA), Komatsu Architecture is initiating consultation with the State Historic Preservation Office (SHPO) for the proposed Runway 18L/36R Rehabilitation project at DFW International Airport property. The DFW International Airport is seeking approval from the FAA to modify their Airport Layout Plan (ALP) to reflect the permanent alterations. Additionally, DFW International Airport may seek federal funding for the proposed Runway 18L/36R Rehabilitation project. Since the ALP modification and receipt of federal funding are considered federal actions, the FAA will review the undertaking in accordance with the National Environmental Policy Act of 1969 (NEPA). In addition, coordination with the SHPO, represented by the Texas Historical Commission (THC), is necessary in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 and its implementing regulations, 36 CFR Part 800, which requires that federal agencies consider the effects of their undertakings on historic properties. The purpose of this report is to evaluate the proposed project and assess its potential impact on any historic resources.

1. PROJECT OVERVIEW

The Runway 18L/36R Rehabilitation project is located directly west of Terminals B and D buildings, and the North and South Express parking lot. Refer to Image 1 for a location map of the project site.

Runway 18L/36R was originally constructed in 1974 and was 11,386 feet in total length. In 2002, the runway was extended to the north by 2,015 feet to reach its current length of 13,401 feet. The Runway is 200 feet wide with 25-foot-wide asphalt shoulders.

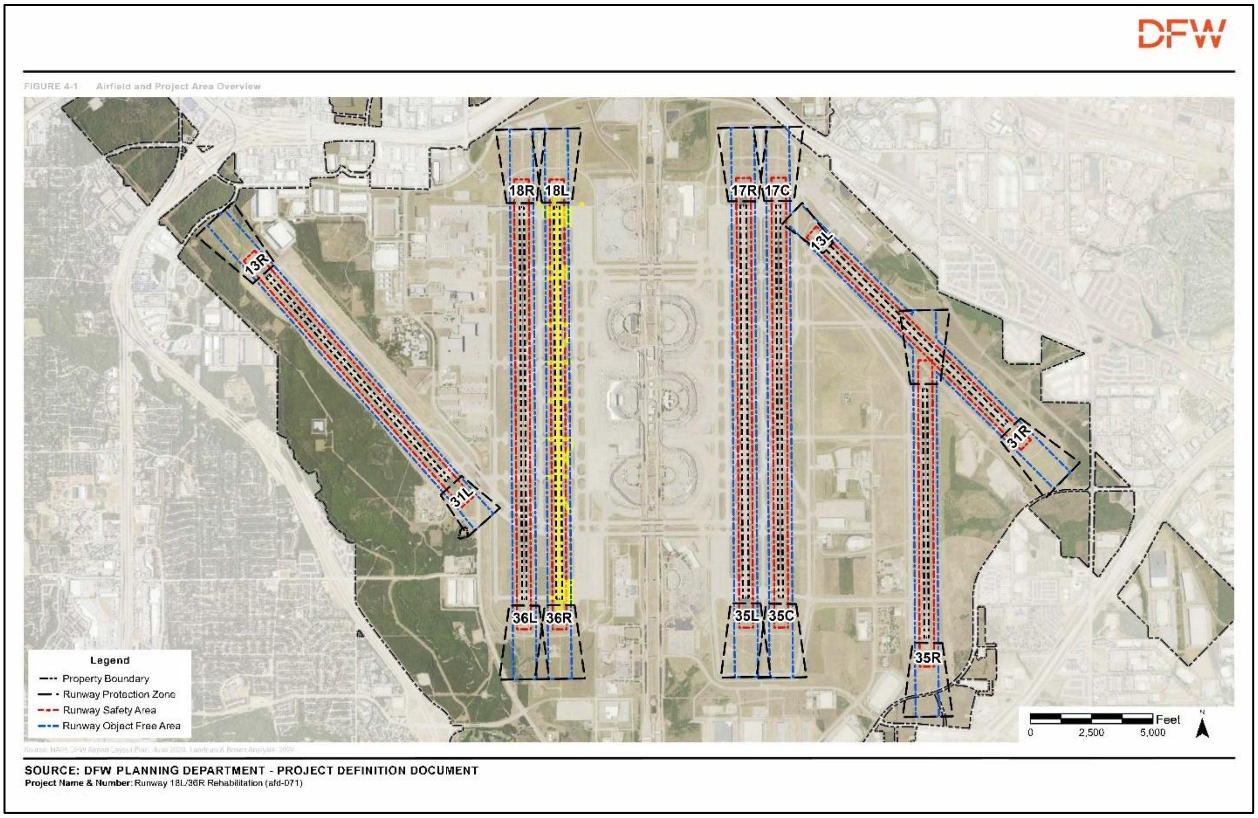


Image 1. Airfield and Project Area Overview
Source: Runway 18L/36R Rehabilitation Project Definition Document, January 2025, DFW Airport

Runway 18L/36R is next in the comprehensive runway rehabilitation program currently underway at DFW. In the most recent pavement condition index (PCI) report conducted in 2019, the condition of the keel section received a “fair” score of 66 and was one point shy of a major rehabilitation recommendation. The intent of the runway rehabilitation is to preserve and extend the functional life of the runway, enhance the future functional performance, reduce operational impact, reduce capital investment, and provide for future maintenance / improvements without critical operations impact. Rehabilitation of Runway 18L/36R will reinstate the asset to good condition and reduce the number of unplanned runway closures and maintenance costs. This project will also present an opportunity to bring runway and taxiway conditions up to current standards. Additionally, this project will improve many other assets near the runway. The asphalt overlay will provide a reliable operational surface and standard maintenance cycle that aligns with the previous three recently completed runway rehabilitation projects.

The Runway 18L/36R Rehabilitation project includes the following scope of work:

- Runway 18L/36R pavement rehabilitation including:

- Select Portland Cement Concrete (PCC) panel replacement on 150-feet of the 200-foot existing width
- Reducing the width of the runway from 200 feet wide to 150 feet wide
- Construction of a Hot Mix Asphalt (HMA) overlay across the full runway width
- Full-depth reconstruction of shoulder pavements to meet FAA Advisory Circular (AC) 150/5300-13B (Change 1) requirement of 35 feet including the underdrain system.
    - While all 25 feet of existing shoulders will be demolished, only 10 feet of shoulders will be reconstructed to meet the 35-foot requirement, as the additional 25 feet of shoulder pavement will be provided by the remaining runway pavement once the width is reduced.
- Full-depth reconstruction or rehabilitation of the Runway 18L and 36R blast pads to full FAA Airplane Design Group (ADG) VI runway design standards

- Airfield sign and electrical improvements including:
    - Touchdown Zone (TDZ), centerline, and edge light LED upgrades
        - The only remaining incandescent lights on the runway are the TDZ lights and the Land and Hold Short Operations (LAHSO) lights. However, the existing LED lights will likely require upgrades to the latest controllers.
    - Manholes replaced with junction can plazas
    - Replacement of in-pavement can lights including taxiways
    - Non-standard signs with pig tails
    - Temperature sensors
    - Electrical box relocation (ADG-VI obstruction)
    - Removal of old electrical infrastructure in the Southwest Holdpad (SWHP)
- Utility improvements including:
    - Relocation and repair of the runway drainage system, as necessary
    - Inlet repairs and relocation out of Runway Safety Area (RSA)
- Northwest Holdpad (NWHP) Rehabilitation and Taxiway Design Group (TDG) 6 Fillet Modifications
- SWHP TDG 6 Fillet Modifications
- TDG 6 fillet modifications and select panel replacement of all taxiways and high-speed taxiway exits within the Runway 18L/36R Object Free Area (OFA)
- Existing taxiway pavement demolition of Taxiway WK between Taxiways E and F
- Existing taxiway pavement demolition of Taxiway G8 between Taxiways E and F
- Existing taxiway pavement demolition of Taxiway WL between Taxiways E and F
- Existing taxiway pavement demolition of Taxiway F4 between Runway 18L/36R and Taxiway F
- Taxiway WF pavement rehabilitation south of taxiway centerline (foam repairs)

- Northwest end-around taxiway (NW EAT) pavement construction north of Runway 18L within RSA
- Runway 36R run-up area partial demolition
- No-taxi island installation in the following locations:
    - East of Runway 18L threshold between Taxiway WF and Taxiway WG
    - East of Runway 18L threshold between Taxiway WG and Taxiway WH
    - West of Runway 18L threshold between Taxiway WF and Taxiway WG
    - East of Runway 36R threshold between Taxiway WP and Taxiway WQ
    - East of Runway 36R threshold between Taxiway WQ and Taxiway WR
    - East of Runway 18L/36R between Taxiway Y and Taxiway Z
- Final site-area grading, topsoil, seed/sod, and other erosion controls, as necessary. Limits of grading, topsoil, sodding needs to encompass areas beyond the inlets/drains to mitigate infield problem areas.
- Temporary lighting, signage, and pavement markings installation, as necessary, to support temporary taxiway routing during various phases of construction
- Removal and replacement of obsolete runway signage and markings, as necessary
- Any additional work that may be required to progress the project, which may include temporary facilities, temporary fencing and gates, temporary roadways, etc.

2. AREA OF POTENTIAL EFFECTS

The Area of Potential Effects (APE) has been defined by Komatsu Architecture in the map found in Image 2 on the following page. An enlarged version of the map is provided in **Attachment A and Attachment B** for the archaeological resources desktop evaluation. The Direct APE is applied to the proposed project area boundary and approximately 150 feet outside of the immediate project footprint (see **Attachment C** for select Design Drawing Sheets). The Indirect APE is applied to approximately 500 feet surrounding the project areas to include all visual and physical elements within the proximity of the project.

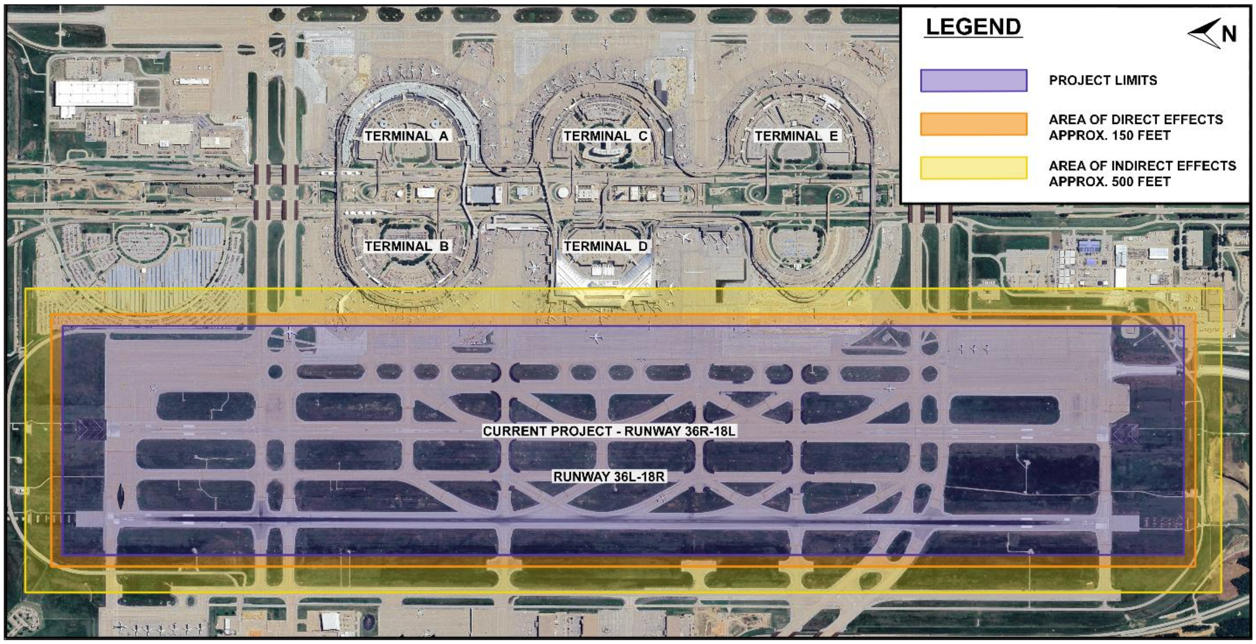


Image 2. Area of Potential Effects Map

3. IDENTIFICATION OF HISTORIC PROPERTIES

In the Direct APE, above ground resources include low-lying, pavement resources including runways, taxiways, aprons, and ramps. In the Indirect APE, above ground resources include Terminals B and D, North and South Express Parking, and a portion of the southern campus. The sections below highlight the history and evolution of each of these resources. Although the indirect APE includes structures that are of historic-age (i.e., 50-years old), none of these historic-age resources qualify for listing on the National Register of Historic Places (NRHP) and are, therefore, not historic properties.

3.1. Direct APE - Runways, Taxiways, Aprons, Ramps

DFW Airport's original runway configuration was a new innovation for airport planning in that it located the terminal structures between parallel runways rather than a side-loaded terminal that had been the planning model since commercial aviation began. The central spine is formed by DFW's primary vehicle roadways designated as International Parkway. In 2019, DFW conducted a preliminary and informal study which included the following runway descriptive histories excerpts:

3.1.1. Runways

The original runway on the West Air Side (18L/36R) is parallel to International Parkway (Spine) and bisects the central terminal area. The East Air Side runway (17R/35L) is identical in orientation to the West Air Side runway. The third crosswind runway (13L/31R) is set at a diagonal across the North end and intersecting the parallel runway. The original runways were

150 feet in width, with an ultimate width of 200 feet, and paved shoulders of 50 feet in width. The two parallel runways were originally 11,400 feet in length and the third was 9,000 feet in length. The runways were constructed of concrete pavement. The East runway 17R/35L was extended north in 1995 and 18L/36R on the West was extended north in 2002 (Google Inc. 2018; NETR 2018).

By 1990, three additional runways were added, including additional parallel inboard runways on the East (17C/35C) and West (18R/36L) and a 45-degree angle from the bottom (south) of the western parallel runways (13R/31L) (NETR 2018). Runway 18R/36L on the west side was extended north in 2003 and 17C/35C was extended north in 2006 (Google Inc. 2018). The final runway was completed in 1996 and is located on east side of the central terminal area and parallel to International Parkway. The runway is currently designated as 17L/35R. Current runways are concrete with asphalt paved shoulders.

3.1.2. Taxiways

The DFW taxiways connect the runways to the aprons, hangars, and parking areas. The taxiways are labeled with letters A and B at the southern end of the runways and crossing International Parkway. Taxiways Y and Z are located north of the terminals and cross International Parkway, as well. The taxiways are constructed of concrete with asphalt paved shoulders. Original taxiways were 100 feet in width with 25-foot-wide shoulders that ran parallel to the north-south runways. Each of the North-South runways have two full-length (11,400 feet) taxiways. The crosswind runway (13L/31R) has a parallel taxiway as well. These are original to the Air Side Plan of 1974. Additional connector loops, hardstand areas, and diagonal taxiways have been added, or expansions have been made to accommodate larger aircraft continuously since 1974.

3.1.3. Aprons to Ramps

The aprons surround the terminals and provide the aircraft parking areas at the gates for loading and unloading of passengers. The aprons originally had hardstand areas for pull-off parking to accommodate aircraft waiting to access the gate positions. The original aprons were constructed of concrete. The apron areas extended approximately 420 feet from the terminal face. The design and layout of the aprons and terminal buildings were to minimize delay and allow for dual taxiway capability.” [1]

Although Runway 18L/36R was originally constructed as a primary component of DFW Airport, it has been modified and changed over the years to accommodate contemporary aircraft requirements. The Runway does not rise to the level of historical significance under any of the NRHP criteria; Criterion A: Events, Criterion B: Person of Significance, Criterion C: Design /

Construction, or Criterion D: Information Potential. The major changes to the width and length of the runways also diminish their integrity of design. Therefore, Runway 18/36R and its associated air side components is not eligible for the NRHP and is not a historic property.

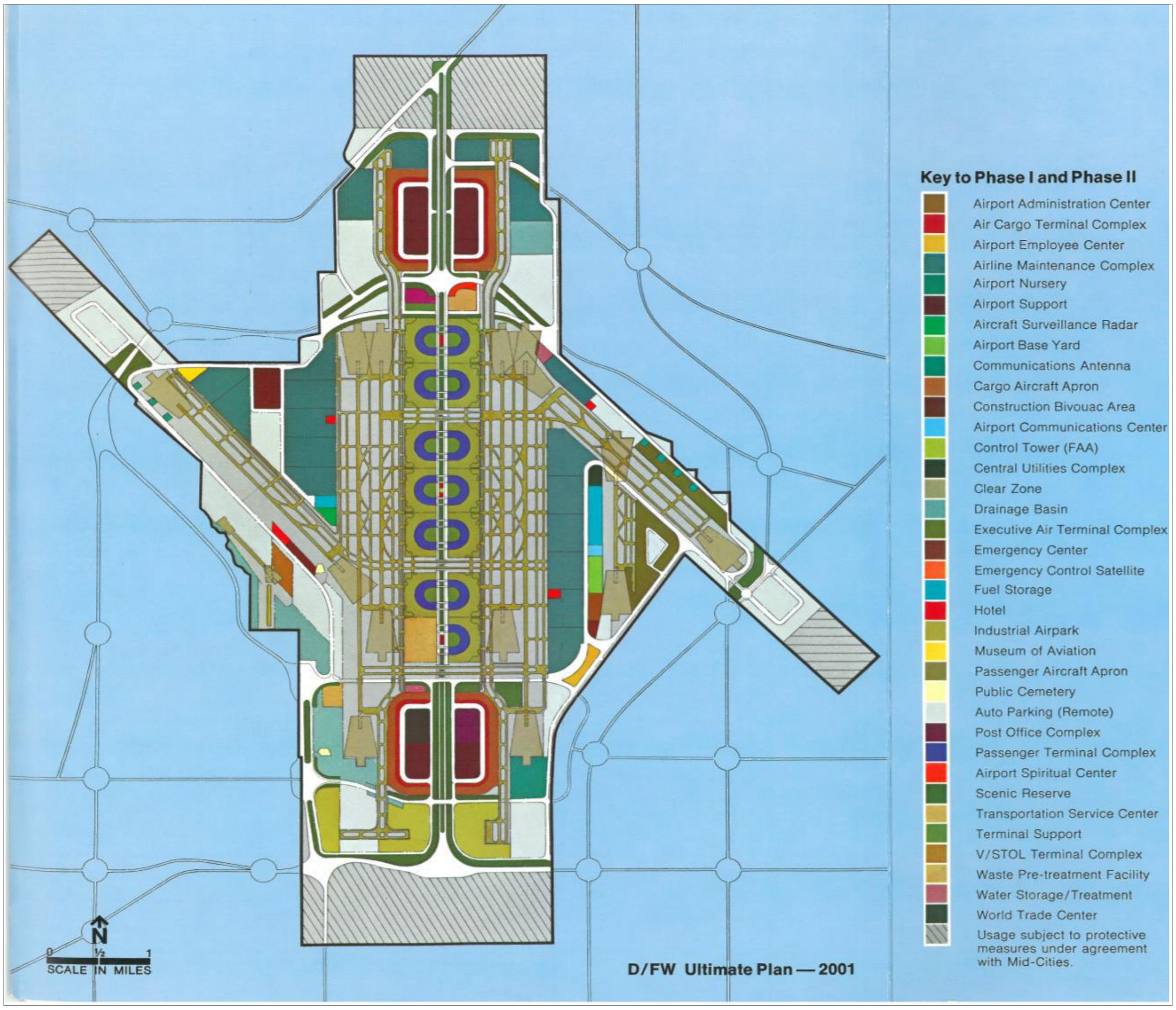


Image 3. DFW 1975 Ultimate Plan for 2001 by Tibbits Abbott McCarthy Stratton (TAMS) Terminal B and D

3.2. Indirect APE

In the Indirect APE includes Terminals B and D, North and South Express Parking, and a portion of the southern campus. The subsections below highlight the history and evolution of each of these resources.

3.2.1. Terminals B and D

The Terminal buildings were evaluated under a separate assessment report, "Terminal C and Terminals A, B, E Cultural Resources Evaluation", which is included as **Attachment D.** The

Terminals Evaluation found that the buildings had potential significance under National Register Criterion A for History, due to their association with the original planning concept of the Airport as a whole and its impact on transportation in the Dallas-Fort Worth Metroplex. However, the buildings individually lack architectural integrity, as the original design has been drastically changed and modified over the last 50 years. The Terminals were found to be "Not Eligible" for listing on the NRHP, under National Register Criteria B, C, or D.

Although portions of Terminals B and D fall within the Indirect APE boundary of the proposed Project, the Runway 18L/36R project boundary is approximately 150 feet away from the Terminal buildings and their associated Aprons, which means the physical construction activities would not have direct impacts to the structures. From the Terminal buildings, the replacement pavement will be visually similar to the existing configuration and will not change the appearance of the Terminals' setting once construction work is completed. Therefore, the Runway 18L/36R project does not have the potential to have adverse effects on historic properties.

Image 4 (left). Example of Terminal building design in January 1974.
Image 5 (right). Example of Terminal building design today post 2016.

3.2.2. Express North Parking

Remote parking, now North Express Parking, was developed and opened in 1975 occupying original spine node designation 1W. This facility served travelers entering from the North Entrance and was convenient to Terminal 2W and 2E, now B and A respectively. Today, the parking area still consists primarily of paved surface parking. The pavement has been replaced, additional parking spaces have been added, and in a portion of the lot contemporary shade structures have been installed. Although Express North Parking is of historic age and maintains its original location and use, the parking lot is not significant in its own right under the National Register criteria and is, therefore, not a historic property.

Image 6 (left). Express North Parking configuration 2015, then American Eagle Terminal far right.
Image 7(Right). Current aerial view of Express North Parking.

3.2.3. Express South Parking

Originally designated as Short Term Overflow Parking in 1974, the Express South Parking lot was constructed in node 4W. This node mimicked the half circle terminal buildings through the shape of the pavement for the surface parking. Above ground structures were minimal.
Since that time, above ground structures have been added within this node including the Express South Parking Structure, constructed in the early 1980s, and Sky Link elevated rail system, constructed in 2005. Neither of these resources are of historic age and are, therefore, not eligible for the NRHP. The Express South Parking node was explored in a previous Section 106 Assessment. For additional information, refer "**Attachment E**. Terminal E & F Section 106 Assessment" report. Concurrence for this report was received on September 11, 2023; the THC concurrence-letter is included in **Attachment E**.

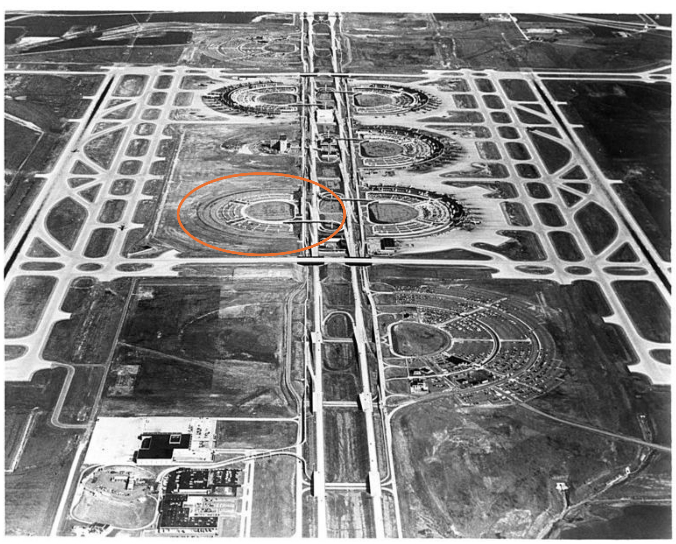


Image 8. Circa 1975 view of 4W Short Term Overflow Parking, circled in orange, and 4E Terminal (Delta and Continental); and 5E (right foreground) with both Remote Employee Parking and Rental Car facilities

Image 9 (left). Current Aerial view of Express South Parking, Image 10 (right). Current view of Express South Parking structure

3.2.4. Above Ground Resources Between S. Service Road and SW Construction Road

The southern edge of the Indirect APE boundary touches several above ground structures at the southern portion of the airport. These structures from left to right include temporary buildings in the Environmental Affairs Division parking lot, new facilities under construction, and the former U.S. Post Office building. Of these, only the Post Office building is of historic age, as it was constructed in 1973.

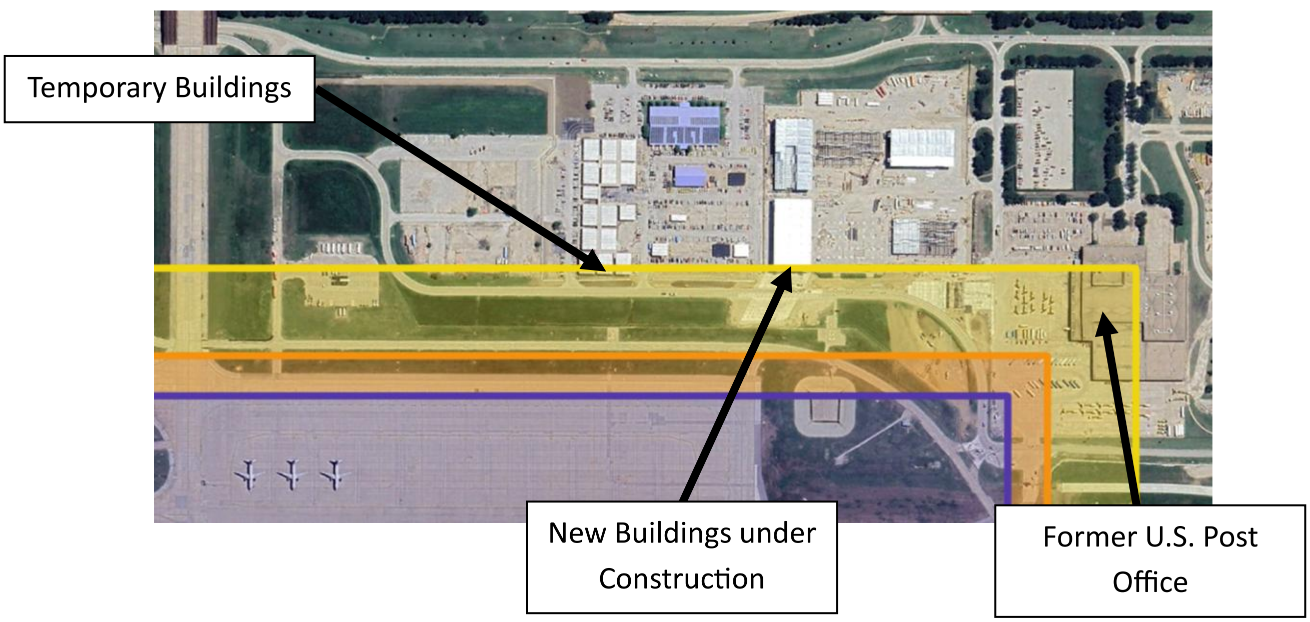


Image 11. Close up of above ground resources in south campus area within the Indirect APE.

The first portion of the Post Office facility was completed in 1973 as one of the early support facilities to serve the US Mail Air Service and Airport Ground operation needs. A straightforward processing building using the Airport's precast construction vocabulary, the building is unremarkable in its design. Over the years, several additions were made to the building. Today, the building no longer functions as a Post Office. It is currently used for various storage needs as the new facilities were placed with other air cargo operations. The recommendation is that this historic-age facility does not meet significance in architectural design or construction methods criteria and is deemed “Not Eligible” for listing on the NRHP.

4. DETERMINATION OF FINDINGS

Based on the results of this evaluation, research, and past investigations, Komatsu Architecture finds that:

- There are no historic resources within the direct APE.
- Terminal B, located within the Indirect APE is potentially eligible for listing on the NRHP, under Criterion A,
- The Old Post office is not eligible for listing on the NRHP,
- The Express North Parking is not eligible for listing on the NRHP,
- The Express South Parking is not eligible for listing on the NRHP.

The areas of disturbance associated with the proposed runway rehabilitation project are more than 150 feet away from Terminal B and its associated apron. Therefore, the proposed Runway 18L/36R Rehabilitation project has ***No Adverse Effects*** on historic properties within both the Direct and Indirect Area of Potential Effects. Pursuant to 36 CFR 800.4(d)(1), Komatsu Architecture, as DFW Airport’s consultant and representative, and on behalf of the FAA, requests the SHPO’s concurrence on the consultant and agency’s findings. Thank you in advance for your consideration.

Sincerely,

Karl A. Komatsu

Karl Komatsu, President
Komatsu Architecture

5. ATTACHMENTS

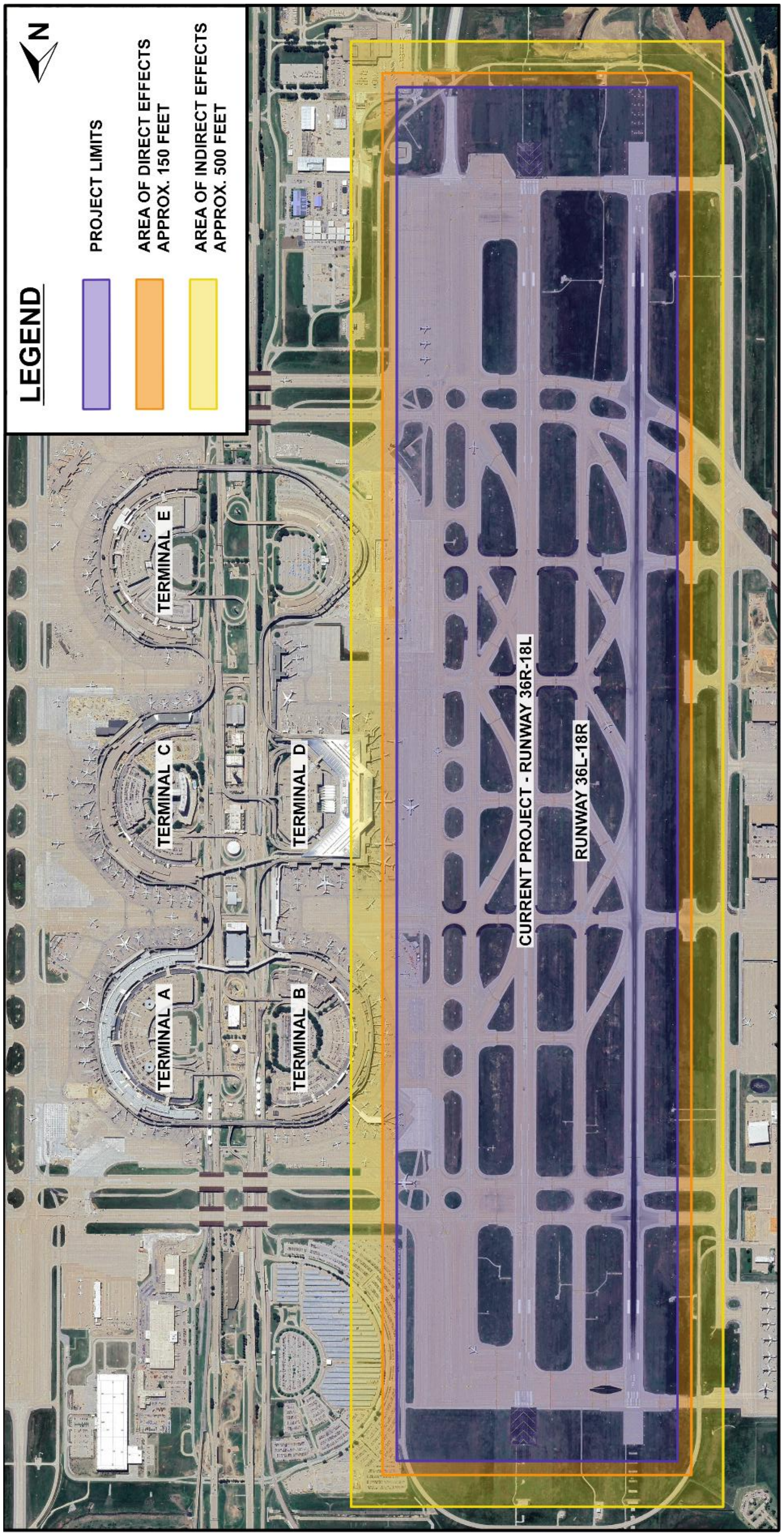
A. Map of APE
B. Archaeological Resources Desktop Analysis for the Runway 18L/36R Rehabilitation Project and associated Project Support Locations
C. Proposed Runway 18L/36R Rehabilitation Project 50% Drawings
    I. Volume 1 – Existing Conditions, Construction Phasing
    II. Volume 2 – Erosion Control, Demolition Plan, Civil Geometry, Jointing, Pavement Markings and Signage
D. Terminal C and Terminals A, B, E Cultural Resources Evaluation
E. Terminal E and Proposed Terminal F Development Section 106 Evaluation

6. REFERENCES

AtkinsRealis. "Runway 18L-36R Rehabilitation Volume 1-5 50% Drawings." April 2025.

DFW Airport Planning Department. "Runway 18L/36R Rehabilitation Project Definition Document." January 2025.

Attachment A. Area of Potential Effects Map



Attachment B: Selected Pages from Runway 18L/36R Rehabilitation Project Design Drawings - available upon request

Attachment C: Runway 18L/36R Rehabilitation Project Archaeological Resources Desktop Evaluation

28 July 2025

Ms. Esther Chitsinde
HDR Engineering, INC.
17111 Preston Rd., Suite 300
Dallas, Texas 75284

RE: Cultural Resources Desktop Analysis for the Dallas-Fort Worth International Airport Runway 18L/36R Rehabilitation Project, DFW International Airport, Tarrant County, Texas

INTRODUCTION

Integrated Environmental Solutions, LLC (IES) has been contracted by HDR, Inc., on behalf of the Dallas-Fort Worth International Airport (DFW), to conduct the cultural resources review and agency coordination for the proposed DFW Runway 18L/36R Rehabilitation Project. The proposed project area, or Area of Potential Effects (APE), encompasses 55.97 acres (ac) on DFW property in Tarrant County (**Attachment A, Figure 1**). Approval from the Federal Aviation Administration (FAA) will be required to modify the Airport Layout Plan (ALP) to reflect the permanent alterations on DFW property. Since the ALP is considered a federal action, the project will require compliance with the National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) Section 106. Additionally, as DFW is a political subdivision of the State of Texas, the project will be subject to the provisions of the Antiquities Code of Texas (ACT).

PERTINENT REGULATIONS

Antiquities Code of Texas

As DFW is considered a political subdivision of the State of Texas under Section 52, Article III, or Section 59, Article XVI, of the Texas Constitution, DFW is required to comply with the ACT. The ACT, as outlined in the Texas Administrative Code (TAC) Title 13 Part II and the Texas Natural Resource Code (TNRC) Title 9 Chapter 191, requires that political subdivisions notify the Texas Historical Commission (THC) at least 30 days prior to any project that may affect potential or designated archeological sites. While advance project review by the THC is required for undertakings with more than 5 ac or 5,000 cubic yards of ground disturbance, the THC can still request project information and/or an archeological survey in advance of more minor ground disturbances since all publicly sponsored projects must comply with the ACT. If the activity occurs inside a designated historic district, affects a recorded archeological site, or requires on-site investigations, the project will need to be reviewed by the THC, regardless of project size.

National Historic Preservation Act Section 106

The NHPA (54 U.S. Code [USC] 306101), specifically Section 106 (54 USC 306108), requires the State Historic Preservation Officer (SHPO), represented by the THC, to administer and coordinate historic preservation activities, and to review and comment on all actions licensed by the federal government that will affect properties listed in the National Register of Historic Places (NRHP), or eligibility for such listing. Per 36 Code of Federal Regulations (CFR) Part 800, the federal agency responsible for overseeing the action must make a reasonable and good-faith effort to identify cultural resources. Federal actions include, but are not limited to, construction, rehabilitation, repair projects, demolition, licenses, permits, loans, loan guarantees, grants, and federal property transfers. Approval will be required from the FAA to modify the ALP that will reflect the permanent alterations to DFW property. Since this is considered a federal action, the project will consequently require compliance with the NEPA and NHPA Section 106.

AREA OF POTENTIAL EFFECTS

The APE for the project encompasses approximately 55.97 ac, split across four separate staging areas. Although designs for the proposed project are still in the early stages of development, current plans call for construction of two concrete batch plants and an asphalt batch plant, with each component having two location options among the four proposed staging areas. Two proposed staging areas are in the southern half of the airport, one at the southeast corner of S Airfield Road and SW Construction Road, and one directly north of W 31st Street. The other two areas are in the northern half of the airport between N Airfield Drive and N Emergency Road. Ground disturbances associated with the proposed project may include clearing, grading, and installation of utilities. Subsurface impacts for this project will likely be minimal as most construction will occur at or above grade or within a few feet of the current ground surface. Limited deeper disturbances associated with utilities could exceed 10 ft in depth.

METHODOLOGY

Background Research

During the background review, a variety of literature and online sources were referenced to determine if potential archeological resources were located within the APE. These sources included: U.S. Geological Survey (USGS) topographic maps; the *Soil Survey of Tarrant County, Texas*; the Geologic Atlas of Texas (Dallas Sheet); the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) digital soil databases for Tarrant county; the 1936 State Highway Maps of Tarrant County; the Texas Historic Overlay georeferenced map database; the Texas Department of Transportation (TxDOT) Potential Archeological Liability Map (PALM); and both past and current aerial photographs of the proposed APE. Additionally, a file search of the Texas Archeological Site Atlas (TASA) and Texas Historical Sites Atlas (THSA) was performed for the proposed location and surrounding areas. This review was performed by Staff Archeologist Jacob Flynn on 22 July 2025.

The TxDOT PALM examines "the character and classification of the soils and assesses the shallow and deep geoarcheological potential or the likelihood that soil could contain buried cultural materials in reasonable context (i.e., historic/recent disturbances, landscape setting, and soils data) for each soil series" (Abbott 2011:161). The TxDOT PALM model identifies where sites are likely to be preserved in a reasonable context versus indicating where sites are likely to exist (Abbott 2001:154, 2011:179). "The resolution of the PALM is appropriate to the scale of landform mapping (1:24,000)" (Abbott 2011:175). Any analysis of the data beyond the scale of mapping can result in a misunderstanding of the detail of mapping (Abbott 2011). Due to the more detailed evaluation required to accurately evaluate cultural resources potential for field methodology development (typically 1:7,000 or less), the cultural resources potential evaluation presented in this document includes an assessment of the PALM results at a more detailed level to determine if the project area has retained a reasonable degree of contextual integrity, as assumed by the PALM model. A reasonable context is evaluated through a review of historical and modern aerial photographs to evaluate the level of previous ground disturbance that has transpired within a given area.

BACKGROUND REVIEW

Topography, Geology, and Soils

The Grapevine 7.5-minute USGS topographic quadrangle map illustrates that the APE is situated on a north-south-oriented upland ridge (**Attachment A, Figure 2**). Elevations within the APE range from 547 to 611 feet (ft; 167 to 186 meters [m]) above modern sea level (amsl).

The APE lies within the environmental interface, known as an ecotone, between the Northern Blackland Prairie and Eastern Cross Timbers ecoregions (McGowen et al. 1987). Variation among each ecoregion is a direct result of the underlying geology and overlying soils and sediments (Diggs et al. 1999). The natural divide between these two ecoregions is east of Big Bear Creek, which extends from the northwest to the southeast through the western portion of the DFW property. The Northern Blackland Prairie is distinguished from surrounding regions by gently rolling hills and fine-textured, black clayey soils and prairie vegetation (Griffith et al. 2007). Vertisols dominate the Blackland Prairie ecoregion and consist of high clay content soils with significant shrink and swell potential (Ressel 1981). Historical vegetation included little bluestem, big bluestem, yellow Indiangrass, and tall dropseed. The Eastern Cross Timbers region contains numerous hills that were once heavily wooded with oak, walnut, blackjack, and hickory trees that grow in deep sandy soil (Hill 1901). However, due to urban expansion, agricultural development, and other modern activities, the natural vegetation has become highly fragmented (Griffith et al. 2007). The APE is underlain by the Cretaceous-age Eagle Ford Formation (Kef), which is comprised of shale, sandstone, and limestone (McGowen et al. 1987; USGS 2025; **Attachment A, Figure 3**).

As shown by the *Soil Survey of Tarrant County, Texas*, there are five soil map units within the APE (Ressel 1981; **Table** 1; **Attachment A, Figure 4**). The entire APE contains soils typically found within an upland setting in the Northern Blackland Prairie. Soil data was viewed from the USDA NRCS Web Soil Survey (USDA 2025).

Texas Archeological Sites Atlas Review

A file search within the TASA and the THSA electronic databases, maintained by the THC and the Texas Archeological Research Laboratory (TARL), identified that there are no previously recorded archeological sites, National Register properties, historical markers, or cemeteries located within the proposed APE (TASA 2025; THSA 2025). The TASA database indicated that twenty archeological surveys have been previously conducted within 1 mi of the APE (**Table 2; Attachment A, Figures 5** and **6**). In addition, TASA records identified 13 previously recorded archeological sites located within 1 mi of the APE (**Table 3**). These sites were primarily associated with historic-age farmsteads that dotted the landscape before airport development in the late 1960s/early 1970s. Other sites within a mile pertained to prehistoric campsites and quarries, which consisted of debitage and lithic scatters. The TASA and THSA databases indicated the Crowley Survey Burial Site was once located northwest of the APE along Minters Chapel Road (TASA 2025; THSA 2025). Records from the Tarrant County TexGenWeb Project site indicate that the burial site no longer exists (Tarrant County TexGenWeb 2005).

Table 1: Soil Map Units Located Within the APE

Soil Map Unit Description	Percentage of the APE
FhC - Ferris-Heiden complex, 2 to 5 percent slopes: This component is described as clay located on ridges. Typical Bk subsoil horizon depth is 8 to 24 in (20 to 61 cm). The depth to a root restrictive layer or bedrock is 48 to 65 in (122 to 165 cm). The natural drainage class is well drained.	5.6
HeB - Heiden clay, 1 to 3 percent slopes: This component is described as clay located along upland ridges. Typical Bkss subsoil horizon depth is 18 to 58 inches (in; 46 to 147 centimeters [cm]). The depth to densic material is 40 to 65 in (102 to 165 cm). The natural drainage class is well drained.	14.4
HoB - Houston Black clay, 1 to 3 percent slopes: This component is described as clay located along upland ridges. Typical Bw subsoil horizon depth is 8 to 24 inches (in; 20 to 61 centimeters [cm]). The depth to a root restrictive layer or bedrock is more than 80 in (203 cm). The natural drainage class is moderately well drained.	42.0
HuB - Houston Black-Urban land complex, 1 to 4 percent slopes: This component is described as clay located on ridges. Typical Bw subsoil horizon depth is 8 to 24 in (20 to 61 cm). The depth to a root restrictive layer or bedrock is more than 80 in (203 cm). The natural drainage class is moderately well drained.	12.0
URB - Urban land, 0 to 16 percent slopes	26.0

Table 2: Previously Conducted Archeological Surveys within 1 Mile of the APE

Agency	ACT Permit No.	Firm/Institution	Date	Survey Type	Location (Approximate)
FAA	5773	Hicks & Company	2010	Area	Along SW edge of APE
DFW Airport, FAA	4491	AR Consultants, Inc.	2008	Area	0.01 mi SW
DFW Airport	8352	Integrated Environmental Solutions, LLC	2018	Area	0.02 mi NW
DFW Airport	7373	Integrated Environmental Solutions, LLC	2015	Area	0.03 mi SW
DFW Airport	7650	Integrated Environmental Solutions, LLC	2016	Area	0.06 mi W
DFW Airport	9162	Integrated Environmental Solutions, LLC	2019	Area	0.06 mi W
DFW Airport	7126	Integrated Environmental Solutions LLC	2015	Area	0.09 mi S
TxDOT	3561	GMI, Inc.	2004	Area	0.11 mi SW
FTA, Tarrant County	4775	URS	2013	Area	0.12 mi NE
EPA	n/a	n.d.	1979	Linear	0.29 mi W
Alan Plummer Associates, Inc.	7119	AR Consultants, Inc.	2015	Area	0.38 mi W
DFW Airport	9161	Integrated Environmental Solutions, LLC	2020	Area	0.39 mi NW
Texas Department of Transportation	3243	Prewitt and Associates	2004	Area	0.43 mi W
DART	7996	AmaTerra Environmental, Inc.	2017	Area	0.56 mi N
FHWA	n/a	n.d.	1991	Linear	0.72 mi NW
DFW Airport	6835	Integrated Environmental Solutions, LLC	2014	Area	0.74 mi NW
TxDOT	7257	URS Corporation	2015	Area	0.82 mi S
EPA, TDWR	7373	n.d.	1982	Linear	0.85 mi west
Fort Worth Transportation Authority	7643	Jacobs Engineering	2016	Area	0.87 mi N
DFW Airport	8777	Integrated Environmental Solutions, LLC	2019	Area	0.91 mi W

Table 3: Previously Recorded Archeological Sites within 1 Mile of the APE

Site Trinomial	Time Period	Site Type	Site Size	Depth Extent	Cultural Materials	Topographic Setting	Location
41TR16	Prehistoric	Open campsite	200 x 500 m	n.d.	Debitage, burned rock	Terrace and Floodplain	0.51 mi SW
41TR17	Prehistoric	Lithic scatter	150 x 400 m	n.d.	Debitage	Terrace and Floodplain	0.23 mi W
41TR18	Prehistoric / Historic	Quarry / Historic Graffiti	120 x 340 m	n.d.	Debitage	Terrace	0.45 mi NW
41TR19	Prehistoric / Historic	Open Campsite / Homestead	400 x 75 m	n.d.	Debitage and burned rock, collapsed cistern, brick, trash scatter	Terrace	0.97 mi NW
41TR63	Prehistoric	Quarry	210 x 110 m	n.d.	Debitage	Interfluvial Upland	0.71 mi W
41TR87	Historic	Homestead	200 x 130 m	Surface	Concrete foundations, structural debris, cookware, bottle glass, wagon, folding chair, metal drums	Upland	0.65 mi NW
41TR214	Historic	Homestead	40 x 160 ft	0-25 cmbs	Concrete foundations, well house, water storage tanks, glass, bottles, structural debris	Upland	0.49 mi NW
41TR218	Historic	Historic scatter	30 x 50 m	0-25 cmbs	Automotive parts, glass, bone, metal hardware	Upland	0.77 mi NW
41TR273	Historic	Farmstead	230 x 230 ft	0-20 cmbs	Historic bottles and structural debris	Upland	0.35 mi S
41TR274	Prehistoric / Historic	Lithic scatter with historic component	165 x 175 m	0-20 cmbs	Flakes and early-stage bifaces, debitage, historic trash midden	Upland	0.59 mi S
41TR275	Historic	Farmstead	230 x 230 ft	0-20 cmbs	Historic bottles and cans, structural debris, bicycle	Upland	0.5 mi S
41TR295	Historic	Historic debris scatter	60 x 50 ft	Surface	Structural debris e.g., concrete fragments, metal siding, barbed wire	Upland	0.55 mi W
41TR312	Historic	Farmstead	75 x77 m	0-30 cmbs	Water trough, windmill base, structural debris, bottle glass, bone	Upland	0.19 mi N

Disturbance Analysis

During the background review, it was determined that ground-disturbing activities have transpired within the APE related to past land use and airport construction. Prior to DFW construction in the early 1970s, the APE was primarily used for agricultural and ranching purposes as early as 1942 and presumably since the late nineteenth and early twentieth centuries. In the 1970s, major roads near the APE were constructed following large-scale grading of the airport grounds. Since initial construction of the airport, all portions of the APE have been impacted by various construction projects. More recently, the southeastern APE portion off S Service Road was developed into an office building complex and storage area beginning in the 1990s. Between 2018 and 2020, a concrete batch station and staging area were developed in the northwestern portion of the APE south of N. Airfield Drive.

Cultural Resource Potential

<u>Prehistoric Resources</u>

Data presented within the PALM for Tarrant County indicates the APE features a low to negligible potential for shallow or deeply buried archeological materials within areas that have retained a reasonable contextual setting. Similar conclusions were reported by AR Consultants, Inc. (ARC) in 2007 and 2008. ARC conducted intensive pedestrian surveys of 1,210 ac on the DFW property under Texas Antiquities Permit Number 4491 and published their results in the report *An Archaeological Survey for Chesapeake Energy Corporation at DFW International Airport, Dallas and Tarrant Counties, Texas* (Shelton et al. 2008). Through this study, three environmental zones were identified within DFW property that contain varying amounts of cultural resources probability (**Figure 6**). The current APE will have ground disturbances within Zone 1.

Zone 1 comprises the Blackland Prairie Uplands ecoregion, which consists of mostly level clay or clay loam soils over limestone bedrock. Water permeates very slowly to the water table, causing surface run-off and high shrink and swell potential. This setting has a low biotic diversity and is dominated by short grasses. Due to the limited resources available within the area, it has a low probability of containing prehistoric sites (Shelton et al. 2008).

Based on topographic setting and extensive ground disturbance, it was determined that the APE contains a low potential for encountering prehistoric resources.

Historic-Period Resources

Historic-period resources within North Central Texas are primarily related to farmsteads, houses, and associated outbuildings and structures that date from the mid-19th to the mid-20th centuries. Typically, these types of resources are located along old roadways, but can be located along railroads, streams, and open pastures. Although determining the presence of the earliest buildings and structures is problematic, maps depicting these features are available post-1895.

Historical maps and aerial photographs indicate that the APE was used for agricultural activities until the 1970s, when DFW airport was constructed. No buildings or structures were identified within the APE on historical maps or aerial imagery. Sam Street's 1895 Map of Tarrant County indicates farmsteads within the vicinity of both the southeastern and southwestern APE; however, only one adjacent to the southwestern APE can be seen in historic aerial imagery from 1956. This farmstead was demolished between 1968 and 1970, and water tanks were constructed in its place by 1972. Based on this background research and identified past disturbances, there is a low potential for encountering historic-age archeological resources within the APE.

CONCLUSIONS

Based on the results of this desktop analysis and previous IES investigations, the proposed project area has been exposed to previous ground disturbance and contains a low potential for containing either prehistoric or historic-age archeological resources. For these reasons, IES recommends that this project be allowed to proceed without the need for additional cultural resource investigations. However, if any cultural resources are encountered during construction, the operators should immediately stop construction activities in the area of the inadvertent discovery. The project cultural resources consultant should then be contacted to initiate further consultation with the FAA/THC prior to resuming construction activities.

If you have questions, please contact me by telephone at (972) 562-7672 or via email at kstone@intenvsol.com.

Sincerely,

Integrated Environmental Solutions, LLC

Kevin Stone, MA, RPA
Vice President – Cultural Resources Director

IES Reference Number: 04.165.013

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Attachment A
Figures

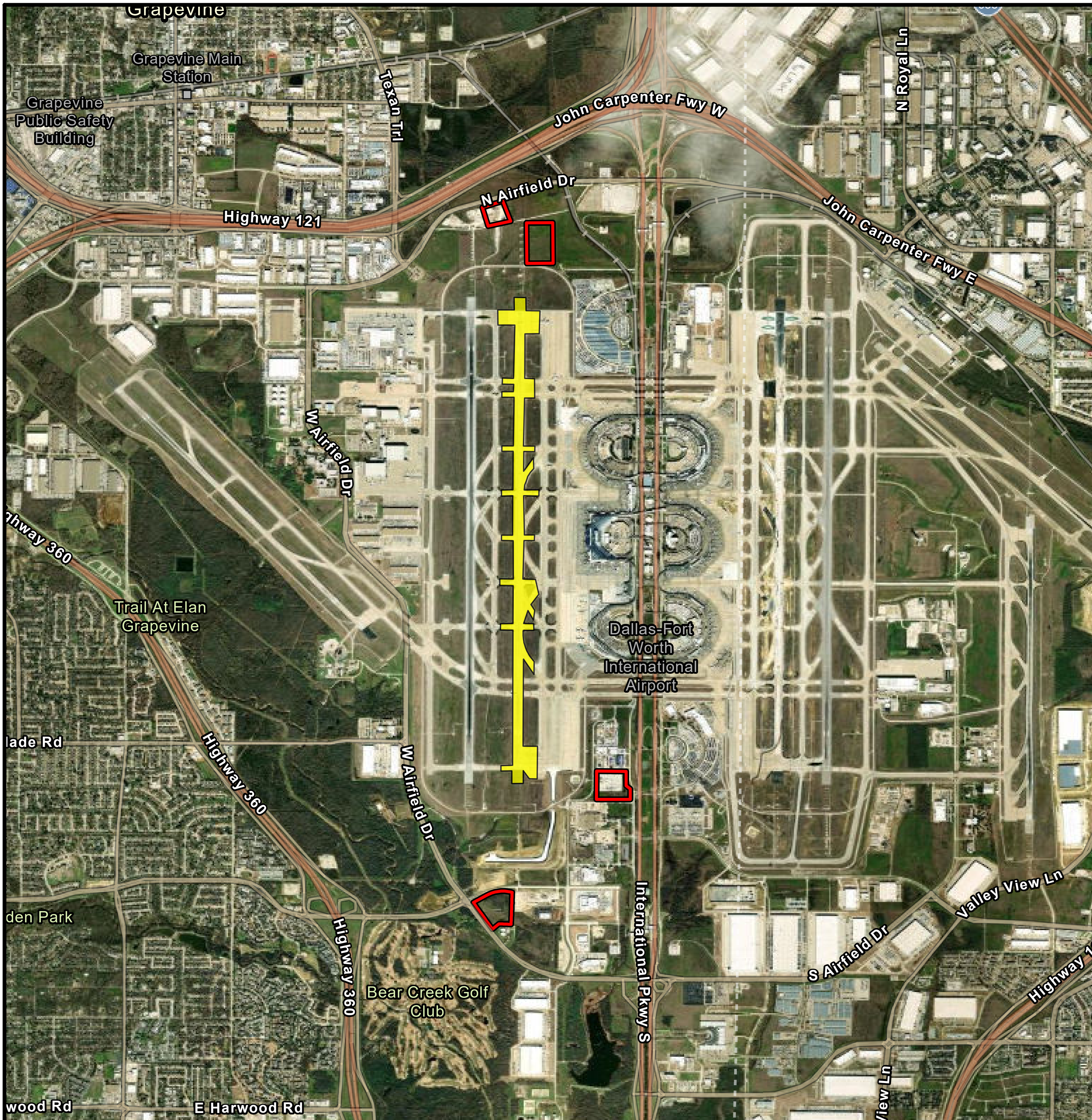


Figure 1
General Location

County: Tarrant
State: Texas
Date map created: 7/29/2025
Source: (c) 2009 Microsoft Corporation and its data suppliers; ESRI Streetmap
IES Project Ref: 04.165.013

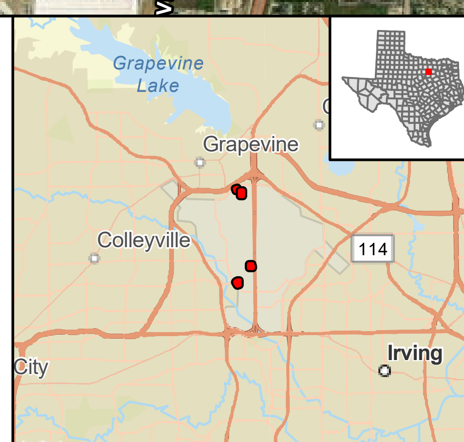
N

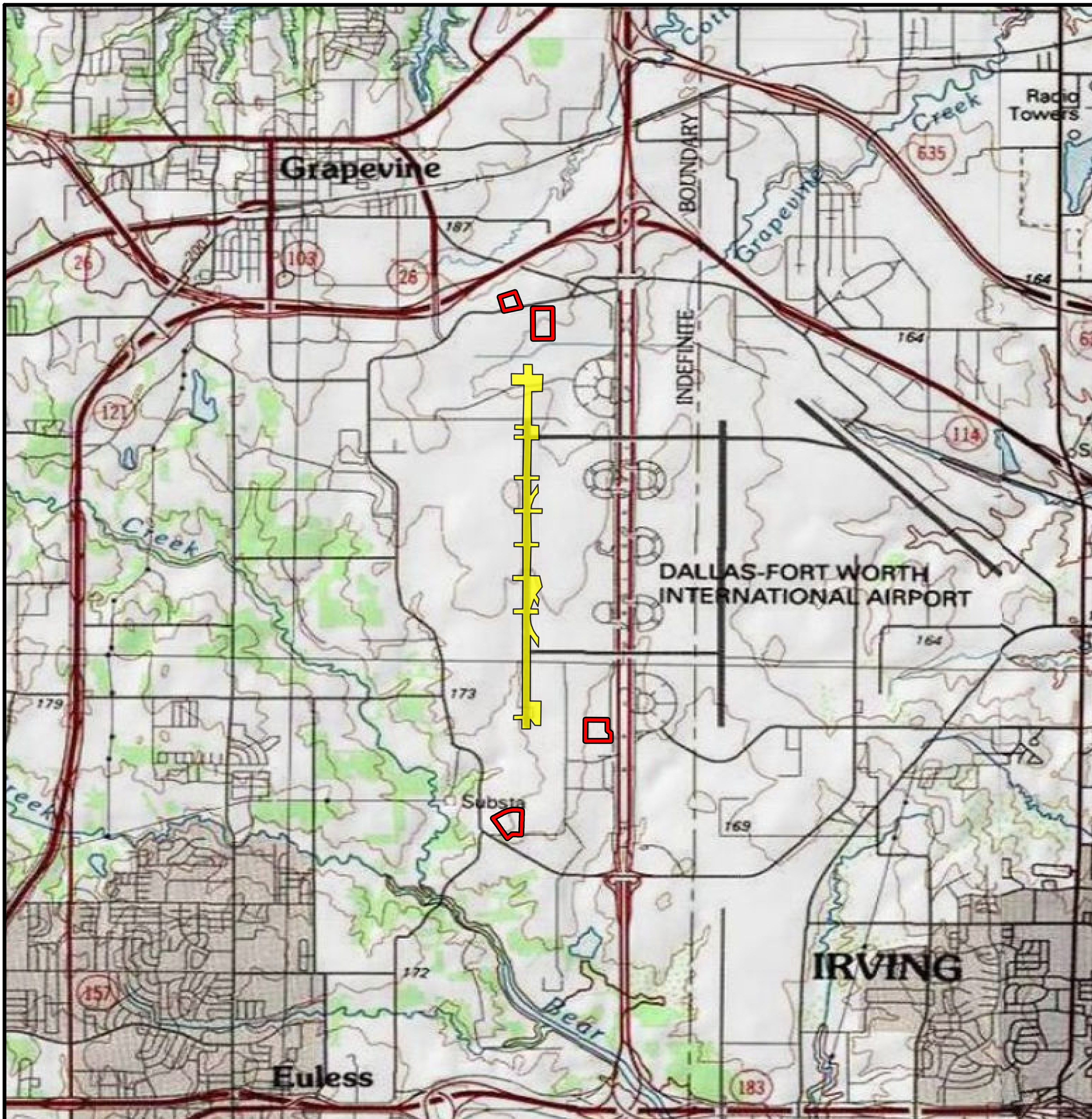
0 | 0.75 | 1.5 mi

0 | 1.2 | 2.4 km

Area of Potential Effects

Runway 18L/36R





Area of Potential Effects

Runway 18L/36R

Figure 2
Topographic Setting

County: Tarrant
State: Texas
Date map created: 7/29/2025
Source: (c) USGS Topographic Map
7.5' Quadrangle
Euless, Grapevine
IES Project Ref: 04.165.013

N

0 1 2 mi

0 1.6 3.2 km

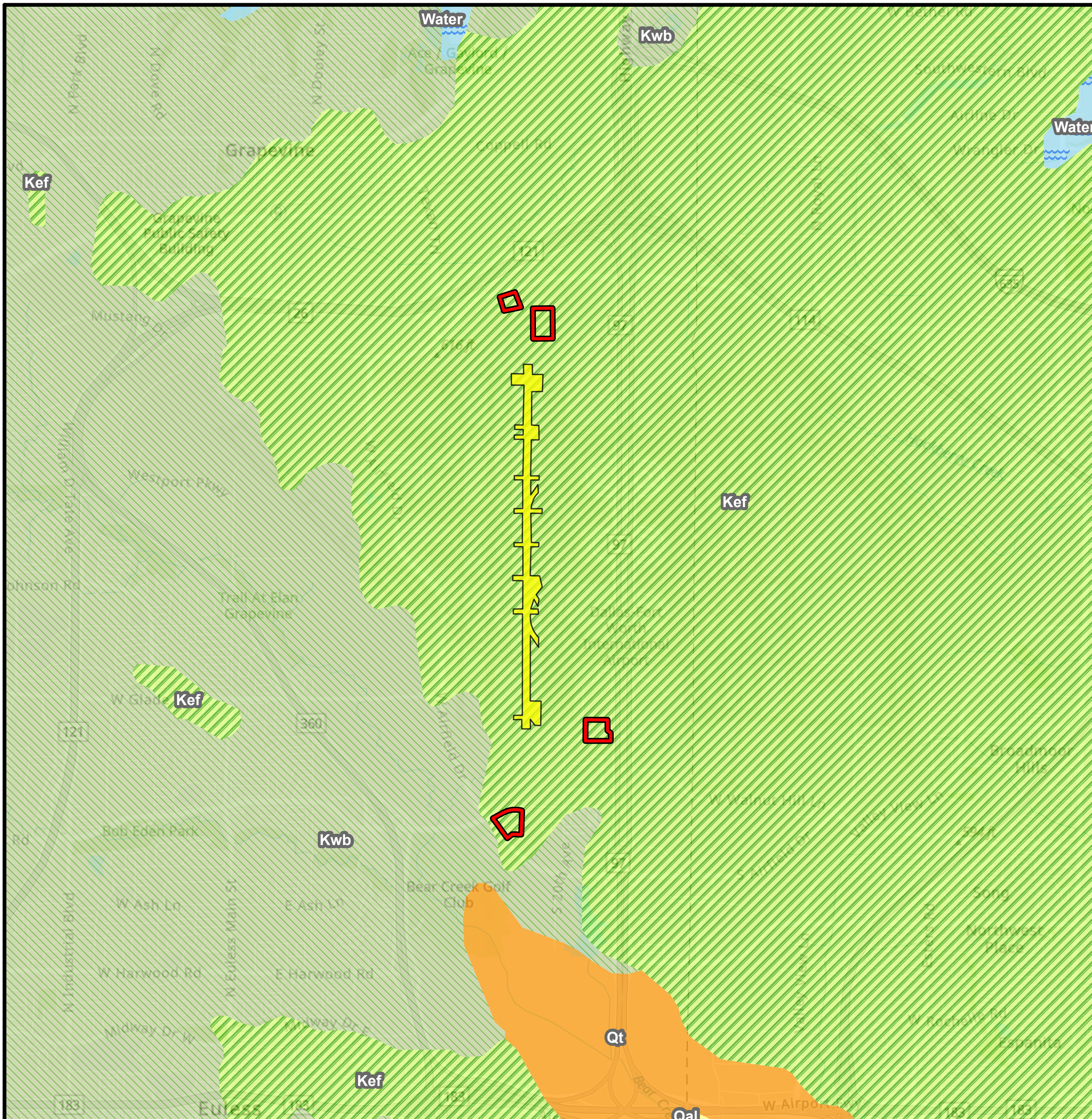


Figure 3
Geologic Setting

County: Tarrant
State: Texas
Date map created: 7/29/2025
Source: (c) TNRIS Geologic Atlas of Texas; Dallas Sheet
IES Project Ref: 04.165.013

N

0 1 2 mi
0 1.6 3.2 km

Area of Potential Effects
Runway 18L/36R

Geologic Unit

Kef - Eagle Ford Formation
Kwb - Woodbine Formation
Qal - Alluvium
Qt - Terrace deposits
Wa - water

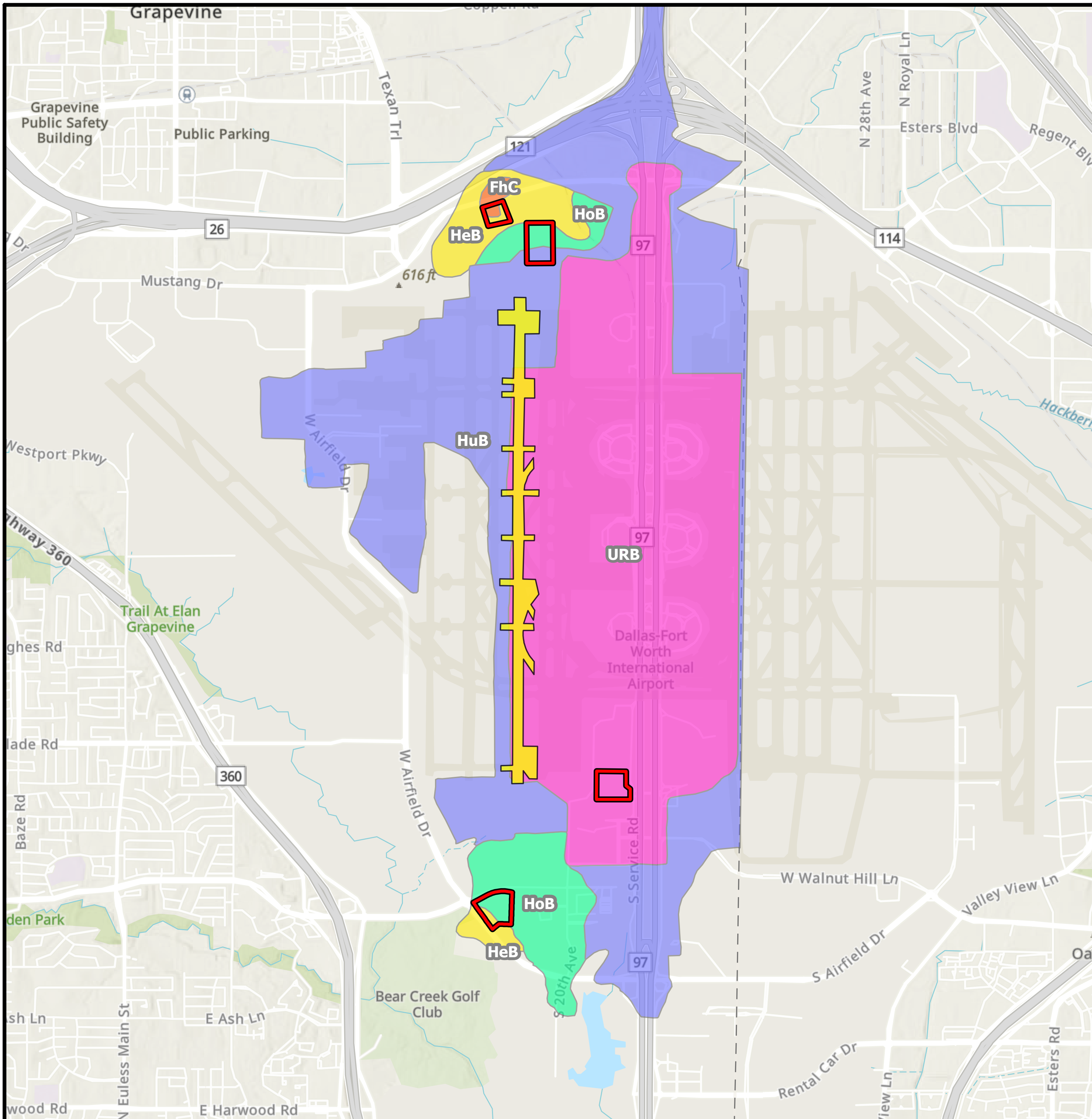


Figure 4
Soils within and Adjacent to the APE

County: Tarrant
State: Texas
Date map created: 7/29/2025
Source: (c) 2009 Microsoft Corporation and its data suppliers; ESRI
USDA NRCS Digital Soils Database
IES Project Ref: 04.165.013

N

0 0.75 1.5 mi
0 1.2 2.4 km

Area of Potential Effects
Runway 18L/36R

Soil Map Unit (see Table 1)
- FhC
- HeB
- HoB
- HuB
- URB

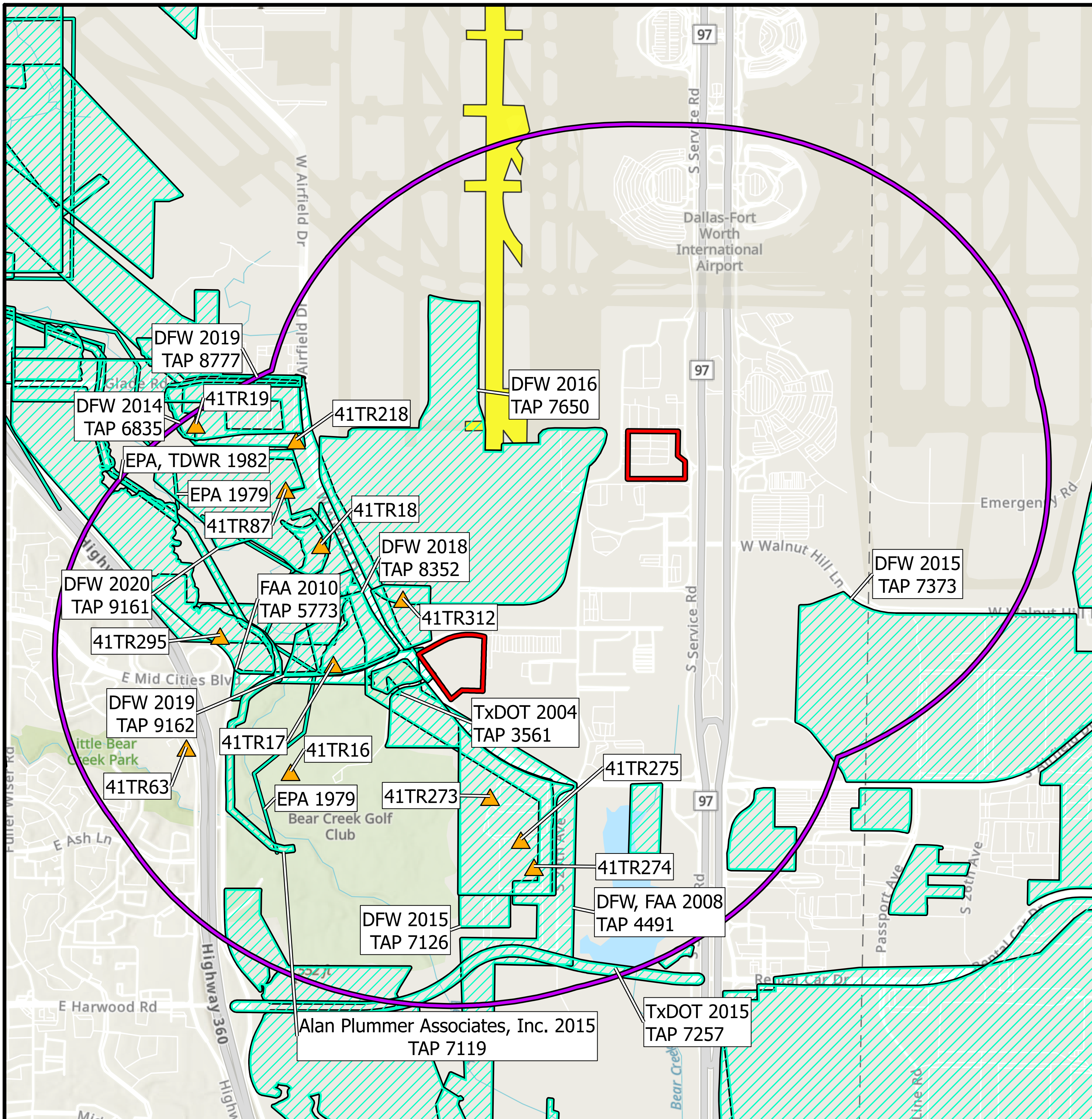


Figure 5
Previous Investigations within
1 Mile of the APE

County: Tarrant
State: Texas
Date map created: 7/29/2025
Source: (c) 2009 Microsoft Corporation and its data suppliers; ESRI
TASA
IES Project Ref: 04.165.013

N

0 0.5 1 mi
0 0.8 1.6 km

- Area of Potential Effects
- Area of Potential Effects - 1 Mile Buffer
- Runway 18L/36R
- Previous Archeological Survey - Area
- Previous Archeological Survey - Line
- Previously Recorded Archeological Site

NOT FOR PUBLIC DISTRIBUTION
Map contains archeological site location information

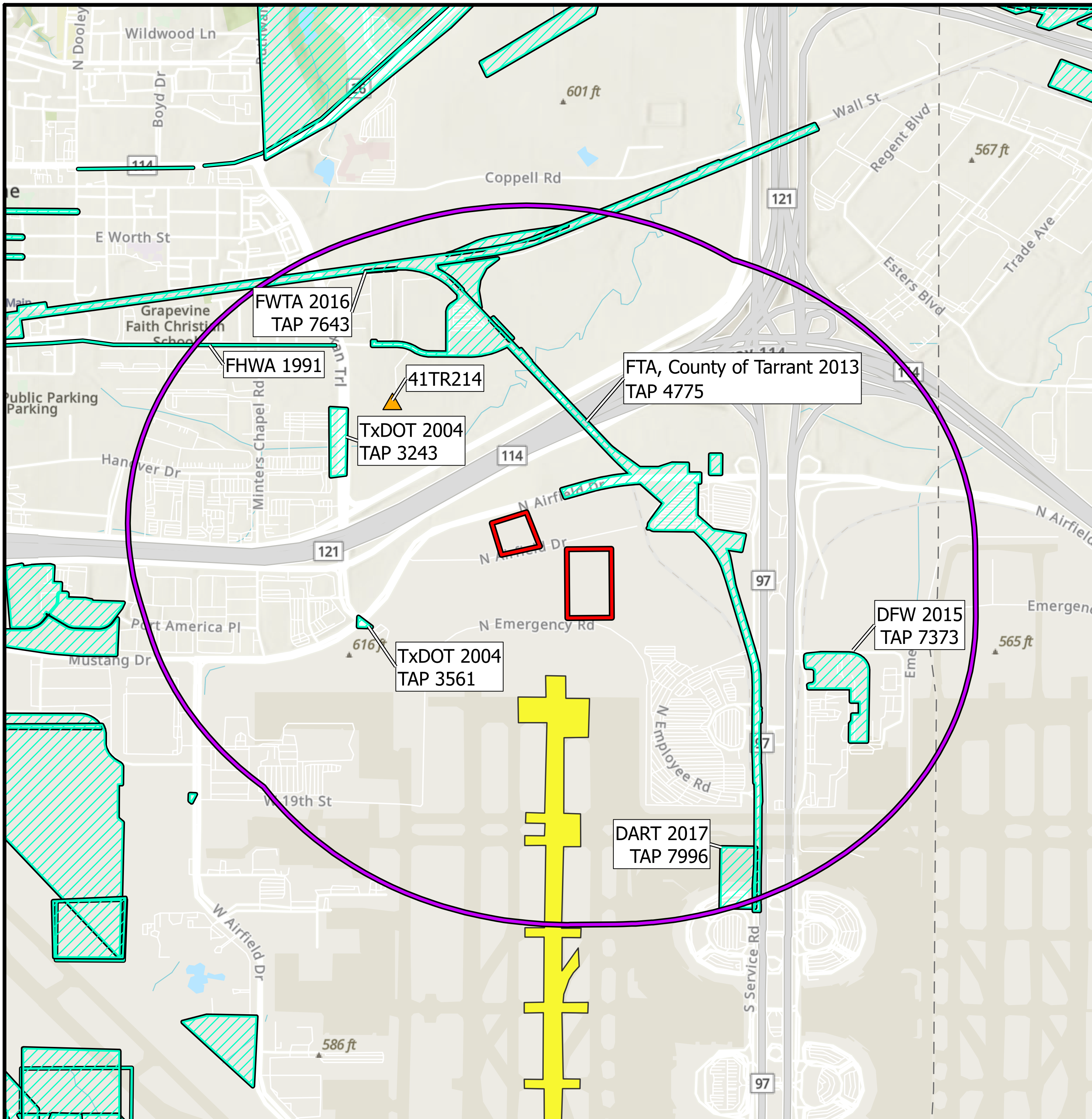


Figure 6
Previous Investigations within
1 Mile of the APE

County: Tarrant
State: Texas
Date map created: 7/29/2025
Source: (c) 2009 Microsoft Corporation and its data suppliers; ESRI
TASA
IES Project Ref: 04.165.013

N

0 0.5 1 mi
0 0.8 1.6 km

- Area of Potential Effects
- Area of Potential Effects - 1 Mile Buffer
- Runway 18L/36R
- Previous Archeological Survey - Area
- Previous Archeological Survey - Line
- Previously Recorded Archeological Site

NOT FOR PUBLIC DISTRIBUTION
Map contains archeological site location information

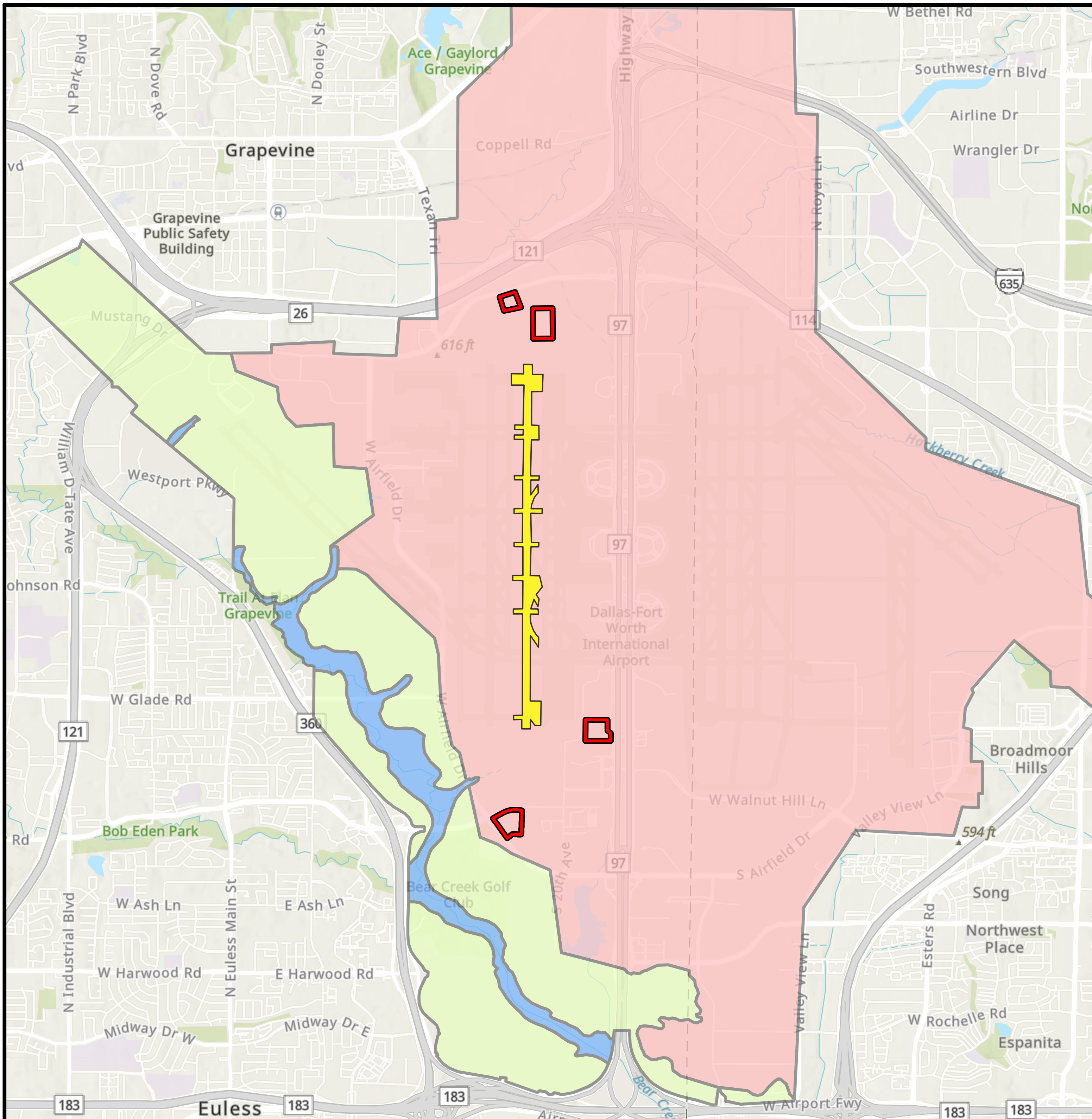


Figure 7
Archeological Environmental Zones Map

County: Tarrant
State: Texas
Date map created: 7/29/2025
Source: (c) USGS Topographic Map
7.5' Quadrangle
Euless, Grapevine
IES Project Ref: 04.165.013

N

0 1 2 mi
0 1.6 3.2 km

Area of Potential Effects
Runway 18L/36R

Archeological Environmental Zone
ZONE 1 - Blackland Prairies Uplands
ZONE 2 - Eastern Cross Timbers
ZONE 3 - Bear Creek Floodplain

Attachment D: Terminals Historic Evaluation Report - available upon request

DALLAS
FORT WORTH
INTERNATIONAL
AIRPORT