Final

Noise Technical Report

DFW Runway 18L/36R Rehabilitation EA

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Table of Contents

1. Background 1-1
  1.1 Introduction to Noise Terminology 1-1
  1.2 Regulatory Setting 1-2
  1.3 Noise Compatible Land Use 1-6
    1.3.1 Land Use Compatibility Guidelines 1-6
    1.3.2 Study Area and Existing Land Use 1-8
2. Noise Modeling Methodology 2-1
  2.1 Aviation Environmental Design Tool (AEDT) 2-1
  2.2 Noise Exposure Contours 2-2
  2.3 Grid Point Noise Calculations 2-3
3. Existing Conditions 3-1
  3.1 Aircraft Activity Levels and Fleet Mix 3-1
  3.2 Aircraft Stage Length and Operational Profiles 3-3
  3.3 Runway Definition 3-5
  3.4 Runway End Utilization 3-9
  3.5 Flight Tracks 3-11
  3.6 Existing Noise Exposure Contours 3-18
  3.7 Existing Conditions Noise Compatible Land Use 3-20
4. Future Alternatives 4-1
  4.1 Forecast Aircraft Operations 4-1
  4.2 Forecast Aircraft Stage Length and Operational Profiles 4-3
  4.3 Future (2026/2027) No Action Alternative 4-5
    4.3.1 Runway Utilization for No Action Alternative 4-5
    4.3.2 Flight Tracks for No Action Alternative 4-5
    4.3.3 Noise Exposure Contours - No Action Alternative 4-5
    4.3.4 Noise/Land Use Compatibility - No Action Alternative 4-5
  4.4 Future (2026/2027) Proposed Action Alternative 4-8
    4.4.1 Runway Utilization for Proposed Action Alternative 4-8
    4.4.2 Flight Tracks for Proposed Action Alternative 4-10
    4.4.3 Noise Exposure Contours - Proposed Action Alternative 4-10

4.4.4 Noise/Land Use Compatibility - Proposed Action Alternative 4-12
5. Comparison of the No Action Alternative and Proposed Action Alternative 5-1
5.1 Future Alternative Noise/Land Use Compatibility Evaluation 5-1
5.2 Future Alternative Grid Point Evaluation 5-4
5.2.1 Analysis of 1.5 dB Change Within the 65 DNL or Greater Noise Contour 5-4
5.2.2 Analysis of 3 dB and 5 dB Reportable Changes due to the Proposed Action Alternative 5-9
6. Mitigation 6-16

Figures

Figure 1-1. Example of a Day-Night Average Sound Level Calculation 1-2
Figure 1-2. Land Use and Noise Study Area 1-9
Figure 3-1. DFW Runway Layout 3-6
Figure 3-2. DFW Runway Operating Configurations 3-8
Figure 3-3. Modeled Arrival Flight Tracks 3-12
Figure 3-4. Modeled Departure Flight Tracks 3-13
Figure 3-5. Sample South Flow Arrival Flight Tracks 3-14
Figure 3-6. Sample South Flow Departure Flight Tracks 3-15
Figure 3-7. Sample North Flow Arrival Flight Tracks 3-16
Figure 3-8. Sample North Flow Departure Flight Tracks 3-17
Figure 3-9. Existing Conditions Noise Exposure Contours with Land Use 3-19
Figure 4-1. No Action Alternative (2026/2027) Noise Exposure Contour with Land Use 4-7
Figure 4-2. Proposed Action Alternative (2026/2027) Noise Exposure Contours with Land Use 4-11
Figure 5-1. No Action Alternative and Proposed Action Alternative (2026/2027) Noise Exposure Contours 5-2
Figure 5-2. Area Exposed to Significant Noise Change (+/-1.5 dB) from the Proposed Action Alternative 5-6
Figure 5-3. Noncompatible Land Use Areas Exposed to an Increase in Noise from the Proposed Action Alternative 5-7
Figure 5-4. Compatible Land Use Areas Exposed to a Significant Change in Noise from the Proposed Action Alternative 5-8
Figure 5-5. Areas Exposed to Reportable Noise Changes from the Proposed Action Alternative 5-10
Figure 5-6. Areas North of DFW Exposed to Reportable Noise Changes from the Proposed Action Alternative .. 5-11
Figure 5-7. Changes in Noise Levels due to the Proposed Action Alternative – West of DFW 5-13
Figure 5-8. Changes in Noise Levels due to the Proposed Action Alternative – North of DFW 5-14
Figure 5-9. Changes in Noise Levels due to the Proposed Action Alternative – South of DFW 5-15

Tables

Table 1-1. Aircraft DNL Thresholds and Impact Categories 1-6
Table 1-2. Part 150 Land Use Compatibility with Yearly Day-Night Average Sound Levels 1-7
Table 3-1. Existing Conditions (2024) Operations 3-1

Table 3-2. DFW Modeled Average Daily Aircraft Operations for Existing Conditions (2024) 3-1
Table 3-3. AEDT Stage Length Categories 3-3
Table 3-4. Existing Conditions - Modeled Departure Stage Length Distribution by Aircraft Type 3-4
Table 3-5. DFW Runways - Existing Conditions 3-5
Table 3-6. DFW Runways – Typical Runway Use 3-7
Table 3-7. Runway Use Percentages, Existing Condition 3-10
Table 3-8. Estimated Land Area within Existing Conditions 65 DNL Contour 3-18
Table 3-9. Estimated Land Area within Existing Conditions Noise Exposure Contour 3-20
Table 4-1. Forecast Operations for Noise Model Input 4-1
Table 4-2. DFW Modeled AAD Aircraft Operations for No Action Alternative and Proposed Action Alternative 4-2
Table 4-3. Forecast Operations Modeled Departure Stage Length Usage by Aircraft Type 4-4
Table 4-4. Estimated Land Area within No Action Alternative (2026/2027) Noise Exposure Contour 4-5
Table 4-5. Non-Compatible Land Use Housing and Population – Future No Action Alternative (2026/2027) 4-6
Table 4-6. Runway Use Percentages, Proposed Action Scenario 4-9
Table 4-7. Estimated Land Area within the Proposed Action Alternative Noise Exposure Contours 4-10
Table 4-8. Non-Compatible Land Use Housing and Population under Proposed Action Alternative 4-12
Table 5-1. Estimated Land Area within Future (2026/2027) Noise Exposure Contour Alternatives 5-1
Table 5-2. Non-Compatible Land Use, Housing Units – Comparison of Future Year (2026/2027) Alternatives 5-3
Table 5-3. Non-Compatible Land Use, Residential Population – Comparison of Future Year (2026/2027) Alternatives 5-3
Table 5-4. Noise Sensitive Sites - Comparison of Future Year (2026/2027) Alternatives 5-4

Appendices

Appendix A Fundamentals of Characterizing Sound, Noise Effects, and Metrics A-1
Appendix B AEDT Flight Track Utilization B-1
Appendix C Aviation Forecast C-1

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.

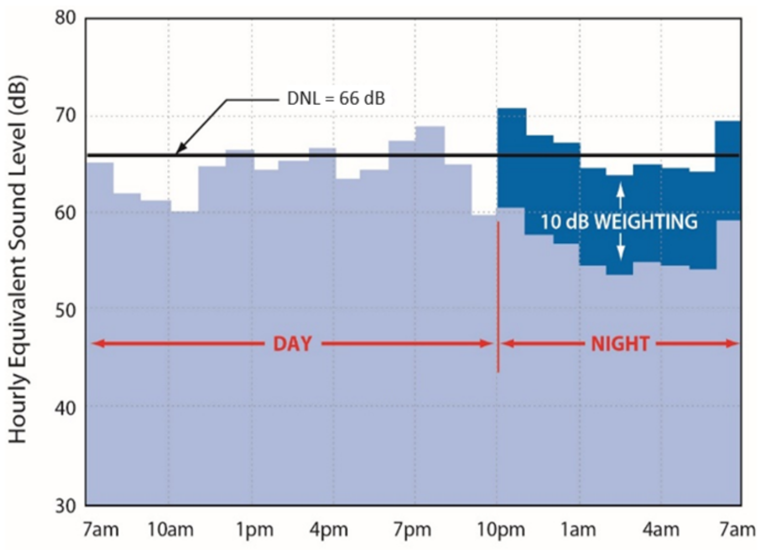
Sound is a physical phenomenon consisting of very small vibrations (waveforms) that travel through a medium such as air or water. **Noise** is sound that is unwelcome because of its undesirable effects on people (e.g., speech interference, sleep disturbance) or on entire communities (annoyance).

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.

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[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

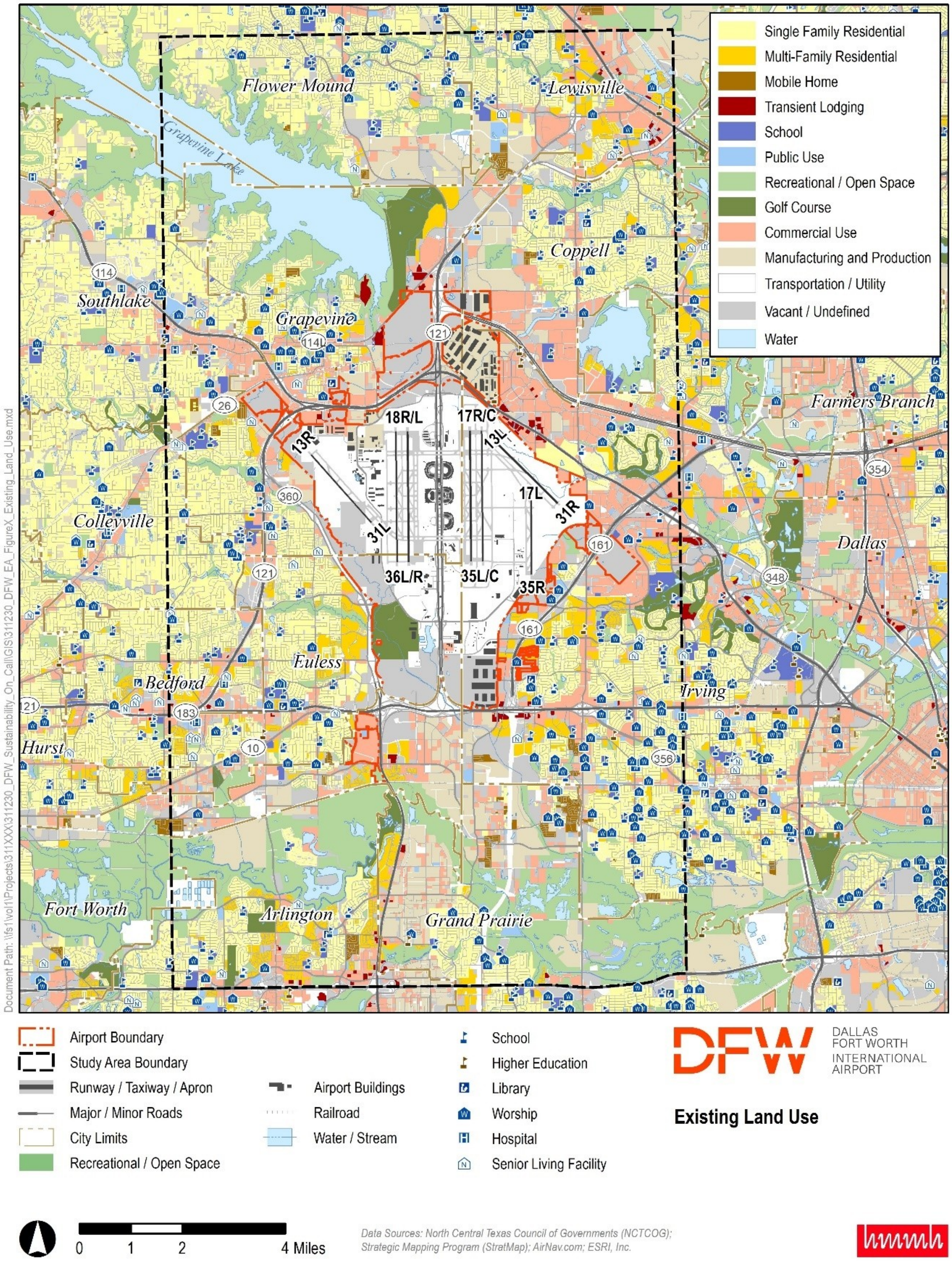
To adequately capture the effects of aircraft noise, the noise study area (NSA) must include not only the immediate airport environs, where aircraft flight paths are aligned with the runways, but also other potentially affected areas over which aircraft would fly as they follow any modified flight corridors 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

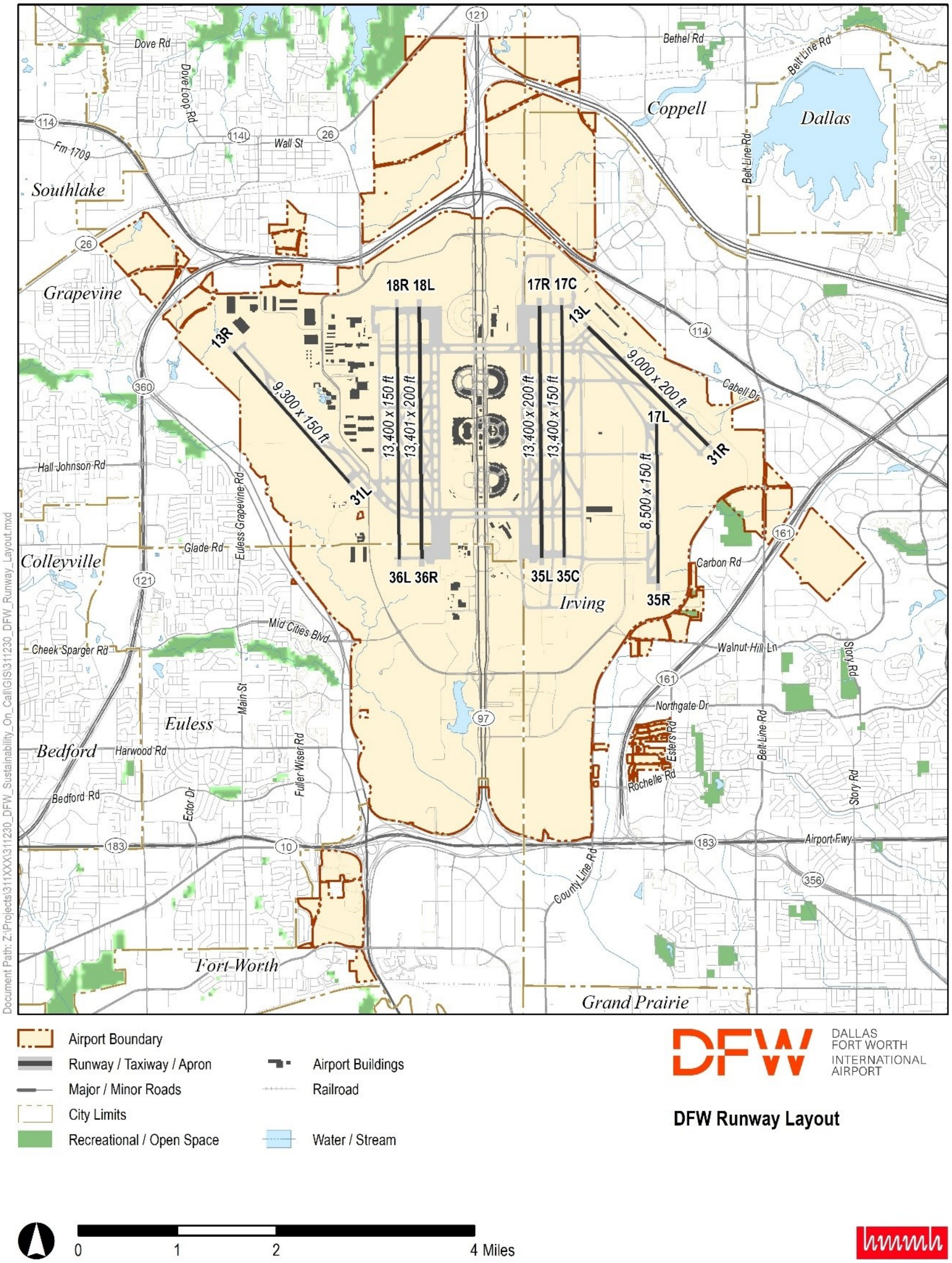
DFW has two main runway complexes: the east side and west side, comprised of seven runways oriented primarily in a north-south direction; four on the east side (13L/31R, 17C/35C, 17L/35R, 17R/35L) and three on the west side (13R/31L, 18L/36R, and 18R/36L). **Table 3-5** provides the length and width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



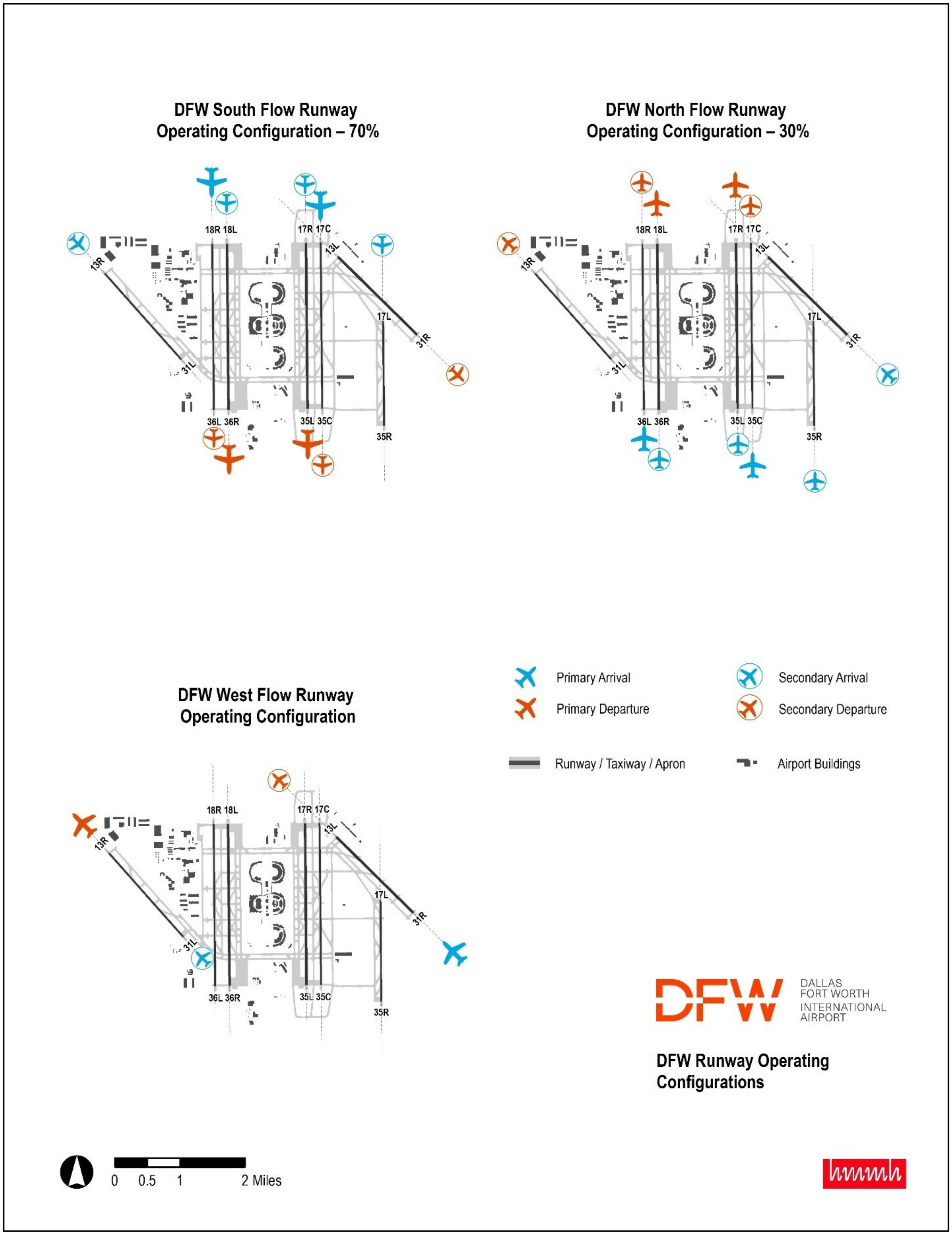
DFW typically uses its north/south parallel runways for most arrivals and departures. Aircraft typically arrive on the outermost main north/south runways, as well as some of the outboards, and depart on the innermost main north/south runways (inboards). Based on historical conditions, the Airport is 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.

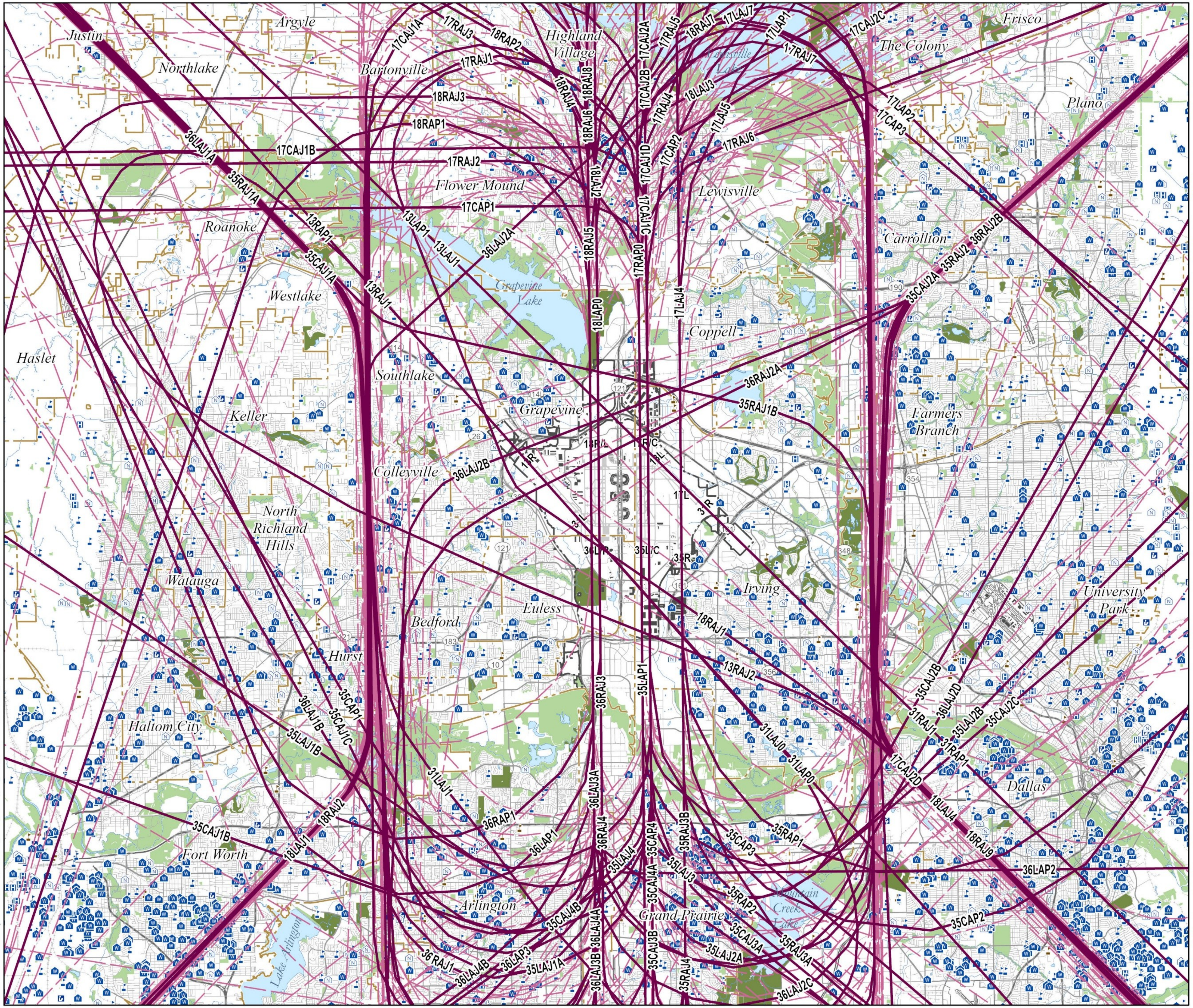
The track data analysis verified the location, density, and width of existing flight corridors. Departure corridors are defined by a series of individual flight tracks located across the width of the corridor. Generally, aircraft on approach to a given runway end follow a narrower corridor due to the 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

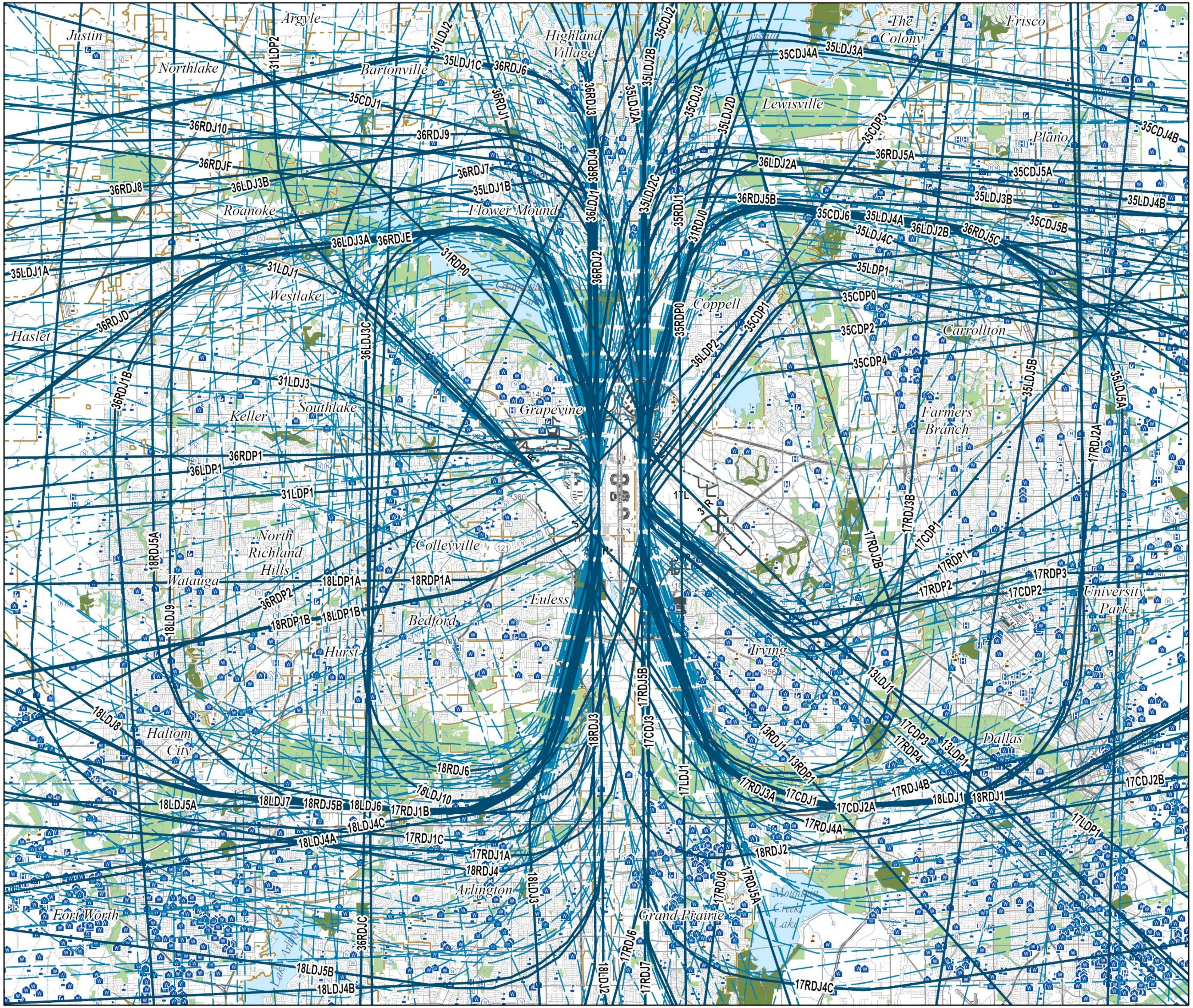
Golf Course

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

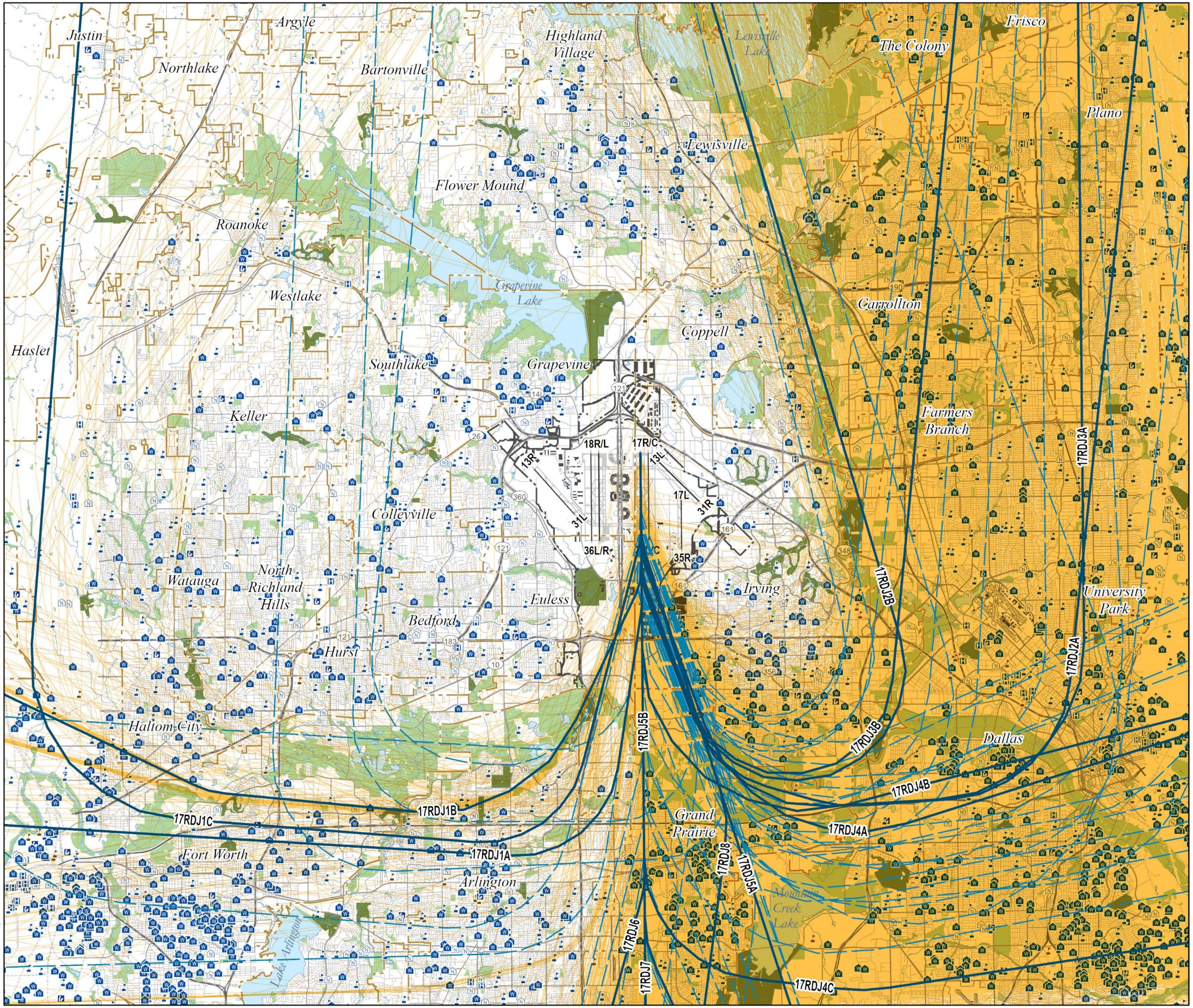
Figure 3-4. Modeled Departure Flight Tracks

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

0 1 2 4 Miles

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

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

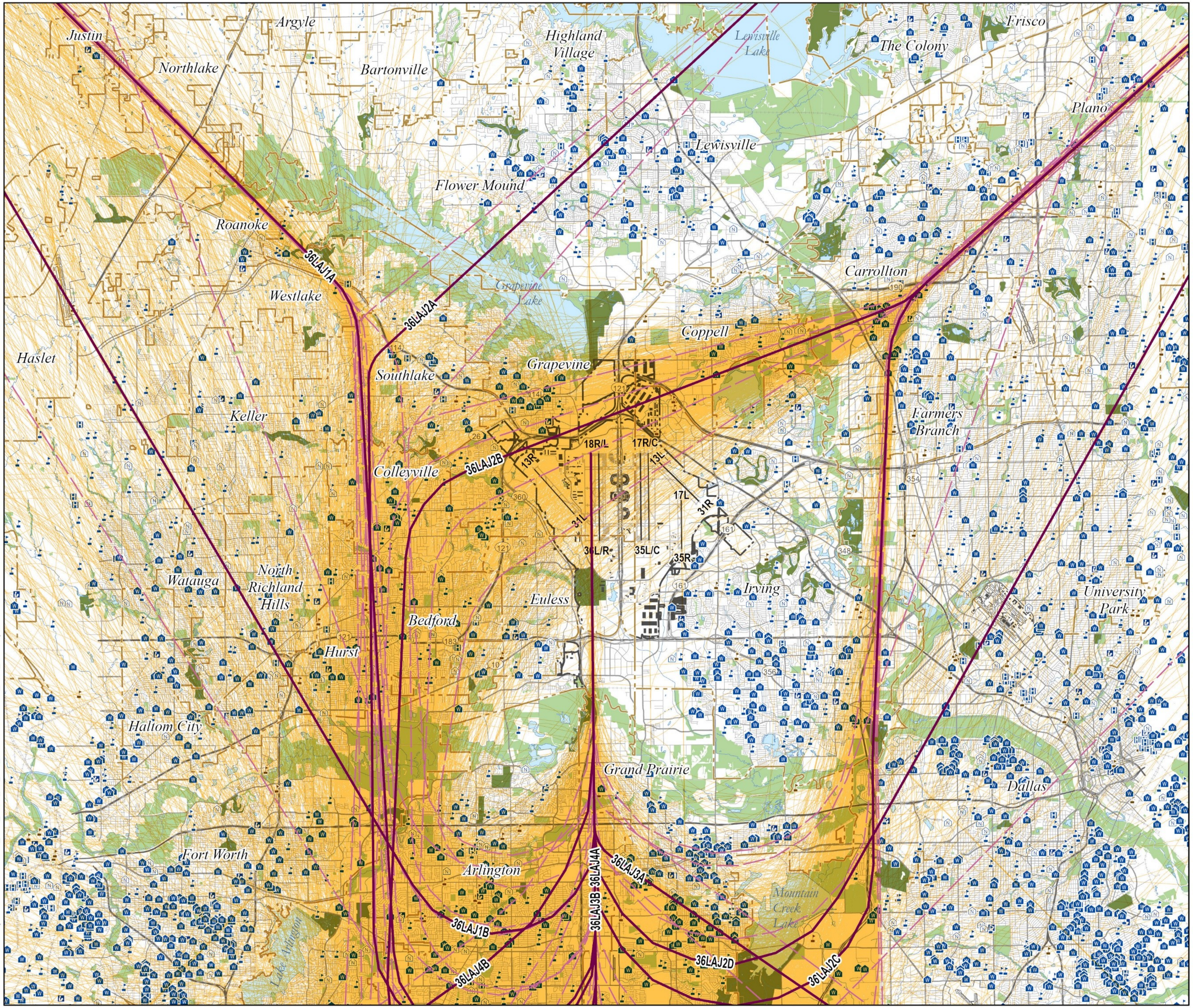
Figure 3-6. Sample South Flow Departure Flight Tracks

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

0 1 2 4 Miles

hmmh

Document Path: G:\Projects\23-XXX\23-0095C_DFW_NEPA_On_Call_HDR\GIS\23-0095C_DFW_NEPA.aprx



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

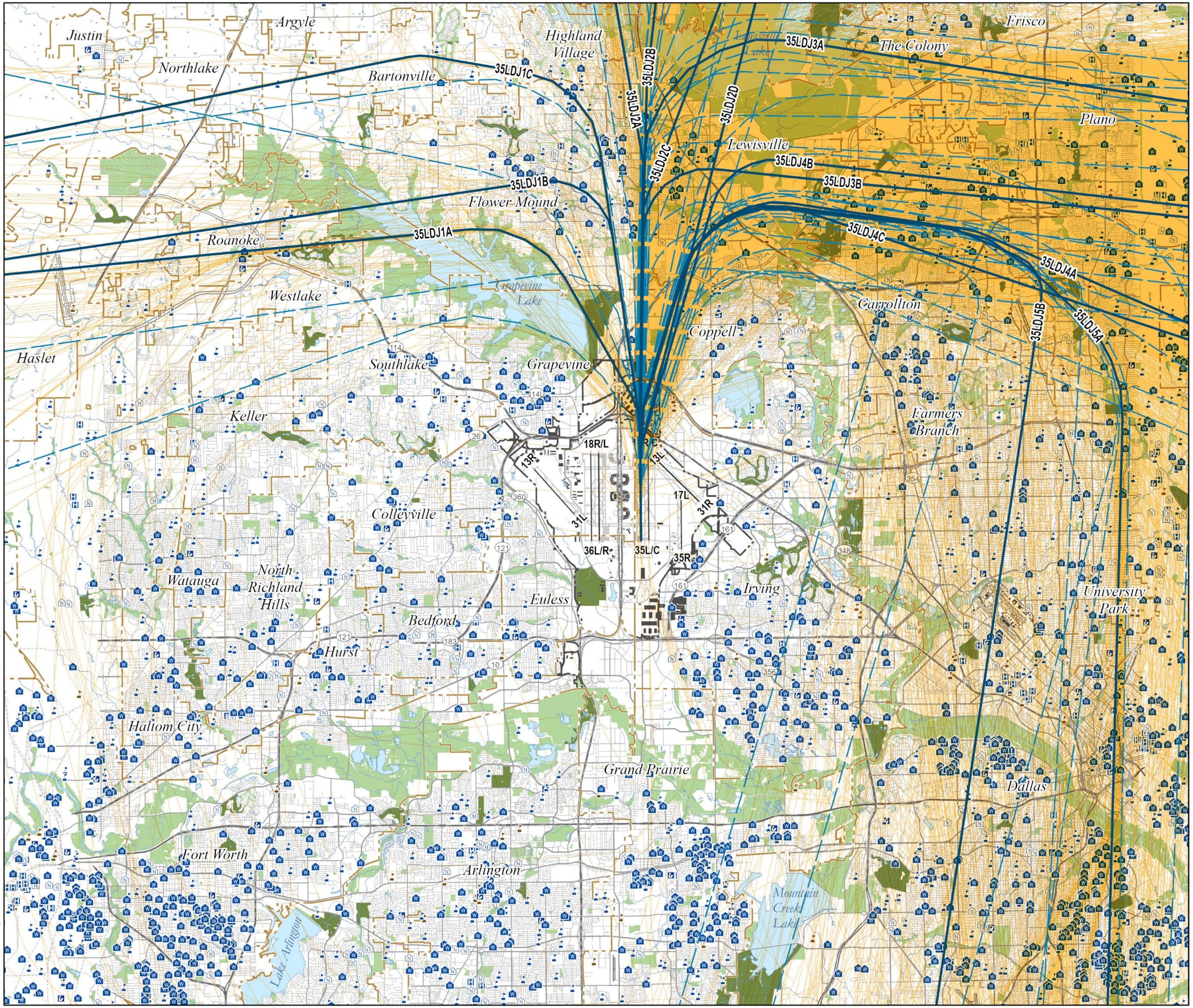
Figure 3-7. Sample North Flow Arrival Flight Tracks

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

0 1 2 4 Miles

hmmh

Document Path: G:\Projects\23-XXX\23-0095C_DFW_NEPA_On_Call_HDR\GIS\23-0095C_DFW_NEPA.aprx



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

Document Path: G:\Projects\23-XXX\23-0095C_DFW_NEPA_On_Call_HDR\GIS\23-0095C_DFW_NEPA.aprx

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.

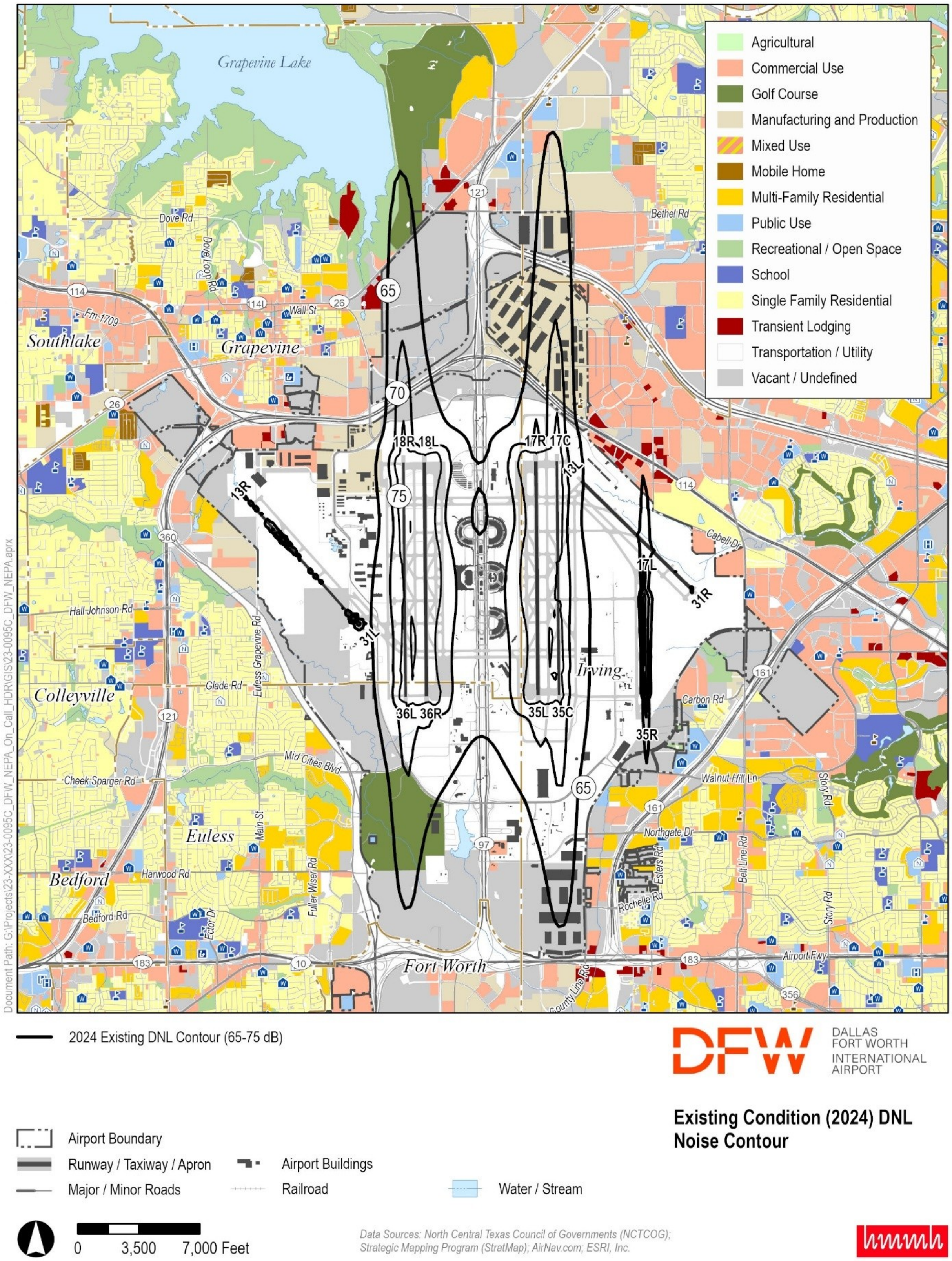
Table 3-8 provides estimates of the total area, on-airport area, and off-airport area exposed to aircraft noise of at least 65 DNL for the Existing Conditions. Approximately 12.05 square miles of land fall within the Existing Conditions 65 DNL or higher noise exposure area. Of the total land area, approximately 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)

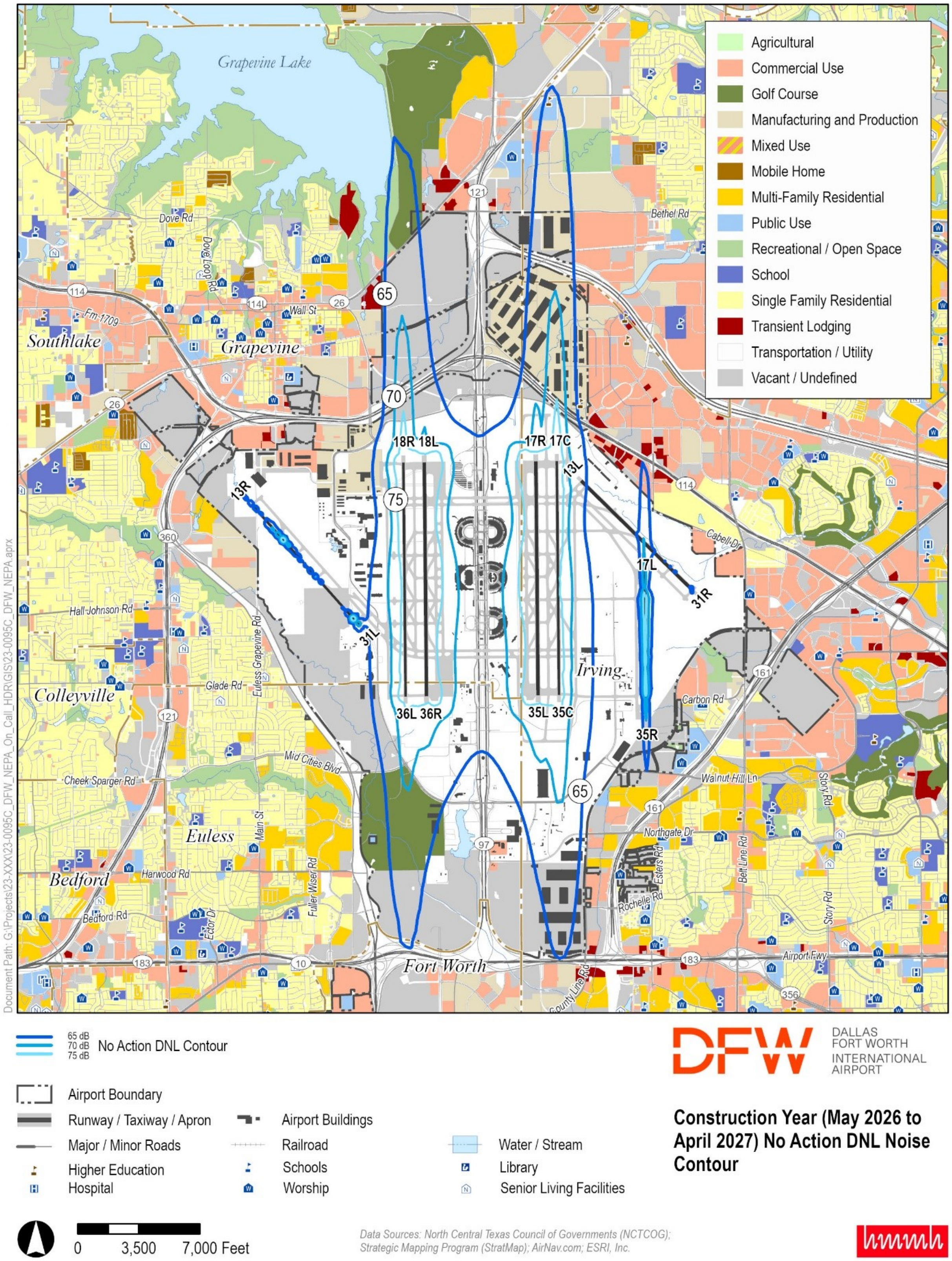
Analysis Category	Housing Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	Total (DNL 65 dB or greater)
Housing Units	Single-Family Residential	0	0	0	0
Housing Units	Multi-Family Residential	0	0	0	0
Housing Units	Manufactured Housing	0	0	0	0
Total Units	-	0	0	0	0
Population	Single-Family Residential	0	0	0	0
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.

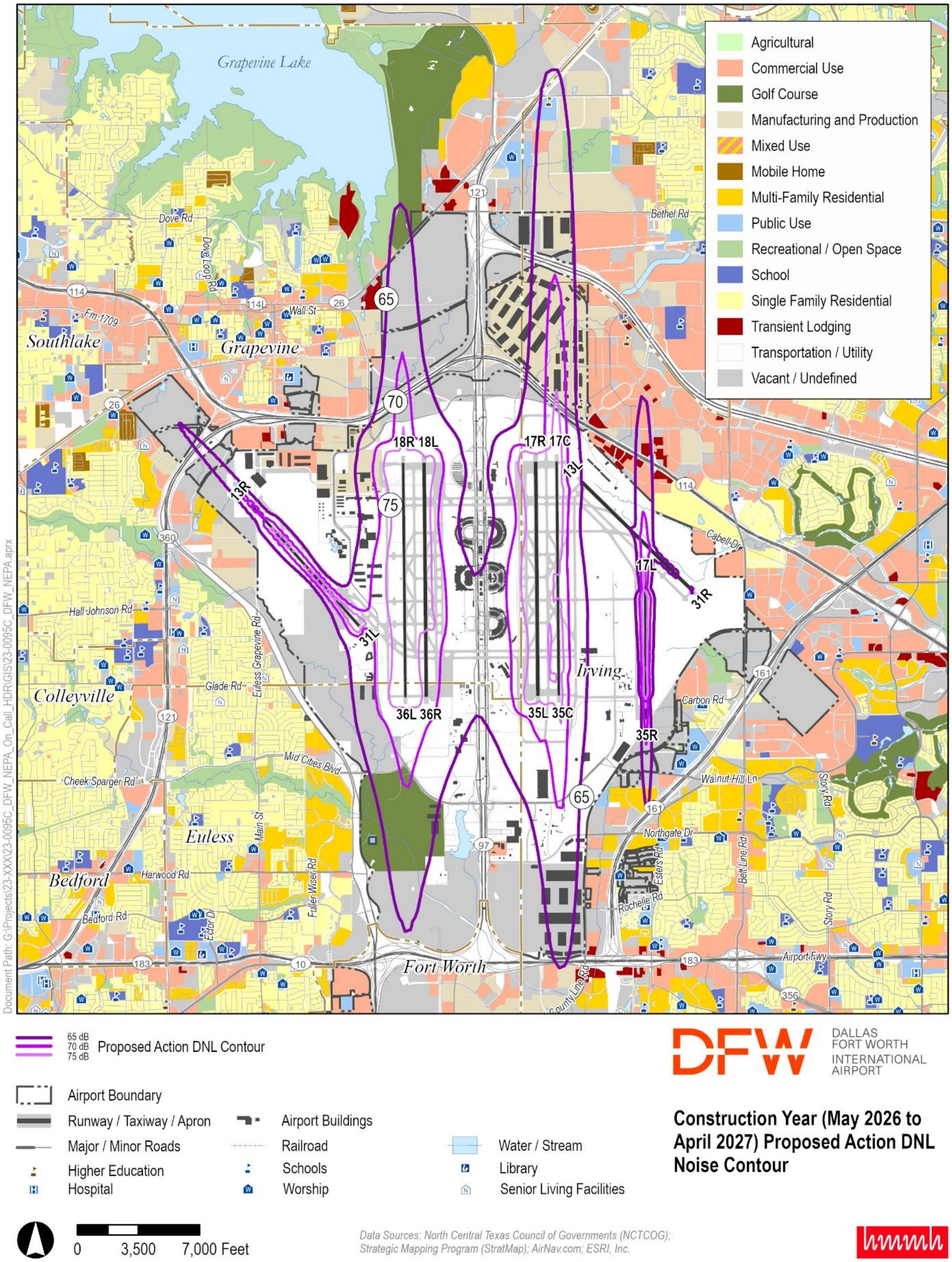
Table 4-7 provides estimates of the total area, on-airport area, and off-airport area exposed to aircraft noise of at least 65 DNL for the Proposed Action Alternative. Approximately 14.09 square miles of land fall within the 65 DNL or higher noise exposure area. Of the total land area, approximately 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

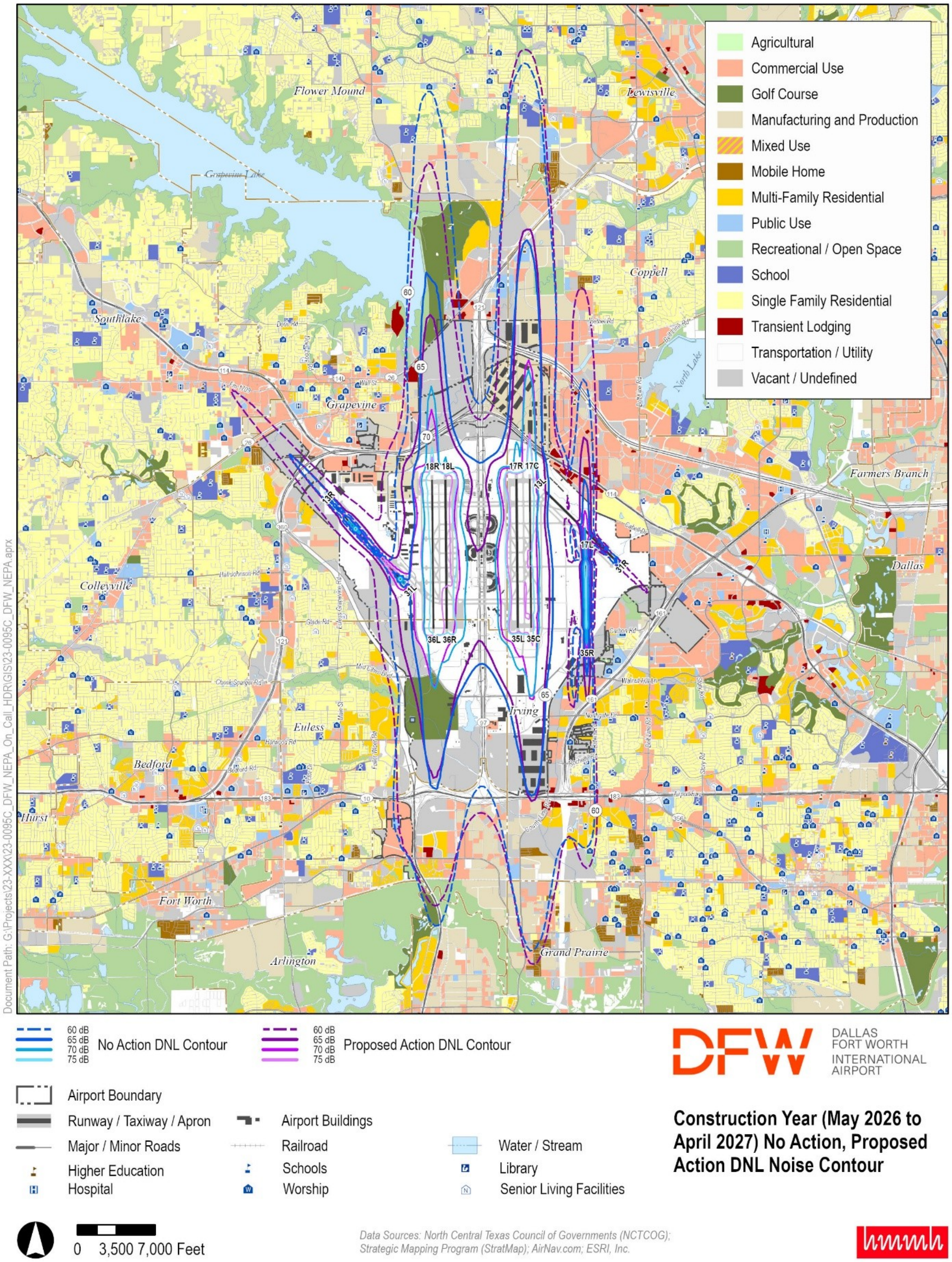
Alternative	Contour Range	Airport Property Estimated Land Area (sq mi)	Non-Airport Property Estimated Land Area (sq mi)	Total Estimated Land Area (sq mi)
No Action	DNL 65-70 dB	7.76	0.95	8.71
	DNL 70-75 dB	2.66	0.06	2.73
	DNL 75+ dB	2.52	0.00	2.52
	Total	12.94	1.01	13.95
Proposed Action	DNL 65-70 dB	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

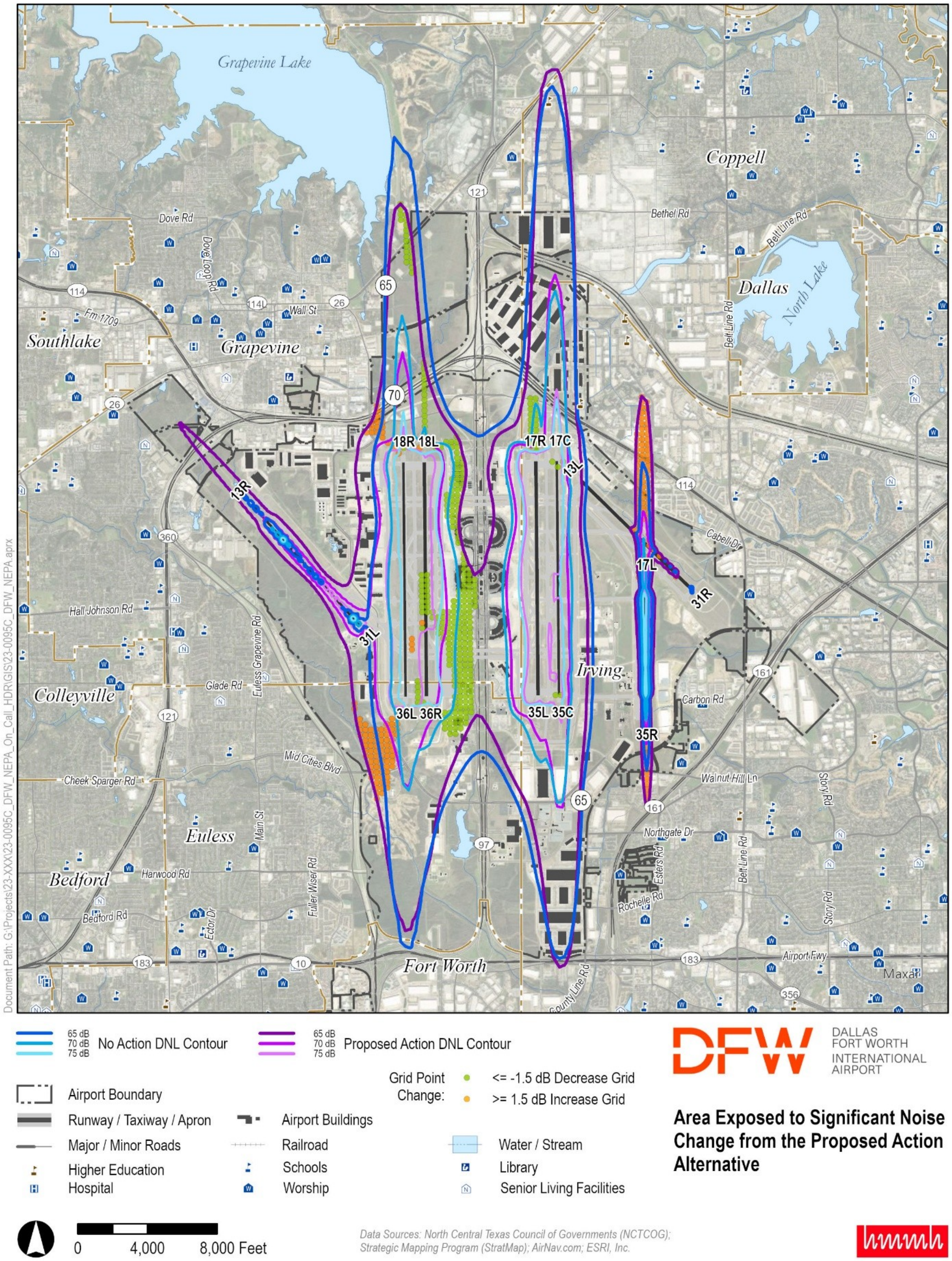


Figure 5-3. Noncompatible Land Use Areas Exposed to an Increase in Noise from the Proposed Action Alternative

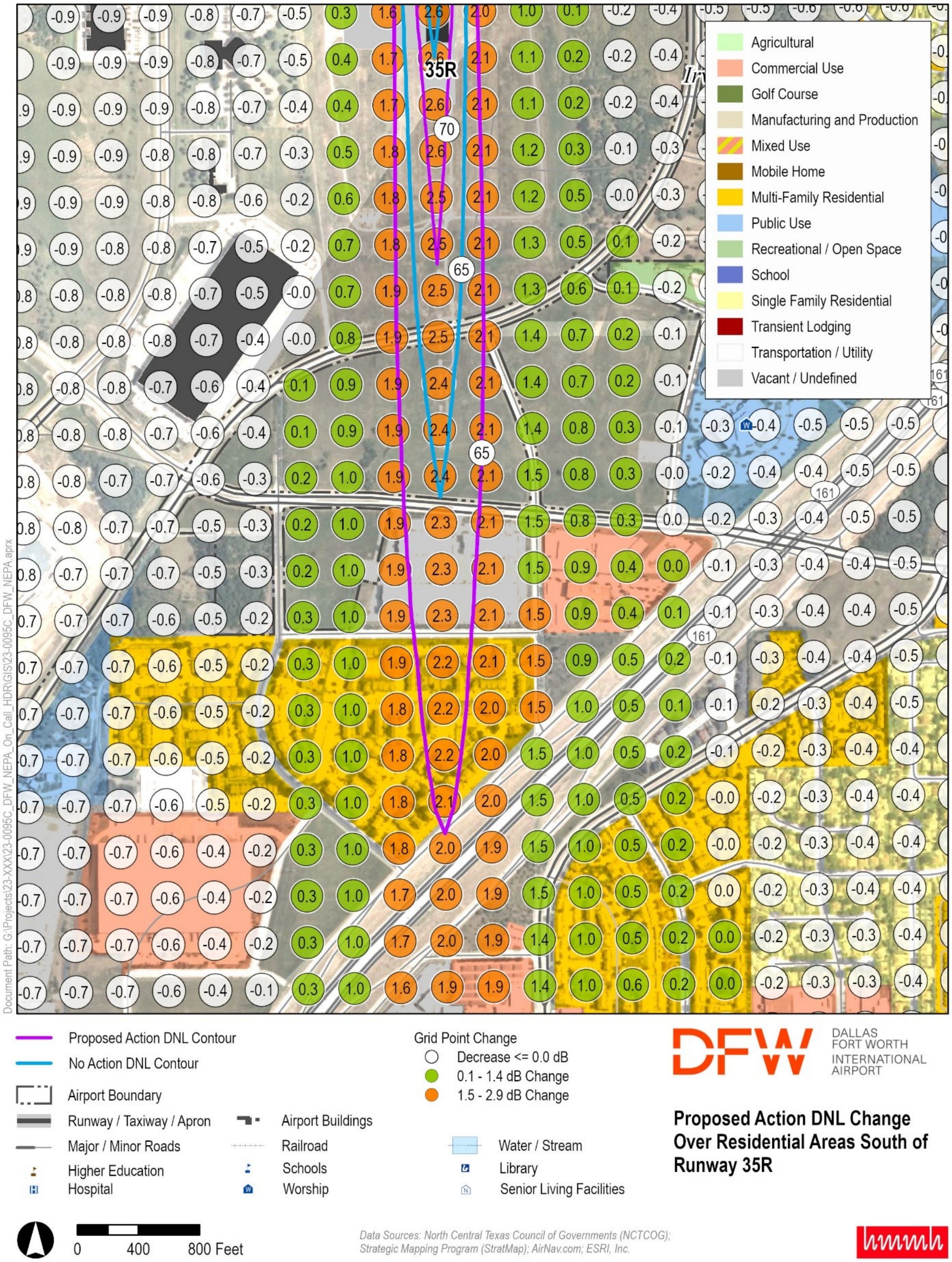
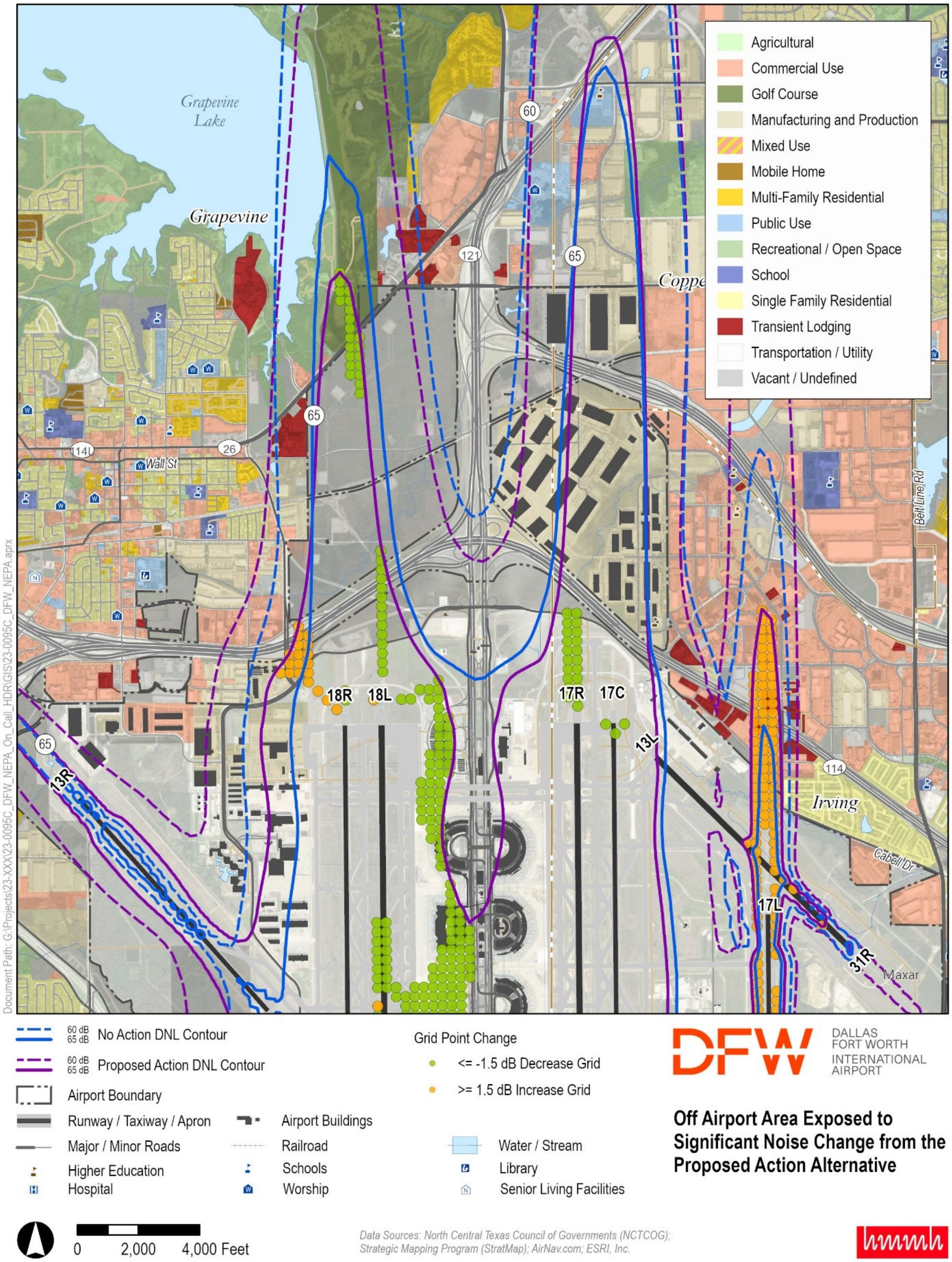


Figure 5-4. Compatible Land Use Areas Exposed to a Significant Change in Noise from the Proposed Action Alternative



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

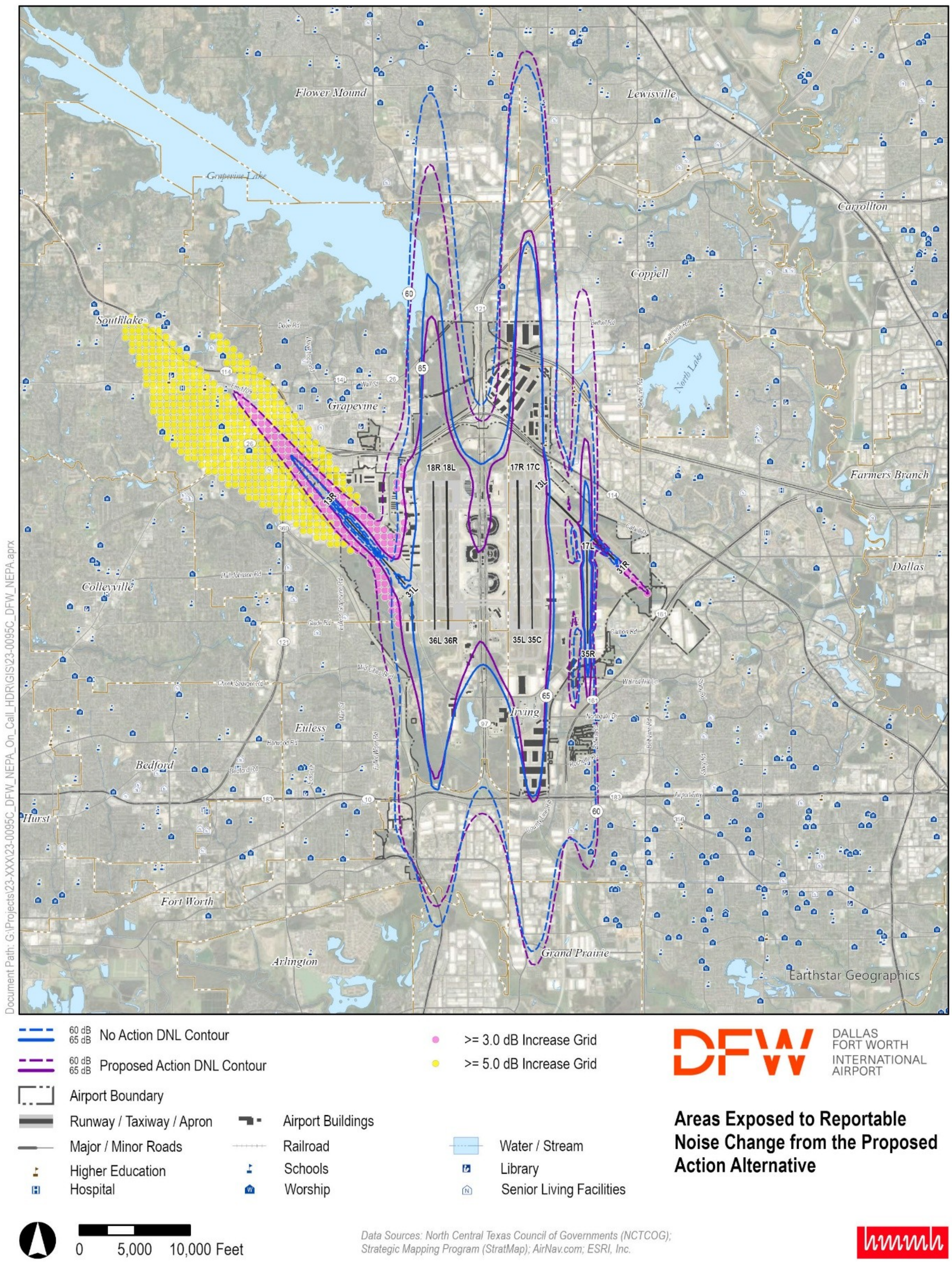


Figure 5-6. Areas North of DFW Exposed to Reportable Noise Changes from the Proposed Action Alternative

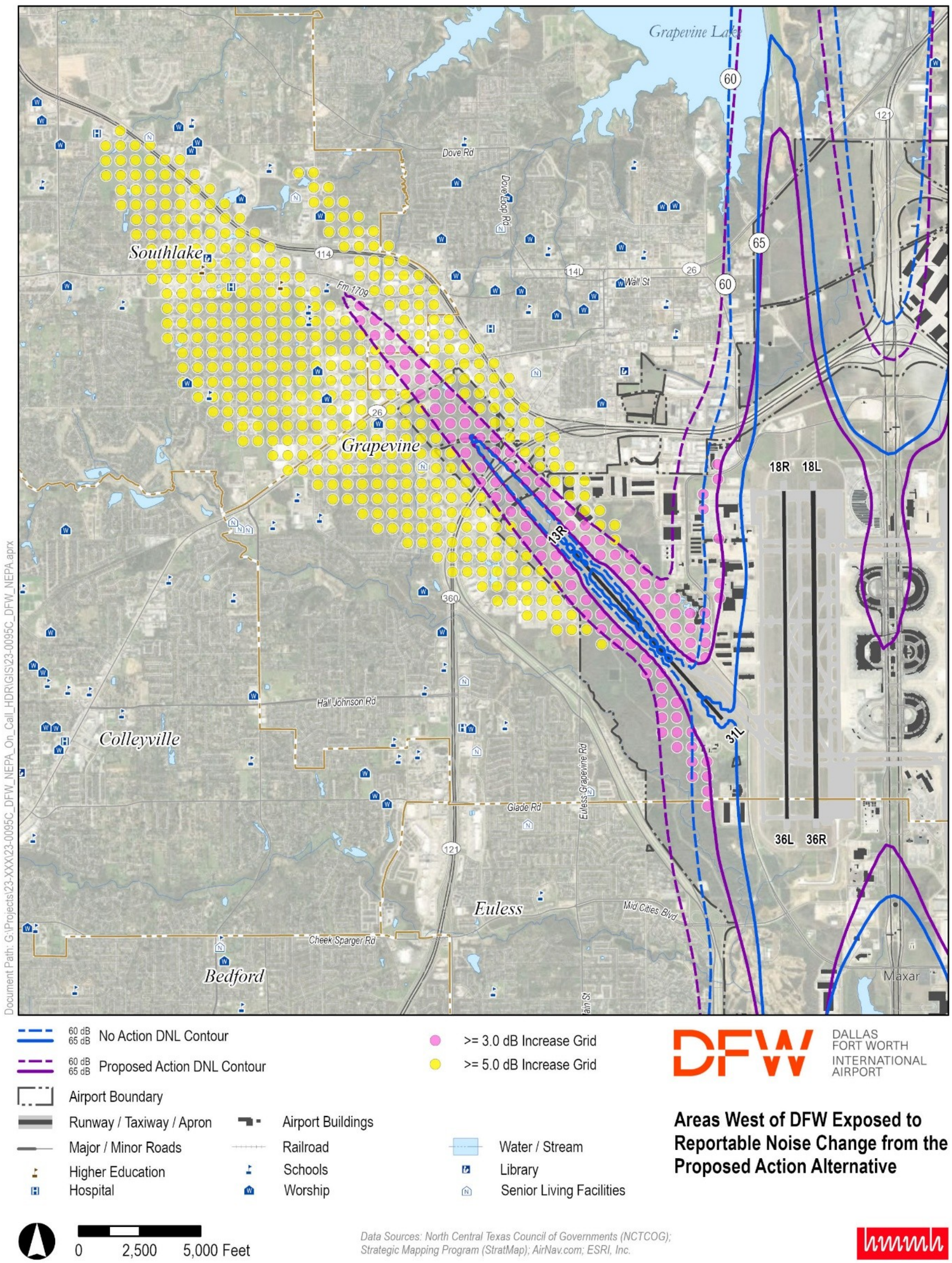


Figure 5-7, Figure 5-8, and **Figure 5-9** provide a geographic overview of the increases in noise due to the Proposed Action, overlaid on the land use base map in areas west, north, and south of DFW, respectively. Residential and other noise sensitive land uses are labeled on each figure. The difference 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

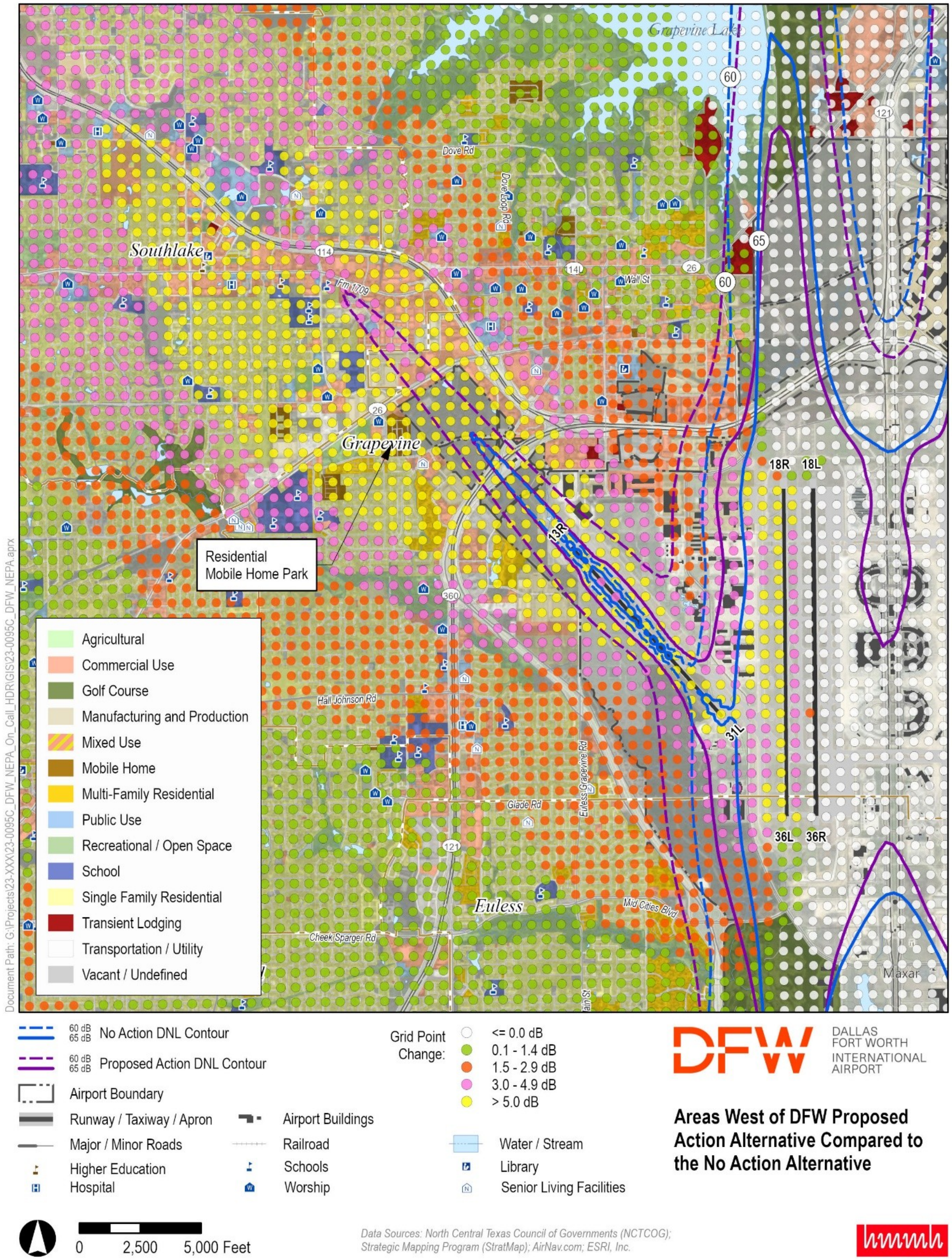


Figure 5-8. Changes in Noise Levels due to the Proposed Action Alternative – North of DFW

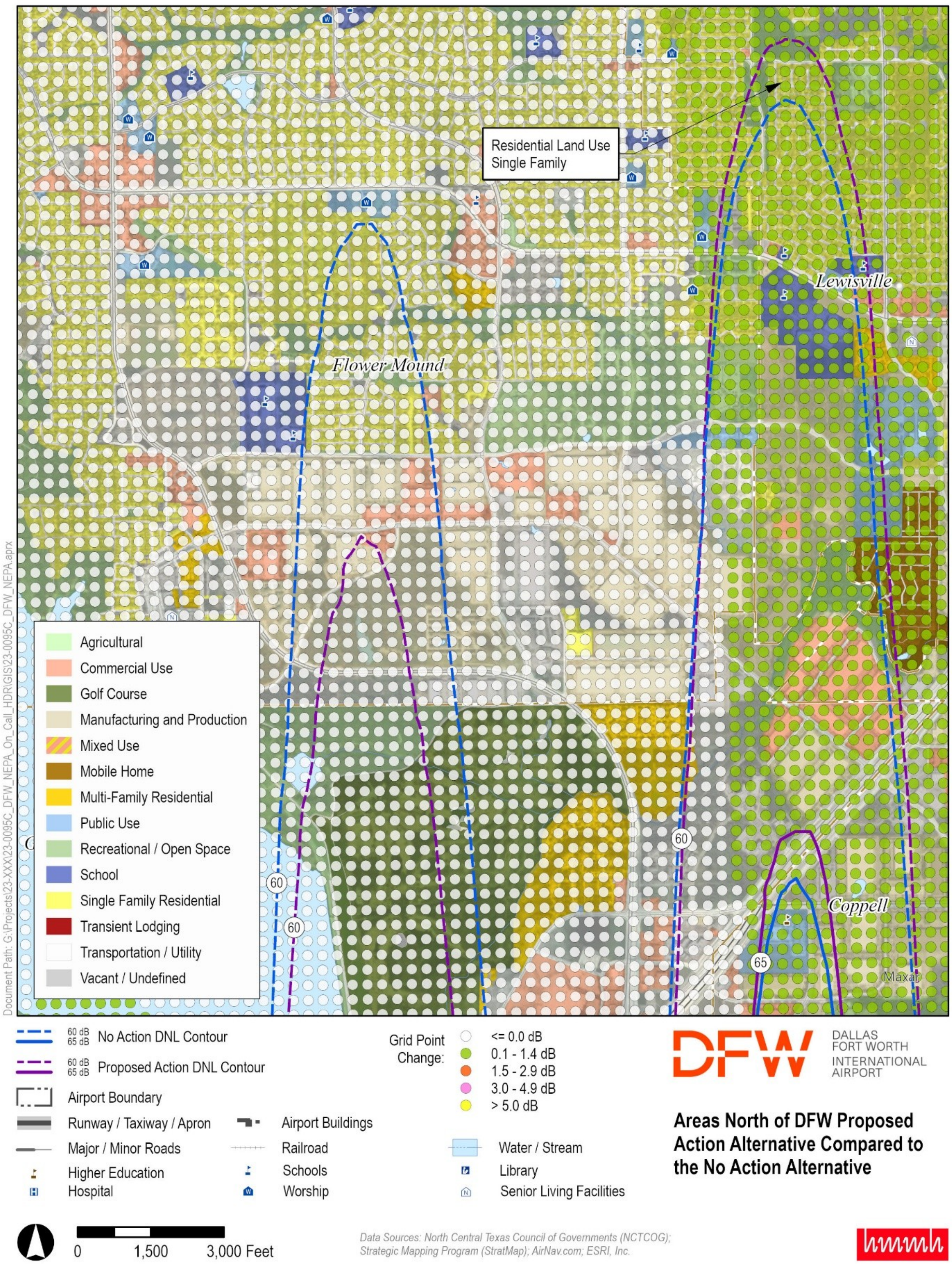
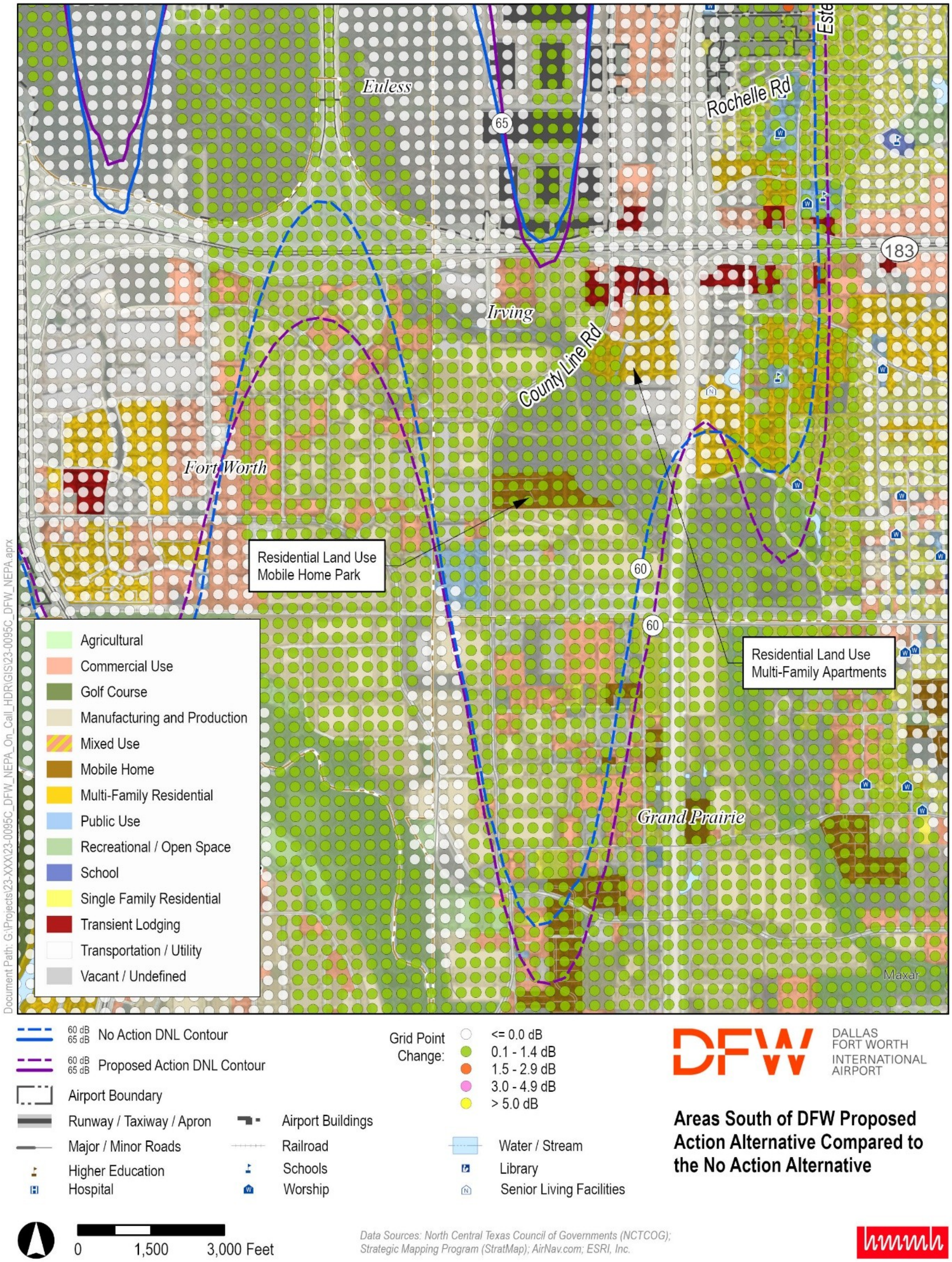


Figure 5-9. Changes in Noise Levels due to the Proposed Action Alternative – South of DFW



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.

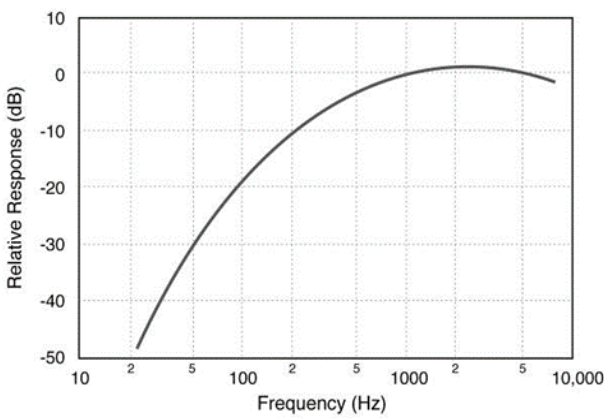
- Engineering solutions to a noise problem are different for different frequency ranges. Low-frequency noise is generally harder to control.

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

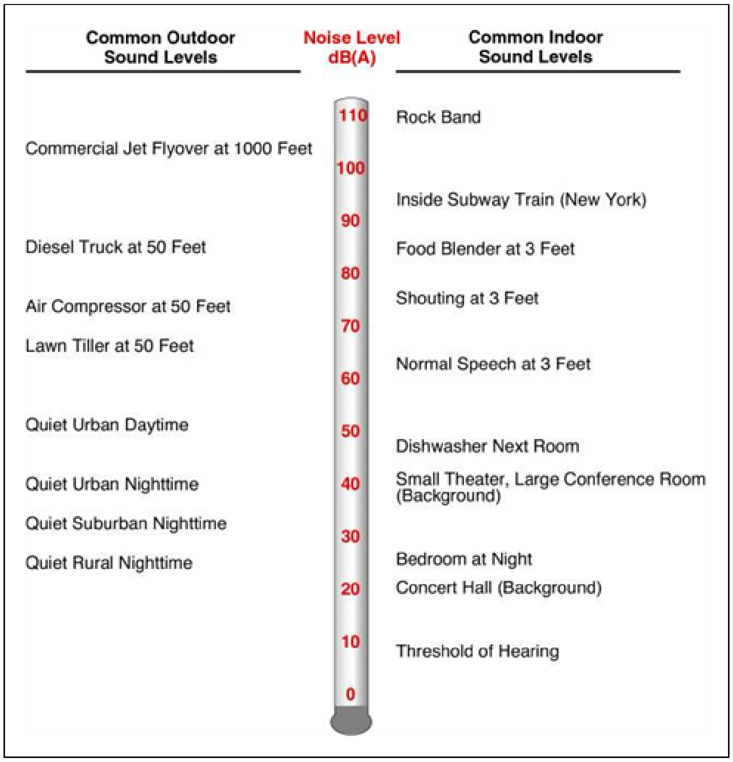


Source: HMMH, 2011

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

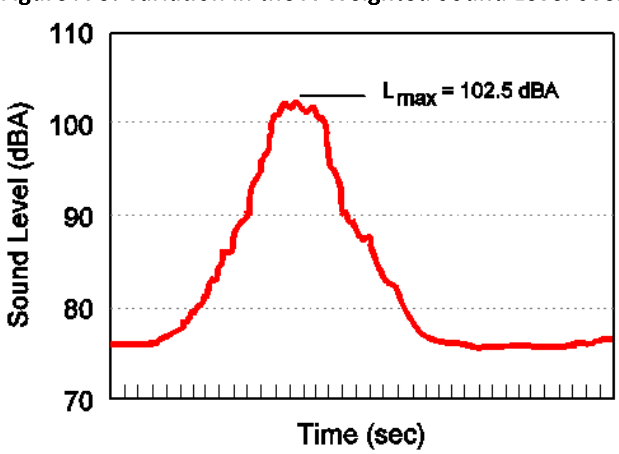


Source: HMMH, 2011

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.

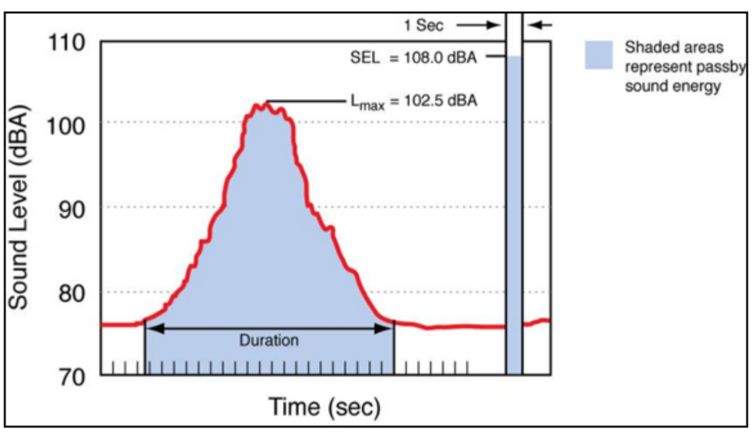
While the maximum level is easy to understand, it suffers from a serious drawback when used to describe the relative “noisiness” of an event such as an aircraft flyover; i.e., it describes only one dimension of the event and provides no information on the event’s overall, or cumulative, noise exposure. 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:

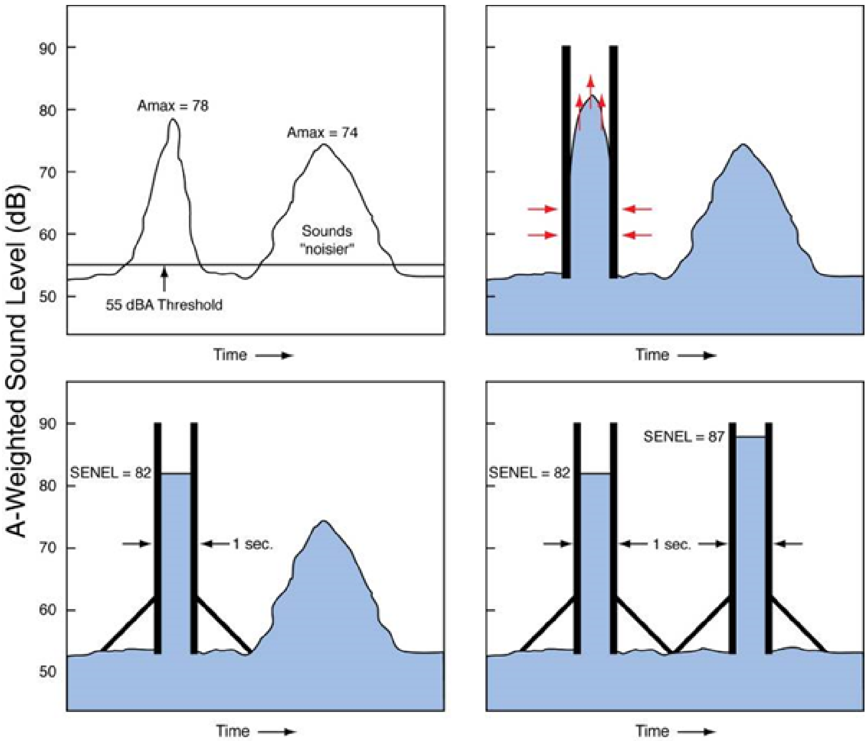
Figure A-4: Graphical Depiction of Sound Exposure Level



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



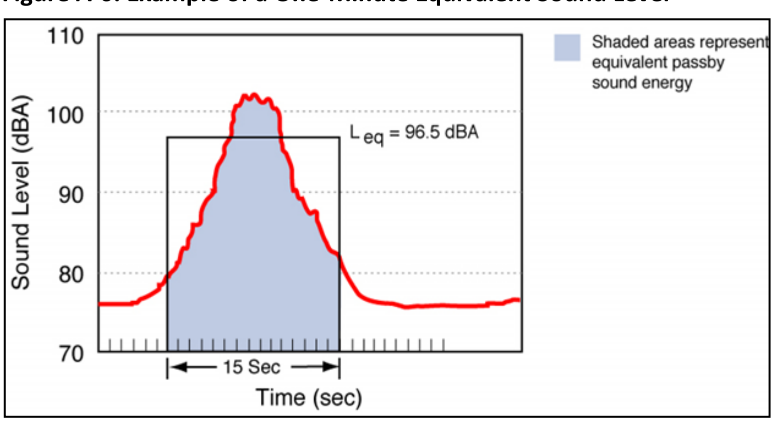
Source: HMMH, 2011

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

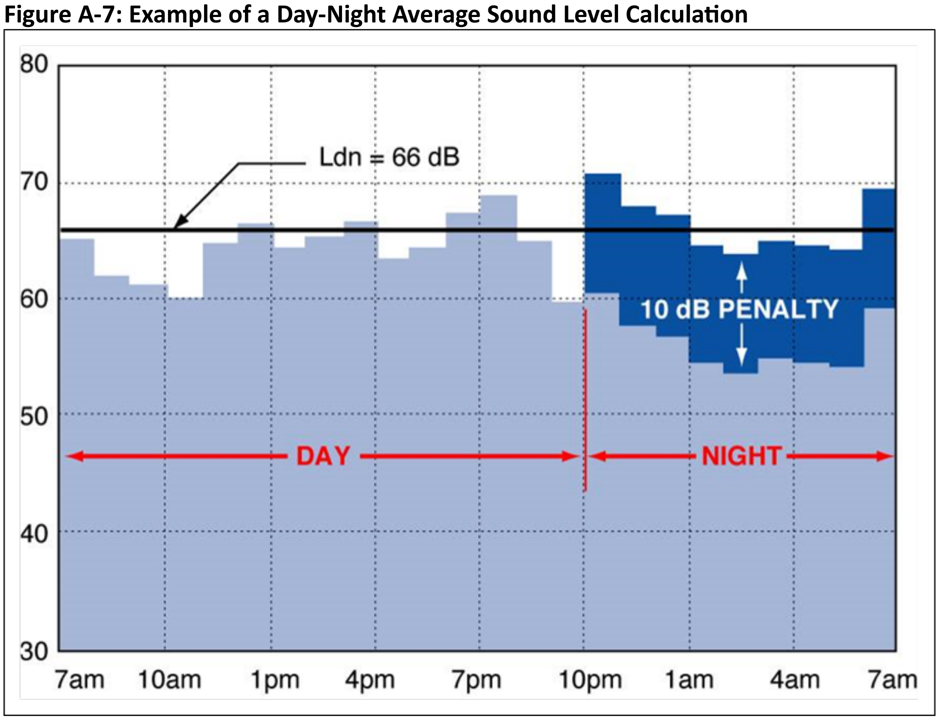
The previous sections address noise measures that account for short term fluctuations in A-weighted levels as sound sources come and go affecting the overall noise environment. The Day-Night Average Sound Level (DNL or Ldn) represents a 24-hour A-weighted noise dose. DNL is essentially equal to the 24-hour 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

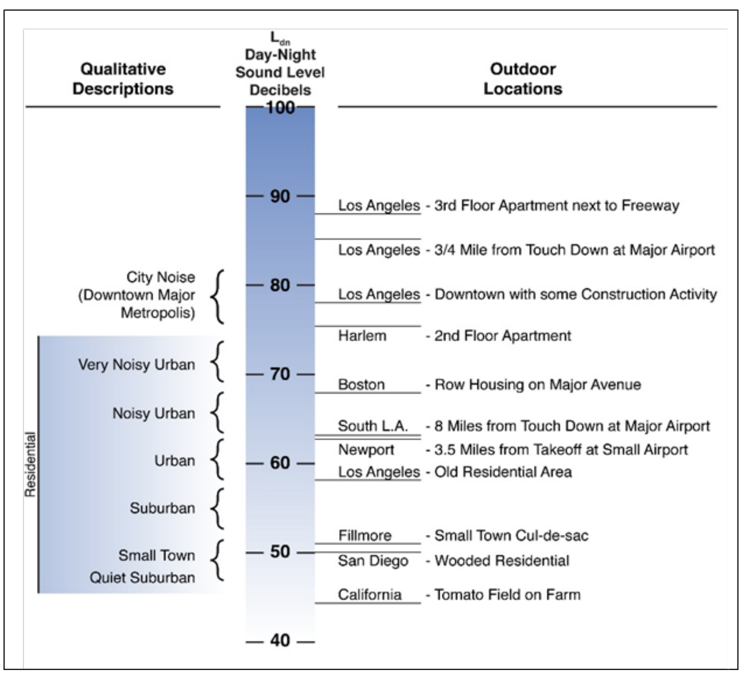
Most aircraft noise studies utilize computer-generated estimates of DNL, determined by adding up the energy from the SELs from each event, with the 10 dB penalty / weighting applied to night operations. Computed values of DNL are often depicted as noise contours reflecting lines of equal exposure around 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.