Appendix F – Noise Technical Report

DFW Central Terminal Area Expansion EA

Final Noise Technical Report

HMMH Report 03-11230.005

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1 Introduction

The cities of Dallas and Fort Worth, the owners of Dallas Fort Worth International Airport (DFW or Airport), propose the Central Terminal Area (CTA) Expansion Project (the project). The Proposed Action consists of the construction of a new Terminal (Terminal F) and associated tunnels and a new SkyLink station, two Terminal piers (Terminal A and C Piers), expansion of Terminal A passenger support facilities and Terminal E, renovation of Terminal C, new airside aircraft pavement, pavement and alignment modifications for aircraft ingress/egress, and all associated necessary utilities infrastructure, which includes demolition, relocation, connection, and creation, as necessary for the project. The Proposed Action would generate 31 new gates for a total of 201 gates in the six terminals. An additional 22 gates will be provided through the construction of Terminal F, nine gates will be provided through the Terminal A and C Piers (five gates in Terminal A, and four in Terminal C). The proposed changes are expected to accommodate new operations over time at the Airport. Because the proposed project would increase aircraft operations, a detailed noise analysis is required per Federal Aviation Administration (FAA) Orders 5050.4B and 1050.1F, 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 Environmental Affairs Department's (EAD) development of an Environmental Assessment (EA). The focus of this document is to present the findings of the existing conditions and any potential future impacts associated with the Proposed Action.

2 Background

2.1 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 persons 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 minute vibrations (waveforms) that travel through a medium such as air or water. **Noise** is sound that is unwelcome because of its undesirable effects on persons (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, describing (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 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 daily period. However, for purposes of the National Environmental Policy Act (NEPA), it normally is calculated through use of aircraft operations data from a longer period, such as a year, to smooth out fluctuations occurring in day-to-day operations. The DNL reported in NEPA documentation is often referred to as the annual-average DNL.

DNL[1] represents noise as it occurs over a 24-hour period, treating noise events occurring at night (10 p.m. to 7 a.m.) with a 10 dB weighting. This 10 dB 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 (see **Figure 1**). 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.

[1] For the regulatory definition of DNL see 14CFR Part 150 §150.7 Definitions. http://www.ecfr.gov/cgi-bin/text-idx?SID=f8e6df268e3dad2edb848f61b9a0fb51&mc=true&node=pt14.3.150&rgn=div5.

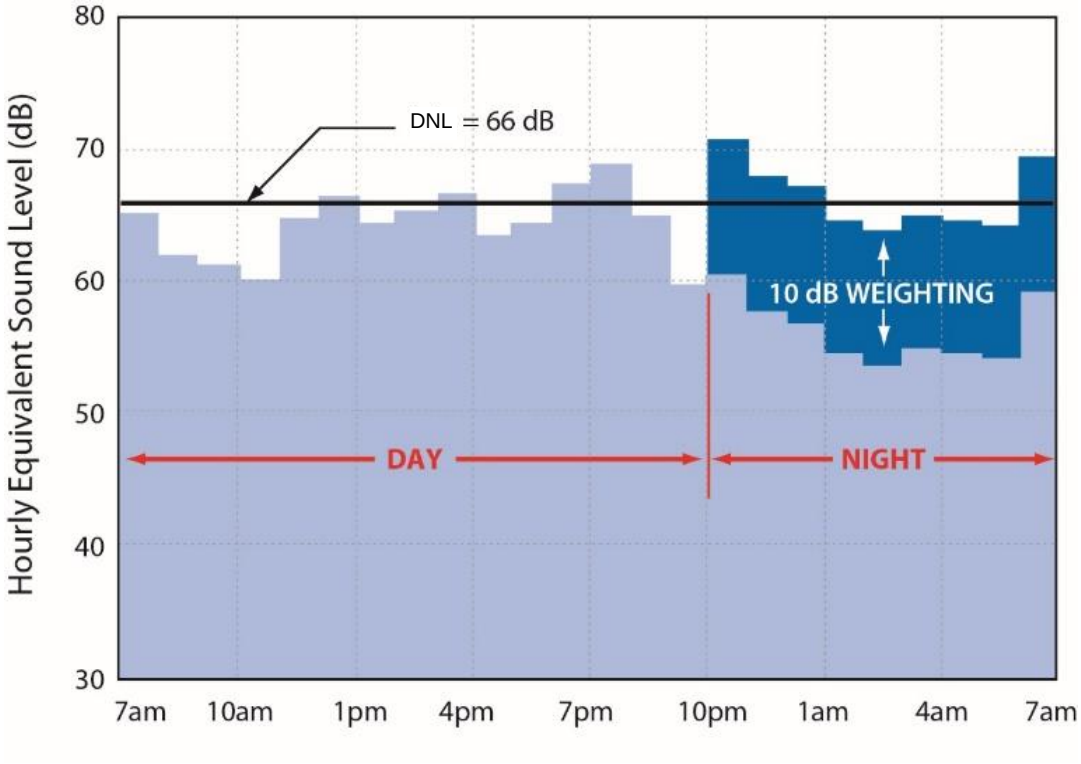

Figure 1. Example of a Day-Night Average Sound Level Calculation
Source: HMMH

3 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:

- 14 Code of Federal Regulations (CFR) Part 36 Noise Standards: Aircraft Type and Airworthiness Certification

  FAA's Federal Acquisition Regulation (FAR) Part 36[2] sets noise limits for aircraft certification and the procedures by which aircraft noise emission levels must be measured to determine compliance. 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** – 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.
  - **Stage 2** – 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 United States. There are no Stage 2 aircraft operating at DFW.
  - **Stage 3** –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 United States.
  - **Stage 4** –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** – 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. The Boeing 737MAX, 787, 747-8, and Airbus A220, A320 NEO, A350, and A380 are examples of aircraft that meet these limits.

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

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

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

- 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 U.S. Environmental Protection Agency 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 United States. 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.[4]

- 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:

  - 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 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.

[3] https://www.govinfo.gov/content/pkg/USCODE-2020-title49/pdf/USCODE-2020-title49-subtitleVII-partA-subpartiii-chap447-sec44715.pdf.
[4] FAA History of Noise, 2022, https://www.faa.gov/regulations_policies/policy_guidance/noise/history

- 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[5] defines procedures that an airport operator must follow if it chooses to conduct and implement an airport noise and land use compatibility plan. 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.[6] 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 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]

[5] https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-150.
[6] https://www.ecfr.gov/current/title-14/chapter-I/subchapter-I/part-161.

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 1050.1F, Environmental Impacts: Policies and Procedures

  This Order serves as the FAA's policy and procedures for compliance with NEPA and implementing regulations issued by the Council on Environmental Quality (CEQ). The provisions of this Order and the CEQ Regulations 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 1050.1F and the accompanying Desk Reference provide the specific guidance and requirements for this EA.

- FAA Order 5050.4B, NEPA Implementing Instructions for Airport Actions

  The FAA'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 1050.1F, "Environmental Impacts: Policies and Procedures."

These laws and guidance documents specify the use of DNL as the noise metric used in all FAA aviation noise studies in airport communities. DNL, a cumulative sound level, provides a measure of total sound energy. DNL is a logarithmic average of the sound levels of multiple events at one location over a 24-hour period. A 10-decibel (dB) penalty is added to all sounds occurring during nighttime hours (between 10:00 p.m. and 6:59 a.m.). The 10 dB increase for nighttime events accounts 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 4** contains further details on land use compatibility.

The noise analysis compares the No Action and Proposed Action Alternative for the future year using the FAA's thresholds of significance. **Table 1** defines the significance threshold for changes in noise in accordance with FAA Order 1050.1F. 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, as noted in Order 1050.1F Exhibit 4-1 (parenthetical added) "an increase from 65.5 DNL (No Action) to 67 DNL (Proposed Action) is considered a significant impact, as is an increase from 63.5 DNL (No Action) to 65 DNL (Proposed Action)." **Table 1** also lists FAA defined reportable changes of noise levels.

Table 1. Aircraft DNL Thresholds and Impact Categories

Source: FAA Order 1050.1F[7] and the 1050.1F 2020 Desk Reference[8]

	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

[7] https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf.
[8] https://www.faa.gov/sites/faa.gov/files/about/office_org/headquarters_offices/apl/desk-ref.pdf.

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

4.1 Land Use Compatibility Guidelines

The objective of airport noise compatibility planning is to promote compatible land use in communities surrounding airports. NEPA requires the review of land uses surrounding an airport to determine land use compatibility associated with aircraft activity at the airport.

The FAA has published land use compatibility designations, as set forth in Part 150, Appendix A, Table 1[9] (reproduced here as **Table 2**). 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 are not compatible above 65 DNL without mitigation and are listed separately in the EA.

[9] 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/appendix-Appendix%20A%20to%20Part%20150?msclkid=cba3d6bfa60d11ec83ea1e9ed3e3b966.

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

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

Land Use	Yearly DNL in dB (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

Key to Table 2:

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.

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.

Notes for Table 2:

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

4.2 Study Area

To adequately capture the effects of aircraft noise, the noise study area (NSA) must include not only the immediate airport environs, where aircraft flight paths are aligned with the runways, but also other potentially affected areas over which aircraft would fly as they follow any modified flight corridors that join the surrounding airspace. The NSA was developed to encompass an area that would contain at least the lateral extent of the estimated 60 DNL contour resulting from aircraft flight and ground operations contemplated under the Proposed Action, with an adequate buffer to accommodate potential changes in the contour between the No Action Alternative (NAA) and With Project Alternatives. **Figure 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.

4.3 Existing Land Use

DFW is located on over 17,200 acres between the cities of Dallas and Fort Worth, Texas, and is partially located in both Dallas and Tarrant counties. DFW 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 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 to the northeast located in Coppell. The area directly south is commercial and industrial with residential areas located further south in Grand Prairie.

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

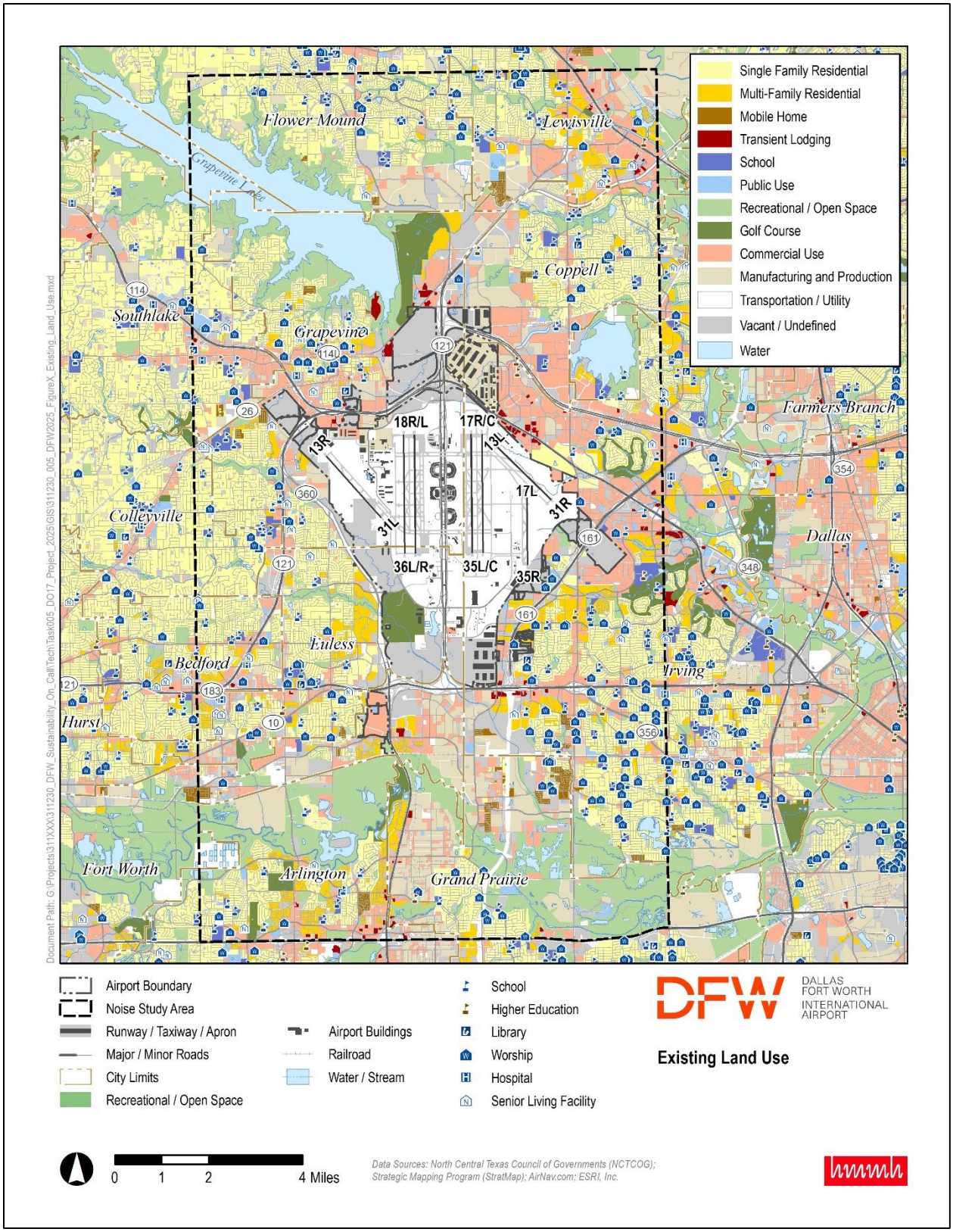

Figure 2. Land Use and Noise Study Area

5 Modeling Methodology

The following sections present the modeling methodology for the noise analysis for the Existing, Future No Action, and Future Proposed Action Alternatives.

5.1 Aviation Environmental Design Tool

For an action occurring on, or in the vicinity of a single airport, or as part of an air traffic action, FAA directs 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 others as needed.

The aircraft noise analysis for the EA uses AEDT Version 3e (released 9 May 2022). All AEDT modeling conducted for this study adheres to *"Guidance on Using the Aviation Environmental Design Tool (AEDT) to Conduct Environmental Modeling for FAA Actions Subject to NEPA."*[10] 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 2012 to 2021), which AEDT uses to adjust aircraft performance and sound propagation parameters from standard day conditions.
    - Temperature: 66.72° F
    - Station Pressure: 994.68 mbar
    - Sea Level Pressure: 1015.75 mbar
    - Dew point: 52.88° F

[10] https://aedt.faa.gov/Documents/guidance_aedt_nepa.pdf

  - Relative humidity: 61.15%
  - Wind Speed: 9.31 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 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 provided in the operations forecast. 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 on backbone tracks and sub-tracks via distribution percentages on an AAD basis.

5.2 Noise Exposure Contours

Noise contours (i.e., lines of equal noise exposure, 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 65 DNL, 70 DNL, and 75 DNL.

For purposes of the EA, the noise contours (see **Section 6.5** for the Existing Condition contours) show areas exposed to each DNL level. 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. For further information on noise and its effects on people, please refer to **Appendix A**.

5.3 Grid Point Noise Calculations

In addition to 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 were developed for one area-wide grid set. The grid points are defined to cover just beyond the extent of the NSA area. The 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).

6 Existing Conditions

This section provides the description of current noise conditions within the study area from aircraft noise. Fiscal year (FY) 2022, a 12-month period spanning October 1, 2021, through September 30, 2022, was identified as the baseline year and source of data to develop the existing conditions dataset. The Existing Condition developed for this EA represents the noise exposure of aircraft operations for an AAD within the 12-month period for FY 2022.

6.1 Aircraft Activity Levels and Fleet Mix

The existing aircraft noise environment around DFW was evaluated based upon the existing condition aircraft operations and the associated airport operational characteristics. Radar data from DFW Noise and Operations Monitoring System (NOMS) and the FAA's Operational Network (OPSNET) operational data for October 2021 to September 2022 were used to determine the existing noise conditions. The radar data provided the aircraft fleet mix and runway use. The fleet mix developed from the DFW NOMS data was grouped into FAA operational categories (Air Carrier, Air Taxi, and General Aviation), and the totals were scaled to match the tower count for that period. During the existing conditions period, 663,426 annual operations occurred at DFW. Due to the low numbers of military aircraft and the absence of dominant military aircraft types, the military operations were distributed into the Air Carrier and General Aviation categories based on an analysis of the sizes of military aircraft reported by the FAA's Traffic Flow Management System Counts (TFMSC) for the same period. **Table 3** presents the FAA OPSNET operations as well as the annual operations modeled for the Existing Condition for comparison. Further details on the existing level of operations can be found in **Appendix C**.

Table 3. Existing Condition Operations

Source: FAA OPSNET, 2023

Modeling Scenario	Air Carrier	Air Taxi	General Aviation	Military	Total
FAA OPSNET (FY 2022)	585,862	71,205	6,189	170	663,426
Existing Conditions (FY 2022)	585,963	71,205	6,258	0	663,426
Note: Military data was split between Air Carrier and General Aviation. Totals may not match exactly due to rounding.					

Table 4 provides the average daily operations, by aircraft type, that were used in AEDT for the existing conditions. The average daily number of aircraft arrivals and departures for the Existing Conditions (2022) Noise Contour are calculated by determining the total annual operations and dividing by 365 (days in a year). The existing conditions AAD included 1,818 total operations, 8.6 percent of which occurred during the DNL nighttime hours of 10:00 p.m. to 6:59 a.m.

Table 4. DFW Modeled Average Annual Day Aircraft Operations for Existing Conditions (2022)

Source: DFW NOMS, FAA OPSNET, HMMH 2023

Tower Category	Propulsion	ANP Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Carrier	**Jet**	737700	13	<1	14	10	4	14	28
		737800	161	10	171	162	9	171	342
		7378MAX	3	<1	3	3	<1	3	6
		747400	2	1	3	2	1	3	6
		747400RN	<1	<1	<1	<1	<1	<1	<1
		7478	1	<1	2	1	<1	2	3
		757PW	<1	2	3	<1	2	3	5
		757RR	<1	3	4	<1	3	4	8
		7673ER	5	2	8	5	3	8	15
		777200	5	2	7	7	<1	7	14
		777300	3	1	4	2	2	4	8
		7773ER	4	<1	4	3	<1	4	8
		7878R	3	<1	4	3	<1	3	7
		7879	11	2	13	13	<1	13	26
		A300-622R	2	2	4	1	3	4	8
		A319-131	82	3	84	80	4	84	168
		A320-211	13	2	15	13	2	15	30
		A320-232	23	5	28	23	5	28	55
		A320-271N	11	3	14	12	2	14	27
		A321-232	160	18	178	163	15	178	356
		A350-941	<1	0	<1	<1	<1	<1	2
		A380-841	1	0	1	1	0	1	2
		DC1010	<1	<1	<1	<1	<1	<1	<1
		MD11GE	1	<1	2	1	<1	2	4
		MD11PW	2	<1	2	2	<1	2	5
	Regional Jet	CRJ9-ER	126	5	131	123	8	131	263
		EMB170	90	3	93	85	8	93	186
		EMB175	9	<1	10	9	<1	10	20
		EMB190	1	0	1	1	0	1	3
	Subtotal		**733**	**70**	**803**	**727**	**76**	**803**	**1,605**
Air Taxi	**Jet**	CNA680	<1	<1	<1	<1	<1	<1	2
		EMB14L	89	3	92	88	4	92	184
	Non-jet	1900D	1	<1	1	<1	<1	1	2
		CNA208	2	<1	2	2	<1	2	5
		DHC6	1	<1	1	<1	<1	1	3
	Subtotal		**93**	**4**	**98**	**92**	**6**	**98**	**195**

Tower Category	Propulsion	ANP Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
General Aviation	Jet	CL600	<1	<1	<1	<1	<1	<1	<1
		CNA525C	<1	<1	<1	<1	<1	<1	<1
		CNA55B	<1	<1	<1	<1	<1	<1	<1
		CNA560XL	<1	<1	<1	<1	<1	<1	<1
		G650ER	<1	0	<1	<1	0	<1	<1
		GIV	<1	<1	<1	<1	<1	<1	<1
		GV	<1	0	<1	<1	<1	<1	<1
		LEAR35	<1	<1	<1	<1	<1	<1	<1
	Non-jet	CNA208	6	<1	6	6	<1	6	12
	Subtotal		**8**	**<1**	**9**	**8**	**<1**	**9**	**17**
Grand Total			**835**	**74**	**909**	**827**	**82**	**909**	**1,818**

Note: Totals may not match exactly due to rounding.
*ANP Type 737800 represents both B738 and B739 operations, which account for 97 percent and 3 percent, respectively.

6.1.1 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 to the east (13L/31R, 17C/35C, 17L/35R, 17R/35L), and three to the west (13R/31L, 18L/36R, and 18R/36L). **Table 5** provides the length and width of the current runways at DFW used in AEDT and the current runway layout can be seen in **Figure 3.**

Table 5. DFW Runways - Existing Conditions

Source: FAA 5010 accessed 5/23/2023

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

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 runways 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 4**. 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 6** provides a brief description of how each runway shown in **Figure 3** and **Figure 4** is typically used at DFW.

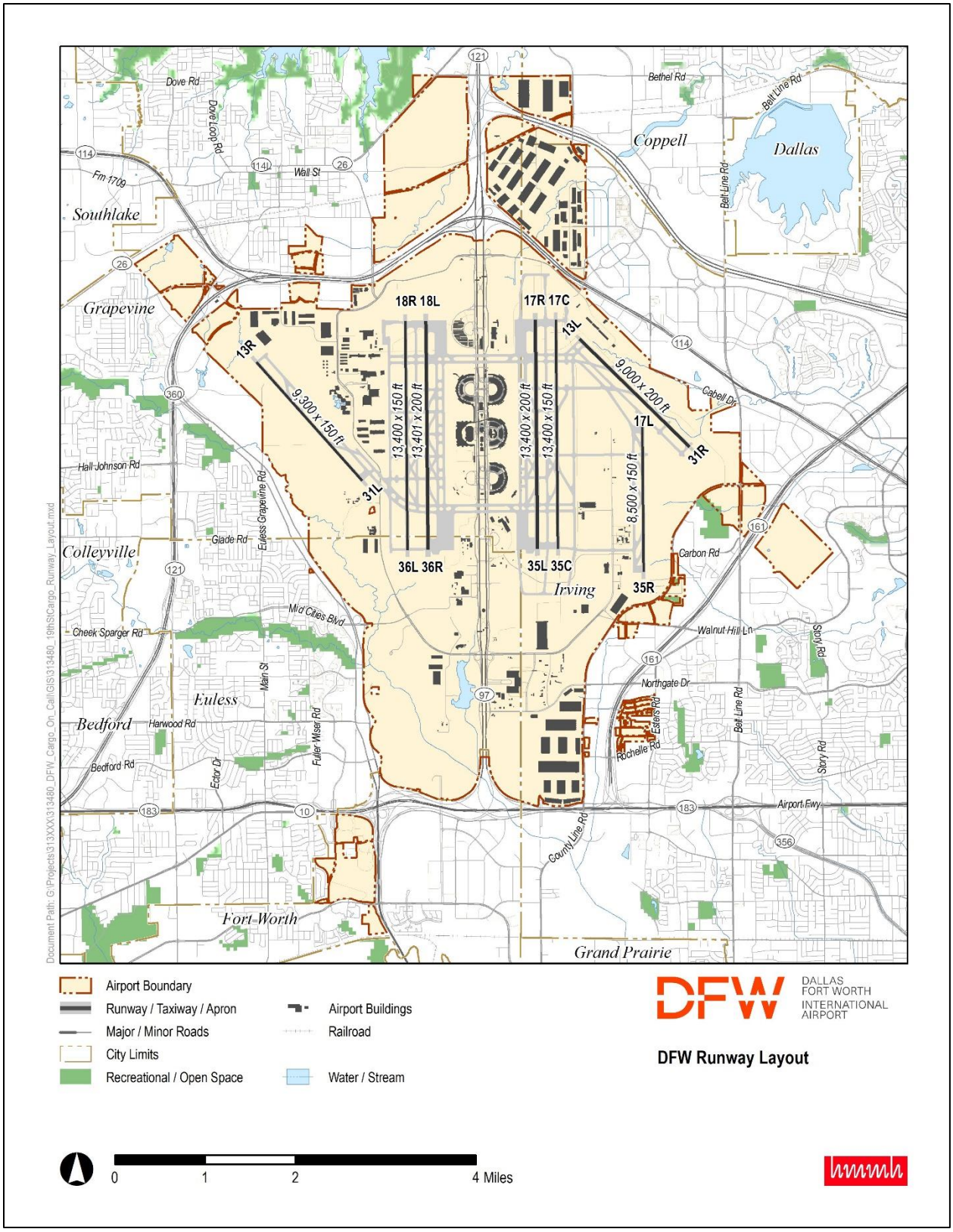

Figure 3. DFW Runway Layout

Table 6. DFW Runways – Typical Runway Use

Source: DFW Runway Use Plan 1996

Runway	South Flow	North Flow
Runway 13R	Diagonal runway in the west airfield used as a secondary arrival runway. Typically, no departures.	Not typically used in north flow.
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, unless needed for West Flow conditions.

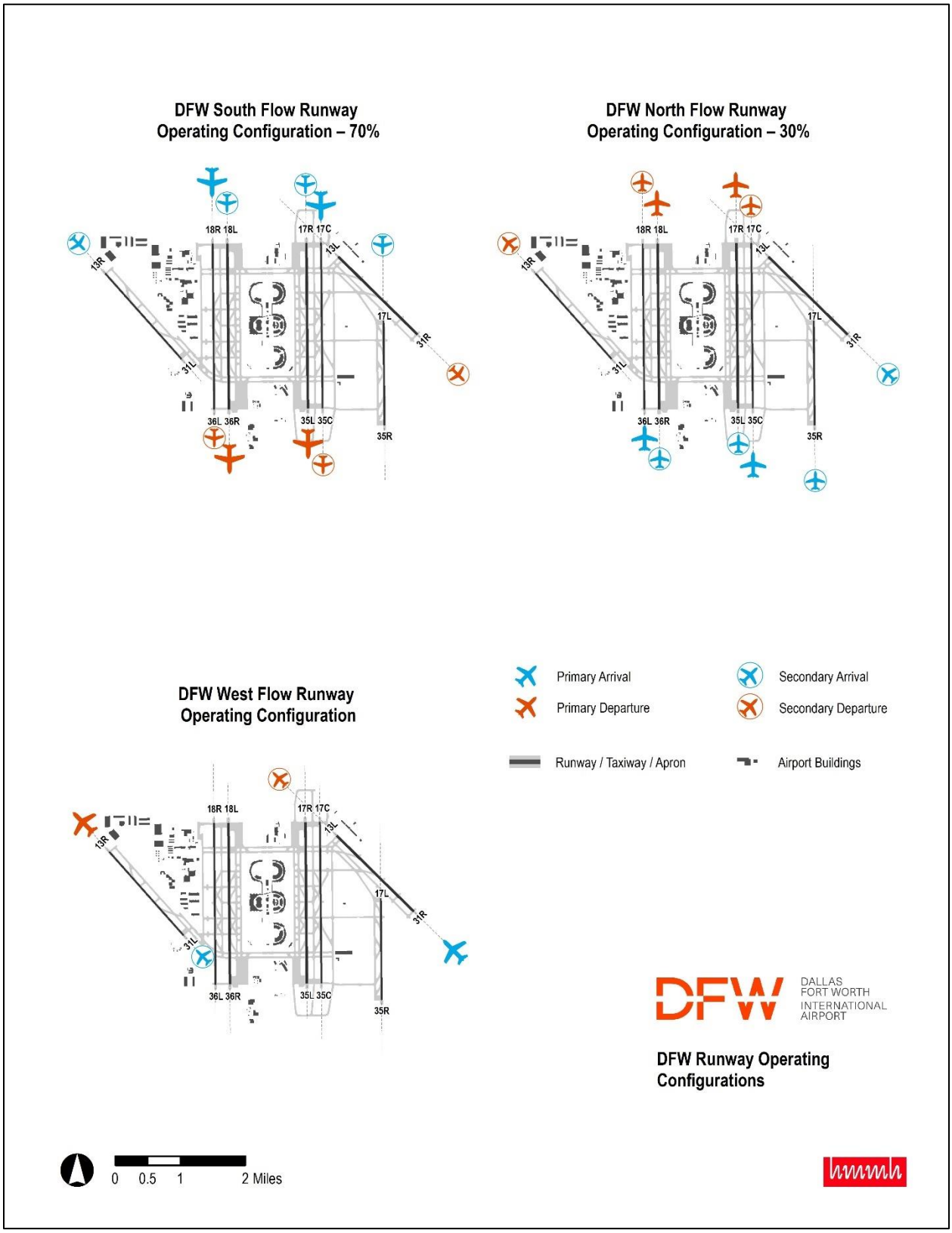

Figure 4. DFW Runway Operating Configurations

6.2 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. Use of a runway is based largely on conditions of wind direction and velocity and the length of the runway.

Similar to the fleet mix as discussed in **Section 6.1**, FY 2022 (October 2021 to September 2022) runway utilization data was used to represent the existing conditions. The FY 2022 usage was normalized to the historical north flow (30 percent), south flow (70 percent) split. **Table 7** summarizes the percentage developed from the DFW NOMS radar data that each runway was used for departures and arrivals. This data was used to model the existing conditions and generate the Existing Conditions Noise Contour. The runway percentage use 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 operations (per FAA, nighttime operations are defined as 10:00 p.m. to 6:59 a.m.) runway utilization includes the predominant use of the main runways for arrivals and departures. **Table 7** provides the breakdown by time of day for arrivals and departures.

Table 7. DFW Runway Utilization Summary – Existing Conditions

Source: DFW NOMS, HMMH, 2023

Runway ID	Arrival Percent			Departure Percent		
	Day	Night	Total	Day	Night	Total
13L	<1%	0%	<1%	<1%	<1%	<1%
13R	4%	<1%	3%	<1%	0%	<1%
17C	27%	32%	27%	<1%	1%	<1%
17L	11%	1%	10%	<1%	0%	<1%
17R	<1%	7%	<1%	38%	32%	38%
18L	<1%	4%	<1%	31%	30%	31%
18R	28%	25%	28%	<1%	6%	<1%
31L	<1%	0%	<1%	<1%	<1%	<1%
31R	1%	<1%	<1%	<1%	0%	<1%
35C	11%	14%	11%	<1%	<1%	<1%
35L	<1%	3%	<1%	16%	14%	16%
35R	5%	<1%	5%	<1%	0%	<1%
36L	12%	11%	12%	<1%	3%	<1%
36R	<1%	1%	<1%	14%	13%	14%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 8 provides a further breakdown of the runway use by tower category and the type of aircraft for each runway.

Table 8. DFW Runway Utilization by Category – Existing Conditions

Source: DFW NOMS, HMMH, 2023

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

6.3 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 9** provides the stage length classifications by their associated trip distances and **Table 10** presents the stage length utilization rates by AEDT aircraft type.

Table 9. AEDT Stage Length Categories

Source: AEDT 3e User Guide, May 2022

Category	Stage Length (nmi)
1	0-500
2	500-1,000
3	1,000-1,500
4	1,500-2,500
5	2,500-3,500
6	3,500-4,500
7	4,500-5,500
8	5,500-6,500
9	6,500-11,000
M	Maximum range at maximum takeoff weight
Note: Stage Length is defined as the distance an aircraft travels from takeoff to landing	

The stage lengths flown from DFW are based on FAA radar data identified operations. **Table 10** indicates the proportion of the operations that fell within each of the 10 stage length categories for existing conditions. Typically, widebody aircraft which operate on long haul routes have higher stage lengths.

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 is 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 analysis presented in this document used the standard AEDT departure profiles.

Table 10. Existing Conditions Modeled Departure Stage Length Usage by Aircraft Type

Source: DFW NOMS, HMMH, 2023

AEDT ANP Type	Stage Length										Total
	1	2	3	4	5	6	7	8	9	M	
1900D	99%	<1%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
737700	2%	39%	60%	0%	<1%	<1%	0%	0%	0%	0%	**100%**
737800	19%	40%	39%	2%	<1%	0%	0%	0%	0%	0%	**100%**
7378MAX	25%	31%	43%	<1%	0%	0%	0%	0%	0%	0%	**100%**
747400	4%	32%	31%	<1%	22%	9%	0%	3%	0%	0%	**100%**
747400RN	<1%	<1%	2%	0%	10%	84%	0%	3%	0%	0%	**100%**
7478	4%	58%	15%	0%	22%	1%	0%	<1%	0%	0%	**100%**
757PW	43%	47%	9%	0%	<1%	0%	0%	0%	0%	0%	**100%**
757RR	42%	49%	9%	0%	<1%	0%	0%	0%	0%	0%	**100%**
7673ER	25%	40%	36%	0%	<1%	0%	0%	0%	0%	0%	**100%**
777200	2%	21%	7%	10%	22%	23%	11%	4%	0%	0%	**100%**
777300	2%	14%	<1%	0%	34%	24%	26%	0%	0%	0%	**100%**
7773ER	1%	8%	2%	<1%	3%	76%	<1%	5%	3%	0%	**100%**
7878R	<1%	33%	10%	<1%	1%	25%	2%	28%	0%	0%	**100%**
7879	<1%	9%	9%	<1%	24%	26%	3%	24%	0%	4%	**100%**

AEDT ANP Type	Stage Length										Total
	1	2	3	4	5	6	7	8	9	M	
A300-622R	35%	47%	18%	0%	<1%	0%	0%	0%	0%	0%	**100%**
A319-131	29%	51%	19%	<1%	<1%	0%	0%	0%	0%	0%	**100%**
A320-211	20%	50%	30%	<1%	<1%	0%	0%	0%	0%	0%	**100%**
A320-232	20%	51%	30%	<1%	<1%	0%	0%	0%	0%	0%	**100%**
A320-271N	5%	72%	22%	0%	0%	0%	0%	0%	0%	0%	**100%**
A321-232	11%	58%	30%	<1%	<1%	0%	0%	0%	0%	0%	**100%**
A350-941	<1%	0%	<1%	0%	75%	<1%	24%	0%	0%	0%	**100%**
A380-841	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	**100%**
CL600	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
CNA208	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
CNA525C	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
CNA55B	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
CNA560XL	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
CNA680	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
CRJ9-ER	52%	46%	2%	<1%	<1%	0%	0%	0%	0%	0%	**100%**
DC1010	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
DHC6	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
EMB14L	92%	8%	<1%	0%	<1%	0%	0%	0%	0%	0%	**100%**
EMB170	1%	39%	60%	0%	0%	0%	0%	0%	0%	0%	**100%**
EMB175	41%	46%	12%	0%	0%	0%	0%	0%	0%	0%	**100%**
EMB190	0%	86%	14%	0%	0%	0%	0%	0%	0%	0%	**100%**
G650ER	31%	31%	34%	0%	0%	3%	0%	0%	0%	0%	**100%**
GIV	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
GV	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
LEAR35	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
MD11GE	34%	60%	5%	0%	0%	0%	0%	0%	0%	0%	**100%**
MD11PW	8%	84%	9%	0%	0%	0%	0%	0%	0%	0%	**100%**
Note: Totals may not match exactly due to rounding.											

6.4 Flight Tracks

The FAA has established routes for aircraft arriving and departing from DFW. For the noise analysis, model flight tracks were developed representing the path along the ground over which aircraft generally fly. For the existing conditions analysis, FAA radar data for the existing conditions period (October 2021 to September 2022) was used to update existing AEDT model tracks to ensure they are representative of where aircraft fly at DFW. Radar data gathered was analyzed to verify 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 runway end are located within a smaller corridor due to the use of navigational instruments. To model the flight corridors in AEDT, consolidated flight tracks were developed from the radar data and given a track ID. Flight tracks modeled for the existing conditions are shown in **Figure 5** (Arrival Tracks) and **Figure 6** (Departure Tracks).

A total of 762 tracks were obtained and updated from the prior AEDT model, consisting of 371 arrival tracks and 391 departure tracks. Modifications were made to the prior AEDT model track set based on the radar data evaluation. Detailed AEDT model track use tables can be found in **Appendix B**.

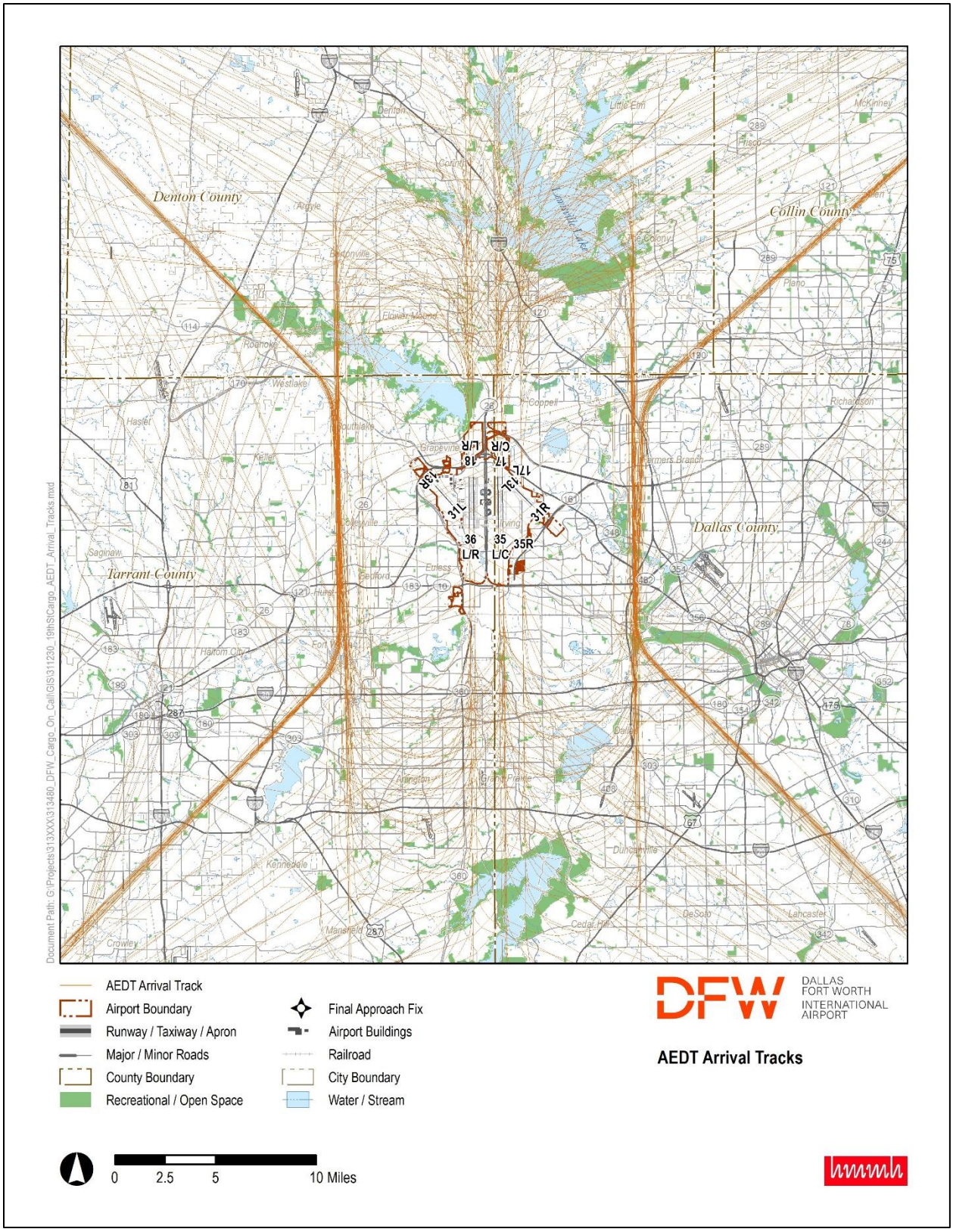

Figure 5. AEDT Arrival Tracks

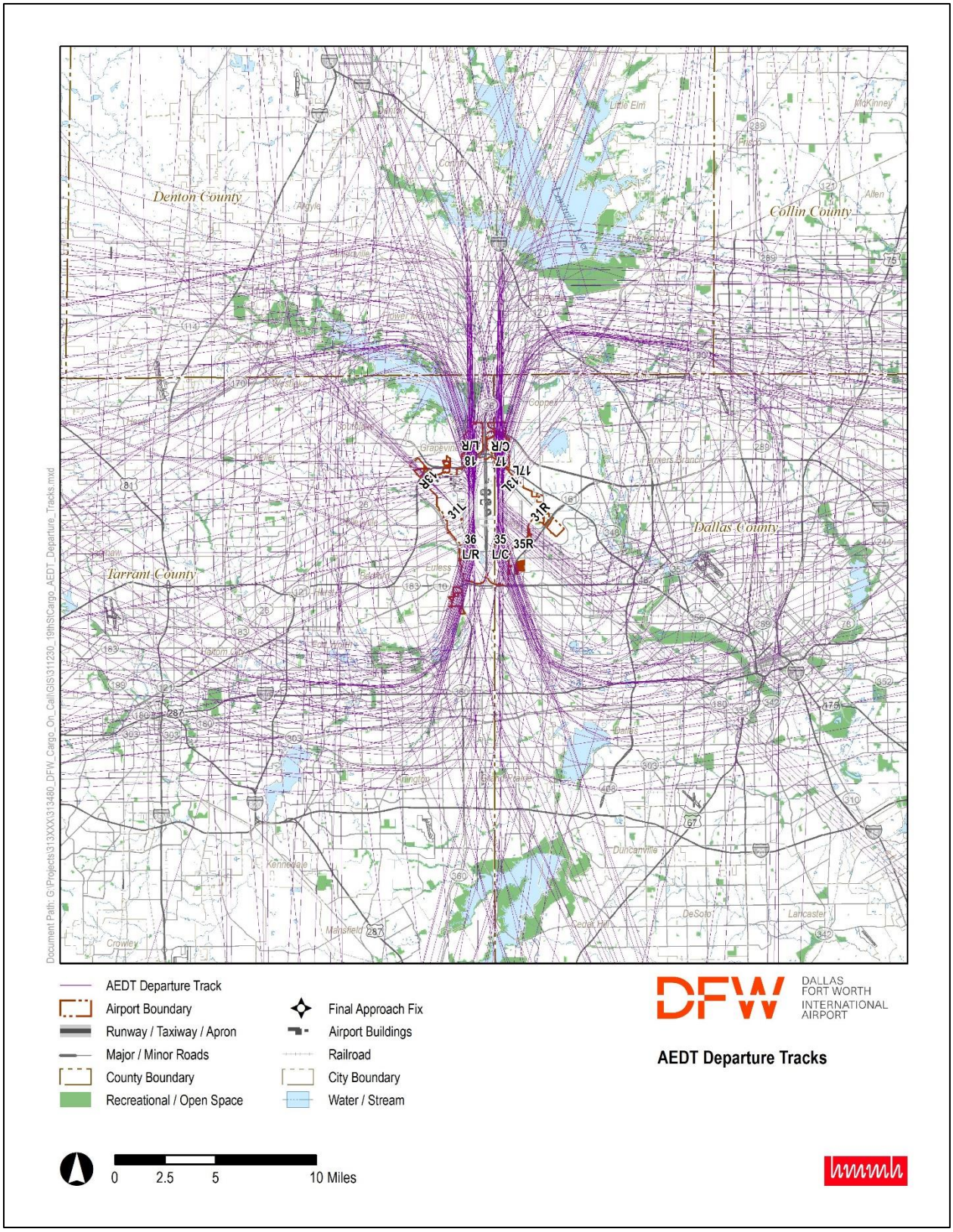

Figure 6. AEDT Departure Tracks

6.5 Existing Noise Exposure Contours

Noise exposure contours were modeled in AEDT based on the FY year data; however, for reporting, CY data is required. The CY operations were developed by adding 3/4 of FY 2022 operations to 1/4 of FY 2023 operations.[11]

Table 11. Fiscal Year to Calendar Year Adjustment - 2022

Source: FAA 2021 TAF, Centurion Planning and Design Analysis, HMMH, 2023

Year	FY2022	CY2022	Adjustment
2022	663,426	656,676	0.989826

To determine the estimated changes in noise exposure that could be attributed to the difference between calendar year and fiscal year level of activity, the Area Equivalent Method (AEM), a noise screening tool, was used to determine if further analysis is needed.[12] The CY 2022 operational fleet mix was added to the AEM which based on forecasted operations can indicate whether the adjustment to CY 2022 would result in a noise change. The CY operations for 2022 were slightly lower than the FY; therefore, the noise screening results are slightly lower than modeled. **Table 12** shows the analysis results of the areas of noise exposure with each noise contour level for FY and CY data. The analysis shows that the adjustment to CY would reduce the areas for the 65 DNL, 70 DNL, and 75 DNL by less than 1 percent. Therefore, no further analysis is needed due to the adjustment to CY 2022. The AEM does not separate arrival and departure operations or runway use; therefore, the areas of noise exposure are determined by the AEDT model. Further details on the AEM screening analysis reports can be found in **Appendix D**.

Table 12. Fiscal Year to Calendar Year AEM Screening Analysis - 2022

Source: HMMH, 2023

Contour Range	FY2022 (sq mi)	CY2022 (sq mi)	Percent Change in Area
DNL 65-70 dB	5.58	5.54	-0.8%
DNL 70-75 dB	2.38	2.36	-0.8%
DNL 75+ dB	1.02	1.01	-0.7%

Table 13 provides estimates of the total area split between on and off airport areas exposed to aircraft noise of at least 65 DNL for the existing conditions. Approximately 9.54 square miles of land fall within the Existing Condition (2022) 65 DNL or higher noise exposure area. Of the total land area, approximately 0.24 square miles exposed to 65 DNL or higher is located off-Airport (the remaining 9.30 square miles are located on DFW property). **Table 13** summarizes the areas of noise exposure within each noise contour level (65 DNL, 70 DNL, and 75 DNL noise contours) for the existing conditions. **Figure 7** shows the annual noise exposure pattern at DFW for the existing conditions. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL. DNL contours are a graphic representation of how the noise from DFW's 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

[11] CY 2022 = (FY2022 ops / 12) *9 + (FY2023 ops / 12) *3

[12] https://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/aem_model/

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.

Table 13. Estimated Land Area within Existing (2022) Noise Exposure Contour

Source: HMMH, 2023

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	5.61	0.21	5.82
DNL 70-75 dB	1.83	0.04	1.87
DNL 75+ dB	1.86	0.00	1.86
Total	**9.30**	**0.24**	**9.54**

Figure 8 provides the DNL contours for the existing conditions over the land use map. In the existing conditions, the DNL contours extend away from DFW on the north side in two main lobes over compatible land use along the extended centerline of the outboard parallel runway extending off DFW property on the west side to just north of SH 26 and on the east side to just north of Bethel Road. On the south side, the contour extends in two main lobes along the extended centerline of the outboard parallel runway but remaining on airport property. The 65 DNL also extends off airport property over compatible land use north of Runway 17L. The 70 DNL contour for the Existing Condition includes no noise-sensitive land use and barely extends off DFW property north of Runways 18R and 17C to across SH 114.

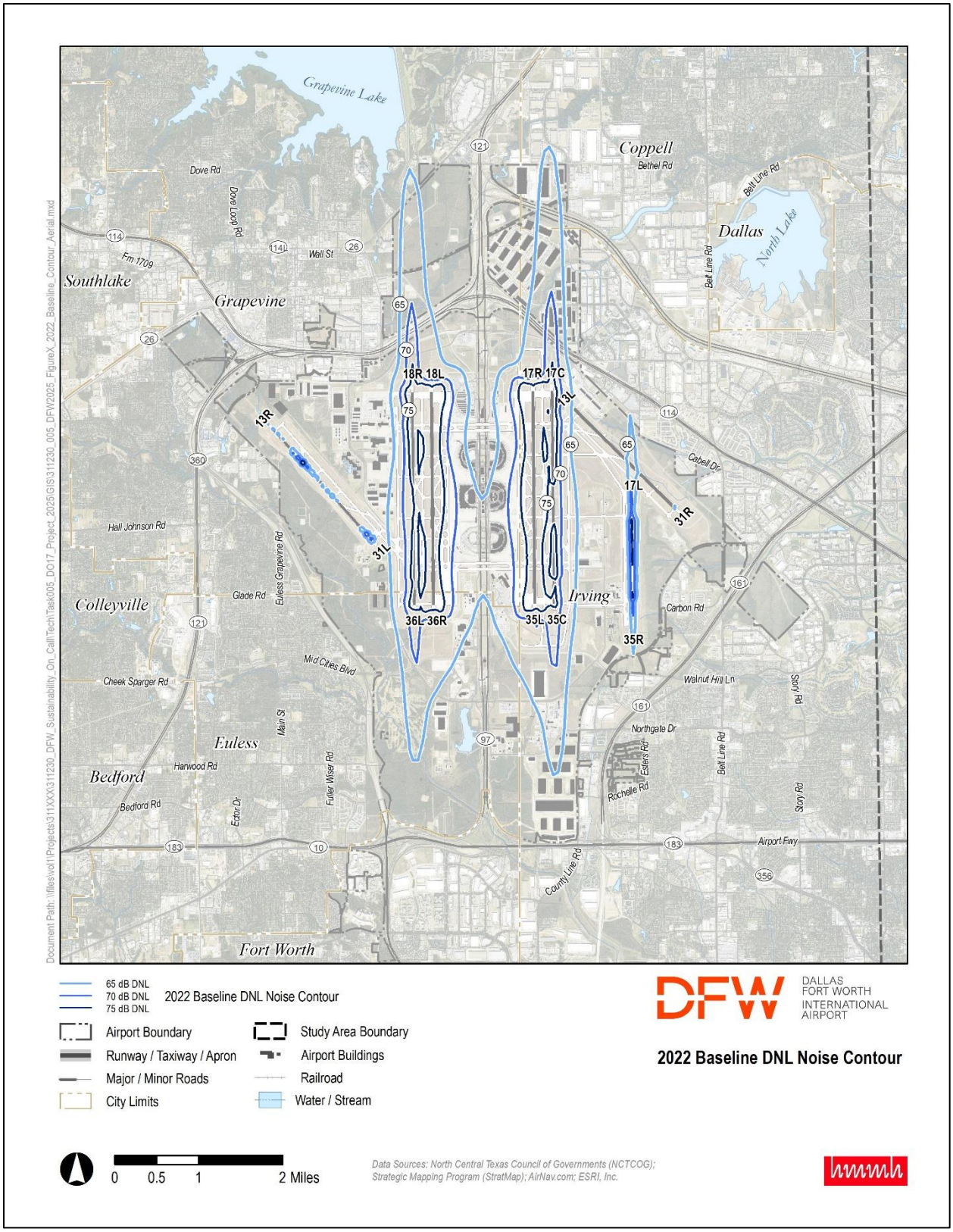

Figure 7. Existing Condition (2022) Noise Exposure Contour

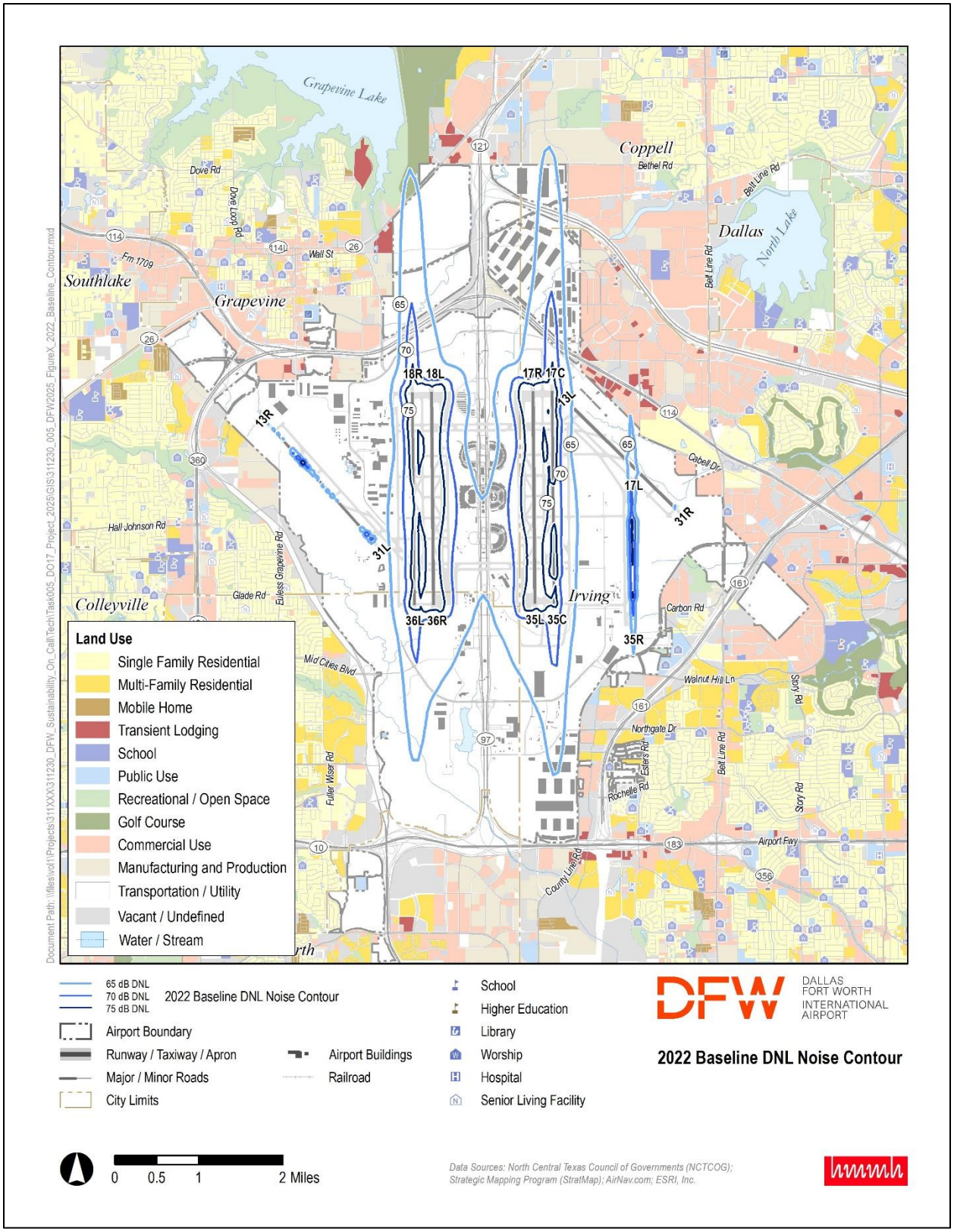

Figure 8. Existing Condition (2022) Noise Exposure Contour with Land Use

6.6 Existing Conditions Noise Compatible Land Use

There are no public schools, churches, nursing homes, hospitals, or libraries within any of the 65 DNL or greater contours. Furthermore, there are no single family, multifamily, or manufactured housing within the 65 DNL or greater Existing Condition (2022) noise contours (see **Figure 8**). **Table 14** summarizes the residential population and housing units affected by noise levels exceeding 65 DNL for the Existing Condition (2022) noise exposure contours.

Table 14. Estimated Land Area within Existing (2022) Noise Exposure Contour

Source: 2020 U.S. Census Block Data, HMMH, 2023

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

7 Future Alternatives

The following subsections discuss the development of the future aircraft operational forecast, runway use, flight tracks and flight track usage for the Future No Action and Future Proposed Action Alternatives for 2026, 2031, and 2036. **Sections 7.4, 7.8,** and **7.12** discuss the comparison between the two alternatives for 2026, 2031, and 2036, respectively.

7.1 Forecast

The CTA Expansion Project construction of the Terminal A and C Piers and the new Terminal F would be complete and operational in 2026, which represents the project implementation year, 2031 is included as the year of implementation plus five years, and 2036 as the year of implementation plus 10 years.

The FAA 2021 Terminal Area Forecast (TAF) released in March 2022 for DFW was used for the forecast. Using the FAA 2021 TAF data, DFW developed a forecast to cover the two future years of the EA. Since the initial development of the forecast, which used the FAA's 2021 TAF, the FAA released its updated 2022 TAF. The 2022 TAF forecasted fewer operations than the 2021 forecast, with approximately 5 percent fewer operations in the near term (late 2020s) and 2 percent fewer in the out years (2030s). DFW has seen a consistent growth trend in its annual operations and enplaned passengers. It has also recovered from the pandemic more quickly than other large hub airports. Given DFW's recovery, as evidenced by robust operational rankings and a review of the 2022 TAF, which reflects lower growth levels, DFW determined that the 2021 TAF is more relevant to the existing and anticipated operating environment. The growth rate within the 2021 TAF more accurately mirrors DFW's recovery from the COVID-19 pandemic and DFW's anticipated future growth. The FAA agreed with DFW assessment of future operations and that the 2021 TAF may be used for this EA. The FAA approved forecast[13] is based on the 2021 TAF; therefore, the future year operational levels are also based on the FY and will be adjusted to CY results for reporting. Further details on the forecast development can be found in **Appendix C**.

Similar to existing conditions, the military operations were distributed between Air Carrier operations and General Aviation operations. This is shown in the AAD counts for each alternative in **Table 15**.

The 19th Street Cargo Redevelopment Project would be complete and operational in 2025. The proposed project assumes that the EA has been completed for the 19th Street project, and thus, the additional 7,300 annual cargo operations disclosed in the 19th Street Cargo Proposed Action would be included in the No Action and Proposed Action Alternatives related to the CTA Expansion Project (proposed project).

The proposed project would add 5,962 additional annual operations in the proposed implementation year of 2026, 70,441 annual operations in the year of implementation plus five years (2031), and 132,871 annual operations in the year of implementation plus ten years (2036). This resulted in the totals for each category and each future year listed in **Table 15**.

[13] The DFW Operations memo and FAA approval is provided in EA Appendix A.

Table 15. Forecast Annual and Average Annual Day Aircraft Operations

Source: FAA 2021 TAF, Centurion Planning and Design, HMMH 2023

Alternative	Modeling Scenario	Air Carrier	Air Taxi	General Aviation	Military	Total
No Action	2026	775,695	27,886	6,363	213	810,157
	AAD 2026	2,125.4	76.4	17.8	0.0	2,219.6
Proposed Action	2026	781,450	28,093	6,363	213	816,119
	AAD 2026	2,141.2	77.0	17.8	0.0	2,235.9
No Action	2031	789,196	24,165	6,461	213	820,035
	AAD 2031	2,162.4	66.2	18.1	0.0	2,246.7
Proposed Action	2031	857,544	26,258	6,461	213	890,476
	AAD 2031	2,349.7	71.9	18.1	0.0	2,439.7
No Action	2036	799,475	24,105	6,561	213	830,354
	AAD 2036	2,190.6	66.0	18.3	0.0	2,274.9
Proposed Action	2036	928,457	27,994	6,561	213	963,225
	AAD 2036	2,544.0	76.7	18.3	0.0	2,639.0
Note: Totals may not match exactly due to rounding.						

7.2 Future (2026) No Action Alternative

The 19th Street Cargo Redevelopment Project would be complete and operational in 2025. Therefore, the Future (2026) NAA would include the additional 7,300 cargo operations disclosed in the 19th Street Cargo EA Proposed Action. There would be no changes to the use of the existing gates at DFW. Therefore, overall operational levels would grow at a natural growth rate to over 810,000 operations.

7.2.1 Future (2026) No Action Alternative Aircraft Activity Levels and Fleet Mix

The 810,157 annual operations translate to 2,220 AAD operations and were modeled for the Future (2026) NAA noise analysis. **Table 16** provides representative aircraft and engine combinations[14] and the number of average daily operations that were modeled in AEDT for the Future (2026) NAA. The Future (2026) NAA fleet mix includes changes in the Air Carrier fleet mix (the retirement of the older DC1010 and DC1030 aircraft) and a reduction in Air Taxi fleet operations (reduction in 50 seat and smaller regional jets) compared to the existing conditions. The Future (2026) NAA AAD includes 2,220 total operations, 9.0 percent of which occurred during the DNL nighttime hours of 10:00 p.m. to 6:59 a.m.

[14] The future fleet mix was developed from the DFW NOMS information used for the Existing Conditions and a review of known aircraft fleet retirements.

Table 16. DFW Modeled AAD Aircraft Operations for No Action Alternative (2026)

Source: FAA TAF, Centurion Planning and Design, HMMH, 2023

Tower Category	Propulsion	ANP Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Carrier	Jet	737700	66	2	69	60	9	69	138
		737800	205	13	218	207	11	218	435
		7378MAX	49	3	52	49	3	52	104
		747400	7	<1	8	7	<1	8	16
		747400RN	<1	<1	<1	<1	<1	<1	<1
		7478	1	<1	2	2	<1	2	4
		757PW	<1	2	3	<1	2	3	5
		757RR	<1	3	4	<1	3	4	7
		7673ER	9	4	13	8	5	13	26
		777200	6	4	10	9	1	10	20
		777300	10	2	12	9	3	12	24
		7773ER	5	<1	5	4	<1	5	11
		7878R	4	<1	5	4	<1	5	9
		7879	15	2	17	17	<1	17	35
		A300-622R	2	2	5	1	3	5	9
		A319-131	91	3	94	90	4	94	188
		A320-211	16	3	18	15	3	18	37
		A320-232	35	7	42	35	7	42	83
		A320-271N	42	7	50	43	6	50	99
		A321-232	206	24	229	209	20	229	459
		A350-941	1	0	1	1	<1	1	2
		A380-841	1	0	1	1	0	1	2
		MD11GE	<1	<1	<1	<1	<1	<1	2
		MD11PW	<1	<1	1	<1	<1	1	3
	Regional Jet	CRJ9-ER	97	3	100	94	6	100	201
		EMB170	88	3	91	84	8	91	183
		EMB175	9	<1	10	9	<1	10	20
		EMB190	2	0	2	2	0	2	4
	Subtotal		**970**	**92**	**1,063**	**964**	**99**	**1,063**	**2,125**
Air Taxi	Jet	CNA680	<1	<1	<1	<1	<1	<1	1
		EMB14L	34	1	35	30	5	35	69
	Non-jet	1900D	<1	<1	<1	<1	<1	<1	1
		CNA208	1	<1	2	1	<1	2	3
		DHC6	<1	<1	<1	<1	<1	<1	2
	Subtotal		**37**	**2**	**38**	**32**	**6**	**38**	**76**
General Aviation	Jet	CL600	<1	<1	<1	<1	<1	<1	<1
		CNA525C	<1	<1	<1	<1	<1	<1	<1
		CNA55B	<1	<1	<1	<1	<1	<1	<1
		CNA560XL	<1	<1	<1	<1	<1	<1	<1
		G650ER	<1	0	<1	<1	0	<1	<1
		GIV	<1	<1	<1	<1	<1	<1	<1
		GV	<1	0	<1	<1	<1	<1	<1
		LEAR35	<1	<1	<1	<1	<1	<1	<1
	Non-jet	CNA208	6	<1	7	6	<1	7	13
	Subtotal		**8**	**<1**	**9**	**9**	**<1**	**9**	**18**
Grand Total			**1,015**	**94**	**1,110**	**1,005**	**105**	**1,110**	**2,220**

Note: Totals may not match exactly due to rounding.
*ANP Type 737800 represents both B738 and B739 operations, which account for 97 percent and 3 percent, respectively.

7.2.2 Future (2026) No Action Alternative Runway Utilization

Runway end utilization for all of the future alternatives is similar to existing conditions (see **Table 7**). Runway use data from the FAA System Wide Information Management (SWIM) system data was used to develop the future runway use percentages. The runway percentage use 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.

Compared to the existing runway use:

- Daytime south flow – There are slightly less arrivals (1 percent to 3 percent) to Runway 13R and 17C and slightly more arrivals (1 percent to 3 percent) on Runway 17L and 18R.
- Nighttime south flow – there are less arrivals (7 percent) to Runway 17C and more arrivals (3 percent to 5 percent) on Runway 17R and 18L.
- Daytime north flow – There are slightly less arrivals (3 percent) to Runway 35C and slightly more arrivals (1 percent to 3 percent) on Runway 35R and 36L.
- Nighttime north flow – There are slightly less arrivals (3 percent) to Runway 35C and slightly more arrivals (1 percent to 2 percent) on Runway 35L and 36R.
- South flow departures show very little difference (within 1 percent) except for a small reduction (2 percent) on Runway 17R at night.
- North flow departures show very little difference (within 1 percent).

Table 17 provides the breakdown by time of day for arrivals and departures.

Table 17. DFW Runway Utilization Summary - 2026

Source: FAA SWIM, Centurion Planning and Design, 2023

Runway ID	Arrival Percent			Departure Percent		
	Day	Night	Total	Day	Night	Total
13L	0%	0%	0%	0%	0%	0%
13R	3%	<1%	3%	0%	0%	0%
17C	24%	25%	24%	<1%	2%	<1%
17L	13%	<1%	12%	0%	0%	0%
17R	<1%	12%	1%	39%	30%	38%
18L	<1%	7%	<1%	31%	31%	31%
18R	29%	25%	29%	<1%	6%	<1%
31L	0%	0%	0%	<1%	<1%	<1%
31R	1%	<1%	1%	0%	0%	0%
35C	8%	11%	8%	<1%	2%	<1%
35L	<1%	4%	<1%	15%	13%	15%
35R	8%	<1%	7%	0%	0%	0%
36L	13%	11%	13%	<1%	2%	<1%
36R	<1%	3%	<1%	14%	14%	14%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

7.2.3 Future (2026) No Action Alternative Flight Tracks

Flight track locations and percent utilization for the Future (2026) NAA would be expected to be the same as the existing conditions (see **Section 6.4**).

7.2.4 Future (2026) No Action Alternative Aircraft Stage Length and Operational Profiles

The trip lengths flown from DFW for the Future (2026) NAA is similar to existing conditions except for the removal of the DC1010 and DC1030 aircraft.

Table 18. Future (2026) NAA Modeled Departure Stage Length Usage by Aircraft Type

Source: DFW NOMS, HMMH, 2023

AEDT ANP Type	Stage Length										Total
	1	2	3	4	5	6	7	8	9	M	
1900D	99%	<1%	0%	0%	0%	0%	0%	0%	0%	0%	100%
737700	2%	39%	60%	0%	<1%	<1%	0%	0%	0%	0%	100%
737800	19%	40%	39%	2%	<1%	0%	0%	0%	0%	0%	100%
7378MAX	25%	31%	43%	<1%	0%	0%	0%	0%	0%	0%	100%
747400	4%	32%	31%	<1%	22%	9%	0%	3%	0%	0%	100%
747400RN	<1%	<1%	2%	0%	10%	84%	0%	3%	0%	0%	100%
7478	4%	58%	15%	0%	22%	1%	0%	<1%	0%	0%	100%
757PW	43%	47%	9%	0%	<1%	0%	0%	0%	0%	0%	100%
757RR	42%	49%	9%	0%	<1%	0%	0%	0%	0%	0%	100%
7673ER	25%	40%	36%	0%	<1%	0%	0%	0%	0%	0%	100%
777200	2%	21%	7%	10%	22%	23%	11%	4%	0%	0%	100%
777300	2%	14%	<1%	0%	34%	24%	26%	0%	0%	0%	100%
7773ER	1%	8%	2%	<1%	3%	76%	<1%	5%	3%	0%	100%
7878R	<1%	33%	10%	<1%	1%	25%	2%	28%	0%	0%	100%
7879	<1%	9%	9%	<1%	24%	26%	3%	24%	0%	4%	100%
A300-622R	35%	47%	18%	0%	<1%	0%	0%	0%	0%	0%	100%
A319-131	29%	51%	19%	<1%	<1%	0%	0%	0%	0%	0%	100%
A320-211	20%	50%	30%	<1%	<1%	0%	0%	0%	0%	0%	100%
A320-232	20%	51%	30%	<1%	<1%	0%	0%	0%	0%	0%	100%
A320-271N	5%	72%	22%	0%	0%	0%	0%	0%	0%	0%	100%
A321-232	11%	58%	30%	<1%	<1%	0%	0%	0%	0%	0%	100%
A350-941	<1%	0%	<1%	0%	75%	<1%	24%	0%	0%	0%	100%
A380-841	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%
CL600	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA208	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA525C	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA55B	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA560XL	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA680	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CRJ9-ER	52%	46%	2%	<1%	<1%	0%	0%	0%	0%	0%	100%
DHC6	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
EMB14L	92%	8%	<1%	0%	<1%	0%	0%	0%	0%	0%	100%
EMB170	1%	39%	60%	0%	0%	0%	0%	0%	0%	0%	100%

AEDT ANP Type	Stage Length										Total
	1	2	3	4	5	6	7	8	9	M	
EMB175	41%	46%	12%	0%	0%	0%	0%	0%	0%	0%	**100%**
EMB190	0%	86%	14%	0%	0%	0%	0%	0%	0%	0%	**100%**
G650ER	31%	31%	34%	0%	0%	3%	0%	0%	0%	0%	**100%**
GIV	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
GV	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
LEAR35	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	**100%**
MD11GE	34%	60%	5%	0%	0%	0%	0%	0%	0%	0%	**100%**
MD11PW	8%	84%	9%	0%	0%	0%	0%	0%	0%	0%	**100%**
Note: Totals may not match exactly due to rounding.											

7.2.5 Future (2026) No Action Alternative Noise Exposure Contours

Noise exposure contours were modeled in AEDT based on the FY year data; however, for reporting, CY data is required. The CY operations were developed by adding 3/4 of FY 2026 operations to 1/4 of FY 2027 operations.[15]

Table 19. Fiscal Year to Calendar Year Adjustment - 2026

Source: FAA 2021 TAF, Centurion Planning and Design Analysis, HMMH, 2023

Year	FY2026	CY2026	Adjustment
2026	810,157	810,645	1.000602

To determine the estimated changes in noise exposure, that could be attributed to the difference between calendar year and fiscal year level of activity, the AEM, a noise screening tool, was used to determine if further analysis is needed. The CY 2026 operational fleet mix was added to the AEM which based on forecasted operations can indicate whether the adjustment to CY 2026 would result in a noise change. The CY operations for 2026 were slightly higher than the FY; therefore, the noise screening results are slightly higher than modeled. **Table 20** shows the analysis results of the areas of noise exposure with each noise contour level for FY and CY data. The analysis shows that the adjustment to CY would increase the areas for the 65 DNL, 70 DNL, and 75 DNL by less than 0.1 percent. Therefore, no further analysis is needed due to the adjustment to CY 2026. The AEM does not separate arrival and departure operations or runway use; therefore, the areas of noise exposure are determined by the AEDT model. AEM screening analysis reports can be found in **Appendix D**.

[15] CY 2026 = (FY2026 ops / 12) *9 + (FY2027 ops / 12) *3

Table 20. Fiscal Year to Calendar Year AEM Screening Analysis - 2026

Source: HMMH, 2023

Contour Range	FY2026 (sq mi)	CY2026 (sq mi)	Percent Change in Area
DNL 65-70 dB	7.27	7.28	0.0%
DNL 70-75 dB	3.07	3.07	0.0%
DNL 75+ dB	1.30	1.30	0.0%

Table 21 provides estimates of the total area split between on and off airport areas exposed to aircraft noise of at least 65 DNL for the NAA. Approximately 12.17 square miles of land fall within the Future (2026) NAA 65 DNL or higher noise exposure area. Of the total land area, approximately 0.54 square miles exposed to 65 DNL or higher is located off-DFW (the remaining 11.63 square miles are located on DFW property). **Table 21** summarizes the areas of noise exposure within each noise contour level (65 DNL, 70 DNL, and 75 DNL noise contours) for the Future (2026) NAA. **Figure 9** shows the annual noise exposure pattern at DFW for the NAA. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL.

Similar to the existing conditions, 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 9 provides the resultant DNL contours for the Future (2026) NAA. In the Future (2026) NAA, the 65 DNL contours extend away from DFW on the north side in two main lobes along the extended centerline of the outboard parallel runway extending off DFW property to north of Bethel Road, and on the south side in two main lobes along the extended centerline of the outboard parallel runway but remaining on DFW property. The 65 DNL does extend off airport property north of Runway 17L and south of Runway 35R over compatible land use. The 70 DNL contour barely extends off DFW property north of Runways 18R and 17C to across SH 114. There is no noise-sensitive land use within the Future (2026) NAA 65 DNL or greater contours.

Table 21. Estimated Land Area within NAA (2026) Noise Exposure Contour

Source: HMMH, 2023

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	7.10	0.49	7.59
DNL 70-75 dB	2.19	0.05	2.24
DNL 75+ dB	2.34	0.00	2.34
Total	**11.63**	**0.54**	**12.17**

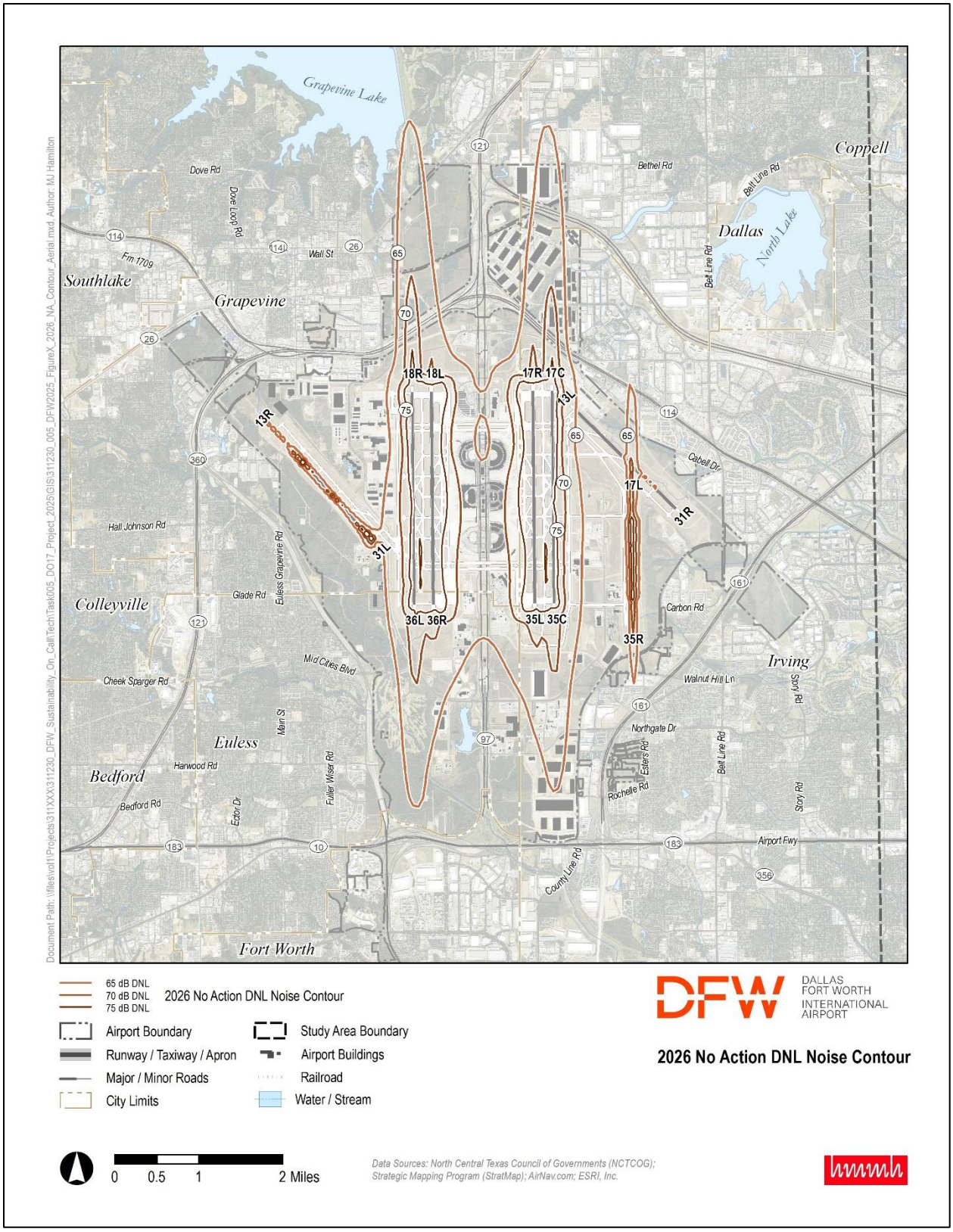

Figure 9. No Action Alternative (2026) Noise Exposure Contour

7.2.6 Future (2026) No Action Alternative Noise Compatible Land Use

There are no public schools, churches, nursing homes, hospitals, or libraries within the DNL 65 or greater contours. Furthermore, there are no single family, multi-family, or manufactured housing within the DNL 65 or greater Future (2026) NAA noise contours as shown in **Figure 10**. **Table 22** summarizes the residential population and housing units affected by noise levels exceeding 65 DNL for the Future (2026) NAA noise exposure contours.

Table 22. Non-Compatible Land Use Housing and Population – Future NAA (2026)

Source: HMMH, 2023

Category	Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	DNL 65+ dB
Housing	Single-Family Residential	0	0	0	0
	Multi-Family Residential	0	0	0	0
	Manufactured Housing	0	0	0	0
	Total Housing Units	**0**	**0**	**0**	**0**
Population	Single-Family Residential	0	0	0	0
	Multi-Family Residential	0	0	0	0
	Manufactured Housing	0	0	0	0
	Total Population	**0**	**0**	**0**	**0**
Notes: Population numbers are estimates based on the 2020 U.S. Census block data.					

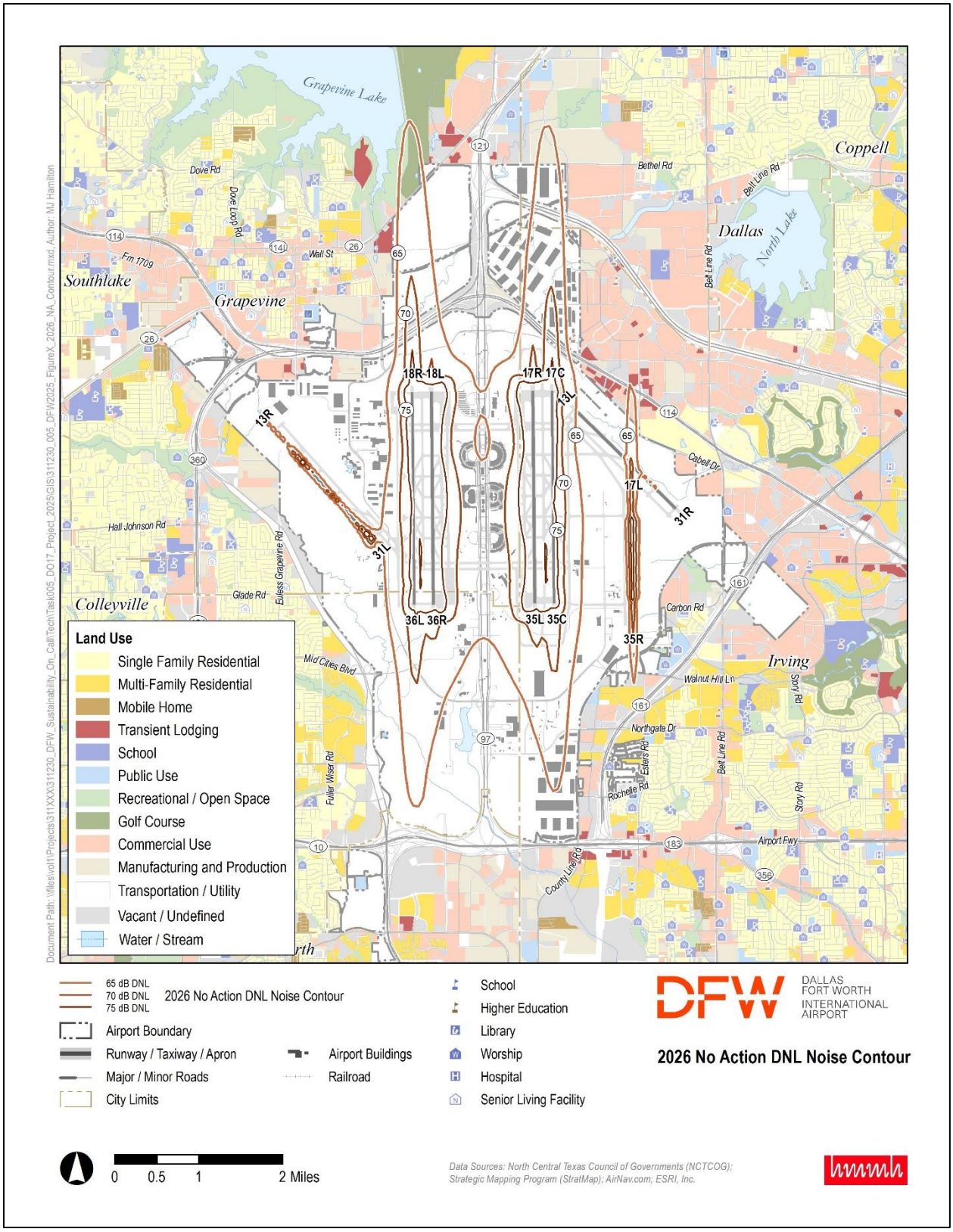

Figure 10. No Action Alternative (2026) Noise Exposure Contour with Land Use

7.3 Future (2026) Proposed Action Alternative

The 19th Street Cargo Redevelopment Project would be complete and operational in 2025. Therefore, the Future (2026) Proposed Action Alternative would include the additional cargo operations disclosed in the 19th Street Cargo EA Proposed Action.

Under the Proposed Action Alternative, the proposed project would add 31 new gates, nine gates would be provided through the construction of the Terminal A and C Piers project, and the remaining 22 gates are planned to be provided through the construction of Terminal F. The new gates in Terminal F are expected to be available for operation in 2026; therefore, 2026 is included in the EA implementation year. However, the operational demand is not forecasted to fully exist until later (estimated 2028). Beginning in 2026, the new gates would be used to (1) to offset existing operations from Terminal C during the phased renovation project and (2) accommodate new operations over time. Therefore, there would be 816,119 forecast annual operations for the Future (2026) Proposed Action Alternative. In summary, Terminal F gates would come online in 2026 and the new Terminal A and C gates would come online in 2027 and 2028.

7.3.1 Future (2026) Proposed Action Alternative Aircraft Activity Levels and Fleet Mix

The 816,119 annual operations translate to 2,236 AAD operations to be modeled for the Future (2026) Proposed Action Alternative noise analysis. **Table 23** provides representative aircraft and engine combinations and the number of average daily operations that were modeled in AEDT for the Future (2026) Proposed Action Alternative. The Future (2026) Proposed Action fleet mix includes the additional operations in the Air Carrier and Air Taxi categories (an additional 16 operations in Air Carrier and one operation in Air Taxi) compared to the Future (2026) NAA. With the additional gates, the Future (2026) Proposed Action has less night operations than the Future (2026) No Action. The Future (2026) Proposed Action AAD includes 2,236 total operations, 8.6 percent of which would occur during the DNL nighttime hours of 10:00 p.m. to 6:59 a.m.

Table 23. DFW Modeled AAD Aircraft Operations for Proposed Action Alternative (2026)

Source: FAA TAF, HMMH, 2023

Tower Category	Propulsion	ANP Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Carrier	**Jet**	737700	66	3	69	61	9	70	139
		737800	205	13	218	207	11	218	436
		7378MAX	49	4	53	49	4	53	106
		747400	7	<1	8	7	<1	8	16
		747400RN	<1	<1	<1	<1	<1	<1	<1
		7478	1	<1	2	2	<1	2	5
		757PW	<1	2	3	<1	2	3	5
		757RR	<1	3	4	<1	3	4	7
		7673ER	10	4	14	8	5	14	27
		777200	7	4	11	10	<1	10	21
		777300	10	2	12	9	2	12	24
		7773ER	5	<1	6	5	<1	6	11
		7878R	4	<1	5	5	<1	5	9
		7879	16	3	18	18	<1	18	36
		A300-622R	2	2	5	1	3	5	9

Tower Category	Propulsion	ANP Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
		A319-131	91	3	94	90	4	94	188
		A320-211	16	3	19	15	3	18	37
		A320-232	35	7	42	35	7	42	83
		A320-271N	45	5	50	46	4	50	100
		A321-232	207	24	230	210	20	230	461
		A350-941	1	0	1	1	<1	1	3
		A380-841	1	0	1	1	0	1	2
		MD11GE	<1	<1	<1	<1	<1	<1	2
		MD11PW	<1	<1	1	<1	<1	1	3
	Regional Jet	CRJ9-ER	97	4	101	95	6	101	202
		EMB170	89	3	92	84	8	92	184
		EMB175	9	<1	10	10	<1	10	21
		EMB190	2	<1	2	2	<1	2	4
	Subtotal		**979**	**92**	**1,071**	**973**	**97**	**1,071**	**2,141**
Air Taxi	**Jet**	CNA680	<1	<1	<1	<1	<1	<1	1
		EMB14L	34	<1	35	33	1	35	69
	Non-jet	1900D	<1	<1	<1	<1	<1	<1	1
		CNA208	1	<1	2	2	<1	2	4
		DHC6	<1	<1	<1	<1	<1	<1	2
	Subtotal		**37**	**1**	**39**	**36**	**2**	**38**	**77**
General Aviation	**Jet**	CL600	<1	<1	<1	<1	<1	<1	<1
		CNA525C	<1	<1	<1	<1	<1	<1	<1
		CNA55B	<1	<1	<1	<1	<1	<1	<1
		CNA560XL	<1	<1	<1	<1	<1	<1	<1
		G650ER	<1	0	<1	<1	0	<1	<1
		GIV	<1	<1	<1	<1	<1	<1	<1
		GV	<1	0	<1	<1	<1	<1	<1
		LEAR35	<1	<1	<1	<1	<1	<1	<1
	Non-jet	CNA208	6	<1	7	6	<1	7	13
	Subtotal		**8**	**<1**	**9**	**9**	**<1**	**9**	**18**
Grand Total			**1,025**	**93**	**1,118**	**1,018**	**100**	**1,118**	**2,236**

Note: Totals may not match exactly due to rounding.
*ANP Type 737800 represents both B738 and B739 operations, which account for 97 percent and 3 percent, respectively.

7.3.2 Future (2026) Proposed Action Alternative Runway Utilization

The proposed action would not alter the location or length of the runways nor would it alter future runway use. Runway end utilization for the Future (2026) Proposed Action Alternative is expected to be the same as the Future (2026) NAA (see **Table 17**).

7.3.3 Future (2026) Proposed Action Alternative Flight Tracks

The proposed action would not alter future flight tracks or flight track use. Flight track locations and percent utilization for the Future (2026) Proposed Action Alternative would be expected to be the same as the existing conditions (see **Section 6.4**).

7.3.4 Future (2026) Proposed Action Alternative Aircraft Stage Length and Operational Profiles

The trip lengths flown from DFW for the Future (2026) Proposed Action Alternative are expected to be the same as the Future (2026) NAA (see **Section 7.2.4**).

7.3.5 Future (2026) Proposed Action Alternative Noise Exposure Contours

Noise exposure contours were modeled in AEDT based on the FY year data; however, for reporting, CY data is required. The CY operations were developed by adding 3/4 of FY 2026 operations to 1/4 of FY 2027 operations.[16]

Table 24. Fiscal Year to Calendar Year Adjustment - 2026

Source: FAA 2021 TAF, Centurion Planning and Design Analysis, HMMH, 2023

Year	FY2026	CY2026	Adjustment
2026	816,119	819,663	1.004343

To determine the estimated changes in noise exposure, that could be attributed to the difference between calendar year and fiscal year level of activity, the AEM, a noise screening tool, was used to determine if further analysis is needed. The CY 2026 operational fleet mix was added to the AEM which based on forecasted operations can indicate whether the adjustment to CY 2026 would result in a noise change. The CY operations for 2026 were slightly higher than the FY; therefore, the noise screening results are slightly higher than modeled. **Table 25** shows the analysis results of the areas of noise exposure with each noise contour level for FY and CY data. The analysis shows that the adjustment to CY would increase the areas for the 65 DNL, 70 DNL, and 75 DNL by 0.3 percent. Therefore, no further analysis is needed due to the adjustment to CY 2026. The AEM does not separate arrival and departure operations or runway use; therefore, the areas of noise exposure are determined by the AEDT model. Further details on the AEM screening analysis reports can be found in **Appendix D**.

Table 25. Fiscal Year to Calendar Year AEM Screening Analysis - 2026

Source: HMMH, 2023

Contour Range	FY2026 (sq mi)	CY2026 (sq mi)	Percent Change in Area
DNL 65-70 dB	7.28	7.31	0.3%
DNL 70-75 dB	3.07	3.08	0.3%
DNL 75+ dB	1.30	1.31	0.3%

Table 26 provides estimates of the total area split between on and off airport areas exposed to aircraft noise of at least 65 DNL for the Future (2026) Proposed Action Alternative. Approximately 12.15 square miles of land fall within the Future (2026) Proposed Action Alternative 65 DNL or higher noise exposure area. Of the total land area, approximately 0.55 square miles exposed to 65 DNL or higher is located off-Airport (the remaining 11.61 square miles are located on DFW property). **Table 26** summarizes the areas of noise exposure within each noise contour level (65 DNL, 70 DNL, and 75 DNL noise contours) for the

[16] CY 2026 = (FY2026 ops / 12) *9 + (FY2027 ops / 12) *3

Future (2026) Proposed Action Alternative. **Figure 11** shows the annual noise exposure pattern at DFW for the Proposed Action Alternative. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL.

Table 26. Estimated Land Area within the Proposed Action Alternative (2026) Noise Exposure Contours

Source: HMMH, 2023

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	7.09	0.50	7.58
DNL 70-75 dB	2.18	0.05	2.23
DNL 75+ dB	2.34	0.00	2.34
Total	**11.61**	**0.55**	**12.15**

Similar to the Future (2026) NAA, 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 11 provides the resultant DNL contours for the Proposed Action Alternative. In the Future (2026) Proposed Action Alternative, the DNL contours would extend away from DFW on the north side in two main lobes along the extended centerline of the outboard parallel runways, extending off airport property to north of Bethel Road. On the south side, the contour would extend in two main lobes along the extended centerline of the outboard parallel runways but remains on airport property. The 65 DNL also would extend off airport property north of Runway 17L and south of Runway 35R over compatible land use. The 70 DNL contour would barely extend off DFW property north of Runways 18R and 17C to across SH 114. There would be no noise-sensitive land use within the Future (2026) Proposed Action Alternative 65 DNL or greater contours.

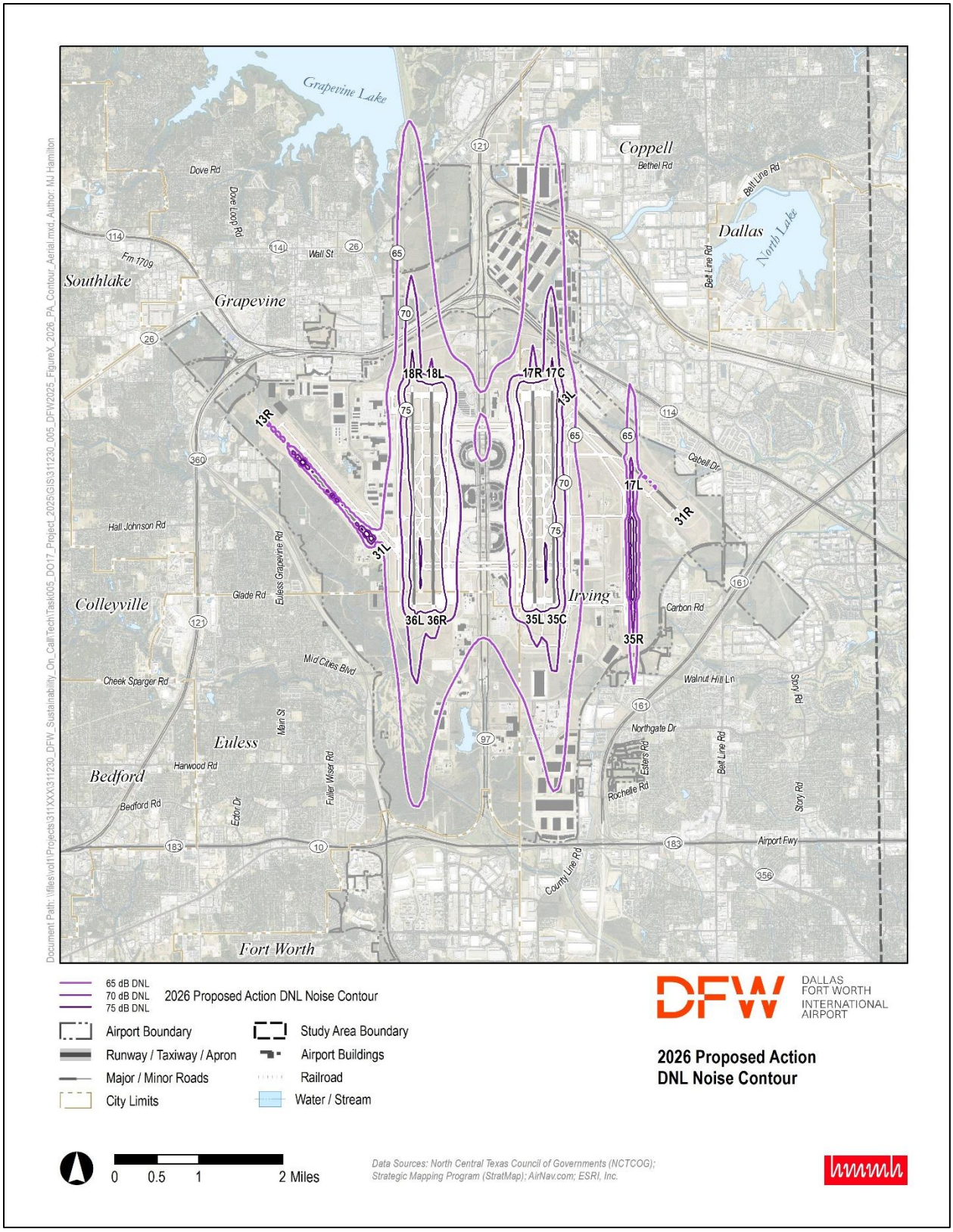

Figure 11. Proposed Action Alternative (2026) Noise Exposure Contours

7.3.6 Future (2026) Proposed Action Alternative Noise Compatible Land Use

There would be no public schools, churches, nursing homes, hospitals, or libraries within the DNL 65 or greater contours. Furthermore, there are no single family, or manufactured housing within the DNL 65 or greater Future (2026) Proposed Action Alternative noise contours. **Table 27** summarizes the residential population and housing units affected by noise levels exceeding 65 DNL for the Future (2026) Proposed Action Alternative noise exposure contours.

Table 27. Non-Compatible Land Use Housing and Population – Future (2026) Proposed Action Alternative

Source: HMMH, 2023

Category	Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	DNL 65+ dB
Housing	Single-Family Residential	0	0	0	0
	Multi-Family Residential	0	0	0	0
	Manufactured Housing	0	0	0	0
	Total Housing Units	**0**	**0**	**0**	**0**
Population	Single-Family Residential	0	0	0	0
	Multi-Family Residential	0	0	0	0
	Manufactured Housing	0	0	0	0
	Total Population	**0**	**0**	**0**	**0**
Notes: Population numbers are estimates based on the 2020 U.S. Census block data.					

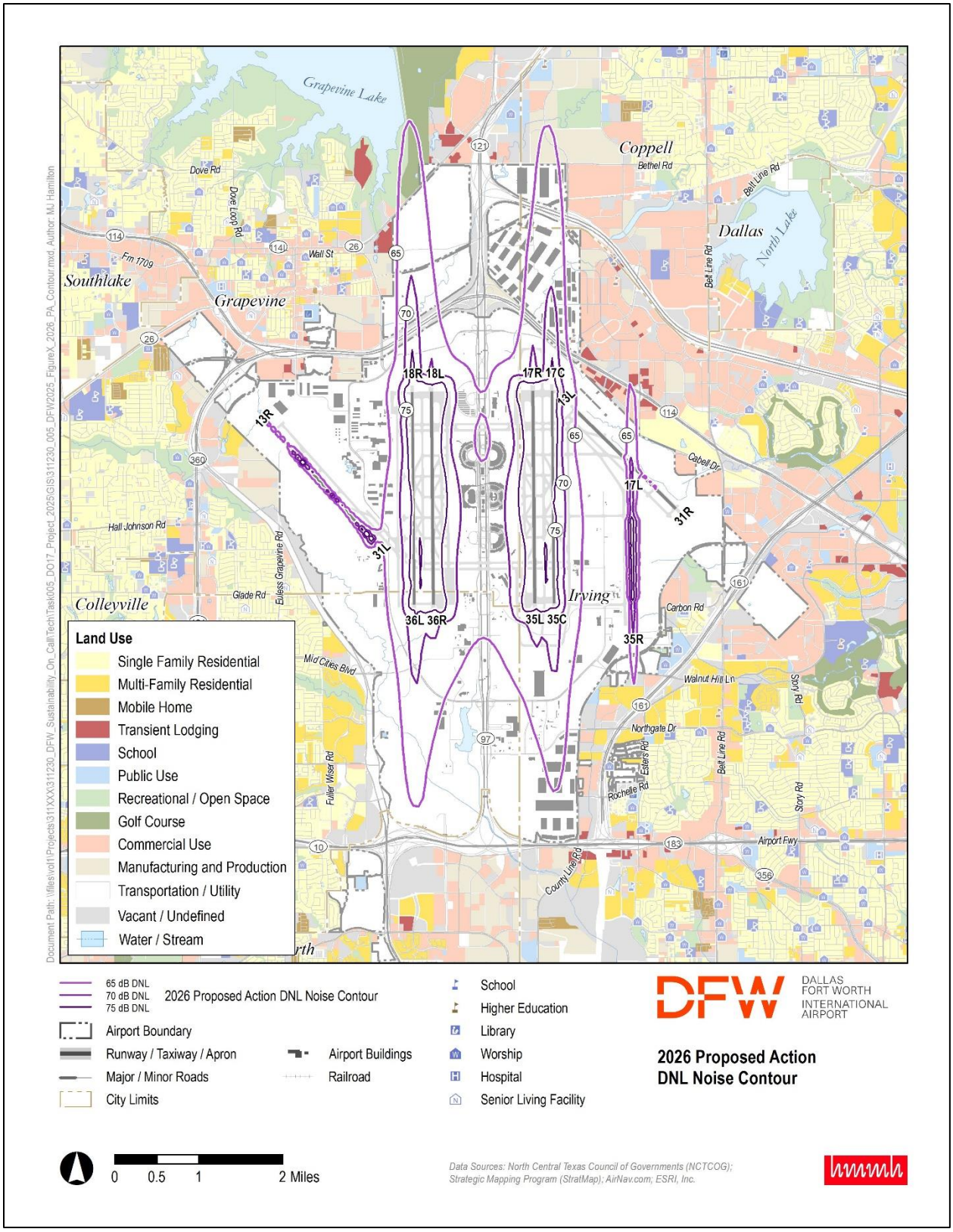

Figure 12. Proposed Action Alternative (2026) Noise Exposure Contours with Land Use

7.4 Comparison Between the 2026 NAA and Proposed Action Alternative

Table 28 provides estimates of the total area split between on and off airport areas that could be exposed to aircraft noise of at least 65 DNL for the 2026 NAA and Proposed Action Alternatives.

Table 28. Estimated Land Area within Future (2026) Noise Exposure Contour Alternatives

Source: HMMH, 2023

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	7.10	0.49	7.59
	DNL 70-75 dB	2.19	0.05	2.24
	DNL 75+ dB	2.34	0.00	2.34
	Total	**11.63**	**0.54**	**12.17**
Proposed Action	DNL 65-70 dB	7.09	0.50	7.58
	DNL 70-75 dB	2.18	0.05	2.23
	DNL 75+ dB	2.34	0.00	2.34
	Total	**11.61**	**0.55**	**12.15**
Difference (Proposed Action – NAA)	DNL 65-70 dB	-0.01	0.01	-0.01
	DNL 70-75 dB	-0.01	0.00	-0.01
	DNL 75+ dB	0.00	0.00	0.00
	Total	**-0.02**	**0.01**	**-0.02**

The noise exposure analysis results showed a slight decrease in the estimated on-airport land area and a slight increase in the estimated off-airport land area, for an overall slight decrease in area between the No Action and Proposed Action. This minor reduction in the Proposed Action DNL contours is due to additional flights occurring during the night period (operations a night reflect a 10 dB weighting) in the No Action due to limitations in gates whereas the Proposed Action has additional gates to accommodate additional daytime flights. The noise analysis results showed that the Future (2026) Proposed Action would not increase the estimated land area within the DNL 65+ dB noise exposure contour as compared to the Future (2026) NAA. **Figure 13** shows the comparison between the Future 2026 NAA and Proposed Action Alternative. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL.

Table 29 provides a comparison of the residential population and housing units that could be affected by noise levels exceeding DNL 65 dB for the Future (2026) NAA and Proposed Action Alternative Noise Exposure Contours. Since the DNL contours are primarily on airport property and do not extend into any areas of noncompatible land use, there are zero people within the DNL 65 dB contour. There are no public schools, churches, nursing homes, hospitals, or libraries within the 65 DNL or greater contours. Furthermore, there are no single-family, multi-family, or manufactured housing within the 65 DNL or greater contours.

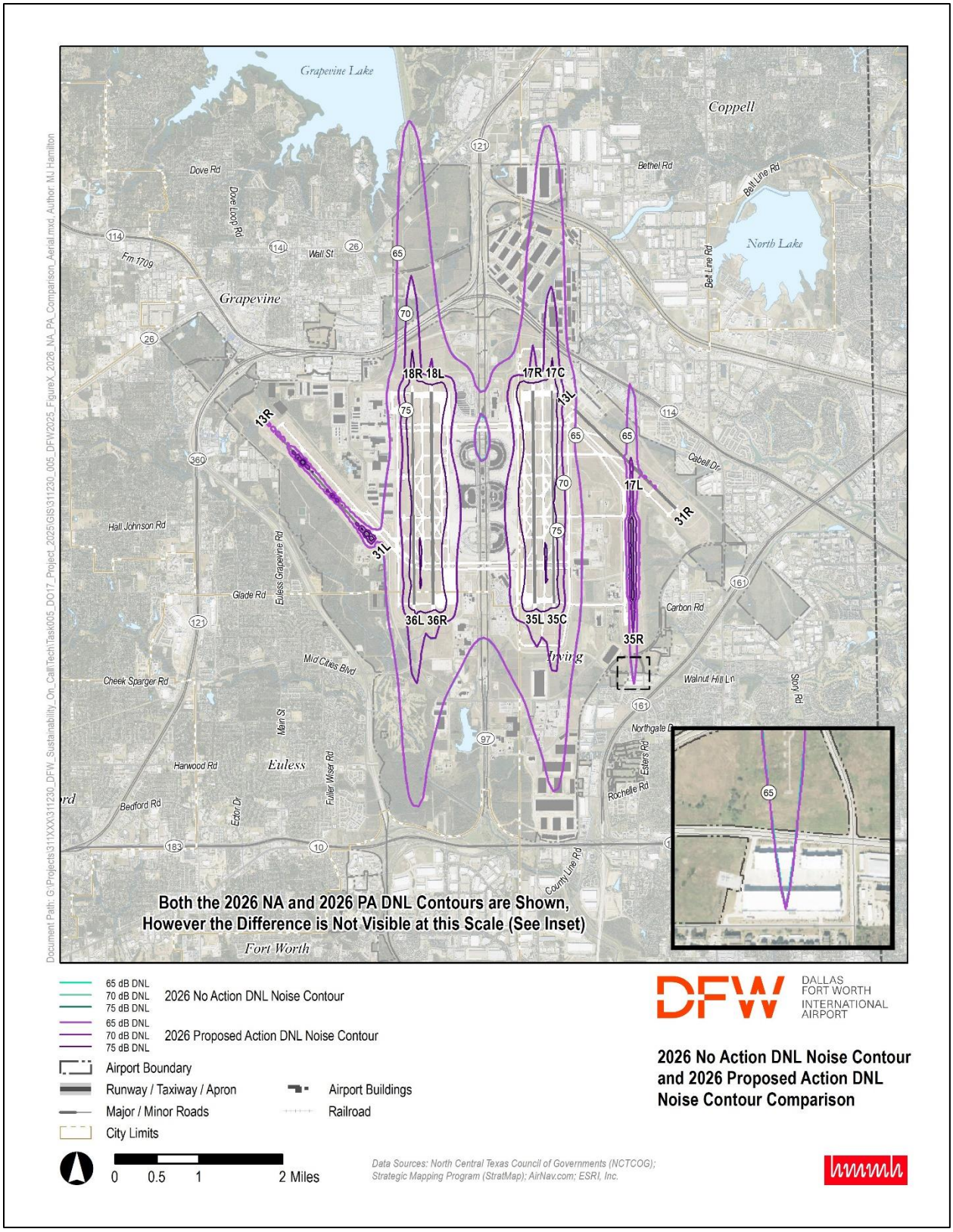

Figure 13. NAA and Proposed Action Alternative (2026) Noise Exposure Contours

Table 29. Non-Compatible Land Use Housing and Population – Proposed Action Alternative (2026)

Source: HMMH, 2023

Alternative	Category	Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	DNL 65+ dB
No Action	Housing	Single-Family Residential	0	0	0	0
		Multi-Family Residential	0	0	0	0
		Manufactured Housing	0	0	0	0
		Total Housing Units	0	0	0	0
Proposed Action		Single-Family Residential	0	0	0	0
		Multi-Family Residential	0	0	0	0
		Manufactured Housing	0	0	0	0
		Total Housing Units	0	0	0	0
Difference (Proposed Action – NAA)		**Single-Family Residential**	**0**	**0**	**0**	**0**
		Multi-Family Residential	**0**	**0**	**0**	**0**
		Manufactured Housing	**0**	**0**	**0**	**0**
		Total Housing Units	**0**	**0**	**0**	**0**
No Action	Population	Single-Family Residential	0	0	0	0
		Multi-Family Residential	0	0	0	0
		Manufactured Housing	0	0	0	0
		Total Population	0	0	0	0
Proposed Action		Single-Family Residential	0	0	0	0
		Multi-Family Residential	0	0	0	0
		Manufactured Housing	0	0	0	0
		Total Population	0	0	0	0
Difference (Proposed Action – NAA)		**Single-Family Residential**	**0**	**0**	**0**	**0**
		Multi-Family Residential	**0**	**0**	**0**	**0**
		Manufactured Housing	**0**	**0**	**0**	**0**
		Total Population	**0**	**0**	**0**	**0**

Notes: Population numbers are estimates based on the 2020 U.S. Census block data.

7.5 Future (2026) Proposed Action Alternative Grid Point Evaluation

HMMH evaluated the change in noise using the modeling grid as described in **Section 5.3**. The noise study area grid was used to determine if any significant changes (+/- 1.5 dB) within the 65 DNL or any reportable changes (+/- 3 dB) between 60 DNL and 65 DNL, or any reportable changes (+/- 5 dB) within the 45 DNL to 60 DNL contour exist. The evaluation shows that no significant impact areas and no areas of reportable changes would result due to the Future (2026) Proposed Action Alternative.

Figure 14 displays the area south of Runway 35R where the Future (2026) Proposed Action Alternative 65 DNL contour extends to the closest residential land use.

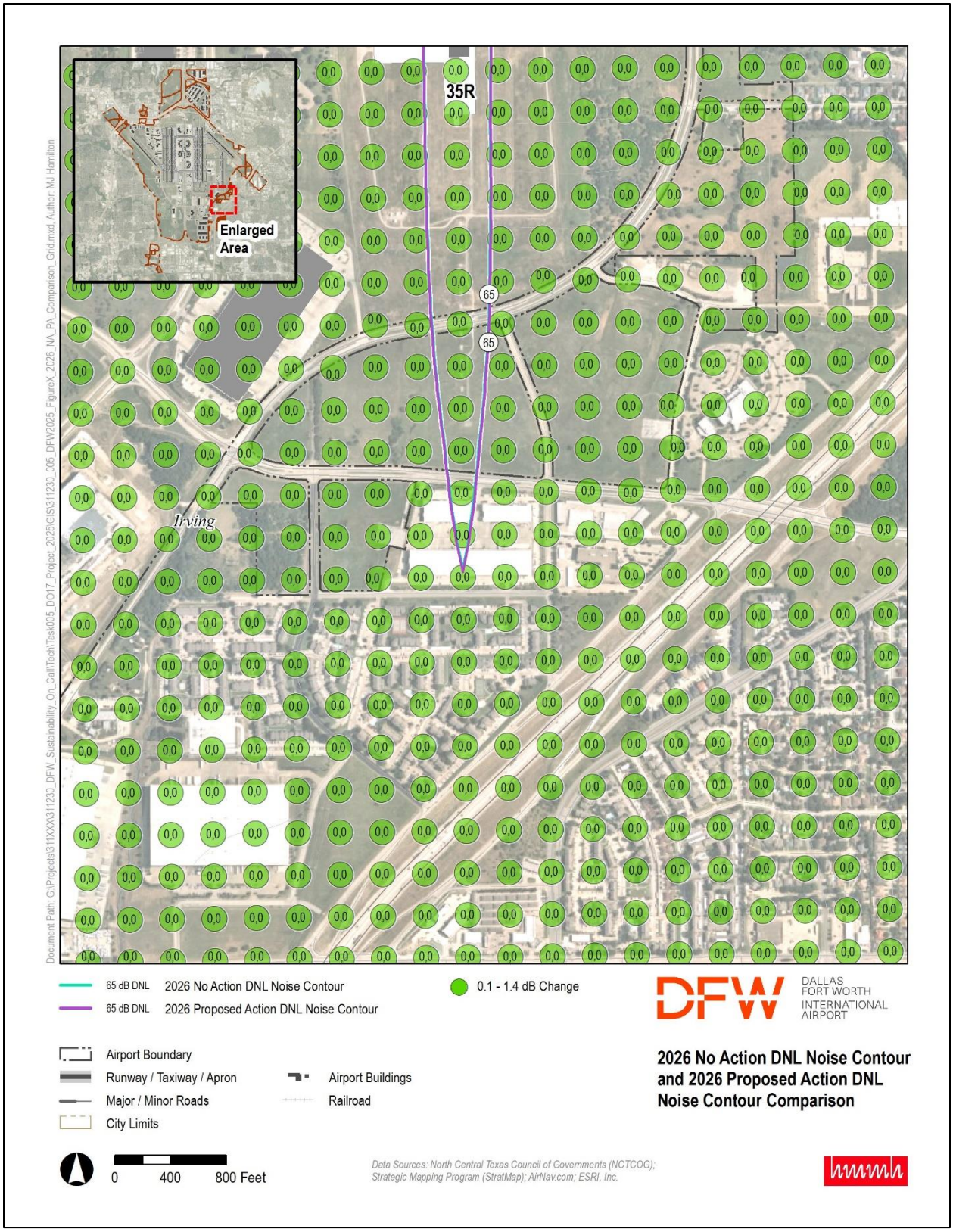

Figure 14. 2026 Proposed Action DNL Change Over Residential Areas – South of Runway 35R

7.6 Future (2031) No Action Alternative

The Future (2031) NAA would include the additional cargo operations disclosed in the 19th Street Cargo EA Proposed Action. Under the Future (2031) NAA, there would be no changes to the use of existing 170 gates at DFW, passenger operations would be constrained due to lack of sufficient facilities and overall operational levels would grow at a minimal growth rate to over 820,000 operations.

7.6.1 Future (2031) No Action Alternative Aircraft Activity Levels and Fleet Mix

The 820,035 annual operations predicted for year 2031 translate to 2,247 AAD operations to be modeled for the Future (2031) NAA noise analysis. **Table 30** provides representative aircraft and engine combinations and the number of average daily operations that were modeled in AEDT for the Future (2031) NAA. The Future (2031) NAA fleet mix would include changes in the Air Carrier fleet mix (the retirement of the older DC1010, DC1030, MD11GE, and MD11PW) and a reduction in Air Taxi fleet operations (reduction in 50 seat and smaller regional jets) compared to the existing conditions. The Future (2031) NAA AAD would include 2,247 total operations, 8.4 percent of which occurred during the DNL nighttime hours of 10:00 p.m. to 6:59 a.m.

Table 30. DFW Modeled AAD Aircraft Operations for NAA (2031)

Source: FAA TAF, HMMH, 2023

Tower Category	Propulsion	ANP Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Carrier	**Jet**	737700	73	3	76	66	9	76	152
		737800	228	14	242	229	12	242	483
		7378MAX	49	3	52	49	3	52	105
		747400	7	<1	8	7	<1	8	16
		747400RN	<1	<1	<1	<1	<1	<1	<1
		7478	1	<1	2	2	<1	2	5
		757PW	<1	2	2	<1	2	2	4
		757RR	<1	2	3	<1	2	3	6
		7673ER	8	3	11	7	4	11	22
		777200	6	4	10	9	1	10	20
		777300	10	2	12	9	3	12	24
		7773ER	5	<1	6	5	1	6	12
		7878R	4	<1	5	5	<1	5	9
		7879	15	2	18	17	<1	18	35
		A300-622R	2	2	4	1	3	4	7
		A319-131	97	3	100	96	4	100	200
		A320-211	15	2	18	15	3	18	36
		A320-232	35	7	42	35	7	42	84
		A320-271N	40	5	45	42	4	45	91
		A321-232	214	24	239	218	21	239	477
		A350-941	1	0	1	1	<1	1	2
		A380-841	1	0	1	1	0	1	2
	Regional Jet	CRJ9-ER	86	3	89	84	5	89	179
		EMB170	81	3	84	77	7	84	167
		EMB175	8	<1	9	9	<1	9	18
		EMB190	2	0	2	2	0	2	4
	Subtotal		**992**	**89**	**1,081**	**986**	**95**	**1,081**	**2,162**

Tower Category	Propulsion	ANP Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Taxi	**Jet**	CNA680	<1	<1	<1	<1	<1	<1	1
		EMB14L	29	<1	30	26	4	30	60
	Non-jet	1900D	<1	<1	<1	<1	<1	<1	1
		CNA208	1	<1	1	1	<1	1	3
		DHC6	<1	<1	<1	<1	<1	<1	1
	Subtotal		**32**	**1**	**33**	**28**	**5**	**33**	**66**
General Aviation	**Jet**	CL600	<1	<1	<1	<1	<1	<1	<1
		CNA525C	<1	<1	<1	<1	<1	<1	<1
		CNA55B	<1	<1	<1	<1	<1	<1	<1
		CNA560XL	<1	<1	<1	<1	<1	<1	<1
		G650ER	<1	0	<1	<1	0	<1	<1
		GIV	<1	<1	<1	<1	<1	<1	<1
		GV	<1	0	<1	<1	<1	<1	<1
		LEAR35	<1	<1	<1	<1	<1	<1	<1
	Non-jet	CNA208	6	<1	7	7	<1	7	14
	Subtotal		**9**	**<1**	**9**	**9**	**<1**	**9**	**18**
Grand Total			**1,032**	**91**	**1,123**	**1,022**	**101**	**1,123**	**2,247**

Note: Totals may not match exactly due to rounding.
*ANP Type 737800 represents both B738 and B739 operations, which account for 97 percent and 3 percent, respectively.

7.6.2 Future (2031) No Action Alternative Runway Utilization

Runway end utilization for the Future (2031) NAA is same as the Future (2026) NAA (see **Table 17**).

7.6.3 Future (2031) No Action Alternative Flight Tracks

Flight track locations and percent utilization for the Future (2031) NAA would be expected to be the same as the existing conditions (see **Section 6.4**).

7.6.4 Future (2031) No Action Alternative Aircraft Stage Length and Operational Profiles

The trip lengths flown from DFW for the Future (2031) NAA would be similar to the existing conditions except for the removal of the DC1010, DC1030, MD11GE, and MD11PW aircraft. **Table 31** shows the Future (2031) NAA stage length usage by aircraft type.

Table 31. Future (2031) NAA Modeled Departure Stage Length Usage by Aircraft Type

Source: DFW NOMS, HMMH, 2023

AEDT ANP Type	Stage Length										Total
	1	2	3	4	5	6	7	8	9	M	
1900D	99%	<1%	0%	0%	0%	0%	0%	0%	0%	0%	100%
737700	2%	39%	60%	0%	<1%	<1%	0%	0%	0%	0%	100%
737800	19%	40%	39%	2%	<1%	0%	0%	0%	0%	0%	100%
7378MAX	25%	31%	43%	<1%	0%	0%	0%	0%	0%	0%	100%
747400	2%	16%	16%	<1%	11%	54%	0%	1%	0%	0%	100%
747400RN	<1%	<1%	2%	0%	10%	84%	0%	3%	0%	0%	100%
7478	4%	58%	15%	0%	22%	1%	0%	<1%	0%	0%	100%
757PW	43%	47%	9%	0%	<1%	0%	0%	0%	0%	0%	100%
757RR	42%	49%	9%	0%	<1%	0%	0%	0%	0%	0%	100%
7673ER	25%	40%	36%	0%	<1%	0%	0%	0%	0%	0%	100%
777200	2%	21%	7%	10%	22%	23%	11%	4%	0%	0%	100%
777300	1%	7%	<1%	0%	17%	62%	13%	0%	0%	0%	100%
7773ER	1%	8%	2%	<1%	3%	76%	<1%	5%	3%	0%	100%
7878R	<1%	33%	10%	<1%	1%	25%	2%	28%	0%	0%	100%
7879	<1%	9%	9%	<1%	24%	26%	3%	24%	0%	4%	100%
A300-622R	35%	47%	18%	0%	<1%	0%	0%	0%	0%	0%	100%
A319-131	29%	51%	19%	<1%	<1%	0%	0%	0%	0%	0%	100%
A320-211	20%	50%	30%	<1%	<1%	0%	0%	0%	0%	0%	100%
A320-232	20%	51%	30%	<1%	<1%	0%	0%	0%	0%	0%	100%
A320-271N	5%	72%	22%	0%	0%	0%	0%	0%	0%	0%	100%
A321-232	11%	58%	30%	<1%	<1%	0%	0%	0%	0%	0%	100%
A350-941	<1%	0%	<1%	0%	75%	<1%	24%	0%	0%	0%	100%
A380-841	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%
CL600	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA208	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA525C	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA55B	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA560XL	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA680	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CRJ9-ER	52%	46%	2%	<1%	<1%	0%	0%	0%	0%	0%	100%
DHC6	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
EMB14L	92%	8%	<1%	0%	<1%	0%	0%	0%	0%	0%	100%
EMB170	1%	39%	60%	0%	0%	0%	0%	0%	0%	0%	100%
EMB175	41%	46%	12%	0%	0%	0%	0%	0%	0%	0%	100%
EMB190	0%	86%	14%	0%	0%	0%	0%	0%	0%	0%	100%
G650ER	31%	31%	34%	0%	0%	3%	0%	0%	0%	0%	100%
GIV	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
GV	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
LEAR35	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
Note: Totals may not match exactly due to rounding.											

7.6.5 Future (2031) No Action Alternative Noise Exposure Contours

Noise exposure contours were modeled in AEDT based on the FY year data; however, for reporting, CY data is required. The CY operations were developed by adding 3/4 of FY 2031 operations to 1/4 of FY 2032 operations.[17]

Table 32. Fiscal Year to Calendar Year Adjustment - 2031

Source: FAA 2021 TAF, Centurion Planning and Design Analysis, HMMH, 2023

Year	FY2031	CY2031	Adjustment
2031	820,035	820,548	1.000626

To determine the estimated changes in noise exposure, that could be attributed to the difference between calendar year and fiscal year level of activity, the AEM, a noise screening tool, was used to determine if further analysis is needed. The CY 2031 operational fleet mix was added to the AEM which based on forecasted operations can indicate whether the adjustment to CY 2031 would result in a noise change. The CY operations for 2031 were slightly higher than the FY; therefore, the noise screening results are slightly higher than modeled. **Table 33** shows the analysis results of the areas of noise exposure with each noise contour level for FY and CY data. The analysis shows that the adjustment to CY would increase the areas for the 65 DNL, 70 DNL, and 75 DNL by less than 0.1 percent. Therefore, no further analysis is needed due to the adjustment to CY 2031. The AEM does not separate arrival and departure operations or runway use; therefore, the areas of noise exposure are determined by the AEDT model. Further details on the AEM screening analysis reports can be found in **Appendix D**.

Table 33. Fiscal Year to Calendar Year AEM Screening Analysis - 2031

Source: HMMH, 2023

Contour Range	FY2031 (sq mi)	CY2031 (sq mi)	Percent Change in Area
DNL 65-70 dB	7.29	7.30	0.0%
DNL 70-75 dB	3.07	3.08	0.0%
DNL 75+ dB	1.31	1.31	0.0%

Table 34 provides estimates of the total area split between on and off airport areas exposed to aircraft noise of at least 65 DNL for the Future (2031) NAA. Approximately 12.22 square miles of land fall within the Future (2031) NAA 65 DNL or higher noise exposure area. Of the total land area, approximately 0.53 square miles exposed to 65 DNL or higher is located off-DFW (the remaining 11.69 square miles are located on DFW property). **Table 34** summarizes the areas of noise exposure within each noise contour level (65 DNL, 70 DNL, and 75 DNL noise contours) for the Future (2031) NAA. **Figure 15** shows the annual noise exposure pattern at DFW for the NAA. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL.

[17] CY 2031 = (FY2031 ops / 12) *9 + (FY2032 ops / 12) *3

Similar to existing conditions and 2026 alternatives, 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 15 provides the resultant DNL contours for the Future (2031) NAA. In the Future (2031) NAA, the DNL contours would extend away from DFW on the north side in two main lobes along the extended centerline of the outboard parallel runway extending off DFW property to north of Bethel Road, and on the south side in two main lobes along the extended centerline of the outboard parallel runway but would remain on DFW property. The 65 DNL would also extend off airport property north of Runway 17L and south of Runway 35R over compatible land use. The 70 DNL contour would barely extend off DFW property north of Runways 18R and 17C to across SH 114. There would be no noise-sensitive land use within the Future (2031) NAA 65 DNL or greater contours.

Table 34. Estimated Land Area within NAA (2031) Noise Exposure Contour

Source: HMMH, 2023

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	7.14	0.48	7.62
DNL 70-75 dB	2.20	0.05	2.25
DNL 75+ dB	2.35	0.00	2.35
Total	**11.69**	**0.53**	**12.22**

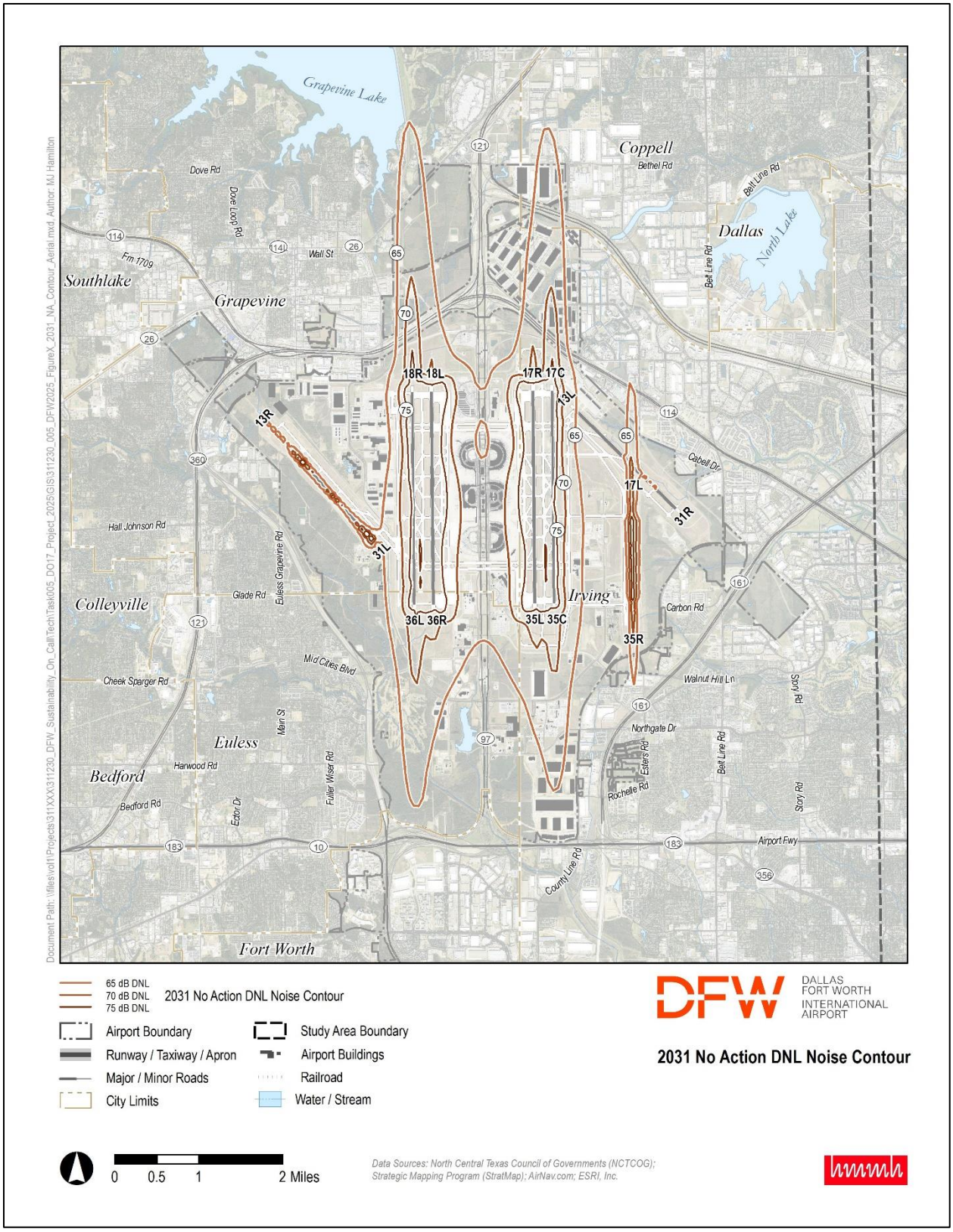

Figure 15. No Action Alternative (2031) Noise Exposure Contour

7.6.6 Future (2031) No Action Alternative Noise Compatible Land Use

There would be no public schools, churches, nursing homes, hospitals, or libraries within the DNL 65 or greater contours. Furthermore, there are no single family, multi-family, or manufactured housing within the DNL 65 or greater Future (2031) NAA noise contours as shown in **Figure 16**. **Table 35** summarizes the residential population and housing units that could be affected by noise levels exceeding 65 DNL for the Future (2031) NAA noise exposure contours.

Table 35. Non-Compatible Land Use Housing and Population – Future NAA (2031)

Source: HMMH, 2023

Category	Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	DNL 65+ dB
Housing	Single-Family Residential	0	0	0	0
	Multi-Family Residential	0	0	0	0
	Manufactured Housing	0	0	0	0
	Total Housing Units	**0**	**0**	**0**	**0**
Population	Single-Family Residential	0	0	0	0
	Multi-Family Residential	0	0	0	0
	Manufactured Housing	0	0	0	0
	Total Population	**0**	**0**	**0**	**0**
Notes: Population numbers are estimates based on the 2020 U.S. Census block data.					

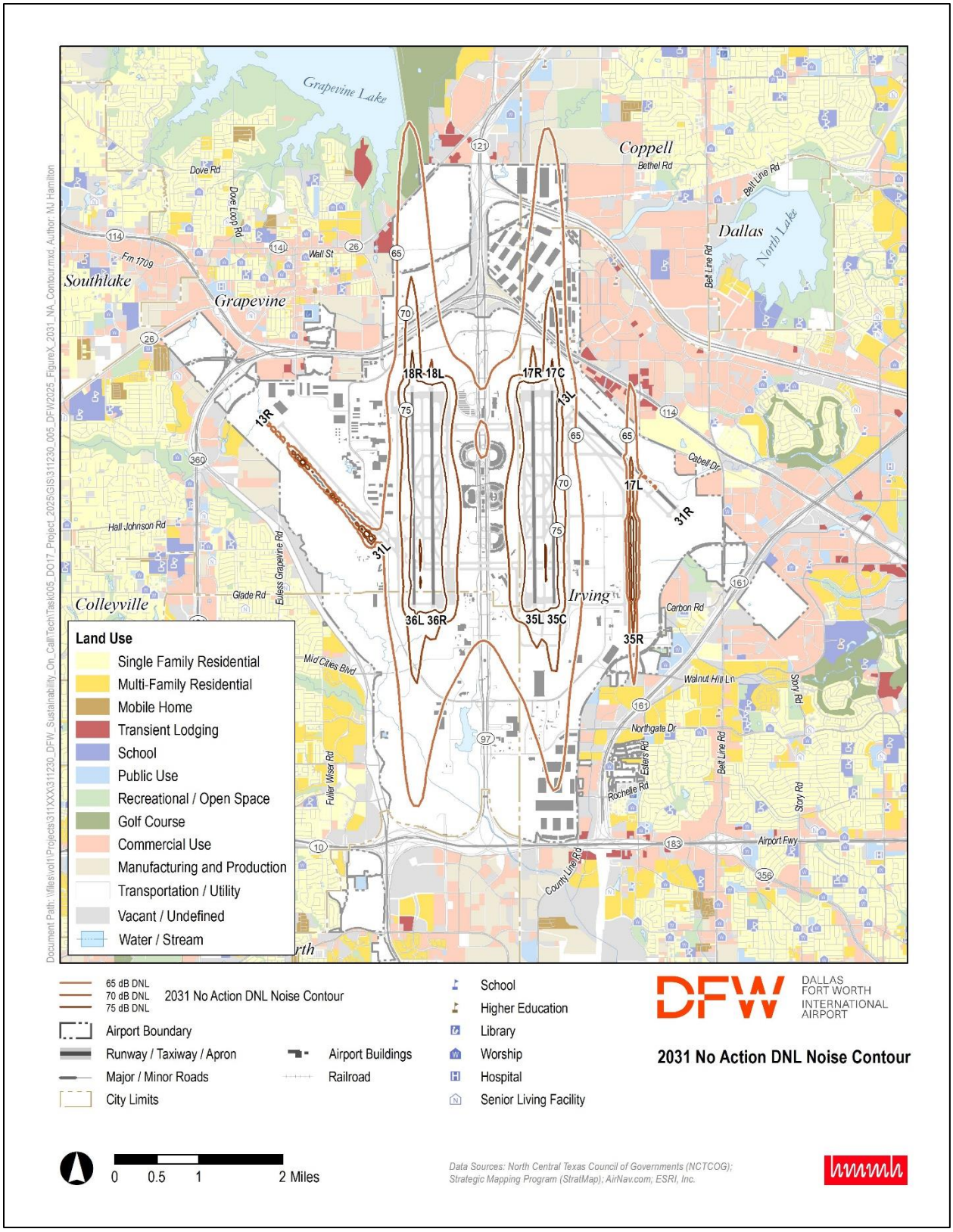

Figure 16. No Action Alternative (2031) Noise Exposure Contour with Land Use

7.7 Future (2031) Proposed Action Alternative

The proposed project would be completed and operational in 2026. The Future (2031) Proposed Action Alternative represents the year of implementation (2026) plus five years. The Future (2031) Proposed Action Alternative would include the additional cargo operations disclosed in the 19th Street Cargo EA Proposed Action. All forecasted operational demand would be accommodated with the 31 additional gates in the Proposed Action Alternative. Therefore, the forecast annual operations for Future (2031) Proposed Action Alternative would grow to over 890,000 annual operations.

7.7.1 Future (2031) Proposed Action Alternative Aircraft Activity Levels and Fleet Mix

The 890,476 annual operations forecast for year 2031 translate to 2,440 AAD operations were modeled for the Future (2031) Proposed Action Alternative noise analysis. **Table 36** provides representative aircraft and engine combinations and the number of average daily operations that were modeled in AEDT for the Future (2031) Proposed Action Alternative. The Future (2031) Proposed Action fleet mix includes the additional operations in the Air Carrier and Air Taxi categories (an additional 187 operations in Air Carrier and six operations in Air Taxi) compared to the Future (2031) NAA. With the additional gates, the Future (2031) Proposed Action has less night operations than the Future (2031) No Action. The Future (2031) Proposed Action AAD includes 2,440 total operations, 8.5 percent of which occurred during the DNL nighttime hours of 10:00 p.m. to 6:59 a.m.

Table 36. DFW Modeled AAD Aircraft Operations for Proposed Action Alternative (2031)

Source: FAA TAF, HMMH, 2023

Tower Category	Propulsion	ANP Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Carrier	**Jet**	737700	75	3	79	68	10	79	157
		737800	235	15	250	238	13	250	501
		7378MAX	53	3	56	53	4	56	112
		747400	7	<1	8	7	<1	8	16
		747400RN	<1	<1	<1	<1	<1	<1	<1
		7478	1	<1	2	2	<1	2	5
		757PW	<1	2	2	<1	2	2	4
		757RR	<1	3	3	<1	3	3	6
		7673ER	11	4	15	9	6	15	30
		777200	10	5	15	13	2	15	29
		777300	10	2	12	9	2	12	24
		7773ER	6	<1	6	5	1	6	12
		7878R	4	<1	5	5	<1	5	10
		7879	17	3	20	19	<1	20	40
		A300-622R	2	3	5	2	3	5	10
		A319-131	101	3	104	100	5	104	209
		A320-211	19	3	22	18	4	22	44
		A320-232	38	7	45	38	7	45	91
		A320-271N	44	6	50	46	4	50	100
		A321-232	231	26	257	235	22	257	514
		A350-941	1	0	1	1	<1	1	3
		A380-841	1	0	1	1	0	1	2
		CRJ9-ER	105	4	109	102	7	109	218

Tower Category	Propulsion	ANP Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
	Regional Jet	EMB170	91	3	94	86	8	94	187
		EMB175	9	<1	10	10	<1	10	20
		EMB190	2	<1	2	2	<1	2	5
	Subtotal		**1,076**	**98**	**1,175**	**1,070**	**105**	**1,175**	**2,350**
Air Taxi	Jet	CNA680	<1	<1	<1	<1	<1	<1	2
		EMB14L	30	<1	31	30	<1	31	62
	Non-jet	1900D	<1	<1	<1	<1	<1	<1	2
		CNA208	2	<1	2	2	<1	2	4
		DHC6	<1	<1	1	<1	<1	1	2
	Subtotal		**34**	**2**	**36**	**34**	**2**	**36**	**72**
General Aviation	Jet	CL600	<1	<1	<1	<1	<1	<1	<1
		CNA525C	<1	<1	<1	<1	<1	<1	<1
		CNA55B	<1	<1	<1	<1	<1	<1	<1
		CNA560XL	<1	<1	<1	<1	<1	<1	<1
		G650ER	<1	0	<1	<1	0	<1	<1
		GIV	<1	<1	<1	<1	<1	<1	<1
		GV	<1	0	<1	<1	<1	<1	<1
		LEAR35	<1	<1	<1	<1	<1	<1	<1
	Non-jet	CNA208	6	<1	7	6	<1	7	14
	Subtotal		**9**	**<1**	**9**	**9**	**<1**	**9**	**18**
Grand Total			**1,119**	**100**	**1,220**	**1,112**	**108**	**1,220**	**2,440**

Note: Totals may not match exactly due to rounding.
*ANP Type 737800 represents both B738 and B739 operations, which account for 97 percent and 3 percent, respectively.

7.7.2 Future (2031) Proposed Action Alternative Runway Utilization

The proposed action would not alter the location or length of the runways, nor would it alter future runway use. Runway end utilization for the Future (2031) Proposed Action Alternative is same as the Future (2026) NAA (see **Table 17**).

7.7.3 Future (2031) Proposed Action Alternative Flight Tracks

The proposed action would not alter future track and track use. Flight track locations and percent utilization for the Future (2031) Proposed Action Alternative would be expected to be the same as the existing conditions (see **Section 6.4**).

7.7.4 Future (2031) Proposed Action Alternative Aircraft Stage Length and Operational Profiles

The trip lengths flown from DFW for the Future (2031) Proposed Action Alternative is expected to be the same as the Future (2031) NAA (see **Section 7.6.4**).

7.7.5 Future (2031) Proposed Action Alternative Noise Exposure Contours

Noise exposure contours were modeled in AEDT based on the FY year data; however, for reporting, CY data is required. The CY operations were developed by adding 3/4 of FY 2031 operations to 1/4 of FY 2032 operations.[18]

Table 37. Fiscal Year to Calendar Year Adjustment - 2031

Source: FAA 2021 TAF, Centurion Planning and Design Analysis, HMMH, 2023

Year	FY2031	CY2031	Adjustment
2031	890,476	894,104	1.004074

To determine the estimated changes in noise exposure, that could be attributed to the difference between calendar year and fiscal year level of activity, the AEM, a noise screening tool, was used to determine if further analysis is needed. The CY 2031 operational fleet mix was added to the AEM which based on forecasted operations can indicate whether the adjustment to CY 2031 would result in a noise change. The CY operations for 2031 were slightly higher than the FY; therefore, the noise screening results are slightly higher than modeled. **Table 48** shows the analysis results of the areas of noise exposure with each noise contour level for FY and CY data. The analysis shows that the adjustment to CY would increase the areas for the 65 DNL, 70 DNL, and 75 DNL by 0.3 percent. Therefore, no further analysis is needed due to the adjustment to CY 2031. The AEM does not separate arrival and departure operations or runway use, therefore the areas of noise exposure are determined by the AEDT model. Further details on the AEM screening analysis reports can be found in **Appendix D**.

Table 38. Fiscal Year to Calendar Year AEM Screening Analysis - 2031

Source: HMMH, 2023

Contour Range	FY2031 (sq mi)	CY2031 (sq mi)	Percent Change in Area
DNL 65-70 dB	7.78	7.80	0.3%
DNL 70-75 dB	3.28	3.29	0.3%
DNL 75+ dB	1.39	1.40	0.3%

Table 39 provides estimates of the total area split between on and off airport areas that could be exposed to aircraft noise of at least 65 DNL for the Proposed Action Alternative. Approximately 13.03 square miles of land fall within the Proposed Action Alternative (2031) 65 DNL or higher noise exposure area. Of the total land area, approximately 0.67 square miles that could be exposed to 65 DNL or higher is located off-Airport (the remaining 12.36 square miles are located on DFW property). **Table 39** summarizes the areas of noise exposure within each noise contour level (65 DNL, 70 DNL, and 75 DNL noise contours) for the Proposed Action Alternative. **Figure 17** shows the annual noise exposure pattern at DFW for the Future (2031) Proposed Action Alternative. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL.

[18] CY 2031 = (FY2031 ops / 12) *9 + (FY2032 ops / 12) *3

Table 39. Estimated Land Area within the Proposed Action Alternative (2031) Noise Exposure Contours

Source: HMMH, 2023

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	7.51	0.62	8.13
DNL 70-75 dB	2.40	0.05	2.45
DNL 75+ dB	2.45	0.00	2.45
Total	**12.36**	**0.67**	**13.03**

Similar to the existing conditions and 2026 alternatives, 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 17 provides the resultant DNL contours for the Proposed Action Alternative. In the Future (2031) Proposed Action Alternative, the DNL contours would extend away from DFW on the north side in two main lobes along the extended centerline of the outboard parallel runways, extending off airport property on the west side to Grapevine Lake and on the east side to north of Bethel Rd. On the south side, the contour would extend in two main lobes along the extended centerline of the outboard parallel runways but remains on airport property. The 65 DNL would also extend off airport property north of Runway 17L over compatible land use and south of Runway 35R over multi-family residential land use. The 70 DNL contour would barely extend off DFW property north of outboard parallel runways to across SH 114.

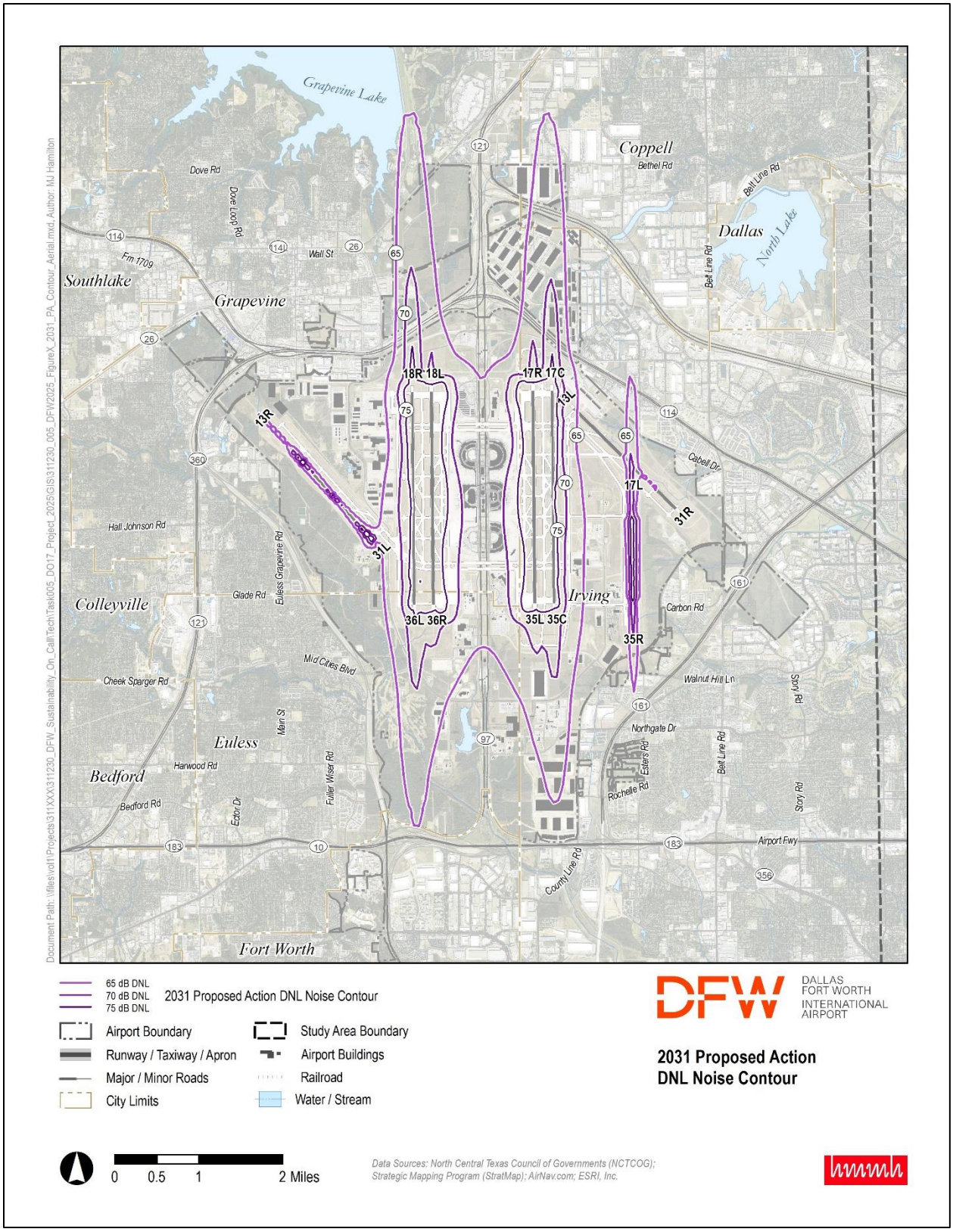

Figure 17. Proposed Action Alternative (2031) Noise Exposure Contours

7.7.6 Future (2031) Proposed Action Alternative Noise Compatible Land Use

There would be no public schools, churches, nursing homes, hospitals, or libraries within the DNL 65 or greater contours. Furthermore, there are no single-family or manufactured housing within the DNL 65 or greater Future (2031) Proposed Action Alternative noise contours. There is one area south of Runway 17L/35R where the 65 DNL extends off airport property and over residential (multi-family) land use. This resulted in six housing units (11 people) exposed to 65 DNL or higher due to the Proposed Action (see **Figure 18**). **Table 40** summarizes the residential population and housing units affected by noise levels exceeding 65 DNL for the Future (2031) Proposed Action Alternative noise exposure contours.

Table 40. Non-Compatible Land Use Housing and Population – Future (2031) Proposed Action Alternative

Source: HMMH, 2023

Category	Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	DNL 65+ dB
Housing	Single-Family Residential	0	0	0	0
	Multi-Family Residential	6	0	0	6
	Manufactured Housing	0	0	0	0
	Total Housing Units	**6**	**0**	**0**	**6**
Population	Single-Family Residential	0	0	0	0
	Multi-Family Residential	11	0	0	11
	Manufactured Housing	0	0	0	0
	Total Population	**11**	**0**	**0**	**11**
Notes: Population numbers are estimates based on the 2020 U.S. Census block data.					

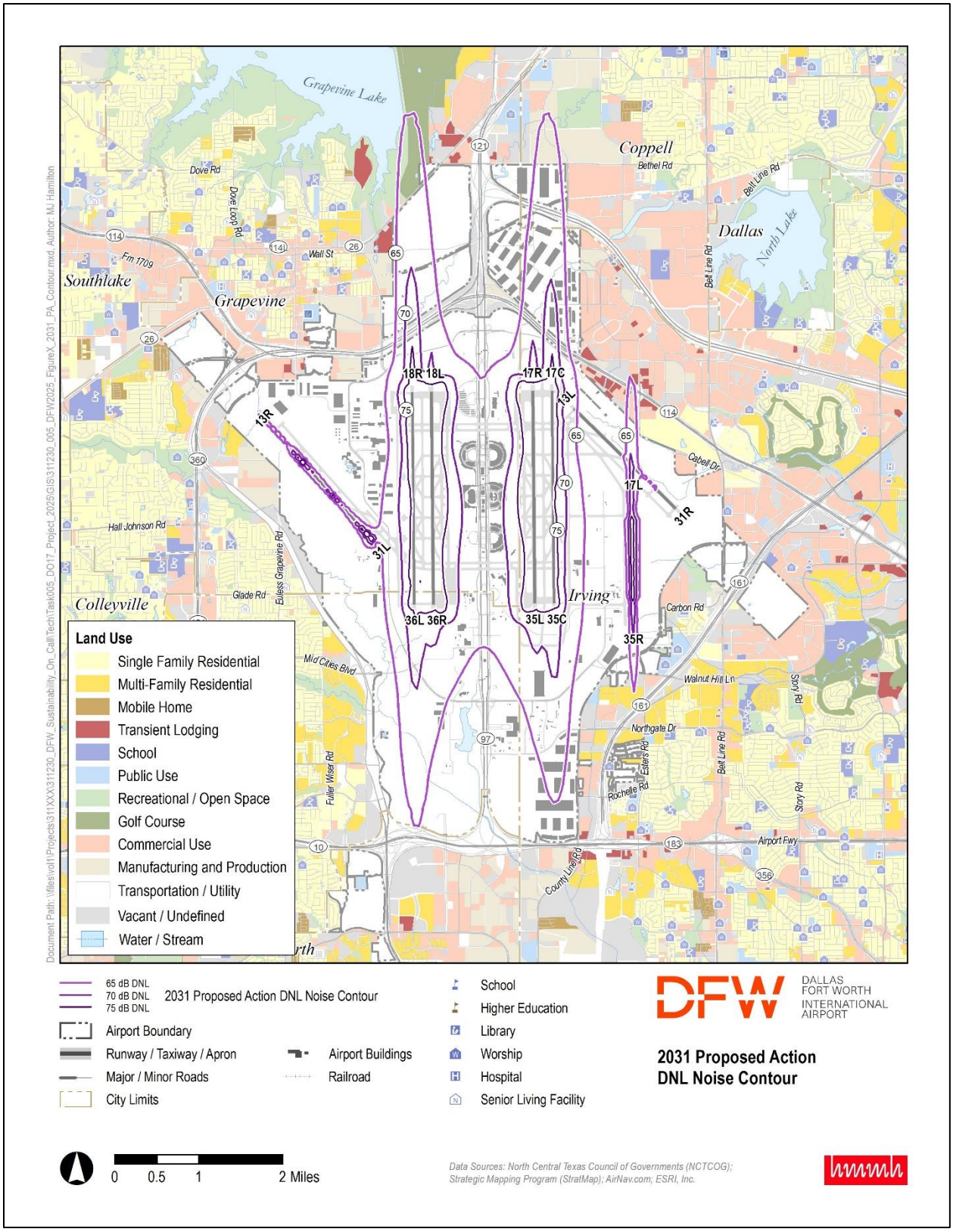

Figure 18. Proposed Action Alternative (2031) Noise Exposure Contours with Land Use

7.8 Comparison Between the 2031 NAA and Proposed Action Alternative

Table 41 provides estimates of the total area split between on and off airport areas exposed to aircraft noise of at least 65 DNL for the Future (2031) NAA and Proposed Action Alternatives.

Table 41. Estimated Land Area within Future (2031) Noise Exposure Contour Alternatives

Source: HMMH, 2023

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	7.14	0.48	7.62
	DNL 70-75 dB	2.20	0.05	2.25
	DNL 75+ dB	2.35	0.00	2.35
	Total	**11.69**	**0.53**	**12.22**
Proposed Action	DNL 65-70 dB	7.51	0.62	8.13
	DNL 70-75 dB	2.40	0.05	2.45
	DNL 75+ dB	2.45	0.00	2.45
	Total	**12.36**	**0.67**	**13.03**
Difference (Proposed Action – NAA)	DNL 65-70 dB	0.37	0.14	0.51
	DNL 70-75 dB	0.20	0.00	0.20
	DNL 75+ dB	0.10	0.00	0.10
	Total	**0.67**	**0.14**	**0.81**

The noise exposure analysis results showed a slight increase in the estimated on and off airport land area; this was due to the increased operations in the Proposed Action Alternative. The noise analysis results showed that the Future (2031) Proposed Action would increase the estimated land area within the DNL 65+ dB noise exposure contour as compared to the Future (2031) NAA.

Figure 19 shows the comparison between the Future (2031) NAA and Proposed Action Alternative. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL. North of Runways 18R and 17C, the contour would extend further to the north due to increased arrivals to Runways 18R and 17C. The contour north of Runway 17L would extend further north than the Future (2031) NAA due to increased arrivals to Runway 17L. The area between Runways 18L and 17R would increase due to increased departures from Runways 36R and 35L.

To the south of the airport, the contour south of Runways 36L and 35C would extend further to the south due to increased arrivals to Runways 36L and 35C. The area between Runways 36R and 35L would increase due to the increase in departures from Runways 18L and 17R. The contour south of 35R would extend further to the south over the residential (multi-family) land use due to increased arrivals to Runway 35R in the Proposed Action. These buildings, located directly along the extended centerline of Runway 17L/35R, would be affected by increased aircraft operations on Runway 17L/35R. The analysis concluded that there are six multi-family residential units, with an estimated population of 11 people, that would be exposed to higher noise levels within the 65 to 70 dB DNL contour as residential uses are not a compatible use unless sound attenuated. While noise levels would be higher with the project (0.4 dB increase), the increase is well below the significance threshold (a 1.5 dB or greater change within the Proposed Action 65 DNL). **Table 42** provides a comparison of the residential population and housing units affected by noise levels exceeding DNL 65 dB for the Future (2031) NAA and Proposed Action

Alternative Noise Exposure Contours. There would be no public schools, churches, nursing homes, hospitals, or libraries within any of the 65 DNL or greater contours.

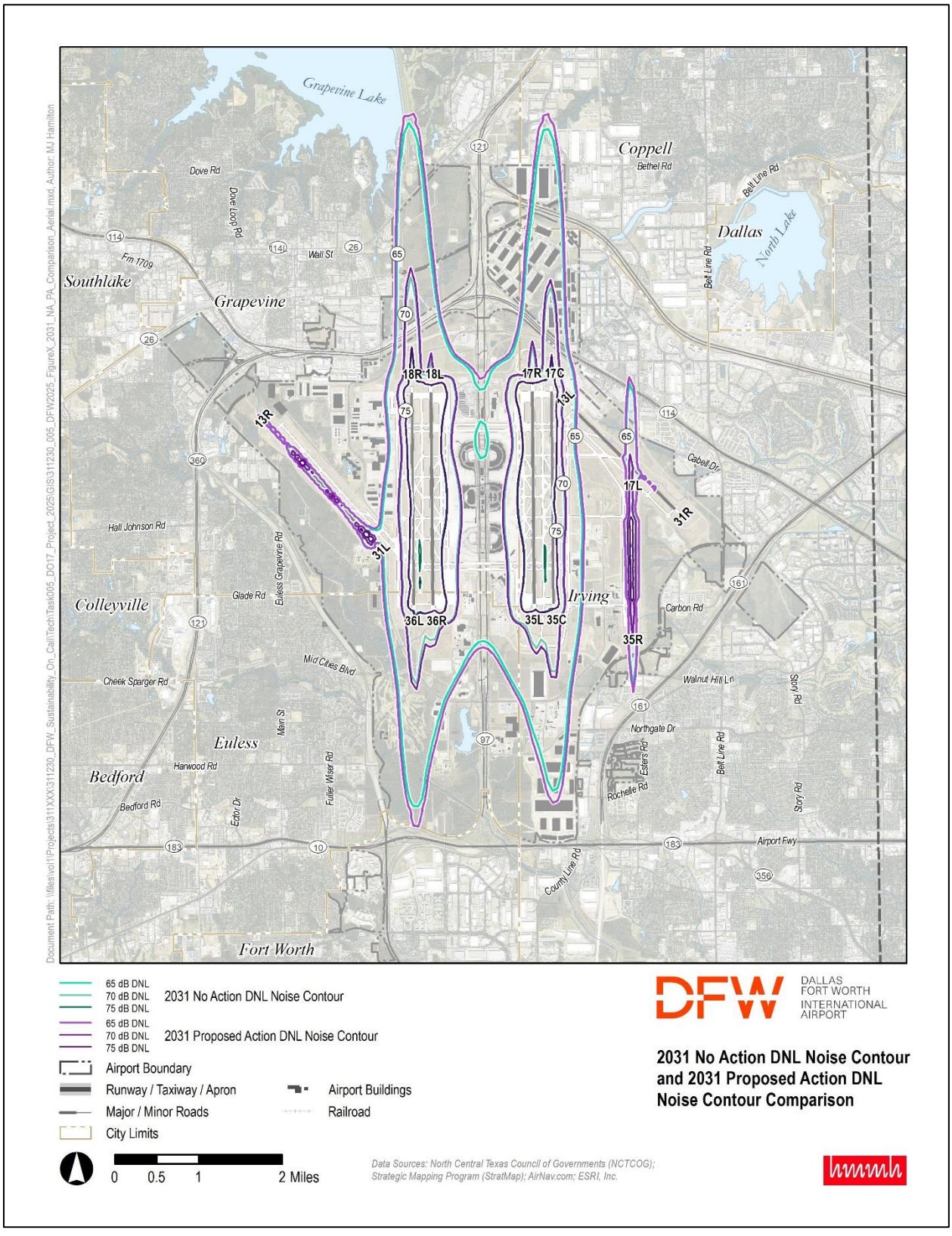

Figure 19. NAA and Proposed Action Alternative (2031) Noise Exposure Contours

Table 42. Non-Compatible Land Use Housing and Population – Future (2031) Proposed Action Alternative

Source: HMMH, 2023

Alternative	Category	Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	DNL 65+ dB
No Action	Housing	Single-Family Residential	0	0	0	0
		Multi-Family Residential	0	0	0	0
		Manufactured Housing	0	0	0	0
		Total Housing Units	0	0	0	0
Proposed Action		Single-Family Residential	0	0	0	0
		Multi-Family Residential	6	0	0	6
		Manufactured Housing	0	0	0	0
		Total Housing Units	6	0	0	6
Difference (Proposed Action – NAA)		**Single-Family Residential**	**0**	**0**	**0**	**0**
		Multi-Family Residential	**6**	**0**	**0**	**6**
		Manufactured Housing	**0**	**0**	**0**	**0**
		Total Housing Units	**6**	**0**	**0**	**6**
No Action	Population	Single-Family Residential	0	0	0	0
		Multi-Family Residential	0	0	0	0
		Manufactured Housing	0	0	0	0
		Total Population	0	0	0	0
Proposed Action		Single-Family Residential	0	0	0	0
		Multi-Family Residential	11	0	0	11
		Manufactured Housing	0	0	0	0
		Total Population	11	0	0	11
Difference (Proposed Action – NAA)		**Single-Family Residential**	**0**	**0**	**0**	**0**
		Multi-Family Residential	**11**	**0**	**0**	**11**
		Manufactured Housing	**0**	**0**	**0**	**0**
		Total Population	**11**	**0**	**0**	**11**

Notes: Population numbers are estimates based on the 2020 U.S. Census block data.

7.9 Future (2031) Proposed Action Alternative Grid Point Evaluation

HMMH evaluated the change in noise using the modeling grid as described in **Section 5.3**. The noise study area grid was used to determine any significant changes (+/- 1.5 dB) within the 65 DNL or any reportable changes (+/- 3 dB) between 60 DNL and 65 DNL, or any reportable changes (+/- 5 dB) within the 45 DNL to 60 DNL contour. The evaluation shows that no significant impact areas and no areas of reportable changes would result due to the Future (2031) Proposed Action Alternative.

Figure 20 displays the area south of Runway 35R where the Future (2031) Proposed Action Alternatives 65 DNL contour extends over residential land use. This area would be exposed to levels greater than 65 DNL due to the proposed project but would not exceed the NEPA threshold for significant noise impact of 1.5 dB or greater (noise increase within the 65 DNL is 0.4 dB).

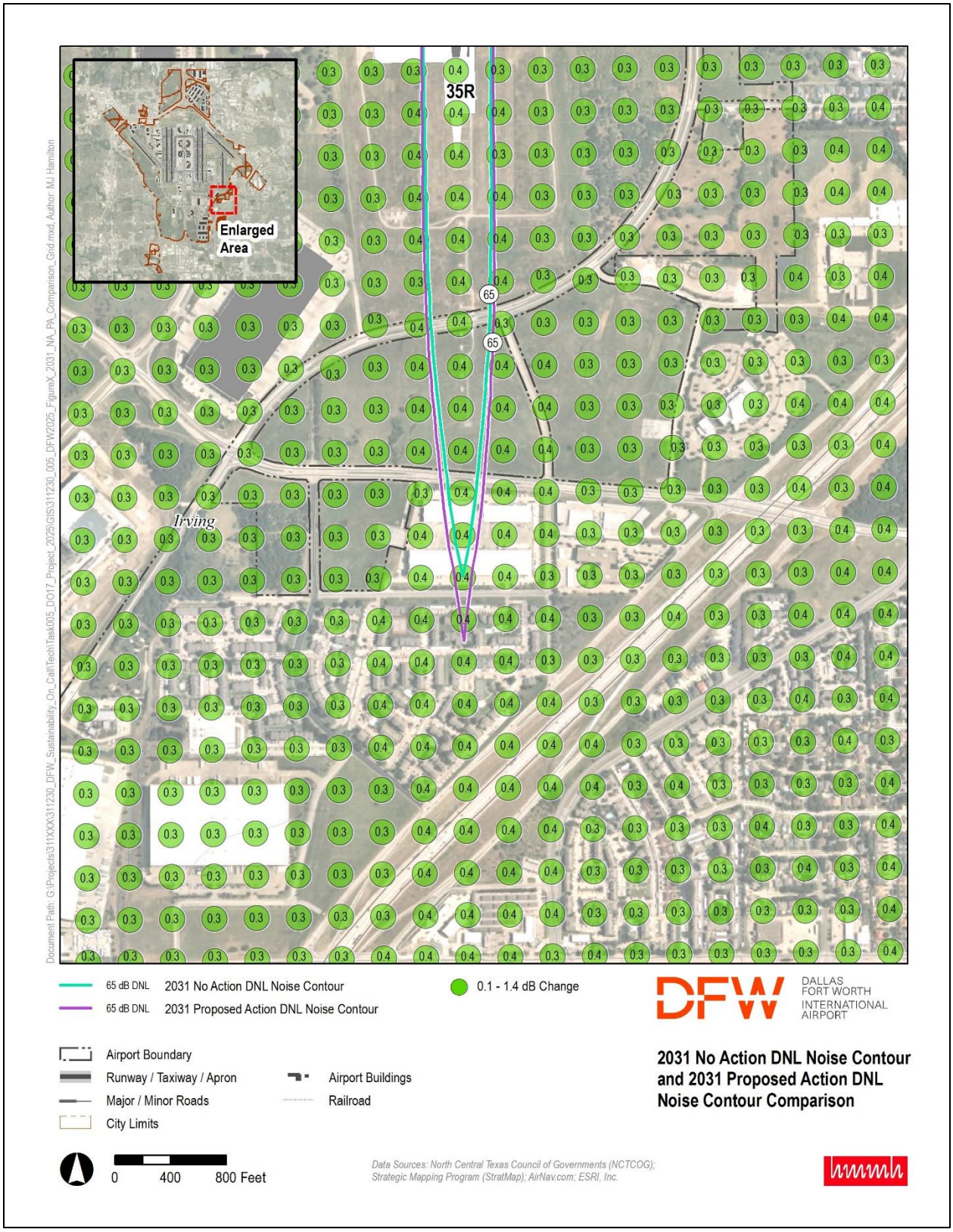

Figure 20. 2031 Proposed Action DNL Change Over Residential Areas – South of Runway 35R

7.10 Future (2036) No Action Alternative

The Future (2036) NAA would include the additional cargo operations disclosed in the 19th Street Cargo EA Proposed Action. Under the Future (2036) NAA, there would be no changes to the use of existing 170 gates at DFW, Air Carrier operations would be constrained due to lack of sufficient facilities, and overall operational levels would grow at a minimal growth rate to over 830,000 operations.

7.10.1 Future (2036) No Action Alternative Aircraft Activity Levels and Fleet Mix

The 830,354 annual operations forecast for year 2036 without the Proposed Action translates to 2,275 AAD operations to be modeled for the Future (2036) NAA noise analysis. **Table 43** provides representative aircraft and engine combinations and the number of average daily operations that were modeled in AEDT for the Future (2036) NAA. The Future (2036) NAA fleet mix includes would change in the Air Carrier fleet mix (the retirement of the older DC1010, DC1030, MD11GE, and MD11PW) and a reduction in Air Taxi fleet operations (reduction in 50 seat and smaller regional jets) compared to the existing conditions. The Future (2036) NAA AAD includes 2,275 total operations, 8.4 percent of which occurred during the DNL nighttime hours of 10:00 p.m. to 6:59 a.m.

Table 43. DFW Modeled AAD Aircraft Operations for NAA (2036)

Source: FAA TAF, HMMH, 2023

Tower Category	Propulsion	ANP Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Carrier	**Jet**	737700	75	4	79	68	11	79	158
		737800	230	14	245	232	12	245	489
		7378MAX	60	5	65	60	5	65	130
		747400	7	<1	8	7	<1	8	16
		747400RN	<1	<1	<1	<1	<1	<1	<1
		7478	1	<1	2	2	<1	2	5
		757PW	<1	1	2	<1	2	2	4
		757RR	<1	2	3	<1	2	3	6
		7673ER	8	3	11	7	4	11	23
		777200	7	4	10	9	1	10	21
		777300	10	2	12	9	3	12	24
		7773ER	5	<1	6	5	1	6	12
		7878R	4	<1	5	5	<1	5	9
		7879	15	3	18	17	<1	18	36
		A300-622R	<1	<1	<1	<1	<1	<1	1
		A319-131	98	3	101	97	5	101	203
		A320-211	16	3	18	15	3	18	36
		A320-232	36	7	43	35	7	43	85
		A320-271N	40	5	45	41	4	45	90
		A321-232	216	25	241	220	21	241	482
		A350-941	1	0	1	1	<1	1	2
		A380-841	1	0	1	1	0	1	2
	Regional Jet	CRJ9-ER	87	3	90	84	5	90	180
		EMB170	77	<1	78	73	5	78	156
		EMB175	8	<1	8	8	<1	8	17
		EMB190	2	0	2	2	0	2	4
	Subtotal		**1,006**	**89**	**1,095**	**1,000**	**95**	**1,095**	**2,191**

Tower Category	Propulsion	ANP Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Taxi	**Jet**	CNA680	<1	<1	<1	<1	<1	<1	1
		EMB14L	29	1	30	25	4	30	59
	Non-jet	1900D	<1	<1	<1	<1	<1	<1	1
		CNA208	1	<1	1	1	<1	1	3
		DHC6	<1	<1	<1	<1	<1	<1	1
	Subtotal		**32**	**1**	**33**	**28**	**5**	**33**	**66**
General Aviation	**Jet**	CL600	<1	<1	<1	<1	<1	<1	<1
		CNA525C	<1	<1	<1	<1	<1	<1	<1
		CNA55B	<1	<1	<1	<1	<1	<1	<1
		CNA560XL	<1	<1	<1	<1	<1	<1	<1
		G650ER	<1	0	<1	<1	0	<1	<1
		GIV	<1	<1	<1	<1	<1	<1	<1
		GV	<1	0	<1	<1	<1	<1	<1
		LEAR35	<1	<1	<1	<1	<1	<1	<1
	Non-jet	CNA208	7	<1	7	7	<1	7	14
	Subtotal		**9**	**<1**	**9**	**9**	**<1**	**9**	**18**
Grand Total			**1,046**	**91**	**1,137**	**1,037**	**101**	**1,137**	**2,275**

Note: Totals may not match exactly due to rounding.
*ANP Type 737800 represents both B738 and B739 operations, which account for 97 percent and 3 percent, respectively.

7.10.2 Future (2036) No Action Alternative Runway Utilization

Runway end utilization for the Future (2036) NAA would be the same as the Future (2026) NAA (see **Table 17**).

7.10.3 Future (2036) No Action Alternative Flight Tracks

Flight track locations and percent utilization for the Future (2036) NAA would be expected to be the same as the Existing Conditions (see **Section 6.4**).

7.10.4 Future (2036) No Action Alternative Aircraft Stage Length and Operational Profiles

The trip lengths flown from DFW for the Future (2036) NAA would be similar to the existing conditions except for the removal of the DC1010, DC1030, MD11GE, and MD11PW aircraft. **Table 44** shows the Future (2036) NAA stage length usage by aircraft type.

Table 44. Future (2036) NAA Modeled Departure Stage Length Usage by Aircraft Type

Source: DFW NOMS, HMMH, 2023

AEDT ANP Type	Stage Length										Total
	1	2	3	4	5	6	7	8	9	M	
1900D	99%	<1%	0%	0%	0%	0%	0%	0%	0%	0%	100%
737700	2%	39%	60%	0%	<1%	<1%	0%	0%	0%	0%	100%
737800	19%	40%	39%	2%	<1%	0%	0%	0%	0%	0%	100%
7378MAX	25%	31%	43%	<1%	0%	0%	0%	0%	0%	0%	100%
747400	2%	16%	16%	<1%	11%	54%	0%	1%	0%	0%	100%
747400RN	<1%	<1%	2%	0%	10%	84%	0%	3%	0%	0%	100%
7478	4%	58%	15%	0%	22%	1%	0%	<1%	0%	0%	100%
757PW	43%	47%	9%	0%	<1%	0%	0%	0%	0%	0%	100%
757RR	42%	49%	9%	0%	<1%	0%	0%	0%	0%	0%	100%
7673ER	25%	40%	36%	0%	<1%	0%	0%	0%	0%	0%	100%
777200	2%	21%	7%	10%	22%	23%	11%	4%	0%	0%	100%
777300	1%	7%	<1%	0%	17%	62%	13%	0%	0%	0%	100%
7773ER	1%	8%	2%	<1%	3%	76%	<1%	5%	3%	0%	100%
7878R	<1%	33%	10%	<1%	1%	25%	2%	28%	0%	0%	100%
7879	<1%	9%	9%	<1%	24%	26%	3%	24%	0%	4%	100%
A300-622R	35%	47%	18%	0%	<1%	0%	0%	0%	0%	0%	100%
A319-131	29%	51%	19%	<1%	<1%	0%	0%	0%	0%	0%	100%
A320-211	20%	50%	30%	<1%	<1%	0%	0%	0%	0%	0%	100%
A320-232	20%	51%	30%	<1%	<1%	0%	0%	0%	0%	0%	100%
A320-271N	5%	72%	22%	0%	0%	0%	0%	0%	0%	0%	100%
A321-232	11%	58%	30%	<1%	<1%	0%	0%	0%	0%	0%	100%
A350-941	<1%	0%	<1%	0%	75%	<1%	24%	0%	0%	0%	100%
A380-841	0%	0%	0%	0%	0%	0%	0%	100%	0%	0%	100%
CL600	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA208	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA525C	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA55B	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA560XL	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CNA680	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
CRJ9-ER	52%	46%	2%	<1%	<1%	0%	0%	0%	0%	0%	100%
DHC6	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
EMB14L	92%	8%	<1%	0%	<1%	0%	0%	0%	0%	0%	100%
EMB170	1%	39%	60%	0%	0%	0%	0%	0%	0%	0%	100%
EMB175	41%	46%	12%	0%	0%	0%	0%	0%	0%	0%	100%
EMB190	0%	86%	14%	0%	0%	0%	0%	0%	0%	0%	100%
G650ER	31%	31%	34%	0%	0%	3%	0%	0%	0%	0%	100%
GIV	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
GV	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
LEAR35	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%

Note: Totals may not match exactly due to rounding.

7.10.5 Future (2036) No Action Alternative Noise Exposure Contours

Noise exposure contours were modeled in AEDT based on the FY year data; however, for reporting, CY data is required. The CY operations were developed by adding 3/4 of FY 2036 operations to 1/4 of FY 2037 operations.[19]

Table 45. Fiscal Year to Calendar Year Adjustment - 2036

Source: FAA 2021 TAF, Centurion Planning and Design Analysis, HMMH, 2023

Year	FY2036	CY2036	Adjustment
2036	830,354	830,874	1.000626

To determine the estimated changes in noise exposure, that could be attributed to the difference between calendar year and fiscal year level of activity, the AEM, a noise screening tool, was used to determine if further analysis is needed. The CY 2036 operational fleet mix was added to the AEM which based on forecasted operations can indicate whether the adjustment to CY 2036 would result in a noise change. The CY operations for 2036 were slightly higher than the FY; therefore, the noise screening results are slightly higher than modeled. **Table 46** shows the analysis results of the areas of noise exposure with each noise contour level for FY and CY data. The analysis shows that the adjustment to CY would increase the areas for the 65 DNL, 70 DNL, and 75 DNL by less than 0.1 percent. Therefore, no further analysis is needed due to the adjustment to CY 2036. The AEM does not separate arrival and departure operations or runway use; therefore, the areas of noise exposure are determined by the AEDT model. AEM screening analysis reports can be found in **Appendix D**.

Table 46. Fiscal Year to Calendar Year AEM Screening Analysis - 2036

Source: HMMH, 2023

Contour Range	FY2036 (sq mi)	CY2036 (sq mi)	Percent Change in Area
DNL 65-70 dB	7.36	7.36	0.0%
DNL 70-75 dB	3.10	3.10	0.0%
DNL 75+ dB	1.32	1.32	0.0%

Table 47 provides estimates of the total area split between on and off airport areas exposed to aircraft noise of at least 65 DNL for the Future (2036) NAA. Approximately 12.12 square miles of land fall within the Future (2036) NAA 65 DNL or higher noise exposure area. Of the total land area, approximately 0.51 square miles exposed to 65 DNL or higher is located off-DFW (the remaining 11.61 square miles are located on DFW property). **Table 47** summarizes the areas of noise exposure within each noise contour level (65 DNL, 70 DNL, and 75 DNL noise contours) for the Future (2036) NAA. **Figure 21** shows the annual noise exposure pattern at DFW for the NAA. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL.

[19] CY 2036 = (FY2036 ops / 12) *9 + (FY2037 ops / 12) *3

Similar to existing conditions, 2026, and 2031 alternatives, 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 21 provides the resultant DNL contours for the Future (2036) NAA. In the Future (2036) NAA, the DNL contours would extend away from DFW on the north side in two main lobes along the extended centerline of the outboard parallel runway extending off DFW property to north of Bethel Road. On the south side, the contour would extend in two main lobes along the extended centerline of the outboard parallel runway but remaining on DFW property. There would be no noise-sensitive land use within the Future (2036) NAA 65 DNL or greater contours. The 70 DNL contour would barely extend off DFW property north of Runways 18R and 17C to across SH 114.

Table 47. Estimated Land Area within NAA (2036) Noise Exposure Contour

Source: HMMH, 2023

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	7.10	0.46	7.56
DNL 70-75 dB	2.18	0.05	2.23
DNL 75+ dB	2.33	0.00	2.33
Total	**11.61**	**0.51**	**12.12**

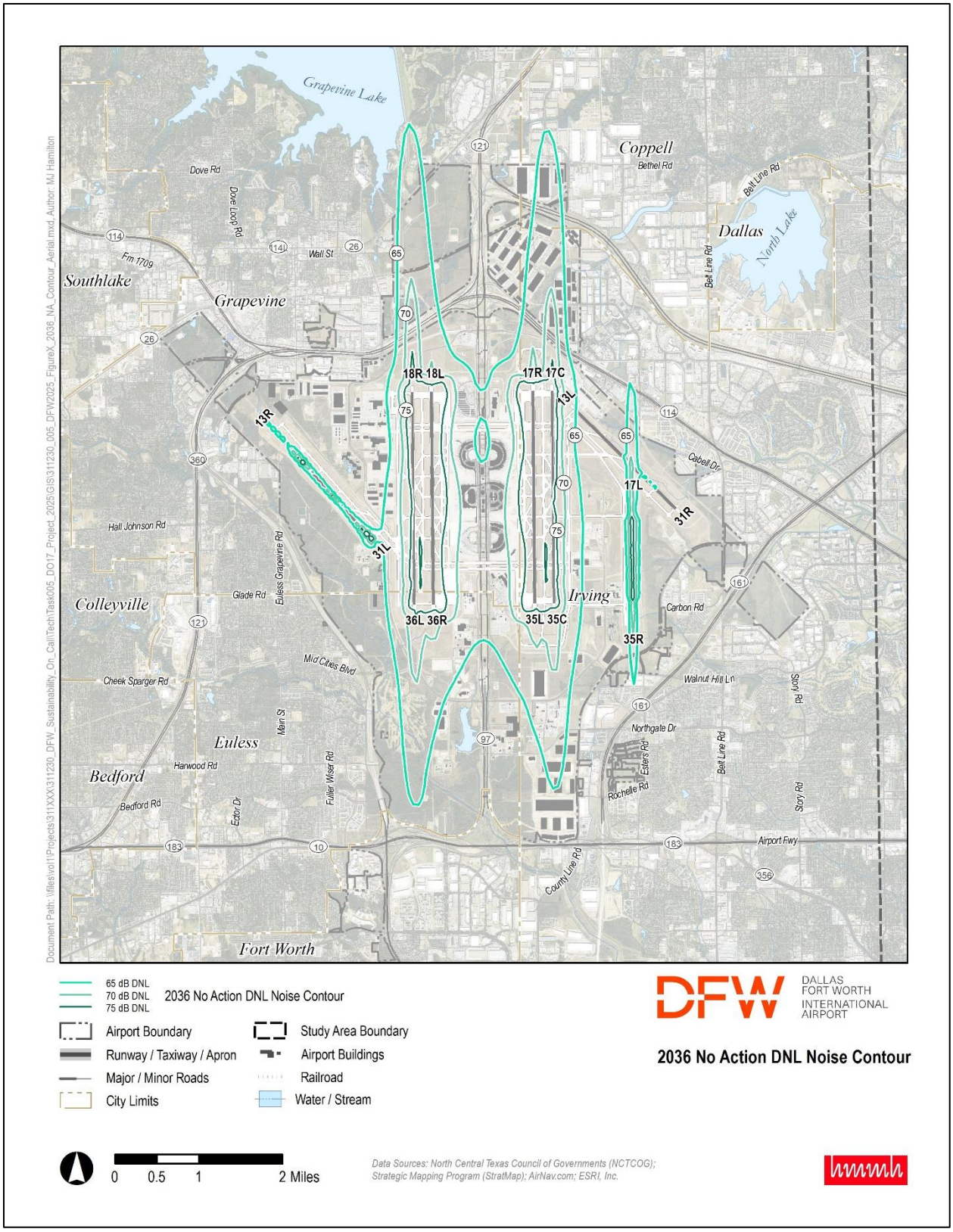

Figure 21. No Action Alternative (2036) Noise Exposure Contour

7.10.6 Future (2036) No Action Alternative Noise Compatible Land Use

There would be no public schools, churches, nursing homes, hospitals, or libraries within any of the DNL 65 and greater contours in the future (2036) No Action condition. Furthermore, there would be no single-family, multi-family, or manufactured housing within the DNL 65 and greater Future (2036) NAA noise contours as shown in **Figure 22**. **Table 48** summarizes the residential population and housing units affected by noise levels exceeding DNL 65 for the Future (2036) NAA noise exposure contours.

Table 48. Non-Compatible Land Use Housing and Population – Future NAA (2036)

Source: HMMH, 2023

Category	Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	DNL 65+ dB
Housing	Single-Family Residential	0	0	0	0
	Multi-Family Residential	0	0	0	0
	Manufactured Housing	0	0	0	0
	Total Housing Units	**0**	**0**	**0**	**0**
Population	Single-Family Residential	0	0	0	0
	Multi-Family Residential	0	0	0	0
	Manufactured Housing	0	0	0	0
	Total Population	**0**	**0**	**0**	**0**
Notes: Population numbers are estimates based on the 2020 U.S. Census block data.					

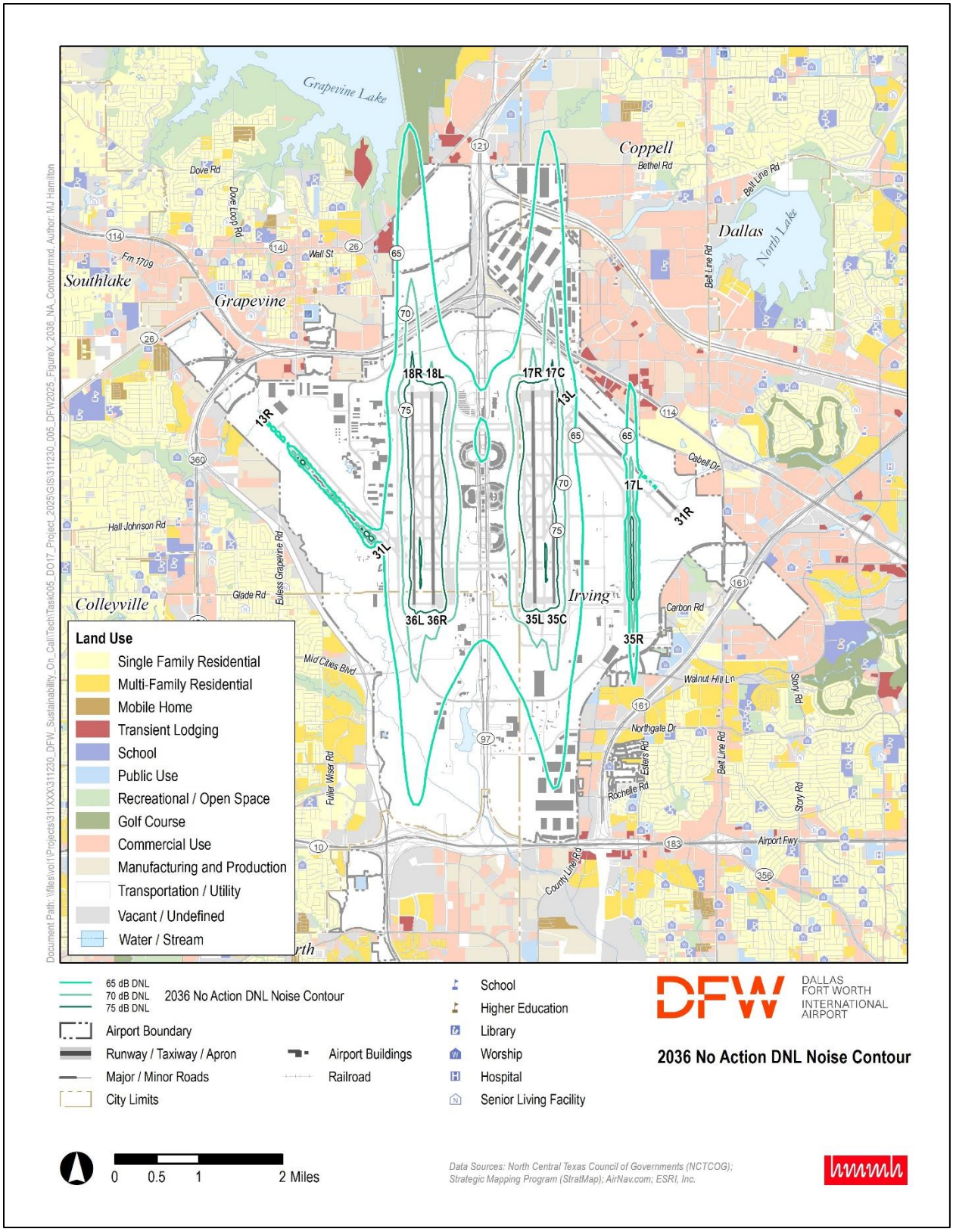

Figure 22. No Action Alternative (2036) Noise Exposure Contour with Land Use

7.11 Future (2036) Proposed Action Alternative

The proposed project would be completed in 2026. The Future (2036) Proposed Action Alternative reflects the year of implementation (2026) plus 10 years. The Future (2031) Proposed Action Alternative would include the additional cargo operations disclosed in the 19th Street Cargo EA Proposed Action. All forecasted demand would be accommodated with the additional gates in the Proposed Action Alternative. Therefore, the forecast annual operations for Future (2036) Proposed Action Alternative would be over 960,000 operations.

7.11.1 Future (2036) Proposed Action Alternative Aircraft Activity Levels and Fleet Mix

The 963,225 annual operations forecast to occur in 2036 with the Proposed Action translates to 2,639 AAD operations were modeled for the Future (2036) Proposed Action Alternative noise analysis. **Table 49** provides representative aircraft and engine combinations and the number of average daily operations that were modeled in AEDT for the Future (2036) Proposed Action Alternative. The Future (2036) Proposed Action fleet mix would include the additional operations in the Air Carrier and Air Taxi categories (an additional 353 operations in Air Carrier and 11 operations in Air Taxi) compared to the Future (2036) NAA. With the additional gates, the Future (2036) Proposed Action has less night operations than the Future (2036) No Action. The Future (2036) Proposed Action AAD includes 2,639 total operations, 8.4 percent of which occurred during the DNL nighttime hours of 10:00 p.m. to 6:59 a.m.

Table 49. DFW Modeled AAD Aircraft Operations for Proposed Action Alternative (2036)

Source: FAA TAF, HMMH, 2023

Tower Category	Propulsion	ANP Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Carrier	**Jet**	737700	81	4	85	74	11	85	170
		737800	255	16	271	257	14	271	541
		7378MAX	60	6	66	59	6	66	131
		747400	7	<1	8	7	<1	8	16
		747400RN	<1	<1	<1	<1	<1	<1	<1
		7478	2	1	3	2	<1	3	5
		757PW	<1	1	2	<1	2	2	4
		757RR	<1	2	3	<1	2	3	6
		7673ER	11	5	17	10	7	17	33
		777200	10	6	16	14	2	16	32
		777300	10	2	12	9	2	12	24
		7773ER	7	<1	7	6	1	7	14
		7878R	5	1	6	6	<1	6	12
		7879	18	3	21	21	<1	21	43
		A300-622R	<1	<1	<1	<1	<1	<1	1
		A319-131	110	3	113	108	5	113	226
		A320-211	20	3	24	20	4	24	47
		A320-232	62	8	70	62	9	70	141
		A320-271N	64	6	70	65	5	70	140
		A321-232	260	29	290	265	25	290	579
		A350-941	1	0	1	1	<1	1	3
		A380-841	1	0	1	1	0	1	2

Tower Category	Propulsion	ANP Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
	Regional Jet	CRJ9-ER	91	4	94	88	6	94	188
		EMB170	78	3	81	74	7	81	162
		EMB175	8	<1	9	8	<1	9	18
		EMB190	2	<1	3	2	<1	3	5
	Subtotal		**1,166**	**106**	**1,272**	**1,161**	**111**	**1,272**	**2,544**
Air Taxi	Jet	CNA680	<1	<1	<1	<1	<1	<1	2
		EMB14L	32	1	33	32	1	33	66
	Non-jet	1900D	<1	<1	<1	<1	<1	<1	2
		CNA208	2	<1	2	2	<1	2	5
		DHC6	<1	<1	1	<1	<1	1	2
	Subtotal		**36**	**2**	**38**	**36**	**2**	**38**	**77**
General Aviation	Jet	CL600	<1	<1	<1	<1	<1	<1	<1
		CNA525C	<1	<1	<1	<1	<1	<1	<1
		CNA55B	<1	<1	<1	<1	<1	<1	<1
		CNA560XL	<1	<1	<1	<1	<1	<1	<1
		G650ER	<1	0	<1	<1	0	<1	<1
		GIV	<1	<1	<1	<1	<1	<1	<1
		GV	<1	0	<1	<1	<1	<1	<1
		LEAR35	<1	<1	<1	<1	<1	<1	<1
	Non-jet	CNA208	7	<1	7	7	<1	7	14
	Subtotal		**9**	**<1**	**9**	**9**	**<1**	**9**	**18**
Grand Total			**1,212**	**108**	**1,319**	**1,206**	**113**	**1,320**	**2,639**

Note: Totals may not match exactly due to rounding.
*ANP Type 737800 represents both B738 and B739 operations, which account for 97 percent and 3 percent, respectively.

7.11.2 Future (2036) Proposed Action Alternative Runway Utilization

The proposed action would not alter the location or length of the runways, nor would it alter future runway use. Runway end utilization for the Future (2036) Proposed Action Alternative is expected to be the same as the Future (2026) NAA (see **Table 17**).

7.11.3 Future (2036) Proposed Action Alternative Flight Tracks

The proposed action would not alter future track and track use. Flight track locations and percent utilization for the Future (2036) Proposed Action Alternative would be expected to be the same as the existing conditions (see **Section 6.4**).

7.11.4 Future (2036) Proposed Action Alternative Aircraft Stage Length and Operational Profiles

The trip lengths flown from DFW for the Future (2036) Proposed Action Alternative is expected to be the same as the Future (2036) NAA (see **Section 7.10.4**).

7.11.5 Future (2036) Proposed Action Alternative Noise Exposure Contours

Noise exposure contours were modeled in AEDT based on the FY year data; however, for reporting, CY data is required. The CY operations were developed by adding 3/4 of FY 2036 operations to 1/4 of FY 2037 operations.[20]

Table 50. Fiscal Year to Calendar Year Adjustment - 2036

Source: FAA 2021 TAF, Centurion Planning and Design Analysis, HMMH, 2023

Year	FY2036	CY2036	Adjustment
2036	963,225	966,666	1.003572

To determine the estimated changes in noise exposure, that could be attributed to the difference between calendar year and fiscal year level of activity, the AEM, a noise screening tool, was used to determine if further analysis is needed. The CY 2036 operational fleet mix was added to the AEM which based on forecasted operations can indicate whether the adjustment to CY 2036 would result in a noise change. The CY operations for 2036 were slightly higher than the FY; therefore, the noise screening results are slightly higher than modeled. **Table 51** shows the analysis results of the areas of noise exposure with each noise contour level for FY and CY data. The analysis shows that the adjustment to CY would increase the areas for the 65 DNL, 70 DNL, and 75 DNL by 0.3 percent. Therefore, no further analysis is needed due to the adjustment to CY 2036. The AEM does not separate arrival and departure operations or runway use; therefore, the areas of noise exposure are determined by the AEDT model. AEM screening analysis reports can be found in **Appendix D**.

Table 51. Fiscal Year to Calendar Year AEM Screening Analysis - 2036

Source: HMMH, 2023

Contour Range	FY2036 (sq mi)	CY2036 (sq mi)	Percent Change in Area
DNL 65-70 dB	8.22	8.24	0.3%
DNL 70-75 dB	3.47	3.47	0.3%
DNL 75+ dB	1.47	1.48	0.3%

Table 52 provides estimates of the total area split between on and off airport areas exposed to aircraft noise of at least 65 DNL for the Proposed Action Alternative. Approximately 13.53 square miles of land fall within the Future (2036) Proposed Action Alternative 65 DNL or higher noise exposure area. Of the total land area, approximately 0.78 square miles exposed to 65 DNL or higher is located off-Airport (the remaining 12.76 square miles are located on DFW property). **Table 52** summarizes the areas of noise exposure within each noise contour level (65 DNL, 70 DNL, and 75 DNL noise contours) for the Proposed Action Alternative. **Figure 23** shows the annual noise exposure pattern at DFW for the Future (2036) Proposed Action Alternative. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL.

[20] CY 2036 = (FY2036 ops / 12) *9 + (FY2037 ops / 12) *3

Table 52. Estimated Land Area within the Proposed Action Alternative (2036) Noise Exposure Contours

Source: HMMH, 2023

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	7.70	0.72	8.42
DNL 70-75 dB	2.55	0.06	2.60
DNL 75+ dB	2.51	0.00	2.51
Total	**12.76**	**0.78**	**13.53**

Similar to existing conditions, 2026, and 2031 alternatives, the size and shape of the noise exposure contours are reflective of the south and north flow at DFW. Noise contour patterns would 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 23 provides the resultant DNL contours for the Future (2036) Proposed Action Alternative. In the Future (2036) Proposed Action Alternative, the DNL contours would extend away from DFW on the north side in two main lobes along the extended centerline of the outboard parallel runways, extending off airport property on the west side to Grapevine Lake and on the east side to north of Bethel Rd. On the south side, the contour would extend in two main lobes along the extended centerline of the outboard parallel runways, extending off airport property on the west side just north to SH 183 and remains on airport property on the east side. The 65 DNL would also extend off airport property north of Runway 17L over compatible land use and south of Runway 35R over multi-family residential land use. The 70 DNL contour would barely extend off DFW property north of outboard parallel runways to across SH 114.

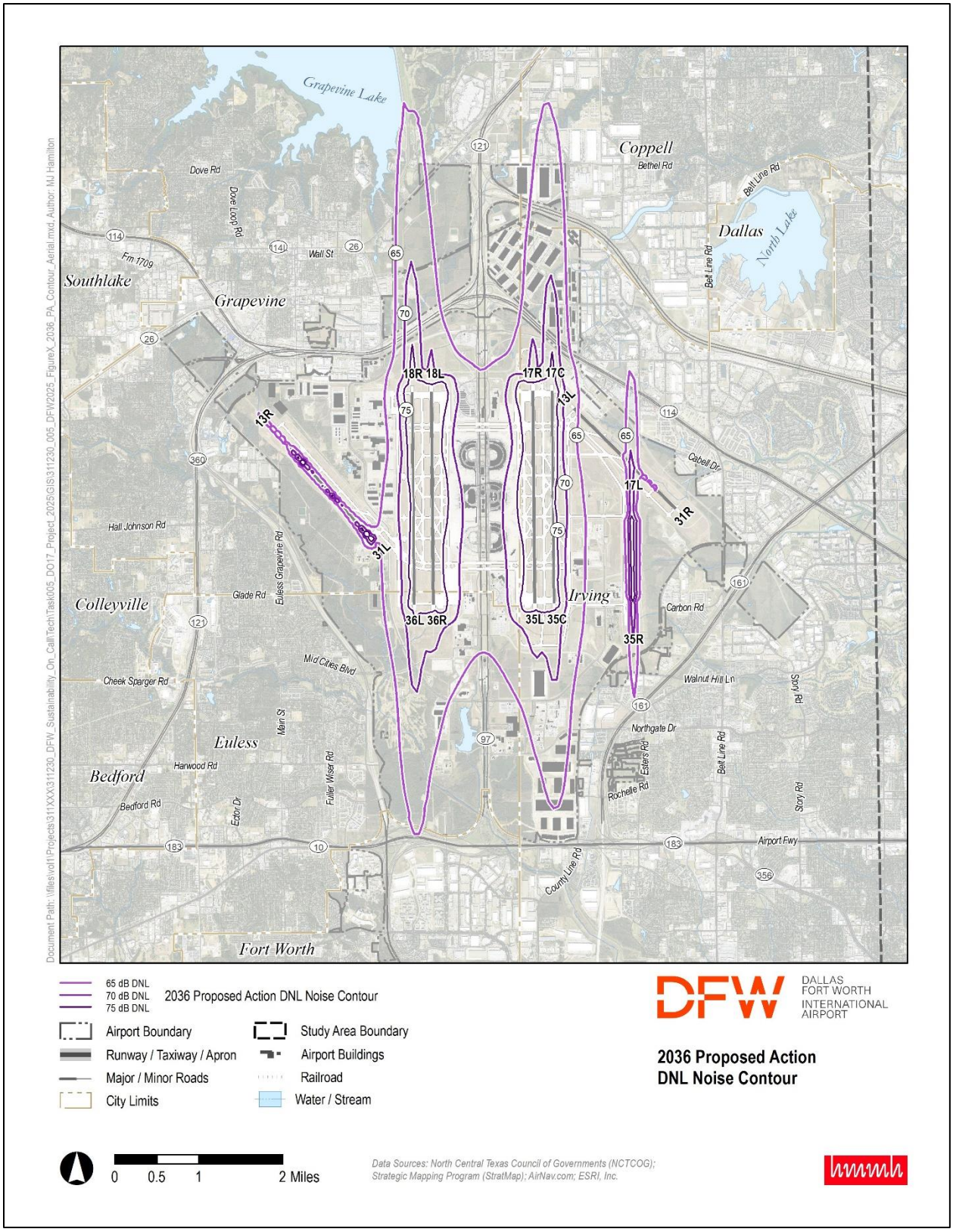

Figure 23. Proposed Action Alternative (2036) Noise Exposure Contours

7.11.6 Future (2036) Proposed Action Alternative Noise Compatible Land Use

There would no public schools, churches, nursing homes, hospitals, or libraries within any of the 65 DNL and greater contours with the Proposed Action in 2036. Furthermore, there would be no single-family or manufactured housing within any of the Future (2036) Proposed Action Alternative noise contours. There is one area south of Runway 17L/35R where the 65 DNL would extend off airport property and over residential (multi-family) land use. This resulted in 32 multi-family residential units (59 people) that could be exposed to 65 DNL or higher due to the Proposed Action (see **Figure 24**). **Table 53** summarizes the residential population and housing units affected by noise levels exceeding 65 DNL for the Future (2036) Proposed Action Alternative noise exposure contours.

Table 53. Non-Compatible Land Use Housing and Population Proposed Action Alternative (2036)

Source: HMMH, 2023

Category	Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	DNL 65+ dB
Housing	Single-Family Residential	0	0	0	0
	Multi-Family Residential	32	0	0	32
	Manufactured Housing	0	0	0	0
	Total Housing Units	**32**	**0**	**0**	**32**
Population	Single-Family Residential	0	0	0	0
	Multi-Family Residential	59	0	0	59
	Manufactured Housing	0	0	0	0
	Total Population	**59**	**0**	**0**	**59**
Notes: Population numbers are estimates based on the 2020 U.S. Census block data.					

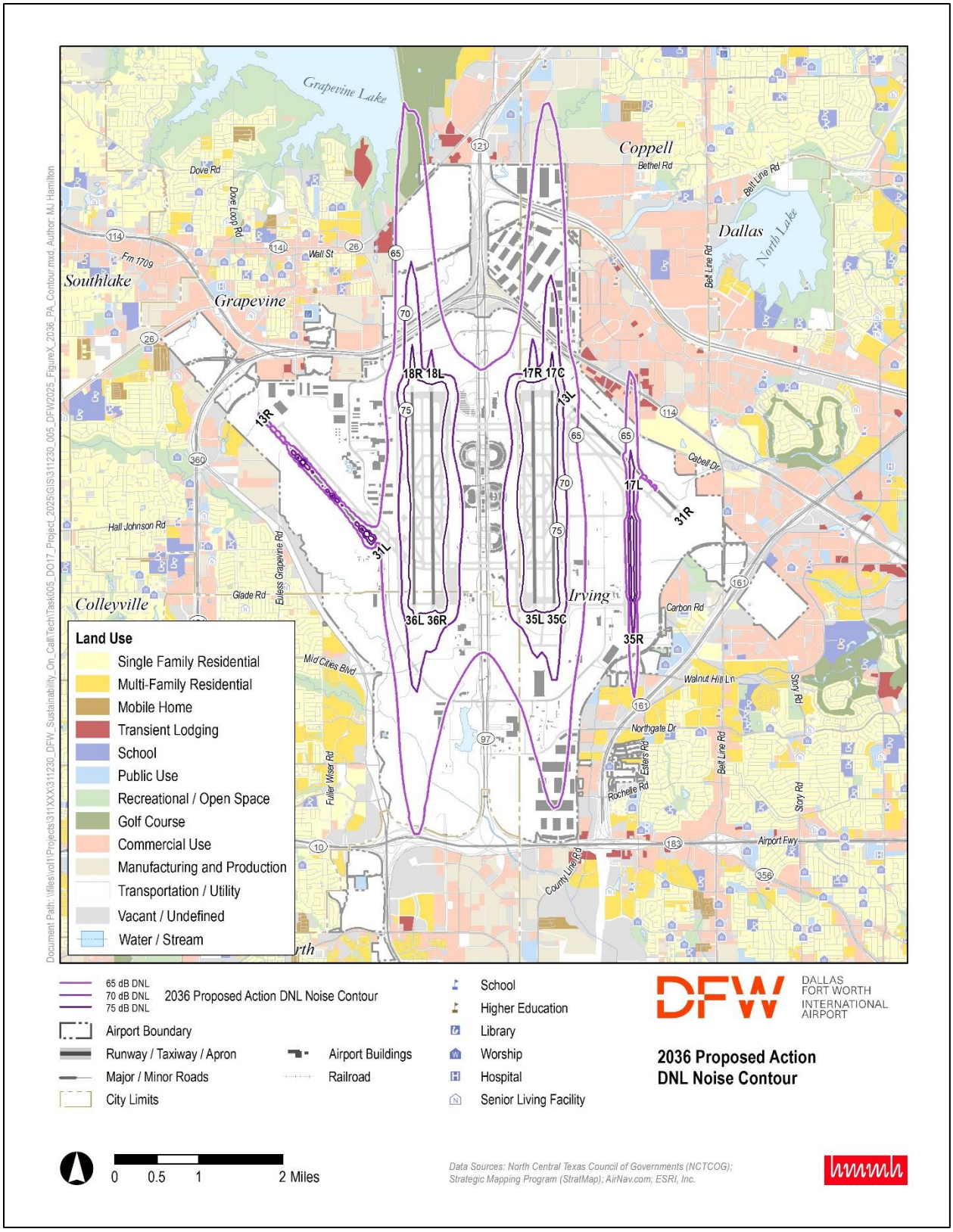

Figure 24. Proposed Action Alternative (2036) Noise Exposure Contours with Land Use

7.12 Comparison Between the 2036 NAA and Proposed Action Alternative

Table 54 provides estimates of the total area split between on and off airport areas that would be exposed to aircraft noise of at least 65 DNL for the Future (2036) NAA and Proposed Action Alternatives.

Table 54. Estimated Land Area within Future (2036) Noise Exposure Contour Alternatives

Source: HMMH, 2023

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	7.10	0.46	7.56
	DNL 70-75 dB	2.18	0.05	2.23
	DNL 75+ dB	2.33	0.00	2.33
	Total	**11.61**	**0.51**	**12.12**
Proposed Action	DNL 65-70 dB	7.70	0.72	8.42
	DNL 70-75 dB	2.55	0.06	2.60
	DNL 75+ dB	2.51	0.00	2.51
	Total	**12.76**	**0.78**	**13.53**
Difference (Proposed Action – NAA)	DNL 65-70 dB	0.60	0.26	0.86
	DNL 70-75 dB	0.37	0.01	0.37
	DNL 75+ dB	0.18	0.00	0.18
	Total	**1.15**	**0.27**	**1.41**

The noise exposure analysis results showed an increase in the estimated on and off airport land area; this was due to the increased operations in the Proposed Action Alternative. The noise analysis results showed that the Future (2036) Proposed Action would increase the estimated land area within the DNL 65+ dB noise exposure contour as compared to the Future (2036) NAA.

Figure 25 shows the comparison between the Future (2036) NAA and Proposed Action Alternative. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL. North of Runways 18R and 17C, the contour would extend further to the north due to increased arrivals to Runways 18R and 17C. The contour north of Runway 17L would extend further north than the Future (2036) NAA due to increased arrivals to Runway 17L. The area between Runways 18L and 17R would increase due to increased departures from Runways 36R and 35L.

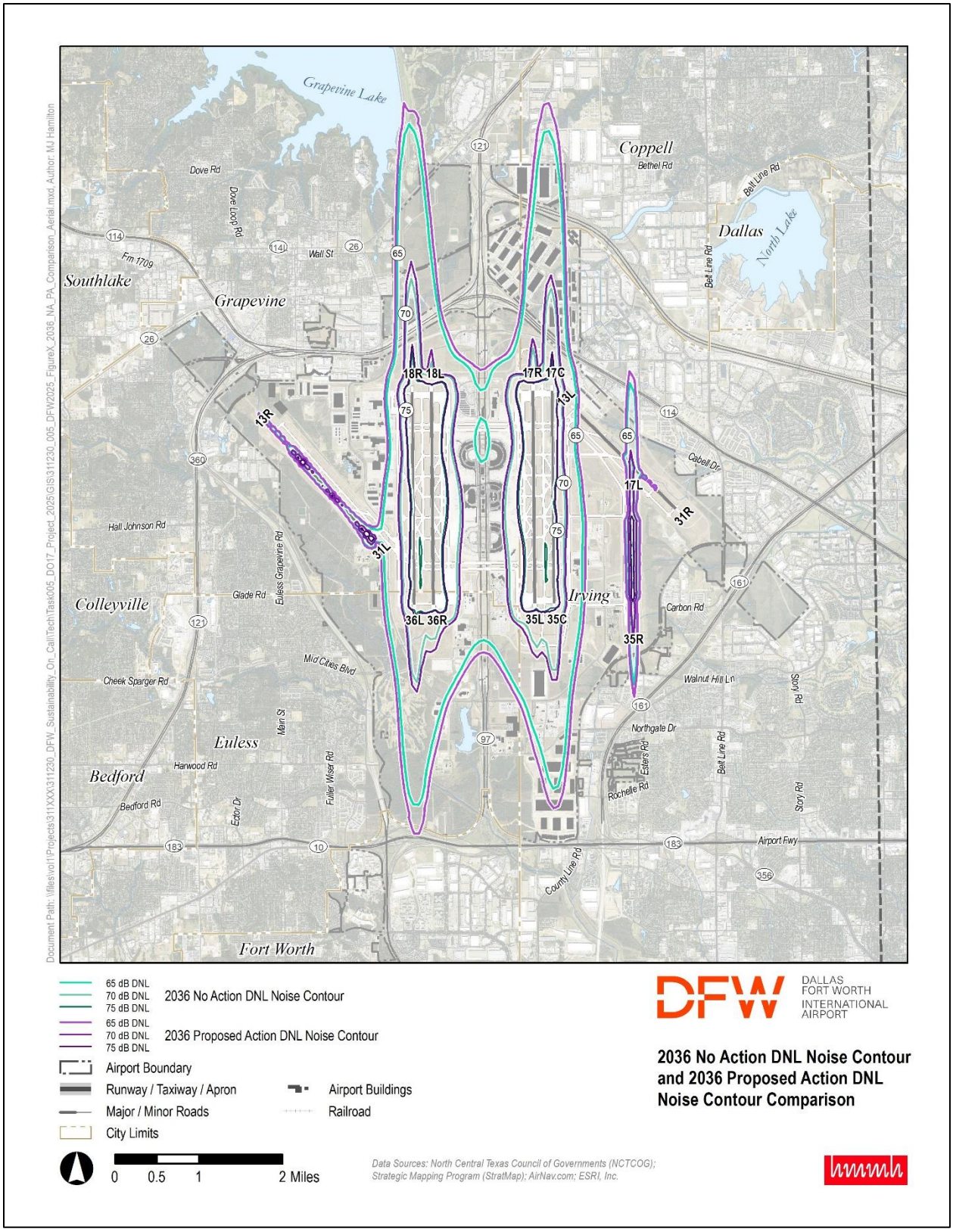

Figure 25. NAA and Proposed Action Alternative (2036) Noise Exposure Contours

To the south of the airport, the contour south of Runways 36L and 35C would extend further to the south due to increased arrivals to Runways 36L and 35C. The area between Runways 36R and 35L would increase due to the increase in departures from Runways 18L and 17R. The contour south of 35R would extend further to the south over the residential (multi-family) land use due to increased arrivals to Runway 35R. These buildings, located directly along the extended centerline of Runway 17L/35R, would be affected by increased aircraft operations on Runway 17L/35R in the Proposed Action. The analysis concluded that 32 multi-family residential units, with an estimated population of 59 people, would be located within the 65-70 dB DNL contour. **Table 55** provides a comparison of the residential population and housing units affected by noise levels exceeding DNL 65 dB for the Future (2036) NAA and Proposed Action Alternative Noise Exposure Contours. There would be no public schools, churches, nursing homes, hospitals, or libraries within any of the 65 DNL or greater contours with the Proposed Action in year 2036.

Table 55. Non-Compatible Land Use Housing and Population – Proposed Action Alternative (2036)

Source: HMMH, 2023

Alternative	Category	Type	DNL 65-70 dB	DNL 70-75 dB	DNL 75+ dB	DNL 65+ dB
No Action	**Housing**	Single-Family Residential	0	0	0	0
		Multi-Family Residential	0	0	0	0
		Manufactured Housing	0	0	0	0
		Total Housing Units	0	0	0	0
Proposed Action		Single-Family Residential	0	0	0	0
		Multi-Family Residential	32	0	0	32
		Manufactured Housing	0	0	0	0
		Total Housing Units	32	0	0	32
Difference (Proposed Action – NAA)		**Single-Family Residential**	**0**	**0**	**0**	**0**
		Multi-Family Residential	**32**	**0**	**0**	**32**
		Manufactured Housing	**0**	**0**	**0**	**0**
		Total Housing Units	**32**	**0**	**0**	**32**
No Action	**Population**	Single-Family Residential	0	0	0	0
		Multi-Family Residential	0	0	0	0
		Manufactured Housing	0	0	0	0
		Total Population	0	0	0	0
Proposed Action		Single-Family Residential	0	0	0	0
		Multi-Family Residential	59	0	0	59
		Manufactured Housing	0	0	0	0
		Total Population	59	0	0	59
Difference (Proposed Action – NAA)		**Single-Family Residential**	**0**	**0**	**0**	**0**
		Multi-Family Residential	**59**	**0**	**0**	**59**
		Manufactured Housing	**0**	**0**	**0**	**0**
		Total Population	**59**	**0**	**0**	**59**

Notes: Population numbers are estimates based on the 2020 U.S. Census block data.

7.13 Future (2036) Proposed Action Alternative Grid Point Evaluation

HMMH evaluated the change in noise using the modeling grid as described in **Section 5.3**. The noise study area grid was used to determine any significant changes (+/- 1.5 dB) within the 65 DNL or any reportable changes (+/- 3 dB) between 60 DNL and 65 DNL, or any reportable changes (+/- 5 dB) within the 45 DNL to 60 DNL contour. The evaluation shows that no significant impact areas and no areas of reportable changes would result due to the Future (2036) Proposed Action.

Figure 26 displays the area south of Runway 35R where the Future (2036) Proposed Action Alternatives 65 DNL contour would extend over residential land use. This area would be exposed to levels greater than 65 DNL due to the proposed project but would not exceed the NEPA threshold for significant noise impact of 1.5 dB or greater (noise increase within the 65 DNL is 0.6 dB).

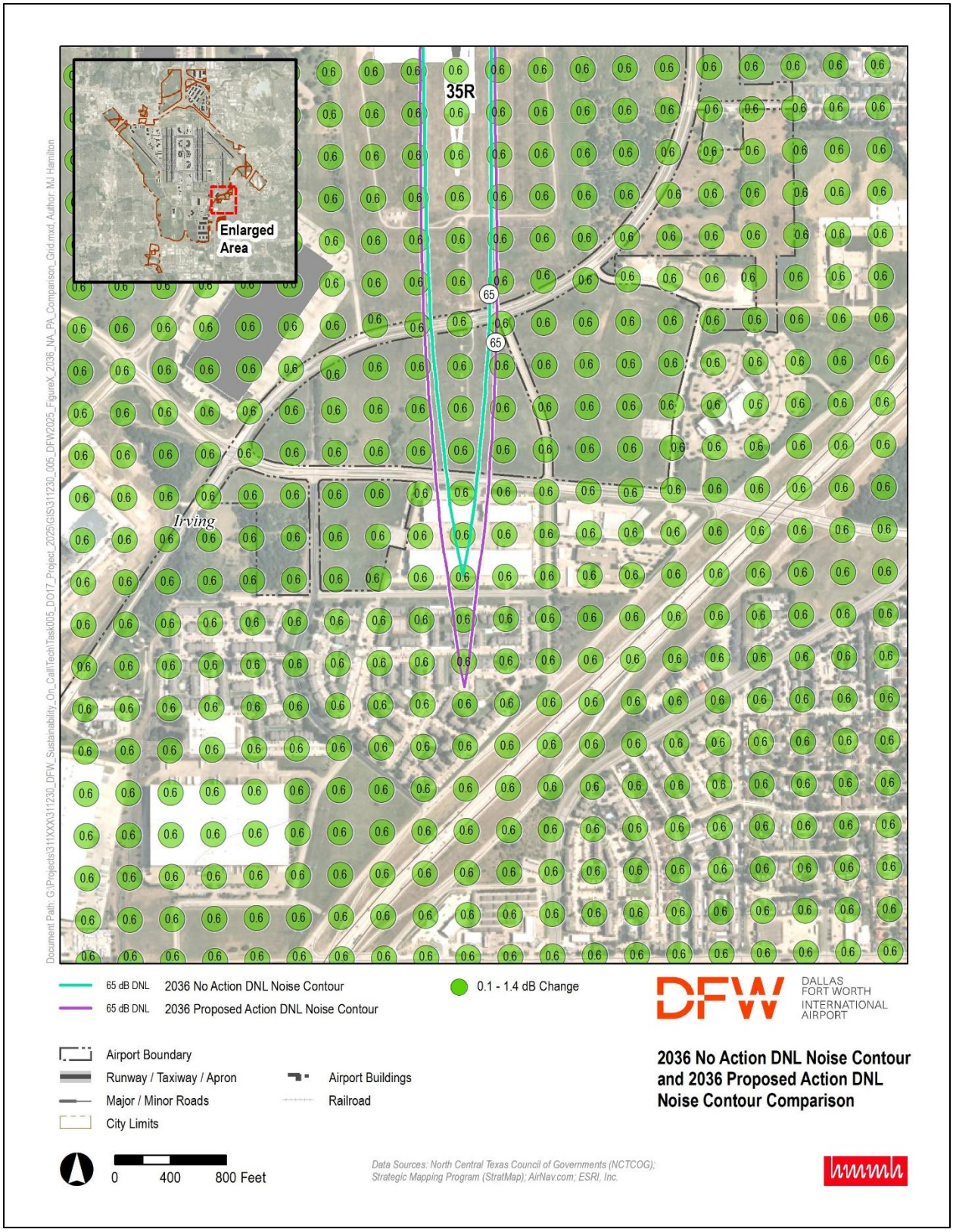

Figure 26. 2036 Proposed Action DNL Change Over Residential Areas – South of Runway 35R

8 Mitigation

A significant noise impact would occur if the analysis showed that the Proposed Action Alternative would result in noise-sensitive areas experiencing an increase in noise of DNL 1.5 dB or more, at or above DNL 65 dB noise exposure when compared to the NAA for the same timeframe. The Proposed Action Alternative does not result in any area of significant noise increase; **therefore, there is no significant noise impact due to the Proposed Action Alternative and no mitigation is required**.

There is a small area of residential land use south of Runway 35R in 2031 and 2036 that would be newly exposed to DNL 65 dB due to the Proposed Action Alternative when compared to the No Action (see **Figure 27**). This area consists of 6 residential units in 2031 of a multi-family apartment complex and 32 residential units of the same multi-family apartment complex by 2036. As there would be no significant impact, no mitigation is required for these residential units. These housing units could be considered for future mitigation since they would be within the Proposed Action 65 DNL contours. However, DFW Airport had previously offered mitigation as part of the 1992 Environmental Impact Statement (as this area was within the 1992 EIS DNL 70 dB contour as shown in **Figure 27**) to these apartment complexes, but it was not accepted, therefore DFW considers the area of these housing units a compatible land use.

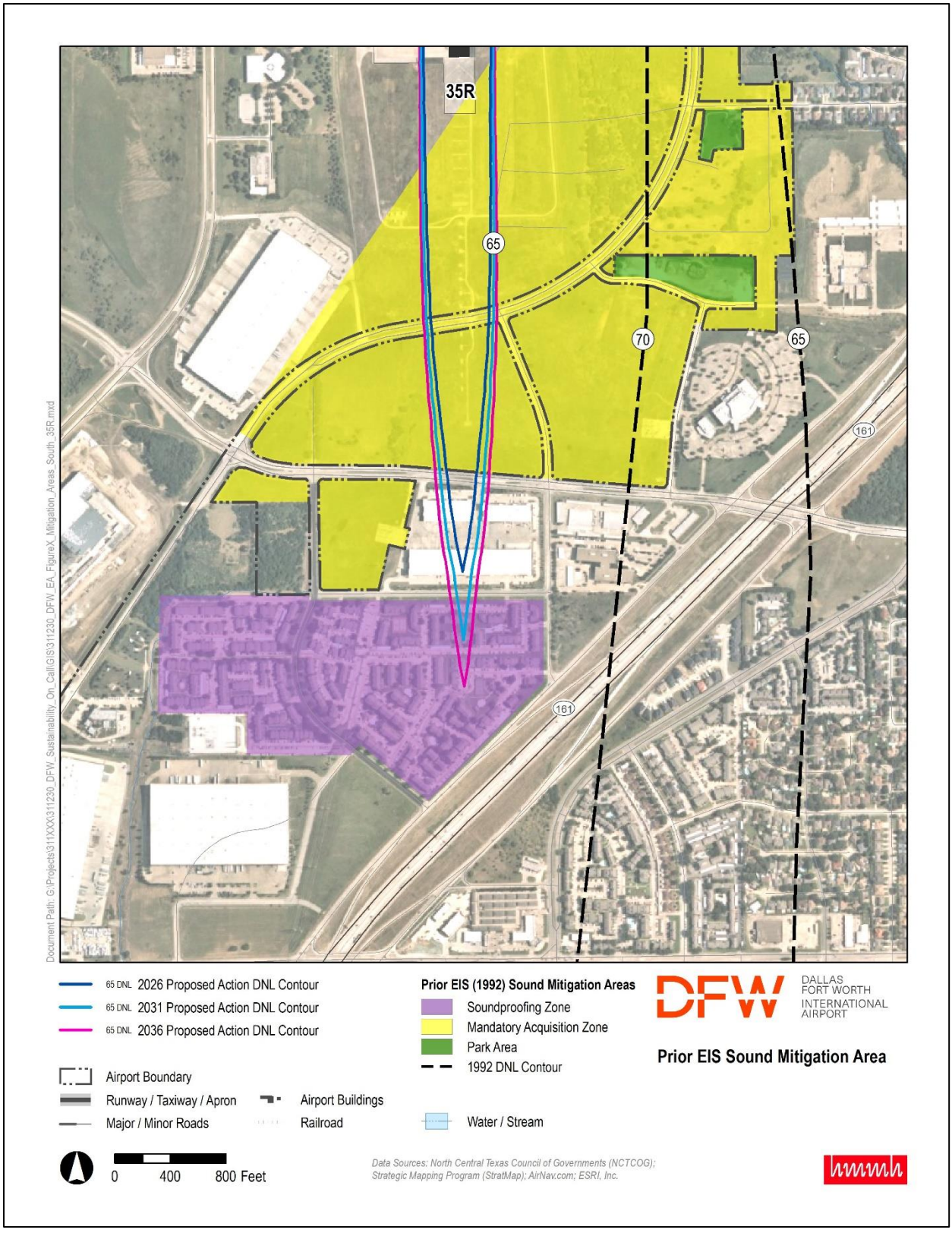

Figure 27. Prior EIS Sound Mitigation Area and 2026, 2031, 2036 Proposed Action 65 DNL Contours

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):

$$\textit{Sound Pressure Level (SPL)} = 20 * Log\left(\frac{P_{source}}{P_{reference}}\right) dB$$

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 dB we might expect. Four equal sources operating simultaneously produce another 3 dB 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 3 dB.

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 3 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.

The FAA requires 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.

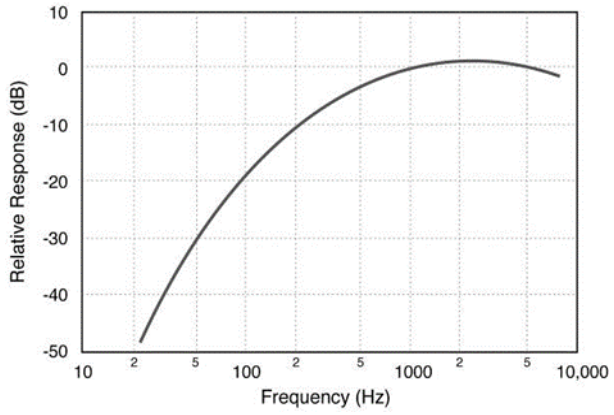

Figure A-1. Frequency-Response Characteristics of Various Weighting Networks
Source: HMMH, 2011

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.

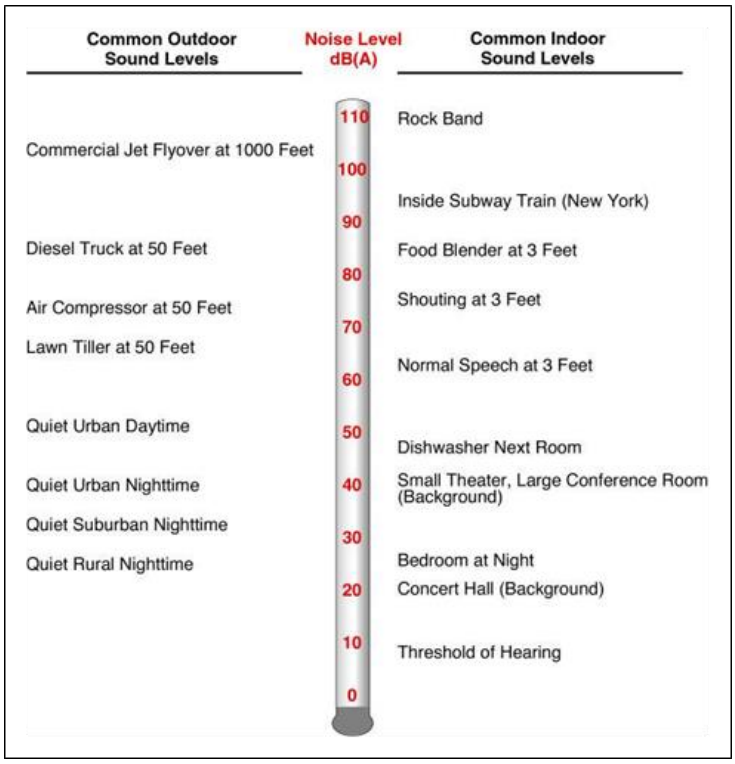

Figure A-2. Representative A-Weighted Sound Levels
Source: HMMH, 2011

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**.

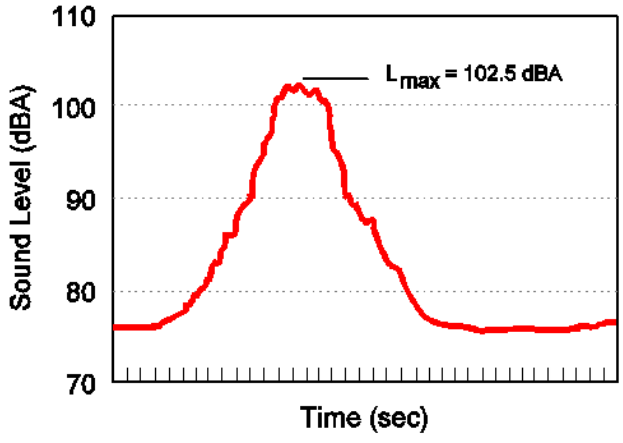

Figure A-3. Variation in the A-Weighted Sound Level over Time
Source: HMMH, 2011

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:

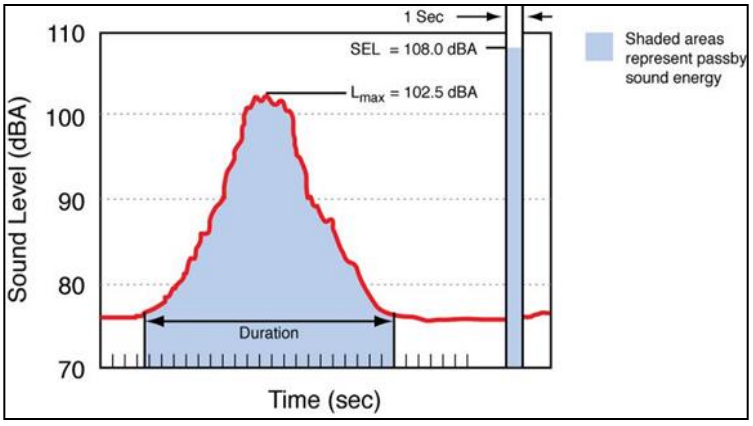

Figure A-4. Graphical Depiction of Sound Exposure Level
Source: HMMH, 2011

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.

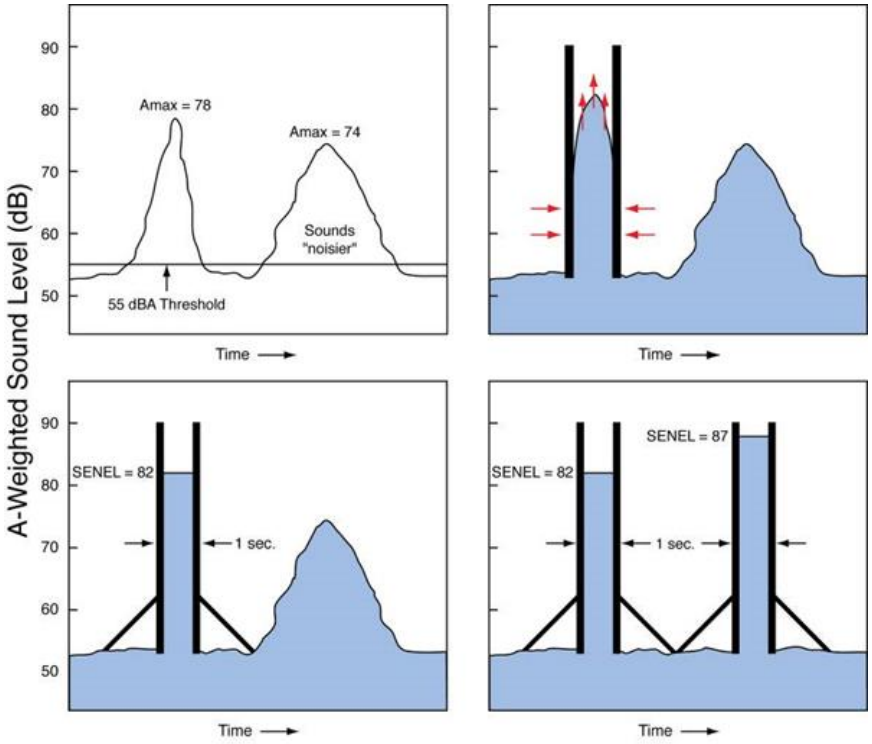

Figure A-5. Graphical Comparison of SEL for Two Noise Events with Different Maximums and Durations
Source: HMMH, 2011

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**.

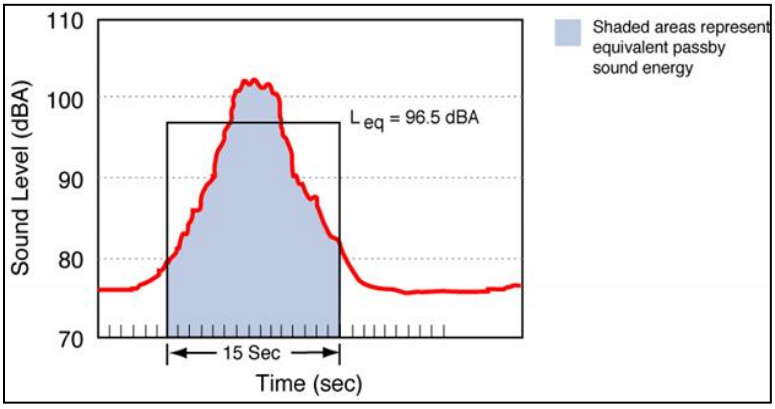

Figure A-6. Example of a One-Minute Equivalent Sound Level
Source: HMMH, 2011

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 7 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.

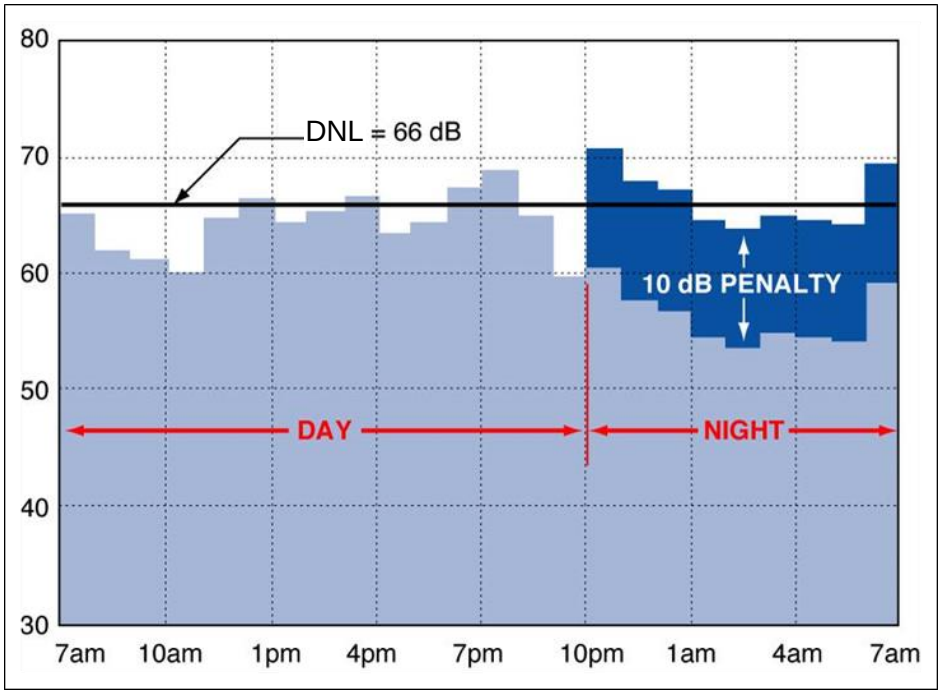

Figure A-7. Example of a Day-Night Average Sound Level Calculation
Source: HMMH, 2011

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.

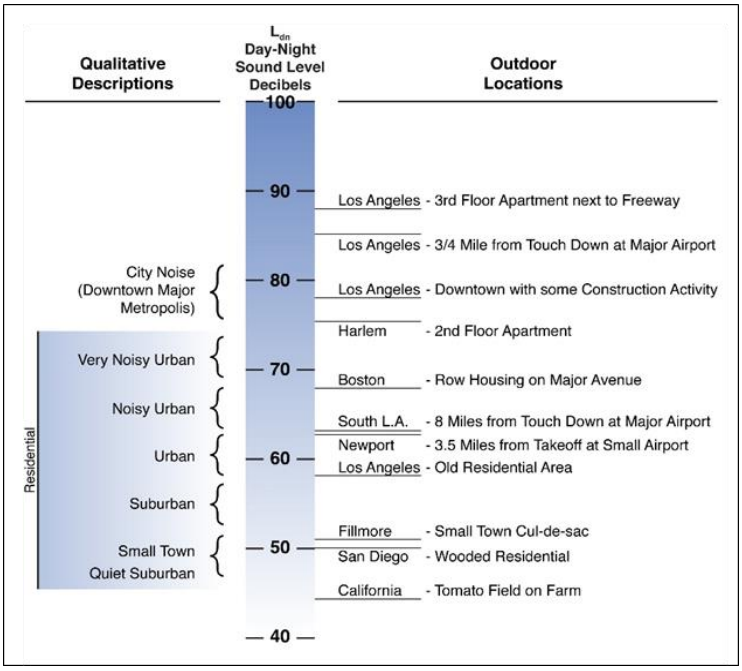

Figure A-8. Examples of Measured Day-Night Average Sound Levels
Source: HMMH, 2011

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
Source: HMMH, 2021

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

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 set of flight tracks reflects existing operations following RNAV departures and some Required Navigational Performance (RNP) arrival procedures, which are a subset of the more advanced Performance Based Navigation (PBN) procedures implemented at DFW. **Table B-1** presents the modeled flight track usage rates by runway end and aircraft type category, for arrivals and **Table B-2** presents the same information for departures. The usage rates were developed from the same AEDT study used to derive the model tracks and updated based on the DFW NOMS data from October 2021 to September 2022.

Table B-1. AEDT Arrival Flight Track Utilization
Source: Updated from 2021 AEDT Study HMMH, 2023

Runway	Track Group	Air Carrier		Air Taxi		General Aviation	
		Jet	Regional Jet	Jet	Non-jet	Jet	Non-jet
13L	13LAP1	0%	0%	0%	100%	0%	100%
	Subtotal	**0%**	**0%**	**0%**	**100%**	**0%**	**100%**
13R	13RAJ1	100%	100%	100%	0%	100%	0%
	13RAP1	0%	0%	0%	100%	0%	100%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
17C	17CAJ1A	16%	16%	16%	0%	16%	0%
	17CAJ1B	<1%	<1%	<1%	0%	<1%	0%
	17CAJ1C	12%	12%	12%	0%	12%	0%
	17CAJ1D	4%	4%	4%	0%	4%	0%
	17CAJ2A	5%	5%	5%	0%	5%	0%
	17CAJ2B	13%	13%	13%	0%	13%	0%
	17CAJ2C	10%	10%	10%	0%	10%	0%
	17CAJ2D	39%	39%	39%	0%	39%	0%
	17CAP1	0%	0%	0%	12%	0%	12%
	17CAP2	0%	0%	0%	73%	0%	73%
	17CAP3	0%	0%	0%	15%	0%	15%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
17L	17LAJ1	<1%	<1%	<1%	0%	<1%	0%
	17LAJ2	<1%	<1%	<1%	0%	<1%	0%
	17LAJ3	<1%	<1%	<1%	0%	<1%	0%
	17LAJ4	14%	14%	14%	0%	14%	0%
	17LAJ5	50%	50%	50%	0%	50%	0%
	17LAJ6	<1%	<1%	<1%	0%	<1%	0%
	17LAJ7	34%	34%	34%	0%	34%	0%
	17LAJ8	<1%	<1%	<1%	0%	<1%	0%
	17LAP1	0%	0%	0%	89%	0%	89%
	17LAP2	0%	0%	0%	11%	0%	11%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
17R	17RAJ1	6%	6%	6%	0%	6%	0%
	17RAJ2	18%	18%	18%	0%	18%	0%
	17RAJ3	26%	26%	26%	0%	26%	0%
	17RAJ4	7%	7%	7%	0%	7%	0%
	17RAJ5	21%	21%	21%	0%	21%	0%

Runway	Track Group	Air Carrier		Air Taxi		General Aviation	
		Jet	Regional Jet	Jet	Non-jet	Jet	Non-jet
	17RAJ6	9%	9%	9%	0%	9%	0%
	17RAJ7	13%	13%	13%	0%	13%	0%
	17RAP	0%	0%	0%	100%	0%	100%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
18L	18LAJ1	31%	31%	31%	0%	31%	0%
	18LAJ2	37%	37%	37%	0%	37%	0%
	18LAJ3	11%	11%	11%	0%	11%	0%
	18LAJ4	21%	21%	21%	0%	21%	0%
	18LAP	0%	0%	0%	100%	0%	100%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
18R	18RAJ1	4%	4%	4%	0%	4%	0%
	18RAJ2	31%	31%	31%	0%	31%	0%
	18RAJ3	<1%	<1%	<1%	0%	<1%	0%
	18RAJ4	51%	51%	51%	0%	51%	0%
	18RAJ5	2%	2%	2%	0%	2%	0%
	18RAJ6	<1%	<1%	<1%	0%	<1%	0%
	18RAJ7	2%	2%	2%	0%	2%	0%
	18RAJ8	4%	4%	4%	0%	4%	0%
	18RAJ9	5%	5%	5%	0%	5%	0%
	18RAP1	0%	0%	0%	41%	0%	41%
	18RAP2	0%	0%	0%	59%	0%	59%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
31L	31LAJ	100%	100%	100%	0%	100%	0%
	31LAP	0%	0%	0%	100%	0%	100%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
31R	31RAJ1	100%	100%	100%	0%	100%	0%
	31RAP1	0%	0%	0%	100%	0%	100%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
35C	35CAJ1A	15%	15%	15%	0%	15%	0%
	35CAJ1B	<1%	<1%	<1%	0%	<1%	0%
	35CAJ1C	<1%	<1%	<1%	0%	<1%	0%
	35CAJ2A	53%	53%	53%	0%	53%	0%
	35CAJ2B	<1%	<1%	<1%	0%	<1%	0%
	35CAJ2C	<1%	<1%	<1%	0%	<1%	0%
	35CAJ3A	17%	17%	17%	0%	17%	0%
	35CAJ3B	6%	6%	6%	0%	6%	0%
	35CAJ4A	4%	4%	4%	0%	4%	0%
	35CAJ4B	3%	3%	3%	0%	3%	0%
	35CAP1	0%	0%	0%	19%	0%	19%
	35CAP2	0%	0%	0%	45%	0%	45%
	35CAP3	0%	0%	0%	13%	0%	13%
	35CAP4	0%	0%	0%	23%	0%	23%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
35L	35LAJ1A	20%	20%	20%	0%	20%	0%
	35LAJ1B	22%	22%	22%	0%	22%	0%
	35LAJ2A	24%	24%	24%	0%	24%	0%
	35LAJ2B	6%	6%	6%	0%	6%	0%
	35LAJ3	15%	15%	15%	0%	15%	0%
	35LAJ4	13%	13%	13%	0%	13%	0%

Runway	Track Group	Air Carrier		Air Taxi		General Aviation	
		Jet	Regional Jet	Jet	Non-jet	Jet	Non-jet
	35LAP1	0%	0%	0%	100%	0%	100%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
35R	35RAJ1A	1%	1%	1%	0%	1%	0%
	35RAJ1B	<1%	<1%	<1%	0%	<1%	0%
	35RAJ2	32%	32%	32%	0%	32%	0%
	35RAJ3A	35%	35%	35%	0%	35%	0%
	35RAJ3B	31%	31%	31%	0%	31%	0%
	35RAJ4	<1%	<1%	<1%	0%	<1%	0%
	35RAP1	0%	0%	0%	69%	0%	69%
	35RAP2	0%	0%	0%	31%	0%	31%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
36L	36LAJ1A	40%	40%	40%	0%	40%	0%
	36LAJ1B	<1%	<1%	<1%	0%	<1%	0%
	36LAJ2A	<1%	<1%	<1%	0%	<1%	0%
	36LAJ2B	4%	4%	4%	0%	4%	0%
	36LAJ2C	7%	7%	7%	0%	7%	0%
	36LAJ2D	<1%	<1%	<1%	0%	<1%	0%
	36LAJ3A	2%	2%	2%	0%	2%	0%
	36LAJ3B	5%	5%	5%	0%	5%	0%
	36LAJ4A	26%	26%	26%	0%	26%	0%
	36LAJ4B	16%	16%	16%	0%	16%	0%
	36LAP1	0%	0%	0%	64%	0%	64%
	36LAP2	0%	0%	0%	11%	0%	11%
	36LAP3	0%	0%	0%	25%	0%	25%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
36R	36RAJ1	26%	26%	26%	0%	26%	0%
	36RAJ2A	3%	3%	3%	0%	3%	0%
	36RAJ2B	14%	14%	14%	0%	14%	0%
	36RAJ3	21%	21%	21%	0%	21%	0%
	36RAJ4	36%	36%	36%	0%	36%	0%
	36RAP1	0%	0%	0%	100%	0%	100%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Note: Totals may not match exactly due to rounding.							

Table B-2. AEDT Departure Flight Track Utilization

Source: Updated from 2021 AEDT Study HMMH, 2023

Runway	Track Group	Air Carrier		Air Taxi		General Aviation	
		Jet	Regional Jet	Jet	Non-jet	Jet	Non-jet
13L	13LDJ1	100%	100%	100%	0%	100%	0%
	13LDP1	0%	0%	0%	100%	0%	100%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
13R	13RDJ1	100%	100%	100%	0%	100%	0%
	13RDP1	0%	0%	0%	100%	0%	100%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
17C	17CDJ1	21%	21%	21%	0%	21%	0%
	17CDJ2A	39%	39%	39%	0%	39%	0%
	17CDJ2B	35%	35%	35%	0%	35%	0%

Runway	Track Group	Air Carrier		Air Taxi		General Aviation	
		Jet	Regional Jet	Jet	Non-jet	Jet	Non-jet
	17CDJ3	5%	5%	5%	0%	5%	0%
	17CDP1	0%	0%	0%	15%	0%	15%
	17CDP2	0%	0%	0%	65%	0%	65%
	17CDP3	0%	0%	0%	21%	0%	21%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
17L	17LDJ1	100%	100%	100%	0%	100%	0%
	17LDP1	0%	0%	0%	100%	0%	100%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
17R	17RDJ1A	<1%	<1%	<1%	0%	<1%	0%
	17RDJ1B	<1%	<1%	<1%	0%	<1%	0%
	17RDJ1C	<1%	<1%	<1%	0%	<1%	0%
	17RDJ2A	2%	2%	2%	0%	2%	0%
	17RDJ2B	1%	1%	1%	0%	1%	0%
	17RDJ3A	13%	13%	13%	0%	13%	0%
	17RDJ3B	3%	3%	3%	0%	3%	0%
	17RDJ4A	35%	35%	35%	0%	35%	0%
	17RDJ4B	11%	11%	11%	0%	11%	0%
	17RDJ4C	18%	18%	18%	0%	18%	0%
	17RDJ5A	3%	3%	3%	0%	3%	0%
	17RDJ5B	7%	7%	7%	0%	7%	0%
	17RDJ6	2%	2%	2%	0%	2%	0%
	17RDJ7	3%	3%	3%	0%	3%	0%
	17RDJ8	1%	1%	1%	0%	1%	0%
	17RDP1	0%	0%	0%	20%	0%	20%
	17RDP2	0%	0%	0%	33%	0%	33%
	17RDP3	0%	0%	0%	39%	0%	39%
	17RDP4	0%	0%	0%	8%	0%	8%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
18L	18LDJ1	<1%	<1%	<1%	0%	<1%	0%
	18LDJ10	6%	6%	6%	0%	6%	0%
	18LDJ2	7%	7%	7%	0%	7%	0%
	18LDJ3	2%	2%	2%	0%	2%	0%
	18LDJ4A	8%	8%	8%	0%	8%	0%
	18LDJ4B	8%	8%	8%	0%	8%	0%
	18LDJ4C	3%	3%	3%	0%	3%	0%
	18LDJ5A	4%	4%	4%	0%	4%	0%
	18LDJ5B	4%	4%	4%	0%	4%	0%
	18LDJ6	19%	19%	19%	0%	19%	0%
	18LDJ7	15%	15%	15%	0%	15%	0%
	18LDJ8	2%	2%	2%	0%	2%	0%
	18LDJ9	21%	21%	21%	0%	21%	0%
	18LDP1A	0%	0%	0%	58%	0%	58%
	18LDP1B	0%	0%	0%	42%	0%	42%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
18R	18RDJ1	20%	20%	20%	0%	20%	0%
	18RDJ2	14%	14%	14%	0%	14%	0%
	18RDJ3	15%	15%	15%	0%	15%	0%
	18RDJ4	9%	9%	9%	0%	9%	0%
	18RDJ5A	15%	15%	15%	0%	15%	0%

Runway	Track Group	Air Carrier		Air Taxi		General Aviation	
		Jet	Regional Jet	Jet	Non-jet	Jet	Non-jet
	18RDJ5B	17%	17%	17%	0%	17%	0%
	18RDJ6	10%	10%	10%	0%	10%	0%
	18RDP1A	0%	0%	0%	79%	0%	79%
	18RDP1B	0%	0%	0%	21%	0%	21%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
31L	31LDJ1	50%	50%	50%	0%	50%	0%
	31LDJ2	50%	50%	50%	0%	50%	0%
	31LDP1	0%	0%	0%	94%	0%	94%
	31LDP2	0%	0%	0%	6%	0%	6%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
31R	31RDJ	100%	100%	100%	0%	100%	0%
	31RDP	0%	0%	0%	100%	0%	100%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
35C	35CDJ1	4%	4%	4%	0%	4%	0%
	35CDJ2	13%	13%	13%	0%	13%	0%
	35CDJ3	3%	3%	3%	0%	3%	0%
	35CDJ4A	10%	10%	10%	0%	10%	0%
	35CDJ4B	5%	5%	5%	0%	5%	0%
	35CDJ5A	11%	11%	11%	0%	11%	0%
	35CDJ5B	9%	9%	9%	0%	9%	0%
	35CDJ6	45%	45%	45%	0%	45%	0%
	35CDP	0%	0%	0%	100%	0%	100%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
35L	35LDJ1A	<1%	<1%	<1%	0%	<1%	0%
	35LDJ1B	<1%	<1%	<1%	0%	<1%	0%
	35LDJ1C	<1%	<1%	<1%	0%	<1%	0%
	35LDJ2A	1%	1%	1%	0%	1%	0%
	35LDJ2B	13%	13%	13%	0%	13%	0%
	35LDJ2C	2%	2%	2%	0%	2%	0%
	35LDJ2D	<1%	<1%	<1%	0%	<1%	0%
	35LDJ3A	21%	21%	21%	0%	21%	0%
	35LDJ3B	12%	12%	12%	0%	12%	0%
	35LDJ4A	33%	33%	33%	0%	33%	0%
	35LDJ4B	2%	2%	2%	0%	2%	0%
	35LDJ4C	3%	3%	3%	0%	3%	0%
	35LDJ5A	10%	10%	10%	0%	10%	0%
	35LDJ5B	2%	2%	2%	0%	2%	0%
	35LDP1	0%	0%	0%	100%	0%	100%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
35R	35RDJ1	100%	100%	100%	0%	100%	0%
	Subtotal	**100%**	**100%**	**100%**	**0%**	**100%**	**0%**
36L	36LDJ1	31%	31%	31%	0%	31%	0%
	36LDJ2A	14%	14%	14%	0%	14%	0%
	36LDJ2B	11%	11%	11%	0%	11%	0%
	36LDJ3A	14%	14%	14%	0%	14%	0%
	36LDJ3B	20%	20%	20%	0%	20%	0%
	36LDJ3C	10%	10%	10%	0%	10%	0%
	36LDP1	0%	0%	0%	88%	0%	88%
	36LDP2	0%	0%	0%	12%	0%	12%

Runway	Track Group	Air Carrier		Air Taxi		General Aviation	
		Jet	Regional Jet	Jet	Non-jet	Jet	Non-jet
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
36R	36RDJ1	<1%	<1%	<1%	0%	<1%	0%
	36RDJ10	1%	1%	1%	0%	1%	0%
	36RDJ1B	17%	17%	17%	0%	17%	0%
	36RDJ2	6%	6%	6%	0%	6%	0%
	36RDJ3	19%	19%	19%	0%	19%	0%
	36RDJ4	5%	5%	5%	0%	5%	0%
	36RDJ5A	1%	1%	1%	0%	1%	0%
	36RDJ5B	<1%	<1%	<1%	0%	<1%	0%
	36RDJ5C	<1%	<1%	<1%	0%	<1%	0%
	36RDJ6	16%	16%	16%	0%	16%	0%
	36RDJ7	2%	2%	2%	0%	2%	0%
	36RDJ8	3%	3%	3%	0%	3%	0%
	36RDJ9	3%	3%	3%	0%	3%	0%
	36RDJC	3%	3%	3%	0%	3%	0%
	36RDJD	19%	19%	19%	0%	19%	0%
	36RDJE	<1%	<1%	<1%	0%	<1%	0%
	36RDJF	1%	1%	1%	0%	1%	0%
	36RDP1	0%	0%	0%	88%	0%	88%
	36RDP2	0%	0%	0%	12%	0%	12%
	Subtotal	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Note: Totals may not match exactly due to rounding.							

Appendix C Aviation Forecast

The following forecast memorandum was provided to the FAA for review and approval for the EA. FAA approved the use of this forecast on April 28, 2023.

CTA Expansion Project

No Action. For the purposes of NEPA analysis, the No Action scenario (constrained passenger operations) assumes that no additional passenger gates are built, but assumes the 19th Street Project is built including their corresponding operations. This reflects a building block approach recognizing that the cargo facilities will be constructed prior to the terminal facilities. **Table 8** below illustrates the operational activity with these assumptions. The No Action analysis will utilize a minimal air carrier and air taxi growth rate for the remaining years of 0.25%. Table 8 reflects the constrained No Action operations. **Table 9**, **Table 10**, and **Table 11** outline the No Action CTA fleet mix for 2026, 2031, and 2036, respectively.

Table 8 – Build Cargo – No Action CTA

No Action Terminal - Proposed Action Cargo				
TAF Year	Air Carrier & Air Taxi	General Aviation	Military	Total Operations
2022	667,816	6,285	213	674,314
2023	733,497	6,305	213	740,015
2024	782,967	6,324	213	789,504
2025	801,655	6,343	213	808,211
2026	803,581	6,363	213	810,157
2027	805,512	6,383	213	812,108
2028	807,448	6,402	213	814,063
2029	809,388	6,422	213	816,023
2030	811,333	6,442	213	817,988
2031	813,361	6,461	213	820,035
2032	815,394	6,481	213	822,088
2033	817,433	6,501	213	824,147
2034	819,477	6,521	213	826,211
2035	821,526	6,541	213	828,280
2036	823,580	6,561	213	830,354
2037	825,639	6,582	213	832,434
2038	827,703	6,602	213	834,518
2039	829,772	6,622	213	836,607

Source: FAA 2021 TAF; Centurion Planning and Design Analysis, January 2023.

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Table 9 – No Action CTA Fleet Mix – 2026

Category	Propulsion Class	AEDT Aircraft Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Carrier	Jet	7478	1.3	0.9	2.2	1.7	0.5	2.2	**4.5**
		7879	14.9	2.5	17.3	16.8	0.6	17.3	**34.7**
		737700	66.3	2.5	68.8	59.7	9.1	68.8	**137.6**
		737800	204.7	13.0	217.7	206.7	11.1	217.8	**435.5**
		747400	7.2	0.8	8.0	7.2	0.8	8.0	**16.0**
		777200	6.4	3.6	10.0	8.7	1.3	10.0	**20.0**
		777300	9.9	2.1	12.0	9.5	2.5	12.0	**24.0**
		7378MAX	48.7	3.3	52.1	48.9	3.2	52.1	**104.1**
		747400RN	0.0	0.0	0.1	0.0	0.0	0.1	**0.1**
		757PW	0.7	1.9	2.5	0.5	2.0	2.5	**5.1**
		757RR	0.8	2.9	3.6	0.7	2.9	3.6	**7.3**
		7673ER	8.8	4.0	12.8	7.8	4.9	12.8	**25.6**
		7773ER	4.9	0.3	5.3	4.3	0.9	5.3	**10.5**
		7878R	3.7	0.9	4.6	4.4	0.2	4.6	**9.2**
		A300-622R	2.2	2.4	4.6	1.5	3.1	4.6	**9.2**
		A319-131	90.9	3.1	94.0	89.5	4.4	93.9	**187.9**
		A320-211	15.8	2.5	18.3	15.3	3.1	18.3	**36.6**
		A320-232	34.9	6.7	41.5	34.6	6.9	41.5	**83.1**
		A320-271N	42.1	7.5	49.6	43.4	6.2	49.6	**99.2**
		A321-232	205.8	23.6	229.4	209.2	20.3	229.5	**458.9**
		A350-941	1.2	0.0	1.2	1.2	0.0	1.2	**2.3**
		A380-841	1.2	0.0	1.2	1.2	0.0	1.2	**2.4**
		DC1010	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		DC1030	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		EMB190	1.9	0.0	1.9	1.9	0.0	1.9	**3.9**
		MD11GE	0.6	0.4	1.0	0.6	0.4	1.0	**2.0**
		MD11PW	0.8	0.5	1.3	0.8	0.5	1.3	**2.6**
	Regional Jet	CRJ9-ER	97.1	3.3	100.4	94.4	6.0	100.4	**200.7**
		EMB170	88.5	2.9	91.4	83.8	7.6	91.4	**182.8**
		EMB175	9.1	0.8	9.9	9.3	0.5	9.9	**19.7**
	Subtotal		**970.3**	**92.4**	**1062.7**	**963.7**	**99.0**	**1062.7**	**2125.4**
Air Taxi	Jet	CNA680	0.6	0.0	0.6	0.6	0.0	0.6	**1.2**
	Nonjet	1900D	0.7	0.0	0.7	0.2	0.4	0.6	**1.3**
		CNA208	1.2	0.4	1.5	1.3	0.2	1.5	**3.1**
		DHC6	0.7	0.1	0.8	0.5	0.3	0.8	**1.6**
	Regional Jet	EMB14L	31.8	1.1	32.8	31.3	5.1	36.4	**69.2**
	Subtotal		**34.9**	**1.6**	**36.5**	**33.9**	**6.0**	**39.9**	**76.4**
General Aviation	Jet	CL600	0.2	0.0	0.2	0.2	0.0	0.2	**0.4**
		CNA525C	0.4	0.0	0.4	0.4	0.0	0.4	**0.8**
		CNA55B	0.2	0.0	0.2	0.2	0.0	0.2	**0.5**
		CNA560XL	0.4	0.0	0.4	0.4	0.0	0.4	**0.8**
		G650ER	0.0	0.0	0.0	0.0	0.0	0.0	**0.1**
		GIV	0.3	0.0	0.3	0.3	0.0	0.3	**0.6**
		GV	0.1	0.0	0.1	0.1	0.0	0.1	**0.3**
		LEAR35	0.3	0.0	0.4	0.4	0.0	0.4	**0.8**
	Nonjet	CNA208	6.4	0.3	6.7	6.4	0.3	6.7	**13.4**
	Subtotal		**8.4**	**0.4**	**8.9**	**8.5**	**0.4**	**8.9**	**17.8**
Grand Total			**1013.7**	**94.4**	**1108.1**	**1006.1**	**105.4**	**1111.6**	**2219.6**

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Table 10 – No Action CTA Fleet Mix – 2031

Category	Propulsion Class	AEDT Aircraft Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Carrier	Jet	7478	1.4	0.9	2.3	1.8	0.5	2.3	**4.6**
		7879	15.1	2.5	17.5	17.0	0.6	17.5	**35.1**
		737700	73.1	2.7	75.8	66.5	9.4	75.8	**151.7**
		737800	227.6	14.0	241.6	229.3	12.3	241.6	**483.1**
		747400	7.2	0.8	8.0	7.2	0.8	8.0	**16.0**
		777200	6.5	3.6	10.1	8.8	1.4	10.1	**20.3**
		777300	9.9	2.1	12.0	9.5	2.5	12.0	**24.0**
		7378MAX	49.1	3.3	52.4	49.2	3.2	52.4	**104.8**
		747400RN	0.0	0.0	0.1	0.0	0.0	0.1	**0.1**
		757PW	0.6	1.6	2.2	0.5	1.7	2.2	**4.3**
		757RR	0.6	2.5	3.1	0.6	2.5	3.1	**6.2**
		7673ER	7.8	3.4	11.2	6.9	4.2	11.2	**22.3**
		7773ER	5.3	0.6	5.9	4.7	1.2	5.9	**11.8**
		7878R	3.8	0.9	4.7	4.5	0.2	4.7	**9.4**
		A300-622R	1.7	1.9	3.7	1.2	2.5	3.7	**7.3**
		A319-131	97.1	3.1	100.2	95.7	4.5	100.2	**200.3**
		A320-211	15.4	2.5	17.9	15.0	3.0	17.9	**35.9**
		A320-232	35.3	6.8	42.0	35.0	7.0	42.0	**84.1**
		A320-271N	40.3	5.2	45.5	41.6	3.9	45.5	**90.9**
		A321-232	214.2	24.5	238.6	217.6	21.1	238.6	**477.2**
		A350-941	1.2	0.0	1.2	1.2	0.0	1.2	**2.4**
		A380-841	1.2	0.0	1.2	1.2	0.0	1.2	**2.4**
		DC1010	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		DC1030	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		EMB190	2.0	0.0	2.0	2.0	0.0	2.0	**3.9**
		MD11GE	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		MD11PW	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Regional Jet	CRJ9-ER	86.4	3.0	89.4	83.9	5.5	89.4	**178.8**
		EMB170	81.0	2.7	83.7	76.7	7.0	83.7	**167.4**
		EMB175	8.3	0.7	9.0	8.6	0.5	9.0	**18.1**
	Subtotal		**991.9**	**89.4**	**1081.2**	**985.8**	**95.4**	**1081.2**	**2162.4**
Air Taxi	Jet	CNA680	0.5	0.0	0.5	0.5	0.0	0.5	**1.1**
	Nonjet	1900D	0.6	0.0	0.6	0.2	0.3	0.5	**1.1**
		CNA208	1.1	0.3	1.4	1.2	0.2	1.4	**2.8**
		DHC6	0.6	0.1	0.7	0.4	0.2	0.7	**1.4**
	Regional Jet	EMB14L	27.5	0.9	28.4	27.1	4.4	31.5	**59.9**
	Subtotal		**30.2**	**1.4**	**31.6**	**29.4**	**5.2**	**34.6**	**66.2**
General Aviation	Jet	CL600	0.2	0.0	0.2	0.2	0.0	0.2	**0.4**
		CNA525C	0.4	0.0	0.4	0.4	0.0	0.4	**0.8**
		CNA55B	0.2	0.0	0.3	0.2	0.0	0.3	**0.5**
		CNA560XL	0.4	0.0	0.4	0.4	0.0	0.4	**0.8**
		G650ER	0.0	0.0	0.0	0.0	0.0	0.0	**0.1**
		GIV	0.3	0.0	0.3	0.3	0.0	0.3	**0.7**
		GV	0.2	0.0	0.2	0.1	0.0	0.2	**0.3**
		LEAR35	0.4	0.0	0.4	0.4	0.0	0.4	**0.8**
	Nonjet	CNA208	6.5	0.3	6.8	6.5	0.3	6.8	**13.6**
	Subtotal		**8.7**	**0.4**	**9.1**	**8.6**	**0.4**	**9.0**	**18.1**
Grand Total			**1030.8**	**91.2**	**1122.0**	**1023.9**	**100.9**	**1124.8**	**2246.7**

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Table 11 – No Action CTA Fleet Mix – 2036

Category	Propulsion Class	AEDT Aircraft Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Carrier	Jet	7478	1.4	0.9	2.3	1.8	0.5	2.3	**4.6**
		7879	15.3	2.5	17.9	17.3	0.6	17.9	**35.7**
		737700	75.2	3.9	79.1	68.5	10.6	79.1	**158.2**
		737800	230.4	14.2	244.6	232.2	12.4	244.6	**489.2**
		747400	7.2	0.8	8.0	7.2	0.8	8.0	**16.0**
		777200	6.6	3.7	10.3	8.9	1.4	10.3	**20.5**
		777300	9.9	2.1	12.0	9.5	2.5	12.0	**24.0**
		7378MAX	59.8	5.3	65.2	59.7	5.4	65.2	**130.3**
		747400RN	0.0	0.0	0.1	0.0	0.0	0.1	**0.1**
		757PW	0.5	1.5	2.0	0.4	1.6	2.0	**4.0**
		757RR	0.6	2.3	2.8	0.6	2.3	2.8	**5.7**
		7673ER	7.9	3.4	11.3	7.0	4.3	11.3	**22.6**
		7773ER	5.3	0.6	6.0	4.7	1.2	6.0	**11.9**
		7878R	3.8	0.9	4.7	4.6	0.2	4.7	**9.5**
		A300-622R	0.3	0.3	0.6	0.2	0.4	0.6	**1.1**
		A319-131	98.3	3.1	101.4	96.9	4.5	101.4	**202.9**
		A320-211	15.6	2.5	18.2	15.1	3.0	18.2	**36.3**
		A320-232	35.7	6.9	42.6	35.5	7.1	42.6	**85.2**
		A320-271N	39.6	5.1	44.7	40.9	3.8	44.7	**89.4**
		A321-232	216.4	24.8	241.2	219.9	21.3	241.2	**482.4**
		A350-941	1.2	0.0	1.2	1.2	0.0	1.2	**2.4**
		A380-841	1.2	0.0	1.2	1.2	0.0	1.2	**2.5**
		DC1010	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		DC1030	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		EMB190	2.0	0.0	2.0	2.0	0.0	2.0	**4.0**
		MD11GE	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		MD11PW	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Regional Jet	CRJ9-ER	86.9	2.9	89.8	84.4	5.4	89.8	**179.6**
		EMB170	77.3	0.7	78.0	73.0	4.9	78.0	**155.9**
		EMB175	7.6	0.7	8.3	7.8	0.4	8.3	**16.6**
	Subtotal		**1006.1**	**89.1**	**1095.3**	**1000.5**	**94.8**	**1095.3**	**2190.6**
Air Taxi	Jet	CNA680	0.5	0.0	0.5	0.5	0.0	0.5	**1.1**
	Nonjet	1900D	0.6	0.0	0.6	0.2	0.4	0.5	**1.2**
		CNA208	1.1	0.4	1.4	1.2	0.2	1.4	**2.8**
		DHC6	0.6	0.1	0.7	0.4	0.3	0.7	**1.4**
	Regional Jet	EMB14L	27.2	0.9	28.2	26.9	4.4	31.4	**59.6**
	Subtotal		**30.1**	**1.4**	**31.5**	**29.3**	**5.2**	**34.6**	**66.0**
General Aviation	Jet	CL600	0.2	0.0	0.2	0.2	0.0	0.2	**0.4**
		CNA525C	0.4	0.0	0.4	0.4	0.0	0.4	**0.9**
		CNA55B	0.3	0.0	0.3	0.3	0.0	0.3	**0.5**
		CNA560XL	0.4	0.0	0.4	0.4	0.0	0.4	**0.8**
		G650ER	0.0	0.0	0.0	0.0	0.0	0.0	**0.1**
		GIV	0.3	0.0	0.3	0.3	0.0	0.3	**0.6**
		GV	0.2	0.0	0.2	0.1	0.0	0.2	**0.4**
		LEAR35	0.4	0.0	0.4	0.4	0.0	0.4	**0.8**
	Nonjet	CNA208	6.5	0.3	6.9	6.5	0.3	6.9	**13.8**
	Subtotal		**8.8**	**0.4**	**9.2**	**8.7**	**0.4**	**9.1**	**18.3**
Grand Total			**1045.0**	**91.0**	**1136.0**	**1038.5**	**100.5**	**1139.0**	**2274.9**

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CTA Expansion Project Proposed Action. For the purposes of the Central Terminal Area Expansion NEPA, the proposed action will consist of the operations shown in **Table 12**, with the proposed action CTA aircraft fleet mix for 2026 (Implementation Year), 2031 (Implementation Year + 5 years of operations), and 2036 (Implementation Year + 10 years of operations) as shown in **Table 13, Table 14,** and **Table 15.**

As shown in Table 12, DFW anticipates the CTA Project construction of the Terminal A and C Piers (net nine gates) and the new Terminal F (22 new gates) would be complete and operational in 2026. As such, the new gates will be available for operations; however, the operational demand is not forecasted to fully exist until later (estimated 2028). Beginning in 2026, the new gates will be used: 1) to offset existing operations from Terminal C during the phased renovation project and 2) to accommodate new operations over time. The new operations are anticipated to initially operate at lower levels of service, and ramp up to the 6.5 turns per day as demand increases in future years. The CTA EA includes operations occurring in 2031 and 2036 to allow for analysis, evaluation, and disclosure of potential and reasonably foreseeable environmental impacts.

Table 12 – Proposed Action – CTA

TAF Year	Air Carrier	Air Taxi & Commuter	General Aviation	Military	Total Operations
2022	594,676	73,140	6,285	213	674,314
2023	665,928	67,569	6,305	213	740,015
2024	729,813	53,154	6,324	213	789,504
2025	760,859	40,796	6,343	213	808,211
2026	781,450	28,093	6,363	213	816,119
2027	798,840	24,859	6,383	213	830,295
2028	814,665	25,230	6,402	213	846,510
2029	829,425	25,581	6,422	213	861,641
2030	843,620	25,922	6,442	213	876,197
2031	857,544	26,258	6,461	213	890,476
2032	871,694	26,600	6,481	213	904,988
2033	885,625	26,939	6,501	213	919,278
2034	899,891	27,288	6,521	213	933,913
2035	914,167	27,640	6,541	213	948,561
2036	928,457	27,994	6,561	213	963,225
2037	941,862	28,332	6,582	213	976,989
2038	954,896	28,667	6,602	213	990,378
2039	968,058	29,005	6,622	213	1,003,898

Source: FAA 2021 TAF; Centurion Planning and Design Analysis, January 2023.

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Table 13 – Proposed Action CTA Fleet Mix – 2026

Category	Propulsion Class	AEDT Aircraft Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Carrier	Jet	7478	1.4	0.9	2.3	1.8	0.5	2.3	**4.6**
		7879	15.6	2.6	18.1	17.5	0.6	18.1	**36.3**
		737700	68.8	3.1	72.0	62.7	9.3	72.0	**143.9**
		737800	215.8	13.6	229.4	217.8	11.5	229.4	**458.7**
		747400	7.2	0.8	8.0	7.2	0.8	8.0	**16.0**
		777200	6.2	3.2	9.4	8.7	0.7	9.4	**18.8**
		777300	9.9	2.1	12.0	9.5	2.5	12.0	**24.0**
		7378MAX	21.9	1.6	23.5	21.8	1.6	23.5	**46.9**
		747400RN	0.0	0.0	0.1	0.0	0.0	0.1	**0.1**
		757PW	0.5	1.5	2.0	0.4	1.6	2.0	**4.1**
		757RR	0.6	2.3	2.9	0.6	2.4	2.9	**5.9**
		7673ER	7.5	3.1	10.6	6.5	4.1	10.6	**21.2**
		7773ER	5.2	0.4	5.5	4.5	1.0	5.5	**11.0**
		7878R	3.8	0.9	4.7	4.5	0.2	4.7	**9.4**
		A300-622R	2.1	2.4	4.5	1.4	3.1	4.5	**8.9**
		A319-131	100.3	3.2	103.5	98.9	4.6	103.5	**207.1**
		A320-211	17.3	2.8	20.1	16.8	3.4	20.1	**40.2**
		A320-232	34.9	6.6	41.5	34.7	6.9	41.5	**83.1**
		A320-271N	36.4	4.5	40.9	37.5	3.5	40.9	**81.9**
		A321-232	217.2	24.8	242.0	221.3	20.9	242.2	**484.2**
		A350-941	1.3	0.0	1.3	1.3	0.0	1.3	**2.5**
		A380-841	1.0	0.0	1.0	1.0	0.0	1.0	**2.0**
		DC1010	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		DC1030	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		EMB190	2.1	0.1	2.1	2.1	0.1	2.2	**4.3**
		MD11GE	0.6	0.4	1.0	0.6	0.4	1.0	**2.0**
		MD11PW	0.8	0.5	1.3	0.8	0.5	1.3	**2.6**
	Regional Jet	CRJ9-ER	101.2	4.0	105.1	98.5	6.6	105.1	**210.2**
		EMB170	92.3	3.0	95.3	87.4	7.9	95.3	**190.6**
		EMB175	9.5	0.8	10.3	9.7	0.6	10.3	**20.6**
	Subtotal		**981.4**	**89.1**	**1070.5**	**975.5**	**95.2**	**1070.7**	**2141.2**
Air Taxi	Jet	CNA680	0.8	0.0	0.8	0.8	0.0	0.8	**1.6**
	Nonjet	1900D	0.9	0.0	0.9	0.3	0.6	0.9	**1.8**
		CNA208	1.5	0.5	2.0	1.7	0.3	2.0	**4.0**
		DHC6	0.9	0.2	1.1	0.6	0.5	1.1	**2.2**
	Regional Jet	EMB14L	32.9	0.9	33.7	32.5	1.3	33.7	**67.4**
	Subtotal		**36.9**	**1.6**	**38.5**	**35.9**	**2.6**	**38.5**	**77.0**
General Aviation	Jet	CL600	0.3	0.0	0.3	0.3	0.0	0.3	**0.6**
		CNA525C	0.5	0.0	0.5	0.5	0.0	0.5	**1.1**
		CNA55B	0.3	0.0	0.3	0.3	0.0	0.3	**0.7**
		CNA560XL	0.5	0.0	0.5	0.5	0.0	0.5	**1.0**
		G650ER	0.1	0.0	0.1	0.1	0.0	0.1	**0.1**
		GIV	0.4	0.0	0.4	0.4	0.0	0.4	**0.8**
		GV	0.2	0.0	0.2	0.2	0.0	0.2	**0.4**
		LEAR35	0.3	0.0	0.3	0.3	0.0	0.3	**0.6**
	Nonjet	CNA208	6.0	0.3	6.3	6.0	0.3	6.3	**12.5**
	Subtotal		**8.5**	**0.4**	**8.9**	**8.5**	**0.4**	**8.9**	**17.8**
Grand Total			**1026.8**	**91.1**	**1117.9**	**1019.9**	**98.2**	**1118.1**	**2235.9**

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Table 14 – Proposed Action CTA Fleet Mix – 2031

Category	Propulsion Class	AEDT Aircraft Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Carrier	Jet	7478	1.5	1.0	2.5	1.9	0.6	2.5	**5.0**
		7879	17.0	2.8	19.8	19.1	0.6	19.8	**39.6**
		737700	75.1	3.4	78.5	68.4	10.1	78.5	**157.1**
		737800	235.5	14.8	250.3	237.7	12.6	250.3	**500.5**
		747400	7.2	0.8	8.0	7.2	0.8	8.0	**16.0**
		777200	9.5	5.2	14.7	12.6	2.1	14.7	**29.3**
		777300	9.9	2.1	12.0	9.5	2.5	12.0	**24.0**
		7378MAX	53.1	3.1	56.2	52.5	3.7	56.2	**112.4**
		747400RN	0.0	0.0	0.1	0.0	0.0	0.1	**0.1**
		757PW	0.6	1.6	2.2	0.5	1.8	2.2	**4.5**
		757RR	0.7	2.5	3.2	0.6	2.6	3.2	**6.4**
		7673ER	8.2	3.4	11.6	7.1	4.5	11.6	**23.2**
		7773ER	5.6	0.4	6.0	5.0	1.1	6.0	**12.0**
		7878R	4.1	1.0	5.1	4.9	0.2	5.1	**10.2**
		A300-622R	2.3	2.6	4.9	1.5	3.3	4.9	**9.8**
		A319-131	101.3	3.0	104.3	99.6	4.7	104.3	**208.6**
		A320-211	18.9	3.1	21.9	18.3	3.7	21.9	**43.9**
		A320-232	38.1	7.2	45.3	37.8	7.5	45.3	**90.6**
		A320-271N	39.8	4.9	44.7	40.9	3.8	44.7	**89.4**
		A321-232	239.0	27.1	266.0	243.4	22.8	266.1	**532.1**
		A350-941	1.4	0.0	1.4	1.4	0.0	1.4	**2.8**
		A380-841	1.1	0.0	1.1	1.1	0.0	1.1	**2.2**
		DC1010	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		DC1030	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		EMB190	2.3	0.1	2.3	2.3	0.1	2.3	**4.7**
		MD11GE	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		MD11PW	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Regional Jet	CRJ9-ER	99.4	3.9	103.2	107.5	7.2	114.7	**217.9**
		EMB170	90.7	2.9	93.6	85.8	7.8	93.6	**187.1**
		EMB175	9.3	0.8	10.1	9.6	0.5	10.1	**20.2**
	Subtotal		**1071.5**	**97.6**	**1169.1**	**1076.1**	**104.5**	**1180.7**	**2349.7**
Air Taxi	Jet	CNA680	0.8	0.0	0.9	0.8	0.0	0.9	**1.7**
	Nonjet	1900D	0.9	0.0	0.9	0.4	0.6	0.9	**1.9**
		CNA208	1.6	0.5	2.1	1.8	0.3	2.1	**4.3**
		DHC6	1.0	0.2	1.2	0.7	0.5	1.2	**2.3**
	Regional Jet	EMB14L	30.0	0.8	30.8	30.0	0.9	30.9	**61.7**
	Subtotal		**34.3**	**1.6**	**35.9**	**33.7**	**2.3**	**36.0**	**71.9**
General Aviation	Jet	CL600	0.3	0.0	0.3	0.3	0.0	0.3	**0.6**
		CNA525C	0.5	0.0	0.5	0.5	0.0	0.5	**1.1**
		CNA55B	0.4	0.0	0.4	0.4	0.0	0.4	**0.7**
		CNA560XL	0.5	0.0	0.5	0.5	0.0	0.5	**1.0**
		G650ER	0.1	0.0	0.1	0.1	0.0	0.1	**0.1**
		GIV	0.3	0.0	0.3	0.4	0.0	0.4	**0.7**
		GV	0.2	0.0	0.2	0.2	0.0	0.2	**0.4**
		LEAR35	0.1	0.0	0.1	0.1	0.0	0.1	**0.1**
	Nonjet	CNA208	6.4	0.3	6.6	6.4	0.3	6.6	**13.3**
	Subtotal		**8.6**	**0.4**	**9.0**	**8.7**	**0.4**	**9.1**	**18.1**
Grand Total			**1114.4**	**99.5**	**1214.0**	**1118.5**	**107.2**	**1225.7**	**2439.7**

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Table 15 – Proposed Action CTA Fleet Mix – 2036

Category	Propulsion Class	AEDT Aircraft Type	Arrivals			Departures			Total
			Day	Night	Total	Day	Night	Total	
Air Carrier	Jet	7478	1.6	1.1	2.7	2.1	0.6	2.7	**5.4**
		7879	18.4	3.0	21.4	20.7	0.7	21.4	**42.8**
		737700	81.3	3.7	84.9	74.0	11.0	84.9	**169.9**
		737800	254.7	16.0	270.7	257.1	13.6	270.7	**541.4**
		747400	7.2	0.8	8.0	7.2	0.8	8.0	**16.0**
		777200	10.3	5.6	15.9	13.6	2.3	15.9	**31.7**
		777300	9.9	2.1	12.0	9.5	2.5	12.0	**24.0**
		7378MAX	59.9	5.8	65.7	59.3	6.4	65.7	**131.3**
		747400RN	0.0	0.0	0.1	0.0	0.0	0.1	**0.2**
		757PW	0.5	1.5	2.0	0.4	1.6	2.0	**4.1**
		757RR	0.6	2.3	2.9	0.6	2.4	2.9	**5.9**
		7673ER	11.3	5.2	16.5	10.0	6.5	16.5	**33.0**
		7773ER	6.6	0.5	7.1	5.8	1.2	7.1	**14.2**
		7878R	4.9	1.2	6.0	5.8	0.2	6.0	**12.1**
		A300-622R	0.3	0.3	0.6	0.2	0.4	0.6	**1.2**
		A319-131	109.6	3.2	112.8	107.8	5.0	112.8	**225.7**
		A320-211	20.4	3.3	23.7	19.8	4.0	23.7	**47.5**
		A320-232	62.2	8.2	70.4	61.9	8.5	70.4	**140.9**
		A320-271N	64.0	5.7	69.8	65.2	4.5	69.8	**139.5**
		A321-232	260.2	29.3	289.5	265.0	24.6	289.6	**579.1**
		A350-941	1.5	0.0	1.5	1.5	0.0	1.5	**3.0**
		A380-841	1.2	0.0	1.2	1.2	0.0	1.2	**2.4**
		DC1010	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		DC1030	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		EMB190	2.5	0.1	2.5	2.5	0.1	2.5	**5.1**
		MD11GE	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
		MD11PW	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Regional Jet	CRJ9-ER	85.9	3.4	89.2	92.9	6.3	99.1	**188.4**
		EMB170	78.5	2.5	81.0	74.2	6.7	81.0	**161.9**
		EMB175	8.0	0.7	8.7	8.3	0.5	8.8	**17.5**
	Subtotal		**1161.5**	**105.5**	**1267.0**	**1166.5**	**110.5**	**1277.0**	**2544.0**
Air Taxi	Jet	CNA680	0.9	0.0	0.9	0.9	0.0	0.9	**1.8**
	Nonjet	1900D	1.0	0.0	1.0	0.4	0.6	1.0	**2.0**
		CNA208	1.7	0.6	2.3	2.0	0.3	2.3	**4.5**
		DHC6	1.0	0.2	1.2	0.7	0.5	1.2	**2.4**
	Regional Jet	EMB14L	32.0	1.0	33.0	32.0	1.0	33.0	**65.9**
	Subtotal		**36.5**	**1.9**	**38.3**	**35.9**	**2.5**	**38.3**	**76.7**
General Aviation	Jet	CL600	0.3	0.0	0.3	0.3	0.0	0.3	**0.6**
		CNA525C	0.5	0.0	0.5	0.5	0.0	0.5	**1.1**
		CNA55B	0.4	0.0	0.4	0.4	0.0	0.4	**0.8**
		CNA560XL	0.5	0.0	0.5	0.5	0.0	0.5	**1.0**
		G650ER	0.1	0.0	0.1	0.1	0.0	0.1	**0.1**
		GIV	0.3	0.0	0.3	0.4	0.0	0.4	**0.8**
		GV	0.3	0.0	0.3	0.2	0.0	0.2	**0.5**
		LEAR35	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Nonjet	CNA208	6.5	0.2	6.7	6.5	0.2	6.7	**13.4**
	Subtotal		**8.8**	**0.3**	**9.1**	**8.9**	**0.3**	**9.2**	**18.3**
Grand Total			**1206.8**	**107.6**	**1314.4**	**1211.2**	**113.3**	**1324.5**	**2639.0**

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CTA Passenger Operations Summary: The CTA project would construct 31 new gates for a total of 201 gates in the six terminals. Gate utilization level of service is expected to increase to 6.5 turns per day as demand increases with full utilization anticipated in 2038 timeframe. For the purposes of the EA, the proposed action CTA aircraft fleet mix for 2026 (Implementation Year), 2031 (Implementation Year + 5 years of operations), and 2036 (Implementation Year + 10 years of operations) are summarized in **Table 16** below:

Table 16 –CTA Expansion Project: No Action and Proposed Action Comparison

CTA Project - No Action						
Year	Cargo	Passenger	GA	Military	Annual Total	Daily Ops
2026	31300	772281	6363	213	810157	2219.6
2031	31300	782061	6461	213	820035	2246.7
2036	31300	792280	6561	213	830354	2274.9

CTA Proposed Action						
Year	Cargo	Passenger	GA	Military	Annual Total	Daily Ops
2026	31300	778243	6363	213	816119	2235.9
2031	31300	852502	6461	213	890476	2439.7
2036	31300	925151	6561	213	963225	2639.0

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Appendix D AEM Screening Analysis

The following AEM screening analysis reports were generated by using the latest version of the AEM Version 2c SP2.

Federal Aviation Administration
Office of Environment and Energy
http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/aem_model/

Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	DFW FY 2022 to CY 2022

DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	5.6	5.5	-0.8%
70	2.4	2.4	-0.8%
75	1.0	1.0	-0.7%

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
707				
720				
737				
7478	1.16	0.54	1.15	0.53
707120				
707320				
717200				
727100				
727200				
737300				
737400				
737500				
737700	11.57	2.43	11.45	2.40
737800	164.28	9.77	162.61	9.67
747100				
747200				
747400	1.79	1.08	1.77	1.07
757300				
767300	5.08	2.62	5.03	2.59
767400				
777200	5.55	1.45	5.50	1.43
777300	2.24	1.76	2.22	1.74
1900D	0.70	0.34	0.69	0.34
707QN				
720B				
727D15				
727D17				
727EM1				
727EM2				
727Q15				
727Q7				
727Q9				
727QF				
7373B2				
737D17				
737N17				
737N9				
737QN				
74710Q				
74720A				
74720B				
747SP				
757PW	0.63	2.00	0.62	1.98
757RR	0.77	3.03	0.76	3.00
767CF6				
767JT9				
7773ER	3.52	0.48	3.49	0.47
7878R	15.11	1.56	14.95	1.54
A10A				
A3				
A300-622R	1.48	2.27	1.46	2.25
A300B4-203				

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
A310-304				
A319-131	80.98	3.19	80.15	3.15
A320-211	12.71	2.29	12.58	2.27
A320-232	34.10	7.15	33.76	7.07
A321-232	161.43	16.57	159.78	16.40
A330-301	0.98	0.00	0.97	0.00
A330-343				
A340-211				
A340-642				
A37				
A380-841	1.02		1.01	
A380-861				
A4C				
A6A				
A7D				
A7E				
B1				
B2A				
B52BDE				
B52G				
B52H				
B57E				
BAC111				
BAE146				
BAE300				
BEC58P				
C118				
C12				
C130				
C130AD				
C130E				
C-130E				
C130HP				
C131B				
C135A				
C135B				
C137				
C140				
C141A				
C17				
C18A				
C-20				
C21A				
C22				
C23				
C5A				
C7A				
C9A				
CIT3				
CL600	0.25	0.01	0.24	0.01
CL601				
CNA172				
CNA182				
CNA182FLT				
CNA206				
CNA208	7.68	0.74	7.60	0.73
CNA20T				
CNA441				
CNA500				
CNA510				
CNA525C	0.45	0.03	0.45	0.03
CNA55B	0.29	0.00	0.28	0.00
CNA560E				
CNA560U				
CNA560XL	0.46	0.01	0.45	0.01
CNA680	0.90	0.04	0.89	0.04
CNA750				
COMJET				
COMSEP				
CONCRD				
CRJ9-ER	124.79	6.61	123.52	6.55

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
CRJ9-LR				
CVR580				
DC1010	0.06	0.09	0.06	0.09
DC1030				
DC1040				
DC3				
DC6				
DC820				
DC850				
DC860				
DC870				
DC8QN				
DC910				
DC930				
DC93LW				
DC950				
DC95HW				
DC9Q7				
DC9Q9				
DHC-2FLT				
DHC6	0.90	0.38	0.89	0.38
DHC6QP				
DHC7				
DHC8				
DHC830				
DO228				
DO328				
E3A				
E4				
EA6B				
ECLIPSE500				
EMB120				
EMB145				
EMB14L	88.22	3.73	87.32	3.69
EMB170	87.40	5.35	86.51	5.30
EMB175	9.34	0.66	9.24	0.66
EMB190	1.47		1.45	
EMB195				
F10062				
F10065				
F100D				
F101B				
F102				
F104G				
F105D				
F106				
F111AE				
F111D				
F-111F				
F117A				
F14A				
F15A				
F15E20				
F15E29				
F16A				
F16GE				
F16PW0				
F-18				
F28MK2				
F28MK4				
F4C				
F-4C				
F5AB				
F5E				
F8				
FAL20				
FB111A				
GASEPF				
GASEPV				
GII				
GIIB				

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
GIV	0.30	0.02	0.30	0.02
GV	0.22	0.00	0.22	0.00
HS748A				
IA1125				
JAGUAR				
KC10A				
KC135				
KC-135				
KC135B				
KC135R				
L1011				
L10115				
L188				
LEAR25				
LEAR35	0.42	0.03	0.41	0.03
MD11GE	1.06	0.80	1.05	0.80
MD11PW	1.54	0.93	1.52	0.92
MD81				
MD82				
MD83				
MD9025				
MD9028				
MU3001				
OV10A				
P3A				
PA28				
PA30				
PA31				
PA42				
S3A&B				
SABR80				
SD330				
SF340				
SR71				
T1				
T29				
T-2C				
T3				
T33A				
T34				
T37B				
T-38A				
T39A				
T41				
T42				
T-43A				
T44				
TORNAD				
TR1				
U2				
U21				
U6				
U8F				
Total LTOs	830.82	77.98	822.37	77.19

Federal Aviation Administration
Office of Environment and Energy
http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/aem_model/

Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	DFW FY 2026NA to CY 2026NA

DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	7.3	7.3	0.0%
70	3.1	3.1	0.0%
75	1.3	1.3	0.0%

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
707				
720				
737				
7478	1.53	0.71	1.53	0.71
707120				
707320				
717200				
727100				
727200				
737300				
737400				
737500				
737700	63.05	5.76	63.08	5.76
737800	254.51	15.26	254.67	15.27
747100				
747200				
747400	7.18	0.86	7.19	0.86
757300				
767300	8.32	4.45	8.33	4.46
767400				
777200	7.55	2.47	7.55	2.48
777300	9.70	2.30	9.71	2.30
1900D	0.47	0.21	0.47	0.21
707QN				
720B				
727D15				
727D17				
727EM1				
727EM2				
727Q15				
727Q7				
727Q9				
727QF				
7373B2				
737D17				
737N17				
737N9				
737QN				
74710Q				
74720A				
74720B				
747SP				
757PW	0.60	1.92	0.60	1.92
757RR	0.74	2.91	0.74	2.91
767CF6				
767JT9				
7773ER	4.64	0.63	4.64	0.63
7878R	19.90	2.05	19.91	2.05
A10A				
A3				
A300-622R	1.81	2.77	1.81	2.78
A300B4-203				

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
A310-304				
A319-131	90.18	3.75	90.23	3.75
A320-211	15.52	2.80	15.53	2.80
A320-232	77.50	13.64	77.55	13.65
A321-232	207.52	21.96	207.64	21.97
A330-301	1.16	0.00	1.16	0.00
A330-343				
A340-211				
A340-642				
A37				
A380-841	1.20		1.20	
A380-861				
A4C				
A6A				
A7D				
A7E				
B1				
B2A				
B52BDE				
B52G				
B52H				
B57E				
BAC111				
BAE146				
BAE300				
BEC58P				
C118				
C12				
C130				
C130AD				
C130E				
C-130E				
C130HP				
C131B				
C135A				
C135B				
C137				
C140				
C141A				
C17				
C18A				
C-20				
C21A				
C22				
C23				
C5A				
C7A				
C9A				
CIT3				
CL600	0.21	0.01	0.21	0.01
CL601				
CNA172				
CNA182				
CNA182FLT				
CNA206				
CNA208	7.67	0.59	7.67	0.59
CNA20T				
CNA441				
CNA500				
CNA510				
CNA525C	0.39	0.03	0.39	0.03
CNA55B	0.24	0.00	0.25	0.00
CNA560E				
CNA560U				
CNA560XL	0.39	0.01	0.39	0.01
CNA680	0.58	0.02	0.58	0.02
CNA750				
COMJET				
COMSEP				
CONCRD				
CRJ9-ER	95.74	4.62	95.80	4.62

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
CRJ9-LR				
CVR580				
DC1010				
DC1030				
DC1040				
DC3				
DC6				
DC820				
DC850				
DC860				
DC870				
DC8QN				
DC910				
DC930				
DC93LW				
DC950				
DC95HW				
DC9Q7				
DC9Q9				
DHC-2FLT				
DHC6	0.61	0.19	0.61	0.19
DHC6QP				
DHC7				
DHC8				
DHC830				
DO228				
DO328				
E3A				
E4				
EA6B				
ECLIPSE500				
EMB120				
EMB145				
EMB14L	31.65	2.93	31.67	2.93
EMB170	86.13	5.27	86.18	5.28
EMB175	9.21	0.65	9.22	0.65
EMB190	1.93		1.93	
EMB195				
F10062				
F10065				
F100D				
F101B				
F102				
F104G				
F105D				
F106				
F111AE				
F111D				
F-111F				
F117A				
F14A				
F15A				
F15E20				
F15E29				
F16A				
F16GE				
F16PW0				
F-18				
F28MK2				
F28MK4				
F4C				
F-4C				
F5AB				
F5E				
F8				
FAL20				
FB111A				
GASEPF				
GASEPV				
GII				
GIIB				

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
GIV	0.30	0.02	0.30	0.02
GV	0.19	0.00	0.19	0.00
HS748A				
IA1125				
JAGUAR				
KC10A				
KC135				
KC-135				
KC135B				
KC135R				
L1011				
L10115				
L188				
LEAR25				
LEAR35	0.37	0.03	0.37	0.03
MD11GE	0.57	0.43	0.57	0.43
MD11PW	0.82	0.49	0.82	0.50
MD81				
MD82				
MD83				
MD9025				
MD9028				
MU3001				
OV10A				
P3A				
PA28				
PA30				
PA31				
PA42				
S3A&B				
SABR80				
SD330				
SF340				
SR71				
T1				
T29				
T-2C				
T3				
T33A				
T34				
T37B				
T-38A				
T39A				
T41				
T42				
T-43A				
T44				
TORNAD				
TR1				
U2				
U21				
U6				
U8F				
Total LTOs	1010.04	99.75	1010.65	99.81

Federal Aviation Administration
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Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	DFW FY 2026PA to CY 2026PA

DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	7.3	7.3	0.3%
70	3.1	3.1	0.3%
75	1.3	1.3	0.3%

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
707				
720				
737				
7478	1.56	0.72	1.57	0.72
707120				
707320				
717200				
727100				
727200				
737300				
737400				
737500				
737700	63.51	5.99	63.79	6.02
737800	255.45	15.55	256.56	15.62
747100				
747200				
747400	7.19	0.86	7.22	0.87
757300				
767300	8.91	4.59	8.95	4.61
767400				
777200	8.33	2.17	8.36	2.18
777300	9.70	2.30	9.74	2.31
1900D	0.49	0.20	0.49	0.21
707QN				
720B				
727D15				
727D17				
727EM1				
727EM2				
727Q15				
727Q7				
727Q9				
727QF				
7373B2				
737D17				
737N17				
737N9				
737QN				
74710Q				
74720A				
74720B				
747SP				
757PW	0.61	1.94	0.61	1.95
757RR	0.74	2.91	0.74	2.92
767CF6				
767JT9				
7773ER	4.85	0.66	4.87	0.66
7878R	20.70	2.13	20.79	2.14
A10A				
A3				
A300-622R	1.81	2.79	1.82	2.80
A300B4-203				

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
A310-304				
A319-131	90.44	3.56	90.83	3.57
A320-211	15.67	2.83	15.74	2.84
A320-232	79.96	11.58	80.30	11.63
A321-232	208.65	21.73	209.56	21.82
A330-301	1.26	0.01	1.27	0.01
A330-343				
A340-211				
A340-642				
A37				
A380-841	1.20		1.21	
A380-861				
A4C				
A6A				
A7D				
A7E				
B1				
B2A				
B52BDE				
B52G				
B52H				
B57E				
BAC111				
BAE146				
BAE300				
BEC58P				
C118				
C12				
C130				
C130AD				
C130E				
C-130E				
C130HP				
C131B				
C135A				
C135B				
C137				
C140				
C141A				
C17				
C18A				
C-20				
C21A				
C22				
C23				
C5A				
C7A				
C9A				
CIT3				
CL600	0.21	0.01	0.21	0.01
CL601				
CNA172				
CNA182				
CNA182FLT				
CNA206				
CNA208	7.85	0.64	7.88	0.64
CNA20T				
CNA441				
CNA500				
CNA510				
CNA525C	0.39	0.03	0.39	0.03
CNA55B	0.25	0.00	0.25	0.00
CNA560E				
CNA560U				
CNA560XL	0.39	0.01	0.39	0.01
CNA680	0.58	0.02	0.58	0.02
CNA750				
COMJET				
COMSEP				
CONCRD				
CRJ9-ER	95.92	5.08	96.34	5.11

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
CRJ9-LR				
CVR580				
DC1010				
DC1030				
DC1040				
DC3				
DC6				
DC820				
DC850				
DC860				
DC870				
DC8QN				
DC910				
DC930				
DC93LW				
DC950				
DC95HW				
DC9Q7				
DC9Q9				
DHC-2FLT				
DHC6	0.61	0.19	0.62	0.19
DHC6QP				
DHC7				
DHC8				
DHC830				
DO228				
DO328				
E3A				
E4				
EA6B				
ECLIPSE500				
EMB120				
EMB145				
EMB14L	33.52	1.08	33.67	1.09
EMB170	86.74	5.25	87.12	5.28
EMB175	9.60	0.69	9.64	0.69
EMB190	2.07	0.05	2.08	0.05
EMB195				
F10062				
F10065				
F100D				
F101B				
F102				
F104G				
F105D				
F106				
F111AE				
F111D				
F-111F				
F117A				
F14A				
F15A				
F15E20				
F15E29				
F16A				
F16GE				
F16PW0				
F-18				
F28MK2				
F28MK4				
F4C				
F-4C				
F5AB				
F5E				
F8				
FAL20				
FB111A				
GASEPF				
GASEPV				
GII				
GIIB				

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
GIV	0.31	0.02	0.31	0.02
GV	0.19	0.00	0.19	0.00
HS748A				
IA1125				
JAGUAR				
KC10A				
KC135				
KC-135				
KC135B				
KC135R				
L1011				
L10115				
L188				
LEAR25				
LEAR35	0.37	0.03	0.37	0.03
MD11GE	0.57	0.43	0.57	0.43
MD11PW	0.82	0.50	0.82	0.50
MD81				
MD82				
MD83				
MD9025				
MD9028				
MU3001				
OV10A				
P3A				
PA28				
PA30				
PA31				
PA42				
S3A&B				
SABR80				
SD330				
SF340				
SR71				
T1				
T29				
T-2C				
T3				
T33A				
T34				
T37B				
T-38A				
T39A				
T41				
T42				
T-43A				
T44				
TORNAD				
TR1				
U2				
U21				
U6				
U8F				
Total LTOs	1021.41	96.55	1025.84	96.97

Federal Aviation Administration
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Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	DFW FY 2031NA to CY 2031NA

DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	7.3	7.3	0.0%
70	3.1	3.1	0.0%
75	1.3	1.3	0.0%

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
707				
720				
737				
7478	1.56	0.72	1.56	0.72
707120				
707320				
717200				
727100				
727200				
737300				
737400				
737500				
737700	69.80	6.04	69.85	6.04
737800	277.58	16.38	277.75	16.39
747100				
747200				
747400	7.18	0.86	7.19	0.86
757300				
767300	7.38	3.80	7.38	3.80
767400				
777200	7.64	2.50	7.64	2.51
777300	9.70	2.30	9.71	2.30
1900D	0.37	0.20	0.37	0.20
707QN				
720B				
727D15				
727D17				
727EM1				
727EM2				
727Q15				
727Q7				
727Q9				
727QF				
7373B2				
737D17				
737N17				
737N9				
737QN				
74710Q				
74720A				
74720B				
747SP				
757PW	0.52	1.65	0.52	1.65
757RR	0.63	2.49	0.63	2.49
767CF6				
767JT9				
7773ER	4.98	0.92	4.98	0.92
7878R	20.16	2.08	20.17	2.08
A10A				
A3				
A300-622R	1.44	2.22	1.44	2.22
A300B4-203				

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
A310-304				
A319-131	96.38	3.79	96.44	3.79
A320-211	15.20	2.74	15.21	2.75
A320-232	76.06	11.43	76.11	11.44
A321-232	215.85	22.76	215.99	22.78
A330-301	1.18	0.01	1.18	0.01
A330-343				
A340-211				
A340-642				
A37				
A380-841	1.22		1.22	
A380-861				
A4C				
A6A				
A7D				
A7E				
B1				
B2A				
B52BDE				
B52G				
B52H				
B57E				
BAC111				
BAE146				
BAE300				
BEC58P				
C118				
C12				
C130				
C130AD				
C130E				
C-130E				
C130HP				
C131B				
C135A				
C135B				
C137				
C140				
C141A				
C17				
C18A				
C-20				
C21A				
C22				
C23				
C5A				
C7A				
C9A				
CIT3				
CL600	0.21	0.01	0.21	0.01
CL601				
CNA172				
CNA182				
CNA182FLT				
CNA206				
CNA208	7.62	0.57	7.62	0.57
CNA20T				
CNA441				
CNA500				
CNA510				
CNA525C	0.40	0.03	0.40	0.03
CNA55B	0.23	0.00	0.23	0.00
CNA560E				
CNA560U				
CNA560XL	0.40	0.01	0.40	0.01
CNA680	0.52	0.01	0.52	0.01
CNA750				
COMJET				
COMSEP				
CONCRD				
CRJ9-ER	85.15	4.25	85.21	4.25

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
CRJ9-LR				
CVR580				
DC1010				
DC1030				
DC1040				
DC3				
DC6				
DC820				
DC850				
DC860				
DC870				
DC8QN				
DC910				
DC930				
DC93LW				
DC950				
DC95HW				
DC9Q7				
DC9Q9				
DHC-2FLT				
DHC6	0.52	0.17	0.52	0.17
DHC6QP				
DHC7				
DHC8				
DHC830				
DO228				
DO328				
E3A				
E4				
EA6B				
ECLIPSE500				
EMB120				
EMB145				
EMB14L	27.27	2.67	27.28	2.67
EMB170	78.86	4.82	78.90	4.83
EMB175	8.43	0.60	8.44	0.60
EMB190	1.97		1.97	
EMB195				
F10062				
F10065				
F100D				
F101B				
F102				
F104G				
F105D				
F106				
F111AE				
F111D				
F-111F				
F117A				
F14A				
F15A				
F15E20				
F15E29				
F16A				
F16GE				
F16PW0				
F-18				
F28MK2				
F28MK4				
F4C				
F-4C				
F5AB				
F5E				
F8				
FAL20				
FB111A				
GASEPF				
GASEPV				
GII				
GIIB				

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
GIV	0.32	0.02	0.32	0.02
GV	0.22	0.00	0.22	0.00
HS748A				
IA1125				
JAGUAR				
KC10A				
KC135				
KC-135				
KC135B				
KC135R				
L1011				
L10115				
L188				
LEAR25				
LEAR35	0.37	0.02	0.37	0.02
MD11GE				
MD11PW				
MD81				
MD82				
MD83				
MD9025				
MD9028				
MU3001				
OV10A				
P3A				
PA28				
PA30				
PA31				
PA42				
S3A&B				
SABR80				
SD330				
SF340				
SR71				
T1				
T29				
T-2C				
T3				
T33A				
T34				
T37B				
T-38A				
T39A				
T41				
T42				
T-43A				
T44				
TORNAD				
TR1				
U2				
U21				
U6				
U8F				
Total LTOs	1027.30	96.07	1027.94	96.13

Federal Aviation Administration
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Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	DFW FY 2031PA to CY 2031PA

DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	7.8	7.8	0.3%
70	3.3	3.3	0.3%
75	1.4	1.4	0.3%

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
707				
720				
737				
7478	1.70	0.79	1.71	0.79
707120				
707320				
717200				
727100				
727200				
737300				
737400				
737500				
737700	71.76	6.77	72.05	6.79
737800	289.42	17.07	290.60	17.14
747100				
747200				
747400	7.19	0.86	7.22	0.87
757300				
767300	9.90	5.10	9.94	5.12
767400				
777200	11.04	3.63	11.08	3.65
777300	9.70	2.30	9.74	2.31
1900D	0.63	0.31	0.64	0.32
707QN				
720B				
727D15				
727D17				
727EM1				
727EM2				
727Q15				
727Q7				
727Q9				
727QF				
7373B2				
737D17				
737N17				
737N9				
737QN				
74710Q				
74720A				
74720B				
747SP				
757PW	0.53	1.69	0.54	1.70
757RR	0.65	2.56	0.66	2.57
767CF6				
767JT9				
7773ER	5.29	0.72	5.32	0.72
7878R	22.59	2.32	22.68	2.33
A10A				
A3				
A300-622R	1.93	2.96	1.93	2.97
A300B4-203				

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
A310-304				
A319-131	100.48	3.82	100.89	3.84
A320-211	18.59	3.36	18.67	3.37
A320-232	83.13	12.22	83.46	12.27
A321-232	233.12	24.08	234.07	24.18
A330-301	1.37	0.01	1.38	0.01
A330-343				
A340-211				
A340-642				
A37				
A380-841	1.22		1.22	
A380-861				
A4C				
A6A				
A7D				
A7E				
B1				
B2A				
B52BDE				
B52G				
B52H				
B57E				
BAC111				
BAE146				
BAE300				
BEC58P				
C118				
C12				
C130				
C130AD				
C130E				
C-130E				
C130HP				
C131B				
C135A				
C135B				
C137				
C140				
C141A				
C17				
C18A				
C-20				
C21A				
C22				
C23				
C5A				
C7A				
C9A				
CIT3				
CL600	0.21	0.01	0.21	0.01
CL601				
CNA172				
CNA182				
CNA182FLT				
CNA206				
CNA208	8.20	0.71	8.23	0.71
CNA20T				
CNA441				
CNA500				
CNA510				
CNA525C	0.39	0.03	0.39	0.03
CNA55B	0.25	0.00	0.25	0.00
CNA560E				
CNA560U				
CNA560XL	0.39	0.01	0.39	0.01
CNA680	0.82	0.04	0.82	0.04
CNA750				
COMJET				
COMSEP				
CONCRD				
CRJ9-ER	103.51	5.40	103.93	5.42

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
CRJ9-LR				
CVR580				
DC1010				
DC1030				
DC1040				
DC3				
DC6				
DC820				
DC850				
DC860				
DC870				
DC8QN				
DC910				
DC930				
DC93LW				
DC950				
DC95HW				
DC9Q7				
DC9Q9				
DHC-2FLT				
DHC6	0.82	0.35	0.82	0.35
DHC6QP				
DHC7				
DHC8				
DHC830				
DO228				
DO328				
E3A				
E4				
EA6B				
ECLIPSE500				
EMB120				
EMB145				
EMB14L	30.03	0.83	30.15	0.84
EMB170	88.25	5.34	88.61	5.36
EMB175	9.43	0.68	9.47	0.68
EMB190	2.29	0.05	2.30	0.05
EMB195				
F10062				
F10065				
F100D				
F101B				
F102				
F104G				
F105D				
F106				
F111AE				
F111D				
F-111F				
F117A				
F14A				
F15A				
F15E20				
F15E29				
F16A				
F16GE				
F16PW0				
F-18				
F28MK2				
F28MK4				
F4C				
F-4C				
F5AB				
F5E				
F8				
FAL20				
FB111A				
GASEPF				
GASEPV				
GII				
GIIB				

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
GIV	0.32	0.02	0.32	0.02
GV	0.21	0.00	0.21	0.00
HS748A				
IA1125				
JAGUAR				
KC10A				
KC135				
KC-135				
KC135B				
KC135R				
L1011				
L10115				
L188				
LEAR25				
LEAR35	0.38	0.03	0.38	0.03
MD11GE				
MD11PW				
MD81				
MD82				
MD83				
MD9025				
MD9028				
MU3001				
OV10A				
P3A				
PA28				
PA30				
PA31				
PA42				
S3A&B				
SABR80				
SD330				
SF340				
SR71				
T1				
T29				
T-2C				
T3				
T33A				
T34				
T37B				
T-38A				
T39A				
T41				
T42				
T-43A				
T44				
TORNAD				
TR1				
U2				
U21				
U6				
U8F				
Total LTOs	1115.75	104.08	1120.29	104.50

Federal Aviation Administration
Office of Environment and Energy
http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/aem_model/

Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	DFW FY 2036NA to CY 2036NA

DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	7.4	7.4	0.0%
70	3.1	3.1	0.0%
75	1.3	1.3	0.0%

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
707				
720				
737				
7478	1.58	0.73	1.58	0.73
707120				
707320				
717200				
727100				
727200				
737300				
737400				
737500				
737700	71.83	7.26	71.88	7.26
737800	291.08	18.68	291.26	18.69
747100				
747200				
747400	7.18	0.86	7.19	0.86
757300				
767300	7.47	3.84	7.48	3.85
767400				
777200	7.73	2.54	7.74	2.54
777300	9.70	2.30	9.71	2.30
1900D	0.43	0.18	0.43	0.18
707QN				
720B				
727D15				
727D17				
727EM1				
727EM2				
727Q15				
727Q7				
727Q9				
727QF				
7373B2				
737D17				
737N17				
737N9				
737QN				
74710Q				
74720A				
74720B				
747SP				
757PW	0.47	1.51	0.47	1.51
757RR	0.58	2.27	0.58	2.27
767CF6				
767JT9				
7773ER	5.04	0.93	5.04	0.93
7878R	20.50	2.11	20.52	2.11
A10A				
A3				
A300-622R	0.22	0.34	0.22	0.34
A300B4-203				

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
A310-304				
A319-131	97.60	3.84	97.66	3.84
A320-211	15.39	2.78	15.40	2.78
A320-232	75.89	11.45	75.94	11.45
A321-232	218.15	23.05	218.29	23.06
A330-301	1.19	0.01	1.19	0.01
A330-343				
A340-211				
A340-642				
A37				
A380-841	1.20		1.20	
A380-861				
A4C				
A6A				
A7D				
A7E				
B1				
B2A				
B52BDE				
B52G				
B52H				
B57E				
BAC111				
BAE146				
BAE300				
BEC58P				
C118				
C12				
C130				
C130AD				
C130E				
C-130E				
C130HP				
C131B				
C135A				
C135B				
C137				
C140				
C141A				
C17				
C18A				
C-20				
C21A				
C22				
C23				
C5A				
C7A				
C9A				
CIT3				
CL600	0.21	0.01	0.21	0.01
CL601				
CNA172				
CNA182				
CNA182FLT				
CNA206				
CNA208	7.68	0.61	7.69	0.61
CNA20T				
CNA441				
CNA500				
CNA510				
CNA525C	0.40	0.03	0.40	0.03
CNA55B	0.25	0.00	0.26	0.00
CNA560E				
CNA560U				
CNA560XL	0.40	0.01	0.40	0.01
CNA680	0.53	0.01	0.53	0.01
CNA750				
COMJET				
COMSEP				
CONCRD				
CRJ9-ER	85.64	4.16	85.69	4.17

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
CRJ9-LR				
CVR580				
DC1010				
DC1030				
DC1040				
DC3				
DC6				
DC820				
DC850				
DC860				
DC870				
DC8QN				
DC910				
DC930				
DC93LW				
DC950				
DC95HW				
DC9Q7				
DC9Q9				
DHC-2FLT				
DHC6	0.53	0.18	0.53	0.18
DHC6QP				
DHC7				
DHC8				
DHC830				
DO228				
DO328				
E3A				
E4				
EA6B				
ECLIPSE500				
EMB120				
EMB145				
EMB14L	27.03	2.72	27.04	2.72
EMB170	75.15	2.81	75.19	2.81
EMB175	7.73	0.55	7.73	0.55
EMB190	1.99		1.99	
EMB195				
F10062				
F10065				
F100D				
F101B				
F102				
F104G				
F105D				
F106				
F111AE				
F111D				
F-111F				
F117A				
F14A				
F15A				
F15E20				
F15E29				
F16A				
F16GE				
F16PW0				
F-18				
F28MK2				
F28MK4				
F4C				
F-4C				
F5AB				
F5E				
F8				
FAL20				
FB111A				
GASEPF				
GASEPV				
GII				
GIIB				

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
GIV	0.30	0.02	0.30	0.02
GV	0.22	0.00	0.22	0.00
HS748A				
IA1125				
JAGUAR				
KC10A				
KC135				
KC-135				
KC135B				
KC135R				
L1011				
L10115				
L188				
LEAR25				
LEAR35	0.39	0.02	0.39	0.02
MD11GE				
MD11PW				
MD81				
MD82				
MD83				
MD9025				
MD9028				
MU3001				
OV10A				
P3A				
PA28				
PA30				
PA31				
PA42				
S3A&B				
SABR80				
SD330				
SF340				
SR71				
T1				
T29				
T-2C				
T3				
T33A				
T34				
T37B				
T-38A				
T39A				
T41				
T42				
T-43A				
T44				
TORNAD				
TR1				
U2				
U21				
U6				
U8F				
Total LTOs	1041.68	95.79	1042.33	95.85

Federal Aviation Administration
Office of Environment and Energy
http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/aem_model/

Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	DFW FY 2036PA to CY 2036PA

DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	8.2	8.2	0.3%
70	3.5	3.5	0.3%
75	1.5	1.5	0.3%

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
707				
720				
737				
7478	1.84	0.85	1.85	0.85
707120				
707320				
717200				
727100				
727200				
737300				
737400				
737500				
737700	77.62	7.32	77.90	7.35
737800	315.49	20.89	316.62	20.96
747100				
747200				
747400	7.19	0.87	7.22	0.87
757300				
767300	10.63	5.88	10.67	5.90
767400				
777200	11.94	3.93	11.98	3.94
777300	9.70	2.30	9.73	2.31
1900D	0.67	0.33	0.67	0.33
707QN				
720B				
727D15				
727D17				
727EM1				
727EM2				
727Q15				
727Q7				
727Q9				
727QF				
7373B2				
737D17				
737N17				
737N9				
737QN				
74710Q				
74720A				
74720B				
747SP				
757PW	0.49	1.55	0.49	1.56
757RR	0.60	2.35	0.60	2.36
767CF6				
767JT9				
7773ER	6.24	0.85	6.26	0.85
7878R	24.87	2.57	24.96	2.58
A10A				
A3				
A300-622R	0.23	0.35	0.23	0.35
A300B4-203				

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
A310-304				
A319-131	108.69	4.14	109.08	4.15
A320-211	20.11	3.63	20.18	3.64
A320-232	126.70	13.50	127.15	13.55
A321-232	262.61	26.96	263.54	27.06
A330-301	1.48	0.01	1.49	0.01
A330-343				
A340-211				
A340-642				
A37				
A380-841	1.18		1.18	
A380-861				
A4C				
A6A				
A7D				
A7E				
B1				
B2A				
B52BDE				
B52G				
B52H				
B57E				
BAC111				
BAE146				
BAE300				
BEC58P				
C118				
C12				
C130				
C130AD				
C130E				
C-130E				
C130HP				
C131B				
C135A				
C135B				
C137				
C140				
C141A				
C17				
C18A				
C-20				
C21A				
C22				
C23				
C5A				
C7A				
C9A				
CIT3				
CL600	0.22	0.01	0.22	0.01
CL601				
CNA172				
CNA182				
CNA182FLT				
CNA206				
CNA208	8.35	0.75	8.38	0.76
CNA20T				
CNA441				
CNA500				
CNA510				
CNA525C	0.41	0.03	0.41	0.03
CNA55B	0.26	0.00	0.26	0.00
CNA560E				
CNA560U				
CNA560XL	0.40	0.01	0.40	0.01
CNA680	0.86	0.04	0.86	0.04
CNA750				
COMJET				
COMSEP				
CONCRD				
CRJ9-ER	89.29	4.88	89.61	4.90

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
CRJ9-LR				
CVR580				
DC1010				
DC1030				
DC1040				
DC3				
DC6				
DC820				
DC850				
DC860				
DC870				
DC8QN				
DC910				
DC930				
DC93LW				
DC950				
DC95HW				
DC9Q7				
DC9Q9				
DHC-2FLT				
DHC6	0.86	0.36	0.86	0.36
DHC6QP				
DHC7				
DHC8				
DHC830				
DO228				
DO328				
E3A				
E4				
EA6B				
ECLIPSE500				
EMB120				
EMB145				
EMB14L	31.97	1.00	32.08	1.00
EMB170	76.31	4.62	76.58	4.64
EMB175	8.19	0.59	8.21	0.59
EMB190	2.47	0.06	2.48	0.06
EMB195				
F10062				
F10065				
F100D				
F101B				
F102				
F104G				
F105D				
F106				
F111AE				
F111D				
F-111F				
F117A				
F14A				
F15A				
F15E20				
F15E29				
F16A				
F16GE				
F16PW0				
F-18				
F28MK2				
F28MK4				
F4C				
F-4C				
F5AB				
F5E				
F8				
FAL20				
FB111A				
GASEPF				
GASEPV				
GII				
GIIB				

	BASE Case		ALTERNATIVE Case	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
GIV	0.31	0.02	0.31	0.02
GV	0.22	0.00	0.22	0.00
HS748A				
IA1125				
JAGUAR				
KC10A				
KC135				
KC-135				
KC135B				
KC135R				
L1011				
L10115				
L188				
LEAR25				
LEAR35	0.41	0.03	0.41	0.03
MD11GE				
MD11PW				
MD81				
MD82				
MD83				
MD9025				
MD9028				
MU3001				
OV10A				
P3A				
PA28				
PA30				
PA31				
PA42				
S3A&B				
SABR80				
SD330				
SF340				
SR71				
T1				
T29				
T-2C				
T3				
T33A				
T34				
T37B				
T-38A				
T39A				
T41				
T42				
T-43A				
T44				
TORNAD				
TR1				
U2				
U21				
U6				
U8F				
Total LTOs	1208.81	110.68	1213.13	111.07