DALLAS FORT WORTH INTERNATIONAL AIRPORT

Final Environmental Assessment (FEA) and Final General Conformity Determination (GCD)

Central Terminal Area Expansion Project

SUBMITTED BY:

Dallas Fort Worth International Airport

March 11, 2024

U.S. Department of Transportation Federal Aviation Administration
Southwest Region

FINDING OF NO SIGNIFICANT IMPACT
And
RECORD OF DECISION

Central Terminal Area Expansion Project
Dallas Fort Worth International Airport
DFW, Texas

April 2024

I. INTRODUCTION

The Purpose of this Finding of No Significant Impact and Record of Decision (FONSI/ROD) is to briefly present the reasons why the approval of Federal actions supporting the proposed Central Terminal Area (CTA) Expansion Project at Dallas Fort Worth International Airport (DFW), which serves both Dallas and Tarrant Counties, Texas, will not have a significant effect on the human environment. The Federal actions necessary for the implementation of the Proposed Actions are as follows:

- Unconditional approval of portions of the ALP that depict those portions of the Proposed Project subject to Federal Aviation Administration (FAA) review and approval pursuant to 49 USC § 47107(a)(16).
- Determinations under 49 U.S.C. §§ 47106 and 47107 relating to the eligibility of the Proposed Action for federal funding under the Airport Improvement Program.
- Determinations under 49 U.S.C. § 40117, as implemented by 14 CFR 158.25, to impose and use passenger facility charges (PFC) collected at the airport to assist with construction of potentially eligible items shown on the ALP.

The Federal Aviation Administration (FAA) is the Federal agency responsible for the approval of the proposed federal actions outlined above and analyzed in the Environmental Assessment (EA). The FAA has determined that the Proposed Action will have no significant impact on the human environment. Attached to this FONSI/ROD is the EA on which the finding is made.

II. SUMMARY

The EA was prepared pursuant to the provisions of the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality (CEQ) regulations (40 C.F.R. Parts 1500-1508). Additionally, the EA meets the guidelines identified in FAA Orders 1050.1F, *Environmental Impacts: Policies and Procedures* and 5050.4B, *NEPA Implementing Instructions for Airport Actions*.

III. BACKGROUND

DFW is a commercial service airport encompassing 17,207 acres (approximately 27 square miles) in Dallas and Tarrant Counties, Texas. DFW has five passenger terminals (A, B, C, D, and E) and its airfield system consists of seven runways separated by a spine road, International Parkway, dividing the east and west airfield complexes. In FY23, DFW served approximately 79.6 million passengers, which exceeded pre-pandemic passenger volumes by approximately 9 percent. According to the 2021 FAA Terminal Area Forecast (TAF) by 2036, DFW could serve approximately 100 million passengers and support approximately 928,457 total annual aircraft operations.

IV. PURPOSE AND NEED

The purpose and need of the CTA Expansion project are described in **Section 2.0.** of the EA.

A. Need of the Proposed Project

The Proposed Action is needed to meet the forecasted passenger operational demand for new gates. DFW has been rapidly recovering from the impacts of the COVID-19 pandemic. This growth in passengers demonstrates a 30.2 percent year-over-year increase, and by 2036, DFW could serve over 100 million passengers and approximately 928,457 annual aircraft operations. The existing terminal facilities and supporting infrastructure are nearing capacity and cannot meet the forecasted demand documented in the 2021 FAA TAF. The proposed project is needed to address the following three challenges that would affect DFW's ability to serve future air travel demand adequately:

- Inadequate number of passenger gates to meet anticipated air service demand
- Lack of connectivity between Terminal E and proposed Terminal F
- Outdated terminal infrastructure

B. Purpose of the Proposed Project

The purpose of the Proposed Action is to develop modern facilities and infrastructure necessary to accommodate the forecasted growth of commercial service operations and deliver exceptional customer experience by incorporating the latest technology and customer experience recommendations. Additionally, the purpose of the Proposed Action is for DFW to maintain and modernize existing Terminal C facilities through a reconstruction and rehabilitation program that would update aging facilities. These structural updates would bring older facilities (Terminal C and the Terminal garages) into compliance with current building code and regulatory standards and would position them for continued long-term use. The proposed project would provide modern facilities that meet tenant operational requirements, reduce operating and maintenance costs, and enhance DFW's business performance, while promoting DFW's sustainability goals.

V. PROPOSED ACTIONS AND ALTERNATIVES

A. Proposed Action

As described in **Section 1.3** of the EA, DFW is proposing to construct the CTA Expansion Project to increase total passenger gates, rehabilitate, reconstruct, and modernize aging infrastructure, and provide enhanced connectivity between existing and new terminal facilities. The Proposed Action includes the construction of a Pier at Terminal A, with a net five new gates, a Pier at Terminal C with a net four new gates, a new Terminal F, located south of Terminal D, with up to 22 new gates, baggage and passenger processing improvements at Terminal E in support of Terminal F, a service corridor connecting Terminals E and F, a reconstruction of Terminal C and Garage C and renovation and rehabilitation of Terminal C's Garages A and B, as well as associated airside ramp and apron improvements, including supporting utility, fuel, and drainage infrastructure.

B. Alternatives

The FAA explored and objectively evaluated reasonable alternatives that were considered practical and feasible in meeting the purpose and need. **Section 3** of the EA describes the alternatives considered to meet the airport's purpose and need.

Two alternatives were proposed in the EA. These consisted of the Proposed Action as described above and the No Action Alternative. Note that the No Action Alternative is always required to be analyzed in accordance with the CEQ regulations 40 CFR § 1502.14.

The FAA has determined in this FONSI/ROD that the Proposed Action is the FAA's preferred and selected alternative. In arriving at this decision, the FAA considered all pertinent factors, including environmental impacts.

VI. ENVIRONMENTAL CONSEQUENCES

A. Potential Impact Resource Categories

The EA analyzed relevant environmental categories based on FAA Order 5050.4B, "National Environmental Policy Act Implementing Instructions for Airport Projects". Those resource categories that the selected alternative has the potential to impact are discussed below; resource categories that are not impacted were dismissed with rationale. Any mitigation measures proposed are discussed in **Section 5**. A summary of evaluated environmental effects on each applicable resource category is summarized in **Table 5-1** of the EA.

i. Air Quality

The Proposed Action's combined construction and operational ozone precursor emissions exceed the applicable Clean Air Act (CAA) General Conformity *de minimis* thresholds under the current Severe nonattainment designation for the Dallas-Fort Worth Area. From 2025 through 2028, as well as in 2031 and 2036, project-related emissions would exceed the *de minimis* threshold for nitrogen

oxides (NO_X) and in 2031 and 2036 project-related emissions would exceed the *de minimis* threshold for volatile organic compounds (VOC) (**Section 5.2.4**). In a letter dated 06 December 2023, Texas Commission on Environmental Quality (TCEQ) concurred with the FAA that the emissions from the Proposed Action would utilize the available excess emissions reductions within the approved Serious Reasonable Further Progress (RFP) State Implementation Plan (SIP). TCEQ added that the Proposed Action emissions along with all other emissions in the area do not exceed the budget for the emissions in the SIP as discussed in the General Conformity Determination (**Section 5.2.5**) of the EA. Specific measures to mitigate and reduce the NOx and VOC emissions would not be necessary.

ii. Climate

The Proposed Action Alternative would result in an increase in greenhouse gas (GHG) emissions. **Section 5.3** of the EA provides a detailed analysis of the Climate resource category. As shown in **Table 5-13** of the EA, when compared to the No Action Alternative, the Carbon Dioxide equivalent (CO_2e) emissions that would be added by the Proposed Action would result in an incremental change of between 2 percent and 17 percent. Furthermore, the estimates of social costs associated with the GHG emissions are considered potentially conservatively high. They are provided for disclosure and context, but such estimated costs may not actually result.

iii. Hazardous Materials, Solid Waste, and Pollution Prevention

The Proposed Action has a potential to disturb asbestos-containing materials (ACM). An asbestos survey was performed, which identified ACM within the project area (Section 5.4.3 of the EA). Prior to building demolition, an experienced, licensed asbestos abatement contractor will abate the ACM. All abatement activities will be completed in compliance with all federal, state, and local regulations.

iv. Noise and Noise Compatible Land Uses

The Proposed Action will result in an area of residential land use south of Runway 17L/35R that would be newly exposed to Day-Night Average Sound Level (DNL) 65 dB in 2031 and 2036 (**Section 5.7** of the EA). This area will consist of 6 housing units in 2031 and 32 housing units of the same multi-family apartment complex in 2036. The noise levels would increase by approximately 0.6 dB bringing the previously mentioned multi-family residential units into the DNL 65 dB noise contour. While there is a change in the noise levels due to the Proposed Action, the increase is well below the significance threshold of 1.5 dB or greater change within the DNL 65 dB contour. Therefore, there is no significant noise impact due to the Proposed Action Alternative and no mitigation is required.

v. Socioeconomics, Environmental Justice, Public Services, including Traffic Patterns, and Children's Environmental Health and Safety Risks

As stated in **Section 5.8** of this EA, the Proposed Action will result in a small area south of Runway 17L/35R, the Bridgeport Apartment complex, which would be newly exposed to DNL 65 dB, in 2031 and 2036. This area will consist of 6 housing units/11 persons in 2031 and 32 housing units/59

persons by 2036. At current population, this noise effect impacts 2.8 percent of the population within this block group, which is identified as 86 percent minority (48.3 percent Black or African American). However, the noise increase is below the level of significance and thus impacts would not be disproportionate.

The changes to the DFW interior roadway networks would not result in decreased emergency response times to local communities adjacent to DFW. As such, the Proposed Action would not adversely affect Environmental Justice (EJ) communities and other adjacent communities that rely on public transportation.

Children under the age of 18 account for approximately 24 percent of the population surrounding DFW. Census Tract 141.61 located in Dallas County is the only non-compatible land use area that exhibits an adverse noise effect from the Proposed Action; the noise impact is less than the FAA's 1.5 dB increase significance threshold for noise. There the Proposed Action will not have any direct effects to children's health.

B. Resource Impact Categories Unaffected by the Proposed Action or Alternatives

The Council on Environmental Quality (CEQ) regulations (§1501.9 (f)(1)) state that the lead agency shall identify and eliminate from detailed study the issues that are not significant or that have been covered by prior environmental review, narrowing the discussion of these issues in the document to a brief presentation of why they would not have a substantial effect on the human environment. The following resource areas were not further analyzed in this EA: Biological Resources, Coastal Resources, Department of Transportation Section 4(f), Land Use, Prime or Unique Farmlands, Groundwater (sole source aquifers), Waters of the United States, including Wetlands and Floodplains, and Wild and Scenic Rivers. **Table 4-1** of the EA illustrates the rationale behind the elimination of such resource categories.

VII. AGENCY COORDINATION AND PUBLIC INVOLVEMENT

A. Agency Coordination

The FAA consulted with TCEQ, U.S. Environmental Protection Agency (EPA), and the Texas Historical Commission (THC) during the development of the EA (**Section 7.1**). Agency coordination with TCEQ and EPA consisted of scoping letters submitted to various divisions within the EPA and TCEQ on 28 October 2022.

TCEQ provided comments on 04 November 2022, indicating that there would be no significant long-term effects so long as BMPs were in place for construction and waste disposal activities. TCEQ requested an analysis of potential air quality effects, which were performed for this EA and found to be above the *de minimis* thresholds. As such, a General Conformity Determination was performed as described in **Section 5.2.5 –** Conformity Conclusion. TCEQ provided their concurrence with the General Conformity Determination to FAA in a letter dated 04 November 2023. No comments were received from the EPA.

THC consultation was first initiated on 27 June 2022 through a cultural resources assessment. THC concurred on 27 July 2023. A follow-up report was submitted to THC on 15 August 2023, and THC provided final concurrence on 11 September 2023 that no adverse effects to historic resources would result from the proposed project activities. (Appendix G of the EA).

B. Public Involvement

To meet the NEPA and Clean Air Act (CAA) requirements for public notification and comment, DFW and FAA, placed the Draft EA and Draft General Conformity Determination in publicly accessible locations via appointment with DFW for public review. Additionally, notifications were provided for the in-person public meeting open house held on 23 January 2024. These notifications were published on 20 and 24 December 2023, and 07 January 2024 in the Dallas Morning News and Fort Worth Star-Telegram; in Al Día, on 20 December 2023, and 24 and 31 January 2024; on the DFW Airport Website (https://www.dfwairport.com/business/about/publications/), beginning 20 December 2023. In addition to publications in general circulation newspapers, DFW Airport published social media posts on LinkedIn and Facebook announcing the availability of the Draft EA, Draft General Conformity Determination, and information about the public meeting. DFW sent 2,216 adjacent residents a four-fold postcard in English and Spanish announcing the release of the Draft EA, Draft General Conformity Determination, the public comment period, and the public meeting information as discussed in **Section 7.2** of this EA.

Thirteen members of the public attended the public meeting, and 22 staff members, including DFW media representatives. The public was provided opportunities to provide comments via email, online comment forms, voicemail messages, and hard copy letters or comment forms sent via prepaid postage by United States Postal Service (USPS). Ten public comments were received during the public comment period (20 December 2023 to 02 February 2024). the comment themes include noise, air quality, drainage, and roadway traffic (Section 7.3.2 of the EA). The public involvement effort as well as the comments' consideration and respective responses are discussed in **Section 7.3** of this EA.

VIII. CONDITIONS AND MITIGATION

As prescribed by 40 CFR §1505.3, the FAA must take steps as appropriate to the action, such as through special conditions in grant agreements, property conveyance deeds, releases, airport layout plan approvals, and contract plans and specifications, and must monitor these as necessary to assure that representations made in the EA and FONSI will be carried out. With respect to the Proposed Action, the following mitigation measure is a condition of approval:

i. Air Quality

Specific measures to mitigate and reduce the NOx and VOC emissions (as precursors to ozone formation) would not be necessary. However, the Proposed Action will implement best management practices (BMPs) to reduce construction and operational project related emissions. DFW is committed to implementing BMPs to reduce public health and environmental effects during construction and operation of the Proposed Action to the extent practicable. These BMPs are described in DFW's existing construction application review procedures, the Sustainability

Management Plan, Green Building Standards, and the project specific Dust Control Plans implemented by contractors. DFW procedures and plans include overall design and construction standards for airport projects and aligns with DFW's ongoing efforts to implement more environmentally sustainable buildings and infrastructure.

ii. Climate

An estimate of project construction GHG emissions is provided for informational purposes only; FAA has not identified specific factors to consider in making a significance determination for GHG emissions. Furthermore, the estimated social costs of GHGs are provided for disclosure and context, and such estimated costs may not actually result. As such, no specific mitigation measures are proposed.

iii. Hazardous Materials, Solid Waste, and Pollution Prevention

All asbestos abatement activities would be monitored by an Asbestos Inspector licensed by the Texas Department of State Health Services (DSHS) to aid identification methods and procedures. No significant impacts related to hazardous materials or solid waste is expected to occur due to the Proposed Action. As such, no specific mitigation measures are proposed.

iv. Noise and Noise Compatible Land Uses

The Proposed Action would result in an increase of noise levels in 2036 by approximately 0.6 dB, bringing noncompatible land units into the DNL 65 dB noise contour. While there is a change in the noise levels due to the Proposed Action, the increase is well below the significance threshold of 1.5 dB or greater change within the DNL 65 dB contour. Therefore, there is no significant noise impact due to the Proposed Action Alternative and no mitigation is required.

DFW is committed to continuing to engage with community leaders, conducting outreach, and providing airport project updates and education resources to the surrounding communities. The DFW Noise Compatibility Office staff will continue to inform community members through project updates, community briefings, or emails informing City staff, of temporary changes to runway use and temporary noise changes well in advance of the changes.

v. Socioeconomics, Environmental Justice, Public Services, including Traffic Patterns, and Children's Environmental Health and Safety Risks

The population within the newly exposed DNL 65 noise contour comprises 2.8 percent of the population within this block group, which is identified as 86 percent minority (48.3 percent Black or African American). This increase is less than a 1.5 dB change, making it an adverse but not a significant effect. As there is no significant impact, no mitigation is required under the FAA's noise guidance. DFW Airport is committed to continuing to engage with the community as it is both a technical stakeholder, due to its role in the long-term planning for infrastructure improvements, and a non-technical stakeholder, due to its role as a community partner.

IX. AGENCY FINDINGS

The FAA makes the following determinations for this project based upon a careful review of the attached Final EA, the supporting administrative record, and appropriate supporting information. The FAA weighed both the potential positive and negative consequences that this Proposed Action may have on the quality of the human environment. The FAA has determined that the Proposed Action meets the purpose and need of the proposed project and best implements necessary airfield modifications to meet FAA design standards.

The following determinations are prescribed by the statutory provisions set forth in the Airport and Airway Improvement Act of 1982, as codified in 49 USC §47106 and 47107.

- The FAA has determined the Proposed Action would result in safe and efficient use of U.S. airspace as prescribed in 49 U.S.C. §40103(a).
- The Proposed Action is reasonably necessary for use in air commerce (49 U.S.C. §44502(b)). The Proposed Action is reasonably consistent with existing plans of public agencies responsible for development of the area surrounding the airport (49 U.S.C. §47106(a)(1)).
- The interests of the community in or near where the Proposed Action is located have been given fair consideration (49 U.S.C. §47106(b)(2)).

X. DECISION AND ORDER

After careful and thorough consideration of the facts contained herein, the undersigned finds the proposed Federal action is consistent with existing national environmental policies and objectives as set forth in Section 101(a) of the National Environmental Policy Act of 1969 (NEPA) and other applicable environmental requirements. The undersigned also finds the proposed Federal action is not a major federal action significantly affecting the quality of the human environment or including any condition requiring any consultation pursuant to section 102(2)(C) of NEPA. As a result, the FAA will not prepare an Environmental Impact Statement for this action.

This decision does not constitute a commitment of funds under the Airport Improvement Program or Infrastructure Investment and Jobs Act of 2021 (IIJA), Public Law 117-58 (also referred to as the Bipartisan Infrastructure Law (BIL)) however, it does fulfill the environmental prerequisites to approve applications for grants of AIP or BIL funds for the proposed project in the future. (49 U.S.C § 47101)

Accordingly, under the authority delegated to me by the Administrator of the FAA, I approve and direct that agency action be taken to implement the proposed construction of the Central Terminal Area Expansion Project presented to the FAA by Dallas Fort Worth International Airport. The approved action is specifically described in Part V of this FONSI/ROD and identified in the EA as the Proposed Action. This approval is to be taken under the authority of 49 U.S.C. 40104, 44701, 46110, 47101, and 47122.

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Ignacio Flores
Director, Airports Southwest Region, ASW-600
Federal Aviation Administration

Right of Appeal

This FONSI/ROD constitutes a final order of the FAA Administrator and is subject to the exclusive judicial review under 49 USC§ 46110 by the US Circuit Court of Appeals for the District of Columbia or the US Circuit Court of Appeals for the circuit in which the person contesting the decision resides or has its principal place of business. Any party having substantial interest in this order may apply for review of the decision by filing a petition for review in the appropriate US Court of Appeals no later than 60 days after the order is issued in accordance with the provisions of 49 USC§ 46110. Any party seeking to stay implementation of the ROD must file an application with the FAA prior to seeking judicial relief as provided in Rule 18(a) of the Federal Rules of Appellate Procedure.

FINAL ENVIRONMENTAL ASSESSMENT

& FINAL GENERAL CONFORMITY DETERMINATION

Central Terminal Area Expansion Project

Dallas Fort Worth International Airport

Prepared for:

Texas Airport Development Office [ASW-650]

Federal Aviation Administration

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Prepared by:

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This Environmental Assessment becomes a federal document when evaluated, signed, and dated by the Responsible FAA official.

Sara Orissi

Responsible FAA Official

03/15/2024

Date

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EXECUTIVE SUMMARY

Project Sponsor

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

Background

DFW is a commercial service airport encompassing 17,207 acres (approximately 27 square miles) in Dallas and Tarrant Counties, Texas (**Figure 1-1**). DFW has five passenger terminals (A, B, C, D, and E) and its airfield system consists of seven runways separated by a spine road, International Parkway, dividing the east and west airfield complexes. In 2019, DFW served 75 million passengers and supported 720,000 aircraft total operations. In Fiscal Year (FY) 2022, DFW served 72.1 million passengers at its five terminals and 170 aircraft gates. In FY23, DFW served approximately 79.6 million passengers, which exceeded pre-pandemic passenger volumes by approximately 9 percent. According to the 2021 FAA Terminal Area Forecast (TAF) by 2036, DFW could serve approximately 100 million passengers and support approximately 928,457 total annual aircraft operations.

Proposed Action

DFW is proposing to construct the Central Terminal Area (CTA) Expansion Project to increase total passenger gates, rehabilitate, reconstruct, and modernize aging infrastructure, and provide enhanced connectivity between existing and new terminal facilities (**Section 1.3 and Figures 1-4** and **1-5**). The Proposed Project includes the construction of a pier at Terminal A, with a net increase of five new gates; a pier at Terminal C with a net increase of four new gates; a new Terminal F, with up to 22 new gates; baggage and passenger processing improvements at Terminal E in support of Terminal F; a service corridor connecting Terminals E and F; a reconstruction of Terminal C and Garage C; a renovation and rehabilitation of Terminal C's Garages A and B, as well as associated airside ramp and apron improvements, including supporting utility, fuel, and drainage infrastructure.

Federal Action

As detailed in **Section 1.5**, the federal actions necessary for the implementation of the Proposed Action include:

1. Determination under 49 U.S. Code (USC) §§ 47106 and 47107, relating to the eligibility of the Proposed Action for federal funding under the Airport Improvement Program (AIP),
2. Determination under 49 USC § 40117, as implemented by 14 CFR 158.25, to use passenger facility charges (PFC) collected at the airport to assist with the construction of potentially eligible items shown on the Airport Layout Plan (ALP), and
3. Unconditional approval of the ALP to depict the Proposed Action pursuant to 49 USC § 47107(a)(16).

Purpose and Need

The purpose and need for the CTA Expansion Project are described in **Section 2.0**.

Proposed Project Purpose

The purpose of the Proposed Action is to develop modern facilities and infrastructure necessary to accommodate the forecasted growth of commercial service operations and deliver exceptional customer experience by incorporating the latest technology and customer experience recommendations. Additionally, the purpose of the Proposed Action (**Section 2.1**) is for DFW to maintain and modernize existing Terminal C facilities through a reconstruction and rehabilitation program that would update aging facilities. These structural updates would bring older facilities (Terminal C and the Terminal garages) into compliance with current building code and regulatory standards and would position them for continued long-term use. The Project would provide modern facilities that meet tenant operational requirements, reduce operating and maintenance costs, and enhance DFW's business performance, while promoting DFW's sustainability goals.

Proposed Project Need

The Proposed Action is needed to meet the forecasted passenger operational demand for new gates. DFW has been rapidly recovering from the impacts of the COVID-19 pandemic, serving approximately 55.4 million passengers in FY 2021 and approximately 72.1 million passengers in FY 2022, which is a 30.2 percent year-over-year increase in passengers.

In FY 2023, DFW served 79.6 million passengers and by 2036, DFW could serve over 100 million passengers and approximately 928,457 annual aircraft operations. The existing terminal facilities and supporting infrastructure are nearing capacity and cannot meet the forecasted demand documented in the 2021 FAA TAF. In 2022, DFW completed a comprehensive analysis to understand current levels of service, commercial air service demand, and future operational needs. The analysis showed that by 2028, DFW would need additional gates to avoid being gate-constrained, which would significantly limit DFW's ability to serve forecast aircraft operational levels and passenger demand.

The Proposed Project is needed to address three challenges that would affect DFW's ability to serve future air travel demand adequately; these challenges include:

- Inadequate number of passenger gates to meet anticipated air service demand (**Section 2.2.2**),
- Lack of connectivity between Terminal E and proposed Terminal F to provide a goods and service corridor to efficiently move baggage, food, and supplies, as well as a Skylink Automated People Mover (APM) station for passengers (**Section 2.2.3**), and
- Outdated terminal infrastructure, inadequate and older regulatory-compliant parking garages, and inefficiencies on associated airfield ramp and pavement to meet forecasted operational demand (**Section 2.2.4**).

Alternatives

DFW evaluated the extent to which alternatives of the Proposed Action would meet the Purpose and Need and the stakeholder objectives and requirements. The No Action and Proposed Action alternatives were analyzed to determine whether the alternative could achieve the objectives of the Purpose and Need to accommodate the forecasted growth of commercial service operations and deliver exceptional customer experience by incorporating the latest technology and customer experience recommendations. Alternatives that would not meet the Purpose and Need, and stakeholder objectives and requirements were eliminated from further consideration. Only the Proposed Action Alternative and the No Action Alternative were carried forward for detailed study within this Environmental Assessment (EA).

No Action Alternative

Under the No Action Alternative, the Proposed Project would not be implemented, and the existing infrastructure would remain unaltered. In the No Action Alternative, commercial service operations would be constrained beginning in 2028 and DFW would not be able to meet the forecasted operational and passenger demand for efficient travel. The No Action Alternative does not meet the stated Purpose and Need for this project but is carried forward in the analysis of environmental consequences in accordance with Council on Environmental Quality (CEQ) requirements.

Proposed Action Alternatives (Sponsor's Preferred Alternative)

The Proposed Action Alternative, which is the Sponsor's Preferred Alternative, as described in **Section 3.3** would include the construction of new Piers at Terminals A and C resulting in a net increase of nine gates, five new gates at Terminal A and four new gates at Terminal C. The construction of the new piers would require the interior renovation within Terminals A and C, relocation, or removal of existing utilities on the airside, and reconfiguration of the existing pavement to accommodate the new gates and expanded fuel hydrant systems. It would also include solid waste collection and transport at ramp level, as well as connections to the existing sanitary, water supply, and stormwater lines. Gas supply would be extended from the existing terminals to serve concessions in the new piers.

The Proposed Action would also include the construction of up to 22 gates at the proposed Terminal F and associated support ramp areas around the Terminal F footprint as well as support facilities in the Terminal

E footprint. Improvements at Terminal E would include passenger and baggage processing facilities and a modernized baggage handling system (BHS). Due to landside access limitations, an underground goods and services corridor would be constructed to transfer passenger bags to Terminal F and also facilitate the transfer of goods to the new terminal.

The Proposed Action Alternative would also include the reconstruction of Terminal C, including demolition to the concourse level. Construction methods would include both modular and conventional construction types. A new loading dock and renovated concourse would accommodate ticketing and baggage claim, renovated security checkpoints and ticketing halls. The Project would also include renovation of building systems including heating, ventilation, and air-conditioning (HVAC), glycol, sanitary sewer, water, electrical, fire suppression, fire alarm, low-voltage, and security systems, and replacement of the roofing system.

The Proposed Action would also include the reconstruction of one garage at Terminal C. Currently, Terminal C has vehicle parking areas made up of three multilevel structures, separated by entry and exit roads; these are known as Garage C, Garage B, and Garage A. Garage C would be demolished and rebuilt in its entirety, while Garages A and B would be refurbished. Overall, the number of available parking spaces in the Terminal C Garages would increase as a result of the construction of one additional parking level. Along the lower road, the existing sanitary sewer line would be replaced. The lower roadway would be replaced after the construction and repair of utilities. The upper roadway would be repaired and refurbished.

Summary of Environmental Consequences

Resource Areas Unaffected by the Proposed Action Alternatives

CEQ regulations (§1501.9(f)(1)) state that the lead agency shall identify and eliminate from detailed study the issues that are not important, or that have been covered by prior environmental review, narrowing the discussion of these issues in the document to a brief presentation of why they would not have a substantial effect on the human environment. **Table 4-1** (**Section 4.3**) illustrates the rationale behind the elimination of the resources/impact areas that were not included in the detailed study, in accordance with CEQ §1501.9(f)(1). The following categories were not carried forward in this EA: Biological Resources, Coastal Resources, Department of Transportation Section 4(f), Land Use, Prime or Unique Farmlands, Groundwater (sole source aquifers), Waters of the United States, including Wetlands and Floodplains, and Wild and Scenic Rivers.

Resource Areas Carried Forward for Detailed Analyses

Potential environmental effects resulting from the construction and operation of the Proposed Project and measures taken for mitigation of these effects are presented and evaluated in this EA. A summary of evaluated environmental effects on each applicable resource category is presented in **Table 5-1**. The following resource areas were analyzed in detail, Air Quality; Climate; Hazardous Materials and Solid Waste; Historical, architectural, Archeological, and Cultural Resources; Natural Resources and Energy Supply; Noise and Noise Compatible Land Uses; Socioeconomics, including Environmental Justice, Public Services, and Children's Health; Visual effects, including Light Emissions; and Water Resources, including Surface and Stormwater Management.

Air Quality

The Proposed Project construction emissions were analyzed for anticipated construction years of 2024 to 2028 (**Appendix H**). The Proposed Project would result in temporary air quality effects from demolition and construction activities. An air quality analysis was completed to estimate construction emissions and determine the Proposed Project's potential construction-related air quality impacts. The Proposed Project would add up to 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 Terminal F gates would open in 2026 and the new Terminal A and Terminal C Pier gates would come also be completed and open in 2026. When the new Pier gates open, they would initially accommodate operations that would otherwise use existing gates closed for the Terminal C rehabilitation. New operations for the piers would occur in 2028. The Proposed Action is expected to result in changes in operational emissions from the additional aircraft operations which include taxi-in, taxi-out, and in-flight operations below mixing height. As discussed in **Section 5.2**, the combined project-related construction and operational ozone precursor emissions exceed the applicable Clean Air Act (CAA) General Conformity

de minimis threshold under the current Severe nonattainment designation for the Dallas-Fort Worth Area. From 2025 through 2028, as well as in 2031 and 2036, project-related emissions would exceed the *de minimis* threshold for nitrous oxides (NO_X) and in 2031 and 2036 project-related emissions would exceed the *de minimis* threshold for volatile organic compounds (VOC) (**Section 5.2.4**).

The Texas Commission on Environmental Quality (TCEQ) reviewed the construction and operational emissions submitted in the Draft General Conformity Determination for the Proposed Action. In a letter dated 06 December 2023, TCEQ concurred with the Federal Aviation Administration's (FAA) determination that the Proposed Action would utilize the available excess emissions reductions credits within the approved Serious Reasonable Further Progress (RFP) State Implementation Plan (SIP). TCEQ added that the Proposed Action emissions along with all other emissions in the area do not exceed the budget for the emissions in the SIP. As such, the NOx and VOC emissions that would result from the Proposed Action are included in the SIP, one of the avenues enabled by the CAA to show conformance with the SIP (**Section 5.2.5)**. The Final EA includes the FAA's Final General Conformity Determination (see **Appendix I**).

Climate

The Proposed Action Alternative construction emissions were analyzed for anticipated construction years 2024, 2025, 2026, 2027, and 2028; operational emissions were analyzed for 2026, 2027, 2028, 2031, and 2036 (**Appendix L**). The Proposed Action Alternative would result in Greenhouse Gas Emissions (GHG) emissions from the demolition and construction activities as well as GHG emissions from increased vehicle traffic and aircraft operations. Specifically, the Proposed Action would generate GHG emissions from heavy-duty construction equipment activity, truck haul trips, and construction worker and vendor truck trips to and from the project areas. Construction emissions include both on-road mobile and off-road source categories. The Proposed Action would result in an increase in GHG emissions when compared to the No Action Alternative in 2024, 2025, 2026, 2027, 2028, 2031, and 2036. As discussed in **Section 5.3** and shown in **Table 5-13**, when compared to the No Action Alternative, the CO_2e emissions that would be added by the Proposed Action would result in an incremental change of between 2 percent and 17 percent (**Section 5.3.4)**.

Hazardous Materials, Solid Wastes, and Pollution Prevention

There is potential for the Proposed Action to disturb asbestos-containing materials (ACM). An asbestos survey was performed, which identified ACM within the project area (**Section 5.4.3**). Prior to building demolition, an experienced, licensed asbestos abatement contractor will abate the ACM. All abatement activities will be completed in compliance with all federal, state, and local regulations.

Potentially contaminated media associated with current and past aircraft related activities would likely be disturbed during demolition and construction activities. DFW maintains a Construction Materials Management Plan (CMMP) that provides information and guidance on potential environmental concerns that may be encountered during the disturbance, excavation, and relocation of soils. All activities that involve disturbing or excavating soil would be performed in accordance with the CMMP and other applicable requirements.

Construction activities associated with the Proposed Action are expected to involve, the short-term use of hazardous and non-hazardous materials, and the generation of wastes common to construction including reclaimed concrete, concrete wash-out liquids, petroleum hydrocarbon-based fuels, lubricants, oils, paints, and cleaning solvents. These materials would be handled, stored, and disposed of in accordance with all applicable federal, state, or local regulations. As part of the DFW construction permitting process, DFW would require all contractors to submit detailed waste management reports and abide by those plans along with all applicable regulatory requirements (**Section 5.4)**.

Natural Resources and Energy Supply

Under the Proposed Action Alternative, there would be an increase in energy demand. The Proposed Project would include additional buildings, pavement, lighting systems, and signage, which would increase electricity, jet fuel, and natural gas usage (**Section 5.6**). However, there is sufficient capacity, and the local distribution infrastructure is expected to accommodate the increased demand. During construction of the Proposed Project, a temporary increase in fuel consumption is expected. However, no significant fuel supply impacts are expected. DFW is a carbon neutral airport and uses 100 percent renewable energy for

its energy needs. No significant energy supply impacts are expected. In addition, no impacts to the existing energy infrastructure are anticipated.

Noise and Noise Compatible Land Uses

There is an area of residential land use south of Runway 35R that would be newly exposed to Day Night Average Sound Level (DNL) 65 dB due to the Proposed Action Alternative when compared to the No Action Alternative, in 2031 and 2036 (**Section 5.7)**. This area will consist of 6 housing units in 2031 and 32 housing units of the same multi-family apartment complex in 2036. The noise levels would increase by approximately 0.6 dB bringing the previously mentioned multi-family residential units into the DNL 65 dB noise contour. According to the FAA Order 1050.1F, a significant noise impact would occur if *the [Proposed] action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe*. While there is a change in the noise levels as a result of the Proposed Action, the increase is well below the significance threshold of 1.5 dB or greater change within the DNL 65 dB contour. Therefore, there is no significant noise impact due to the Proposed Action Alternative and no mitigation is required.

Socioeconomics, including Environmental Justice, Public Services, and Children's Health

A small area south of Runway 17L/35R, the Bridgeport Apartment complex, would be newly exposed to DNL 65 dB due to the Proposed Action Alternative when compared to the No Action Alternative, in 2031 and 2036 (**Section 5.2.4** and **Figure 5-23**). This area will consist of 6 housing units/11 persons in 2031 and 32 housing units/59 persons by 2036. At current population, this noise effect impacts 2.8 percent of the population within this block group, which is identified as 86 percent minority (48.3 percent Black or African American). The affected population is very small when compared to the overall block group and census tract populations. The immediate population is similar to all immediately adjacent multi-family residential areas in the southeastern quadrant outside DFW. Other adjacent land uses are primarily compatible uses, that demonstrate lower minority populations, based on very limited residential areas within these block groups and census tracts.

The changes to the DFW interior roadway networks would not result in decreased emergency response times to local communities adjacent to DFW. Incoming traffic would continue to navigate to DFW through the major roadways which have undergone substantial capacity increases within the last decade to account for continued growth in the overall Metroplex. The NCTCOG and local transportation agencies have also continued their commitment to funding growth in public transportation via rail and bus. As such, the Proposed Action would not adversely affect Environmental Justice (EJ) communities and other adjacent communities that rely on public transportation.

Children under the age of 18 account for approximately 24 percent of the population surrounding DFW. Census Tract 141.61 located in Dallas County is the only non-compatible land use area that exhibits an adverse noise effect from the Proposed Action Alternative; the noise impact is less than the FAA's 1.5 dB increase significance threshold for noise. Air Quality Control Region (AQCR) 215 that covers Dallas and Tarrant counties is in Severe nonattainment for ozone. The Proposed Action Alternative requires a General Conformity Determination due to the exceedance of the *de minimis* thresholds for both NO_X (2025 through 2028, 2031, and 2036) and VOC (2031 and 2036). TCEQ concurred with FAA's determination that the Proposed Action Alternative conformed to the CAA through the available excess emissions in the respective SIP. Direct emissions would be generated on-airport. There would be no direct effects to children's health at the airport. Emissions are regionalized and contribute to the overall air quality of North Central Texas; as such the North Central Council of Governments (NCTCOG), TCEQ, and other local cities have developed regional air quality strategies.

Visual Effects, including Light Emissions

The Proposed Action Alternative would be illuminated by the same basic types of lighting currently used on the existing buildings, parking lots, and ramp areas. Light emissions created by the Proposed Action Alternative would not be significant enough to cause substantial annoyance for people in the vicinity nor interfere with normal airport activities. Furthermore, there are no residential or light sensitive areas are within or adjacent to the project area and the location of the new lighting systems would not negatively

affect aircraft operations. Therefore, no mitigation measures are recommended for visual effects including light emissions (**Section 5.9)**.

Water Resources, including Surface and Stormwater

The proposed project area is primarily located within an existing impervious area. Since most of the project area is adjacent to existing buildings, impervious surfaces, and highly maintained mixed herbaceous cover, the construction of the Proposed Action would not be expected to result in a material change in the stormwater runoff coefficient rates, discharge volumes, and pollutant characteristics of the stormwater runoff (**Section 5.10)**. The Proposed Action would not result in exceedances of water quality standards established by federal, state, and local regulatory agencies. During construction, a stormwater pollution prevention plan (SWP3) with erosion control measures and pollution prevention best management practices (BMPs) would be implemented to protect water resources. Post construction, drainage would be managed by DFW's existing stormwater treatment facilities (the first flush stormwater pre-treatment system); these facilities would be able to accommodate the stormwater runoff quantities.

Environmental Commitments and Mitigation

Air Quality

The Proposed Action would include construction activities that would result in temporary air quality effects due to tailpipe emissions and fugitive dust. Standard applicable engineering controls and BMP would be implemented to reduce the effects on air quality. All construction activities would be conducted consistent with all pertinent federal, state, and local laws, regulations, and standards as appropriate and/or adopted by DFW. Therefore, specific measures to mitigate and reduce the NO_X and VOC emissions (as precursors to ozone formation) would not be necessary. However, the Proposed Action will implement BMPs to reduce emissions related to construction and operational projects.

DFW is committed to implementing BMPs to reduce public health and environmental effects during the construction and operation of the Proposed Action to the extent practicable. These BMPs are described in DFW's existing construction application review procedures, the Sustainability Management Plan, Green Building Standards, and the project specific Dust Control Plans implemented by contractors. DFW procedures and plans include overall design and construction standards for airport projects and aligns with DFW's ongoing efforts to implement more environmentally sustainable buildings and infrastructure.

Climate

DFW has implemented aggressive measures to reduce emissions and improve efficiency and is committed to achieving Net Zero carbon by 2030. Climate risks are being managed through sustainable design initiatives and policies as well as updates to the Design Manual, and other mitigation measures. These measures include reducing energy demand, ensuring a sustainable energy supply, investing in resilient energy infrastructure, and pursuing innovative technologies and energy management practices. The new Electric Central Utility Plant (eCUP) scheduled to open in 2025 is one of the key solutions helping DFW adapt to climate change as well as reduce emissions and air quality impacts.

Hazardous Materials, Solid Wastes, and Pollution Prevention

No significant impacts related to hazardous materials or solid waste would occur as a result of the Proposed Action due to DFW's robust hazardous material, hazardous wastes, and solid wastes policies, which would be in place for the project-related activities. DFW would comply with all federal, state, and local requirements regarding the generation, handling, and disposal of any waste produced during the construction of the proposed project. As part of DFW's construction permitting process, DFW would require all contractors to submit detailed soil management and waste management plans and abide by those plans along with all applicable regulatory requirements. The contractor would develop a waste management plan, and any contaminated media encountered during the construction of the Proposed Action would be handled in accordance with the CMMP. All asbestos abatement activities would be monitored by an Asbestos Inspector licensed by the DSHS to aid identification methods and procedures. The construction contractor would take appropriate measures to prevent, minimize, and control spills and the release of hazardous materials in the construction staging yards and throughout the project area. Special provisions and contingency language would be included in the project's construction plans and specifications to manage hazardous materials and/or petroleum-contaminated media according to applicable federal, state, and local

regulations. The Proposed Action would not significantly impact solid waste collection, landfill capacity, and waste disposal operations; therefore, mitigation is not required.

Natural Resources and Energy Supply

No significant impacts to energy supplies or natural resources are anticipated. DFW is committed to sustainability and the continued reduction in natural resources and energy consumption. DFW has reduced absolute carbon emissions by 79 percent. DFW continues to move toward Net Zero Carbon with the new eCUP Proposed Action components being essential elements that mitigate natural resources and energy supplies utilized by DFW.

Noise and Noise Compatible Land Uses

As indicated previously, 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 No Action Alternative for the same timeframe. Noise levels by 2036 would increase by approximately 0.6 dB bringing non-compatible land units into the DNL 65 dB noise contour. While there is a change in the noise levels as a result of the Proposed Action, the increase is well below the significance threshold of a 1.5 dB or greater change within the DNL 65 dB contour. Therefore, there is no significant noise impact due to the Proposed Action Alternative and no mitigation is required.

DFW is committed to continuing to engage with community leaders, city council members, city managers, conducting outreach and providing airport project updates and education resources to the communities. DFW is both a technical stakeholder due to its role in the long-term planning for infrastructure improvements and a non-technical stakeholder due to its role as a community partner. The DFW Noise Compatibility Office staff will continue to inform community members through project updates, community briefings, or emails informing City staff of temporary changes to runway use and temporary noise changes well in advance of the changes.

Socioeconomics, including Environmental Justice, Public Services, and Children's Health

The population within the newly exposed DNL 65 noise contour comprises 2.8 percent of the population within this block group, which is identified as 86 percent minority (48.3 percent Black or African American). This increase is less than a 1.5 dB change, making it an adverse but not a significant effect. As there is no significant impact, no mitigation is required under the FAA's noise guidance. DFW is committed to continuing to engage with community leaders, city council members, city managers, conducting outreach and providing airport project updates and education resources to the residents within the Bridgeport Apartment Complex. DFW is both a technical stakeholder due to its role in the long-term planning for infrastructure improvements and a non-technical stakeholder due to its role as a community partner. The DFW Noise Compatibility Office staff will continue to inform community members through project updates, community briefings, or emails informing City staff of temporary changes to runway use and temporary noise changes well in advance of the changes.

Water Resources, including Surface and Stormwater

At DFW, construction-related surface water quality impacts from stormwater runoff are minimized by BMPs as required by DFW's Design Criteria Manual Revision 2 with Updates through 2022 (DFW 2022). In addition, all stormwater discharges from construction activities at DFW that result in the disturbance of one or more acres must comply with the Texas Pollutant Discharge Elimination System (TPDES) permit conditions already established for DFW. A Construction General Permit (CGP) SW3P, and all associated requirements would be implemented for the Proposed Action. Because of these water resource management policies and programs that are already in place at DFW, impacts to surface waters associated with the Proposed Action would not be expected to be significant; therefore, no mitigation would be required.

Agency Coordination and Public Involvement

Agency Coordination

During the development of the EA, DFW consulted with the FAA, the TCEQ, the U.S. Environmental Protection Agency (EPA), and the Texas Historical Commission (THC) (**Section 7.1**). Agency coordination with TCEQ and EPA, consisted of scoping letters sent on 28 October 2022 (**Appendix K**).

TCEQ provided comments on 04 November 2022, indicating that there would be no significant long-term effects so long as BMPs were in place for construction and waste disposal activities. TCEQ requested an analysis of potential air quality effects, which were performed for this EA and found to be above the CAA *de minimis* thresholds. As such, a General Conformity Determination was completed as described in **Section 5.3.4 – Conformity Determination**. No comments were received from the EPA.

A National Historic Preservation Act (NHPA) Section 106 Consultation for Historic Properties was completed for the Proposed Action (**Appendix G**). The Section 106 analysis concluded that no historic properties were present within the project area and there would be no adverse effects from the project. The State Historic Preservation Office (SHPO) (THC) concurred with the findings from two reports. The first approval was received on 27 July 2022 for the Piers, Terminal C renovation and Terminal C Garage and Roads. This report was updated for the change in Terminal C renovation plans and SHPO concurred with the revised report on 11 September 2023. SHPO concurred with the second report for Terminal E and F on 11 September 2023.

Public Involvement – Availability of Draft EA and Draft General Conformity Determination

In compliance with federal requirements for public involvement, DFW and FAA published notices of availability of the Draft EA and Draft General Conformity Determination; these notifications of availability were published in the following: Dallas Morning News and Fort Worth Star Telegram on 20 and 24 December 2023 and 07 January 2024, Al Día, on 20 December 2023, and 24 and 31 January 2024, on the DFW Website (https://www.dfwairport.com/business/about/publications/), beginning 20 December 2023. In addition to publications in general circulation newspapers, DFW published social media posts on LinkedIn and Facebook announcing the availability of the Draft EA, Draft General Conformity Determination, and information about public meeting.

DFW sent 2,216 adjacent residents a four-fold postcard in English and Spanish announcing the release of the Draft EA, Draft General Conformity Determination, the public comment period, and the public meeting information. The postcard packet also included a prepaid envelope for the adjacent resident to mail comment forms back. DFW also sent email notifications announcing the release of the Draft EA, Draft General Conformity Determination, the public comment period, and the public meeting to 30 City administrative staff, including City Managers at these cities: Arlington, Coppell, Euless, Flower Mound, Grapevine, Irving, Lewisville, Southlake, Trophy Club, and Westlake. The public involvement efforts are discussed in **Section 7.2** and the notices are provided in **Appendix M**.

Hard copies of the Draft EA and Draft General Conformity Determination documents were made available by appointment at DFW (3003 South Service Road, DFW Airport Texas 75261) and at other publicly accessible locations. The following public libraries were also provided a hard copy in their government or public documents section, Southlake Public Library, Grapevine Public Library, West Irving Library, Euless Library, Valley Ranch Library, Cozby Library and Community Commons, and Dallas College North Lake Campus Library.

Public Involvement – Public Meeting Open House

DFW held an in-person public meeting from 6 p.m. to 8 p.m. on Tuesday, 23 January 2024, at the DFW Airport Headquarters Learning Center, located at 2400 Aviation Drive, Euless, Texas 75261. The purpose of the public meeting was to present the Proposed Action Alternative and the NEPA process, answer questions, and obtain public comments on the Draft EA and Draft General Conformity Determination. Language translation services for Spanish speakers were made available. Thirteen members of the public attended the public meeting, and 22 staff members, including DFW media representatives. The public was provided opportunities to provide comments via email, online comment forms, voicemail messages, and hard copy letters or comment forms sent via prepaid postage by U.S. Postal Service (USPS).

Ten public comments were received during the public comment period (20 December 2023 to 02 February 2024); the comment themes include noise, air quality, drainage, and roadway traffic (**Section 7.3.2**). Public involvement efforts are discussed in **Section 7.3** and the public meeting summary is included in **Appendix M**.

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ACRONYMS AND ABBREVIATIONS

µq/m^3	micrograms per cubic meter
AA	American Airlines
AAD	Average Annual Day
AAF	Aviation Activity Forecast
AC	Advisory Circular
ACA	Airport Carbon Accreditation
ACHP	Advisory Council on Historic Preservation
ACI-NA	Airport Council International – North America
ACM	asbestos containing materials
ACS	American Community Survey
ACT	Antiquities Code of Texas
ADG	Airplane Design Group
AEDT	Airport Environmental Design Tool
AEP	aircraft entry position
AFE	above field elevation
AGL	above ground level
AIP	Airport Improvement Program
aka	also known as
ALP	Airport Layout Plan
ALSF-II	Approach Lighting System with Sequence Flashing Lights
AOA	Airport Operations Area
APE	Area of Potential Effects
APM	automated people mover
APU	Auxiliary Power Units
AQCR	Air Quality Control Region
ARC	A.R. Consultants, Inc.
ASPM	Aviation System Performance Metrics
BHS	Baggage Handling System
BMP	best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CGP	Construction General Permit
CH_4	methane
CMMP	Construction Materials Management Plan
CNG	Compressed Natural Gas
CO	Carbon Monoxide
CO_2	Carbon Dioxide
COMP HIST	Compliance History
COVID-19	Coronavirus Disease 2019
CWA	Clean Water Act
CZM	Coastal Zone Management
DART	Dallas Area Rapid Transit
dB	Decibel
DCC	Design, Code, and Construction
DFW	Dallas Fort Worth International Airport
DNL	Day-Night Average Sound Level
DPS	Department of Public Safety
EA	Environmental Assessment
EAT	End–Around Taxiway
ECHO	Enforcement and Compliance History
eCUP	Electric Central Utility Plant
EDR	Environmental Data Resources
EIS	Environmental Impact Statement
EJ	Environmental Justice
ENF	Enforcement Action
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FFS	First Flush System
FINDS	Facility Index System/Facility Registry System
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act

FR	Federal Register
ft^2	square feet
FY	fiscal year
GHG	Greenhouse Gases
GI/LID	Green Infrastructure/Low Impact Development
GSE	Ground Support Equipment
GWP	Global Warming Potential
HFC	Hydroflurocarbon
H_20	Water
IAC	International Airports Council
IATA	International Air Transport Association
IHW	Industrial Hazardous Wastes
IPCC	International Panel on Climate Change
LOS	Level of Service
LPST	Leaking Petroleum Storage Tanks
MAP	Million Annual Passengers
mi^2	square miles
MOVES	EPA Motor Vehicles Emissions Simulator
MMS	Materials Management Site
MSW	Municipal Solid Waste
N_2O	Nitrous Oxide
NAA	No Action Alternative
NAAQS	National Ambient Air Quality Standards
NAVAIDS	Navigational Aids
NCTCOG	North Central Texas Council of Governments
NE	Northeast
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NHRP	National Register of Historic Places
NMHC	Non-Methane Hydrocarbons
nmi	Nautical Miles
NMFS	National Marine Fisheries Service
NO_2	Nitrogen Dioxide
NOMS	Noise and Operations Monitoring System
NO_x	Nitrogen Oxides
NPDES	National Pollution Discharge Elimination System
NPIAS	National Plan of Integrated Airport Systems
NPL	National Priorities List
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRI	National River Inventory
NSA	Noise Study Area
NSR	New Source Review
NW	Northwest
O_3	Ozone
OFA	Object Free Area
OPSNET	FAA's Operational Network
PALM	Potential Archeological Liability Map
Pb	Lead
PDD	Project Definition Document
PFAS	polyfluoroalkyl substances
PFC	Passenger Facility Charge
PFCs	Perfluorinated Compounds
PIO	Project Integration Office
PM	Particulate Matter
PM_{10}	Particulate matter with a diameter less than 10 micrometers
$PM_{2.5}$	Particulate matter with a diameter less than 2.5 micrometers
PPA	Pollution Prevention Act
ppb	parts per billion
ppm	parts per million
PSL	Project Support Locations
RCRA	Resource Conservation and Recovery Act
RFP	reasonable further progress
RNG	Renewable Natural Gas
ROD	Record of Decision

ROW	right of way
SC-CH_4	Social Cost of Methane
SC-CO_2	Social Cost of Carbon Dioxide
SC-GHG	Social Cost of Greenhouse Gases
SC-N_2O	Social Cost of Nitrogen Oxides
SF_6	Sulfur Hexafluoride
SH	State Highway
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SMP	Sustainability Management Plan
SO_2	Sulphur Dioxide
SPCC	Spill Prevention, Counter-Measures and Control Plan
SW	Southwest
SWDMP	Stormwater Drainage Master Plan
SW3P	Stormwater Pollution Prevention Plan
SWF/LF	Permitted Solid Waste Facility/Landfill
SWS	Stormwater System
TAF	Terminal Area Forecast
TARL	Texas Archeological Research Laboratory
TASA	Texas Archeological Sites Atlas
TCEQ	Texas Commission on Environmental Quality
TDG	Taxiway Design Group
TexN	Texas NONROAD
THC	Texas Historical Commission
THSA	Texas Historic Sites Atlas
TIA	Traffic Impact Analysis
TPDES	Texas Pollution Discharge Elimination System
TPH	total petroleum hydrocarbons
TPWD	Texas Parks and Wildlife Department
tpy	tons per year
TRA	Trinity River Authority
TSCA	Toxic Substances Control Act
TxDOT	Texas Department of Transportation
TxVCP	Texas Voluntary Cleanup Program
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USCB	United States Census Bureau
EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Services
UST	Underground Storage Tank
VOC	Volatile Organic Compounds
WOTUS	Waters of the United States

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SECTION 1 INTRODUCTION

This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, and the President's Council on Environmental Quality (CEQ) regulations to implement NEPA (40 Code of Federal Regulations [CFR] §1500 to 1508). NEPA requires federal agencies to analyze the environmental impacts of their proposed actions, identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions, consider relevant and reasonable mitigation measures, and provide interested parties with an opportunity to participate in the environmental review process.

Under NEPA, the Federal Aviation Administration (FAA) is required to consider potential environmental impacts before funding or approving projects over which it has authority.[1] All airport improvement projects that are considered to be a major federal action, including through the receipt of federal funding, must be examined from an environmental standpoint, to comply with NEPA, the Airport and Airway Improvement Act of 1982, as amended, and other pertinent laws, and regulations. FAA's NEPA policies and procedures are set forth in FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures* (FAA, 2015), FAA Order 1050.1F Desk Reference (FAA, 2023), and FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions* (FAA, 2006).

The purpose of this EA is to analyze the potential environmental impacts of the proposed Central Terminal Area (CTA) Expansion Project (Proposed Action). This EA also includes public and agency coordination documents used to communicate the Proposed Action and results of the environmental analyses, as well as to gather input from the public and regulatory agencies consulted. FAA will use the findings in the EA to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI)/Record of Decision (ROD).

1.1 Project Sponsor

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

1.2 Background

DFW is a commercial service airport that currently encompasses 17,207 acres (approximately 27 square miles [mi^2]) in Dallas and Tarrant Counties, Texas. In the National Plan of Integrated Airport Systems (NPIAS, 2022), the FAA classifies the Airport as a large hub primary commercial service airport. **Figure 1-1** shows DFW's general location, surrounding areas, and terminals.

DFW has five passenger terminals (A, B, C, D, and E) and its airfield system consists of seven runways separated by a spine road, International Parkway, which divides the east and west airfield complexes. In 2019, DFW served 75 million[2] passengers and supported 720,000 aircraft total operations. In 2020, global air travel significantly declined due to the Coronavirus Disease 2019 (COVID-19) pandemic. DFW operations dropped by nearly 30 percent to 514,702 total operations; passengers were down by nearly 50 percent dropping to approximately 39 million passengers. Although the COVID pandemic severely impacted global air travel and significantly reduced air traffic and passenger demand in the United States, DFW has experienced faster recovery than many U.S airports. In Fiscal Year (FY) 2022, DFW served 72.1 million passengers at its five terminals and 170 aircraft gates. During that same year (FY22), Airports Council International North America (ACI-NA) ranked DFW as the second busiest airport for total passengers and tenth for air cargo volume (ACI 2023).

[1] Recent changes in federal law have required FAA to revisit whether FAA approval is needed for certain types of projects. In 2018, House Resolution 302, the "FAA Reauthorization Act of 2018" was signed into law (Public Law [PL] 115-254). In general, Section 163(a) of Public Law 115-224 (known as the FAA Reauthorization Act of 2018) limits the FAA's authority to regulate certain projects directly or indirectly. After examination, FAA has determined that it has approval authority over the Proposed Central Terminal Area (CTA) Expansion assessed in this EA. FAA reviewed the Proposed Action relative to Section 163. FAA has authority over the Proposed Action and thus, compliance with NEPA is required.

[2]According to DFW_Stats_Total_Passengers_Dec_19.pdf (ctfassets.net), DFW serves 75,066,956 passengers in FY 2019.

Figure 1-1. DFW General Location

DFW is the primary airport servicing North Texas and the larger Central United States; it is an economic engine generating more than $37 billion in annual economic impact. In FY 2023, DFW served approximately 79.6 million passengers, exceeding pre-pandemic passenger volumes by approximately 9 percent. According to the 2021 FAA Terminal Area Forecast (TAF[3]) by 2036, DFW could serve approximately 100 million passengers and support approximately 928,457 total annual aircraft operations. In serving air travel demand, DFW is an essential component of the regional economy.

Over the years, DFW has modified airport facilities in response to growth in air travel demand. DFW initiated the Terminal Renewal and Improvement Program (TRIP) to renovate and improve its aging passenger terminals, including Terminals A, B, and E. TRIP was a 7-year effort from 2011 to 2017; the program was implemented by DFW to "re-life" older terminals originally opened in 1974. In 2021, DFW completed the Terminal D-South expansion adding four gates to Terminal D (D1 – D4). In 2022, DFW completed the Terminal C High C Gates project rebuilding and modernizing five gates in the southern part of Terminal C. **Table 1-1** notes the age of the existing terminals, numbers of gates, and aircraft type served.

Table 1-1. Terminal Summary Data

Terminal	Year Opened	Number of Gates	Aircraft Type Served
A	1974	26	NB, WB
B	1974	42	RJ, NB
C	1974/2022	28	NB
D	2005/2021	30	WB, NB
E	1974	44	NB, RJ
Total Airport Gates	1974 to Date	170	All aircraft types

Notes:
NB – Narrowbody, WB – Widebody, RJ – Regional Jet
Terminal B includes the original Terminal B gates as well as the Terminal B stinger completed in 2015.
Terminal C includes the original Terminal C gates as well as the High C Gates completed in 2022.
Terminal D includes the original Terminal D gates, as well as the D-South Expansion completed in 2021.
Terminal E includes the original Terminal E gates, as well as the E Satellite gates completed in the 1980s.
Source: DFW Planning Department.

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) (**Figure 1-2**). 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) (**Figure 1-3**). 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.

1.3 Proposed Action

DFW is proposing to construct the CTA Expansion Project to increase total passenger gates, rehabilitate, reconstruct, and modernize aging infrastructure, and provide enhanced connectivity between existing and new terminal facilities (**Figures 1-4** and **1-5**). The Proposed Action includes the construction of a Pier at Terminal A, with a net increase of five new gates, a Pier at Terminal C with a net increase of four new gates, a new Terminal F, located south of Terminal D, with up to 22 new gates, baggage and passenger processing improvements at Terminal E in support of Terminal F, a service corridor connecting Terminals E and F, partial demolition and reconstruction of Terminal C and Garage C, renovation and refurbishment of Garage A and Garage B, as well as associated airside ramp and apron improvements, including supporting utility, fuel, and drainage infrastructure.

[3] FAA Terminal Area Forecast (TAF) downloaded 7-30-2023 at https://taf.faa.gov/Home/RunReport

Figure 1-2. DFW Runway Layout

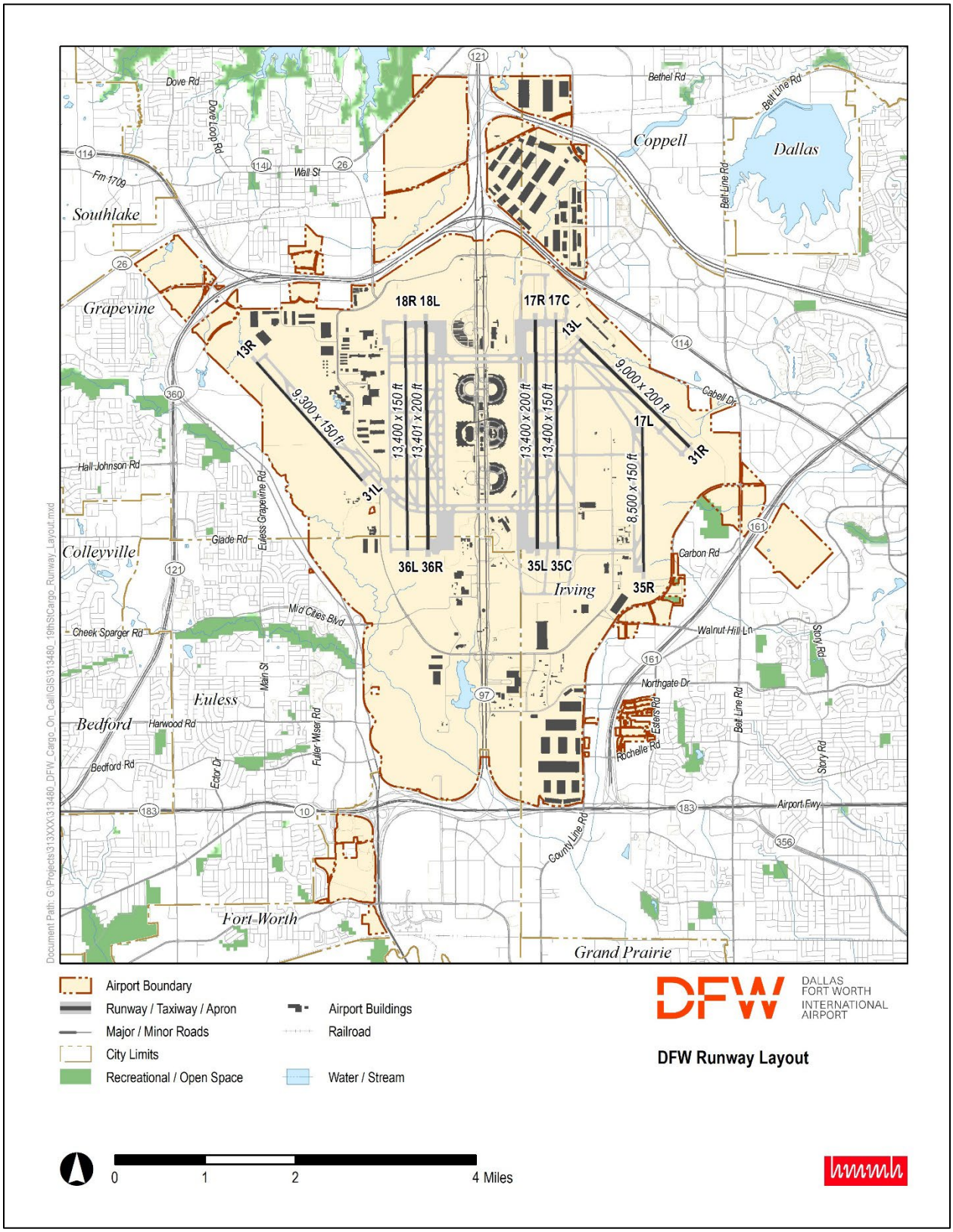


Figure 1-3. DFW Runway Operating Configuration

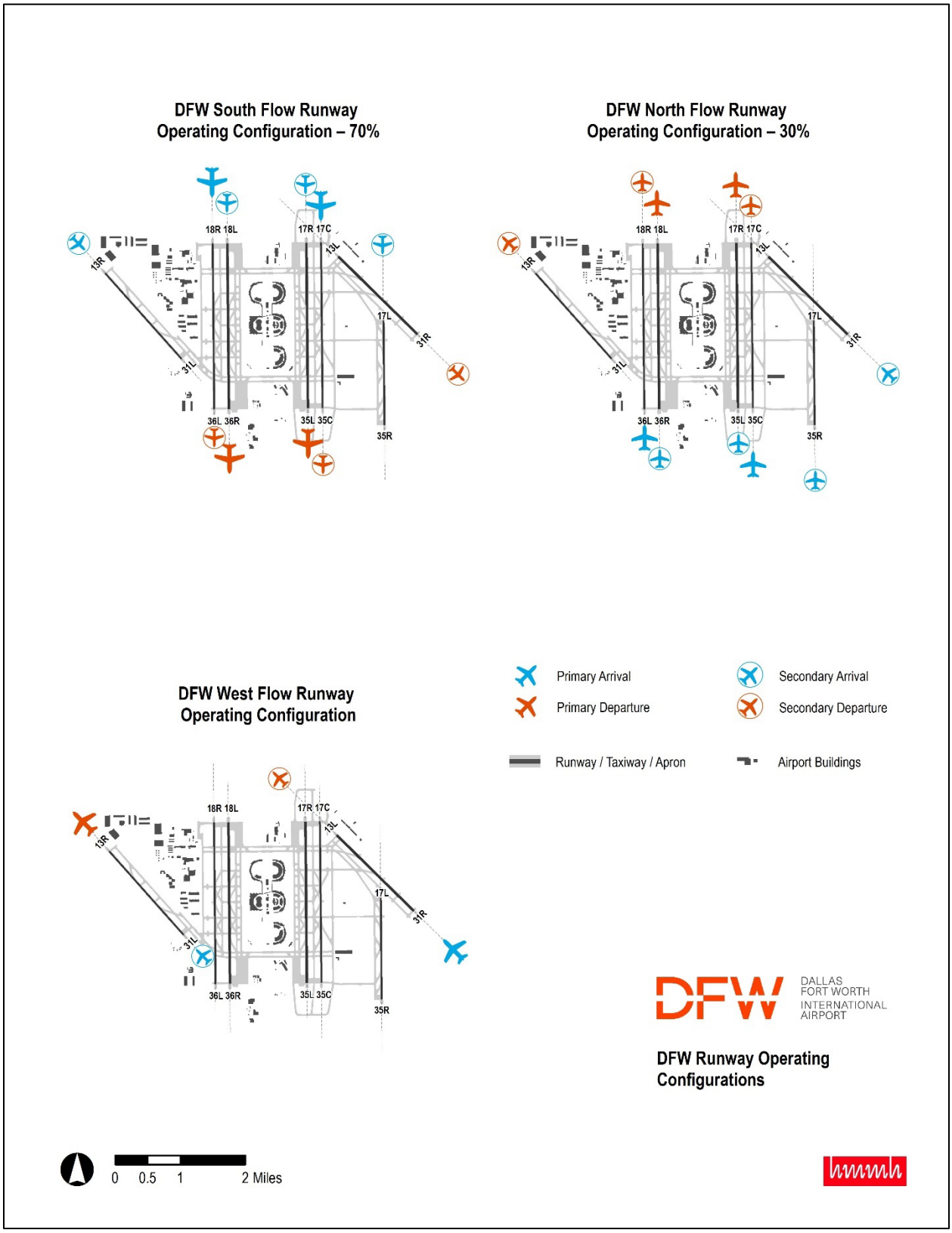


Figure 1-4. Proposed Action Terminal Improvements and Staging Area Locations

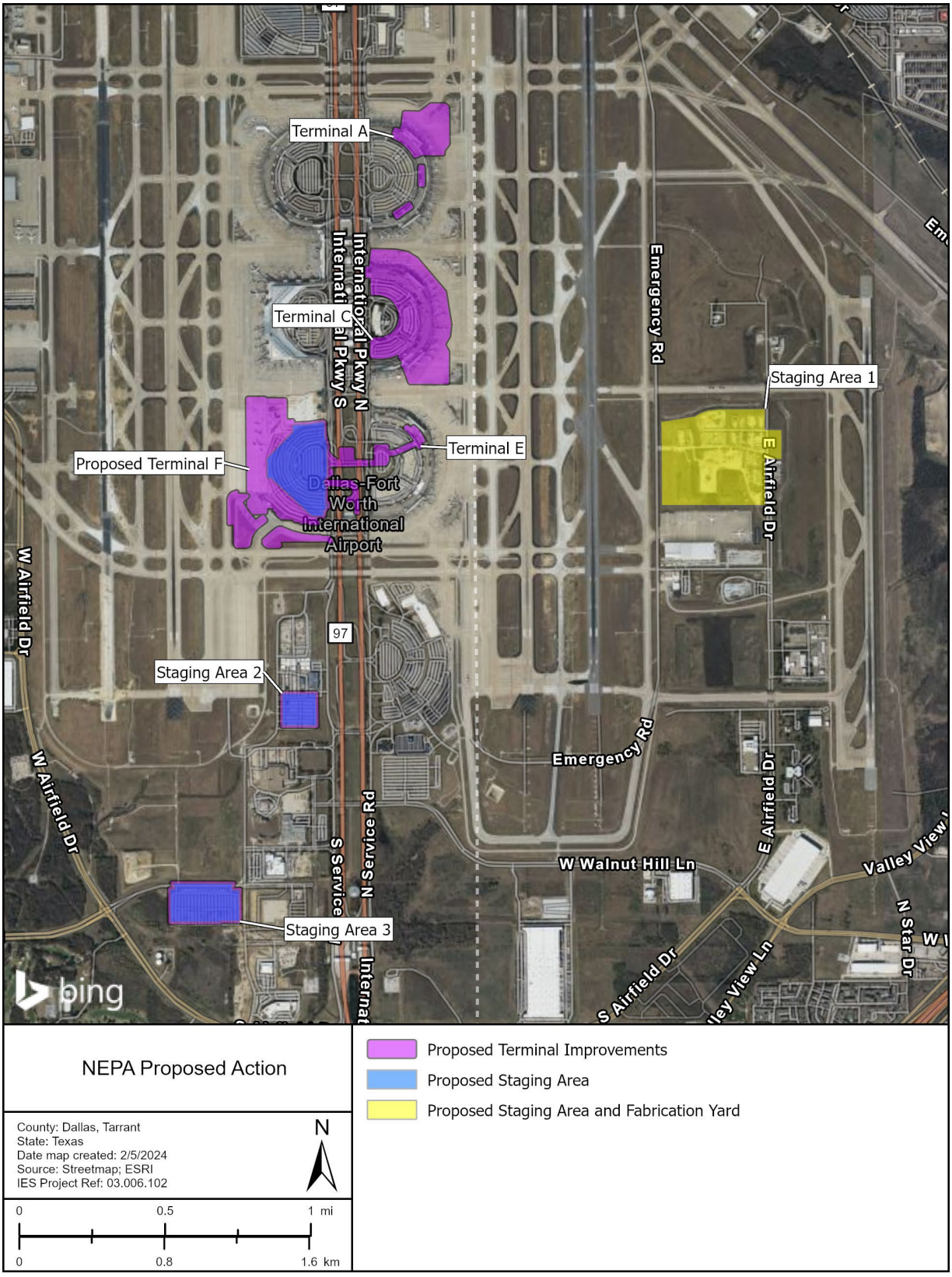
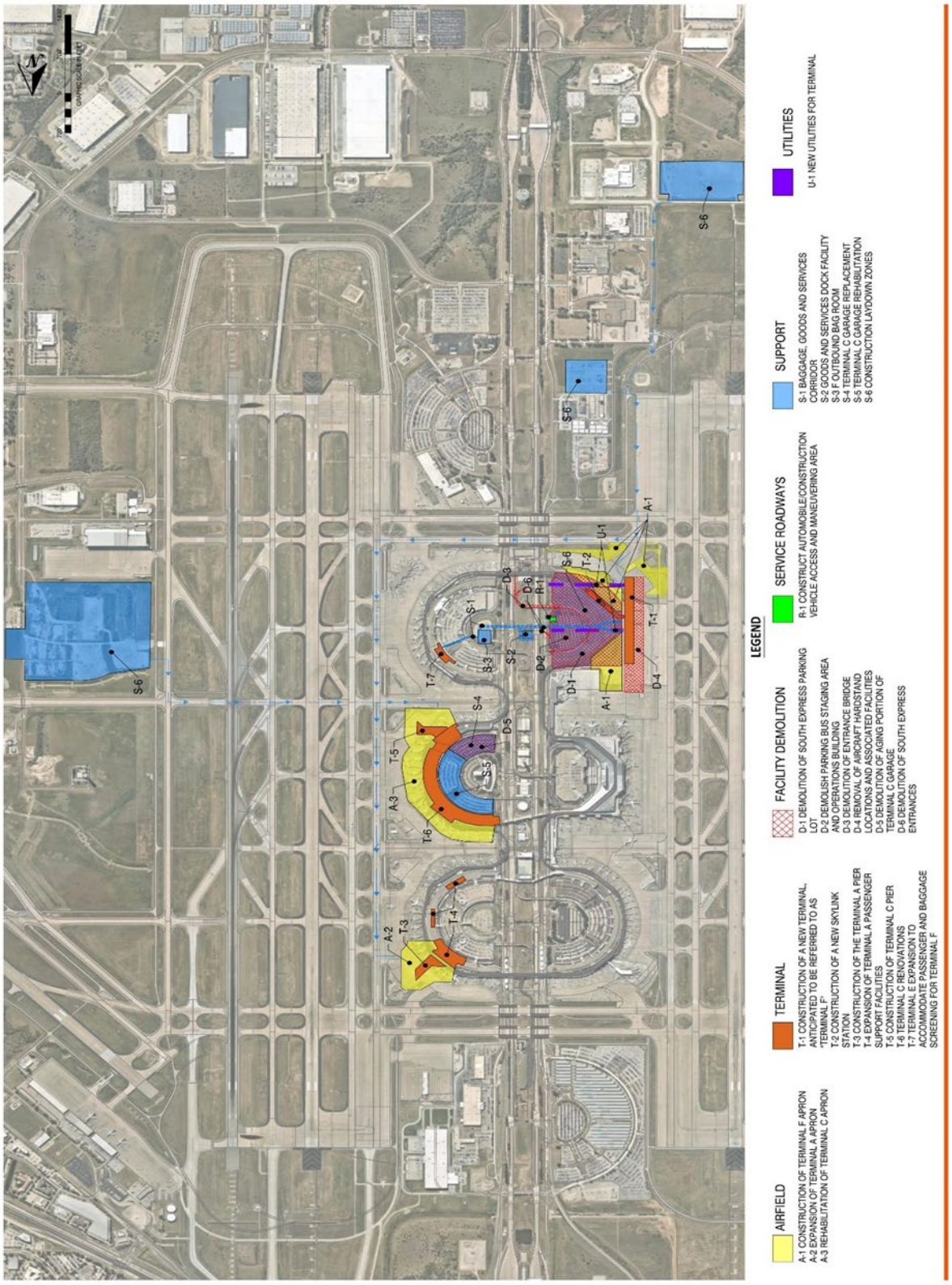


Figure 1-5. Proposed Action Specific Components and Locations within DFW Airport



Overall, the proposed CTA Expansion Project would provide up to 31 new passenger gates at Terminals A, C, and F. The Proposed Action would also rehabilitate and modernize aging infrastructure within Terminal C. Furthermore, the Proposed Action would include the rehabilitation and reconstruction of the Terminal C parking garages and roadways; as well as the requisite modifications to the Skylink system and the construction of an automated people mover (APM) (aka Skylink) station to connect Terminals E and F.

Section 2.0 describes the purpose and need for the Proposed Action. The key elements of the Proposed Action are summarized in the following text and detailed in ***Section 3.3***, which includes descriptions and figures showing the specific larger components. **Figure 1-5** shows the specific project area locations associated with the Proposed Action described in ***Section 3.3***.

- ***Construction to increase the total passenger gates:*** The project would add two piers, one at each Terminals A and C, that would increase the total number of gates at DFW. Ten gates would be added to the new Terminal A Pier, which after gate reconfiguration, would result in a net increase of five gates. Nine gates would be added to the new Terminal C Pier, which after gate reconfiguration would result in a net increase of four gates. With the two new piers, there would be a net increase of nine gates. The piers are anticipated to be completed in 2026. Initially, the piers would be used to offset Terminal C existing operations during the rehabilitation phases. Development of Terminal F would add up to 22 gates, adding over 215,000 square feet of new concourse space. The gates are anticipated to be completed in 2026. Traditionally, passenger and baggage processing would occur in terminal facilities; however, Terminal F baggage and passenger processing would occur within an expansion to Terminal E. The expansion of Terminal E involves the build-out of a vacant infill surface parking area within the current building footprint. Terminal F would be connected to the existing CTA via a new Skylink station.
- ***Rehabilitation and reconstruction to improve and modernize aging infrastructure***: The Proposed Action would rehabilitate, renovate, and modernize Terminal C through the demolition of the concourse level, and reconstruction through modular and traditional construction methods. Modifications would be made within the existing terminal to improve the passenger experience, including additional screening lanes and security checkpoint reconfiguration to improve passenger flows, additional concession areas, new gate lounges, and boarding facilities. Ramp level and apron work would occur to relocate baggage claim to the lower level, to renovate building support and services rooms, and airline operations rooms, as well as accommodate some utility relocation, including drainage and fueling. The Proposed Action would also include structural repairs and American with Disability Act (ADA) code modernization in Terminal C Garages, Sections A and B, along with roadway rehabilitation and replacement and utility work. The Terminal C, Section C, which is at the end of its useful life would be demolished and reconstructed within its existing lateral footprint and would be expanded vertically to include an additional level, taking it from its existing five levels to six levels.
- ***Connectivity Between Terminal E and Future Terminal F:*** As mentioned previously, modifications to Terminal E are necessary for passenger and baggage processing for Terminal F. A new Baggage Handling System (BHS) building for outbound baggage handling would be constructed in the current in-fill surface parking lot in addition to Terminal E modifications to accommodate ticketing and passenger interactions. Terminals E and F, the BHS building, and a Terminal F Dock, which would provide for goods and services movements through an underground corridor. No changes to the Terminal E parking garage and roadway would be anticipated.
- **Ramp Area Improvements**: The Proposed Action would also include the expansion of Infield 6 to develop additional aircraft entry points (AEP), aircraft parking positions, hydrant fuel pits, (north of Skylink) and aircraft pavement areas to support aircraft operations, specifically for Terminal F (**Figure 1-6**). The airfield ramp area improvements include the rerouting and reconfiguration of the stormwater and spent aircraft deicing fluid (SADF) conveyance pipes, and demolition of the existing pavement, utilities, and other facilities within the footprint of the proposed expansion of Infield 6. Additionally, the project construction of requisite AOA fencing around the areas of the CTA that are associated with the Proposed Action.

Figure 1-6. Infield 6 AEP and Aircraft Pavement Modification Areas

1.4 Connected Actions

Connected actions per 40 CFR 1508.25, are actions, "… *that are closely related and therefore should be discussed in the same impact statement. Actions are connected if they: (i) automatically trigger other actions which may require environmental impact statements, (ii) cannot or will not proceed unless other actions are taken previously or simultaneously, or (iii) are interdependent parts of a larger action and depend on the larger action for their justification.*" DFW has looked at other actions that occur simultaneously as supporting actions to the Proposed Action or would occur near the Proposed Action, either before or immediately after. These connected actions include:

- Project support locations (PSL) including proposed staging areas and fabrication yards for modular building components for Proposed Action element construction.
- Utility infrastructure developments, including the Utility and Baggage Transfer Tunnel supporting Terminals E and F, and utility mains for Terminal F,
- Demolition of the Terminal E In-Fill Surface Parking lot and regrading for new Terminal E support facilities which are included within the Proposed Action,
- Demolition of the South Express Parking lot (east of existing Skylink facilities) and site stabilization for future development opportunities.

1.5 Federal Action

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

- Determination under 49 U.S. Code (USC) §§ 47106 and 47107, relating to the eligibility of the Proposed Action for federal funding under the Airport Improvement Program (AIP),
- Determination under 49 USC § 40117, as implemented by 14 CFR 158.25, to use passenger facility charges (PFC) collected at the airport to assist with the construction of potentially eligible items shown on the Airport Layout Plan (ALP), and
- Unconditional approval of the ALP to depict the Proposed Action pursuant to 49 USC § 47107(a)(16) as described in ***Section 3.3***.

SECTION 2 PURPOSE AND NEED

As indicated briefly in ***Section 1.3***, the Proposed Action would consist of multiple concurrent projects that comprise the CTA Expansion. The Proposed Action would include the addition of two piers, one at each Terminals A and C; rehabilitate and modernize aging infrastructure within Terminal C through demolition of the concourse level and reconstruction through modular and traditional construction methods; Terminal A interior renovations in support of the pier; rehabilitation and renovation of Terminal C Parking Garages A, and B, and reconstruction of Garage C and associated roadways; and development of Terminal F, including modification of Terminal E, construction of a Skylink connection, construction of an underground utility and services corridor, as well as all necessary infrastructure to support these improvements including airside modifications to ramp, aprons, and pavement. Additional connected actions would be included as part of the larger plan of development occurring at DFW. These actions were briefly described in ***Section 1.4*** and further developed in ***Section 3.6***.

2.1 Purpose

The purpose of the Proposed Action is to develop modern facilities and infrastructure necessary to accommodate the forecasted growth of commercial service operations and deliver exceptional customer experience by incorporating the latest technology and customer experience recommendations[4] in accordance with Airport Cooperative Research Program (ACRP) Report 25: Airport Passenger Terminal Planning and Design, Volume 2: (2010), ACRP Report 157: Improving the Airport Customer Experience (2016), and the DFW 2021-2024 Strategic Plan (DFW 2023a). Additionally, the purpose of the Proposed Action is for DFW to maintain and modernize existing Terminal C facilities through a renovation and rehabilitation program that would update aging facilities. These structural updates would bring older facilities (Terminal C and the parking garages) into current building code compliance and regulatory standards and would position them for continued long-term use. The proposed project would provide modern facilities that meet tenant operational requirements, reduce operating and maintenance costs, and enhance DFW's business performance, while promoting DFW's sustainability goals.

2.2 Need

The Proposed Action is needed to meet the forecasted passenger operational demand for new gates. DFW has been rapidly recovering[5] from the impacts of the COVID-19 pandemic, serving approximately 55.4 million passengers in FY 2021 and approximately 72.1 million passengers in FY 2022. This growth in passengers demonstrates a 30.2 percent year-over-year increase (**Appendix A**).

In FY 2023, DFW served nearly 79.6 million passengers and by 2036 DFW could serve 100 million passengers and approximately 928,457 annual aircraft operations. The existing terminal facilities and supporting infrastructure are nearing capacity and cannot meet the forecasted demand documented in the 2021 FAA TAF. In 2022, DFW completed a comprehensive analysis to understand current levels of service, commercial air service demand, and future operational needs. The analysis showed that by 2028, DFW would need additional gates to avoid being gate-constrained, which would significantly limit DFW's ability to serve forecast aircraft operational levels and passenger demand. The findings of the analysis are summarized within the Operations Memorandum reviewed and approved by FAA in April 2023 (DFW 2023b; **Appendix A**).

[4] ACRP recommendations for improving and delivering exceptional customer experience include local culture and sense of place, streamlining passenger processing, both domestically and internationally (e.g., check-in, security screening, customs and immigration inspection), customized and reduced stress experiences through technology/mobile apps, comfortable walking distances, natural light, and cleanliness, intuitive wayfinding, multimodal connectivity in the transportation network and better connectivity between terminals, airports are destinations (food, shopping, lounges, and comfortable work areas), family restrooms, mother rooms, free Wi-Fi connection, workstations, charging stations, and power outlets.

[5] DFW Airport recovery is shown by the changes in passenger volumes from FY 2020 to FY 2022. DFW served 47.4 million passengers in FY 2020 (~35.3 percent lower than FY 2019), 55.4 million passengers in FY 2021 (~16.9 percent higher than 2020), and 72.1 million passengers in FY 2022 (~30.2 percent higher than FY 2021), and 72.9 million passengers in FY 2023 (10.7 percent higher than FY 2022).

The proposed project is needed to address three challenges that would affect DFW's ability to adequately serve future air travel demand; these challenges include:

- Inadequate number of passenger gates to meet FAA TAF anticipated demand (**Section 2.2.2**),
- Lack of connectivity between Terminals E and proposed F to provide a goods and service corridor to efficiently move baggage, food, and supplies as well as a Skylink APM station for passengers (**Section 2.2.3**), and
- Outdated terminal infrastructure, inadequate and older regulatory compliant parking garages, and inefficiencies on associated airfield ramp and pavement to meet forecasted operational demand (**Section 2.2.4**).

2.2.1 Forecast Aircraft Operations

The FAA 2021 TAF released in March 2022 was the basis for projected operations with various fleet mixes. The FAA TAF includes the effects of the COVID-19 pandemic on the future forecast for the airport. Using the FAA 2021 TAF data, DFW developed operational scenarios with various fleet mixes to cover the future implementation years analyzed in this EA (2026 Implementation Year, 2031 Implementation Year +5, and 2036 Implementation Year +10). Since the initial analyses were developed which used the FAA's 2021 TAF, the FAA released its updated 2022 TAF (FAA 2023). The 2022 TAF forecasted fewer operations than the 2021 TAF, 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 operational projections would more accurately predict the future and 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. On 28 April 2023, FAA concurred with the approach to use the 2021 TAF for the analyses and assessments presented in this EA (DFW 2023b).

Table 2-1 shows the forecast annual aircraft operations as well as the average annual day (AAD) aircraft counts for the No Action and Proposed Action Alternatives. In 2026, the Proposed Action would add approximately 5,962 additional annual operations, in 2031, the Proposed Action would add approximately 70,441 annual operations, and in 2036, the Proposed Action would add approximately 132,871 annual operations (**Appendix A**).

Table 2-1. Forecast Annual and Average Annual Day Aircraft Operations

Alternative	Modeling Scenario	Air Carrier & Air Taxi	General Aviation	Military	Total
No Action	2026	803,581.0	6,363.0	213.0	810,157.0
	AAD 2026	2,201.6	17.4	0.6	2,219.6
Proposed Action	2026	809,543.0	6,363.0	213.0	816,119.0
	AAD 2026	2,217.9	17.7	0.6	2,235.9
No Action	2031	813,361.0	6,461.0	213.0	820,035.0
	AAD 2031	2,228.4	18.0	0.6	2,246.7
Proposed Action	2031	883,802.0	6,461.0	213.0	890,476.0
	AAD 2031	2,421.4	18.0	0.6	2,439.7
No Action	2036	823,580.0	6,561.0	213.0	830,354.0
	AAD 2036	2,256.4	18.0	0.6	2,274.9
Proposed Action	2036	956,451.0	6,561.0	213.0	963,225.0
	AAD 2036	2,620.4	18.0	0.6	2,639.0

Notes:
For each alternative, the additional operations are determined by the delta between the Proposed Action and No Action operations. For example in 2026, the calculation would be: 816,119 minus 810,157 = 5,962 additional annual operations

Source: DFW Operations Memo 2023, HMMH 2023

2.2.2 Inadequate Number of Passenger Gates

DFW has been rapidly recovering from the impacts of the COVID-19 pandemic; between 2019 and 2020, passenger volumes dropped by approximately 47 percent (39.3 million), and, in 2021 passenger demands began to bounce back, reaching 62.4 million. By 2022, DFW passenger demand had almost returned back to 2019 levels, reaching 73.3 million; as of June 2023, passenger volumes were approximately 10 percent higher than the preceding year. In 2023, DFW served 79.6 million total passengers. As air travel demand continues to increase, the existing terminal facilities do not have capacity to support the forecasted growth in passenger volumes and demand documented in the 2021 FAA TAF. Analysis undertaken in 2022 and documented within the 2023 Operations Memorandum (**Appendix A**) determined that as soon as 2028, additional gates would be needed to avoid the gate facilities from constraining DFW's ability to serve forecast aircraft operational levels.

To determine the number of gates needed, DFW Airport Board staff in collaboration with airline representatives/stakeholders, reviewed historic passenger and operations data to identify an operational "turns per gate" metric. Turns per gate indicate how many aircraft flights (an arrival and a departure) can be accommodated at a single gate. DFW currently experiences an average of 5.2 turns per gate per day and by leveraging advances in technology DFW has found opportunities to gain efficiencies that enable the metric of 6.5 turns per gate reasonable for the analysis and strategic planning purposes. At 6.5 turns per gate per day, with the existing 170 gates, DFW would be constrained to about 806,650 operations per year[6], and according to the 2021 FAA TAF, DFW is forecasted to reach this constrained operational level of 806,650 as early as 2028[7] (**Appendix B**). To adequately accommodate the forecasted growth in passengers and operations, DFW needs additional gates; failure to provide the additional gate capacity would affect gate throughput, cause delays, adversely impact passengers, airlines, business partners, and consequently the national airspace system.

Figure 2-1 illustrates the 806,650 operations constraint from the existing number of gates as compared to the FAA TAF. **Figure 2-2** depicts the number of gates necessary to accommodate the FAA's 2021 TAF forecasted demand. As shown, the need for additional gates begins in 2029 when 173 gates are needed. By 2036, the 2021 FAA TAF shows that commercial service demand for DFW would reach approximately 963,000 operations and to accommodate this forecasted demand, at the previously defined 6.5 turns per day per gate, DFW would need an additional 31 gates, which would bring the total number of gates to 201 gates.

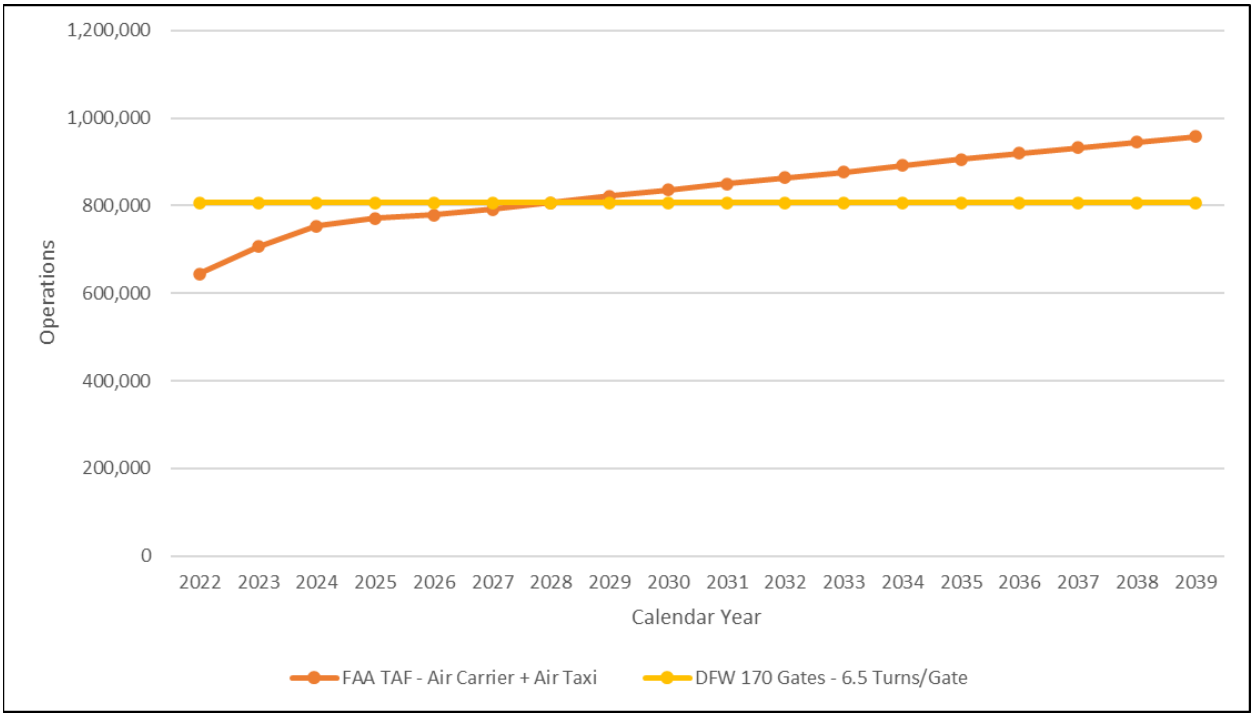
2.2.3 Lack of connectivity between Terminal E and Future Terminal F

Due to development constraints associated with overall terminal configuration, surface parking, landside utility infrastructure, airside utility and support infrastructure, and existing passenger APM infrastructure, DFW has a limited building footprint within the overall existing operating area. This constrained developable footprint combined with DFW's overarching sustainability goals has increased the need for innovative, connective services between existing terminals and the proposed Terminal F. Connecting infrastructure, oriented north-to-south, would impact aircraft operations at Terminal D, which is why a west-to-east orientation across International Parkway with Terminal E would be considered more constructible and less impactful on existing aircraft movements. Construction methods and terminal sizes were also considered based on recent DFW construction projects that could save time and be more sustainable. It was determined that a goods and service corridor could efficiently move baggage, food, and supplies. Additionally, using existing APM infrastructure and creating a new Skylink station at the proposed Terminal F would be more cost beneficial and save resources.

[6] To calculate the constraint – 365 days x 170 gates x 6.5 turns per gate x 1 flight (2 operations)

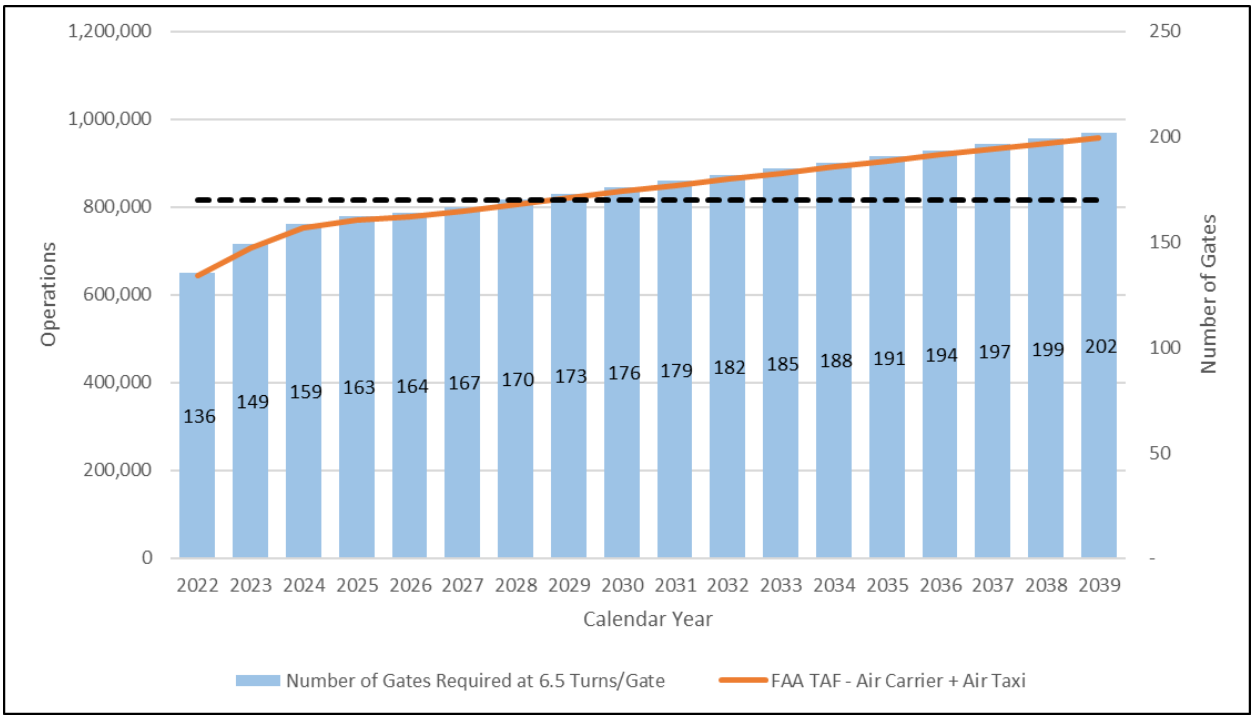
[7] https://taf.faa.gov/ as accessed in October 2022

Figure 2-1. DFW Constrained Operations Related to TAF.



Source: DFW Operations Memorandum, 2023

Figure 2-2. DFW Gate Requirements at 6.5. Turns per Gate per Day, TAF Projected Operations



Source: DFW Operations Memorandum, 2023

2.2.4 Outdated Terminal Infrastructure, Inadequate and Older Regulatory Compliant Parking Garages, and Inefficient Associated Airfield Ramp and Pavement

The facilities at Terminal C are no longer equipped to meet current passenger demands (**Appendix C**). Renovations to Terminal C are necessary to extend the life of the Terminal. This Terminal was constructed in the 1970s, Terminal C is challenged with maintenance issues, operational reliability issues, and current building code compliance. Building systems upgrades are necessary to bring the Terminal into building code compliance and add life safety measures. Heating, ventilation, air conditioning (HVAC), glycol, sanitary sewer, water, electrical, fire suppression, fire alarm, low-voltage, and security systems all need to be upgraded given their age and the increasing activity demands on the infrastructure. The replacement of these core services is necessary to decrease operations and maintenance costs because the current systems are beyond useful life for routine maintenance.

Since the construction of the building in the 1970s, the commercial air transportation industry has increased demand, introduced new automated technology and contactless and touchless applications, increased security, and changed customer service standards. Increasing the depth at busy ticketing halls, reconfiguring and adding security checkpoints, and expanding concessions program, are necessary to accommodate the increased trends and meet customer expectations. Landside improvements are needed to replace outdated infrastructure, improve vehicular movements, increase parking capacity, and resolve code and accessibility issues. Given the increased number of passengers, replacing the aging escalators and elevators with higher capacity processing are needed.

Terminal C is served by three parking garages referred to as Garages A, B, and C. Garages A and B require rehabilitation to extend their useful life. There are structural deficiencies, such as cracks in the existing walls, and expansion joints that need replacement. Garage C is at the end of its useful life and needs to be replaced (*see **Appendix C***).

- There are currently passenger accessibility issues with all three garages. A new Garage C would be ADA accessible throughout.
- Garage B has a pedestrian walkway with a connection to the hotel garage. The leaking roof on the enclosed walkway needs to be replaced, and at the same time, the interior finishes need modernization. In addition, the stairs leading to the walkway need to be completely refurbished and made to be ADA/TAS (Texas Accessibility Standards) compliant.
- Increased safety measures are needed in the garages, with the proposed installation of emergency call stations on every level.
- Existing Garages A, B, and C are not currently consistent with other on-airport parking structures and lack a parking guidance system that directs passengers to open parking spaces.

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SECTION 3 ALTERNATIVES

FAA Orders 1050.1F, *Environmental Impacts Policies and Procedures*, and 5050.4B, *Implementing Instructions for Airport Actions*, set forth policies and procedures to be followed when assessing the environmental impacts of aviation-related projects, in compliance with NEPA. The FAA orders require a thorough objective assessment of the Proposed Action Alternative, No Action Alternative, and all "reasonable" alternatives that would achieve the stated purpose and need of the Proposed Action.

Under 1050.1F Section 6-2.1d ""[a]n EA may limit the range of alternatives to the proposed action and no action when there are no unresolved conflicts concerning alternative uses of available resources." As shown in ***Sections 4*** and ***5*** of this EA, the Proposed Action would increase air emissions and cause noise effects. The change in air emissions, as discussed in ***Section 5.1,*** would be above the Clean Air Act *de minimis* thresholds[8] and require a General Conformity Determination; the change in noise is anticipated not to be significant. Based on coordination with Texas Commission on Environmental Quality (TCEQ), the agency that oversees the Texas State Implementation Plan (SIP), the Proposed Action would conform to the SIP. TCEQ reviewed the Draft General Conformity Determination and after comparing the emissions estimated for the Proposed Action with source category allocations from the quantification of overall excess creditable reasonable further progress (RFP) emissions reductions in the applicable SIP revision that would be available, TCEQ, on December 6, 2023, concurred with the determination stating that the proposed project conforms to the Texas SIP (**Appendix I**). However, because of the air emissions that would be above *de minimis*, a review of alternatives was conducted to determine if there is a practicable or prudent and feasible alternative that would generate emissions less than *de minimis*. The Build Alternatives Evaluation Process focuses on that review.

3.1 Build Alternatives Evaluation Process

The following alternatives were developed for evaluation in this EA and are discussed by location. The following sections identify the alternatives and how they would affect any unresolved conflict(s).

3.1.1 Terminals A and C Piers

Terminal Pier alternatives were developed through an iterative planning process, including internal working sessions with DFW staff. Several pier concepts were identified:

- Dual piers on Terminal C: In this concept, two piers would be developed on Terminal C, totaling nine additional narrow body gates.
- Terminal C/A Piers: For this option, a pier would be constructed on Terminals A and C. This option initially had two variants. The first variant assumed both piers would be on the northern side of each terminal (**Figure 3.1**); the second variant assumed the piers would be on the north side of Terminal A and south side of Terminal C (**Figure 3.2**). Both options could provide nine additional narrow-body gates.

In addition, the alternatives analysis considered one-level and two-level concepts. In the first concept, security and bag claim would be on one terminal level (concourse). In the second concept, these functions would be on the concourse and ramp levels, respectively.

The alternatives and their variants were assessed based on landside and airside effects, capacity, efficiency, safety, and customer service factors. The assessment considered the following:

- Airside Effects: The potential effects of the piers on airside efficiencies and aircraft movements.
- Landside Effects: The gain in gate capacity for the terminals, particularly relative to garage capacity.
- Terminal Effects: Opportunities for improved operational efficiency through terminal function consolidation.

[8] 40 CFR § 93.153(b)(1) and (b)(2)

- Customer Service: Potential for enhancing the customer experience with improved concessions, wayfinding, circulation, and visual connections.
- Phasing and Construction Scheduling Issues: Including the impact on gate closures and flight scheduling.
- Cost: Construction, operating, and maintenance costs.

A detailed air quality evaluation was not conducted for the North Piers Alternative or the Terminal C Piers Only Alternative (*see **Figure 3-1***), because a professional qualitative review showed that this alternative and its variants would also exceed *de minimis* emissions. Construction emissions associated with the alternatives to the modernization of the Terminals A and C piers, would not be materially different from that of the Proposed Action, when considered separate from Terminal F and the Terminal C Garages and Roadways. The combined emissions from the construction and operation of the piers under this alternative and its variants, would likely be above *de minimis*. This is because the additional gates on the piers would enable a higher level of activity than would occur under the No Action Alternative, and thus, the emissions from those additional operations would be expected to also exceed the *de minimis* threshold of 25 tons per year (tpy) for ozone precursors (nitrous oxides [NOx] and volatile organic compounds [VOC]).

Both pier alternatives would provide the additional gate capacity required to meet the stated project purpose and need. Based on this comprehensive analysis and similarity in effects on the environment, DFW selected the alternative with the South Terminal C Pier combined with North Terminal A Pier (*see **Figure 3-2***). The other alternatives were not carried forward.

Figure 3-1. Terminals A and C Piers, North Alternative

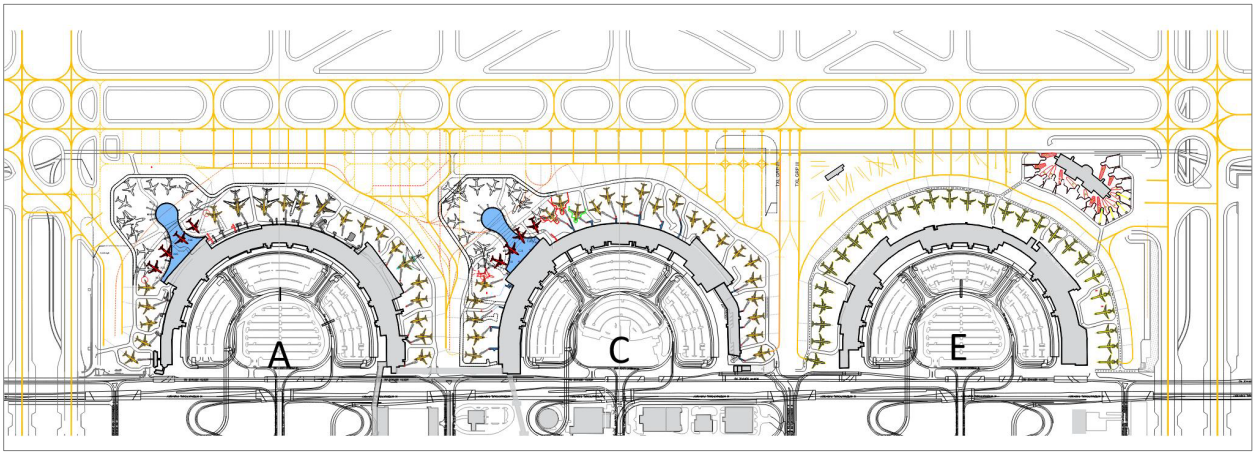
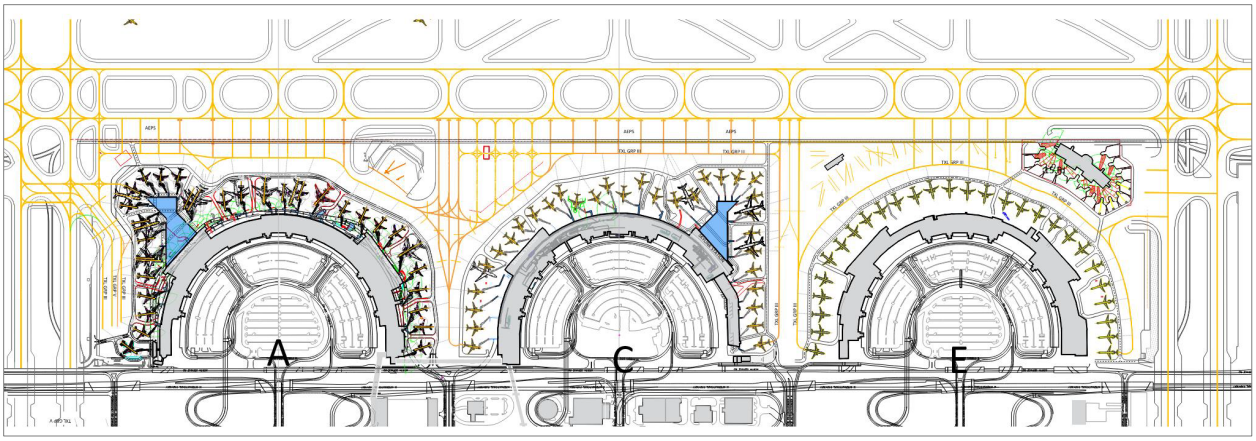


Figure 3-2. Terminals A and C Piers, Sponsor Preferred Alternative



3.1.2 Terminal F

Terminal F alternatives were developed through an iterative planning process with clearly stated goals, objectives, and level of service objectives (i.e., maximum acceptable passenger connection times, maximum baggage connection times, concessions, restroom facilities, etc.). Considering Terminal F would be a new terminal facility at DFW, additional development constraints were outlined to facilitate the planning process. These constraints included:

- The location of the terminal was to be in the general area colloquially[9] known as "Future Terminal F" on the Airport Layout Plan (ALP). The space available in this footprint resulted in the need for a linear terminal facility. Landside access limitations necessitated the processing of passengers and bags within one of the existing terminals with adequate landside space.
- The existing alignment of Skylink could not be modified, due to operational impacts during modification of Skylink track and cost. Early in the planning process it was determined that a terminal facility within the Skylink footprint was not feasible due to the spacing and quantity of track support structures. It was not possible to maneuver aircraft between these structures; therefore, the new terminal's location would need to be between Taxiway G and the Skylink structure.
- Cost effective and operationally efficient gates structures.

South Express Parking would be demolished, and the existing operations would be absorbed at other parking facilities on the airport. The location of Terminal F, next to Terminal D and on the opposite side of International Parkway from Terminal E, resulted in landside access limitations which required a evaluation of the ability to expand Terminals D and E to accommodate the passenger processing needs. Expansion of Terminal D was deemed not feasible due to greater operational impacts and limited expansion capabilities and constraints of the baggage handling system. A review of Terminal E determined there is suitable area to expand the terminal passenger processing area within the general terminal footprint; therefore, it was determined an expansion of Terminal E would support the passenger and baggage processing for the proposed Terminal F.

After attending to ticketing needs and passing through Transportation Security Administration (TSA) security, passengers would access Terminal F via Skylink; thereby, requiring construction of a new Skylink station at Terminal F. Baggage processing would occur in a new baggage handling system (BHS) facility to be constructed in the area currently occupied by an unused parking lot in the Terminal E footprint. Baggage would be transferred to the new terminal via an underground corridor connecting Terminal E to the baggage facility to Terminal F.

Furthermore, limited landside access to the new terminal requires the construction of a facility to transfer goods and services to the new terminal. The proposed site for this facility is between the northbound and southbound International Parkway. This facility would connect to the underground baggage corridor, allowing for the transfer of goods and services to the new terminal facility.

A high-level review of the likely emissions associated with providing additional gates next to Terminal E and on the opposite side of International Parkway from Terminal E was conducted. As additional gates would be provided, there would be both construction and aircraft operational emissions. The additional gates provided, would result in this alternative exceeding the air quality *de minimis* threshold, like with the Proposed Action. Therefore, this alternative was determined to not be materially different from the Proposed Action, relative to air quality.

Based on this comprehensive analysis, the preferred alternative was the construction of Terminal F with passenger and baggage support occurring in the Terminal E footprint. This alternative meets the stated purpose and need and was carried forward for further analysis as part of the Proposed Action Alternative.

[9] The proposed location has been informally referred to as future Terminal F due to its intuitive proximity to existing terminals within the CTA.

3.1.3 Terminal C Renovations

Terminal C renovation alternatives were derived, in part, from concepts studied during the TRIP program from 2015. The following alternatives were defined:

- Option A: Based on the 2015 TRIP study, this option would minimize building expansion. As a result, bag claim, concessions and restroom amenities upgrades would be less than desired.
- Option B: Terminal infill would be used to provide new baggage claim halls and enlarged concourse space for improved concessions and restrooms.
- Option C.1: This concept was derived from the new alternative plan. Arrival functions would be relocated to the lower level (using the abandoned AirTran Right-of-Way [ROW]), which opens substantial space for improved amenities.
- Option C.2: This option was a variation of Option C.1, with expansion focused on the terminal southern end.

Early in the analysis, the advantages of two processors (i.e., ticketing and security checkpoint) versus the existing configuration of three processors were studied. It was found that the existing configuration provides a better level of service.

Four alternatives were developed and evaluated using quantitative and qualitative measures. Metrics used for the evaluation are:

- Passenger flow and wayfinding: Alternatives were studied relative to arrival and departure sequences, walking distances and level changes, orientation, and signage.
- Garage, curbside, and roadways: Metrics included traffic flow, frontage length, safety and accessibility, valet, and curbside check-in services, and walking distances.
- Security: Number of processing lanes, flexibility, and queueing were analyzed.
- Baggage systems: The potential for system upgrades for each option was assessed, as was number of bag claim devices, system footprint, and general level of service. The efficiency and redundancy of staff and operations was also considered.
- Customer service: The availability and location of premium passenger service, restroom improvements, and concessions space and operations were evaluated.

The Terminal C renovation alternatives would not result in additional operational emissions but would generate construction emissions. As a stand-alone project, the construction emissions would not be expected to exceed *de minimis*. However, when reflected in the Proposed Action combined elements, they contribute to the construction emissions that exceed *de minimis*.

Each build alternative meets the stated project purpose and need in that Terminal C would be rehabilitated. To determine the sponsor's proposed action alternative, the alternatives were also studied relative to construction duration, phasing, and cost. Based on this additional analysis, Option C.1 was selected as the preferred alternative. The other alternatives were not carried forward.

3.1.4 Terminal C Garages and Roadways

A key element of defining garage alternatives was the constrained space, limited by Terminal C (and any associated expansion) and the existing hotel and hotel parking garage. Allowing for proper roadway design and future flexibility also had to be considered. After evaluating these and other factors, the following options were defined:

- A three-garage option that would replace but maintain current roadway configuration,
- A two-garage option with an adjusted roadway configuration,
- A consolidated garage option with an adjusted roadway configuration, or

- A consolidated garage option with an adjusted roadway configuration with flexibility built into the programs on the north and south.

Garage alternatives were evaluated in terms of level of service metrics and other relevant factors, including:

- Traffic flow, congestion, and vehicular safety,
- Passenger flow, wayfinding, and walking distances,
- Curbside drop-off and pick-up,
- Construction phasing,
- Expandability and flexibility, and
- Estimated costs.

The Terminal C Garages and Roadway alternatives would not result in additional aircraft operational emissions but would generate construction emissions. As a standalone project, preliminary construction emissions calculations would be anticipated to exceed *de minimis*.

Each build alternative meets the stated project purpose and need in that the Terminal C garage complex would be rehabilitated. Based on the analysis stated above, the Sponsor chose the recommended alternative to maintain the existing three garage configuration by constructing a new Garage C and completing major repairs and improvements to Garages A and B. The existing terminal roadway configuration would be maintained. The other alternatives were not carried forward.

3.2 Reduced Emissions Alternative

Emissions associated with a project can be associated with aircraft operations and construction activity. As is noted in ***Section 1***, the Proposed Action would include constructing needed gates, which would enable DFW to serve additional aircraft operations. Construction of new or rehabilitated facilities would generate construction emissions. Because DFW is located in a severe nonattainment area for ozone, the *de minimis* threshold is 25 tpy for ozone precursors (nitrogen oxides [NOx] and volatile organic compounds [VOC]). As noted in **Section 5.2.3**, the construction related emissions peak year (2025) is expected to produce 36 tpy NO_X and 9 tpy VOC, exceeding the NO_X *de minimis* threshold. DFW has examined construction techniques that could reduce NO_X emissions but would extend the period of construction by 1 or 2 years, which is not prudent.

Aircraft operational emissions are the primary reason that the Proposed Action would exceed the *de minimis* threshold from 2026 forward. Project-related NOx operational emissions (emissions differences between the No Action and Proposed Action Alternatives) would range from 51 tpy (2026) to 943 tpy (2036). Project-related VOC emissions would exceed the *de minimis* threshold beginning around 2029 as VOC emissions reach 40 tpy (2031) and 81 tpy (2036). To obtain ozone precursor project-related emissions below the *de minimis* threshold, DFW would have to remain a gate constrained facility, which is not prudent as it would not enable DFW to meet the purpose and need of this EA, as described in **Section 2.0**. In essence, this alternative is the No Action Alternative. Thus, there are no alternatives available that meet both the project purpose and need and avoid an exceedance of the air quality *de minimis* thresholds.

3.3 No Action Alternative

Inclusion of a No Action Alternative in the environmental analysis and documentation is required per the Council of Environmental Quality (CEQ) regulations. The No Action Alternative is used to evaluate the effects of not constructing the Proposed Action, thus, providing a basis against which action alternatives may be evaluated. Under the No Action Alternative, the Proposed Action would not be implemented; the existing infrastructure would remain unaltered. In the No Action Alternative, commercial service operations would be constrained beginning in 2028 and DFW would not be able to meet the forecasted operational and passenger demand for efficient travel. The No Action Alternative does not meet the stated purpose and need for this project but is carried forward in the analysis of environmental consequences in accordance with CEQ requirements. **Table 3-1** illustrates the total annual operations by alternatives carried forward for detailed analyses.

Table 3-1. Total Annual Operations by Alternative

Year	No Action	Proposed Action
2026	810,157	816,119
2031	820,035	890,476
2036	830,354	963,225

Source: DFW Operations Memo discussing "Need for Additional Gate and Cargo Capacity at DFW", April, 2023

To satisfy the intent of NEPA, FAA Order 1050.1F: *Environmental Impacts Policies and Procedures*, and FAA Order 5050.4B: *Implementing Instructions for Airport Actions*, the No Action Alternative is carried forward in the analysis of environmental consequences.

3.4 Proposed Action (Sponsor Preferred Alternative)

The Proposed Action Alternative, which is the Sponsor's Preferred Alternative, would include the creation of a new pier at Terminal A with 10 gates, for a net increase of five new gates, a new pier at Terminal C with nine gates, for a net increase of four new gates. The construction of the new piers would require the relocation or removal of existing utilities on the airside, and reconfiguration of the existing pavement to accommodate the new gates and expanded fuel hydrant systems. It would also include solid waste collection and transport at ramp level, as well as connection to the existing sanitary, water supply, and stormwater lines. Gas supply would be extended from the existing terminals to serve concessions in the new piers.

The Proposed Action would also include the construction of up to 22 gates at the proposed Terminal F and associated support ramp areas around the Terminal F footprint as well as support facilities in the Terminal E footprint, including the in-fill surface parking area, to include passenger and baggage processing at the BHS. Due to landside access limitations, a below ground corridor would be constructed to transfer passenger bags to Terminal F. A goods and services corridor would also connect to the terminal to facilitate the transfer of goods.

The Proposed Action Alternative would also include the renovation and rehabilitation of portions of Terminal C, including demolition to the concourse level. Construction methods would include both modular and conventional construction types. A new loading dock and renovated concourse would accommodate ticketing and baggage claim, renovated security checkpoints and ticketing halls. The project would also include renovation of building systems including HVAC, glycol, sanitary sewer, water, electrical, fire suppression, fire alarm, low-voltage, and security systems, and replacement of the roofing system.

Terminal C has vehicle parking areas that is made up of three multilevel structures, separated by entry and exit roads; these are known as Garage C, Garage B, and Garage A. Garage C would be demolished and rebuilt in its entirety, while Garages A and B would be refurbished. Overall, the number of available parking spaces in the Terminal C Garages would increase as a result of the construction of one additional parking level. Along the lower road, the existing sanitary sewer line would be replaced. The lower roadway would be replaced after the replacement of the utilities and repairs that are needed. The upper roadway would be repaired and refurbished.

3.4.1 Proposed Action Alternative Specific Components by Location

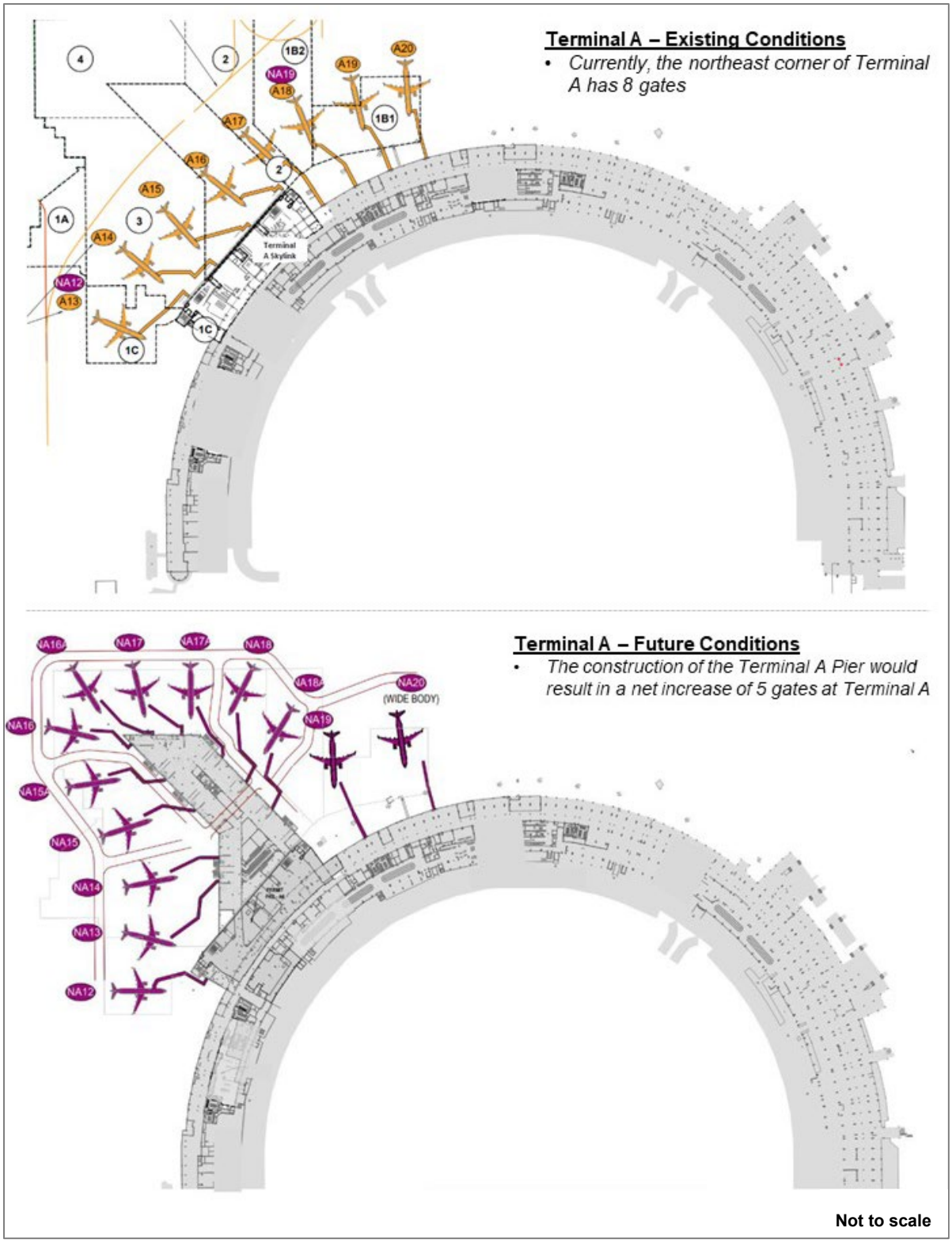
Specific components that make up the scope of the Proposed Action Alternative project area are summarized below.

3.4.1.1 Terminal A North Pier Addition

The Terminal A North Pier addition would result in a net addition of five gates with the pier's 10 new gates and the closure of existing Terminal A gates to provide the construction and operation area footprint (**Figure 3-3**). The new pier would result in 130,000 square feet (ft^2) of new construction. New construction would include upper concourse level with gate lounges, concessions, restrooms, circulations, and some support spaces. Ramp level plant rooms, operations spaces, and storage. Additional Terminal A modifications to support pier operations include an additional ticketing position, bag claim and security screening in the north checkpoint, the addition of security check point lane(s) in central checkpoint, baggage handling system modifications, and rehabilitation of the existing areas under the Skylink station for connection with

the pier. There would also be airside apron work including fuel hydrant, drainage, pavement, lighting, and pavement marking.

Figure 3-3. Terminal A North Pier Addition

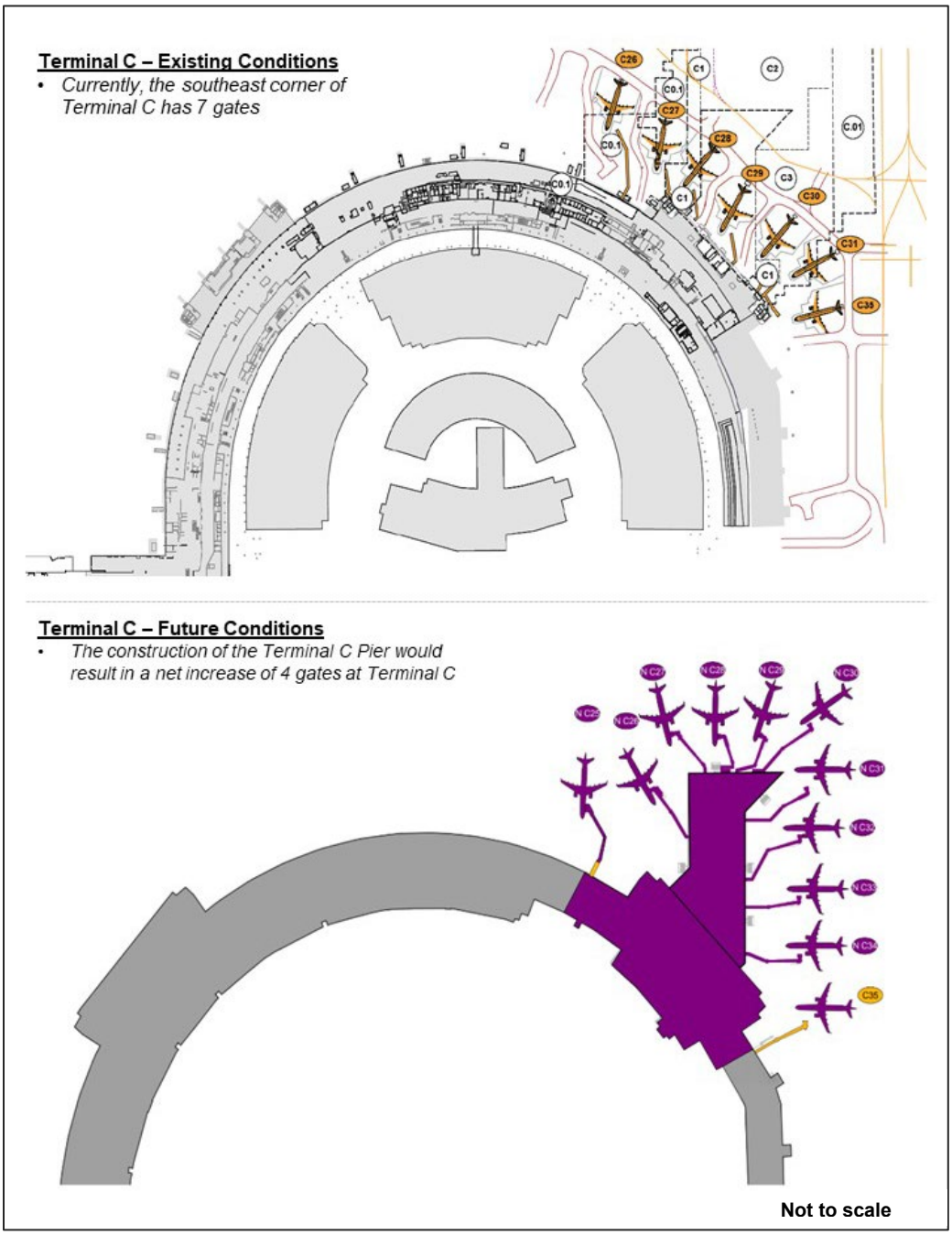


Source: DFW Planning Department and Design Code and Construction (DCC) Department 2023

3.4.1.2 Terminal C South Pier Addition

The Terminal C South Pier addition would result in a net addition of four gates with the pier's nine new gates and the closure of five existing Terminal C gates to provide the construction and operation area footprint (**Figure 3-4**). The new pier would result in 115,000 ft^2 of new construction. New construction would include upper concourse level with gate lounges, concessions, restrooms, circulations, support spaces, ramp level baggage handling, plant rooms, operations spaces, and storage. Existing utilities would be relocated. There would also be airside apron work including fuel hydrant, drainage, pavement, lighting, and pavement marking.

Figure 3-4. Terminal C South Pier Addition



Source: DFW Planning Department and Design Code and Construction (DCC) Department 2023

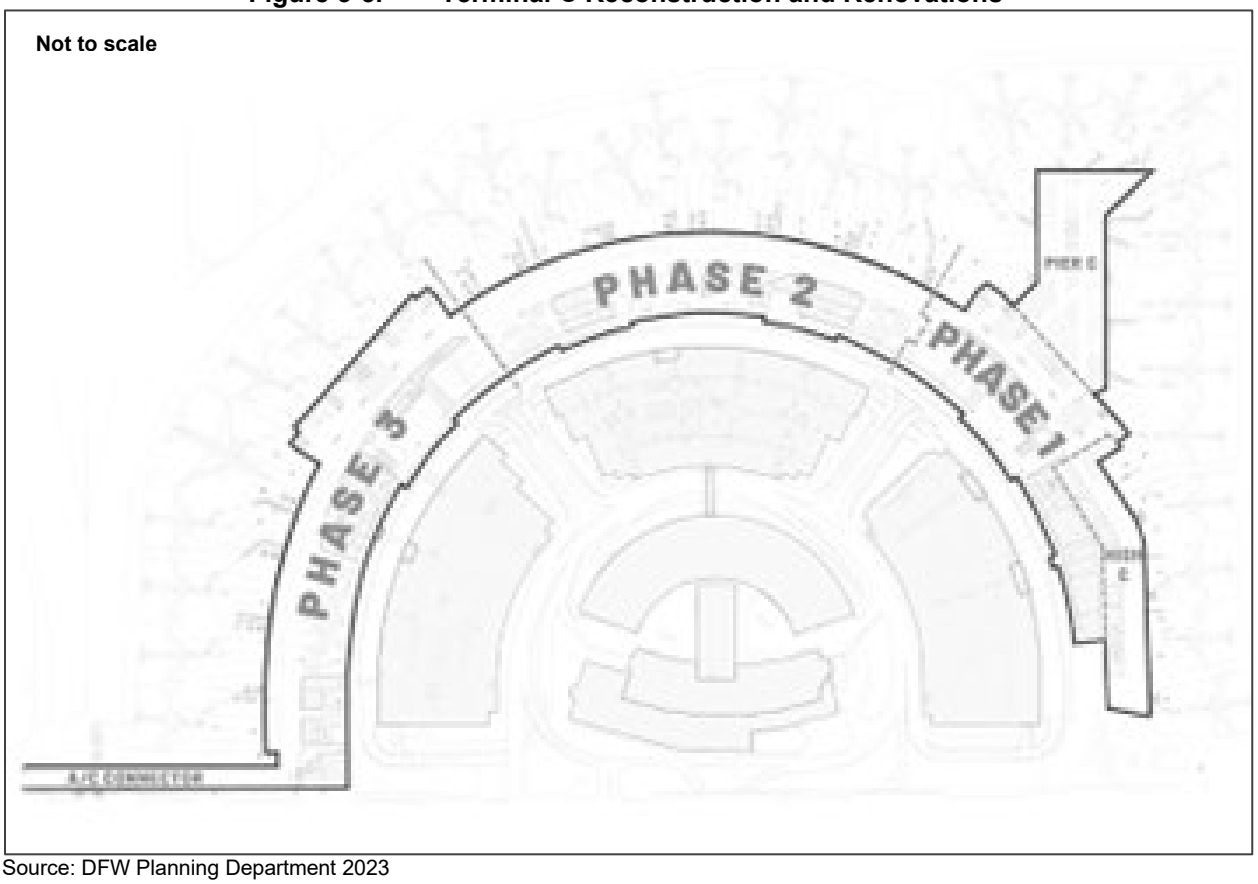
3.4.1.1 Terminal C Reconstruction and Renovation

The Proposed Action would rehabilitate, renovate, and modernize Terminal C through concourse level demolition and reconstruction using modular and traditional construction methods, which will refurbish aging facilities and extend the facility's life. The work is anticipated to be conducted in three phases, as shown in **Figure 3-5**.

The construction sequence of the Terminal C reconstruction and renovation would enable the pier gates to be used to offset aircraft operation and allow for flexibility in gate closures during the Terminal C reconstruction and renovation.

The proposed modifications would improve the passenger experience, by adding screening lanes, relocating and reconfiguring security checkpoints to improve passenger flows, and adding concessions, modern gate lounges, and boarding facilities. Ramp level and apron work would occur to provide new baggage claim devices relocated to the lower level, building support and services rooms, and American Airline's operations rooms, as well as accommodate some utility relocation, including drainage and fueling. A mezzanine level will be constructed above the Phase 1 area to accommodate an airline lounge and additional support spaces. The project would also include infilling portions of the terminal on the landside between the building and the roadway to allow for expansion of interior support systems.

Figure 3-5. Terminal C Reconstruction and Renovations

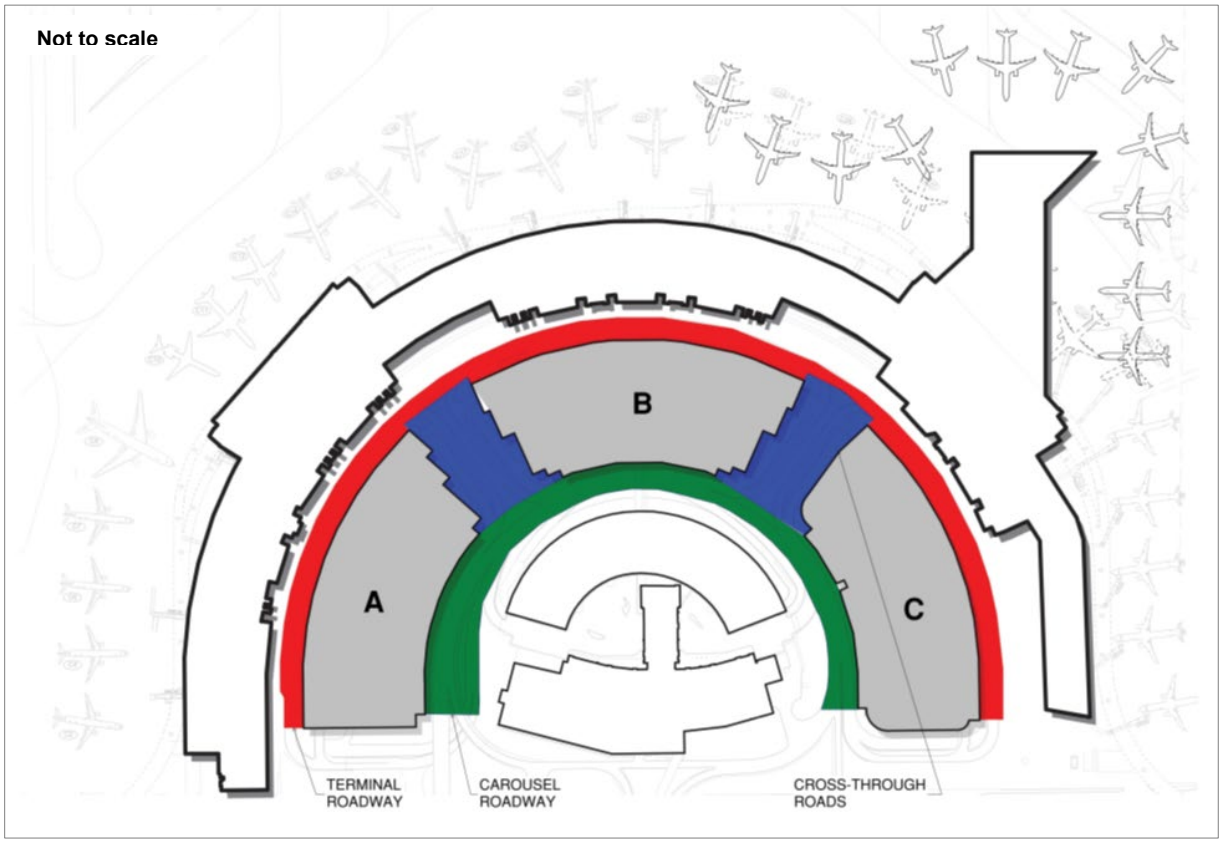


Source: DFW Planning Department 2023

3.4.1.2 Terminal C Multilevel Parking Garages

The Proposed Action would also include structural repairs and Americans with Disabilities Act (ADA) code compliance-related modernization in Terminal C Garages A and B, along with roadway replacement and utility work (**Figure 3-6**). The Terminal C Garage C, which is at the end of its useful life, would be demolished and reconstructed within its existing lateral footprint and would be expanded vertically to include an additional level for a total of six levels. Garages A and B will be refurbished and rehabilitated. Through the modernization, reconstruction and rehabilitation efforts, parking stalls would be reallocated to meet code compliance and technology improvements.

Figure 3-6. Terminal C Garages Configuration under the Proposed Action



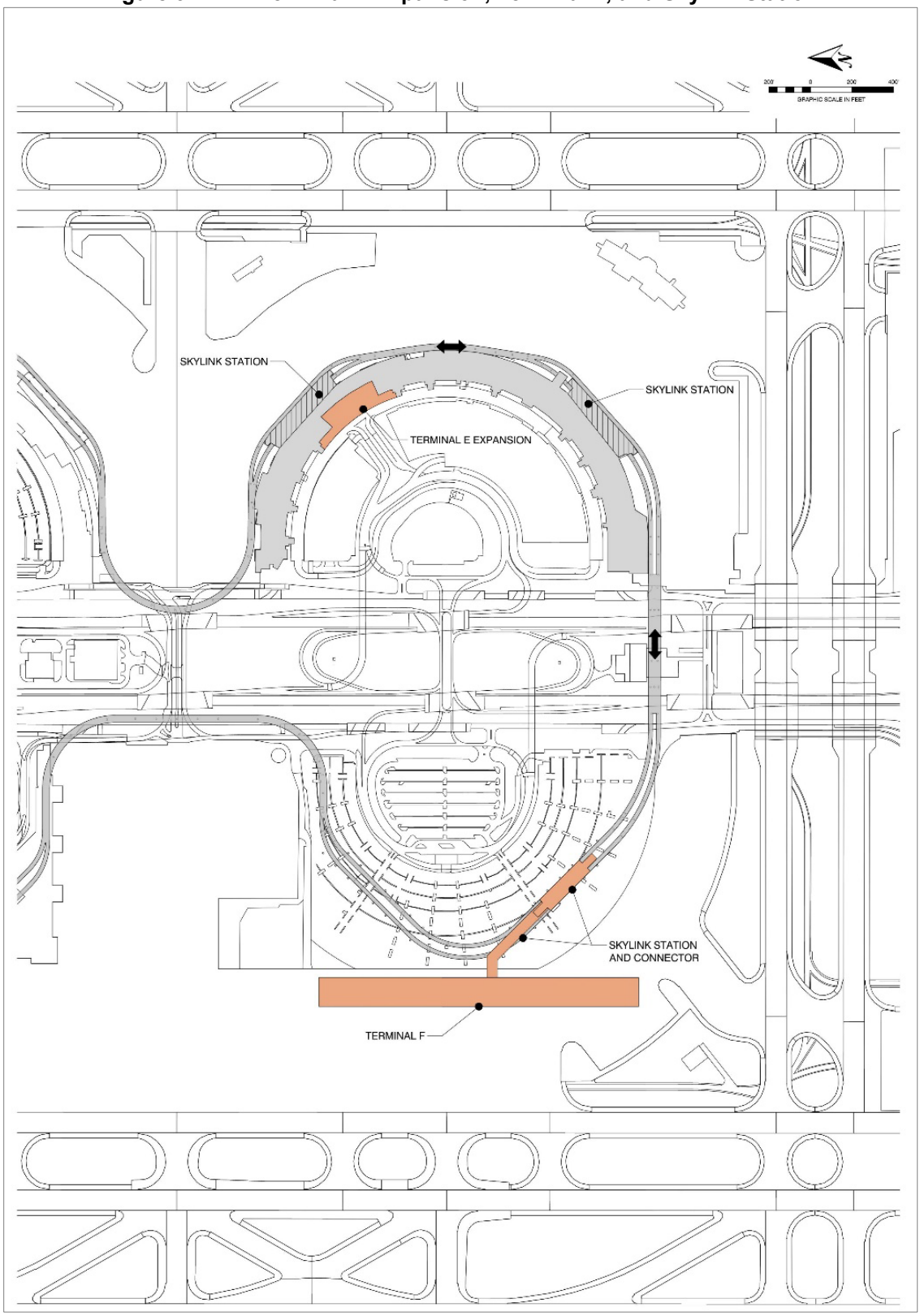
Source: DFW Planning Department 2023

3.4.1.3 Terminal F and Associated Facilities

The construction of the Terminal F concourse would add up to 22 gates, and 216,000 square feet of new concourse space. The terminal configuration is planned to be a linear facility rather than the traditional horseshoe configuration. Because of the limited space, passenger and baggage processing cannot be accommodated in the Terminal F footprint; however, Terminal F baggage and passenger processing would occur within an expansion to Terminal E. The expansion at Terminal E involves the build-out of a vacant "infill" area within the current terminal footprint. Terminal F would be connected to the existing CTA via a new SkyLink station. These components are depicted in **Figure 3-7**.

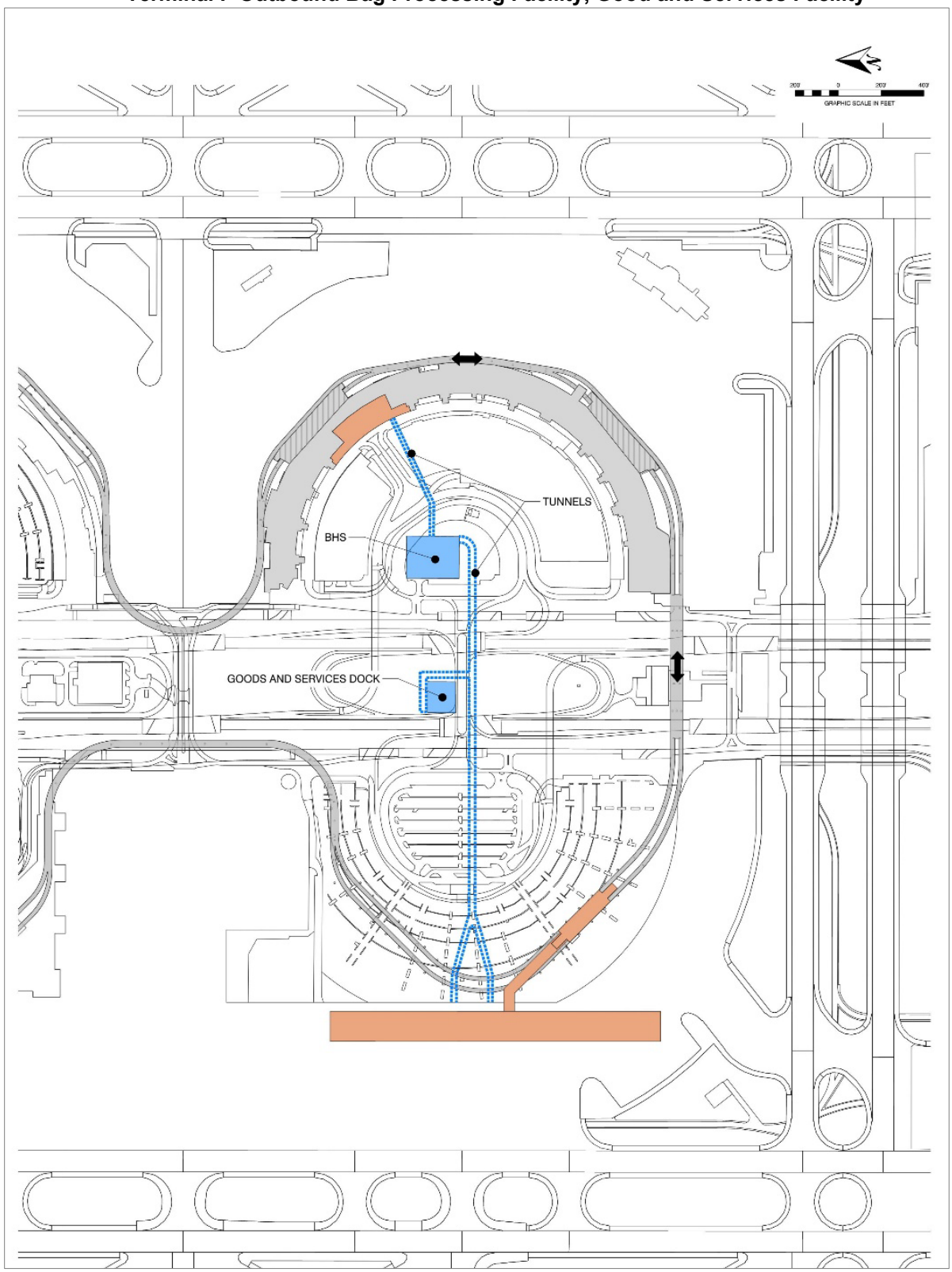
Additional associated facilities depicted on **Figure 3-8** include the construction of a baggage, goods, and services corridor to connect passenger bags and necessary goods and services to Terminal F. Passenger bags would originate in Terminal E and would be processed within the Terminal F outbound bag room. Goods and services would be provided via the corridor connection of the goods and services facility to Terminal F.

Figure 3-7. Terminal E Expansion, Terminal F, and Skylink Station



Source: DFW Planning Department and Design Code and Construction (DCC) Department 2023

Figure 3-8. Bags, Goods and Services Corridor, Terminal F Outbound Bag Processing Facility, Good and Services Facility



Source: DFW Planning Department and Design Code and Construction (DCC) Department 2023

In addition, this includes the construction of a 50,000-ft^2 Terminal F outbound baggage room and a 50,000-ft^2 goods and services facility. Work would include demolition of the South Express Parking lot and associated entrance and exit roads, utility connections from the utility corridor to Terminal F, and necessary apron improvements to fuel fueling and other necessary aircraft services.

The Proposed Action would also include the expansion of Infield 6 to develop additional aircraft entry points (AEP), aircraft parking positions, hydrant fuel pits, (north of Skylink) and aircraft pavement areas to support aircraft operations, specifically for Terminal F. The airfield ramp area improvements include the reconfiguration of the stormwater and spent aircraft deicing fluid (SADF) conveyance pipes, and demolition of the existing pavement, utilities, and other facilities within the footprint of the proposed expansion of Infield 6. Additionally, the project would construction of requisite AOA fencing around the areas of the CTA that are associated with the Proposed Action.

3.4.2 Proposed Action Alternative Anticipated Construction Duration

Construction of the Proposed Action Alternative is anticipated to take years, starting in early 2024. The construction of Terminal C South Pier is anticipated to take 2 years starting in early 2024, after the completion of the NEPA and General Conformity processes. The construction of Terminal A North Pier is anticipated to take just over 2 years starting in March 2024. Terminal C renovations are anticipated to take 3 years, starting in November 2025. Construction of Terminal F and associated improvements at Terminal E are expected to take approximately 2 years starting in mid-2024. Terminal C Garages and Roadways are anticipated to take 2.5 years beginning in early 2024.

3.5 Alternatives Comparison

The No Action Alternative would not meet the purpose and need. It would not meet the increased passenger expectations or operational needs of the terminals. Terminal C would remain outdated with code compliance and accessibility issues. Security checkpoints would remain congested. Parking garages at Terminal C would remain in need of refurbishment with accessibility issues. The No Action Alternative has been carried forward to enable comparison with the potential impacts of the Proposed Action Alternative.

The Proposed Action Alternative meets the purpose and need. As is demonstrated in **Chapter 5**, impacts to environmental resources do not meet significance thresholds as defined in the 1050.1F Desk Reference, aside from air emissions, as the project components are occurring in the current DFW built environment. No loss of land, habitat, waters of the United States, or other natural resources would occur, as the Proposed Action Alternative would be conducted within DFW previously developed areas. Additionally, since all demolition and construction activities would be contained to DFW interior infrastructure, there would be no significant temporary or permanent construction noise effects to sensitive receivers outside the DFW boundaries. Long-term operations would result in minor, increased noise levels at less than 1.5 decibels (dB) outside the DFW property boundaries, to the south over non-compatible land use, multi-family housing units, and to the north over compatible light industrial land uses.

The Proposed Action Alternative would result in adverse air quality effects during peak construction and long-term aircraft operations; However, the increased emissions would not delay the attainment of any NAAQS, nor increase the frequency or severity of any existing violations of the NAAQS. Although the emissions from the construction and operation of the Proposed Action would result in NOx and VOC emissions exceeding 25 tpy *de minimis* threshold for general conformity, estimated project emissions would be within the overall excess creditable RFP emissions reductions in the applicable SIP revision. These emissions reductions would be available after meeting the 2020 RFP emissions reduction target, establishing a motor vehicle emissions budget safety margin for transportation conformity (40 CFR §93.101), and accounting for previously proposed federal actions that relied on the current applicable SIP revision to demonstrate conformity (**Appendix I**). TCEQ reviewed the Draft General Conformity Determination and on December 6, 2023, TCEQ concurred that the Proposed Action would conform to the Texas SIP as detailed in the Draft General Conformity Determination (**Appendix I**).

3.6 Connected Actions

Actions that are connected to the proposed project would include the following:

- Proposed staging areas and fabrication yards (project support locations [PSL]) for modular building components that would be used for contractor mobilization, materials staging and batch plant operations. These PSLs are located on previously disturbed or landscaped parcels on airport property. The proposed locations include:
  - DFW Design, Code, and Construction (DCC) South Parking Lot laydown yard for modular construction and storage
  - Staging area within the Terminal E In-fill Surface Parking Lot
  - Staging area to be located within the former South Express Parking Lot
  - Staging area located west of South 20th Street between W 34th and 35th Streets
  - Staging area located east of Runway 17C/35C and west of Runway 17L/35R.
- Utility infrastructure developments, including the Utility and Baggage Transfer tunnel supporting Terminals E and F, and utility mains for Terminal F:
  - The Utility and Baggage Tunnel will be designed to convey baggage from the new BHS building being constructed as part of the Proposed Action, west of Terminal E, in what is currently an in-fill surface parking lot. The tunnel would continue to the Terminal F Dock, which would be located between the northbound and southbound lanes of International Parkway. The Terminal F Dock is being included as part of the Proposed Action elements. The tunnel would terminate at Terminal F. The tunnel will be designed for two simultaneous baggage carts (one in each direction) and provide utility connections from the Central Utility Plant (CUP) to Terminal F. All necessary demolition and stormwater management will be included with this project.
  - Utilities mains for Terminal F are anticipated to include potable water, sanitary sewer, gas, electrical, storm drainage, first-flush[10], and communication and security (fiber) infrastructure.
- Demolition of the South Express Parking lot and then site stabilization for future development opportunities, including stormwater drainage collection.

[10] First flush is the initial surface runoff from a precipitation event. It is generally considered to have the highest concentrations of surface contaminants derived from a high percentage of urban impervious surfaces.

SECTION 4 AFFECTED ENVIRONMENT

The FAA Order 5050.4B states that the affected environment section of an EA should succinctly describe only those environmental resources that the Proposed Action and its reasonable alternatives are likely to affect. This section describes the area around the Project Area at DFW International Airport and the resources located within the area. **Section 5**, Environmental Consequences, includes a discussion about the potential environmental impacts that could occur with the implementation of the Proposed Action and its alternative. Section 5 also details potential mitigation measures to offset the potential impacts identified.

4.1 Environmental Setting

Pursuant to FAA Order 1050.1F, Section 6-2, this section succinctly describes the environmental conditions of the potentially affected area. The Affected Environment includes the area within and in the vicinity of the CTA Expansion Project area as shown on **Figure 1-3**.

4.2 Description of Project Area

DFW is proposing to construct the CTA Expansion Project, which includes the construction of piers at Terminals A and C, a new Terminal F, Baggage and Passenger processing improvements at Terminal E, the reconstruction of Terminal C, as well as the requisite service corridor connecting Terminal E and Terminal F. Furthermore, the Proposed Action would include the rehabilitation and reconstruction of the Terminal C parking garages and roadways; as well as the requisite modifications to the Skylink system and the construction of an APM station to connect Terminals E and F. The project area (*see **Figure 1-3***) includes portions of Terminals A, C, and E, along with the former South Express Surface Parking Lot, apron areas to the north of Terminal A, all of Terminal C, and south of the former South Express Surface Parking Lot. Additionally, three current staging areas for construction are identified to the east and south of construction areas.

4.3 Resources Categories Not Carried Forward for Detailed Analyses

CEQ regulations (§1501.9(f)(1)) state that the lead agency shall identify and eliminate from detailed study the issues that are not important, or that have been covered by prior environmental review, narrowing the discussion of these issues in the document to a brief presentation of why they would not have a substantial effect on the human environment. **Table 4-1** illustrates the rationale behind the elimination of the resources/impact areas that were not included in the detailed study, in accordance with CEQ §1501.9(f)(1).

Table 4-1. Resources/Impact Areas Not Carried Forward for Detailed Analysis

Resource Area	Significance Threshold	Rationale for Elimination
Biological Resources	The U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS) determines that the action would be likely to jeopardize the continued existence of a federally listed threatened or endangered species or would result in the destruction or adverse modification of federally designated critical habitat.	<u>*No impact.*</u> The Proposed Action would occur on paved or previously disturbed areas of the airport. The project area is characterized as a fully developed urban setting with buildings, pavement, and only small pockets of urban herbaceous landscaping. There is no potential habitat for any state or federally listed protected species and there are no state listed unique vegetation communities present. **Appendix D** includes the Protected Species and Protected Habitat Assessment report for Dallas and Tarrant Counties; this assessment was completed in compliance with the Endangered Species Act (ESA) of 1973 and the amendments of 1988, Texas Parks, and Wildlife Code (Chapters 67 and 68), the Texas Administrative Code (Section 65.171 – 65.184), the USFWS and the Texas Parks and Wildlife Department (TPWD). This assessment identified that there was no available habitat for the Whooping Crane (*Grus americana*) or Golden-cheeked Warbler (*Setophaga chrysoparia*), the only two federally protected species identified as occurring within Dallas and Tarrant Counties. The Red Knot (*Calidris canutus rufa*) and Piping Plover (*Charadrius melodus*) are also federally listed species, but only considered for effect from wind energy projects. As such, the potential for adverse effects from the Proposed Action on these species is considered negligible. The Protected Species Habitat Assessment noted that as of September 2022, the tricolored bat (*Perimyotis subflavus*) is proposed for listing as Endangered under the ESA, due to impacts associated with the white-nose syndrome (WNS), wind turbine related mortality, habitat loss, and climate change. The tricolored bat has been found to hibernate and roost in caves, road-associated culverts, trees, and other forested habitats. Although unlikely, if bats are identified within proposed project area given it includes previously disturbed areas, the contractor would not disturb the areas with the bats and would immediately contact DFW's Environmental Affairs Department (EAD), the FAA, and a qualified wildlife biologist for guidance. Similarly, the alligator snapping turtle (*Macrochelys temminckii*) has been proposed for listing as Threatened under the ESA due to loss of habitat. There are no intermittent or perennial water bodies near the project areas. Although unlikely, given that the project includes previously disturbed areas, if alligator snapping turtles are identified within proposed project area, the contractor would not disturb the areas and would immediately contact DFW's EAD, the FAA, and a qualified wildlife biologist for guidance.
Coastal Resources	A determination by a State having an approved Coastal Zone Management (CZM) program that the proposed action would not be consistent with the applicable CZM plan, which cannot be avoided, minimized, or mitigated.	<u>*No Impact.*</u> There are no coastal resources located within or adjacent to the proposed project area.

Resource Area	Significance Threshold	Rationale for Elimination
Department of Transportation Act, Section 4(f)	Potential for more than a minimal physical use or deemed "constructive use" substantially impairing the use of an existing Section 4(f) property.	*No Impact*. There are no Section 4(f) properties within or adjacent to the proposed project area. The project area is characterized by airfield infrastructure, commercial development industrial buildings, and roadways, thus no parks or other public use facilities are present. In addition, the project area does not contain any structures on or eligible for the National Register of Historic Places.
Land Use	The FAA has not established a significance threshold for Land Use. The FAA has not provided specific factors to consider in making a significance determination for land use in Exhibit 4-1 of FAA Order 1050.1F. The determination that significant impacts exist in the land use impact category is normally dependent on the significance of other impact categories.	*No Direct Impact*. The airport property is characterized by terminal buildings, cargo warehouse buildings, airport administrative buildings, operations support facilities, airfield infrastructure, roadways, and commercial development industrial buildings. Land use in the immediate vicinity consists of commercial and industrial developments, and residential areas including detached single-family houses, townhouses, and multi-family apartments. The proposed CTA Expansion project is located on airport property and surrounded by airport-support, commercial, and industrial facilities. The land uses within a 1-mile radius of the proposed project area are shown in **Figure 4-2**. The proposed project would not result in disruption of communities, relocation, or induced socioeconomic impacts. The proposed project would result in changes to resources such as air quality, water quality, surface traffic/congestion, and noise. Environmental Consequences related to changes in air emissions, traffic, water quality, and noise are discussed in Sections 5.2, 5.8, and 5.10.
Prime or Unique Farmland	Alteration of a property with a total combined score between 200 to 260 on Form AD 1006.	*No Impact.* According to *Part 523 – Farmland Protection Policy Act (FPPA)* Manual, construction within an existing right-of-way purchased on or before 04 August 1984 is not subject to provisions of FPPA (NRCS 2012). The Proposed Action would occur on paved or previously disturbed ground. There are no farmlands at or near the Airport; therefore, this resource is not carried forward for detailed analysis.
Groundwater (Sole Source Aquifer)	Exceed groundwater quality standards established by federal, state, local, and tribal regulatory agencies. Contaminate an aquifer used for public water supply such that public health may be adversely affected.	*No Impact.* According to the Interactive U.S. Environmental Protection Agency (EPA) Sole Source Aquifer Map, the closest sole source aquifer, the Edward's Aquifer, is located over 100 miles south of the proposed project area.
Waters of the United States (WOTUS) Including Wetlands and Floodplains	Adversely affects a wetland's function to protect the quality or quantity of municipal water supplies, including surface waters and sole source and other aquifers. Substantially alters the hydrology needed to sustain the affected wetland system's values and functions or those of a wetland to which it is connected. Substantially reduces the affected wetland's ability to retain floodwaters or storm runoff, thereby threatening public health, safety, or welfare; adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber resources of the affected or surrounding wetlands. Complies with Executive Order (EO) 11990: *Protection of Wetlands*	*No impact to WOTUS including wetlands.* Field surveys and a review of aerial photography did not identify any water features within the project area. There would be no impacts to the WOTUS including wetlands because there are no jurisdictional WOTUS including wetlands within the project and staging areas. Therefore, the project would not require a permit issued by the United States Army Corps of Engineers (USACE). *No impact to Floodplains.* After review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM) and the DFW Stormwater Drainage Master Plan (SWDMP) that includes a detailed analysis and model of floodplains on DFW Airport property, the construction and operations associated with the Proposed Action, staging areas, and support locations would not occur within or encroach on the existing 100-year floodplain. See **Section 4.12** and **Section 5.10** for a detailed discussion of water resources.

Resource Area	Significance Threshold	Rationale for Elimination
	Promotes development of secondary activities or services that would cause the circumstances listed above to occur. Causes notable adverse impacts on natural and beneficial floodplain values. Complies with EO 11988: *Floodplain Management*, and EO13690: *Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input*, and EO11990	
Wild and Scenic Rivers	A determination that the effects on a Nationwide Rivers Inventory (NRI) river segment are significant or would preclude inclusion in the Wild and Scenic River System or downgrade its classification.	*No Impact.* According to the National Wild and Scenic Rivers System (2016), there are no wild or scenic rivers or eligible rivers located within or adjacent to the proposed project area. The Proposed Action would occur on paved or previously disturbed ground. There are no wild and scenic rivers at or near DFW; therefore, this resource is not carried forward for detailed analysis.

4.4 Air Quality

4.4.1 Regulatory Background

The FAA 1050.1F Desk Reference defines the study area for air quality as the entire geographic area that could be either directly or indirectly affected by the proposed project. It requires the document to discuss the current National Ambient Air Quality Standards (NAAQS), state ambient air quality standards, the attainment status of the study area, a summary of recent measured air pollutant concentrations, a description of the meteorological and topographical conditions of the study area, other conditions relevant to the study area, and any permits required (FAA, 2020).

Under the Clean Air Act (CAA), the U.S. Environmental Protection Agency (EPA) established the NAAQS, for the following six pollutants, carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), and sulfur dioxide (SO_2) (**Table 4-2**). Based on air monitoring data and in accordance with the CAA, areas within the United States are designated with respect to their attainment status under the NAAQS. Areas that meet the NAAQS are designated as attainment[11], those that do not meet the standards are designated as nonattainment[12], and those that are in transition from nonattainment to attainment are designated as maintenance. Ozone nonattainment areas are further classified as extreme, severe, serious, moderate, and marginal by the degree of non-compliance with the NAAQS.

4.4.2 Existing Conditions

The Dallas-Fort Worth metropolitan area has been designated as an attainment area for all EPA criteria pollutants except for ozone based on air quality monitoring data collected by the Texas Commission on Environmental Quality (TCEQ, 2022). The Dallas-Fort Worth metropolitan area has been designated as Air Quality Control Region (AQCR) 215 by the EPA. The Proposed Action is located at DFW within Dallas and Tarrant counties, which are part of the Dallas-Fort Worth metropolitan ozone nonattainment area (**Figure 4-1**). The Dallas-Fort Worth metropolitan area is designated as a "severe" non-attainment area for the 2008 8-hour, 0.075 parts per million (ppm) ozone standard, as of 07 October 2022, effective 07 November 2022 (87 Federal Register (FR) 60926). The Dallas-Fort Worth metropolitan area is also designated as a "moderate" nonattainment area under the 2015 8-hour, 0.070 ppm ozone standard as of 07 November 2022 (87 FR 60897) (**Table 4-3**).

[11] An attainment area is a geographic area that meets or does better than the primary standard defined in the NAAQS.

[12] A nonattainment area is a homogeneous geographical area (usually referred to as an air quality control region) that is in violation of one or more NAAQS and has been designated as nonattainment by the EPA.

Table 4-2. National Ambient Air Quality Standards

Pollutant	Averaging Time	Standard	Type of Standard	Form
CO	1-hour	35 ppm	Primary	Not to be exceeded more than once annually
	8-hour	9 ppm	Primary	Not to be exceeded more than once annually
Pb	Rolling quarter	0.15 µg/m^3	Primary Secondary	Not to be exceeded
NO_2	1-hour	100 ppb	Primary	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	1 year	53 ppb	Primary Secondary	Annual Mean
O_3	8-hour	0.070 ppm	Primary Secondary	Annual 4th highest daily maximum 8-hour concentration, averaged over 3 years
PM_{10}	24-hour	150 µg/m^3	Primary Secondary	Not to be exceeded more than once annually on average over 3 years
$PM_{2.5}$	1 year	12.0 µg/m^3	Primary	Annual mean, averaged over 3 years
	1 year	15.0 µg/m^3	Secondary	Annual mean, averaged over 3 years
	24-hour	35 µg/m^3	Primary Secondary	98th percentile, averaged over 3 years
SO_2	1-hour	75 ppb	Primary	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	3-hour	0.5 ppm	Secondary	Not to be exceeded more than once annually

Notes:
ppm = parts per million;
ppb = parts per billion;
µg/m^3 = micrograms per cubic meter;
*$PM_{2.5}$ = particulate matter with a diameter less than 2.5 micrometers (µm);
**PM_{10} = particulate matter with a diameter less than 10 micrometers (µm)
Primary standards provide public health and safety protection, including protecting the health of sensitive populations such as asthmatics, children, and the elderly.
Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.
Source: EPA, 2022

The State Implementation Plan (SIP) is the cumulative record of all air pollution control strategies, emission budgets, and timetables implemented or adopted by government agencies within Texas to bring nonattainment areas into compliance with the NAAQS by a designated deadline. The SIP focuses on reducing the two primary pollutants that lead to ozone formation, VOCs and NO_x.

4.4.3 General Conformity

The EPA defines General Conformity as a process to ensure that actions taken by the federal government do not interfere with a state's plan to attain and maintain national standards for air quality. The General Conformity Rule establishes a process to determine whether a federal action conforms to the SIP. General Conformity refers to the requirements under the CAA Section 176(c) for federal agencies to show that their actions conform to the purpose of the applicable SIP. As described in 40 CFR 51 and 93, issued by the EPA, the General Conformity analysis evaluates both direct emissions and indirect emissions, as defined by the 40 CFR 93.152. "Direct emissions" are those that occur at the same time and place as the federal action. As stated in 40 CFR 93.152, "indirect emissions" are defined as emissions or precursors that are caused or initiated by the federal action and originate in the same nonattainment area or maintenance area but occur at a different time or place from the action, are reasonably foreseeable, that the agency can practically control, and for which the agency has continuing program responsibility.

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

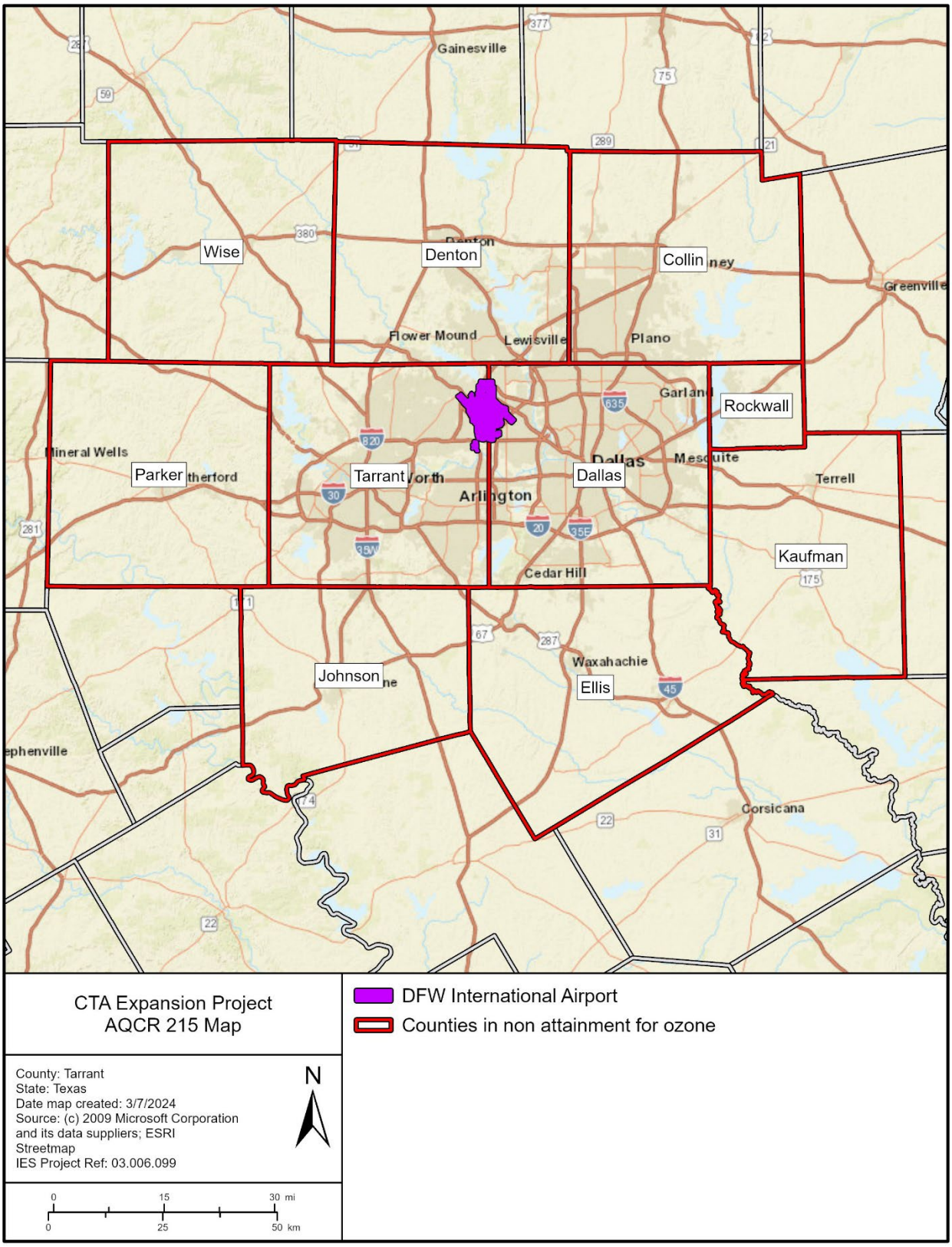


Table 4-3. Recent Air Quality at Dallas-Fort Worth-Arlington, Texas

Pollutant	Federal Standard	2021 Design Value	Active Monitoring Years	Monitoring Site	Current Status
CO	30 ppm (8-hour)	1.1 ppm	2011-2022	Hinton	Attainment
Pb	0.15 µg/m^3 (3-month)	0.02 µg/m^3 (2019-2021)	2011-2022	Frisco Stonebrook	Attainment
NO_2	100 ppb (1-hour)	43 ppb	2011-2022	Hinton	Attainment
	100 ppb (1-hour)	39 ppb	2018-2020	Dallas North #2	Attainment
	100 ppb (1-hour)	40 ppb	2000-2022	Grapevine Fairway	Attainment
	100 ppb (1-hour)	40 ppb	1990-2022	Keller	Attainment
O_3	0.070 ppm (2015 8-hour)	0.072 ppm	1990-2022	Keller	Nonattainment
	0.070 ppm (2015 8-hour)	0.071 ppm	1998-2022	Dallas North #2	Nonattainment
	0.070 ppm (2015 8-hour)	0.067 ppm	2011-2022	Hinton	Nonattainment
	0.070 ppm (2015 8-hour)	0.074 ppm	2000-2022	Grapevine Fairway	Nonattainment
PM_{10}	150 µg/m^3 (24-hour)	0.00 (2019-2021) average exceedances	2009-2022	Earhart	Attainment
$PM_{2.5}$	12 µg/m^3 (annual)	8.4 µg/m^3	2011-2022	Hinton	Attainment
	35 µg/m^3 (24h primary)	19 µg/m^3	2011-2022	Hinton	Attainment
SO_2	75 ppb (1-hour)	3 ppb	2011-2022	Hinton	Attainment

Notes:
ppm = parts per million; ppb = parts per billion;
µg/m^3 = micrograms per cubic meter $PM_{2.5}$ = particulate matter with a diameter less than 2.5 micrometers (µm);
PM_{10} = particulate matter with a diameter less than 10 micrometers (µm)

Design values shown in the table are from available Air Quality System (AQS) sites closest to the DFW, as determined by the EPA Interactive Map of Air Quality Monitors (https://www.epa.gov/outdoor-air-quality-data/interactive-map-air-quality-monitors) and the EPA Design Value Interactive Tool (https://www.epa.gov/air-trends/design-value-interactive-tool). All data from 2021 was current as of 24 October 2022. Design values are commonly used to classify nonattainment areas and are defined as statistics that describe the air quality status of a given location relative to the level of the NAAQS.

Source: EPA 2022b, 2022c, and 2022d.

When developing the General Conformity Rule, the EPA recognized that many actions conducted by federal agencies do not result in substantial increases in air pollutant emissions in nonattainment and maintenance areas. Therefore, the EPA established threshold levels (also referred to as *de minimis* levels) for emissions of each of the criteria pollutants. If the sum of the increases from direct and indirect emissions caused by a project is found to be below the *de minimis* levels, no further air quality analysis is needed, and the project would not require a General Conformity Determination. The Dallas-Fort Worth metroplex is currently classified as a "severe" nonattainment area under the 2008 Ozone standard, and the resulting *de minimis* level is 25 tpy for NOx or VOCs.

4.4.4 Sources of Airport Air Emissions

Sources of airport air emissions include construction equipment, motor vehicles (employees, passengers airport fleet, etc.,), heating and cooling systems, aircraft, ground support equipment (GSE), and auxiliary power units (APU). Emissions from the proposed CTA Expansion Project are expected to include construction emissions, including emissions from construction equipment, motor vehicles (employee commute and material delivery), and nonpoint source emissions (e.g., fugitive dust), as well as operational emissions from aircraft, ground support equipment (GSE), and auxiliary power units (APU). Temporary construction emissions and operational emissions are subject to the CAA General Conformity requirements**. Table 4-4** provides an overview of existing taxi times and GSE data used to model the existing operational emissions; these taxi times and APU and GSE run times were derived from the FAA Aviation System Performance Metrics (ASPM) database. **Table 4-5** illustrates the emissions associated with current (2022) operations.

Table 4-4. Existing and Future Conditions: Taxi-times and Operational Equipment Run Times

Equipment Type	Arrivals	Departures
Aircraft	11.2 Minutes	17.8 Minutes
APU	AEDT Default (13 Minutes)	AEDT Default (13 Minutes)
GSE	AEDT Defaults by Equipment Type	AEDT Defaults by Equipment Type

Source: Taxi Times: FAA ASPM for FY2022

Table 4-5. Existing Conditions – Operational Emissions based on 2022 Operations (656,676 Operations) (short tpy)

Source	CO	NOx	VOC	SOx	PM $_{2.5}$	PM $_{10}$
Aircraft	2,939.35	3,494.54	388.17	324.66	33.13	33.13
GSE LTO	556.19	55.43	20.56	0.39	3.09	3.30
APU	112.09	115.01	9.48	15.99	16.05	16.05
Traffic	1,890	225	52	1.5	28	8.2
Total	**5,497.63**	**3,889.98**	**470.21**	**342.54**	**80.27**	**60.68**

Source: HMMH and Ramboll AQTR 2023

4.5 Climate

4.5.1 Regulatory Background

The Intergovernmental Panel on Climate Change (IPCC, 2021) has concluded that it is unequivocal that human influence has warmed the atmosphere, ocean and land and that human activities have caused concentrations of greenhouse gases (GHG) to increase since mid-18th century. The increase in well-mixed GHG concentrations has caused widespread changes in the earth's climate systems, which include, but are not limited to, successively warmer global surface temperature and increasing global averaged precipitation. Research has shown that there is a direct link between fossil fuel combustion and GHG emissions; sources that require fuel or power at an airport are key sources of GHGs. Aircraft jet engines, like many other vehicle engines, produce carbon dioxide (CO_2), water (H_2O) vapor, nitrous oxide (N_2O), CO, oxides of sulfur, unburned or partially combusted hydrocarbons or VOCs, particulates, and other trace compounds.

There are currently no ambient air standards for GHGs as well as no significance thresholds for aviation GHG emissions (FAA, 2015). Exhibit 3-1 of the FAA 1050.1F Desk Reference (FAA, 2023) lists the general statutes and regulations related to climate, however, since the publication of the Desk Reference, several new Executive Orders related to climate and sustainability have been issued by President Biden and new greenhouse gas guidance issued by CEQ. President Biden's 27 January 2021, Executive Order (EO) on *Tackling the Climate Crisis at Home and Abroad* notes that it will be a United States priority to press for integration of climate considerations across a wide range of international fora that address aviation, clean energy, and related topics (EO 14008, 2021). On 09 September 2021, the Biden Administration announced a series of sustainability initiatives in the aviation industry including scaling sustainable aviation fuel (SAF) production to 3 billion gallons per year by 2030 by supporting producers and research to improve air traffic and airport efficiency. SAF is a fuel which will substantially reduce aircraft fuel lifecycle emissions.

On 09 January 2023, CEQ issued *Interim Guidance[13] on Consideration of Greenhouse Gas Emissions and Climate Change* interim guidance to assist agencies in analyzing greenhouse gas and climate change effects of proposed actions. The CEQ interim guidance was made effective immediately so that agencies may make use of it immediately, while CEQ seeks public comment on the guidance. The public comment period for the guidance ended on 30 September 2023, and CEQ planned to use the comments to revise or finalize the interim guidance. The CEQ interim guidance states that agencies should quantify reasonably foreseeable direct and indirect gross and net GHG emissions increases or reductions, both for individual pollutants and aggregated in terms of carbon dioxide equivalence. Social Cost of Carbon (SC-CO_2), Methane (SC-CH_4), and Nitrous Oxide (SC-N_2O) collectively referred to as the "social cost of greenhouse gases" (SC-GHG) estimates were developed by the U.S. Government's Interagency Working Group (IWG[14]) on SC-GHG. The SC-GHG is a framework that quantifies the monetary value of the net harm to society associated with adding a small amount of that GHG to the atmosphere in a given year. In principle, it includes the value of all climate change impacts, including (but not limited to) changes in net agricultural productivity, human health effects, property damage from increased flood risk natural disasters, disruption of energy systems, risk of conflict, environmental migration, and the value of ecosystem services. The SC-GHG, therefore, reflects the societal value of reducing emissions of the gas in question by one metric ton. The marginal estimate of social costs differs by the type of greenhouse gas (such as carbon dioxide, methane, and nitrous oxide) and by the year in which the emissions change occurs. It is important to note that given the newness of the CEQ interim guidance, agencies responsible for implementing NEPA, such as the FAA, have not developed formal guidance on the methods to be used. Thus, this document relies upon the recommendations of the IWG for computing SC-GHG.

4.5.1.1 Current Climate Conditions and Trends

The Earth's climate has undergone significant changes since the onset of the Industrial Revolution, resulting in a range of effects on the global environment. The IPCC's report in 2021 attributes the rise in greenhouse gas (GHG) concentrations since the mid-18th century to human activities, particularly the burning of fossil fuels. It concluded that human activities such as the burning of fossil fuels have caused GHG concentrations to increase since the mid-18th century and that "it is unequivocal that human influence has warmed the atmosphere, ocean and land." This influence has led to an estimated 1.07°C (1.93°F) increase in global surface temperatures between 1850-1900 and 2010-2019, and it is "very likely" that well-mixed GHGs were the main driver of this warming since 1979. Atmospheric CO_2 concentrations were higher in 2019 than any time in at least the last 2 million years. Additionally, evidence of the observed change and the human influence in extreme events such as heat waves, heavy precipitation, and droughts has strengthened since the IPCC Fifth Assessment Report (IPCC 2014).

In the United States, there has been a notable increase in average annual temperatures, with a 1.8°F rise since the early 20th century and a 1.2°F increase in recent decades. Western regions of the country have experienced the most pronounced warming, while the southeastern United States has seen the least change. Precipitation patterns have shifted as well, with increases in the north and east and decreases in the south and west. According to the Texas 2022 state climate summary published by the National Oceanic and Atmospheric Administration, temperatures have risen almost 1.5°F since the beginning of the 20th century. This increase in temperature can result in a decrease soil moisture and exacerbate the intensity of naturally occurring droughts in the region. Dry spells are projected to increase and extreme events, such as extreme heat events, precipitation events, and hurricanes, are projected to also increase in frequency and intensity.

4.5.2 Existing Conditions

Airport development has the potential to both affect climate change and to be affected by it. Changes in resource categories such as air quality, natural resources, and energy supply can potentially contribute to climate change by increasing the amount of GHGs emitted. The EPA indicates that transportation activities

[13] 2023-01-CEQ interim guidance on GHG emissions and climate change.pdf (energy.gov)

[14] The IWG was convened and established in 2009; it was tasked with calculating and quantifying the monetary damages associated with the incremental increase of carbon emissions in a given year. In 2017, the IWG was disbanded under Executive Order 13783 and in 2021, Executive Order 13990 re-established the IWG and directed it to ensure that SC-GHG estimates used by the U.S. Government (USG) reflect the best available science.

accounted for the largest portion of total U.S. GHG emissions in 2019 at 28.6 percent. Commercial aviation contributed 7.2 percent of total GHG emissions in 2019, compared to 23.6 percent from freight trucks, 17.2 percent from light-duty trucks, 2.4 percent from other aircraft, and 2.2 percent from rail (EPA, 2021d).

The characteristics of GHGs and their rapid dispersion into the global atmosphere make GHGs different from other air pollutants evaluated in federal environmental reviews because the impacts are not localized or regional. It is difficult to isolate the GHG emissions impacts for a particular aviation project. Uncertainties are too large to accurately predict the timing, magnitude, and location of aviation's climate impacts; however, minimizing GHG emissions and identifying potential future impacts of climate change are important for a sustainable national airspace system (FAA, 2015).

Sources of GHG emissions at DFW include aircraft; APUs; GSE such as aircraft tugs, loaders, tractors, fuel trucks; stationary combustion sources such as boilers, heaters, generators, incinerators; ground access vehicles such as passenger cars, airport and tenant fleet vehicles, shuttles, and rental cars; construction equipment (heavy equipment, nonroad, and on-road vehicles), electrical usage, refrigerants, and solid waste/recycling hauling and disposal (**Table 4-6**).

Table 4-6. Estimated GHG Emissions – Existing Conditions based on 2022 Baseline (tpy)

Emission Source	CO_2	CH_4	N_2O	CO_2e Emissions
Aircraft Operations (663,426 in 2022)	1,119,229	-	35.4	1,128,900
APU and GSE	52,593	1.7	1.7	53,183
Traffic	241,190	34.0	2.1	244,568
Total	**1,413,012**	**35.7**	**39.2**	**1,426,651**

Source: Appendix L- GHG and Climate Analysis Report (Ramboll & HMMH, 2023)
Note:
1/ Numbers in table above were rounded off to the nearest whole number and does not include GHG emissions from facilities, tenant vehicles, or tenant operations.
2/ APU = Auxiliary Power Unit; GSE = Ground Support Equipment
3/ The Global Warming Potential (GWP) provides a way to compare the global warming impacts of different gases. Specifically, it is a measure of how much energy the emissions of 1 ton of a gas will absorb over a given period of time (either 20-years or 100-years), relative to the emissions of 1 ton of carbon dioxide (CO_2). The larger the GWP, the more that a given gas warms the Earth compared to CO_2 over that time period. GWP provides a common unit of measure, which allows analysts to add up emissions estimates of different gases and compare them. Based on the IPCC AR6 Report, the 20-year GWP used in this analysis are as follows: for CO_2 =1, for CH_4 = 82.5, and for N_2O = 273.

Recognizing the imperative to measure and reduce GHG emissions generated through airport operations, DFW became the first airport in North America to be carbon neutral in 2016 and achieve 4+ level in the ACI Airport Carbon Accreditation program in 2020. The new level 4+ recognizes DFW's commitment to decarbonization across operations. In 2017, DFW implemented the Renewable Natural Gas Initiative, with the goal of transitioning 100 percent of DFW's compressed natural gas (CNG) vehicle fleet to renewable natural gas (RNG) recovered from local landfills. As of December 2021, over 70 percent of the natural gas used in the DFW's vehicle fleet came from RNG. DFW's Net Zero by 2030 Roadmap details strategies to eliminate the use of fossil fuels for heating, cooling, electricity, and vehicle use by continuing to improve energy efficiency while transitioning most of the heating, refrigerants, and fuel to carbon-free sources. DFW completed the design of a "Brute Force Electric Central Utility Plant" in December 2020. This project is the cornerstone of DFW's Net Zero Roadmap. By transitioning terminal heating from natural gas to renewable electricity (electric heat pumps and chillers), DFW's largest sources of emissions will be reduced significantly. DFW's commitment to climate action aligns with the U.S. national goal to be net zero as outlined in the *Long-Term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050*.

DFW's overarching approach to sustainability across airport operations includes strong commitments to protecting the surrounding natural environment, and ongoing efforts to be an asset to local communities, as an employer and community member. DFW's 2022 Sustainability plan presents six 'North Star' goals that the airport is working to achieve over the next two decades. This sustainability management plan establishes a high standard of performance across these sustainability domains, and the airport tracks and reports annually on progress. These domains are summarized below and detailed in **Appendix L**.

- Climate Action: Net zero GHG emissions by 2030
    - Including reduction of Scope 3 emissions by supporting research, development, and deployment of sustainable aviation fuel and other renewable fuels.
- Energy Performance: 100 percent clean, resilient energy by 2030
    - Includes investments into energy storage and energy efficiency improvements through technology and deep retrofits.
- Water and Biodiversity: Water and nature positive by 2040
- Circular Economy: Zero waste by 2040
- Equity: Culture of diversity and inclusivity
- Health, Safety and Wellness: Enhanced employee and customer wellness

4.5.2.1 Alignment with The City of Dallas Climate Action Plan

In 2020, Dallas implemented a Comprehensive Environmental and Climate Action Plan (CECAP), which includes eight goals and corresponding objectives to reduce GHG emissions and mitigate the impacts of climate change locally. The plan provides recommendations for specific actions that the city plans to undertake to achieve its stated targets. The CECAP also includes goals related to the rating level achieved by each local airport under the Airport Carbon Accreditation (ACA) program as well as incorporating solar panels on airport garages as feasible to reduce overall carbon footprint, as well as acquiring carbon offsets for remaining emissions sources under an airport's control. While DFW is not directly governed by the CECAP, DFW and City of Dallas actively engage and collaborate on climate action objectives, and DFW continues to make investments aimed at reducing carbon emissions from sources under DFW's control as well as helping tenants reduce their emissions. DFW has also achieved the highest level of certification (Level 4+) under the ACA program. The sustainability measures undertaken and proposed by DFW, are consistent with the Dallas CECAP.

4.6 Hazardous Materials, Solid Waste, and Pollution Prevention

4.6.1 Regulatory Background

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

Solid waste is generally defined in RCRA as any discarded material that is abandoned, recycled, considered inherently waste-like, or a military munition (refer to 40 CFR Part 261.2 for further details). The definition of a hazardous material, hazardous substance, and a hazardous waste follow:

- *Hazardous Material* – any substance or material that has been determined to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce (49 CFR Part 172, Table 172.101). This includes hazardous substances and hazardous wastes.
- *Hazardous Substance* – any element, compound mixture, solution, or substance defined as a hazardous substance under the CERCLA and listed in 40 CFR Part 302. If released into the environment, hazardous substances may pose substantial harm to human health or the environment.

- *Hazardous Waste* – a waste is considered hazardous if it is listed in RCRA regulations, or meets the characteristics described in 40 CFR Part 261, including ignitability, corrosivity, reactivity, or toxicity.

4.6.2 Existing Conditions

Because the disruption of sites and facilities containing hazardous materials (including hazardous wastes, hazardous substances, environmental contamination, and other regulated substances such as fuel, waste oil, and de-icing chemicals) can potentially impact soils, surface/groundwater, and air quality, this section provides an overview of what is known about these areas located within and in the vicinity of the proposed project area. This information is presented to help determine what effect, if any, the proposed project will have on these sites and vice versa.

For this analysis, the identification of sites known, suspected, or with the potential, to contain hazardous materials and/or environmental contamination was conducted by accomplishing the following: visual observations of existing conditions; consultation and discussions with DFW staff; review of aerial photographs; review of previous asbestos survey records; limited sampling and analytical testing of soils, groundwater, and building materials; and an electronic database search of available regulatory agency records.

4.6.2.1 Hazardous Materials, Substances, and Waste

Per the EPA's NPL database, there are no properties listed (or proposed) on the NPL in the direct Project Area. The environmental data resources (EDR) database reports for the properties in the Project area identified 167 records in at least one state or federal database. The records indicated that all reported leaking petroleum storage tanks (LPST) were closed and issued final concurrence or were pending monitoring well plugging. Only one record located at 2120 W 33rd Street is showing an undetermined status based on a minor groundwater impact with no threatened receptors. The LSG Sky Chef Kitchen operates out of the 2120 W. 33rd Street address and has two USTs: a 6,000 gallon gasoline tank and a 10,000 gallon diesel tank. Both tanks are currently in the process of being decommissioned and removed; any contaminated media would be managed or remediated in accordance with all applicable federal, state, and local regulations. Records indicate 31 asbestos-related records, 16 underground storage tanks (UST), 3 above-ground storage tanks (AST) and multiple registry records with no violations reported. Six spill reports and 4 aqueous foam releases were identified with no violations associated with these records after appropriate containment and clean-up. The complete EDR database reports are included in **Appendix E**.

4.6.2.2 Solid Waste

Solid waste at DFW is generated by various activities associated with the demolition and construction projects as well as municipal solid waste (MSW) from employees, passengers, and people accessing the airport. DFW also has a consolidated materials recycling and reuse program that provides recycling containers and a materials management site for construction projects. DFW recycles a variety of materials including, but not limited to, construction and demolition waste, paper, cardboard, wood, metal, concrete, soil, and tires. Through the Sustainability Management Plan (SMP), DFW is committed to increasing campus-wide recycling and decreasing the generation of MSW and hazardous materials.

4.7 Historical, Architectural, Archeological, and Cultural Resources

4.7.1 Regulatory Background

The National Historic Preservation Act (NHPA) requires federal agencies to identify significant cultural resources that may be affected by their actions and mitigate adverse effects to those resources. The NHPA (54 USC § 302303), directs the State Historic Preservation Office (SHPO), represented by the Texas Historical Commission (THC), to administer and coordinate historic preservation activities, and to review and comment on all actions licensed by the federal government that will have an effect on properties listed in or eligible for listing in the National Register of Historic Places (NRHP). NHPA Section 106 (54 USC § 306108) requires Federal agencies to consider the direct and indirect impacts from federal actions on historic, architectural, archaeological, and other cultural resources. The assessment of significance of a cultural resource is based on federal guidelines and regulations.

The criteria for evaluating properties for inclusion in the NRHP are codified under the authority of the NHPA, as amended (36 CFR Part 60.4 [a–d]) and the Advisory Council on Historic Preservation (ACHP) has set forth guidelines to use in determining site eligibility. Federal regulations indicate that "[t]he term 'eligible for inclusion in the National Register' includes both properties formally determined as such by the Secretary of the Interior and all other properties that meet National Register listing criteria" (36 CFR §800.2[e]). Based on ACHP guidelines, any cultural resource that is included in or eligible for inclusion in the NRHP is a historic property. For properties to be eligible for listing on the NRHP, they must be 50 years old and meet one of four specific criteria[15] for evaluation. Properties less than 50 years of age must be evaluated for their exceptional importance at the local, state, or national level.[16]

As a political subdivision of the State of Texas, DFW is required to comply with the Antiquities Code of Texas (ACT) passed in 1969. The ACT requires state agencies and political subdivisions to notify the THC of ground-disturbing activities on public land that have the potential to impact archeological sites. Advance project review and coordination by the THC is required only for undertakings with more than 5 acres or 5,000 cubic yards of ground disturbance. However, if the activity occurs inside a designated historic district, affects a recorded archeological site, or requires onsite investigations, the project will need to be reviewed by the THC regardless of project size.

4.7.2 Existing Conditions

The Area of Potential Effects (APE) is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties" (36 CFR 800.16(d)). Per Section 106 of the NHPA, the term "historic properties" can include architectural, archeological, or cultural resources.

For this analysis, the APE for the project encompassed approximately 537-acres located within DFW containing the footprints for International Parkway, Terminals A, C, E, and proposed Terminal F. Ground disturbances associated with the proposed project will vary but will include demolition of existing concrete pavement, soil excavation, grading, and erosion control. Depths of impacts associated with the proposed project will generally be within 10 feet of the current ground surface for most activities. The development of the baggage and good corridor will exceed that depth.

4.7.2.1 Historical Resources

A file search within the Texas Historic Sites Atlas (THSA) electronic database, maintained by the THC, identified that there are no previously recorded National Register properties, historical markers, or cemeteries located within the proposed APE (THSA 2022). It was determined that ground-disturbing activities have transpired within the APE related to past land use. Prior to DFW construction in the early 1970s, the APE was primarily used for agricultural and ranching purposes as early as 1942 and presumably since the late 19th and early 20th centuries.

4.7.2.2 Archeological or Cultural Resources

A file search within the Texas Archeological Sites Atlas (TASA) electronic database, maintained by the THC and the Texas Archeological Research Laboratory (TARL), identified that there are no previously recorded archeological sites, National Register properties, or cemeteries located within the proposed APE (TASA 2022). Data presented within the TxDOT Potential Archeological Liability Map (PALM) for Dallas and Tarrant Counties indicates the entire APE featured a low potential for shallow or deeply buried cultural materials within areas that have retained a reasonable contextual setting. In 2007 and 2008, AR Consultants, Inc. (ARC) conducted intensive pedestrian surveys of 1,210 acres of DFW and found there

[15] The criteria for eligibility for listing on the NRHP are:
- Criterion A: that are associated with events that have made a significant contribution to the broad patterns of our history; or
- Criterion B: that are association with the lives of persons significant in our past; or
- Criterion C: that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D: that have yielded, or may be likely to yield, information important in prehistory or history [36 CFR Part 60.4(National Register criteria for evaluation a–d)].

[16] 36 CFR § 60.4 (Criteria Consideration G).

was a low probability for prehistoric sites (Shelton et al. 2008). THC concurred with ARC's findings. Therefore, based on previous research and THC coordination, as well as current observations, the APE has a negligible potential to contain prehistoric archeological resources or cultural resources (**Appendix G**).

4.7.2.3 Architectural Historic-Period Resources

Since 1969, significant ground disturbances have transpired throughout the APE related to broad-scale surface grading and development of transportation infrastructure. As depicted in 1970 aerial photographs, once DFW construction began, ground disturbances associated with large-scale grading for the terminals, runways, parking lots, support buildings, hangars, and a roadway system occurred within airport property, and all pre-1969 structures in the APE were demolished. Groundbreaking for the airport began in 1969, with runway and building construction completed by the end of 1973.

Through previous coordination efforts between DFW, FAA, and THC, Terminals A, B, C, D, and E were determined to be Not Eligible for listing on the NRHP under Section 106 of the NHPA. Similarly, THC also determined that International Parkway, the Hyatt Regency Hotel, and portions of the airside apron and infield areas, reviewed under previous projects, were also Not Eligible for listing on the NRHP (**Appendix G**).

4.8 Natural Resources and Energy Supply

4.8.1 Regulatory Background

CEQ regulations (§1502.16) require that federal agencies consider energy requirements, natural or depletable resource requirements, and the conservation potential of alternatives and mitigation measures. Consumption of natural resources (such as water, asphalt, aggregate, wood, etc.) and use of energy supplies (such as coal for electricity, natural gas for heating, and fuel for aircraft, vehicles, or other ground vehicles) may result from construction, operation, and/or maintenance of the proposed action. Under FAA policy, facility development should exemplify the highest standards of design including principles of sustainability. All elements of the transportation system should be designed with a view to their aesthetic impact, and conservation of resources, such as energy, pollution prevention, harmonization with the community environment, and sensitivity to the concerns of the traveling public.

4.8.2 Existing Conditions

Buildings and other structures at the airport require electricity and natural gas for lighting, cooling, and heating. Electricity is used for cooling and lighting buildings, lighting for ramps, aprons, and vehicle parking areas, airfield lighting systems, roadway lighting, operating the Skylink automated people mover, and electric vehicle charging stations. DFW is located within a highly urbanized area with adequate access to natural resources for airport operations, aircraft operations, and construction projects.

DFW has implemented a sustainability program to reduce natural resources, energy and water consumption, reduce pollution, minimize waste and seek alternative energy sources such as wind and solar. DFW's Design Criteria Manual governs building design and development and requires green building standards; Green Infrastructure/Low Impact Development (GI/LID), an EPA initiative to reduce and mitigate stormwater runoff.

4.9 Noise and Noise-Compatible Land Use

This section presents the aircraft noise and compatible land use analysis conducted as part of this EA. The analysis includes summaries of the operational data used in calculating noise exposure levels, how noise is characterized and described, how people respond to it, and FAA guidance on land-use compatibility with various levels of noise exposure. **Appendix F** provides detailed information on each of these aspects of noise characterization and the impact analysis.

4.9.1 Regulatory Background

It is the FAA's responsibility to analyze aviation noise impacts from federal actions. This EA follows guidance and regulations provided in FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*, FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, and the 1050.1F Desk

Reference on how the impact assessment should occur, as well as other federal statutes, regulations, and specific agency orders. A list of these is presented in **Appendix F**.

The FAA formally adopted the Day-Night Average Sound Level (DNL), as its primary metric to evaluate cumulative effects on people due to aviation activities. DNL metric is an average noise level that considers both daytime and nighttime cumulative noise over a 24-hour period in a given area. To compensate for a higher sensitivity to noise exposure at nighttime (occurring between 10:00 p.m. and 7:00 a.m.), DNL calculations add a-ten-times weighting for each nighttime flight. This is equivalent to each nighttime event receiving a 10-decibel (dB) "penalty." Ambient sound levels during nighttime hours are typically about 10 dB lower than during daytime hours. Expressing a DNL implies decibels thus the dB nomenclature is omitted herein, e.g., 65 DNL expresses a DNL of 65 dB.

For a NEPA noise analysis, the FAA requires that the 24-hour analysis period represents the average annual day (AAD), meaning average daily aircraft operations over a 365-day period. The aircraft noise analysis for this EA uses Aviation Environmental Design Tool (AEDT) Version 3e (released on 09 May 2022). 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.

Estimates of noise effects resulting from aircraft operations can be interpreted in terms of the probable effects on human activities typical to specific land uses. The FAA has published land use compatibility designations in Part 150, Appendix A, Table 1. As stated in Part 150 Appendix A, the FAA generally considers all land uses to be compatible with aircraft-related noise levels below 65 dB, including residential, institutional, and public land uses (i.e., hotels, retirement homes, intermediate care facilities, hospitals, nursing homes, schools, preschools, and libraries). These categories are referenced throughout the EA. Above DNL 65 dB, residential areas and schools without mitigation are not compatible land uses. **Appendix F** contains the detailed Noise and Compatible Land Use Analysis Technical Report.

4.9.2 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 will 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 and With Project Alternatives. **Figure 4-2** displays the NSA on the DFW *or* a land use map. The NSA is approximately 4 Nautical Miles (nmi) to the east and west and 8 nmi to the north and south.

4.9.3 Noise Compatible Land Use

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 (reproduced here as **Table 4-7**).

As the table indicates, the FAA generally considers all land uses to be compatible with aircraft-related DNL below 65 dB, including residential, hotels, retirement homes, intermediate care facilities, hospitals, nursing homes, schools, preschools, and libraries. These categories are referenced throughout the EA. Residential and educational facilities are considered not compatible above DNL 65 dB without mitigation. 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.

Figure 4-2. Existing Land Use Surrounding DFW and Noise Study Area

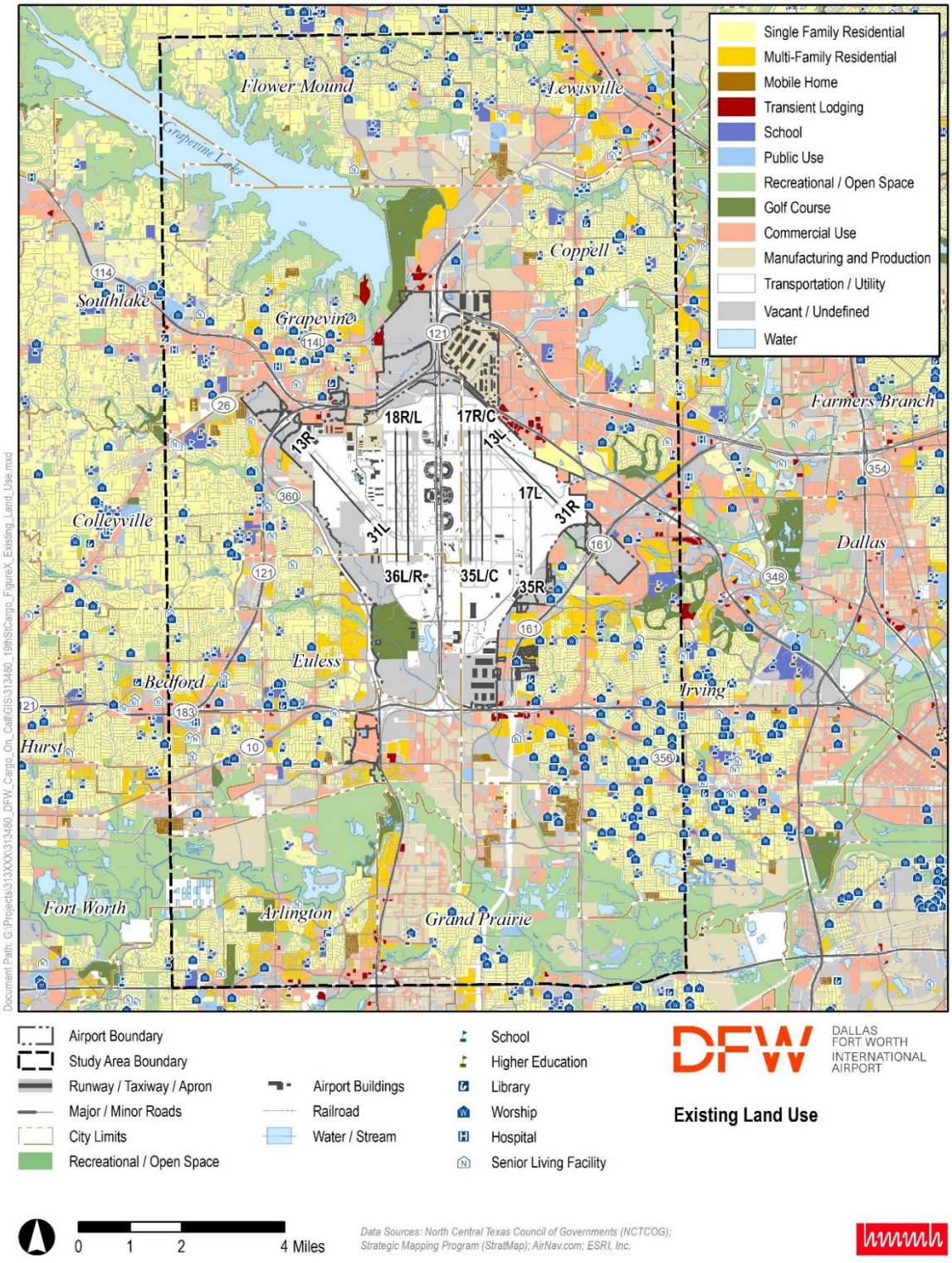


Table 4-7. Part 150 Land Use Compatibility with Yearly Day-Night Average Sound Levels

Land Use Category	Land Use	<65 dBA	65-70 dBA	70-75 dBA	75-80 dBA	80-85 dBA	>85 dBA
Residential	Residential other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Residential	Mobile home park	Y	N	N	N	N	N
Residential	Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public	Schools	Y	N(1)	N(1)	N	N	N
Public	Hospitals and nursing homes	Y	25	30	N	N	N
Public	Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Public	Governmental services	Y	Y	25	30	N	N
Public	Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Public	Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial	Offices, business and professional	Y	Y	25	30	N	N
Commercial	Wholesale and retail–building materials, hardware, and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial	Retail trade–general	Y	Y	25	30	N	N
Commercial	Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial	Communication	Y	Y	25	30	N	N
Manufacturing & Production	Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Manufacturing & Production	Photographic and optical	Y	Y	25	30	N	N
Manufacturing & Production	Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Manufacturing & Production	Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Manufacturing & Production	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
Recreational	Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Recreational	Nature exhibits and zoos	Y	Y	N	N	N	N
Recreational	Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Recreational	Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

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

NOTES:
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.

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 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.

4.9.4 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 (*see* **Figure 4-2**). 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 (*see* **Figure 4-2**). Any potential noncompatible land use and the noise sensitive sites within the study area are evaluated in the EA.

4.9.5 Existing Noise Conditions Associated with Aircraft Operations

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 01 October 2021 through 30 September 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.

Table 4-8 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 mi^2 falls within the existing condition (2022) 65 DNL or higher noise exposure area. Of the total land area, approximately 0.24 mi^2 exposed to 65 DNL or higher, is located off airport (the remaining 9.30 mi^2 are located on DFW). **Table 4-8** 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 4-3** 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 AAD aircraft operations is distributed over the surrounding area. The size and shape of the noise exposure contours are reflective of the south and north flow at DFW. Noise contour patterns extend from DFW along each extended runway centerline, reflective of the flight tracks used by all aircraft. The relative distance of a contour from DFW along each route is a function of the frequency of use of each runway end for total aircraft arrivals and departures, and the type of aircraft assigned to the respective runways.

Table 4-8. Estimated Land Area within the Existing (2022) Noise Exposure Contours

Contour Range	DFW Property Estimated Land Area (mi^2)	Non-DFW Property Estimated Land Area (mi^2)	Total Estimated Land Area (mi^2)
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

Note: Totals may not add completely due to rounding effects
Source: HMMH, 2023

Figure 4-3. Existing Conditions (2022) Noise Exposure Contours

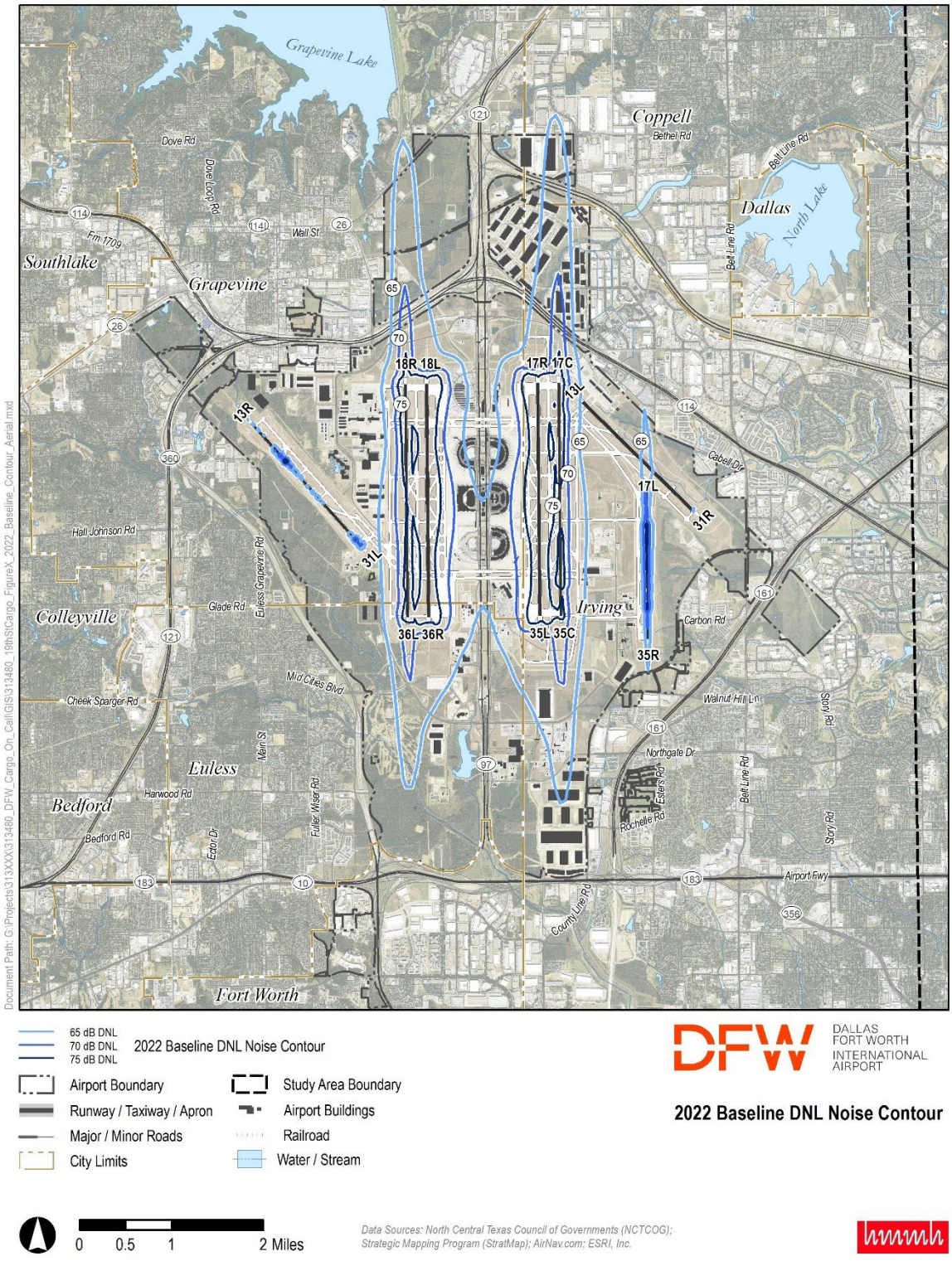


Figure 4-4 provides the DNL contours for the existing conditions over the land use map. In the existing condition, the DNL contours extend away from DFW on the north side in two main lobes over compatible land use along the extended centerline of the outboard parallel runway extending off DFW on the west side to just north of SH 26 and on the east side to just 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. The 65 DNL also extends off DFW 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, north of Runways 18R and 17C to across SH 114.

4.9.6 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, multi-family, or manufactured housing within any of the 2022 existing condition noise contours (*see* **Figure 4-4**).

4.10 Socioeconomic, Environmental Justice, Public Services, including Traffic Patterns, and Children's Environmental Health and Safety Risks

This section describes the regulations, affected environment, and significance threshold(s) pertaining to socioeconomics, environmental justice, public services, including traffic patterns, and children's environmental health and safety risks. This analysis study area was developed by identifying which resource area categories were determined to have an adverse effect associated with the Proposed Action. Only two resource areas were identified with either minor or adverse effects prior to mitigation. These two resource areas were noise and noise-compatible land uses and air quality. The noise analysis developed a DNL 65dB for each of the Proposed Action years, with the most expansive contour being used as the basis for the Environmental Justice Analysis. Air quality was identified as a more North-Central Texas regional issue.

4.10.1 Regulatory Background

The FAA has not established a significance threshold for socioeconomics in FAA Order 1050.1F; however, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts for socioeconomics. The factors include but are not limited to, situations in which the action would have the potential to:

(1) Induce substantial economic growth in an area, either directly or indirectly (e.g., through establishing projects in an undeveloped area);

(2) Disrupt or divide the physical arrangement of an established community;

(3) Cause extensive relocation of residents is required, but sufficient replacement housing is unavailable;

(4) Cause extensive relocation of community businesses that would create severe economic hardship for the affected communities;

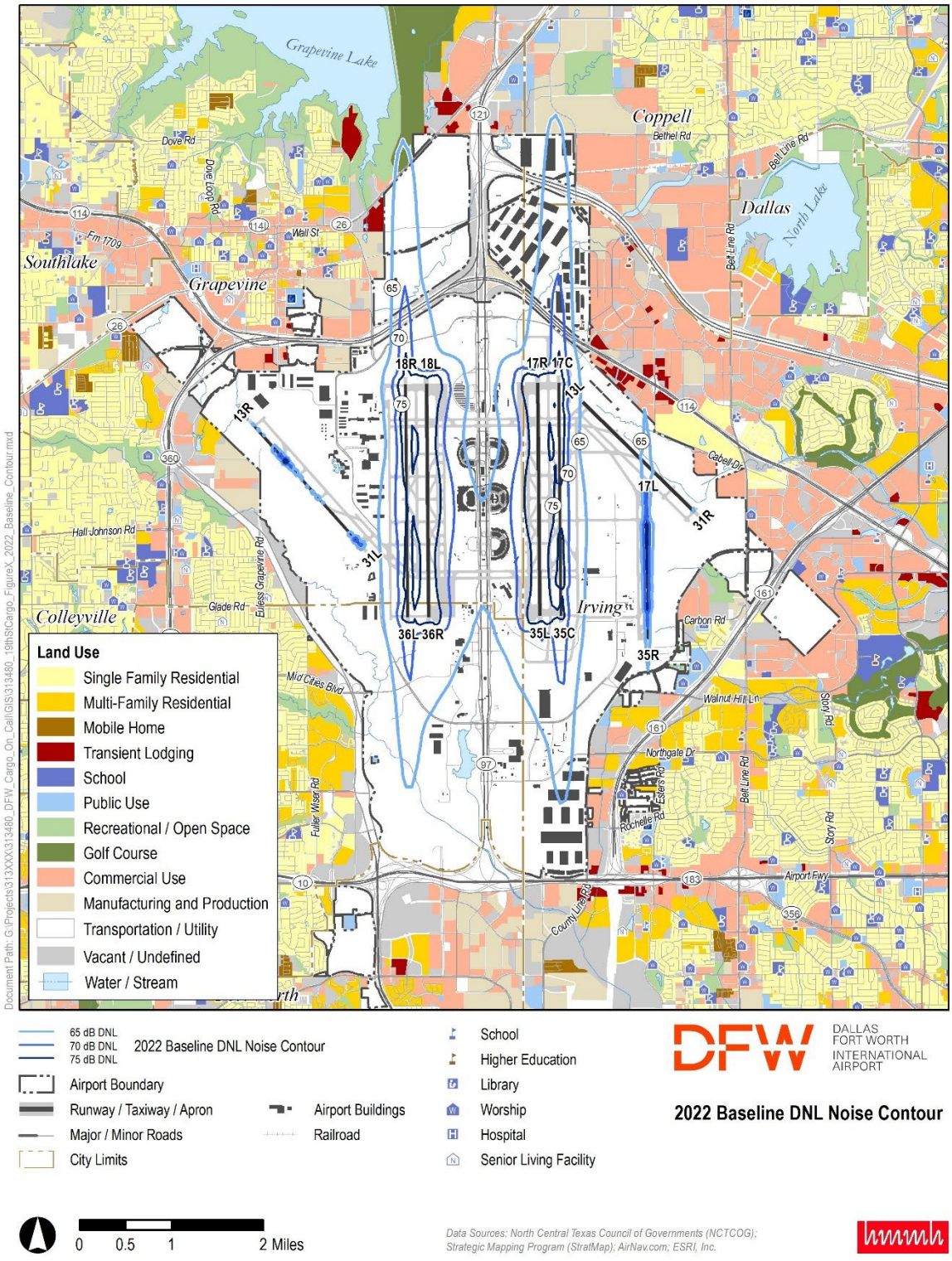
(5) Disrupt local traffic patterns and substantially reduce the levels of service of roads serving an airport and its surrounding communities;

(6) Produce a substantial loss in the community tax base;

(7) Create disproportionately high and adverse human health or environmental effects on minority and low-income populations; or

(8) Create disproportionate health and safety risks to children.

Figure 4-4. Existing Conditions (2022) Noise Exposure Contours with Surrounding Land Use



Regulations governing socioeconomics, environmental justice, surface transportation, and children's environmental health and safety risks are summarized:

- Socioeconomics - *The Uniform Relocation Assistance and Real Property Acquisitions Policy Act of 1970* (49 CFR Part 24).
- Environmental Justice (EJ) – Title VI of the Civil Rights Act of 1964[17], as amended,
  - EO 12898[18], *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*,
  - EO 14096[19], *Revitalizing Our Nation's Commitment to Environmental Justice for All,* and
  - U.S. Department of Transportation (DOT) Order 5610.2C[20].
- Surface transportation/traffic – Applicable state, regional, and local regulations governing surface traffic levels of service.
- Children's Environmental Health and Safety Risks - EO 13045[21], *Protection of Children from Environmental Health Risks and Safety Risks*.

4.10.2 Existing Conditions

Socioeconomic analyses generally include detailed investigations of the prevailing population, income, employment, and housing conditions of a community or area of interest. The socioeconomic conditions of a region of influence (ROI) could be affected by changes in the rate of population growth, changes in the demographic characteristics of a ROI, or changes in employment within the ROI caused by the implementation of the proposed action. In addition to these characteristics, populations of special concern, as addressed by EO 12898, are identified, and analyzed for environmental justice impacts.

[17] Title VI of the Civil Rights Act of 1964, as amended states that "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance." This law applies to all federally funded programs and projects, including those sponsored by the FAA.

[18] EO 12898 requires federal agencies to identify and address, as appropriate, the potential for their programs, policies, and activities to cause disproportionately high adverse human health or environmental effects on minority and low-income populations.

[19] EO 14096 requires federal agencies to create strategic EJ plans, direct research toward EJ issues, expand notifications for toxic chemical releases, and increase coordination on EJ issues by establishing a new EJ Interagency Council. NOTE: CEQ had advised federal agencies that the language in EO 14096 was not intended to alter the disproportionately high and adverse standard in the EO 12898. EJ per this EO is defined as, "the just and meaningful involvement of all people, regardless of income, race, color, national origin, Tribal affiliation, or disability, in agency decision-making and other federal activities that affect human health and the environment so that people: (i) are fully protected from disproportionate and adverse human health and environmental effects (including risks) and hazards, including those related to climate change, the cumulative impacts of environmental and other burdens, and the legacy of racism or other structural or systemic barriers; and (ii) have equitable access to a healthy, sustainable, and resilient environment in which to live, play, work, learn, grow, worship, and engage in cultural and subsistence practices.

[20] U.S. Department of Transportation (U.S. DOT) Order 5610.2C defines a minority population as any readily identifiable group of minority people living in geographic proximity or subject to a proposed U.S. DOT program, activity, or subject to a policy, including—if circumstances warrant—geographically dispersed or transient people, such as migrant workers or Native Americans, who would also be affected by the proposed program, policy, or activity. U.S. DOT Order 5610.2C states that a minority person means a person who is: (1) Black: a person having origins in any of the black racial groups of Africa; (2) Hispanic or Latino: a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race; (3) Asian American: a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent; (4) American Indian and Alaskan Native: a person having origins in any of the original people of North America, South America (including Central America), and who maintains cultural identification through tribal affiliation or community recognition; or (5) Native Hawaiian and Other Pacific Islander: people having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands. Order 5610.2C defines a low-income population as any readily identifiable group of low-income people living in geographic proximity or subject to a proposed U.S. DOT program, policy, or activity, including—if circumstances warrant— geographically dispersed or transient persons people who would also be affected by the proposed program, policy, or activity. The order defines "low-income" as a median household income at or below the Department of Health and Human Services poverty guidelines. U.S. DOT Order 5610.2C states that the public involvement process must allow minority and low-income populations to provide feedback on the environmental justice analysis and the potential impacts identified in an EIS, which also needs to disclose disproportionally high and adverse effects on the potentially affected populations resulting from the proposed action and alternative(s).

[21] EO 13045, Protection of Children from Environmental Health Risks and Safety Risks, is the primary EO related to children's environmental health and safety risks. The EO directs federal agencies to identify and assess environmental health risks and safety risks that may disproportionately affect children, consistent with the agency's mission.

- EO 12898 requires a federal agency to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." A message from the President concerning EO 12898 stated that federal agencies should collect and analyze information concerning a project's effects on minorities or low-income groups, when required by NEPA. If such investigations find that minority or low-income groups experience a disproportionate adverse effect, then avoidance or mitigation measures are to be taken.
- EO 14096 requires that the federal government "advance environmental justice for all by implementing and enforcing the Nation's environmental and civil rights laws, preventing pollution, addressing climate change and its effects, and working to clean up legacy pollution that is harming human health and the environment."

EO 14096 on environmental justice does not rescind EO 12898, which has been in effect since 11 February 1994, and is currently implemented through DOT Order 5610.2C. This implementation will continue until further guidance is provided regarding the implementation of EO 14096 on environmental justice.

4.10.2.1 Race and Minorities

According to the CEQ (1997), a minority population can be described as being composed of the following population groups: American Indian or Alaskan Native, Asian or Pacific Islander, Black (all races alone /not of Hispanic origin), not of Hispanic origin, or Hispanic, and exceeding 50 percent of the population in an area or the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population. Race and ethnicity are two separate categories of minority populations. A minority population can be defined by race, by ethnicity, or by a combination of the two distinct classifications.

Race as defined by the U.S. Census Bureau (USCB) (2001) includes:

- White – A person having origins in any of the original peoples of Europe, the Middle East, or North Africa;
- Black or African American – A person having origins in any of the Black racial groups of Africa;
- American Indian or Alaska Native – A person having origins in any of the original peoples of North and South America (including Central America) and who maintain tribal affiliation or community attachment;
- Asian – A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, or the Philippine Islands; and
- Native Hawaiian and Other Pacific Islanders – A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

The USCB defines ethnicity as either being of Hispanic origin or not being of Hispanic origin. Hispanic origin is defined as "a person of Cuban, Mexican, Puerto Rican, South or Central America, or other Spanish culture or origin regardless of race" (USCB 2001).

A minority population can be defined in multiple ways; for example, a population under consideration may be demographically composed of 45 percent Black, 6 percent Asian, 40 percent White, and 9 percent all other races or combination of races. Additionally, a minority population can also be defined through ethnicity, where the population under consideration is demographically composed of 80 percent White, 10 percent Black, and 10 percent all other races or combination of races, but has an ethnic composition of 98 percent Hispanic origin and 2 percent of the population not of Hispanic origin. Race and ethnicity each individually total a population of 100 percent.

4.10.2.2 EPA EJScreen Tool

The EPA has developed an environmental justice screening and mapping tool, EJScreen[22] to provide EPA with a nationally consistent dataset and approach for combining environmental and demographic socioeconomic indicators. EPA notes that the EJScreen is not intended to provide a risk assessment, that it does not provide data on every environmental impact and demographic indicator that may be relevant to a particular location, and data may be several years old.

For comparative purposes, the EPA EJScreen data shows the state of Texas has an average of 58 percent people of color, 34 percent low-income households[23], 8 percent limited English speaking households, and a 5 percent unemployment rate. For the neighborhoods and communities within the DFW noise contours outside the Airport, the EPA EJScreen indicated that the projected noise-affected areas contain 61 percent people of color, 22 percent low-income households, 7 percent limited English-speaking households, and a 4 percent unemployment rate. This on the surface indicates that the study area is a more concentrated minority population than Texas, as a whole, but has a lower percentage of low income households. Potentially affected areas may include pocketed disadvantaged communities within individual census tracts and outlying block groups.

Land use, as determined through North Central Texas Council of Governments (NCTCOG) data used as part of the noise analysis and aerial photograph interpretation, adjacent to DFW is primarily light industrial, distribution warehouses, mixed office, and retail/commercial within the transportation ring associated with SH 121, SH 114, SH 360, SH 183, and SH 161. West of SH 161 and south of Walnut Hill are multi-family residential developments. Single family residential developments are located between North Belt Line Road and Valley View Lane, south of SH 114 and north of Cabell Drive, and west of SH 360 and east of SH 121. Only the multi-family residential areas south of Walnut Hill are directly within the path of aircraft using Runway 17L/35R, with noise levels approaching 65 dBA DNL.

The EJScreen shows that higher percentiles communities of color are south and east of DFW. One area bounded by Belt Line Road and SH 114, is in the 95th to 100th percentile, which is explained by the high concentration of multi-family residential units near Dallas College North Lake Campus and highly concentrated business park areas. EJScreen also illustrates that much of the population surrounding DFW is in the 70th to 95th percentile for ozone exposure, which is understandable given that AQCR 215 is in severe nonattainment for ozone. There is increased climate change flood risk associated with Hackberry Creek, generally east of DFW.

4.10.2.3 U.S. Census Bureau Data

To investigate the composition and demographics of these smaller communities, census bureau data was used to complete a more thorough analysis. To assess race and minority metrics within and surrounding the noise affected populations, an assessment based on the USCB 2021 – 5-year average data set from the American Community Survey (ACS) at the block group level was performed (USCB 2021).

Texas is a minority majority state with the most recent data indicating 59 percent of the state population was a racial or ethnic minority. Texas was 39.8 percent Hispanic or Latino and 19.5 percent all other races or combination of races. The U.S. minority percentage during the same period was 43.1 percent. The block groups that fall within the DFW noise contours average 66 percent persons of color. Block groups within Dallas County averaged 75 percent, Denton County 49 percent, and Tarrant County 68 percent.

4.10.2.4 Income and Poverty

Each year the USCB defines the national poverty thresholds, which are measured in terms of household income dependent upon the number of persons within the household. Individuals falling below the poverty threshold ($30,186 for a household of four in 2022) are considered low-income individuals. USCB census tracts where at least 20 percent of the residents are considered poor are known as poverty areas (USCB

[22] https://www.epa.gov/ejscreen

[23] As noted in FAA Desk Reference Chapter 12, the EPA EJScreen tool defines low-income population as "individuals living with incomes below 200 percent of the federal poverty level." This is different from the DOT definition of low income which is based on individuals living below the poverty level.

1995). When the percentage of residents considered poor is greater than 40 percent, the census tract becomes an extreme poverty area.

To assess income and poverty metrics within and surrounding the noise affected populations, an assessment based on the USCB 2021 – 5-year average data set from the ACS at the block group level was performed (USCB 2021). Populations within northern block groups appear to earn a relatively higher income, these groups generally make up the higher end of the median income quartiles. Groups within the southwest were generally classified within the lower two income quartiles ($36,964 and $62,844; $62,844 and $94,861), while southwestern block groups comprise the lower portion of the dataset.

Although the southeastern populations earn a relatively lower income on average, only one block group was identified with a median income considered to be "low income" (Dallas County Block Group 1, Census Tract 144.08), with a median income of $31,645. This block group falls outside of the predicted DNL 65 contours.

The percentage of individuals below poverty level averaged 7 percent for all block groups within the DFW noise contours. The block groups within Dallas County averaged 9 percent, Denton County averaged 6 percent, and Tarrant County averaged 7 percent. When compared to county level metrics[24], within the past 12 months Dallas County average 14.2 percent of the population below poverty, Denton County was 8.2 percent, and Tarrant County was 10.6 percent.

4.10.2.5 Public Transportation and Road Networks

DFW is surrounded by public transportation access points. Rail service is directly provided to DFW by the Dallas Area Rapid Transit (DART) Orange Line and the Trinity Rail Express (TRE) Tex Rail Green Line with connecting services to Fort Worth through Trinity Metro with connecting bus services in the greater Fort Worth area. DART also provides several bus routes to the southeast of DFW.

The surrounding cities provide emergency services within their corporate boundaries. All surrounding cities have local police, fire, and ambulance emergency services with response time approximately 5 minutes. DFW maintains its own emergency services staff at the airport.

In August 2020, a Traffic Impact Analysis (TIA) was completed for the International Parkway Modernization Program. This program sought to replace aging infrastructure, enhance roadway safety, and increase throughput efficiency by removing several, nonstandard left-hand exits and associated flyover bridges. The removed left-hand exits will be replaced by national and TxDOT standard right-hand exits.

The TIA evaluated the entire road network that would be utilized as part of the Proposed Action. It was concluded that a level of service (LOS) C[25] is maintained through 90 million annual passengers (MAP). Based on FAA forecasts, this passenger level is anticipated to occur between the years 2031 and 2032.

4.10.2.6 Children's Environmental Health and Safety Risks

EO 13045 directs federal agencies, as appropriate and consistent with the agency's mission, to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. The FAA is encouraged to identify and assess environmental health risks and safety risks that the agency has reason to believe could disproportionately affect children. Environmental health risks and safety risks include risks to health or to safety that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or be exposed to.

The Task Force on Environmental Health Risks and Safety Risks to Children, created by EO 13045, identified four priority areas of impacts to children for immediate attention:

[24] U.S. Census Bureau. American Community Survey, Table S1701 Poverty Status in the Past 12 months (https://data.census.gov/table/ACSST1Y2022.S1701?q=United+States&g=050XX00US48113,48121,48439).

[25] LOS C for Urban Street segments is identified as travel speeds between 50 to 67 percent of the base free-flow speed, and the volume to capacity ratio is not higher than 1.0. Longer queues at intersection may cause lower speeds. Maneuvers are more restricted than LOS B. LOS C for Two-Lane Highways is identified as speeds that are noticeably reduced and platoons occur for most vehicles. Highway Capacity Manual, 6th edition, A Guide for Multimodal Mobility Analysis

- Asthma;
- unintentional injuries;
- developmental disorders (including lead poisoning); and
- cancer.

A visual analysis of the population under 18 surrounding DFW is depicted in **Figure 4-5**. The average percent of the population under 18 within approximately 5 miles of the airport study area is 24 percent. Higher percentages are located further distance from DFW. The largest human-induced contributor to childhood asthma triggers within AQCR 215 is ozone (Severe non-attainment). The Proposed Action, given that all construction activities and operational activities would occur within highly controlled, restricted access areas of the DFW, would not generate conditions that would lead to unintentional injuries, developmental disorders, or increased cancer risks. The analysis of effects will be limited to air quality and noise.

4.11 Visual Effects, Including Light Emissions

4.11.1 Background

The FAA encourages Airport Sponsors to consider the effects of light emissions and visual effects on sensitive areas in the vicinity of an airport development project. Although there are no significance thresholds established by the FAA for light emissions and visual effects, the agency recommends the following topics be considered during the analysis:

- If light emissions create an annoyance or interfere with normal activities; and
- If local, state, or federal agencies determine that visual effects are objectionable due to their contrast with existing environments.

4.11.2 Existing Conditions

Light emissions sources on DFW include the runway, taxiways, terminals, navigational aids (NAVAIDS) surface parking areas, hotels, office buildings, cargo buildings, warehouses, and other structures. Mobile light sources include ground access vehicles utilizing airport roadways, aircraft, and aviation support vehicles. Light sources which may also affect the area include lighting on roadways and highways on and adjacent to the airport, as well as the surrounding urban and commercial development.

4.12 Water Resources – Surface and Stormwater Treatment

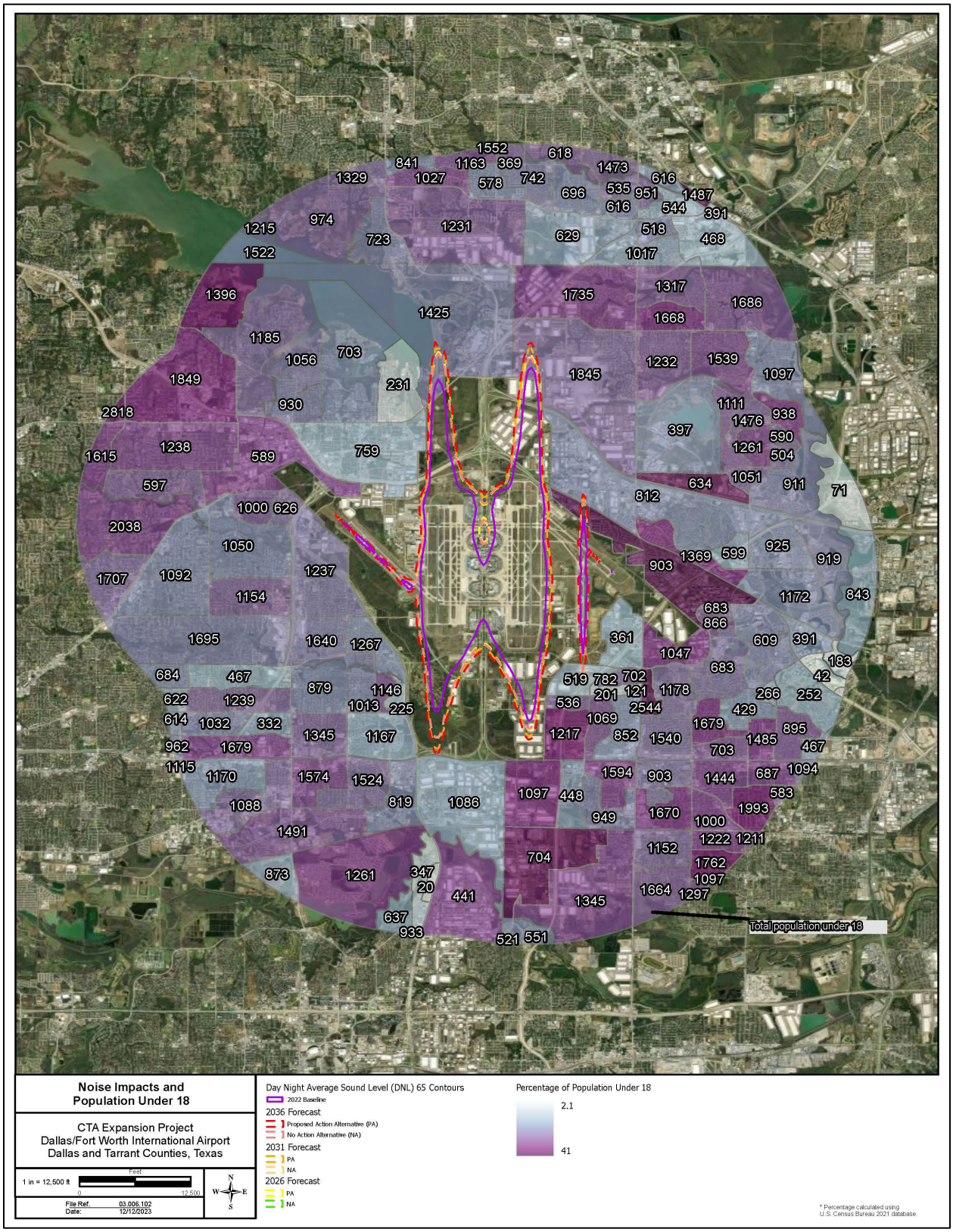
4.12.1 Regulatory Background

The Federal Water Pollution Control Act of 1948, as amended in 1972, became commonly known as the Clean Water Act (CWA) and was enacted to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. The CWA established a federal permitting system to regulate discharges into waters of the United States (WOTUS), certify the protection of water quality, implement, and enforce the National Pollutant Discharge Elimination System (NPDES) program, and identify and characterize impaired water bodies that do not meet, or are not expected to meet, water quality standards. The TCEQ's 2020 Integrated Report for CWA Sections 303(d) and 305(b) characterizes the quality of Texas surface waters and identifies those waters that do not meet water quality standards on the Section 303(d) list, an inventory of impaired waters.

4.12.2 Existing Conditions

Surface water runoff on DFW flows into one of six sub-watersheds (Hackberry Creek, South Hackberry Creek, Estelle Creek, Grapevine Creek, Bear Creek, or Cottonwood Creek) or directly into two larger watersheds (West Fork Trinity River or Elm Fork Trinity River). Field surveys of WOTUS have been conducted on a large portion of DFW property. These field surveys have identified jurisdictional waters, tributaries, man-made drainage channels, ponds, and potential wetlands on various portions of DFW's property. No tributaries, wetlands, or water bodies were in or adjacent to the proposed project area; furthermore, no tributaries or water bodies located on DFW were listed on the TCEQ Section 303(d) list (TCEQ 2022).

Figure 4-5. Overview of Population Under 18 Surrounding DFW.



Currently, drainage is managed for the Landside and the AOA through separate systems. Landside drainage, including some of the water that drains off the facility roofs, is directed to stormwater collection pipes and storm drains. It is then managed as part of DFW's overall stormwater management system. On the AOA side, water is collected in a series of storm drains. This stormwater is directed to type-D inlets and oil/water separators before it is drained into the stormwater system.

DFW operates a stormwater pretreatment collection system and retreatment facility for stormwater associated with industrial activity. The stormwater associated with industrial activity includes first-flush stormwater discharge from the aircraft parking aprons, gates, hangars, maintenance areas, fuel farm, and parking lots. The first-flush stormwater is directed by diverter boxes to the on-site pretreatment facility. After pretreatment, stormwater is conveyed to the Trinity River Authority (TRA) Central Plant in Irving, Texas, although there is an option to discharge to Bear Creek.

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SECTION 5 ENVIRONMENTAL CONSEQUENCES

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

Alternative	Description
No Action	Under the No Action Alternative, DFW would keep its existing infrastructure and would not implement the Proposed Action. DFW would not have facilities to meet needs and efficiently accommodate the growth in demand for passenger service. Commercial service operations would be constrained beginning in 2028 and the existing infrastructure would remain unaltered.
Proposed Action	The Proposed Action Alternative, the sponsor's preferred alternative, includes the project as identified in **Sections 1.4 Proposed Action, 2.0, Purpose and Need,** and **3.2 Proposed Action**. The proposed project includes the construction of 31 passenger gates along with the reconstruction of Terminal C and associated support facilities to support efficient operations. The Proposed Action would result in a change in the number of passenger aircraft operations.

5.1 Summary of Environmental Consequences

Potential environmental effects resulting from the construction and operation of the Proposed Action and measures taken for mitigation of these effects are presented and evaluated in this EA. A summary of evaluated environmental effects on each applicable resource category is summarized in **Table 5-1**.

Table 5-1. Summary of Environmental Consequences

Impact Area	Significance Threshold	No Action Alternative	Proposed Action Alternative	Connected Actions
Air Quality	Pollutant concentrations exceed one or more of the NAAQS for any of the time periods analyzed. Increase the frequency or severity of any such existing violations.	*No Impact*. Since there would be no construction related emissions, there would be no additional air quality effects, other than those currently produced through existing operational emissions.	*Adverse Impact.* The demolition and construction activities, as well as the increase in operations will generate additional operational emissions from aircraft, APU, and GSE. Through modeling it was determined that the full implementation and future years will have NO_X emissions in excess of the current Severe nonattainment NAAQS *de minimis* threshold of 25 tpy. On 06 December 2023 TCEQ completed its review of the Draft General Conformity Determination and concurred that construction and operational activities associated with the Proposed Action	*Minor, Adverse Impact*. Operational emissions would not be changed due to the construction of the proposed connected actions, which include the demolition of the in-fill and South Express parking areas, construction of and relocation of utilities, PSLs and restoration/ stabilization of PSLs for future development opportunities. Construction activities and equipment required for these connected actions would cause a short-term increase in air emissions that

Impact Area	Significance Threshold	No Action Alternative	Proposed Action Alternative	Connected Actions
			conform to the applicable Texas SIP, adopted 04 March 2020 and approved by the EPA effective 24 May 2023 (88 FR 24693) (Appendix I). . Because construction and operational emissions for the Proposed Project would conform to the SIP that allows for attainment of the NAAQS, impacts would not be significant when compared to the No Action Alternative.	would be below the *de minimis* threshold.
Climate	There are no significance thresholds for aviation GHG emissions.	*No Impact*. Since there would be no construction and project related GHG emissions, there would be no additional air quality effects, other than those produced through existing operational emissions.	*Minor, Adverse Impact.* The demolition and construction activities, as well as the increase in operations would generate additional GHG emissions; this would amount to an increase of approximately 17 percent compared to the future No Action Alternative. **Section 5.3.** provides a detailed analysis of the Climate resource category.	*Minor, Adverse Impact.* The construction of connected actions would generate additional GHG emissions; this would amount to a minimal increase compared to the future No Action Alternative. **Section 5.3**. provides a detailed analysis of the Climate resource category.
Hazardous Materials, Solid Waste, and Pollution Prevention	The action would have the potential to violate applicable Federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management; Involve a contaminated site (including but not limited to a site listed on the National Priorities List); Produce an appreciably different quantity or type of hazardous waste; Generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal and/or would	*No Impact.* There are no impacts from hazardous materials expected as no construction or other activities would occur. This Alternative would not generate hazardous materials or solid waste impacts or increase the amount of waste generated beyond that expected from regular airport activity levels.	*Minor, Adverse Impact*. No properties listed (or proposed) on the NPL in the direct Project Area. A database review revealed: Additionally, any contaminated media found within the project site would be handled in accordance with the Contaminated Media Management Plan (CMMP). Additional solid waste would be generated by the construction and demolition activities in the short-term, and the new operational activities going forward. Each building would generate at least one MSW dumpster and	*Minor, Adverse Impact*. The Connected Actions, which include the demolition of the in-fill and South Express parking areas, construction of and relocation of utilities, PSLs and restoration/ stabilization of PSLs for future development opportunities would generate solid wastes and the potential for exposure to ACM or other contaminated media. Municipal solid waste and recyclable materials generated by the Connected

Impact Area	Significance Threshold	No Action Alternative	Proposed Action Alternative	Connected Actions
	exceed local capacity; or Adversely affect human health and the environment.		one recyclables dumpster. Regionally there is sufficient MSW and construction debris capacity. DFW also has a robust recycling program to reduce materials going to regional landfills further lessening the effects.	Actions can be accommodated by local landfills. DFW also has a robust recycling program to reduce materials going to regional landfills further lessening the potential effects. Any ACM will be abated and managed in compliance with all applicable federal, state, and local regulations. Any contaminated media found within the sites associated with the connected actions would be handled in accordance with the CMMP.
Historical Architectural, Archeological, and Cultural Resources	There are no significance thresholds for historical, architectural, archeological, or cultural resources.	*No Impact.* No construction or other activities would occur that could potentially disturb cultural resources.	*No Impact.* Based on research, field observation, and coordination with the SHPO, no adverse effects to historic resources are anticipated under the Proposed Action. (see **Appendix G** for SHPO concurrence).	*No impact.* A background review revealed that the connected actions would be located on areas of the airport that have been heavily disturbed by previous construction activities at DFW. These areas were included within the larger footprint of anticipated activities associated with the Proposed Action. THC SHPO determined there were no historic properties present or affected by the proposed construction activities. As such a no adverse effects to historic properties determination was provided by THC.

Impact Area	Significance Threshold	No Action Alternative	Proposed Action Alternative	Connected Actions
Natural Resources and Energy Supply	There are no significance thresholds for natural resources and energy supply.	*No Impact.* There would be no additional energy demand as no construction or other activities would occur.	*Minor, Adverse Impact*. Although there would be an increase in demand for fuel and energy from additional operations, lighting systems, and signage, the local distribution infrastructure has adequate capacity to accommodate the increased demand. Furthermore, the demand would not exceed the regional supply of energy or convertible natural resources.	*Minor, Adverse Impact*. Although, there would be an increase in demand for fuel and energy from additional operations, lighting systems, and signage, the local distribution infrastructure has adequate capacity to accommodate the increased demand.
Noise and Noise-Compatible Land Use	The action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65dB level due to a DNL 1.5dB or greater increase, when compared to the No Action Alternative for the same timeframe.	*No Impact.* Noise levels would not substantially change because no construction would occur, and aircraft operations and aircraft ground movements would be similar to current activity levels.	*Minor, Adverse Impact*. The additional operations would utilize existing runways and would cause a less than DNL 1.5 dB increase in noise experienced by noise sensitive, non-compatible land-uses adjacent to DFW at the end of the forecasted period in 2036.	*No Impact.* Connected actions would not cause changes in noise exposure. Construction, demolition, or batch plant activities could result in temporary changes in noise levels. The sites associated with the connected actions are on airport property and surrounded by compatible land-uses.
Socioeconomic, Environmental Justice, Surface Transportation, and Children's Environmental Health and Safety Risks	The FAA has not established a significance threshold for socioeconomics, Environmental Justice, or children's environmental health and safety risks in FAA Order 1050.1F; however, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts for socioeconomics. The factors are detailed in **Section 4.10.**	*No Impact.* No changes would occur on DFW that would generate off airport effects to communities of color or low-income communities, children's environmental health risks, or additional changes to the surface transportation network surrounding DFW.	*Adverse Impact.* The Proposed Action Alternative would result in minor adverse effects from noise and from the generation of ozone precursor emissions above *de minimis* levels. The area most affected by noise is considered a concentrated minority area. It is located within the DNL 70db Noise Overlay Contour established under the 1992 EIS. The air quality effects would be on a regional basis and would not	*Minor, Adverse Impact.* Operational emissions would not be changed due to the construction of the proposed connected actions, which include the demolition of the in-fill and South Express parking areas, construction of and relocation of utilities, PSLs and restoration/ stabilization of PSLs for future development opportunities. Construction activities and

Impact Area	Significance Threshold	No Action Alternative	Proposed Action Alternative	Connected Actions
			affect low-income communities or communities of color disproportionately from the larger regional context. Based on a TIA, traffic LOS[26] would decline by approximately one service level but would still be considered at acceptable traffic flows for urban arterials and two-lane highways. There would be no change to publicly available transportation options or a decrease in emergency services to the off-airport study area.	equipment required for these connected actions would cause a short-term increase in air emissions that would be below the *de minimis* threshold. The connected actions would not increase operational noise off airport so there would be no noise related effects to low-income communities or communities of color. The connected actions would not increase passenger vehicular traffic so they would not contribute to a long-term decline in surface transportation LOS.
Visual Effects including Light Emissions	There are no significance thresholds for visual effects including light emissions.	*No Impact.* No change in visual effects or light emissions would occur since there would be no new construction.	*Minor, Adverse Impact*. The amount of light emissions within the project area would increase as a result of the installation of new lighting systems. Along with an overall increase in light emissions through the increased development of DFW, the combined increase would only be minimal as compared to existing light emissions.	*Minor, Adverse Impact*. The connected actions would result in the installation of new high mast lights, which would increase the amount of light emissions within the project area. However, the changes in light emissions would be minimal when compared to existing light emissions.
Water Resources	Exceed water quality standards established by Federal, state, local, and tribal regulatory agencies. Contaminate public drinking water supply such that public health may be adversely affected	*No Impact.* There would be no impacts on water quality, as no construction or other activities would occur.	*Minor, Adverse Impact*. Potential impacts to surface water quality are associated with soil erosion during the construction phase and the added volume of stormwater runoff from new impervious surfaces following project completion. These actions are being minimized	*Minor, Adverse Impact*. Potential impacts to surface water quality are associated with soil erosion during the construction phase and the added volume of stormwater runoff from new impervious surfaces following project completion. These

[26] TIA refers to the Traffic Impact Analysis and LOS refers to the roadway Level of Service, see **Section 4.10.2.5** for additional details.

Impact Area	Significance Threshold	No Action Alternative	Proposed Action Alternative	Connected Actions
			through new stormwater collection systems, which are being built to incorporate the additional impervious surfaces.	actions are being minimized through new stormwater collection systems, which are being built to incorporate the additional impervious surfaces.

5.2 Air Quality

5.2.1 Forecast Operations

The proposed project would be complete and operational in 2026, which represents the project implementation year and 2031 is included as the year of implementation (buildout) plus 5 years. As the project would not be fully implemented in five years, 2036 is included as the year of implementation plus 10 years.

The FAA 2021 Terminal Area Forecast (TAF) released in March 2022 was used for the forecast. The FAA TAF includes the effects of the COVID-19 pandemic on the future forecast for the airport. Using the FAA 2021 TAF data, DFW developed a forecast to cover the three 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 approved operations memorandum[27] is based on the 2021 TAF which includes fiscal year operations data used in the AEDT model. Aircraft-related emissions were generated in the model based on the TAF (fiscal year operational data) and adjusted to calendar year by comparing the modeled operations to the total operations calculated for each of the calendar years 2026, 2031, and 2036 and applying an adjustment factor as shown in **Table 5-2**. The CY operations were slightly higher than the FY; therefore, the emission results are slightly higher than modeled in AEDT. A detailed discussion of the forecast, adjustments, and overall operations data used in the AEDT model is included in the AQTR in **Appendix H**.

Table 5-2. Fiscal Year to Calendar Year Adjustment

Year	Alternative	FY2026	CY2026	Adjustment
2026	No Action	810,157	810,645	1.000602
	Proposed Action	816,119	819,663	1.004343
2031	No Action	820,035	820,548	1.000626
	Proposed Action	890,476	894,104	1.004074
2036	No Action	830,354	830,874	1.000626
	Proposed Action	963,225	966,666	1.003572

Sources: FAA 2021 TAF; Centurion Planning and Design, 2023, HMMH, and Ramboll

Notes:

[1/] CY 2026 = (FY2026 ops / 12) X9 months + (FY2027 ops / 12) X3 months
[2/] CY 2031 = (FY2031 ops / 12) X9 months + (FY2032 ops / 12) X3 months
[3/] CY 2036 = (FY2036 ops / 12) X9 months + (FY2037 ops / 12) X3 months

5.2.2 Significance Thresholds

As identified in FAA Order 1050.1F, the threshold for significance for air quality impacts is defined as when "the [federal] action would cause pollutant concentrations to exceed one or more of the NAAQS, as established by the EPA under the CAA, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations."

Because DFW is in a non-attainment area for ozone and a federal action is proposed, the FAA is required under the CAA General Conformity regulation to ensure that the action conforms to the applicable SIP. Under the General Conformity rules, if the air quality assessment for the Proposed Action were to show that any of the federal *de minimis* thresholds established under the CAA were equaled or exceeded, more detailed analyses to demonstrate conformity with the SIP would be required. This more detailed analysis process is known as a General Conformity Determination. Conversely, if the analysis were to show that

[27] The FAA approved operations memo is provided in **Appendix A**.

none of the relevant thresholds were equaled or exceeded, the Proposed Action at DFW would not require a General Conformity Determination and FAA would not require any further analysis under NEPA.

5.2.3 No Action Alternative

Under the No Action Alternative, DFW would not implement the proposed CTA Expansion and requisite modifications. The No Action Alternative would not involve any construction activities; therefore, there would be no construction emissions. Aircraft operations would continue to use the existing terminal facilities and gates, and terminal facilities and infrastructure included in the proposed action would continue to deteriorate. The airport would be ill-equipped to meet growing travel demand and there would be no net increase in passenger operations at DFW Airport. As such, there would be no additional air quality effects other than those currently produced through existing operational emissions. The No Action Alternative operational emissions are presented in **Table 5-3**.

Table 5-3. No Action Alternative Aircraft and Vehicle Operational Emissions (tpy)

Operational Category	NO_x	CO	VOC	SO_x	$PM_{2.5}$	PM_{10}
Aircraft	4,896	3,823	473	435	44	44
GSE LTO	73	630	28	1	5	5
APU	150	124	11	20	20	20
Vehicle Traffic	183	1,931	42	2	33	8
2026 Total	**5,302**	**6,508**	**554**	**458**	**101**	**76**
Aircraft	4,920	3,832	474	437	44	44
GSE LTO	72	628	28	1	5	5
APU	150	123	11	20	20	20
Vehicle Traffic	169	1,853	40	2	33	8
2027 Total	**5,311**	**6,436**	**553**	**459**	**101**	**75**
Aircraft	4,944	3,841	474	439	44	44
GSE LTO	71	626	28	1	5	5
APU	151	123	11	20	20	20
Vehicle Traffic	156	1,774	38	2	32	7
2028 Total	**5,322**	**6,364**	**551**	**461**	**101**	**75**
Aircraft	5,016	3,868	475	444	45	45
GSE LTO	68	621	28	1	5	5
APU	153	121	11	20	20	20
Vehicle Traffic	116	1,538	32	2	32	6
2031 Total	**5,354**	**6,148**	**546**	**467**	**101**	**75**
Aircraft	5,095	3,904	480	449	45	45
GSE LTO	67	629	29	1	4	5
APU	156	123	11	21	20	20
Vehicle Traffic	96	1,284	28	2	32	6
2036Total	**5,414**	**5,940**	**547**	**472**	**102**	**75**

Source: Table 4-21 in Appendix H AQTR (Ramboll and HMMH 2023)
Notes:
1/ 2026 = Future NAA corresponding to Build out years with 810,645 total operations
2/ 2031 = Future NAA corresponding to Build Out year plus 5 years with 820,548 total operations
3/ 2036 = Future NAA corresponding to Build Out year plus 10 years with 830,874 total operations
4/ 2027 and 2028 operational phase emission estimates are linear interpolations of 2026 and 2031 emissions for use in comparison to General Conformity de minimis thresholds.
5/ Aircraft operational emissions include taxi-in, taxi-out, and in-flight operations below mixing height.

5.2.4 Proposed Action Alternative

Emissions from the Proposed Action are expected to include construction emissions from construction equipment, motor vehicles (employee commute and material delivery), and nonpoint source emissions (e.g., fugitive dust), as well as operational emissions from increased aircraft operations, fuel delivery, and GSE. Pollutants expected from the project include ozone precursors–NO_x and VOCs, criteria air pollutants such as Pb, O_3, CO, NO_x, $PM_{2.5}$, PM_{10}, and SO_x. Construction emissions and operational emissions are subject to the CAA General Conformity requirements.

5.2.4.1 Construction Emissions

The Proposed Action construction emissions were analyzed for anticipated construction years of 2024 to 2028 (**Appendix H**). The Proposed Action would result in temporary air quality effects resulting from demolition and construction activities. An air quality analysis was completed to estimate construction emissions and determine the Proposed Action's potential construction-related air quality impacts. The methodology used to prepare the DFW emissions inventories is consistent with the requirements outlined in the latest FAA Aviation Emissions and Air Quality Handbook (Version 3, Update 1), which provides both regulatory context and technical direction for completing airport-related air quality impact assessments. The anticipated construction schedule for the CTA Expansion Project is listed in **Table 5-4.**

Table 5-4. CTA Expansion Project Anticipated Schedule

Activity Description	Estimated Start Date	Estimated End Date
Contractor Mobilization, Construction of laydown areas and prefabrication yards	January 2024	April 2024
Batch plants set up and operations	January 2024	December 2028
Demolition of obsolete and aging infrastructure, and Removal of Aircraft Hardstand any conflicting facilities/utilities;	January 2024	July 2024
Construction of vehicle access roads and maneuvering/ turnaround areas	March 2024	June 2024
Construction of Terminal F Utilities, Baggage, Goods, and Service Corridor and Goods and Service Dock Facility	January 2024	September 2025
Construction of the Terminal A Pier and Terminal C Pier	January 2024	May 2026
Construction of a New Terminal F and New Skylink Station	June 2024	May 2026
Terminal E Expansion	September 2024	December 2025
Expansion of Terminal A Passenger Support Facilities	January 2025	December 2025
Construction of Terminal F Apron	January 2025	May 2025
Expansion of Terminal A Apron	January 2025	May 2026
Terminal C Garage partial Rehabilitation and Replacement of Garage Section C	June 2025	July 2027
F Outbound Bag Room	July 2025	July 2026
Terminal C Renovations	November 2025	December 2028
Rehabilitation of Terminal C Apron	January 2026	May 2027

Source: Table 2-1 in Appendix H – AQTR (Ramboll and HMMH 2023)
Note: The estimated start and end dates shown in **Table 5-4** are tentative; all activities will be initiated after FAA's decision on this EA.

The construction of the Proposed Action would generate ozone precursor (NO_X and VOC), and criteria air pollutant emissions from heavy-duty construction equipment activity, truck haul trips, and construction worker and vendor truck trips to and from the project areas. Construction emissions include both on-road mobile and off-road source categories. Mobile source exhaust and fugitive dust emissions would be generated from on-road vehicles and construction equipment, including but not limited to dump trucks, mixers, passenger vehicles, flatbed trucks, and tractor trailers. Fugitive VOC emissions would be generated by asphalt drying. Diesel-powered off-road construction equipment and traffic to and from the construction site would also generate GHGs.

The estimated construction emissions from diesel-powered on-road vehicles and off-road construction equipment[28] were modeled using the TCEQ Texas NONROAD version 2 (TexN2.2 Utility) and EPA Motor Vehicles Emissions Simulator, version 3 (MOVES3). The TexN2.2 model was used to estimate Texas-specific (at the county level) emissions from nonroad mobile sources, excluding commercial marine vessels, locomotives, drilling rigs, and aircraft (*see* **Appendix H**). MOVES3 is required by the EPA for developing nonroad emissions estimates for NEPA reviews, state implementation plan revisions, national emissions

[28] Construction equipment that would be used to support the Proposed Action would include backhoes, cranes, excavators, forklifts, fuel and dump trucks, loaders, off-highway truck, pavers, rollers, etc. The number of units and average rated horsepower for applicable equipment were based on Proposed Project equipment activity rosters. Equipment load factors and emission factors were based on TexN2.2 model estimates for applicable equipment types and calendar years. TexN2.2 (developed by ERG) was run for Dallas County for applicable calendar years. Emission and activity data were output from TexN2.2 for nonroad equipment by equipment type, fuel type, and horsepower bin by construction equipment sector (i.e., non-diesel construction equipment (non-DCE), commercial construction, boring and drilling equipment, trenchers, transportation/sales/services, skid steer loaders, and miscellaneous diesel equipment plus all equipment less than 25 hp) for each calendar year. Emission factors were estimated for each equipment type and fuel type by dividing TexN2.2 output emissions by TexN2.2 estimated energy consumption in horsepower-hours.

inventories, and reasonable further progress analyses. Emissions were calculated using the activity estimates for each project component combined with the most recent emission factors from the EPA MOVES3 and in accordance with EPA AP-42 guidance. Refer to **Appendix H** for the air quality technical report (AQTR).

Table 5-5 shows the estimated construction emissions by emissions sources. Proposed Action construction activities are anticipated from January 2024 to December 2028. The estimated maximum annual emissions associated with the construction of the Proposed Action would be below the severe non-attainment ozone *de minimis* levels of 25 tpy for NO_X or VOC.

Table 5-5. Proposed Action Alternative Construction Emissions (short tpy)

Emissions Source by Year	NO_X	CO	VOC	SO_2	Total PM_{10}	Total $PM_{2.5}$
Onroad	12.13	109.28	2.99	0.10	2.89	0.59
Nonroad	11.47	10.20	1.07	0.01	0.76	0.63
Fugitives	-	-	0.02	-	6.47	0.97
2024 Total	**23.61**	**119.48**	**4.09**	**0.11**	**10.11**	**2.19**
Onroad	14.63	271.52	6.85	0.23	5.97	1.06
Nonroad	21.17	17.48	1.93	0.02	1.39	1.19
Fugitives	-	-	-	-	12.34	1.87
2025 Total	**35.80**	**289.00**	**8.77**	**0.25**	**19.71**	**4.11**
Onroad	10.57	100.83	2.40	0.09	2.91	0.55
Nonroad	11.25	8.70	0.95	0.01	0.70	0.59
Fugitives	-	-	-	-	2.94	0.44
2026 Total	**21.82**	**109.53**	**3.35**	**0.11**	**6.55**	**1.58**
Onroad	1.79	19.02	0.45	0.02	0.55	0.10
Nonroad	3.35	2.76	0.28	0.00	0.20	0.16
Fugitives	-	-	-	-	1.67	0.25
2027 Total	**5.14**	**21.79**	**0.73**	**0.02**	**2.43**	**0.51**
Onroad	0.63	10.97	0.25	0.01	0.29	0.05
Nonroad	1.50	1.27	0.12	0.00	0.08	0.06
Fugitives	-	-	-	-	0.20	0.03
2028 Total	**2.14**	**12.24**	**0.37**	**0.01**	**0.57**	**0.14**

Source: Table 4-1 in Appendix H – AQTR (Ramboll and HMMH 2023)

In addition to the construction emissions shown in **Table 5-5,** the proposed project would be supported by two concrete batch plants and one asphalt batch plant. The batch plants are stationary sources of air emissions and would be permitted through the TCEQ New Source Review (NSR) permit program and would not need to be evaluated under the General Conformity requirements (40 CFR 93.153 (d)(1)). The NSR permit process would be completed and approved for each batch plant prior to the start of on-site batch plant operations, in accordance with applicable regulations.

5.2.4.2 Operational Emissions

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 Terminal F gates would come online in 2026 and the new Terminal A and C gates would come online in 2026 but initially used to offset operations from Terminal C rehabilitation. New operations for the piers would occur in 2028. The Proposed Action is expected to result in changes in operational emissions from the additional aircraft operations which include taxi-in, taxi-out, and in-flight operations below mixing height[29]. Average taxi-times are shown in minutes with an overall taxi-in time of 11.2 minutes, and taxi-out time of 17.8 minutes per operation. 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 Proposed Action Alternative is expected to be the same as the existing conditions and No Action Alternative.

[29] The mixing height is the top of the vertical region of the atmosphere in which pollutant mixing occurs and affects ground level concentrations. Above this height, pollutants that are released generally do not mix with ground level emissions and do not have an effect on ground level concentrations in the local area (FAA AEDT Guidance 2022). For criteria air pollutants, the mixing height of 3,000 above field elevation (AFE) ft is used for both the "Climb Below Mixing Height " and the "Descend Below Mixing Height".

Table 5-6 provides the aircraft operational emissions by category by year. Refer to **Appendix H** for the detailed air quality analysis.

Table 5-6. Total Aircraft and Vehicle Operational Emissions with Proposed Action Alternative (short tpy)

Emissions Source	NO_X	CO	VOC	SO_2	Total PM_{10}	Total $PM_{2.5}$
Aircraft	4,946	3,856	477	439	44	44
GSE	73	634	29	0.55	4.9	4.6
APU	151	125	11	20	20	20
Traffic	183	1,933	42	1.7	33	7.8
2026 Total	**5,352**	**6,548**	**558**	**462**	**101**	**76**
Aircraft	5,044	3,921	483	448	45	45
GSE	73	641	29	0.56	4.9	4.6
APU	154	127	11	21	20	20
Traffic	171	1,878	41	1.7	33	7.6
2027 Total	**5,442**	**6,568**	**564**	**471**	**103**	**77**
Aircraft	5,142	3,986	490	456	46	46
GSE	73	649	29	0.57	5.0	4.7
APU	157	129	11	21	20	20
Traffic	160	1,824	39	1.7	34	7.4
2028 Total	**5,532**	**6,589**	**569**	**480**	**105**	**78**
Aircraft	5,436	4,183	509	482	48	48
GSE	72	671	30	0.60	5.1	4.8
APU	167	135	12	22	22	22
Traffic	125	1,662	34	1.7	35	6.7
2031 Total	**5,801**	**6,651**	**586**	**506**	**110**	**81**
Aircraft	5,984	4,529	550	527	55	55
GSE	77	738	33	0.66	5.4	5.1
APU	185	140	12	24	23	23
Traffic	111	1,485	32	1.8	38	6.5
2036 Total	**6,357**	**6,892**	**628**	**553**	**121**	**89**

Source: Tables 4-8, 4-12, 4-16, and 4-22 in Appendix H AQTR (Ramboll and HMMH, 2023)
Notes:
1/ 2026 = Future NAA corresponding to Build out years with 810,645 total operations
2/ 2031 = Future NAA corresponding to Build Out year plus 5 years with 820,548 total operations
3/ 2036 = Future NAA corresponding to Build Out year plus 10 years with 830,874 total operations
4/ 2027 and 2028 operational phase emission estimates are linear interpolations of 2026 and 2031 emissions for use in comparison to General Conformity de minimis thresholds.
5/ Aircraft operational emissions include taxi-in, taxi-out, and in-flight operations below mixing height. *2027 and 2028 operational phase emission estimates are linear interpolations of 2026 and 2031 emissions for use in comparison to General Conformity de minimis thresholds.

Table 5-7 provides a comparison of the future No Action and future Proposed Action Alternatives vehicle and aircraft operational emissions modeled in an effort to quantify the incremental operational emissions increases estimated to occur. Aircraft, GSE, APUs, and vehicle traffic emissions are all expected to increase under the Proposed Action Alternative when compared to the No Action Alternative. **Table 5-8** provides the total emissions associated with the construction and operations of the Proposed Action Alternative.

Table 5-7. Change in Operational Emissions in tpy [Proposed Action minus No Action]

Operational Category	NO_x	CO	VOC	SO_x	$PM_{2.5}$	PM_{10}
Proposed Action	5,353	6,548	558	462	101	76
No Action	5,302	6,508	554	458	101	76
2026 Change	**51**	**40**	**4**	**4**	**1**	**1**
Proposed Action	5,442	6,568	564	471	103	77
No Action	5,311	6,436	553	459	101	75
2027 Change	**131**	**132**	**11**	**11**	**2.1**	**1.7**
Proposed Action	5,532	6,589	569	480	105	78
No Action	5,322	6,364	551	461	101	75
2028 Change	**210**	**225**	**18**	**18**	**3.7**	**2.8**
Proposed Action	5,800	6,651	586	506	110	82
No Action	5,354	6,148	546	467	101	75
2031 Change	**447**	**503**	**39**	**40**	**9**	**6**
Proposed Action	6,357	6,892	628	553	121	90
No Action	5,414	5,940	547	472	102	75
2036 Change	**943**	**952**	**81**	**82**	**19**	**14**

Source: Tables 4-21 and 4-22 in Appendix H AQTR (Ramboll and HMMH, 2023)

Notes:
1/ Proposed Action Alternative actually represents total airport operations including the Proposed Project that is the subject-of, and discussed/analyzed in this EA.
2/ Numbers in **Table 5-7** above were rounded to nearest whole number.

Table 5-8. Total Project Related Emissions in tpy [Construction, Vehicle, and Aircraft]

Operational Category	NO_x	CO	VOC	SO_x	$PM_{2.5}$	PM_{10}
Construction Emissions	**23.61**	**119.48**	**4.09**	**0.11**	**2.19**	**10.11**
2024 Total[1]	24	119	4	0.1	2	10
Construction Emissions	**35.80**	**289.00**	**8.77**	**0.25**	**4.11**	**19.71**
2025 Total[1]	36	289	9	0.3	4	20
Construction Emissions	21.82	109.53	3.35	0.11	1.58	6.55
Net Operational Emissions	51	40	3.9	4.1	0.57	0.59
2026 Total	**72.82**	**149.53**	**7.35**	**4.11**	**2.15**	**7.14**
Construction Emissions	5.14	21.79	0.73	0.02	0.51	2.43
Net Operational Emissions	130	132	11	11	1.7	2.1
2027 Total	**136.14**	**153.79**	**11.73**	**11.02**	**2.21**	**4.53**
Construction Emissions	2.14	12.24	0.37	0.01	0.14	0.57
Net Operational Emissions	210	225	18	18	2.8	3.7
2028 Total	**212.14**	**237.24**	**18.37**	**18.01**	**4.27**	**2.94**
Net Operational Emissions	447	503	39	40	6.3	8.4
2031 Total[2]	**447**	**503**	**39**	**40**	**6**	**8**
Net Operational Emissions	943	952	81	82	14.2	18.4
2036 Total[2]	**943**	**952**	**81**	**82**	**14**	**18**

Source: AQTR (Appendix H), data prepared by HMMH, Sept. 2023

Notes:
1/ In years 2024 and 2025 there are no project related operational emissions
2/ In years 2031 and 2036 there are no project related construction emissions

Tables 5-9 and **5-10** provide a comparison of the project related ozone precursor emissions and the *de minimis* thresholds. As indicated in the tables, NO_X emissions exceed the de minimis thresholds in 2025, 2026, 2027, 2028, 2031, and 2036, at the initial start of construction. VOC emissions exceed the de minimis thresholds only during the future operational years at +5 year (2031) and +10 years (2036).

Table 5-9. Comparison of Project Related NO_X Emissions (short tpy) to *de Minimis* Threshold

Project Year	NOx Project Emissions (short tpy)	General Conformity [NOx] *De Minimis* Threshold (short tpy)	Project Emissions less than General Conformity *De Minimis* Threshold?
2024	24	25	Yes
2025	36	25	No
2026	73	25	No
2027	136	25	No
2028	212	25	No
2031	447	25	No
2036	943	25	No

Source: Tables 4-23 and 4-24 AQTR (Appendix H), data prepared by HMMH, Sept. 2023

Table 5-10. Comparison of Project Related VOC Emissions (short tpy) to *de Minimis* Threshold

Project Year	VOC Project Emissions (short tpy)	General Conformity [VOC] *De Minimis* Threshold (short tpy)	Project Emissions less than General Conformity De Minimis Threshold?
2024	4	25	Yes
2025	9	25	Yes
2026	7	25	Yes
2027	12	25	Yes
2028	19	25	Yes
2031	40	25	No
2036	81	25	No

Source: Tables 4.23 and 4-24 AQTR (Appendix H), data prepared by HMMH, Sept. 2023

5.2.5 Conformity Conclusion

To identify potential operational air emissions from the Proposed Action, an emissions inventory was prepared using FAA's AEDT 3e. The project-related emissions were compared to the emissions for the No Action Alternative and to the *de minimis* levels for an ozone non-attainment area; per the CAA general conformity rule, the *de minimis* for an ozone severe non-attainment area is 25 tpy each for NO_X and VOC, the precursors to ozone formation.

The Proposed Action is a federal action requiring FAA review and approval; the federal approval (issuance of a FONSI or Record of Decision [ROD]) must be preceded by a CAA General Conformity evaluation. The General Conformity rule begins by agency determining if the Proposed Action is on the list of actions presumed to conform (the associated air emissions are low and do not cause or contribute to any new violation of the NAAQS or interfere with provisions contained in applicable SIPs). The Proposed Action is not on the list of actions presumed to conform[30], so an applicability analysis is conducted to determine if emissions are below *de minimis* for the non-attainment/maintenance designation for the region. If above *de minimis*, a General Conformity Determination is required. If emissions are less than *de minimis*, no further analysis is needed.

As shown in **Tables 5-9** and **5-10**, the combined project-related construction and operational ozone precursor emissions exceed the applicable *de minimis* threshold under the current severe designation for the Dallas-Fort Worth Ozone Nonattainment Area in 2025 through 2028, 2031, and 2036 for NO_X and for VOCs in 2031 and 2036.

The results from the emission inventory indicate that the construction emissions from the Proposed Project will trigger an exceedance of *de minimis* thresholds for NO_X and the operational emissions from the Proposed Project will trigger an exceedance of *de minimis* thresholds for both NO_X and VOCs. Thus, under federal General Conformity requirements, DFW must submit a General Conformity Determination for the Proposed Project. The General Conformity Determination must demonstrate that emissions from the

[30] The FAA *Presumed to Conform* list identifies certain federal actions on or relating to airports that do not require detailed General Conformity analyses under the Clean Air Act. General Conformity analyses are typically required for FAA actions that require NEPA review and affect cities or regions that are not in compliance (nonattainment) with federal air quality standards.

Proposed Project would not exceed the emissions budgets in the SIP for each year an actions emissions exceed applicable *de minimis* thresholds for a pollutant as described below:

1) The total direct and indirect project-related emissions from the action are specifically identified and accounted for in the federally approved SIP; or

2) All direct and indirect project-related emissions are fully offset such that there is no net increase of emissions of the pollutant or its precursors; or

3) The Proposed Project will not cause or contribute to a NAAQS violation in the area based on area-wide or local air quality modeling, and it will not increase the frequency or severity of any existing violation; or

4) State/local agency agrees to revise the SIP to accommodate the action's emissions.

5) A General Conformity Determination was prepared because annual emissions from the Proposed Project exceed General Conformity de minimis thresholds (for severe ozone nonattainment areas) for NO_X (in 2025, 2026, 2027, 2028, 2031, and 2036) and VOCs (in 2031 and 2036). The approach used to meet General Conformity requirements must be approved by FAA in collaboration with DFW and TCEQ. The Draft General Conformity Determination is included in **Appendix I**.

TCEQ reviewed the construction and operational emissions submitted in the Draft General Conformity Determination for the Proposed Action. In a letter dated 06 December 2023, TCEQ concurred with the FAA that the emissions from the Proposed Action would utilize the available excess emissions reductions within the approved Serious RFP SIP. TCEQ added that the Proposed Action emissions along with all other emissions in the area do not exceed the budget for those emissions in the SIP, as such, the NOx and VOC emissions that would result from the Proposed Action are included in the SIP.

5.2.6 Mitigation and Best Management Practices

The Proposed Action would include construction activities that would result in temporary air quality effects due to tailpipe emissions and fugitive dust. Standard applicable engineering controls and best management practices (BMP) would be implemented to reduce air quality effects. All construction activities would be conducted consistent with all pertinent federal, state, and local laws, regulations, and standards as appropriate and/or adopted by DFW. Therefore, specific measures to mitigate and reduce the NO_X and VOC emissions (as precursors to ozone formation) would not be necessary. However, the Proposed Action will implement BMPs in an effort to reduce construction and operational project related emissions.

DFW is committed to implementing BMPs to reduce public health and environmental effects during construction and operation of the Proposed Action to the extent practicable. These BMPs are described in DFW's existing construction application review procedures, the Sustainability Management Plan, Green Building Standards, and the project specific Dust Control Plans implemented by contractors. DFW procedures and plans include overall design and construction standards for airport projects and aligns with DFW's ongoing efforts to implement more environmentally sustainable buildings and infrastructure.

All construction activities would be conducted consistent with all pertinent federal, state, and local laws, regulations, and standards as appropriate and/or adopted by DFW. The Proposed Action would be constructed in accordance with the provisions of the current version of FAA AC 150/5370-10, Standard Specifications for Construction of Airports. BMPs and measures that could be implemented to reduce pollutant emissions and minimize any temporary adverse effects on air quality include:

- Implementation of Dust Control Plan to reduce construction dust; control measures may include spraying water on dirt piles and streets/roads and reducing dust-generating activities in periods of high winds,
- Use of onsite dumpsters for scrap metal from construction, repair, and demolition activities,
- Use of the East Materials Management Site (East MMS) for onsite recycling or construction and demolition debris,
- Use of highly efficient off-road internal-combustion engine construction equipment that is EPA Tier-4 certified,

- Use of ultra-low sulfur diesel fuel in diesel-powered construction equipment, where practicable,
- Use of heavy-duty off-road diesel equipment with an engine model year of 2010 or later,
- Use of heavy-duty alternative fuel vehicles with an engine model year of 2010 or later,
- Limiting unnecessary idling times on diesel-powered engines, and
- Use of Low- and Zero-Emission on-road vehicles as well as use electrically powered equipment rather than diesel power equipment, where available.

5.3 Climate

Climate change is a global phenomenon that can have local impacts. As discussed in **Section 4.3**, scientific measurements show that Earth's climate is warming, with concurrent impacts including warmer air temperatures, increased sea level rise, increased storm activity, and an increased intensity in precipitation events. Research has shown there is a direct correlation between fuel combustion and GHG emissions.

Although there are no regulatory standards for CO_2 or other GHGs, the USEPA and the FAA traditionally work within the standard setting process of the International Civil Aviation Organization's (ICAO's) Committee on Aviation Environmental Protection (CAEP). The ICAO/CAEP leads the effort to establish international emission standards and related requirements that individual nations later adopt into domestic law. In 2009, based primarily on the scientific assessments of the United States Global Change Research Program, the National Research Council, the IPCC, and the EPA issued a finding that it is reasonable to assume that changes in climate caused by elevated concentrations of GHG in the atmosphere endanger the health and welfare of current and future generations. By 2016, the EPA acknowledged that scientific assessments "highlight the urgency of addressing the rising concentration of CO_2 in the atmosphere." In 2016, the ICAO/CAEP agreed on the first-ever international standards to regulate CO_2 emissions from aircraft. That same year, the EPA formally announced that GHG emissions from certain classes of aircraft engines contribute to climate change. In 2017, the ICAO adopted a new aircraft CO_2 emission standard intended to reduce the impact of aviation GHG emissions on the global climate. The EPA adopted the same GHG emissions standard on 11 January 2021, the first aircraft GHG-related standard in United States history. The standard applies to civil subsonic jet aircraft and larger civil subsonic propeller-driven aircraft designed after January 2020 or in production by 2028.

In January 2023, CEQ issued the *NEPA Guidance on Consideration of Greenhouse Gas Emissions and Climate Change.* In this Guidance, the CEQ states that "NEPA reviews should quantify proposed actions' GHG emissions, place GHG emissions in appropriate context and disclose relevant GHG emissions and relevant climate impacts and identify alternatives and mitigation measures to avoid or reduce GHG emissions" (CEQ 2023). As such, when conducting climate change analyses in NEPA reviews, agencies should consider: (1) the potential effects of a proposed action on climate change, including by assessing both GHG emissions and reductions from the proposed action; and (2) the effects of climate change on a proposed action and its environmental impacts (CEQ 2023). Analyzing reasonably foreseeable climate effects in NEPA reviews helps ensure that decisions are based on the best available science and account for the urgency of the climate crisis. Climate change analysis also enables agencies to evaluate reasonable alternatives and mitigation measures that could avoid or reduce potential climate change-related effects and help address mounting climate resilience and adaptation challenges (CEQ 2023).

5.3.1 Significance Thresholds

According to the FAA 1050.1F Desk Reference (June 2023), the FAA has not determined a specific set of thresholds associated with aviation or commercial space launch GHG emissions and has not determined specific factors to consider in making the significance determination for GHG emissions.

5.3.2 Methods

For this analysis, GHG emissions were quantified to enable the FAA to make an informed decision whether the Proposed Action would have the potential to cause significant climate change effects. GHG emissions inventories were modeled using MOVES3, and TxN2.2 for the construction emissions and AEDT version 3e for the operational emissions; in accordance with FAA guidance, aircraft GHG emissions were modeled for up to 6,000 ft above ground level (AGL) for arriving aircraft and 10,000 ft AGL for departing aircraft. The inventories were conducted to provide the estimate of the annual rate of GHG emissions attributable to airport sources (direct and indirect) for the No Action Alternative and the Proposed Action. The GHG

emissions inventories were prepared using the same data and assumptions as developed for the air quality criteria pollutant emissions inventories. A comparison was made of the GHG inventories between the No Action Alternative and the Proposed Action to determine if there was an increase or reduction in GHG emissions attributed to the Proposed Action. **Appendix L** presents the methodology and inputs used to prepare the GHG emissions inventories. GHGs differ from each other in their ability to absorb energy and how long they stay in the atmosphere. The Global Warming Potential (GWP) was developed to allow comparisons of the global warming impacts of different gases by converting each gas amount to a carbon dioxide equivalent (CO_2e). GWPs provide a common unit of measure, which allows for one emission estimate of these different gases.

GWPs provided in the FAA's Aviation Emissions and Air Quality Handbook Version 3, Update 1 and based on the IPCC, Sixth Assessment Report (AR6) are used in this evaluation. CO_2 has a GWP of one (1) because it is the gas used as the reference point. Methane does not last as long in the atmosphere as CO_2; however, it absorbs much more energy. One ton of methane has 82.5 times more heat capturing potential than 1 ton of CO_2. Therefore, the amount of CH_4 emissions would be multiplied by 82.5 to determine its CO_2e value. Nitrous oxides last in the atmosphere far longer than CO_2. The amount of NO_X emissions would be multiplied by 273 to determine its CO_2e value. The GHG emissions inventories are presented in terms of metric tons per year of CO_2e.

GHG emissions inventories were modeled for the following scenarios and years:

- No Action Alternative (2024, 2025, 2026, 2031, and 2036), and
- Proposed Action Alternative (2024, 2025, 2026, 2031, and 2036)

5.3.3 No Action Alternative

Under the No Action Alternative, there would be no project-related construction emissions, and thus, no Project-related GHG emissions. DFW would continue using its existing 170 gates and overall operational levels would be constrained, only growing at approximately 0.25 percent per year. Due to lack of sufficient gates and terminal facilities, passenger operations would be constrained and DFW would not be able to accommodate the forecasted growth of between 2 percent and 4 percent as detailed in the 2021 FAA TAF. Under the No Action Alternative, DFW will not experience material growth in operations and there would not be any additional construction activities. Therefore, there would be no additional climate-related effects not already occurring or expected to occur. It should be noted that when DFW does not have sufficient gates to meet forecast demand, the Airport would function at or near gate capacity during most hours of the day. When airports operate at or near gate capacity, those conditions are likely to result in additional taxi/idling/delay time as aircraft await opening of a gate. Since detailed simulation data was not available to account for an exact taxi/idle/delay time, no attempt was made to capture that additional time in the emissions evaluation. Therefore, the No Action alternative aircraft emissions are conservatively low since they do not include the additional taxi/idle/delay time.

Table 5-11 shows the GHG emissions inventory for the No Action Alternative in the five calendar years being evaluated in this EA: 2026, 2027, 2028, 2031, and 2036. The estimated emissions shown in **Table 5-11** were modeled using AEDT and represent flight emissions up to 10,000 feet AGL as well as emissions from APU and GSE. According to FAA Air Quality Guidance, CH_4 emissions from aircraft gas turbine engines burning Jet A fuel are reported as 0; this is because years of scientific research and measurements conducted at the exhaust exit plane of commercial aircraft gas turbine engines have repeatedly indicated that CH_4 emissions are consumed over the full emission flight envelope. As a result, the USEPA published that: "…*methane is no longer considered to be an emission from aircraft gas turbine engines burning Jet A at higher power settings and is, in fact, consumed in net at these higher powers*." In accordance with the statements in the 2006 IPCC Guidelines (IPCC 2006), the FAA does not calculate CH_4 emissions for either the domestic or international commercial aircraft jet fuel emissions inventories. Methane (CH_4) may be emitted by gas turbines during idle and by older technology engines, but recent data suggest that little or no CH_4 is emitted by modern engines.

Table 5-11. No Action Alternative GHG Emissions Inventory (metric tpy)

Emissions Source	CO_2	CH_4	N_2O	CO_2e
Aircraft	1,503,518	-	47.6	1,516,509
APU and GSE	64,947	2.1	2	65,676
Traffic	277,226	42	2.2	281,319
2026 Total	**1,845,691**	**44**	**52**	**1,863,504**
Aircraft	1,509,469	-	47.8	1,522,511
APU and GSE	65105	2.1	2	65,835
Traffic	274,678	43	2.1	278,782
2027 Total	**1,849,252**	**45**	**52**	**1,867,128**
Aircraft	1,515,420	-	48	1,528,514
APU and GSE	65,262	2.1	2	65,995
Traffic	272,130	43	2	276,246
2028 Total	**1,852,812**	**45**	**52**	**1,870,755**
Aircraft	1,533,273	-	48.5	1,546,521
APU and GSE	65,736	2.1	2.1	66,473
Traffic	264,487	44	1.9	268,636
2031 Total	**1,863,496**	**46**	**53**	**1,881,630**
Aircraft	1,550,706	-	49.1	1,564,105
APU and GSE	66,694	2.1	2.1	67,443
Traffic	258,626	45	1.9	262,877
2036 Total	**1,876,026**	**47**	**53**	**1,894,425**

Source: Appendix L- Climate Analysis Report (Ramboll & HMMH, Sept. 2023)

Notes:
1/ 2027 and 2028 Operation emission estimates are linear interpolations of 2026 and 2031 emissions.
2/ Aircraft emissions reflect operations under 10,000 feet on departure and arrivals from 6.000 feet as generated by AEDT. (Data from Ramboll and HMMH 2023).
3/ Carbon dioxide equivalents (CO_2e) were calculated using the global warming potential of each GHG from the Sixth Assessment Report (AR6) of the IPCC (2021), namely CO_2=1, CH_4= 82.5, N_2O = 273.
4/ APU = Auxiliary Power Unit; GSE = Ground Support Equipment.

5.3.4 Proposed Action Alternative

The Proposed Action Alternative includes GHG emissions from construction operations including construction equipment, motor vehicles, and aircraft operations. These sources contribute to GHGs such as CO_2, CH_4, and N_2O, primarily due to fuel combustion. While emissions of hydrofluorocarbons (HFCs), PFC1s, and sulfur hexafluoride (SF_6) linked with refrigeration, air conditioning, and other coolants also occur at airports, these are at far lesser amounts (FAA, 2015) and are expected to be relatively negligible.

The Proposed Action Alternative construction emissions were analyzed for anticipated construction years 2024, 2025, 2026, 2027, and 2028; operational emissions were analyzed for 2026, 2027, 2028, 2031, and 2036 (**Appendix L**). The Proposed Action Alternative would result in GHG emissions from the demolition and construction activities as well as GHG emissions from increased vehicle traffic and aircraft operations. Specifically, the Proposed Action would generate GHG emissions from heavy-duty construction equipment activity, truck haul trips, and construction worker and vendor truck trips to and from the project areas. Construction emissions include both on-road mobile and off-road source categories. Mobile source exhaust emissions would be generated from on-road vehicles and construction equipment, including but not limited to dump trucks, mixers, passenger vehicles, flatbed trucks, and tractor trailers. GHG emissions of CO_2, CH_4, and N_2O were evaluated. A GHG emissions analysis was completed using the EPA's MOVES3, to determine the Proposed Action's potential GHG emissions-related impacts. The methodology used to prepare the DFW GHG emissions inventories is consistent with that described in **Section 5.3. Table 5-12** shows the annual GHG emissions summary in metric tons per year (**Appendix L).**

Table 5-12. Proposed Action Alternative Estimated Annual GHG Emissions (Construction and Operations) (metric tpy)

Project Year	Emissions Source	CO_2	CH_4	N_2O	CO_2e
2024	Vehicle traffic	16,849.00	0.43	0.12	16,918.00
2024	Non-road	3,330.00	0.34	0.16	3,403.00
2024	**Total**	**20,179.00**	**0.77**	**0.28**	**20,321.00**
2025	Vehicle traffic	36,092.00	0.96	0.29	36,249.00
2025	Non-road	5,764.00	0.68	0.28	5,896.00
2025	**Total**	**41,856.00**	**1.64**	**0.57**	**42,145.00**
2026	Construction	19,652.00	0.77	0.27	19,787.00
2026	Aircraft	1,516,985.00	-	48.01	1,530,092.00
2026	APU and GSE	65,876.00	2.12	2.07	66,616.00
2026	Vehicle Traffic	277,427.00	43.00	2.20	281,523.00
2026	**Total**	**1,879,940.00**	**45.89**	**52.55**	**1,898,018.00**
2027	Construction	4,055.00	0.21	0.07	4,091.00
2027	Aircraft	1,546,305.00	-	48.94	1,559,665.00
2027	APU and GSE	67,111.00	2.16	2.11	67,864.00
2027	Vehicle Traffic	279,102.00	44.00	2.10	283,276.00
2027	**Total**	**1,896,573.00**	**46.37**	**53.22**	**1,914,896.00**
2028	Construction	2,038.00	0.13	0.03	2,057.00
2028	Aircraft	1,575,624.00	-	49.87	1,589,238.00
2028	APU and GSE	68,345.00	2.20	2.14	69,113.00
2028	Vehicle Traffic	280,777.00	45.00	2.10	285,028.00
2028	**Total**	**1,926,784.00**	**47.33**	**54.14**	**1,945,436.00**
2031	Construction	0.00	0.00	0.00	0.00
2031	Aircraft	1,663,583.00	-	52.65	1,677,957.00
2031	APU and GSE	72,049.00	2.31	2.26	72,858.00
2031	Vehicle Traffic	285,801.00	48.00	2.00	290,284.00
2031	**Total**	**2,021,433.00**	**50.31**	**56.91**	**2,041,099.00**
2036	Construction	0.00	0.00	0.00	0.00
2036	Aircraft	1,817,104.00	-	57.51	1,832,804.00
2036	APU and GSE	78,464.00	2.52	2.46	79,345.00
2036	Vehicle Traffic	299,134.00	52.00	2.20	304,052.00
2036	**Total**	**2,194,702.00**	**54.52**	**62.17**	**2,216,201.00**

Source: Appendix L-Climate Analysis Report (Ramboll & HMMH, 2023)

Notes:
1/ 2027 and 2028 Operation emission estimates are linear interpolations of 2026 and 2031 emissions
2/ Aircraft emissions reflect operations under 10,000 feet on departure and arrivals from 6.000 feet as generated by AEDT. Data from Ramboll (2023) and HMMH.
3/ According to FAA Air Quality Guidance CH4 emissions from aircraft gas turbine engines burning Jet A are reported as zero; this is because years of scientific research and measurements conducted at the exhaust exit plane of commercial aircraft gas turbine engines have repeatedly indicated that CH4 emissions are consumed over the full emission flight envelope.
4/ APU = Auxiliary Power Unit; GSE = Ground Support Equipment.
5/ CH_4 emissions were multiplied by 82.5 to convert them to CO_2e
6/ N_2O emissions were multiplied by 273 to convert them to CO_2e

5.3.5 Comparison of Proposed Action and No Action Alternatives GHG Emissions

Table 5-13 shows a comparison of the No Action Alternative GHG emissions and the Proposed Action GHG emissions that would be generated during the construction and operation of the CTA Expansion Project. The Proposed Action would result in an increase in GHG emissions when compared to the No Action Alternative in 2024, 2025, 2026, 2027, 2028, 2031, and 2036. As shown in **Table 5-13**, when compared to the No Action Alternative, the CO_2e emissions that would be added by the Proposed Action would result in an incremental change of between 2 percent and 17 percent. FAA and CEQ have not established a set of GHG emissions thresholds for aviation or commercial space launch projects. Currently, there are no accepted methods for determining significance applicable to aviation projects; as such, specific factors to consider in making the significance determination for GHG emissions have not been determined yet. DFW has voluntarily implemented aggressive best practices and measures to reduce GHG emissions and improve efficiency, as well as committed to achieving Net Zero carbon by 2030.

5.3.6 Estimated Social Cost of GHG Emissions Proposed Action

The CEQ published *Interim Guidance on Consideration of Greenhouse Gas Emissions and Climate Change* to assist agencies in analyzing GHG and climate change effects of their proposed actions. In compliance with the CEQ Interim Guidance (2023), the social cost of greenhouse gas emissions from the Proposed Action were calculated. The “social cost of carbon dioxide," “social cost of nitrous oxide," and “social cost of methane” collectively known as the “social cost of greenhouse gases” are estimates of the monetized damages associated with incremental increases in GHG emissions in a given year. These financial cost estimates provide additional context on project related GHG emissions and allow decision makers and the public to make the comparisons necessary to evaluate the significance of a Project’s climate change effects. The social cost of greenhouse gasses (presented as the total SC-CO_2e) is an estimate of the economic costs, or damages, of emitting one additional ton of carbon dioxide into the atmosphere, and thus the benefits of reducing emissions (Brookings Institute, 2021).The calculated costs translate climate impacts into the more accessible metric of dollars and also help stakeholders understand the tradeoffs associated with an action when compared to the no build alternative.

The social cost of GHG (SC-GHG) estimates provide an aggregated monetary measure (in U.S. dollars) of global climate damages (e.g., temperature increase, sea-level rise, infrastructure damage, human health effects) associated with specified quantities of GHG resulting from the Proposed Action. To provide a contextualized monetary measure of the three main greenhouse gases, the social cost of GHG (SC-GHG) was calculated for the CO_2 equivalents of CO_2, CH_4, and N_2O emissions for the No Action and Proposed Action Alternatives.

To calculate the social cost of GHGs, the best available data and estimates were developed by the Interagency Working Group (IWG) on the SC-GHG and published in the Technical Support Document (IWG 2021). The IWG’s SC-GHG estimates are based on complex models describing how GHG emissions affect different parameters including global temperatures, sea level rise, other biophysical processes, as well as how these changes affect society, health, and agricultural productivity. The models also include discount rates, which are used to estimate “*the present value of the stream of future damages associated with emissions in a particular year”*. Similar to other complex models, there are multiple sources of potential uncertainty inherent in the SC-GHG estimates. Some sources of uncertainty relate to physical effects of GHG emissions, human behavior, future population growth and economic changes, and potential adaptation (IWG 2021). To further address uncertainty, the IWG recommends reporting all four SC-GHG estimates in any analysis. The SC-GHG for the Proposed Action were calculated using the IWG average discount rates: 5 percent, 3 percent, 2.5 percent, as well as the 95th percentile estimate with the 3 percent discount rate[31]. The term “discount rate” refers to the reduction or discount in value per year as a future cost or benefit is adjusted to be comparable with a current cost or benefit from a proposed project. A higher discount rate assumes that the estimated future costs [or benefits] are more heavily discounted than costs

[31] The 95th percentile of the 3% discount rate represents higher-than-expected economic impacts from climate change. Specifically, it represents the 95th percentile of damages estimated, applying a 3% annual discount rate for future economic effects. This is a low probability, but high damage scenario, represents an upper bound of damages within the 3% discount rate model.

Table 5-13. Comparison of Proposed Action and No Action Alternatives GHG Emissions (metric tpy)

Year and Activity/ Emission Source	CO_2	N_2O	CH_4	CO_2e
2024 With Construction of Proposed Action	20,179.00	0.77	0.28	20,321.00
2025 With Construction & Operation of Proposed Action	41,856.00	1.64	0.57	42,145.00
2026 With Construction & Operation of Proposed Action	1,879,940.00	45.89	52.55	1,898,018.00
2026 No Action	**1,845,691.00**	**44.00**	**52.00**	**1,863,504.00**
2026 Net Change/ Difference	**34,249.00**	**1.89**	**0.55**	**34,514.00**
2026 Percent Change compared to No Action	**2%**	**4%**	**1%**	**2%**
2027 With Construction & Operation of Proposed Action	1,896,573.00	46.37	53.22	1,914,896.00
2027 No Action	**1,849,252.00**	**45.00**	**52.00**	**1,867,128.00**
2027 Net Change/ Difference	**47,321.00**	**1.37**	**1.22**	**47,768.00**
2027 Percent Change compared to No Action	**3%**	**3%**	**2%**	**3%**
2028 With Construction & Operation of Proposed Action	1,926,784.00	47.33	54.14	1,945,436.00
2028 No Action	**1,852,812.00**	**45.00**	**52.00**	**1,870,755.00**
2028Net Change/ Difference	**73,972.00**	**2.33**	**2.14**	**74,681.00**
2028 Percent Change compared to No Action	**4%**	**5%**	**4%**	**4%**
2031 With Proposed Action Operations	2,021,433.00	50.31	56.91	2,041,099.00
2031 No Action	**1,863,496.00**	**46.00**	**53.00**	**1,881,630.00**
2031 Net Change/ Difference	**157,937.00**	**4.31**	**3.91**	**159,469.00**
2031 Percent Change compared to No Action	**8%**	**9%**	**7%**	**8%**
2036 With Proposed Action Operations	2,194,702.00	54.52	62.17	2,216,201.00
2036 No Action	**1,876,026.00**	**47.00**	**53.00**	**1,894,425.00**
2036 Net Change/ Difference	**318,676.00**	**7.52**	**9.17**	**321,776.00**
2036 Percent Change compared to No Action	**17%**	**16%**	**17%**	**17%**

Source: Appendix L-Climate Technical Report (Ramboll & HMMH, 2023)

Notes:
1/ 2027 and 2028 Operation emission estimates are linear interpolations of 2026 and 2031 emissions
2/ Aircraft emissions reflect operations under 10,000 feet on departure and arrivals from 6.000 feet as generated by AEDT. Data from Ramboll (2023) and HMMH.
3/ According to FAA Air Quality Guidance CH4 emissions from aircraft gas turbine engines burning Jet A are reported as zero; this is because years of scientific research and measurements conducted at the exhaust exit plane of commercial aircraft gas turbine engines have repeatedly indicated that CH4 emissions are consumed over the full emission flight envelope.
4/ Aircraft emissions reflect operations under 10,000 feet on departure and arrivals from 6.000 feet as generated by AEDT. Data from Ramboll (2023) and HMMH. Carbon dioxide equivalents (CO2e) were calculated using the 20-year global warming potential of each GHG from the Sixth Assessment Report (AR6) of the IPCC (2021), namely CO2=1, CH4= 82.5, N2O = 273.

occurring in the present. **Table 5-14** shows the Social Cost of Carbon Dioxide Equivalents (SC-CO_2e) associated with the construction and operation of the Proposed Action. **Appendix L** provides a detailed analysis of the estimated SC-GHG calculated using the I*WG 2021 Technical Support Document (TSD): Social Cost of Carbon, Methane, and Nitrous Oxide* developed under EO 13990.

Table 5-14. Proposed Action Alternative Estimated Social Cost of Carbon Dioxide Equivalents (SC-CO2e) at Various Discount Rates in U.S. Dollars

Year	Average, 5%	Average, 3%	Average 2.5%	95th Percentile, 3%
2024	$318,000	$1,091,000	$1,617,000	$3,263,000
2025	$647,000	$2,240,000	$3,324,000	$6,710,000
2026	$521,000	$1,819,000	$2,704,000	$5,457,000
2027	$705,000	$2,489,000	$3,707,000	$7,478,000
2028	$1,080,000	$3,849,000	$5,744,000	$11,582,000
2031	$2,159,000	$7,931,000	$11,906,000	$23,988,000
2036	$3,913,000	$15,063,000	$22,832,000	$45,951,000

Source: Appendix L-Climate Technical Report (Ramboll & HMMH, 2023)

Notes:
1/ The estimated SC-GHG are based on 2020 dollars.

As previously discussed, the SC-GHG shown in **Table 5-14** were calculated using the IWG average discount rates: 5 percent, 3 percent, 2.5 percent and the 95th percentile damage estimate with the 3 percent discount rate. In summary, the estimated social costs of GHG range from $318,000 to $3,263,000 in 2024, when the Proposed Action is under construction and from $3,769,000 to $44,251,000 in 2036, when the Proposed Action is fully implemented and operating at its peak in the reasonably foreseeable future.

- In 2025, the social cost is estimated to be between $647,000 and $6,710,000; this increase in estimated cost is due to continued construction activities.
- In 2026, the estimated social cost is between $507,000 and $5,308,000; this is due to the continued construction and the start of implementation of the Proposed Action, this would include the completion of all Terminal F gates.
- In 2027, the social cost is estimated to be between $675,000 and $7,161,000; this increase in estimated cost is likely due to continued construction activities and phased implementation of the Proposed Action, which would include the new Terminals A and C gates in addition to the previously completed Terminal F gates.
- In 2028, the social cost is estimated to be between $1,034,000 and $11,099,000; this increase in estimated cost is likely due to continued construction activities and continued implementation of the phases of the Proposed Action.
- In 2031, the estimated social cost is between $2,073,000 and $23,028,000; this is due to the full implementation of the Proposed Action, which includes all new gates and the completed associated renovations of Terminal C. Based on the TAF, DFW would not be using all of the available gates at the maximum capacity of 6.5 turns per gate per day. Operations in 2031 are projected to be approximately 70,000 per year.
- In 2036, the estimated social cost is between $3,769,000 and $44,251,000; this is likely due to the full implementation of the Proposed Action in the reasonably foreseeable future. In 2036, DFW is forecasted to serve about 100 million passengers (132,000 operations) and all available gates would be used at higher turns per gate per day.

The range in costs discussed previously and shown in **Table 5-14** represents the potential social costs associated with adding GHGs to the atmosphere in a given year (**Appendix L**) for the detailed GHG emissions impacts analysis). The foregoing social costs are estimates only and are subject to change depending on a variety of factors. They are provided for disclosure and context, but such estimated costs may not actually result.

As noted in **Section 4**, DFW has voluntarily implemented aggressive best practices and measures to reduce emissions and improve efficiency as well as committed to achieving Net Zero carbon by 2030. Climate risks are being managed through sustainable design initiatives and policies as well as updates to the Design Manual, and other mitigation measures. These measures include reducing energy demand, ensuring a sustainable energy supply, investing in resilient energy infrastructure, and pursuing innovative

technologies and energy management practices. The new eCUP scheduled to open in 2025 is one of the key solutions helping DFW adapt to climate change as well as reduce emissions and air quality impacts.

Although DFW has taken various measures to prepare and adapt to climate change risks and impacts, these risks would be present regardless of the alternative selected and would not be exacerbated by the Proposed Action. When considering the potential increase in GHG emissions due to the Proposed Action in the context of DFW's sustainable development requirements and climate action commitments, strategies, and goals, the Proposed Action would not have an adverse significant impact on climate.

5.3.7 Climate Preparedness and Adaptation

The environmental consequences section for climate also includes a discussion of the extent to which the Proposed Action and No Action Alternative could be affected by future climate conditions. DFW is aware that climate related changes including increased frequency of severe weather events, floods, heat, inclement weather, and drought may have periodic impacts on DFW's operations. Although these risks are not new to DFW and North Texas, the increased frequency of extreme weather events presents both challenges and opportunities for DFW. As such, DFW has taken measures to reduce climate-related effects through implementation of sustainable design and site development guidelines as well as by developing and implementing practices and programs to improve resiliency and reduce risk. Since 2010, DFW has reduced carbon emissions by 80 percent and reduced energy costs by 23 percent; DFW also transitioned to using 100 percent wind generated electricity at DFW owned facilities. As the largest carbon-neutral airport in North America and the first in the world to achieve Level 4+ ACA, DFW has also committed to achieving Net-Zero carbon emissions by 2030, 20 years ahead of goals set by the aviation industry. DFW continues to invest in sustainability and climate action initiatives to reduce emissions, improve efficiency, and proactively prepare to adapt to climate risks. DFW's sustainability initiatives which were developed to also help with climate risk preparedness and adaptation include:

- Tree conservation corridors to reduce urban heat island effect,
- Landscaping with native plants, designated floodplain buffer zones to protect water quality and preserve floodplain storage capacity,
- Purchasing 100 percent renewable electricity,
- Using renewable natural gas and renewable diesel, facilitating delivery of SAF,
- Investing and operating the electric Central Utility Plant (eCUP),
- Enhancing thermal energy storage systems to reduce cooling demands and costs,
- Electrifying fleet vehicles, busses, and GSE and installing the requisite charging stations,
- Turning waste into resources (using recycled materials instead of raw materials),
- Supporting transit-oriented development and enhancing DART and Trinity Metro access on the airport, and
- Evaluating strategies and opportunities to enhance energy efficiency, redundancy, and resiliency through onsite energy storage, net zero energy buildings, and microgrids.

5.3.8 Climate Impacts on Environmental Justice Communities

Climate change is a global phenomenon, thus Environmental Justice populations near DFW would not disproportionately bear climate change effects from the Proposed Action. The Proposed Action would not result in disproportionately high and adverse impacts to minority and/or low-income populations when compared with the No Action Alternative. There are no known unique climate-related risks or concerns with the Proposed Action to environmental justice communities.

5.3.9 Avoidance, Minimization, and Mitigation Measures

An estimate of project construction GHG emissions is provided for informational purposes only; FAA has not identified specific factors to consider in making a significance determination for GHG emissions. Currently, there are no accepted methods for determining significance applicable to aviation or commercial space launch projects. The foregoing social costs are estimates only and are subject to change depending on a variety of factors. The estimates of emissions and the associated social costs do not reflect the actions

that are being taken locally and internationally to consider reductions in aviation-related greenhouse gas emissions. Therefore, these estimates are considered potentially conservatively high. The estimated social costs of GHGs are provided for disclosure and context, but such estimated costs may not actually occur. They are provided for disclosure and context, but such estimated costs may not actually result. As such, no specific mitigation measures are proposed.

As noted in **Section 4**, DFW has implemented aggressive measures to reduce emissions and improve efficiency as well as committed to achieving Net Zero carbon by 2030. Climate risks are being managed through sustainable design initiatives and policies as well as updates to the Design Manual, and other mitigation measures. These measures include reducing energy demand, ensuring a sustainable energy supply, investing in resilient energy infrastructure, and pursuing innovative technologies and energy management practices. The new eCUP scheduled to open in 2025 is one of the key solutions helping DFW adapt to climate change as well as reduce emissions and air quality impacts.

Although DFW has taken various measures to prepare and adapt to climate change risks and impacts, these risks would be present regardless of the alternative selected and would not be exacerbated by the Proposed Project. When considering the potential increase in GHG emissions due to the Proposed Action in the context of DFW's sustainable development requirements and climate action commitments, strategies, and goals, the Proposed Action would not have a significant adverse impact on climate. The estimate of project construction GHG emissions is provided for informational purposes only; FAA has not identified specific factors to consider in making a significance determination for GHG emissions. Currently, there are no accepted methods for determining significance applicable to aviation or commercial space launch projects. Therefore, no mitigation measures are proposed. As noted in **Chapter 4**, DFW has implemented aggressive measures to be carbon neutral.

5.4 Hazardous Materials, Solid Waste, and Pollution Prevention

5.4.1 Significance Thresholds

According to the FAA Order 1050.1F (July 2015), the FAA has not established a significance threshold for hazardous materials, solid waste, or pollution prevention. Order 1050.1F provides additional factors to consider, such as:

- The Proposed Action would have the potential to violate applicable Federal, state, tribal, or local laws or regulations regarding hazardous materials and/or solid waste management.
- The Proposed Action would involve a contaminated site (including but not limited to a site listed on the National Priorities List).
- The Proposed Action would produce an appreciably different quantity or type of hazardous waste;
- The Proposed Action would generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal and/or would exceed local capacity; or
- The Proposed Action would adversely affect human health and the environment.

5.4.2 No Action Alternative

No impacts from hazardous materials and solid waste are expected as a result of the No Action Alternative, as no construction activities would occur. DFW would continue implementing its Contaminated Media Management Plan (CMMP) and waste management policies; furthermore, DFW would continue to maintain the existing monitoring wells as required by the 2020 Agreed Order Closure Agreement with the TCEQ. Therefore, there would be no hazardous materials or solid waste impacts not already occurring or expected to occur.

5.4.3 Proposed Action Alternative

5.4.3.1 Hazardous Materials

There is potential for the Proposed Action to disturb asbestos-containing materials (ACM). An asbestos survey was performed, which identified ACM within the project area. Prior to building demolition, an experienced, licensed asbestos abatement contractor will abate the ACM. All abatement activities will be completed in compliance with all federal, state, and local regulations.

Potentially contaminated media associated with current and past aircraft related activities would likely be disturbed during demolition and construction activities. DFW maintains a CMMP that provides information and guidance on potential environmental concerns that may be encountered during the disturbance, excavation, and relocation of soils. All activities that involve disturbing or excavating soil would be performed in accordance with the CMMP and other applicable requirements.

Construction activities associated with the Proposed Action are expected to involve, the short-term use of hazardous and non-hazardous materials, and the generation of wastes common to construction including reclaimed concrete, concrete wash-out liquids, petroleum hydrocarbon-based fuels, lubricants, oils, paints, and cleaning solvents. These materials would be handled, stored, and disposed of and in accordance with all applicable federal, state, or local regulations. As part of the DFW construction permitting process, DFW would require all contractors to submit detailed waste management reports and abide by those plans along with all applicable regulatory requirements.

5.4.3.2 Solid Waste

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

5.4.3.3 Pollution Prevention

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

5.4.4 Mitigation

No significant impacts related to hazardous materials or solid waste would occur as a result of the Proposed Action due to DFW's robust hazardous material, hazardous wastes, and solid wastes policies, which would be in place for the project-related activities. As such, the Proposed Action (1) would not have the potential to violate applicable laws and regulations; (2) would not involve a site listed on the NPL; (3) does not produce an appreciably different quantity or type of hazardous waste; (4) would not generate an appreciably different quantity or type of solid waste or use a different method of collection or disposal and/or would not exceed local capacity; and (5) would not adversely affect human health and the environment.

DFW would comply with all federal, state, and local requirements with regard to generation, handling, and disposing of any waste produced during the construction of the proposed project. ACM abatement activities would be monitored by an asbestos inspector licensed by the DSHS and performed in compliance with applicable regulations. As part of DFW's construction permitting process, DFW would require all contractors to submit detailed soil management and waste management plans and abide by those plans along with all applicable regulatory requirements. The contractor would develop a waste management plan and any contaminated media encountered during the construction of Proposed Action would be handled in accordance with the CMMP.

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

5.5 Historical, Architectural, Archeological, and Cultural Resources

5.5.1 Significance Thresholds

According to the FAA Order 1050.1F (July 2015), the FAA has not established a significance threshold for historical, architectural, archeological, and cultural resources. The FAA Order does note that a factor to be considered is whether the Proposed Action would result in an *Adverse Effects* finding through the NHPA Section 106 process.

5.5.2 No Action Alternative

Under the No Action Alternative, no impacts would occur to cultural resources because no construction or other activities would occur to potentially disturb cultural resources.

5.5.3 Proposed Action Alternative

For this analysis, the direct APE for the project encompassed the entire project area, containing all project sites within the urbanized west side of DFW. Ground disturbances associated with the Proposed Action would include pavement demolition, excavation, grading, and erosion control. Depths of impacts associated with the proposed project would generally be within 10 feet of the current ground surface.

A NHPA Section 106 Consultation for Historic Properties was completed for the Proposed Action (**Appendix G**). Based on the results of this analysis and previous investigations, the proposed project area has been exposed to previous extensive ground disturbance and contains a low potential for containing either prehistoric or historic-age archeological resources. The Section 106 analysis concluded that no historic properties were present and there were no adverse effects from the project. The SHPO concurred with the findings from two reports. The first concurrence was received on 27 July 2022 for the Piers, Terminal C renovation and Terminal C Garage and Roads (**Appendix G**). This report was updated to reflect the changes in Terminal C renovation plans to include demolition and reconstruction of most of Terminal C (**Appendix G**). SHPO determined that no historic properties or archaeological resources are present or affected by the project as proposed. Another report detailing the Terminal E and F improvements was submitted to THC for review, in compliance with Section 106 requirements (Appendix G). On 11 September 2023 THC concurred with the conclusions in both reports, stating that no historic properties are present or affected by the Proposed Action. The SHPO also stated that if historic properties are discovered or unanticipated effects on historic properties or cultural materials are found during construction and site disturbance activities, work should cease in the immediate area; work can continue where no historic properties are present.

5.5.4 Mitigation

No mitigation measures are proposed for historic or archeological resources. If any cultural resources are unearthed during construction, DFW would require that the operators immediately stop construction activities in that area. The project environmental consultant should then be contacted to initiate further consultation with THC prior to resuming construction activities.

5.6 Natural Resources and Energy Supply

5.6.1 Significance Thresholds

In accordance with FAA *Order 1050.1F Desk Reference*, the proposed action alternatives and connected actions were examined to identify any resulting measurable effects on local supplies of natural resources or energy. FAA Order 1050.1F (July 2015) has not established any significance thresholds for natural resources or energy supply. The Order requires that the Proposed Action and any connected actions be evaluated to identify any major changes that would have a measurable effect on local supplies of natural resources or energy. However, the FAA Order 1050.1F states that the use of natural resources other than for fuel, be examined, only if the action involves the need for unusual materials or those that are in short supply. The FAA Order 1050.1F further states that for most actions, changes in energy demands or other natural resource consumption will not result in significant impacts.

5.6.2 No Action Alternative

Under the No Action Alternative, the existing airport facilities would remain in place; there would not be any additional construction activities and operations would continue to be constrained by the lack of building and aircraft apron space. Therefore, there would be no additional natural resources and energy supply effects not already occurring or expected to occur.

5.6.3 Proposed Action Alternative

Under the Proposed Action Alternative, there would be an increase in energy demand. The proposed project would include additional buildings, lighting systems, and signage, which would increase electric power usage. However, there is sufficient capacity, and the local distribution infrastructure is expected to accommodate the increased demand. During construction of the Proposed Action, a temporary increase in

fuel consumption is expected. DFW Airport is a carbon neutral airport and uses 100 percent renewable energy for all its energy needs; therefore, no significant energy supply impacts are expected. In addition, no impacts to the existing energy infrastructure are anticipated.

5.6.4 Mitigation

No significant energy or natural resource impacts area are anticipated. DFW is committed to sustainability and the continued reduction in natural resources and energy consumption. DFW is the only airport in North America to have achieved Level 4+ Transition certification through the ACA program. This accreditation level indicates that DFW has offset all residual carbon emissions over which it has control using internationally recognized offsets (ACA 2022). Since 2010, DFW has reduced absolute carbon emissions by 79 percent. DFW continues to move toward Net Zero Carbon and has identified 12 primary opportunity areas to continue carbon reductions, these include (1) on-site renewables, (2) DFW fleet electrification, (3) GSE electrification, (4) anaerobic digester, (5) renewable propane, (6) tree conservation, (7) deep energy retrofits, (8) RNG, (9) carbon removal, (10) Electric CUP, (11) 100 percent renewable electricity, and (12) gate electrification (DFW FY2020 ESG Report). As indicated by this list, the eCUP and the other Proposed Action components are essential elements that mitigate natural resources and energy supplies utilized by DFW.

5.7 Noise and Noise Compatible Land Uses

5.7.1 Significance Thresholds

The noise analysis compares the No Action and Proposed Action Alternatives for the future year using the FAA's thresholds of significance. According to the FAA Order 1050.1F, a significant noise impact would occur if *the [Proposed] action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe*. **Table 5-15** 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 5-15** also lists FAA defined reportable changes of noise levels.

Table 5-15. Aircraft DNL Thresholds and Impact Categories

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

Source: FAA Order 1050.1F[32] and the 1050.1F Desk Reference[33]

5.7.2 Future (2026) No Action Alternative

Under the No Action Alternative, there would be no changes to the use of the existing 170 gates at DFW, overall operational levels would grow at a minimal natural growth rate.

5.7.2.1 Noise Exposure Contours

Table 5-16 provides estimates of the total area split between on and off airport areas exposed to aircraft noise of at least 65 DNL for the No Action Alternative. Approximately 12.17 mi^2 fall within the No Action Alternative (2026) 65 DNL or higher noise exposure area. Of the total land area, approximately 0.54 mi^2 exposed to 65 DNL or higher, is located off-DFW (the remaining 11.63 mi^2 are located on DFW property). **Table 5-16** summarizes the areas of noise exposure within each noise contour level (65 DNL, 70 DNL, and

[32] https://www.faa.gov/documentLibrary/media/Order/FAA_Order_1050_1F.pdf.
[33] 1050.1F Desk Reference (faa.gov)

75 DNL noise contours) for the No Action Alternative. **Figure 5-1** shows the annual noise exposure pattern at DFW for the No Action Alternative. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL.

Table 5-16. Estimated Land Area within the No Action Alternative Future (2026) Noise Exposure Contours

Contour Range	Airport Property Estimated Land Area (mi^2)	Non-Airport Property Estimated Land Area (mi^2)	Total Estimated Land Area (mi^2)
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**

Source: HMMH, 2023

Similar to 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 5-1 provides the resultant DNL contours for the Future (2026) No Action Alternative. In the Future (2026) No Action Alternative, the DNL contours extend away from DFW on the northside in two main lobes along the extended centerline of the outboard parallel runway extending off DFW property to just north of Bethel Road, and on the southside 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.

5.7.2.2 Noise Compatible Land Uses

There is no noise sensitive land use within the Future (2026) No Action Alternative 65 DNL or greater contours. There are no public schools, churches, nursing homes, hospitals, or libraries within any of the contours. Furthermore, there are no single family, multi-family, or manufactured housing within any of the Future No Action Alternative (2025) noise contours as shown in **Figure 5-2**. There is no residential population or housing units affected by noise levels exceeding 65 DNL for the Future No Action Alternative (2026) noise exposure contours.

5.7.3 Future (2026) Proposed Action Alternative

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) 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 become operational in 2026 and the new Terminal A and C gates would come online in 2027 and 2028.

Figure 5-1. Future (2026) No Action Alternative Noise Exposure Contours

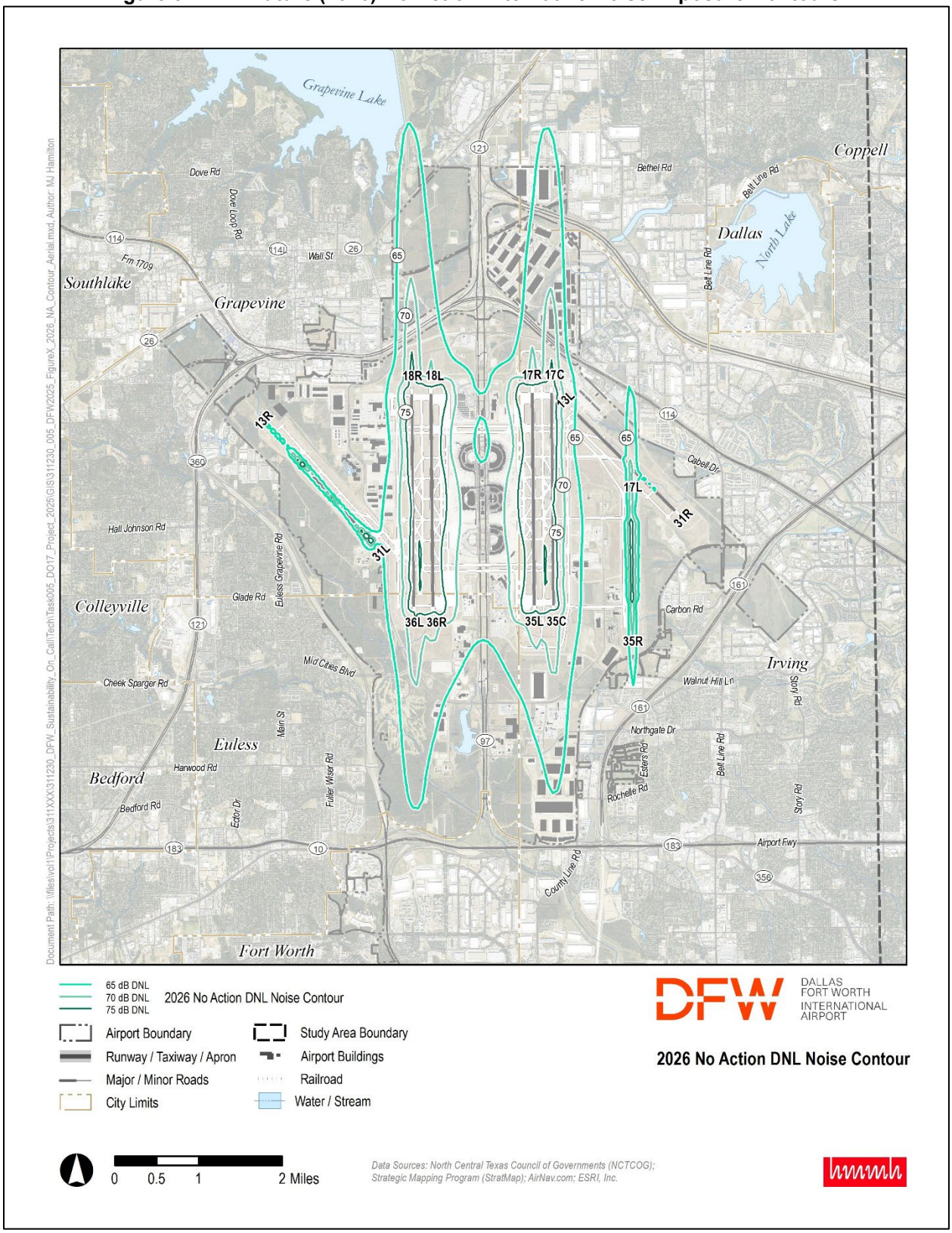
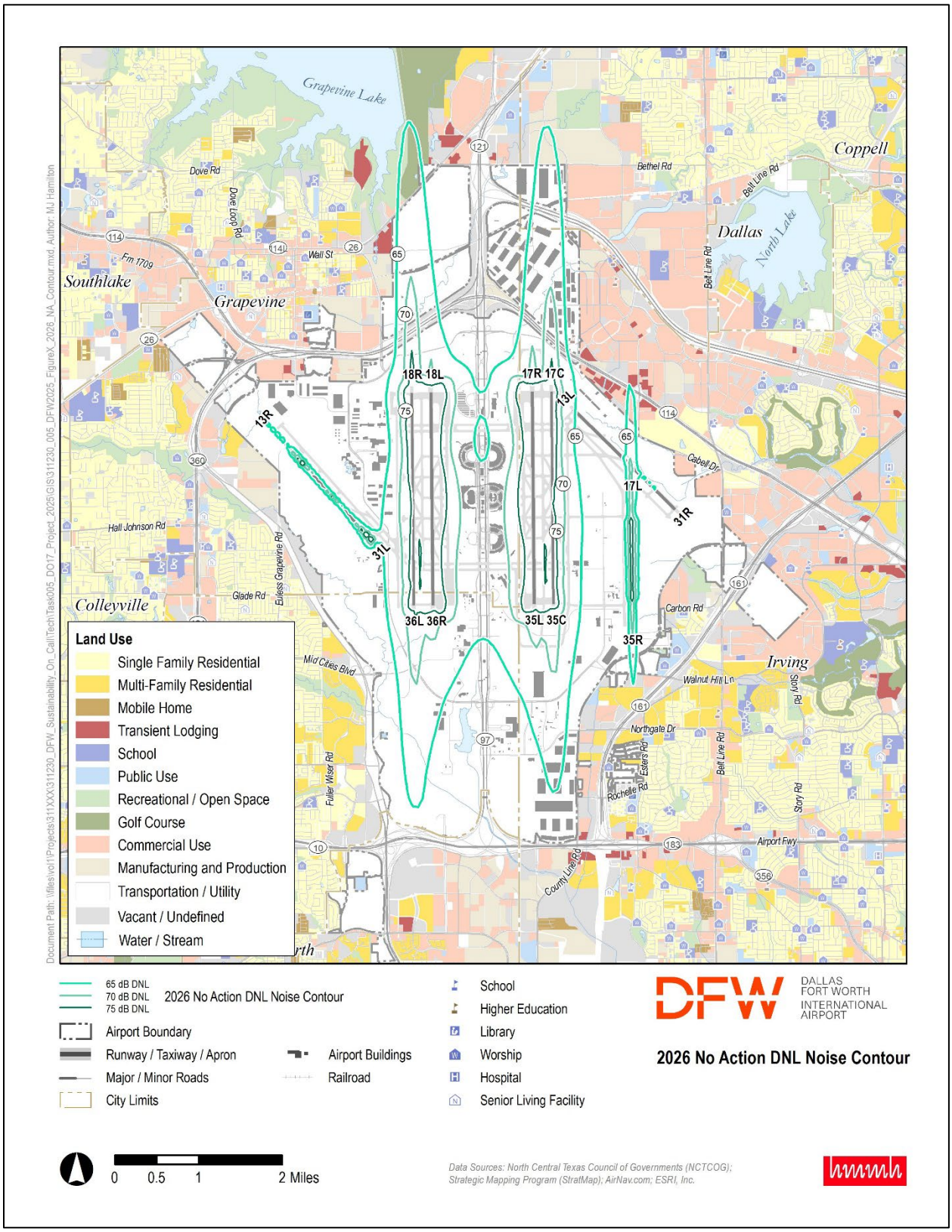


Figure 5-2. Future (2026) No Action Alternative Noise Exposure Contours with Surrounding Land Uses



5.7.3.1 Noise Exposure Contours

Each phase of the project was modeled in AEDT and then combined to generate a complete Proposed Action Alternative contour set. **Table 5-17** 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 12.15 mi^2 falls within the Future (2026) Proposed Action Alternative 65 DNL or higher noise exposure area. Of the total land area, approximately 0.55 mi^2 exposed to 65 DNL or higher, is located off-airport (the remaining 11.61 mi^2 are located on DFW property). **Table 5-17** summarizes the areas of noise exposure within each noise contour level (65 DNL, 70 DNL, and 75 DNL noise contours) for the Future (2026) Proposed Action Alternative. **Figure 5-3** 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 5-17. Estimated Land Area within the Proposed Action Alternative (2026) Noise Exposure Contours

Contour Range	Airport Property Estimated Land Area (mi^2)	Non-Airport Property Estimated Land Area (mi^2)	Total Estimated Land Area (mi^2)
DNL 65-70 dB	7.09	0.20	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**

Source: HMMH, 2023

Similar to the Future (2026) No Action Alternative, 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 5-3 provides the resultant DNL contours for the Proposed Action Alternative. In the Proposed Action Alternative, the DNL contours 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 just north of Bethel Road. On the south side, the contour extends in two main lobes along the extended centerline of the outboard parallel runways but remains on airport 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 for the Future (2026) Proposed Action Alternative includes no noise sensitive land use and only slightly extends off DFW property north of Runways 18R and 17C to across SH 114.

5.7.3.2 Noise Compatible Land Uses

There are no public schools, churches, nursing homes, hospitals, or libraries within any of the contours. Furthermore, there are no single family, or manufactured housing within any of the Future (2026) Proposed Action Alternative noise contours (**Figure 5-4**).

5.7.4 Comparison of Future (2026) No Action and Proposed Action Alternatives

Table 5-18 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) No Action Alternative and Proposed Action Alternatives. 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 Alternatives. This minor reduction in the Proposed Action Alternative DNL contours is due to additional flights occurring during the night period (operations at night reflect a 10 dB weighting in the DNL metric) under the No Action Alternative due to limitations in gates whereas the Proposed Action Alternative would have additional gates to accommodate additional daytime flights. The noise analysis results showed that the Future (2026) Proposed Action Alternative would not increase the estimated land area within the DNL 65+ dB noise exposure contour as compared to the Future (2026) No Action Alternative. **Figure 5-5** show the comparison between the Future (2026) No Action and Proposed Action Alternatives. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL.

Figure 5-3. Future (2026) Proposed Action Alternative Noise Exposure Contours

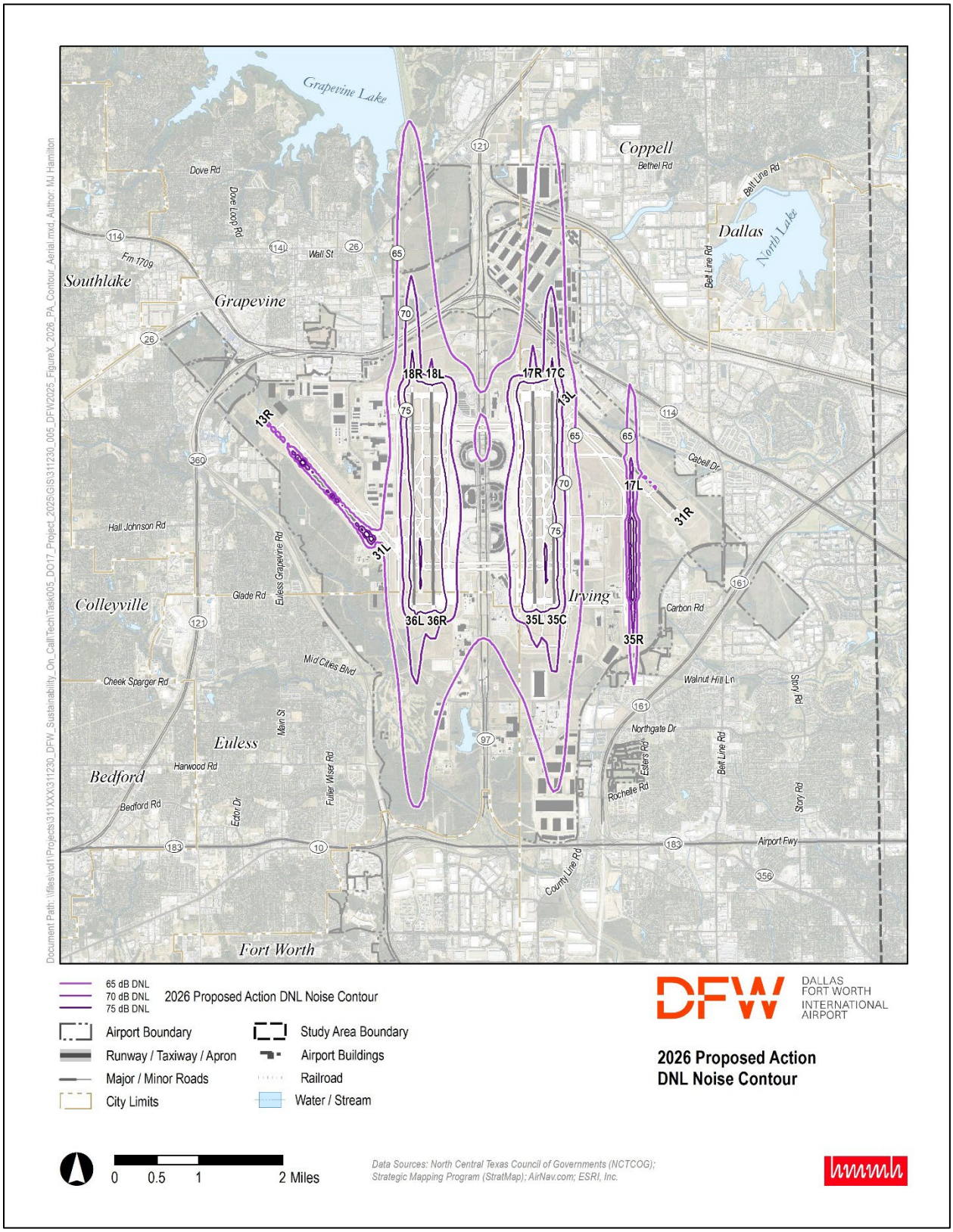


Figure 5-4. Future (2026) Proposed Action Alternative Noise Exposure Contours and Surrounding Land Uses

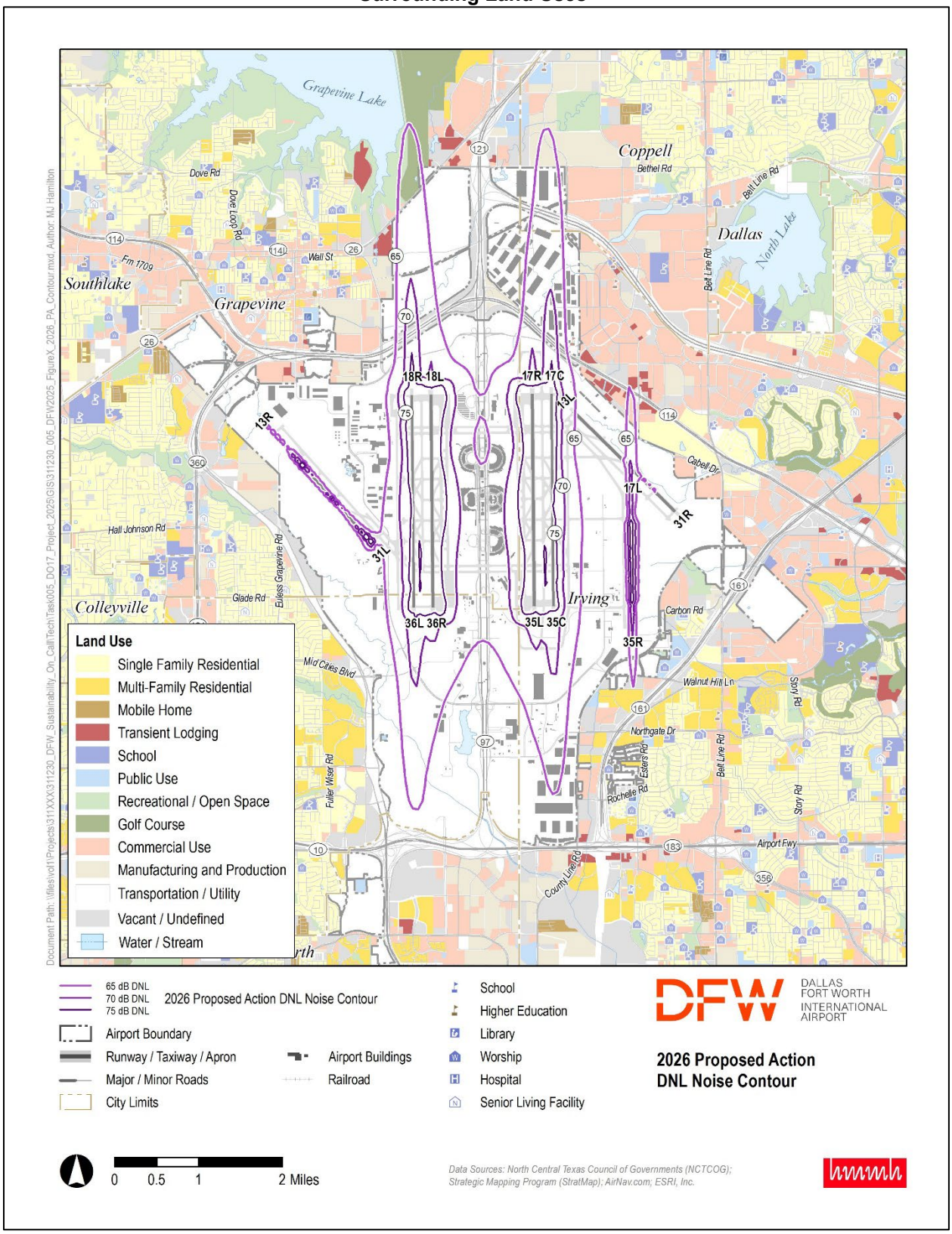
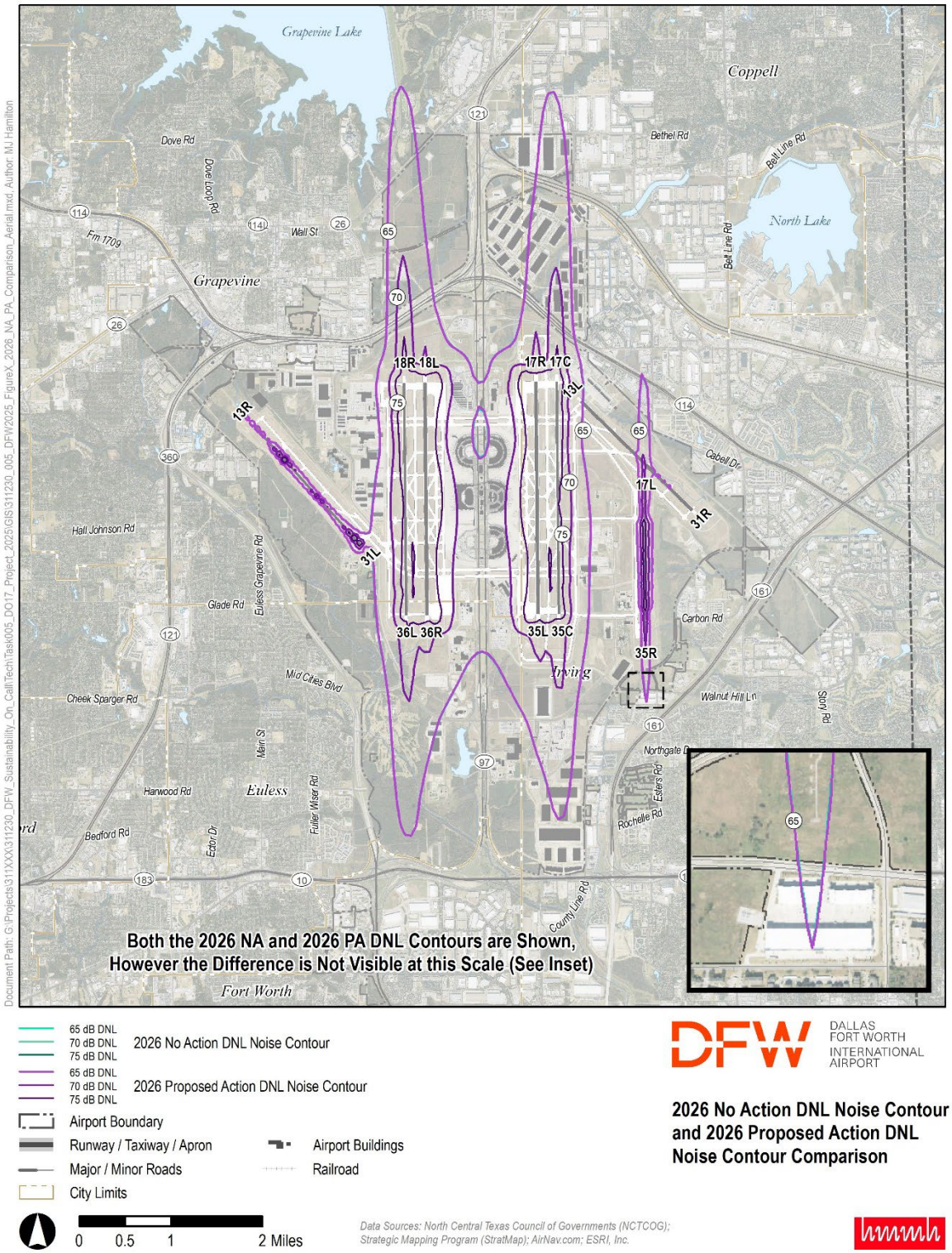


Table 5-18. Estimated Land Area within Future Year (2026) Noise Exposure Contour Alternatives

Contour Range	Airport Property Estimated Land Area (mi^2)	Non-Airport Property Estimated Land Area (mi^2)	Total Estimated Land Area (mi^2)
No Action Alternative			
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 Alternative			
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 Alternative – No Action Alternative)			
DNL 65-70 dB	-0.01	0.01	0.00
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**

Source: HMMH, 2023

Figure 5-5. Future (2026) No Action and Proposed Action Alternatives Noise Exposure Contours



5.7.4.1 Future (2026) Noise Compatible Land Uses

Since the DNL contours are primarily on airport property and do not extend into any areas of noncompatible land use, there are no 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 (**Figure 5-6**). Furthermore, there are no single-family, multi-family, or manufactured housing within the 65 DNL or greater contours.

5.7.4.2 Future (2026) Grid Point Analysis

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 5-7**).

5.7.5 Future (2031) No Action Alternative

Under the Future (2031) No Action Alternative, 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.

5.7.5.1 Noise Exposure Contours

Table 5-19 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) No Action Alternative. Approximately 12.22 mi^2 falls within the Future (2031) No Action Alternative 65 DNL or higher noise exposure area. Of the total land area, approximately 0.53 mi^2 exposed to 65 DNL or higher, is located off-DFW (the remaining 11.69 mi^2 are located on DFW property). **Table 5-19** summarizes the areas of noise exposure within each noise contour level (65 DNL, 70 DNL, and 75 DNL noise contours) for the Future (2031) No Action Alternative. **Figure 5-6** shows the annual noise exposure pattern at DFW for the Future (2031) No Action Alternative. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL.

Table 5-19. Estimated Land Area within the Future (2031) No Action Alternative Noise Exposure Contours

Contour Range	Airport Property Estimated Land Area (mi^2)	Non-Airport Property Estimated Land Area (mi^2)	Total Estimated Land Area (mi^2)
DNL 65-70 dB	7.14	0.44	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**

Source: HMMH, 2023

Figure 5-8 provides the resultant DNL contours for the Future (2031) No Action Alternative. Similar to existing conditions and Future (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.

In the Future (2031) No 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 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.

Figure 5-6. Future (2026) No Action and Proposed Action Alternatives Noise Exposure Contours and Surrounding Land Uses

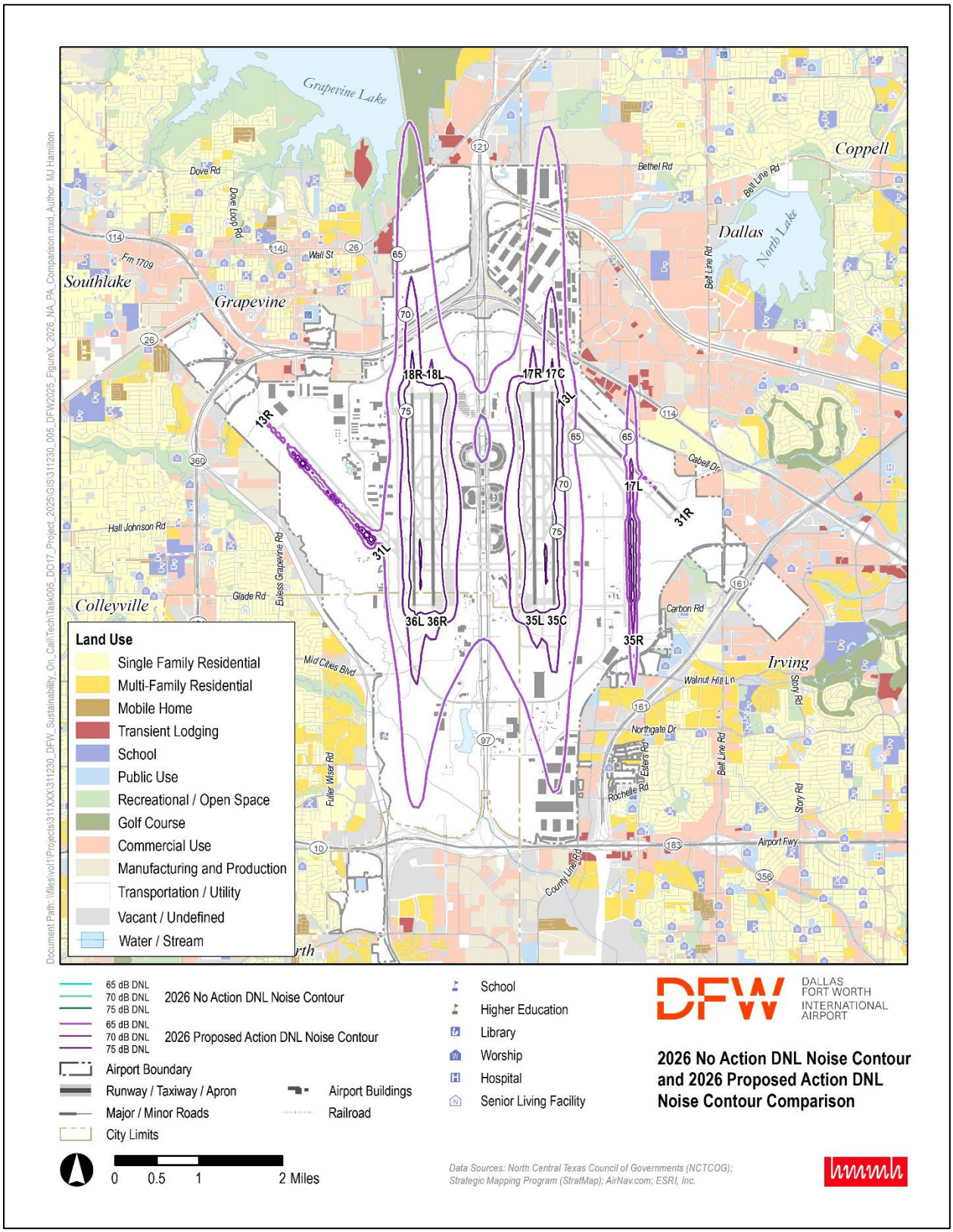


Figure 5-7. Future (2026) No Action and Proposed Action Alternatives Grid Point Analysis

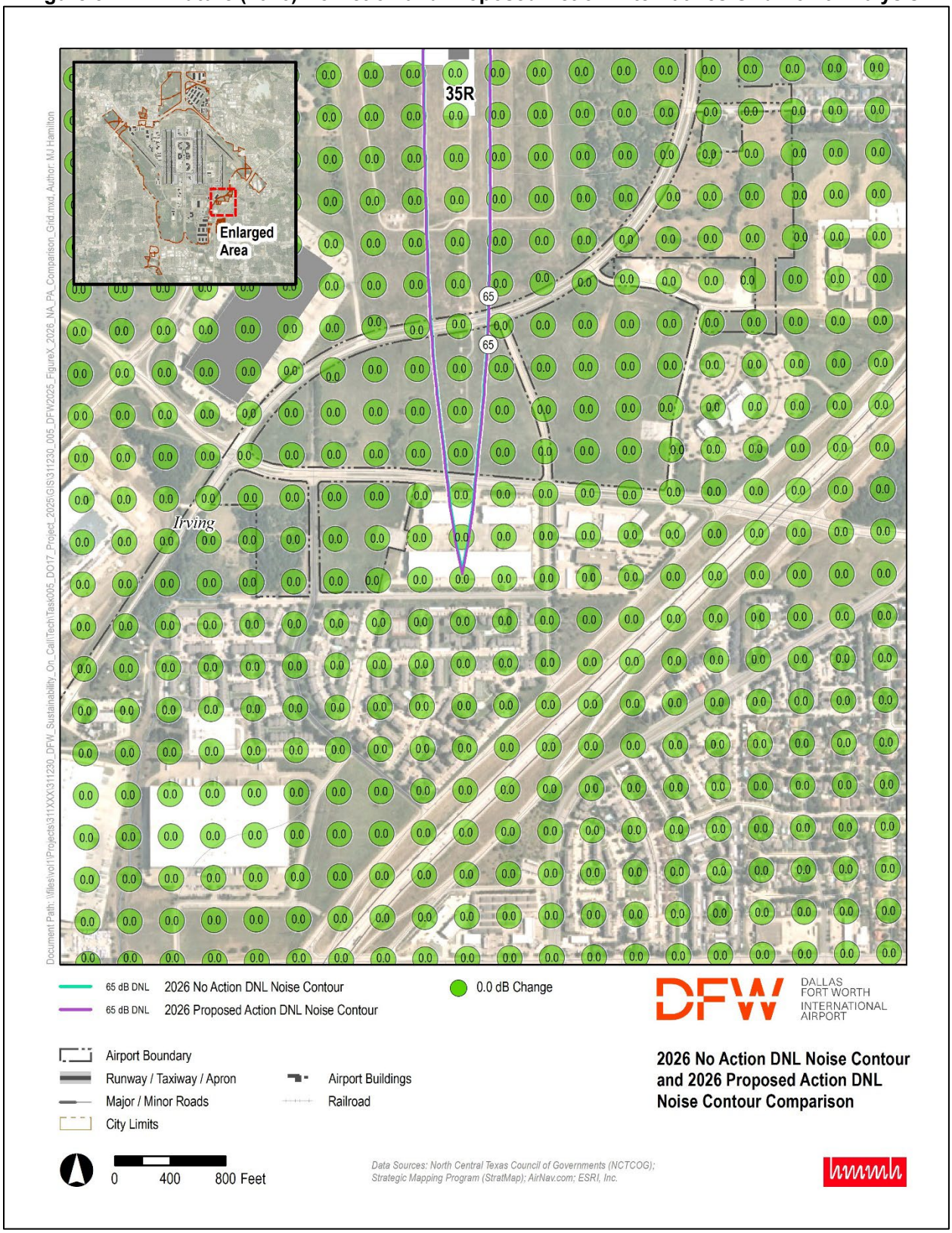
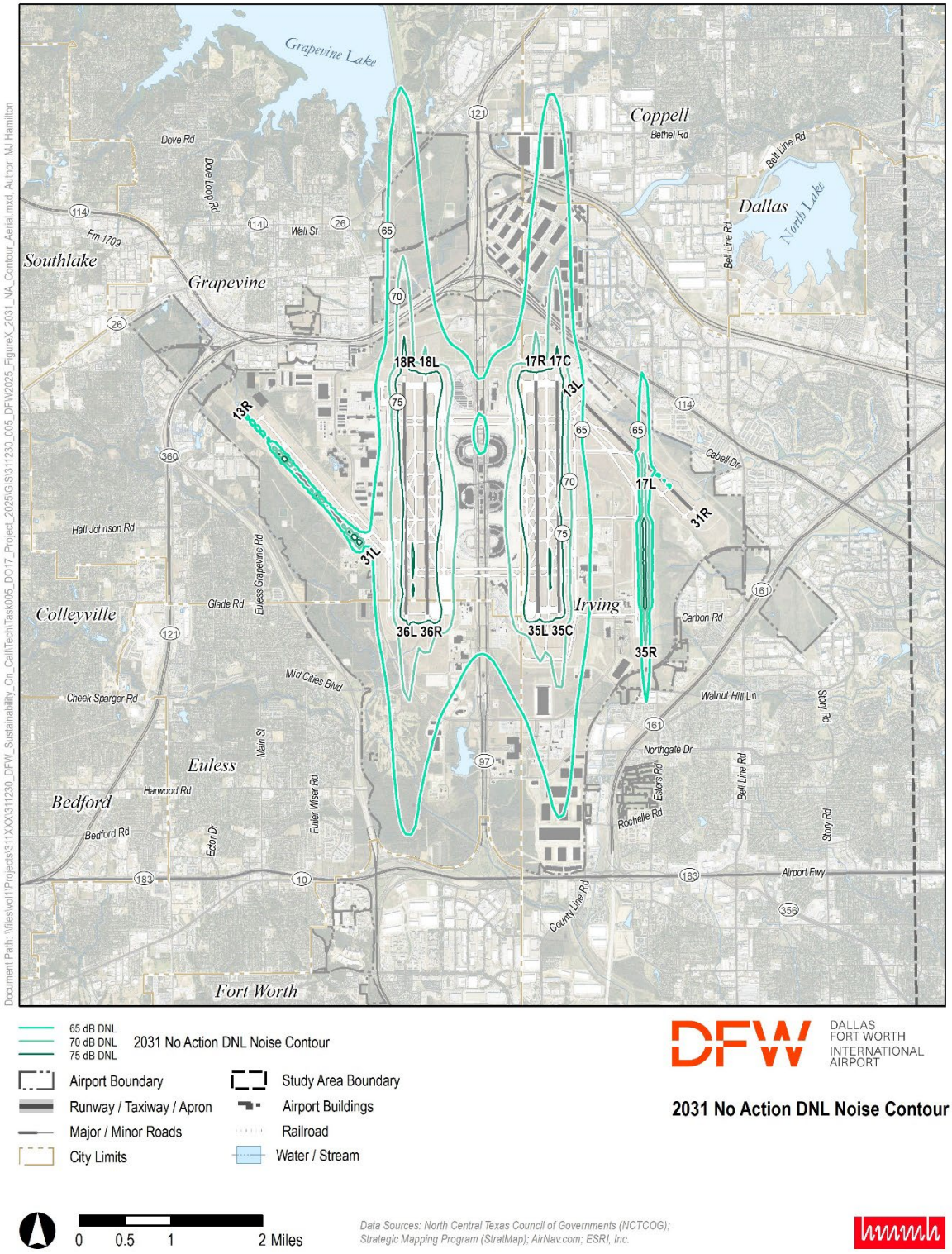


Figure 5-8. Future (2031) No Action Alternative Noise Exposure Contours



5.7.5.2 Noise Compatible Land Uses

There are no public schools, churches, nursing homes, hospitals, or libraries within any of the contours. Furthermore, there are no single family, multi-family, or manufactured housing within any of the Future (2031) No Action Alternative noise contours as shown in **Figure 5-9**.

5.7.6 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. 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.

5.7.6.1 Noise Exposure Contours

Table 5-20 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) Proposed Action Alternative. Approximately 13.03 mi^2 falls within the Future (2031) Proposed Action Alternative 65 DNL or higher noise exposure area. Of the total land area, approximately 0.67 mi^2 exposed to 65 DNL or higher, is located off-airport (the remaining 12.36 mi^2 are located on DFW property). **Table 5-20** summarizes the areas of noise exposure within each noise contour level (65 DNL, 70 DNL, and 75 DNL noise contours) for the Future (2031) Proposed Action Alternative. **Figure 5-10** 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.

Table 5-20. Estimated Land Area within the Future Year (2031) Proposed Action Alternative Noise Exposure Contours

Contour Range	Airport Property Estimated Land Area (mi^2)	Non-Airport Property Estimated Land Area (mi^2)	Total Estimated Land Area (mi^2)
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**

Source: HMMH, 2023

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.

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 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 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 5-9. Future Year (2031) No Action Alternative Noise Exposure Contours and Surrounding Land Uses

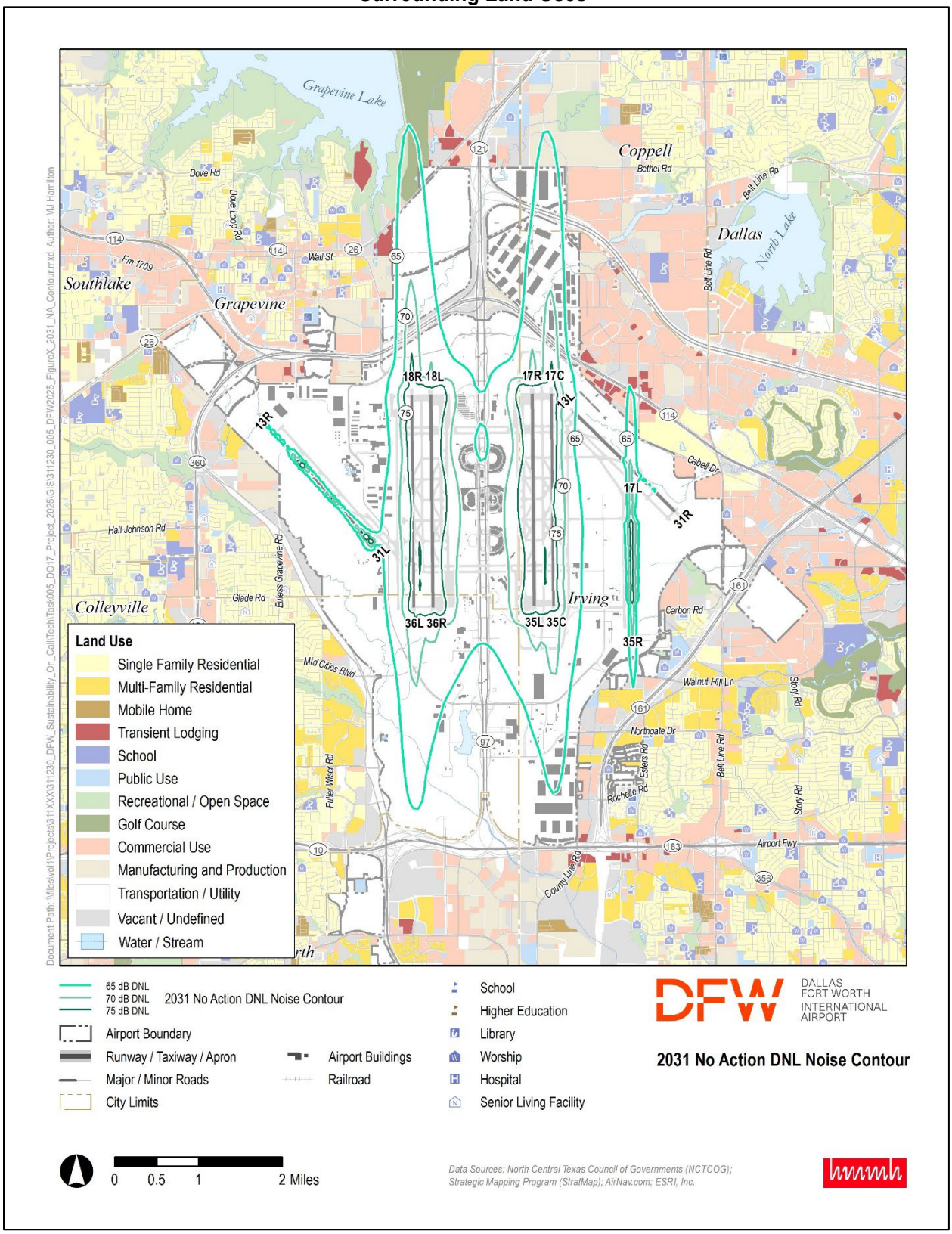
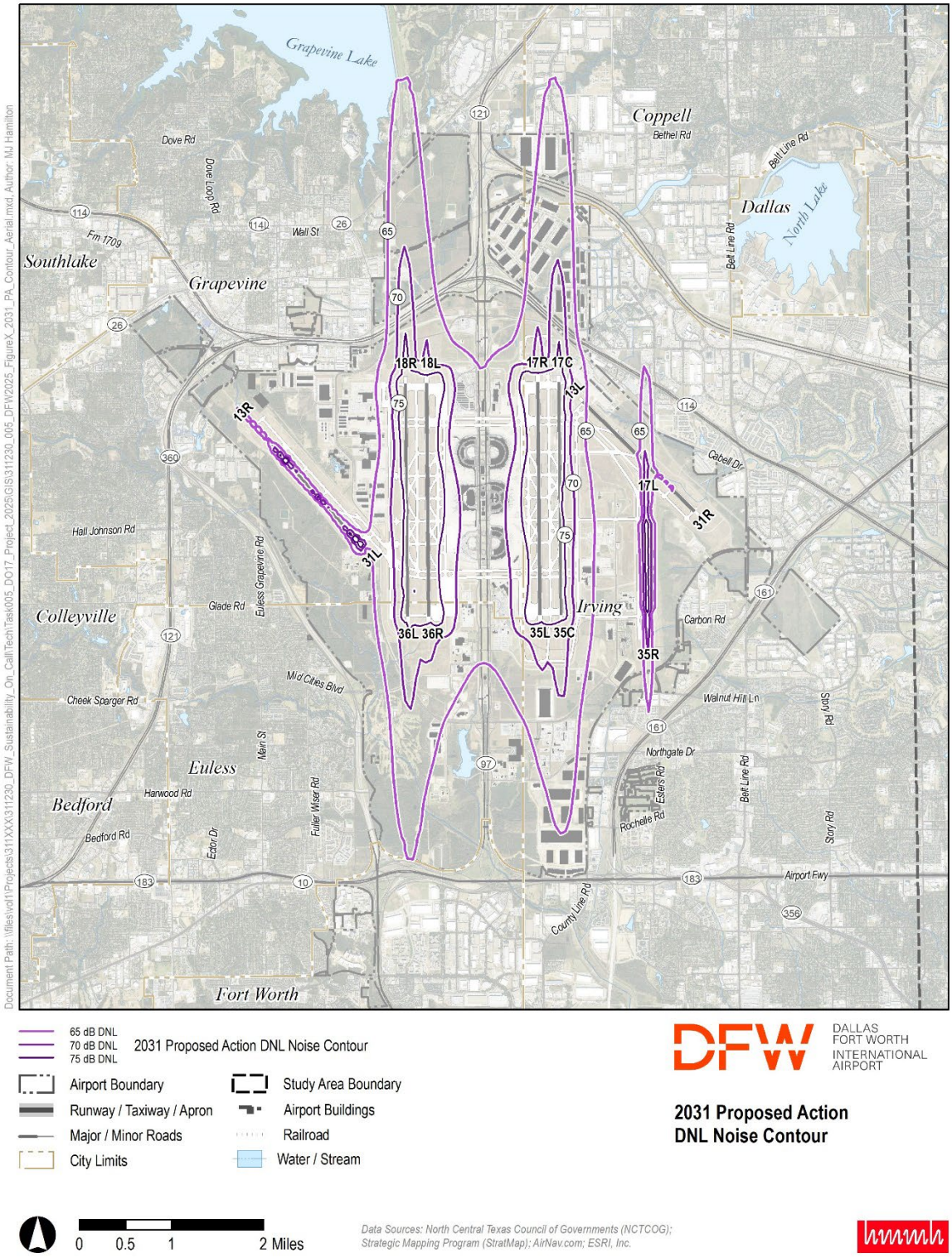


Figure 5-10. Future Year (2031) Proposed Action Alternative Noise Exposure Contours



5.7.6.2 Noise Compatible Land Uses

There are no public schools, churches, nursing homes, hospitals, or libraries within any of the contours. Furthermore, there are no single family or manufactured housing within any of the Future Year (2031) 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 six multi-family housing units (11 people) that could be exposed to 65 DNL or higher due to the Future (2031) Proposed Action Alternative. **Figure 5-11** illustrates the Future Year (2031) Proposed Action Alternative noise exposure contours with the surrounding land uses.

5.7.7 Comparison of Future (2031) No Action and Proposed Action Alternatives

Table 5-21 provides estimates of the total area split between on and off airport areas exposed to aircraft noise of at least 65 DNL for the Future (2031) No Action and Proposed Action Alternatives. The noise exposure analysis results showed a slight increase in the estimated on and off-airport land area; this was due to the operations during the Future (2031) Proposed Action Alternative. The noise analysis results showed that the Future (2031) Proposed Action Alternative would increase the estimated land area within the DNL 65+ dB noise exposure contour as compared to the Future (2031) No Action Alternative.

Table 5-21. Estimated Land Area within Future Year (2031) Noise Exposure Contours by Alternative

Contour Range	Airport Property Estimated Land Area (mi^2)	Non-Airport Property Estimated Land Area (mi^2)	Total Estimated Land Area (mi^2)
No Action Alternative			
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 Alternative			
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 Alternative – No Action Alternative)			
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**

Source: HMMH, 2023

North of Runways 18R and 17C, the contour would extend further to the north due to increased arrivals to Runways 18R and 17C (**Figure 5-12**). The contour north of Runway 17L would extend further north than the Future (2031) No Action Alternative 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, 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 Runway 35R would extend further to the south over the residential (multi-family) land use due to increased arrivals to Runway 35R in the Future (2031) Proposed Action Alternative. These buildings, located directly along the extended centerline of Runway 17L/35R, would be impacted by increased aircraft operations on Runway 17L/35R.

Figure 5-11. Future Year (2031) Proposed Action Alternative Noise Exposure Contours and Surrounding Land Uses

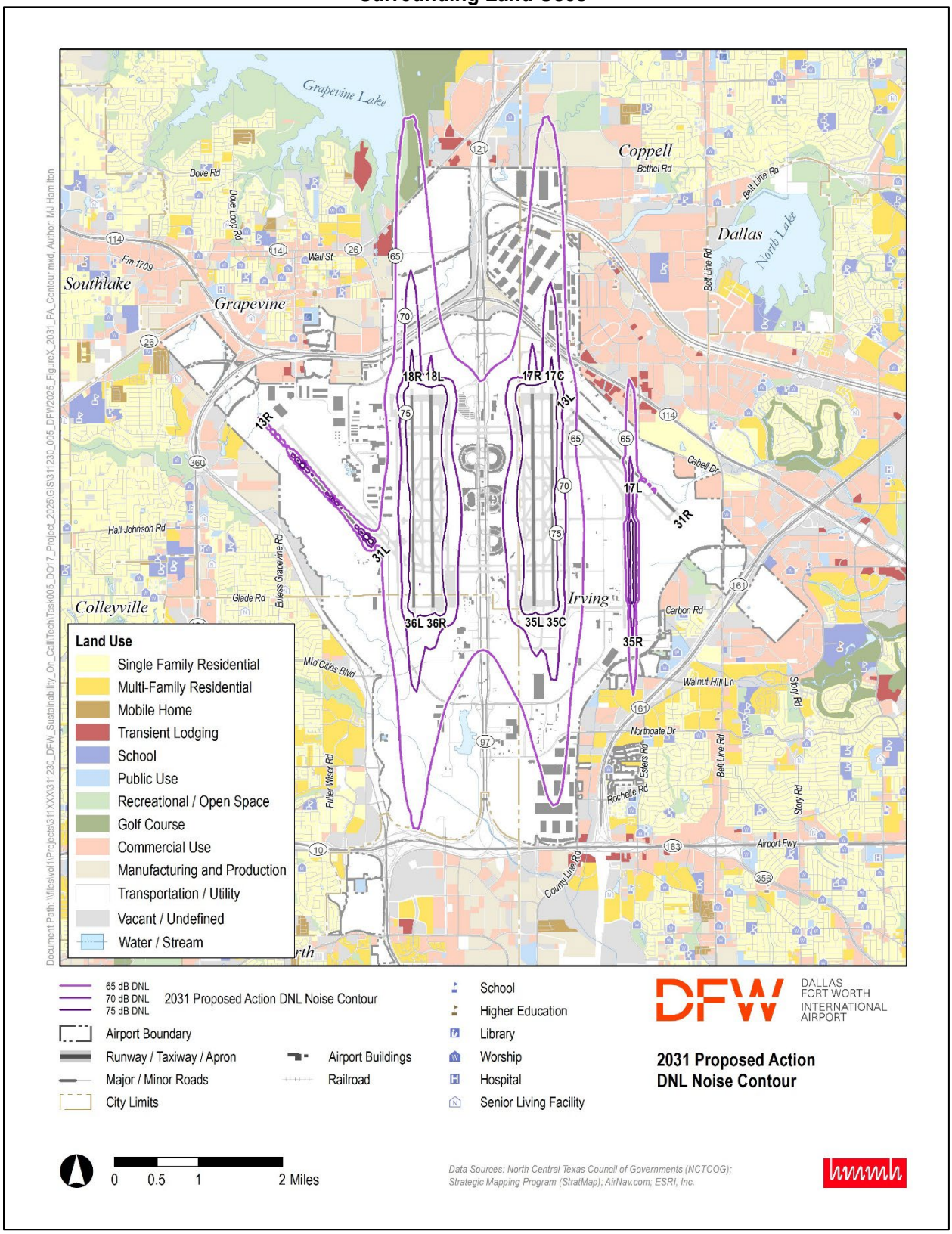
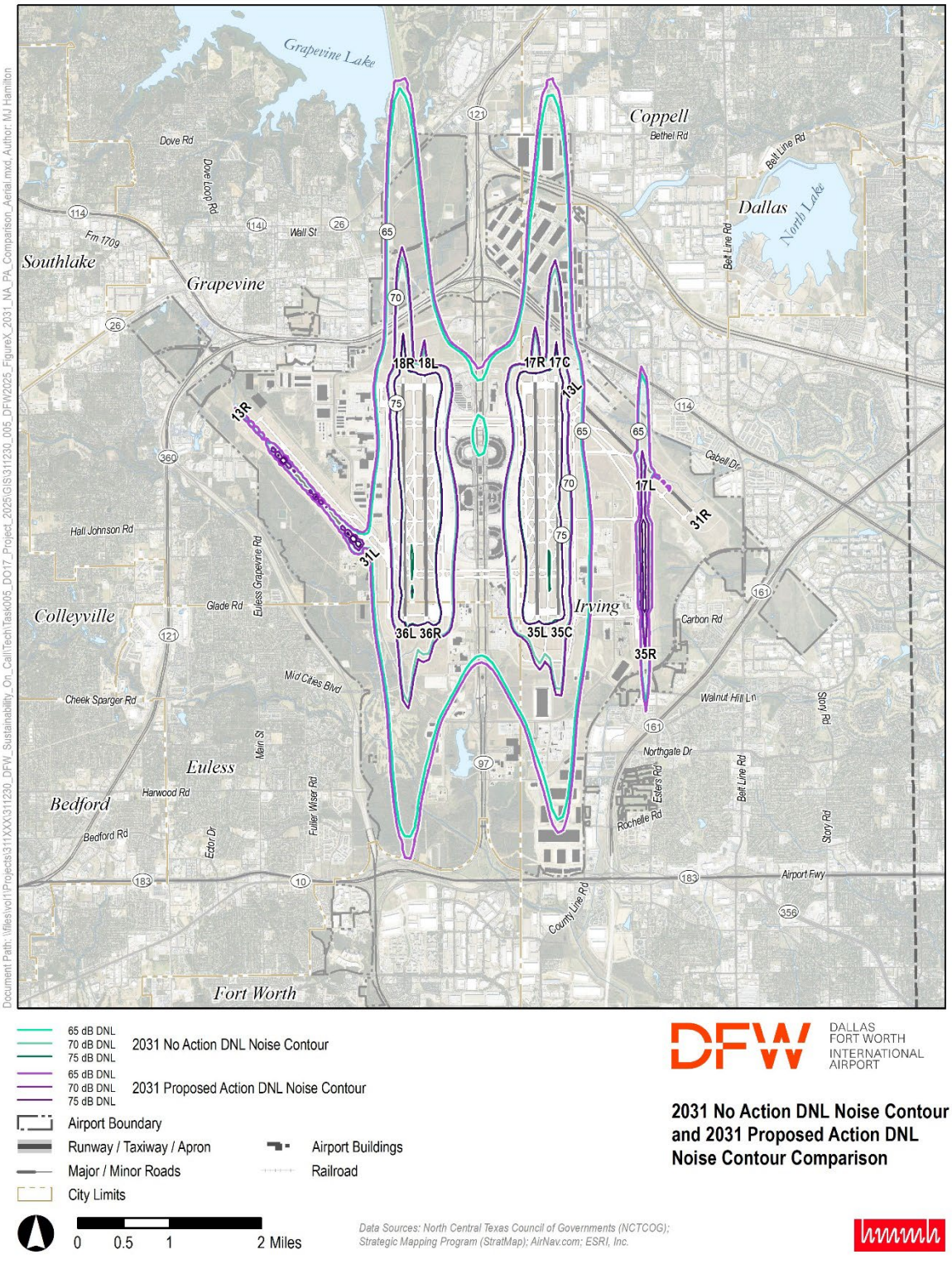


Figure 5-12. Future Year (2031) No Action and Proposed Action Alternatives Noise Exposure Contours



5.7.7.1 Future (2031) Noise Compatible Land Uses

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 (**Figure 5-13**). While noise levels would be higher with the project (0.4 dB increase), the increase is well below FAA's significance threshold[34] (a 1.5 dB or greater change within the Proposed Action 65 DNL). There would be no public schools, churches, nursing homes, hospitals, or libraries within any of the 65 DNL or greater contours.

5.7.7.2 Future (2031) Grid Point Analysis

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 (2031) Proposed Action Alternative (**Figure 5-14**).

5.7.8 Future (2036) No Action Alternative

Under the Future (2036) No Action Alternative, 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 830,000 operations.

5.7.8.1 Noise Exposure Contours

Table 5-22 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) No Action Alternative. Approximately 12.12 mi^2 falls within the Future (2036) No Action Alternative 65 DNL or higher noise exposure area. Of the total land area, approximately 0.51 mi^2 exposed to 65 DNL or higher, is located off-DFW (the remaining 11.61 mi^2 are located on DFW property). **Table 5-22** summarizes the areas of noise exposure within each noise contour level (65 DNL, 70 DNL, and 75 DNL noise contours) for the Future (2036) No Action Alternative. **Figure 5-6** shows the annual noise exposure pattern at DFW for the Future (2036) No Action Alternative. Noise contours are presented for the 65 DNL, 70 DNL, and 75 DNL.

Table 5-22. Estimated Land Area within the Future (2036) No Action Alternative Noise Exposure Contours

Contour Range	Airport Property Estimated Land Area (mi^2)	Non-Airport Property Estimated Land Area (mi^2)	Total Estimated Land Area (mi^2)
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**

Source: HMMH, 2023

Figure 5-15 provides the resultant DNL contours for the Future (2036) No Action Alternative. Similar to existing conditions and Future (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.

[34] Exhibit 4-1, FAA Order 1050.1F provides the Noise Impact Significance Threshold – The action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a DNL 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe. For example, an increase from DNL 65.5 dB to 67 dB is considered a significant impact, as is an increase from DNL 63.5 dB to 65 dB. The determination of significance must be obtained through the use of noise contours and/or grid point analysis along with local land use information and general guidance contained in Appendix A of 14 CFR Part 150.

Figure 5-13. Future (2031) No Action and Proposed Action Alternatives Noise Exposure Contours and Surrounding Land Uses

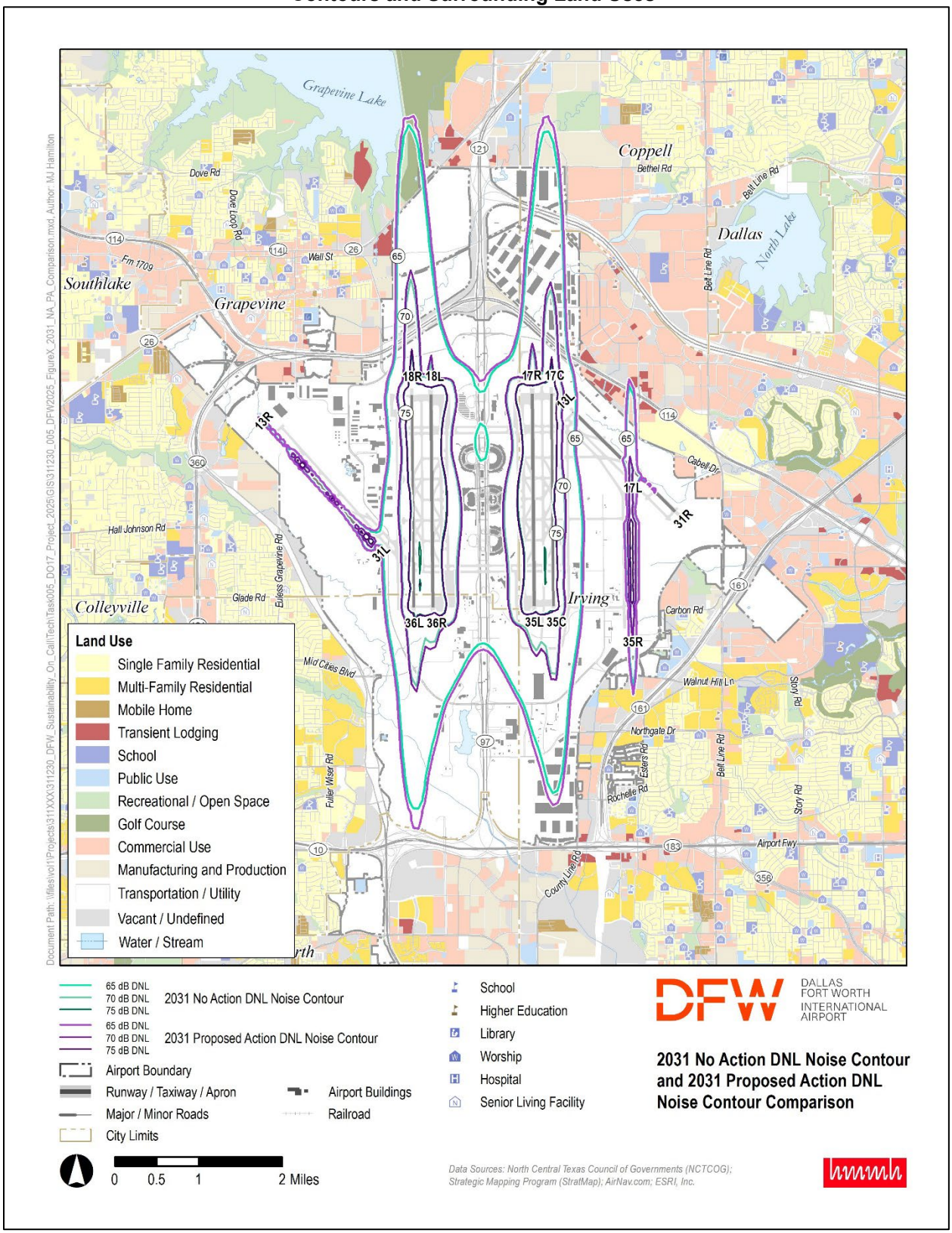


Figure 5-14. Future (2031) No Action and Proposed Action Alternatives Grid Point Analysis

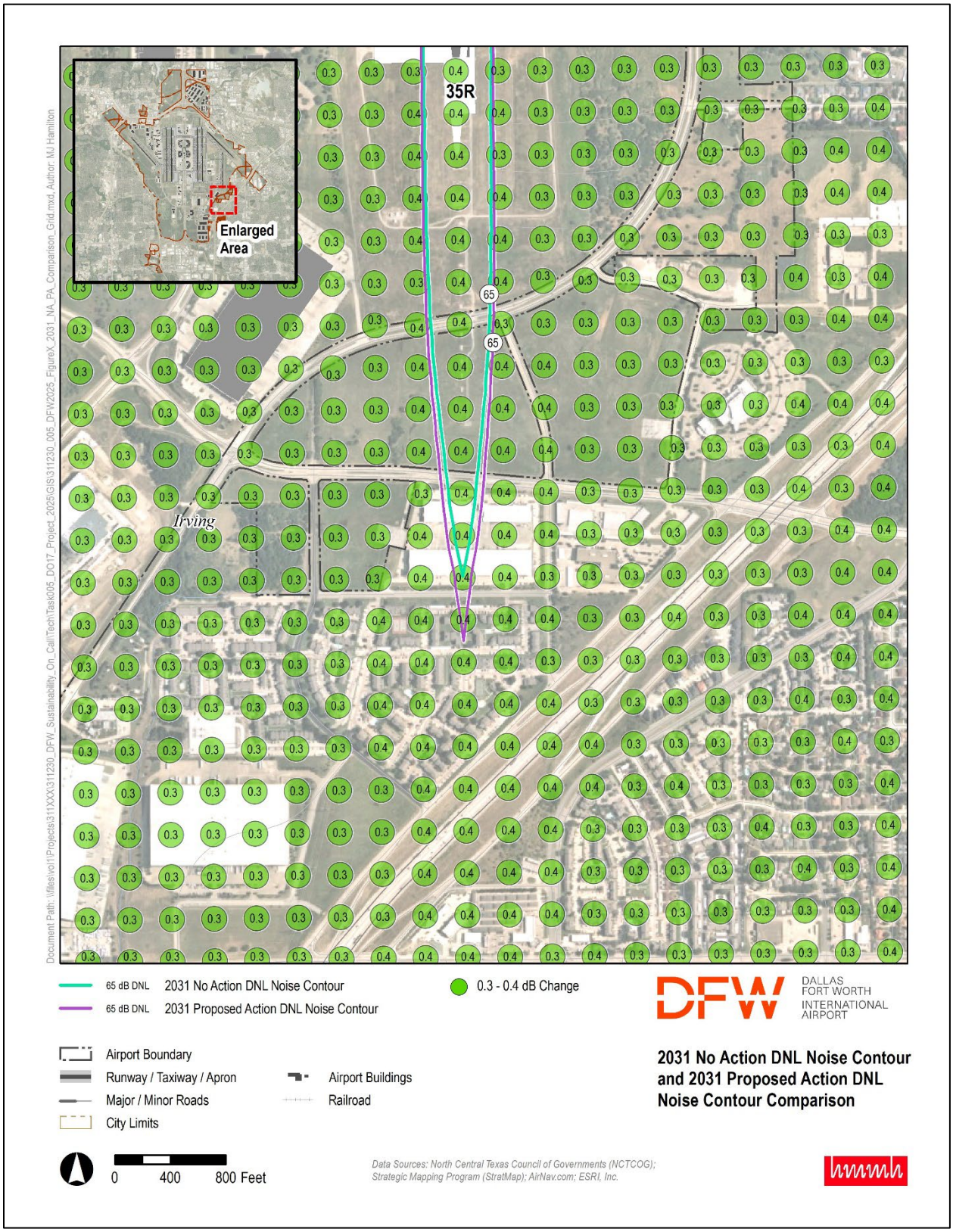
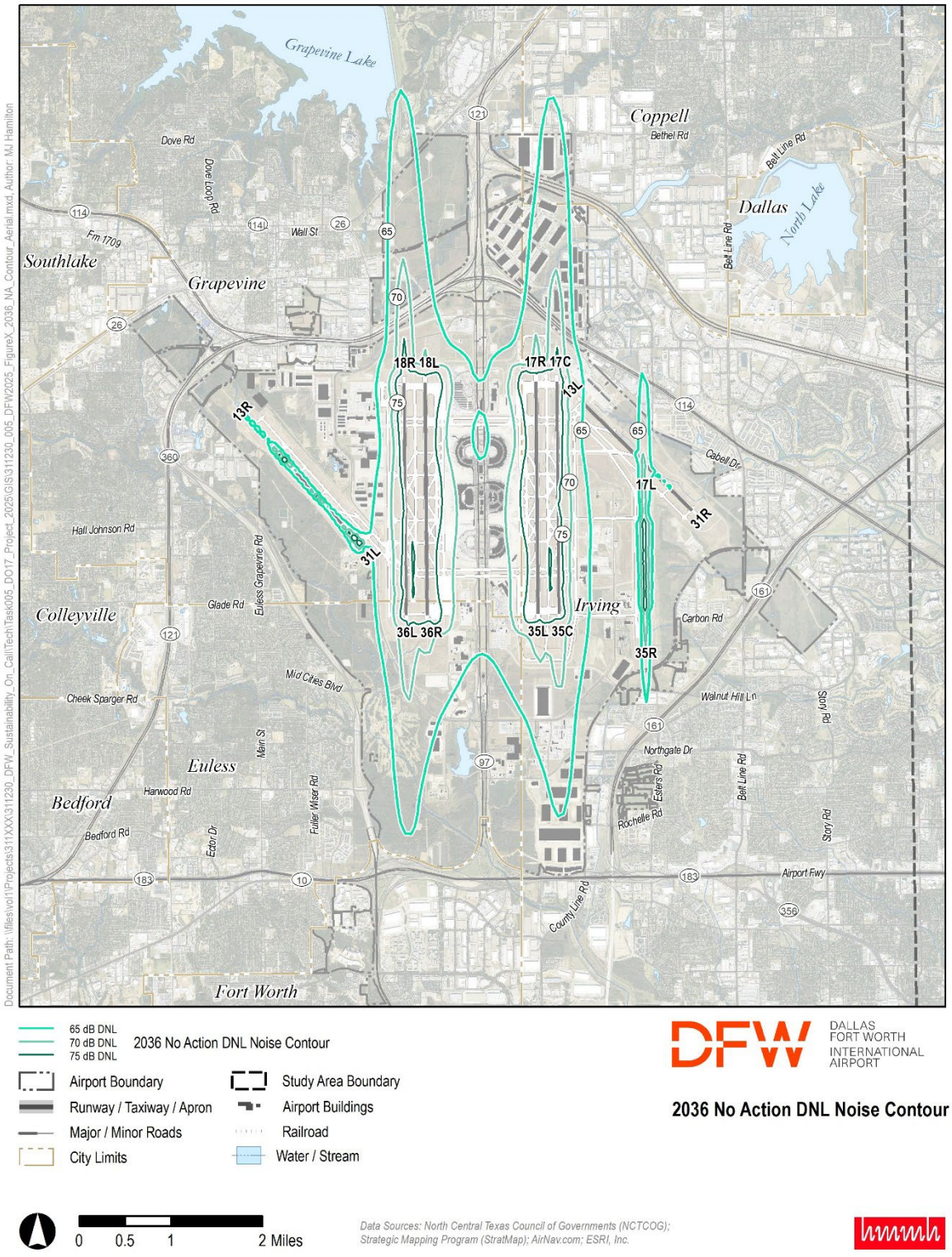


Figure 5-15. Future (2036) No Action Alternative Noise Contours



In the Future (2036) No 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 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. There would be no noise-sensitive land use within the Future (2036) NAA 65 DNL or greater contours (**Figure 5-16**). The 70 DNL contour would barely extend off DFW property north of Runways 18R and 17C to across SH 114.

5.7.8.2 Noise Compatible Land Uses

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 Alternative (*see* **Figure 5-16**). Furthermore, there would be no single-family, multi-family residential housing, or manufactured housing within the DNL 65 and greater Future (2036) NAA noise contours.

5.7.9 Future (2036) Proposed Action Alternative

The Future (2036) Proposed Action Alternative reflects the year of implementation (2026) plus 10 years. 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.

5.7.9.1 Noise Exposure Contours

Table 5-23 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) Proposed Action Alternative. Approximately 13.53 mi^2 falls within the Future (2036) Proposed Action Alternative 65 DNL or higher noise exposure area. Of the total land area, approximately 0.78 mi^2 exposed to 65 DNL or higher is located off-Airport (the remaining 12.76 mi^2 are located on DFW property). **Table 5-23** summarizes the areas of noise exposure within each noise contour level (65 DNL, 70 DNL, and 75 DNL noise contours) for the Future (2036) Proposed Action Alternative. **Figure 5-17** 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.

Table 5-23. Estimated Land Area within the Future (2036) Proposed Action Alternative Noise Exposure Contours

Contour Range	Airport Property Estimated Land Area (mi^2)	Non-Airport Property Estimated Land Area (mi^2)	Total Estimated Land Area (mi^2)
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**

Source: HMMH, 2023

Similar to existing conditions, Future (2026), and (2031) Proposed Action 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, reflecting 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.

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 Road. 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 5-16. Future (2036) No Action Alternative Noise Contours and Surrounding Land Uses

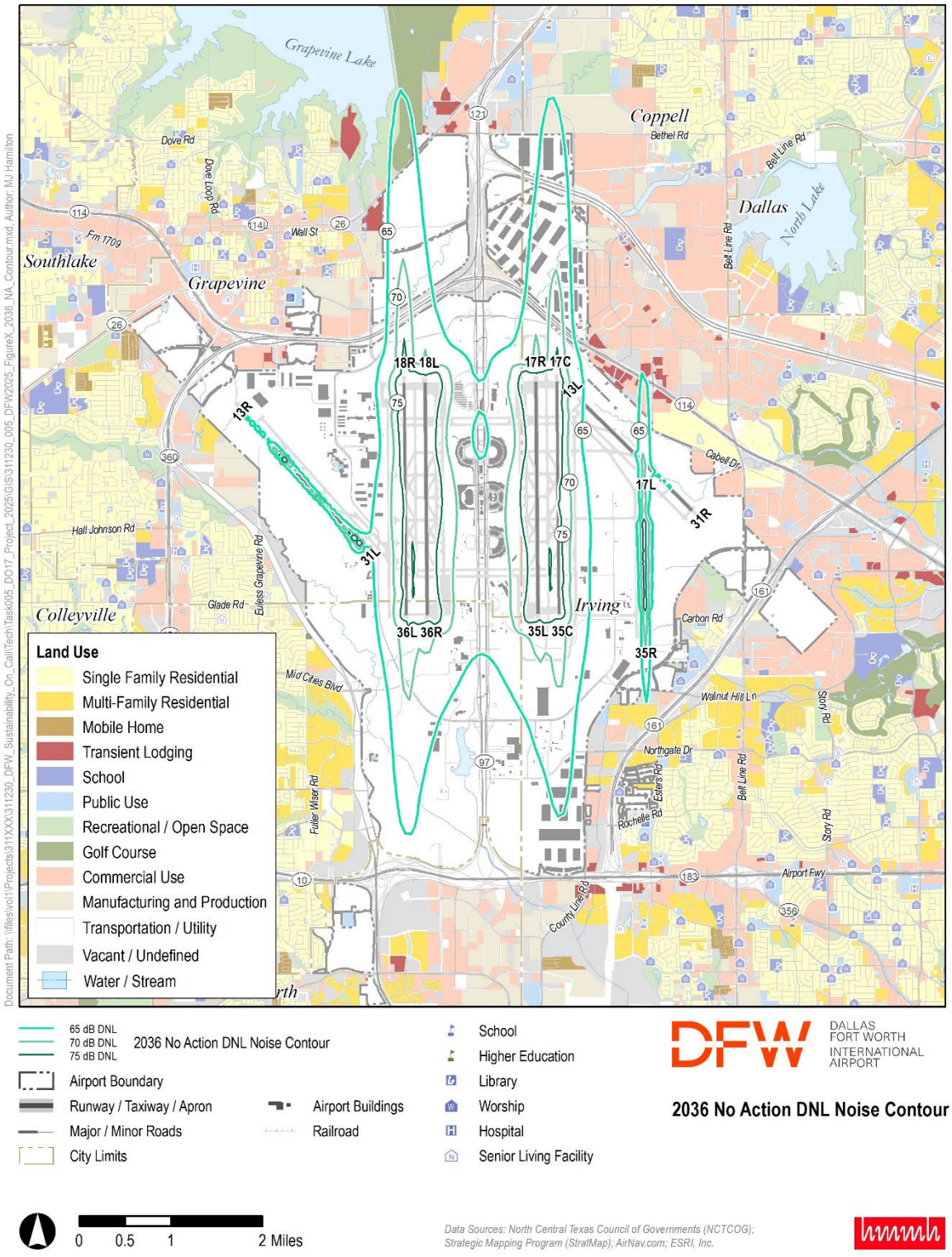
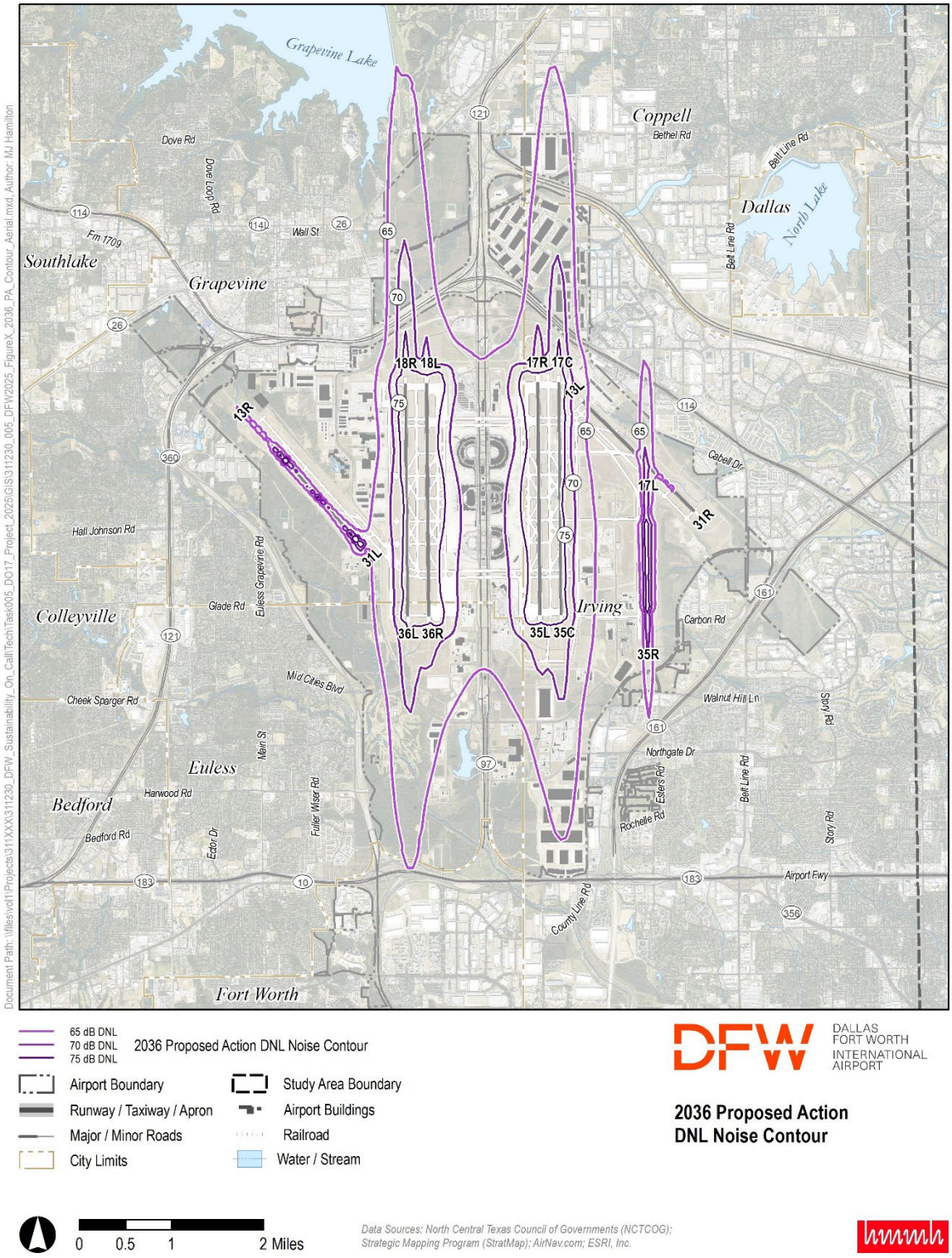


Figure 5-17. Future (2036) Proposed Action Alternative Noise Contours



5.7.9.2 Noise Compatible Land Uses

There would no public schools, churches, nursing homes, hospitals, or libraries within any of the 65 DNL and greater contours with the Future (2036) Proposed Action Alternative. 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 Future (2036) Proposed Action Alternative (**Figure 5-18**). The significance threshold for noise impacts is defined as a change causing 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. For example, "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)" (FAA Order 1050.1F Exhibit 4-1) **Section 5.7.1** and **Table 5-1** also list FAA defined reportable changes of noise levels.

5.7.10 Comparison of Future (2036) No Action and Proposed Action Alternatives

Table 5-24 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) No Action and Proposed Action Alternatives. The noise exposure analysis results showed an increase in the estimated on and off-airport land area; this was due to the operations during the Future (2036) Proposed Action Alternative. The noise analysis results showed that the Future (2036) Proposed Action Alternative would increase the estimated land area within the DNL 65+ dB noise exposure contour as compared to the Future (2036) No Action Alternative.

Table 5-24. Estimated Land Area within Future Year (2036) Noise Exposure Contours by Alternative

Contour Range	Airport Property Estimated Land Area (mi^2)	Non-Airport Property Estimated Land Area (mi^2)	Total Estimated Land Area (mi^2)
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
No Action Total	**11.61**	**0.51**	**12.12**
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
Proposed Action Total	**12.76**	**0.78**	**13.53**
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
Difference (PAA – NAA) Total	**1.15**	**0.27**	**1.41**

Source: HMMH, 2023

Figure 5-19 shows the comparison between the Future (2036) No Action and Proposed Action Alternatives. 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) No Action Alternative 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 5-18. Future (2036) Proposed Action Alternative Noise Contours and Surrounding Land Uses

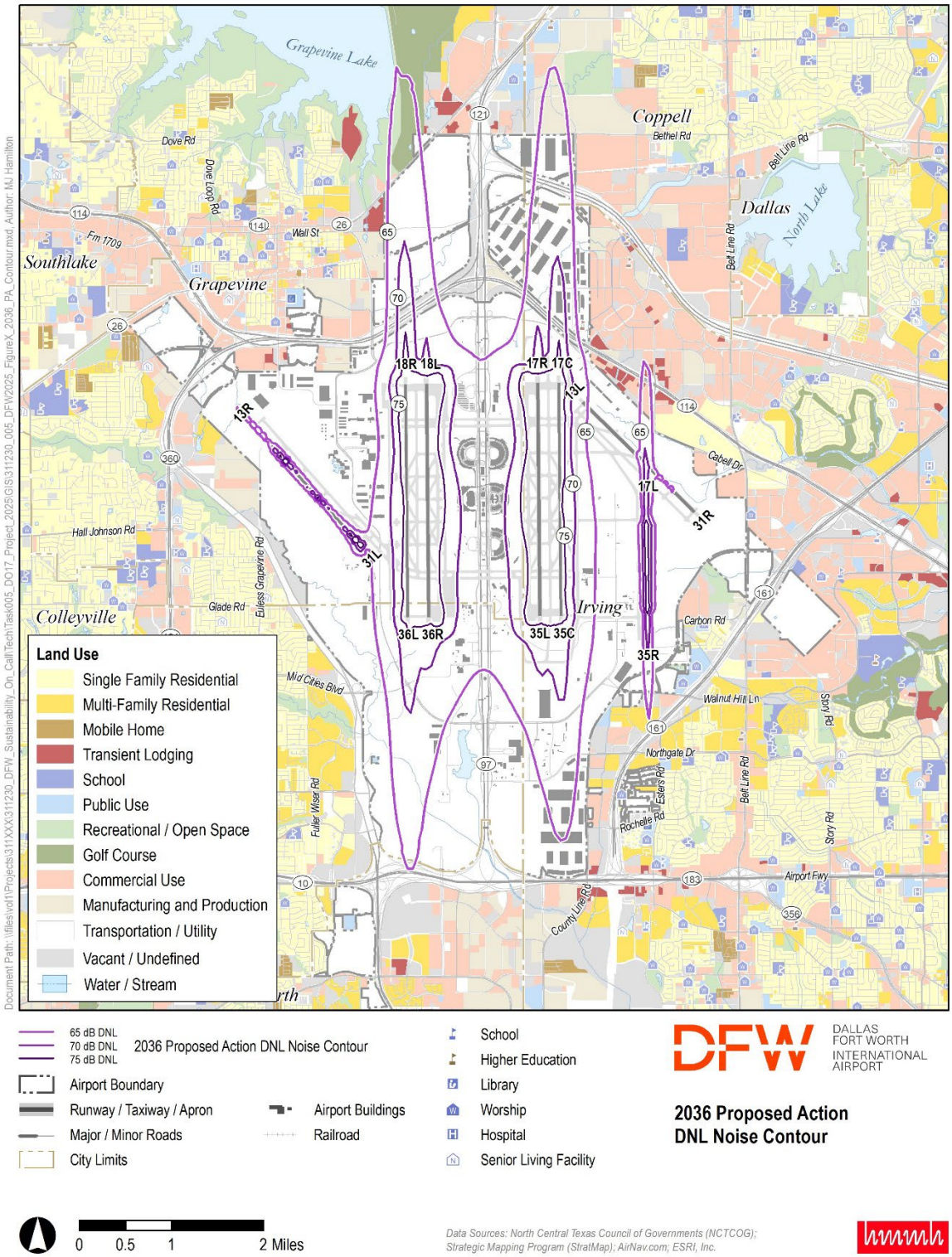
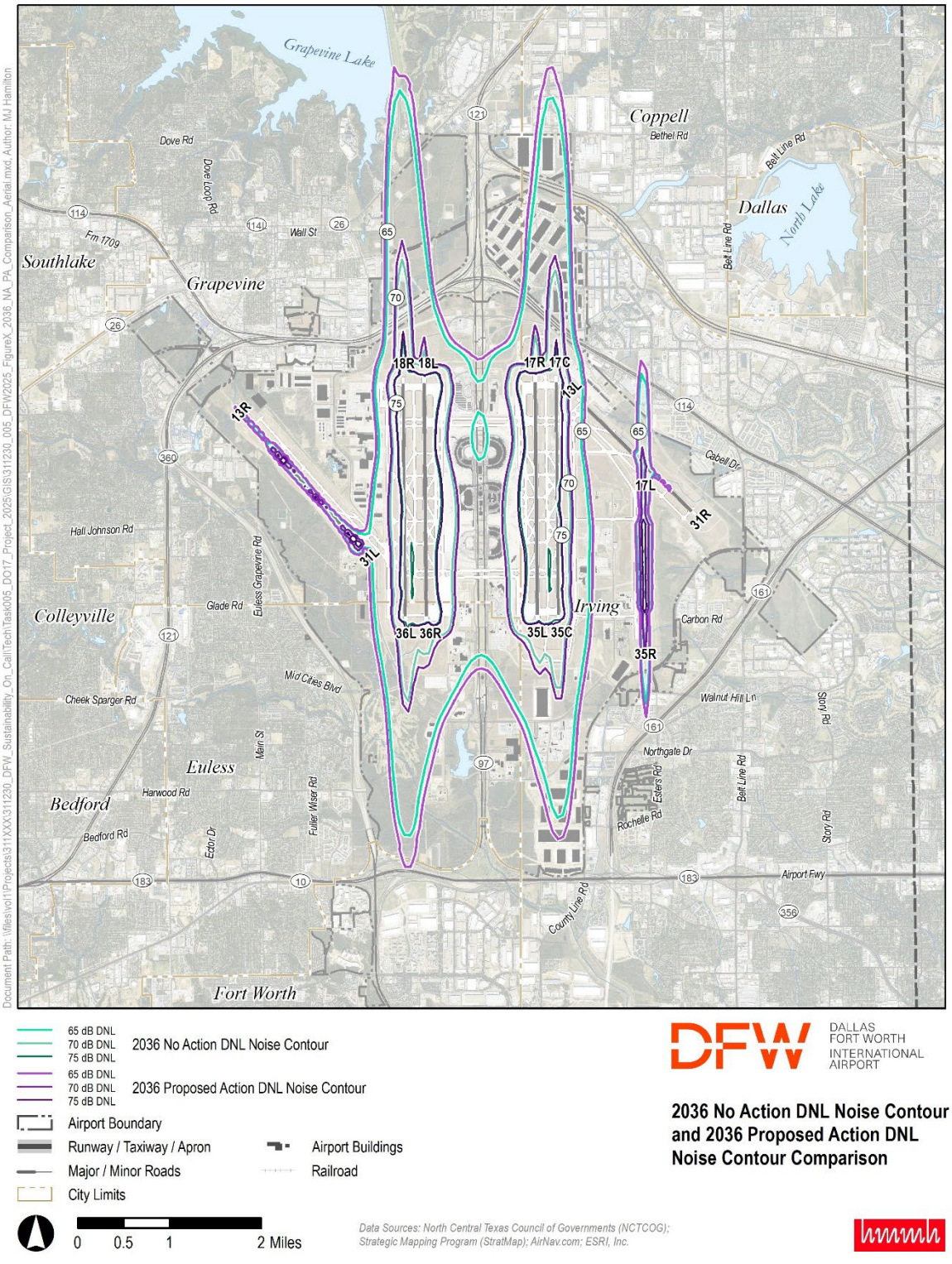


Figure 5-19. Future Year (2036) No Action and Proposed Action Alternatives Noise Exposure Contours



5.7.10.1 Future (2036) Noise Compatible Land Uses

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 (**Figure 5-20**). These buildings, located directly along the extended centerline of Runway 17L/35R, would be impacted by increased aircraft operations on Runway 17L/35R in the Future (2036) Proposed Action Alternative. The analysis concluded that 32 multi-family residential units, with an estimated population of 59 people, 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 proposed project (0.6 dB increase), the increase is well below the significance threshold (a 1.5 dB or greater change within the Proposed Action 65 DNL).

There would be no public schools, churches, nursing homes, hospitals, or libraries within any of the 65 DNL or greater contours with the Future (2036) Proposed Action Alternative.

5.7.10.2 Future (2036) Grid Point Analysis

The nose study area grid (defined in **Section 4.9.2**) 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 Alternative.

Figure 5-21 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).

5.7.11 Mitigation

According to FAA Order 1050.1F, 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. There is an area of residential land use south of Runway 35R that would be newly exposed to DNL 65 dB due to the Proposed Action Alternative when compared to the No Action Alternative, in 2031 and 2036. This area consists of 6 housing units in the 2031 contours and 32 housing units of the same multi-family apartment complex in the 2036 contours. The noise levels would increase by approximately 0.6 dB bringing the previously mentioned multi-family residential units into the DNL 65 dB noise contour. While there is a change in the noise levels as a result of the Proposed Action, the increase is well below the significance threshold of 1.5 dB or greater change within the DNL 65 dB contour. Therefore, there is no significant noise impact due to the Proposed Action Alternative and no mitigation is required.

Figure 5-20. Future Year (2036) No Action and Proposed Action Alternatives Noise Exposure Contours and Surrounding Land Uses

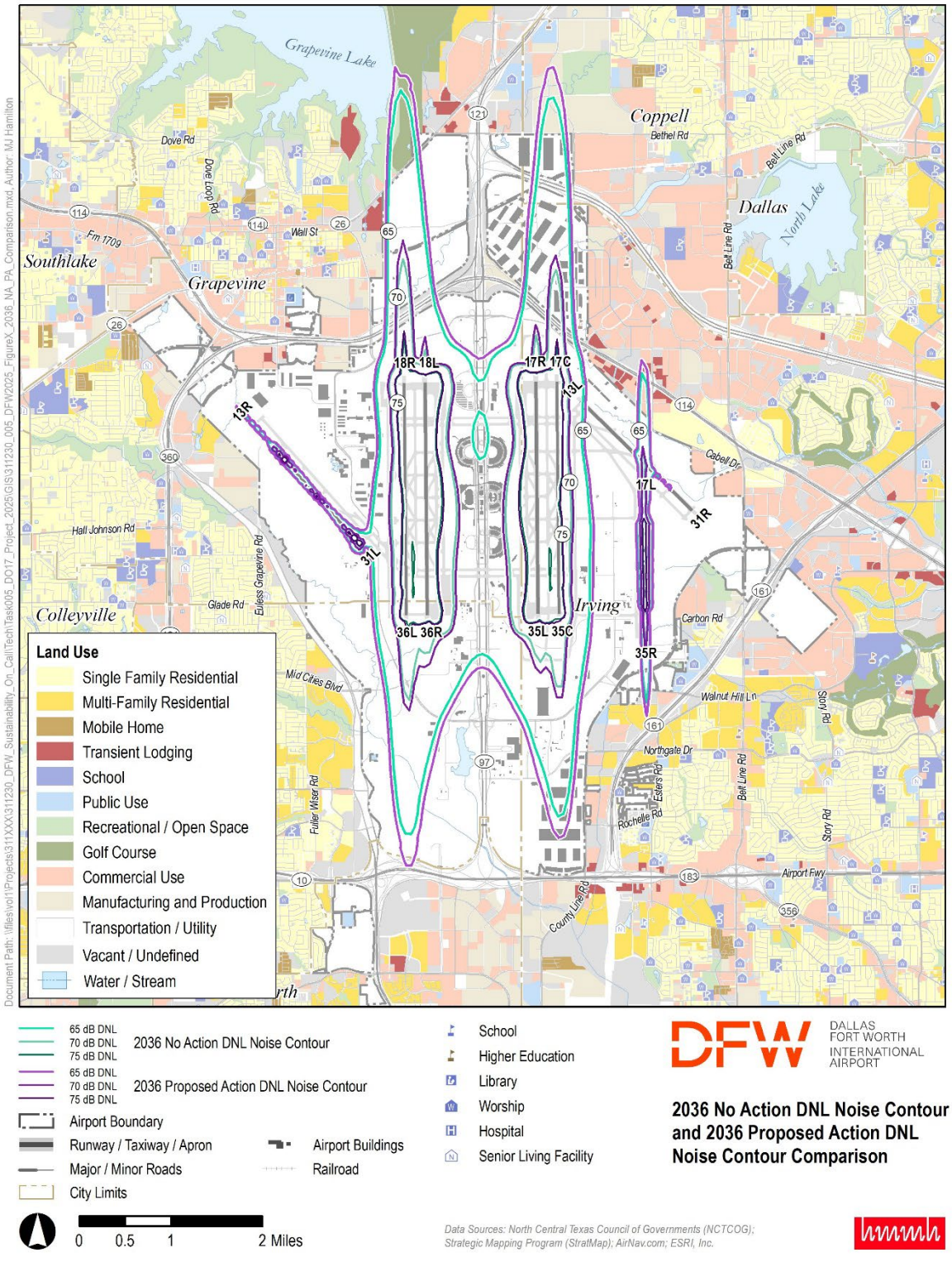
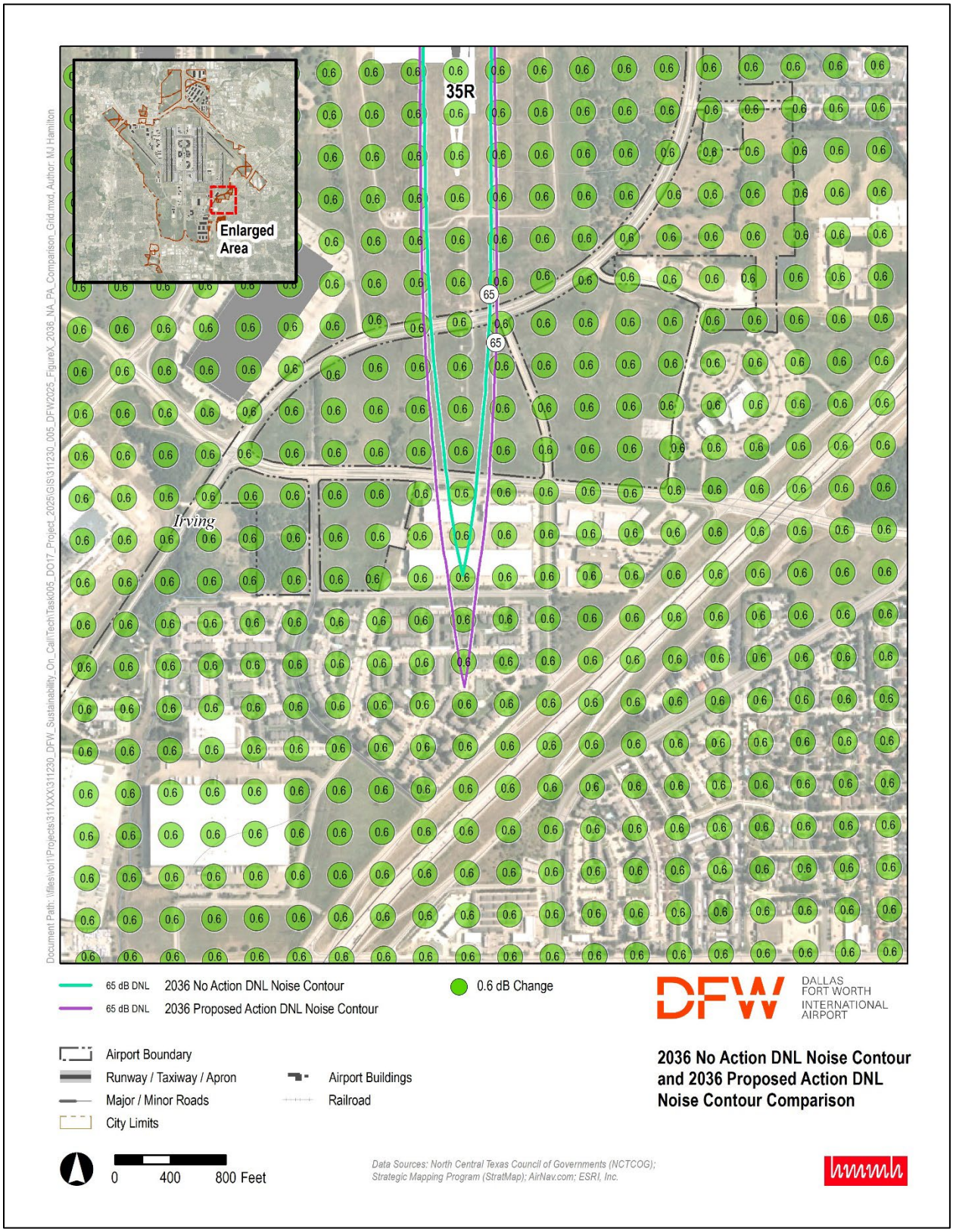


Figure 5-21. Future (2036) No Action and Proposed Action Alternatives Grid Point Analysis



5.8 Socioeconomic, Environmental Justice, Public Services, including Traffic Patterns, and Children's Environmental Health and Safety Risks

This section summarizes the analyses that were undertaken to determine whether the Proposed Action would result in disproportionately high and adverse effects to communities of special interest, including communities of color, low-income communities, and children. FAA denotes that Environmental Justice is, "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.[35]" Further, EPA defines *fair treatment* as meaning that no group of people should bear a disproportionate share of the negative environmental consequences resulting from industrial, governmental, and commercial operations or policies. Additionally, EPA has defined *meaningful participation* with the following components.

- Potentially affected populations have an appropriate opportunity to participate in decisions about a proposed activity that will affect their environment and/or health;
- The public's contribution can influence the regulatory agency's decision;
- The concerns of all participants will be considered in the decision making process; and
- The rule-writers and decision makers seek out and facilitate the involvement of those potentially affected.

EO 14096 was enacted on 21 April 2023, but does not rescind EO 12898, which has been in effect since 11 February 1994, and is currently implemented through DOT Order 5610.2C. This implementation will continue until further guidance is provided regarding the implementation of the new EO 14096 on environmental justice.

DOT Order 5610.2C provides guidance towards the definition of disproportionately high and adverse effect with the following two tests.

- Is the adverse effect predominately borne by a minority population and/or a low-income population; or
- Will the adverse effect be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

As mentioned previously, the DOT order, which is followed by FAA, considers a minority population to be any readily identifiable groups of minority persons who live in geographic proximity and if circumstances warrant, dispersed/transient persons who will be similarly affected by a proposed DOT program, policy, or activity. Also, the low-income population is any readily identifiable group of low-income persons who live in geographic proximity, and, if circumstances warrant, geographically dispersed/transient persons who will be similarly affected by a proposed DOT program, policy, or activity.

5.8.1 No Action Alternative

Under the No Action Alternative, the CTA Expansion Proposed Action would not be built. Without the Proposed Action, there would be no construction activities or additional operations beyond what is anticipated via natural industry growth constrained by the number of current gates at DFW. Without these activities there would be no changes in the resource categories beyond those changes associated with projects that have been previously analyzed for DFW and found to have minimal effects. Without the CTA Expansion, there would be no changes to the off-airport noise levels or construction and operational emissions. Without these effects, there would be no disproportionate effects to low-income communities or communities of color adjacent to DFW. There would not be activities that would cause a significant decline in surface transportation level of service (LOS) or create conditions that would jeopardize children's health.

[35] FAA 1050.1 Desk Reference – Chapter 12 – Socioeconomics, Environmental Justice, and Children's Environmental Health and Safety Risks (02/2020)

The No Action Alternative would produce opportunity costs associated with the loss of continued economic expansion in the Dallas Fort Worth Metropolitan area. A 2015 study published by the Perryman Group[36] highlighted DFW's economic importance to North Texas. They found that in the years analyzed DFW generated more than 228,000 jobs and $37 billion in annual total expenditures. A local report in 2023 identified that DFW generates more than $1 billion in annual tax revenue with approximately $500 million going to local taxing entities[37]. This potential loss of an economic growth engine in the North Central Texas area could adversely affect Environmental Justice communities and children along with the entire region both directly and indirectly.

5.8.2 Proposed Action Alternative

5.8.2.1 Resource Areas with Adverse Effects

As mentioned throughout this EA, the Proposed Action Alternative results in air quality criteria pollutant emissions above the applicable NAAQS *de minimis* thresholds and a permanent increase in off-airport noise levels south of Runway 35R/17L.

NO_X emissions will exceed the 25 tpy *de minimis* level in construction years 2025 through 2028 and then in the implementation years of 2031 and 2036. VOC emissions will exceed the 25 tpy *de minimis* level in implementation years 2031 and 2036. While the air quality assessment demonstrates that the Proposed Action Alternative when compared to the No Action Alternative, would cause an increase in air emissions above the applicable *de minimis* thresholds, the Proposed Action has been shown to conform with the SIP through the General Conformity Determination process, as concurred by TCEQ. As the Proposed Action Alternative conforms to the SIP, it would not create any exceedances of the NAAQS, delay the attainment of any NAAQS, nor increase the frequency or severity of any existing violations of the NAAQS. As a result, the construction and operation of the Proposed Action would not result in a significant adverse impact on local or regional air quality.

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 Alternative. Off-airport noise levels will increase slightly (0.6 dB at the maximum in 2036) to bring a small number of multi-family residential units (6 units/11 persons in 2031 and 32 units/59 persons in 2036) into the 65 dB noise contours with the implementation years of 2031 and 2036. As there would be no significant impact, no mitigation is required for these housing units.

No other resource areas would be impacted or result in a significant adverse regional effect. As such, the analysis in this section focuses on noise since air quality effects are regionalized and would not disproportionately affect any population immediately adjacent to DFW.

5.8.2.2 People of Color and Noise Effects

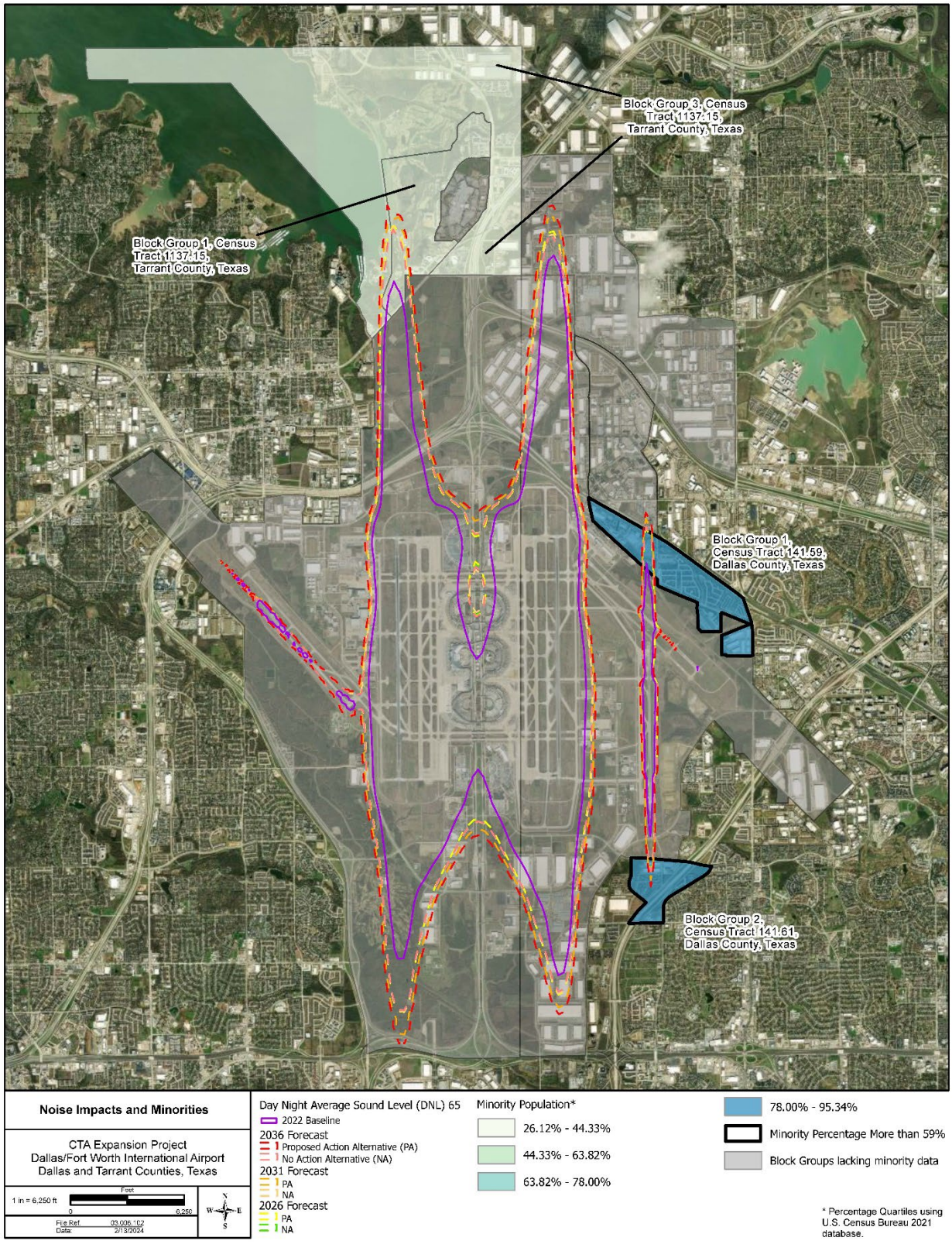
Figure 5-22 provides an illustrative overview of the communities of color within the DFW noise contours. Block groups with a minority population percentage greater than 59 percent (greater than the State of Texas average minority population percentage per EPA EJScreen) are bold outlined. Communities in the northwest study area were generally identified containing between 26 and 44 percent minority populations, a distribution within the range of the national average of 41 percent, and less than the state average of 60 percent[38]. The two block groups within the northwest quadrant of the airport, predicted to experience additional noise changes, as a result of the 2036 Proposed Action Alternative, contain commercial and industrial land use, which are noise compatible land uses and consist of minority populations less than the national average, which is below the Texas average.

[36] Catalyst!! The Role of Dallas/Fort Worth International Airport in the North Central Texas Regional Economy. November 2015. The Perryman Group. (https://www.perrymangroup.com/media/uploads/report/perryman-catalyst-11-30-15.pdf)

[37] North Texas Business Leaders say DFW Airport's Expansion will be Good for the Economy. 17 May 2023. J.D. Miles. CBS News Texas. (https://www.cbsnews.com/texas/news/north-texas-business-leaders-say-dfw-airports-expansion-will-be-good-for-the-economy/).

[38] U.S. Census Bureau. Quick Facts Texas and the United States. People. 01 July 2022. (https://www.census.gov/quickfacts/fact/table/TX,US/PST045222).

Figure 5-22. Noise Effects and Populations of Color



In the northeast, six block groups (Denton County Block Group 1, Census Tract 217.43 and Block Group 2, Census Tract 217.42 and Dallas County Block Group 1, Census Tract 217.28; Block Group 1, Census Tract 200; and Block Groups 2 and 4, Census Tract 141.26) were identified as having communities comprised of more than the Texas minority percentage average of 60 percent. None of these block groups were located within the 65 dB DNL noise contour extents. Remaining noise-affected land within this quadrant was comprised of industrial land use falling within block groups lacking block group-level minority census data.

Centrally, three block groups (Tarrant County Block Group 1, Census Tract 1137.13; and Dallas County Block Group 3, and Census Tract 141.24 and Block Groups 1, Census Tract 141.59) were identified with minority percentages higher than the Texas average. Of these, Dallas County Block Group 1, Census Tract 141.59 was predicted within the 65 dB DNL noise contour extent. Land use within this block group and noise contour is generally a mix of airport parking and hotels.

In the southwest, 65 dB DNL noise contours span the Bear Creek Golf Club, industrial buildings, and forested land. Affected land in this quadrant lacks block group-level minority census data. Surrounding unaffected land contains twenty block groups identified with minority populations greater than the Texas average and six with lower-than-average minority populations. Residential developments are present west of SH 360 and south of the industrial land along SH 183.

In the southeast, 65 dB DNL noise contours overlie industrial land not described through block group-level data, as well as Dallas County Block Group 2, Census Tract 141.61. This block group contains communities with minorities higher than the Texas average, 86 percent. Contours within this census block group overlie industrial land and a portion of the Bridgeport Apartment complex. The No Action Alternative contours do not reach the complex. Predicted 2031 and 2036 Proposed Action Alternative contours are predicted to overlie approximately four apartment building groupings. The remaining southeastern block groups studied contain all but two of the block groups with minority percentages higher than the Texas average. These groups generally contain between 78 to 95 percent minority populations. The northern portion of this zone is largely residential land use. Towards the south of this zone, land use is a mosaic of residential, commercial, and industrial land use.

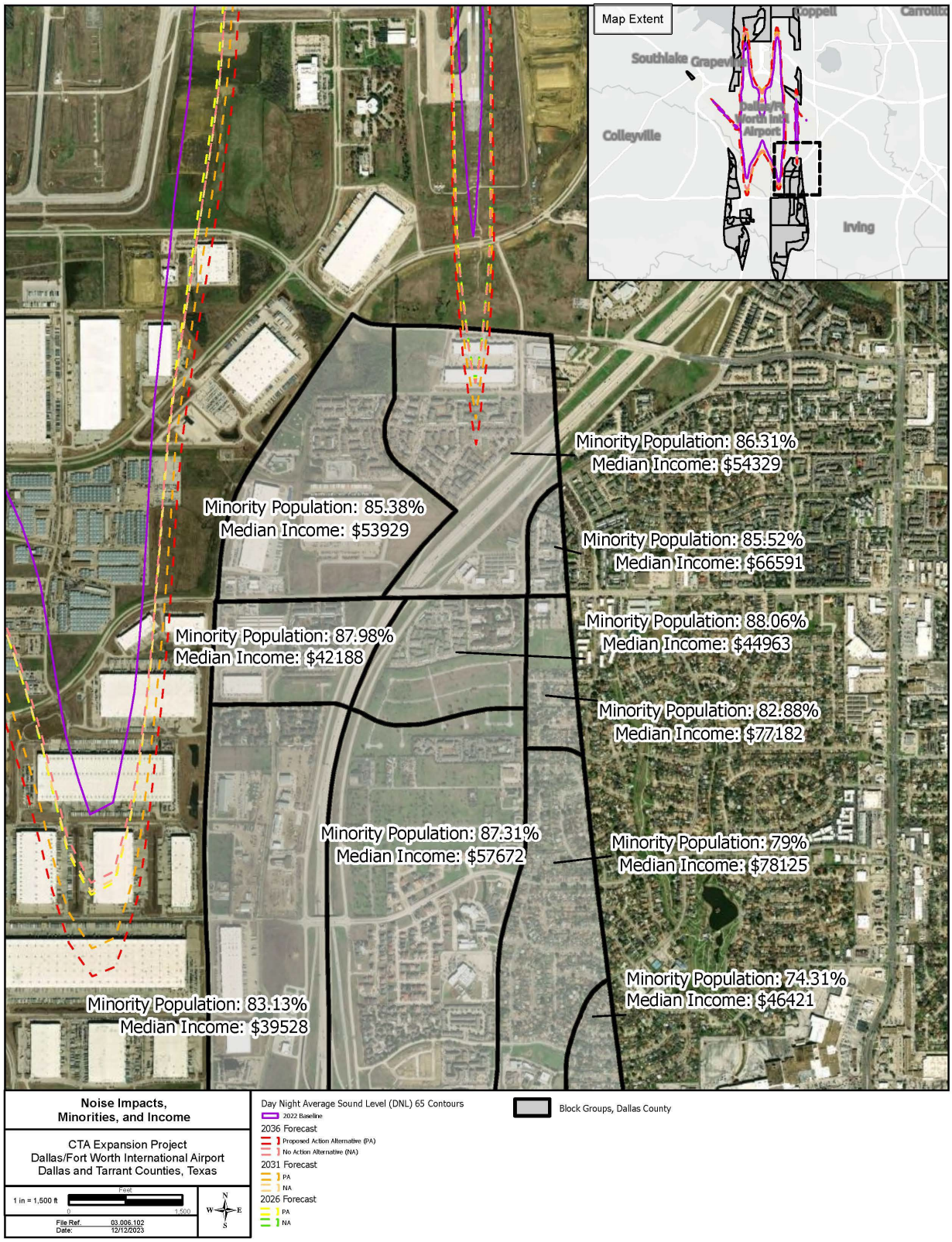
This block group-level (Dallas County, Block Group 2, Census Tract 141.61) minority population analysis revealed one residential apartment complex (Bridgeport Apartments) with predicted noise effects from the proposed action. The complex was identified in the southeast containing minority percentages higher than the Texas average (**Figure 5-23**). Generally, land within the 65 dB noise contours overlie airport property, commercial, industrial, recreational, and undeveloped land, which are compatible land uses.

As indicated previously, there is a small area south of Runway 17L/35R that is newly exposed to DNL 65 dB due to the Proposed Action Alternative in 2031 and 2036 when compared to the No Action Alternative (*see* **Figure 5-23**). This area consists of 6 housing units/11 persons in 2031 and 32 housing units/59 persons by 2036. At current population levels, 2.8 percent of the population within this block group, which is identified as 86 percent minority (48.3 percent Black or African American) would be impacted. The affected population is very small when compared to the overall block group and census tract populations. The immediate population is similar to all immediately adjacent multi-family residential areas in the southeastern quadrant outside DFW. Other adjacent land uses are primarily compatible uses, that demonstrate lower minority populations, based on very limited residential areas within these block groups and census tracts.

This increase is less than a 1.5 dB change, making it an adverse effect but not a significant effect. As there is no significant impact, no mitigation is required under the FAA's noise guidance[39]. To ameliorate the increased noise levels, DFW provided opportunities to engage the Bridgeport Apartment Complex residents, along with all other adjacent communities, in the EA public comment period and public meeting. All substantive comments derived from the public comment period and public meeting will be thoroughly reviewed and taken into consideration in the preparation of the Final EA.

[39] FAA Order 1050.1F Desk Reference, Section 11.3.1

Figure 5-23. Closeup View of Dallas County Block Groups with Minority Population Percentages and Median Income



5.8.2.1 Income and Poverty Measures with Noise Effects

Each year the USCB defines the national poverty thresholds, which are measured in terms of household income dependent upon the number of persons within the household. Individuals falling below the poverty threshold ($30,186 for a household of four in 2022) are considered low-income individuals. USCB census tracts where at least 20 percent of the residents are considered poor are known as *poverty areas* (USCB 1995). When the percentage of residents considered poor is greater than 40 percent, the census tract becomes an *extreme poverty area*.

To assess income and poverty metrics within and surrounding the noise affected populations, an assessment was performed based on the USCB 2021 – 5-year average data set from the ACS at the block group level (USCB 2021). **Figure 5-24** displays median income trends amongst the block groups.

Populations within northern block groups appear to earn a relatively higher income, these groups generally make up the higher end of the median income quartiles. Groups within the southwest were generally classified within the lower two income quartiles ($36,964 and $62,844; $62,844 and $94,861), while southwestern block groups comprise the lower portion of the dataset.

Although the southeastern populations earn a relatively lower income on average, only one block group was identified with a median income considered to be *low income* (Dallas County Block Group 1, Census Tract 144.08), with a median income of $31,645. This block group falls outside of the predicted 65 DNL contours.

Poverty trends displayed in **Figure 5-25** displayed a similar distribution identified within the median income of the study area.

Six block groups were classified with a *poverty area* status, considered to be 20 percent or more of the population experiencing poverty. One of these block groups was identified in the northwest (Tarrant County Block Group 1, Census Tract 1137.16). This block group is predicted to be unaffected by DNL 65 noise contours and contains undeveloped land and boating marinas. The remainder of the block groups holding *poverty area* status were identified in the south, all of which are located outside of the predicted DNL 65 contours.

One block group (Tarrant County Block Group 3, Census Tract 1065.23) in the southwest, was identified with an *extreme poverty area* status, considered to be 40 percent or more of the population experiencing poverty. This block group contains residential, transportation, and undeveloped land uses. This block group is located outside of the 65 dB DNL noise contours. The 65 dB DNL contours with block group-level data generally overlay block groups with populations of between 0 to 5 percent below the poverty level.

This block group-level income and poverty analysis revealed one block group with a median income considered to be *low income*, located outside of the predicted noise affected area. Areas classified as a *poverty area* or *extreme poverty area* were not identified within the noise contour limits. Thus, a disproportionate noise effect would not be expected for low income or poverty-affected communities.

Figure 5-24. Noise Effects and Median Household Income

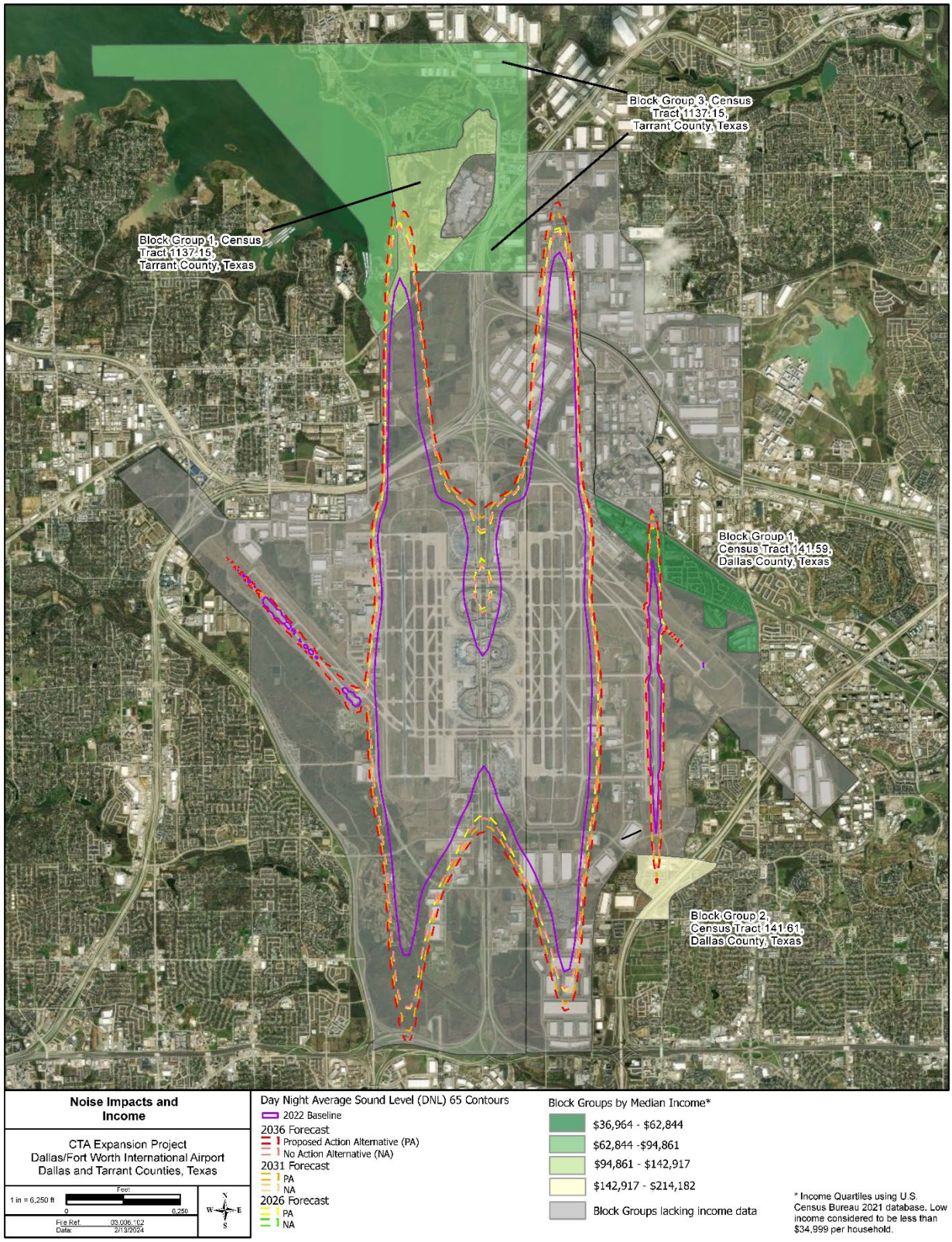
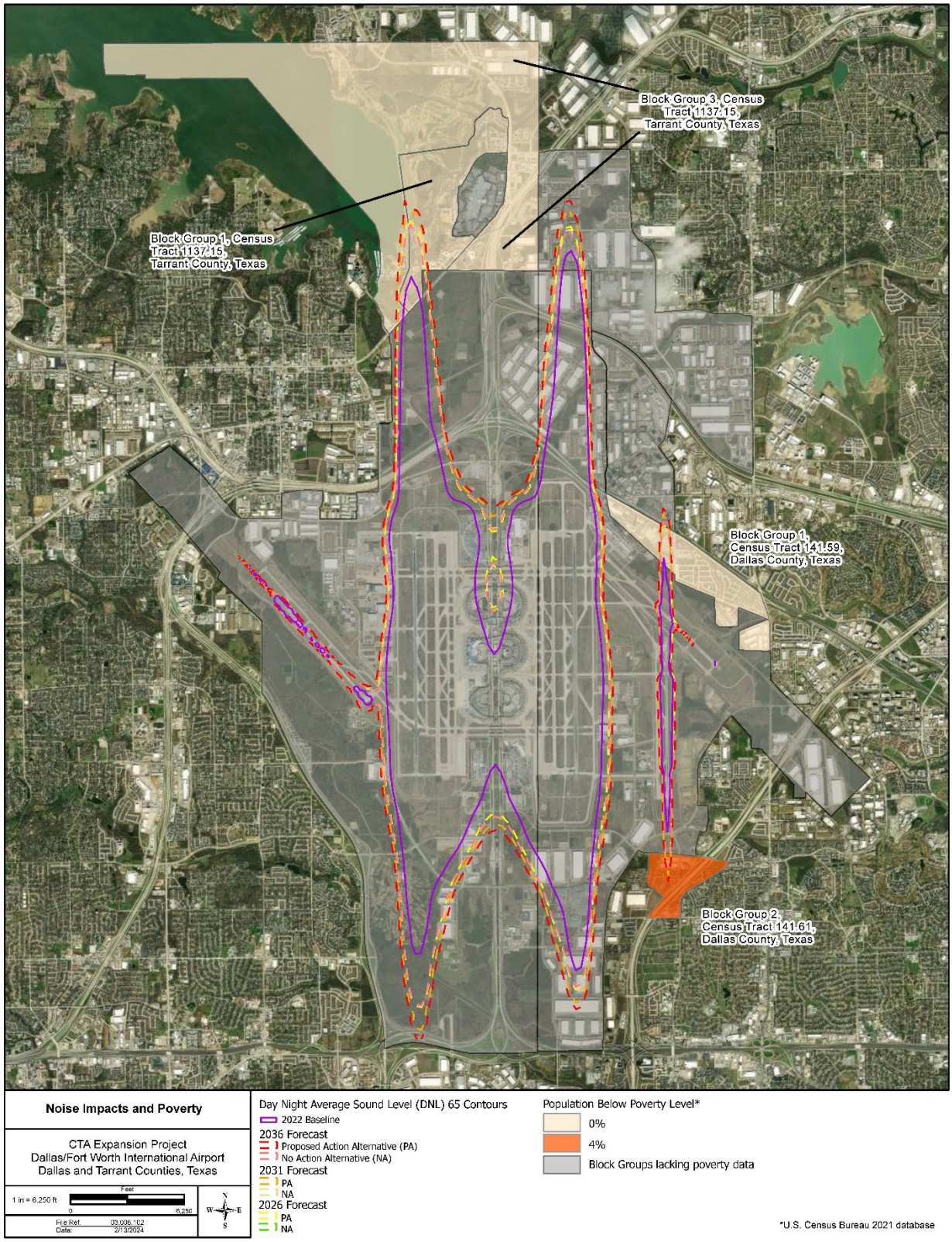


Figure 5-25. Noise Effects and Percent Poverty Levels



5.8.2.1 Public Transportation and Road Networks

Historical Control Plaza data was analyzed to determine an estimated number of additional vehicles that could operate on the landside roadways throughout the CTA as a result of the Proposed Action Alternative. Control Plaza transaction data was obtained for calendar years 2016 to 2022 and adjusted to remove vehicle pass-thru or U-turn operations. Additionally, due to the impact of the COVID-19 Pandemic, data from calendar years 2020 and 2021 were removed. The resulting analysis showed that, on average, 0.3 vehicle operations occur per passenger using DFW. This metric was applied to the increased passengers as forecasted within the TAF.

According to the 2021 TAF, passenger levels in 2038 are expected to exceed 100 million annual passengers (MAP), reaching 103 MAP. The 2020 traffic analysis was updated to reflect 100 MAP to determine resultant LOS). **Table 5-25** summarizes those DFW roadway segments which experience an LOS degradation between 90 MAP and 100 MAP (**Figure 5-26**). Implementation of the Proposed Action Alternative will result in an increase in vehicle trips; however, this increase is not considered significant from both a traffic and road LOS perspective. No changes, modifications, or additions to the CTA road network, beyond the International Parkway Right-Hand Exits project are needed to support the development of this CTA improvement project.

Table 5-25. CTA Roadway Segments LOS Degradation between 90 MAP to 100 MAP

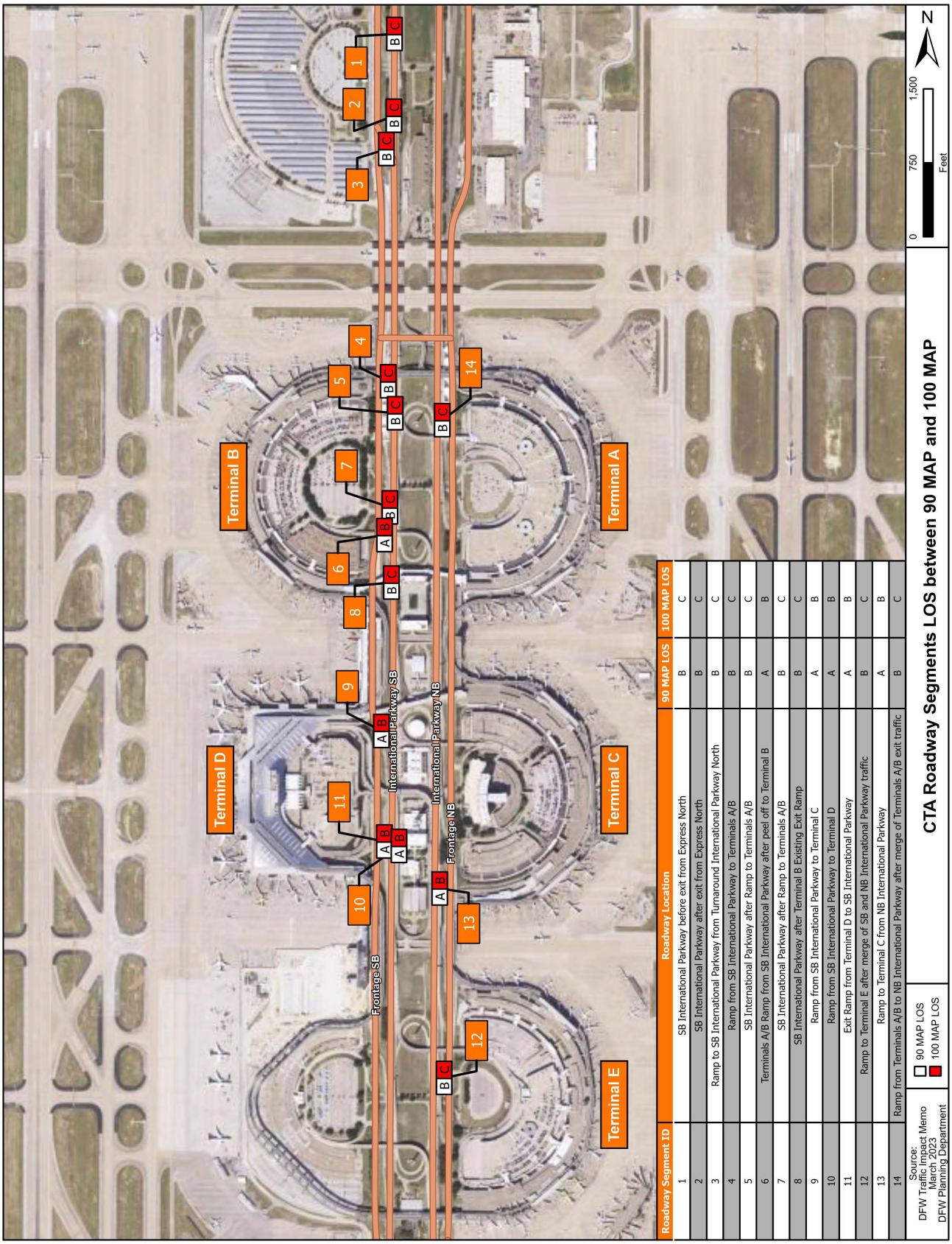
Roadway Segment ID	Roadway Location	90 MAP LOS	100 MAP LOS
1	SB International Parkway before exit from Express North	B	C
2	SB International Parkway after exit from Express North	B	C
3	Ramp to SB International Parkway from Turnaround International Parkway North	B	C
4	Ramp from SB International Parkway to Terminals A/B	B	C
5	SB International Parkway after Ramp to Terminals A/B	B	C
6	Terminals A/B Ramp from SB International Parkway after peel off to Terminal B	A	B
7	SB International Parkway after Ramp to Terminals A/B	B	C
8	SB International Parkway after Terminal B Existing Exit Ramp	B	C
9	Ramp from SB International Parkway to Terminal C	A	B
10	Ramp from SB International Parkway to Terminal D	A	B
11	Exit Ramp from Terminal D to SB International Parkway	A	B
12	Ramp to Terminal E after merge of SB and NB International Parkway traffic	B	C
13	Ramp to Terminal C from NB International Parkway	A	B
14	Ramp from Terminals A/B to NB International Parkway after merge of Terminals A/B exit traffic	B	C

Source: DFW Traffic Impact Memo, 27 March 2023 (**Appendix J**)

As such, the Proposed Action Alternative will generate a decline in LOS, but it is within parameters and will likely be addressed by future roadway improvement projects.

The changes to the DFW interior road networks would not result in decreased emergency response times to local communities adjacent to DFW. Incoming traffic would continue to navigate to DFW through the major roadways which have undergone substantial capacity increases within the last decade to account for continued growth in the overall Metroplex. Along with vehicular traffic, the NCTCOG and local transportation agencies have continued their commitment to funding growth in public transportation both via rail and bus. As such, the Proposed Action would not adversely affect Environmental Justice communities and other adjacent communities that rely on public transportation.

Figure 5-26. International Parkway LOS Comparison



Roadway Segment ID	Roadway Location	90 MAP LOS	100 MAP LOS
1	SB International Parkway before exit from Express North	B	C
2	SB International Parkway after exit from Express North	B	C
3	Ramp to SB International Parkway from Turnaround International Parkway North	B	C
4	Ramp from SB International Parkway to Terminals A/B	B	C
5	SB International Parkway after Ramp to Terminals A/B	B	C
6	Terminals A/B Ramp from SB International Parkway after peel off to Terminal B	A	B
7	SB International Parkway after Ramp to Terminals A/B	B	C
8	SB International Parkway after Terminal B Existing Exit Ramp	B	C
9	Ramp from SB International Parkway to Terminal C	A	B
10	Ramp from SB International Parkway to Terminal D	A	B
11	Exit Ramp from Terminal D to SB International Parkway	A	B
12	Ramp to Terminal E after merge of SB and NB International Parkway traffic	B	C
13	Ramp to Terminal C from NB International Parkway	A	B
14	Ramp from Terminals A/B to NB International Parkway after merge of Terminals A/B exit traffic	B	C

5.8.2.1 Children's Environmental Health and Safety Risks

As shown previously, children under the age of 18 account for approximately 24 percent of the population surrounding DFW. Census Tract 141.61 located in Dallas County is the only non-compatible land use area that exhibits an adverse noise effect from the Proposed Action Alternative; the changes in noise in would be less than the 1.5 dB significance threshold. AQCR 215 is in Severe nonattainment for ozone. The Proposed Action Alternative does require a General Conformity Determination due to the exceedance of the *de minimis* thresholds for both NO_X (2035 through 2028, 2031, and 2036) and VOC (2031 and 2036). TCEQ and FAA determined that the Proposed Action Alternative conformed to the CAA through the available excess emissions in the respective SIP. Direct emissions would generate on-airport, so there would be no direct effects to children's health at the point source of emission. Rather, emissions are regionalized and contribute to the overall air quality of North Central Texas.

5.9 Visual Effects, Including Light Emissions

According to the FAA Order 1050.1F (February 2020), the FAA has not established a significance threshold for light emissions, visual resources, or visual character, all combined into visual effects. FAA has indicated that factors that should be taken into consideration include annoyance or interference of normal activities associated with light emissions or the affects to the visual character due to light emission, including importance, uniqueness, and aesthetic value. Other factors include blocking or obstructing the views of visual resources, the contrast of the proposed actions with the visual resources within the study area, and the proposed action effects on the visual character, importance, uniqueness, and aesthetic value of the visual resource.

5.9.1 No Action Alternative

Under the No Action Alternative, no new substantial effects from light emissions would result since no new construction would be undertaken. Therefore, there would be no additional visual effects not already occurring or expected to occur.

5.9.2 Proposed Action Alternative

Light emissions include any light that emanates from a light source into the surrounding environment. Sources of light emissions within the existing DFW project area include high mast lights, building lights, navigation aids (NAVAIDS), and visual aids. The NAVAIDS facilities are comprised of multiple lighting systems, including the Approach Lighting System with Sequence Flashing Lights (ALSF-II). Visual aids located on runways and taxiways include high intensity runway edge lights, runway centerline lights, runway touchdown zone lights, runway status lights, runway end identifier lights, taxiway lead-on and lead-off lights, precision approach path indicators, taxiway edge lights and reflectors, taxiway centerline lights, and runway guard lights.

The Proposed Action Alternative would be illuminated by the same basic types of lighting currently used on the existing buildings, parking lots, and ramp areas. Therefore, lighting from the Proposed Action when compared to the No Action Alternative would not significantly increase the overall light emissions due to their type, intensity, and distance from any residential areas. There are no residential or light sensitive areas within or adjacent to the project area. The location of the new lighting systems would not negatively affect aircraft operations.

5.9.3 Mitigation

Light emissions created by the Proposed Action would not be significant enough to cause substantial annoyance for people in the vicinity nor interfere with normal airport activities. Therefore, no mitigation measures are recommended for light emissions.

5.10 Waters Resources – Surface and Stormwater Treatment

Consistent with FAA guidelines from the FAA Order 1050.1F (July 2015) and FAA Order 1050.1F Desk Reference (February 2020), this assessment was conducted with the primary aim of identifying the principal sources of water pollution and/or consumption connected with the construction and operation of the Proposed Projects (FAA, 1985).

5.10.1 Significance Thresholds

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

> A significant impact exists if the action would: exceed water quality standards established by federal, state, local, and tribal regulatory agencies; or contaminate public drinking water supply such that public health may be adversely affected. In addition to the threshold above, Exhibit 4-1 of FAA Order 1050.1F provides additional factors to consider when evaluating the context and intensity of potential environmental impacts for surface waters. Please note that these factors are not intended to be thresholds. If these factors exist, there is not necessarily a significant impact; rather, the FAA must evaluate these factors in light of context and intensity to determine if there are significant impacts. Factors to consider that may be applicable to surface waters include, but are not limited to, situations in which the proposed action or alternative(s) would have the potential to: adversely affect natural and beneficial water resource values to a degree that substantially diminishes or destroys such values; adversely affect surface waters such that the beneficial uses and values of such waters are appreciably diminished or can no longer be maintained and such impairment cannot be avoided or satisfactorily mitigated; or present difficulties based on water quality impacts when obtaining a permit or authorization.

5.10.2 No Action Alternative

Under the No Action Alternative, there would be no project-related impacts on water quality, as no project-related construction activities would occur. As a result, the quantity and quality of stormwater runoff, impacts to groundwater, and production of wastewater would remain largely unaffected. Therefore, there would be no impacts to stormwater not already occurring or expected to occur.

5.10.3 Proposed Action Alternative

The greatest potential impacts to surface water quality connected to the Proposed Action are associated with soil erosion, materials staging, and batch plant operations during the construction phase. Short-term impacts to surface waters can result from construction activities creating increases in sedimentation and turbidity levels downstream. These construction activities may include pavement demolition, grading, and excavation of subsurface utilities.

The proposed project area is primarily located within an existing impervious area. Since most of the project area is adjacent to existing buildings, impervious surface, and highly maintained mixed herbaceous cover, the construction of the Proposed Action would not be expected to result in a material change in the stormwater runoff rates, discharge volumes, and pollutant characteristics of the stormwater runoff. DFW's existing stormwater treatment facilities (the first flush stormwater pre-treatment system) would be able to accommodate the stormwater runoff quantities.

The DFW Floodplain Manager reviewed conceptual design plans and drainage analysis which includes underground detention structures to capture stormwater from the aircraft apron; the capacity of the detention structures would be determined during final design. The Proposed Action, staging areas and project support areas are not located with the 100-year floodplain. The detention structures would be connected to the existing stormwater collection system (SWS) and First Flush Stormwater System (FFS). Based on the conceptual design and drainage analysis, effects from the Proposed Action would not adversely affect the existing velocities, create adverse conditions within the existing conveyance piping system, increase the 100-year floodplain, or increase the downstream inundation areas. The Proposed Action would comply with the guidelines and recommendations contained in the FAA AC 150/5320-5D Surface Drainage Design. Maintenance activities would include controls to clean pavement surface from any leaked fluids to reduce contamination of stormwater.

Water quality impacts would be fully minimized through the development and implementation of a Storm Water Pollution Prevention Plan (SW3P), BMPs, and structural controls, in compliance with the CWA Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP) requirements as well as any other federal, state, and local requirements. Therefore, no significant adverse impacts would occur to surface waters.

5.10.4 Mitigation

At DFW, construction-related surface water quality impacts from stormwater runoff are minimized by BMPs as required by DFW's Design Criteria Manual revision 2 with Updates through 2022 (DFW 2022). These BMPs are designed to minimize soil erosion and the transport of debris and sediment in stormwater runoff. Implemented BMPs include silts fences, rock check dams, settling ponds, and good general housekeeping practices. In addition, all stormwater discharges from construction activities at DFW that result in the disturbance of 1 or more acres must comply with the TPDES permit conditions already established for DFW. A CGP SW3P, and all associated requirements would be implemented for the Proposed Action. Because of these water resource management policies and programs that are already in place at DFW, impacts to surface waters associated with the Proposed Action would not be expected to be significant; therefore, no mitigation would be required.

SECTION 6 CUMULATIVE IMPACTS

According to the CEQ, a cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period time" (40 CFR §1508.8.1 (g)(3)).

6.1 Past, Present, and Reasonably Foreseeable Future Actions

Past, present, and reasonably foreseeable future actions must be considered in determining whether there are potential cumulative impacts. Past actions are actions that occurred in the past and may warrant consideration in determining the environmental impacts of an action. Present actions are any other actions that are occurring in the same general time frame as the proposal. Reasonably foreseeable future actions are those that may affect projected impacts of a proposal and are not remote or speculative. **Table 6-1** identifies recent past, present, and reasonably foreseeable future actions within the vicinity of DFW.

Table 6-1. Past, Present, and Reasonably Foreseeable Future Actions

Project	Description	Status	Agency
PAST PROJECTS			
Department of Public Safety (DPS) Firing Range	Construction of modular building at DPS 4 for indoor shooting	Complete	DFW
DPS K9 Outdoor Dogs Runs	Extension of K9 outdoor dog runs and construction of canopies and sidewalks	Complete	DFW
Commerce Center	The project includes the construction of one warehouse/distribution building. The building has loading docks with cross-dock configuration (loading on both sides) and trailer parking	Complete	DFW
Taxiway F Rehabilitation	The Taxiway F Rehabilitation includes demolition and reconstruction of asphalt shoulders along the full length of Taxiway F, removal, and replacement of concrete panels on Taxiway F, concrete widening at the intersections of Taxiway F, and upgrades to taxiway lighting system.	Complete	DFW
Runway 17C/35C Rehabilitation	Rehabilitation of Runway 17C/35C, construction of high speed exit taxiways, taxiway fillets, runway status lights, and associated infrastructure	Complete	DFW
Project Blue Sky – AA Headquarters	Demolition of old Sabre facility and construction of new AA headquarters	Complete	DFW
Northeast (NE) EAT	The NE EAT project site is in the NE quadrant, north of the thresholds of Runways 17R and 17C. The NE EAT enables arriving aircraft on Runway 35C to exit the runway and taxi around Runways 17R and 17C using the EAT and enter the CTA on Taxiway J, without crossing an active runway. The NE EAT also enables aircraft arriving on Runway 35R and 31R to use the same taxiing movements after exiting on to Taxiway Q.	Complete	DFW
Runway 18R/36L Rehabilitation	Rehabilitation of Runway 18R/36L and associated infrastructure	Complete	DFW

Project	Description	Status	Agency
Northbound Access Road	Access road to bypass revenue plaza	Complete	DFW
Northwest	Car dealerships north of Mustang Drive and the addition of three warehouses and canopies to Group One Audi	Complete	DFW
Terminal C – High C Gates Demolition and Rebuild	Demolition and Rebuild of Terminal C Gates 33, 35-37, and 39	Complete	DFW
Terminal F Ramp	Expansion of Terminal F Ramp for Hardstand operations and installation of hydrant fueling and deicing infrastructure	Complete	DFW
Taxiway Y Bridge	Upgrading for Type VI aircraft	Complete	DFW
SH 121	Reconstruct Interstate Highway (IH) Loop 635 and Farm-to-Market Road (FM) 2499 interchanges	Complete	TxDOT
IH 635	Construction of up to 2 lane frontage road and ramp	Complete	TxDOT
TexRail Corridor Rail Line	Construction of new commuter rail line from Fort Worth to DFW Airport via newly constructed north commuter rail line and associated transit stations/amenities.	Complete	North Central Texas Council of Governments (NCTCOG)
Trinity Rail Express DFW Airport Services	New transit rail connection and Train Station located near Terminal B, with potential to connect to the future Cotton Belt	Complete	Federal Transit Administration (FTA)
Passport 125 and Passport Park East	The project includes the construction of a concrete tilt wall industrial building, loading docks, and requisite utilities	Complete	DFW
American Airlines (AA) Campus Master Plan	Demolition and construction of several AA owned buildings located on DFW property	Complete	DFW
PRESENT			
Dallas Area Rapid Transit (DART) Cotton Belt Line (Silverline Project)	New transit rail line	Under Construction	DART
Southwest (SW) Consolidated Campus	Design-Build strategic, world- class operations and infrastructure development consolidated campus. The Southwest Consolidated Campus will be designed to enhance operational readiness through use of the latest technology enterprises (hardware and software)	Under Construction	DFW
International Parkway	The project includes the reconstruction of the International Parkway roadway, north and south airfield drive bridges, and upgrades and modifications to the High Mast Lighting System.	Under Construction	DFW
Weber Gruene	The proposed project will consist of three industrial logistics buildings for the use of warehouse, distribution, office, logistics, and other uses	Under Construction	DFW
Project Integration Office (PIO)	The project is a part of the holistic design-build contract and includes the design, construction, and delivery of a PIO building.	Under Construction	DFW

Project	Description	Status	Agency
SW End-Around Taxiway (EAT)	Programming and Design services for the SW EAT	Under Construction	DFW
DFW Hight Mast Pole System Replacement	Replacement of airport high mast lights and any requisite foundations	Under Construction	DFW
Commerce Centers 2 and 3	The Project consists of concrete tilt wall industrial buildings developed in two main phases	Under Construction	DFW
Commerce Center 4	The proposed project consists of one concrete tilt-wall industrial distribution building	Under Construction	DFW
Runway 17L/35R Storm Drainpipe	The project is comprised of rehabilitation and replacement of storm drainpipes on Runway 17L/35R and all associated connecting taxiways within the runway environment	Under Construction	DFW
Pavement Remediation	This project will conduct needed pavement repairs across the AOA. These repairs include joint seal, crack repair, spall repair, and select panel replacement.	Under Construction	DFW
Soil Slope Remediation	This project is to remediate each of the soil slope failures and bridge wing wall wash outs	Under Construction	DFW
Runway 17R/35L Rehabilitation	Rehabilitation of runway 17R-35L and associated infrastructure	Under Construction	DFW
Electric Central Utility Plan (eCUP) and Associated Utility Delivery Systems	The proposed project would include construction and operation of an Electric CUP along with rehabilitation, expansion, and upgrade of the main utility services distribution network.	Under Construction	DFW
Irving IT	Multi-tenant office development south of SH 161	Under Construction	Private Development
Avion	Multi-tenant office development located northeast of SH 114	Under Construction	Private Development
Logistics	Multi-tenant flex warehouse office space located south of SH 161	Under Construction	Private Development
Lifestyle Hotel Campus	Hotel campus located northeast of SH 114 with 325 rooms	Under Construction	Private Development
Elan Grapevine	Multi-family development west of Bear Creek, east of U.S. Highway (US) 360, with 324 units	Under Construction	Private Development
The Reserve at Bear Creek	Townhome development west of Bear Creek and east of US 360 with 71 units	Under Construction	Private Development
Sahyog Lifestyle Living	Single family residential development with 31 units north of SH 161	Under Construction	Private Development
East-West Connector from SH 360 to Rental Car Drive	Construction of east-west connector with up to 4 lanes, divided	Under Construction	DFW
19th Street Cargo Redevelopment	This project will construct two new cargo warehouse buildings along with 5 new aircraft parking positions within the Northwest Cargo Area	Under Construction	DFW

Project	Description	Status	Agency
Passport Park West	Passport Park West will be developed as a single phase modern industrial park. The proposed project will include 7 buildings totaling over 2.7 million square feet which consist of 4 cross-dock distribution centers and 3 rear-load warehouses	Under Construction	DFW
ARFF Station Consolidation East and West Locations	Consolidation of four existing ARFF stations into two new stations and associated roadway improvements	Under Construction	DFW
REASONABLY FORESEEABLE FUTURE ACTIONS			
Walnut Hill	The project consists of an industrial building and associated loading docks and utilities	In Planning	DFW
Employee Lot 5E	This proposed project is for reconstruction of Employee Parking Lot 5E due to significantly deteriorating pavement conditions	In Planning	DFW
SH 161	Widen and reconstruct 4 to 8 general purpose lanes	In Planning	TxDOT
SH 183	Reconstruct 6 general purpose lanes; construct 0 to 2 concurrent High-Occupancy Vehicle (HOV)/managed lanes	In Planning	TxDOT
SH 114	Construction of up to 2 lane frontage road and ramp modifications, long term reconstruction of the remaining components of DFW Connector	In Planning	TxDOT
Hyatt Hotel Extended Stay at DFW	Extended stay hotel north of South Airfield Drive and east of the North Service Road. Will have 125 rooms.	In Planning	DFW/ Developer

6.2 Impact Areas

6.2.1 Air Quality

Other proposed airport development actions at DFW may produce air emissions from increased operations and/or construction activities. The timing of each project is dependent on several factors including customer and airline demands, industry trends, and availability of funding. Definitive schedules of projects that would occur during the Proposed Action project-related construction schedule were not available at the time of this environmental review. The uncertainty related to the implementation schedules of future airport development projects, in conjunction with the Proposed Action, precludes meaningful quantification of potential cumulative impacts to air quality. However, for past projects within the boundaries of DFW, an air quality construction emissions inventory was completed under the NEPA process. With the exception of the 19th Street Cargo Redevelopment project, which required a General Conformity Determination, each project where construction emissions have been inventoried, emissions have been below *de minimis* levels. In addition, when future airport projects are ready for construction, an air quality construction emissions inventory will be completed. The direct and cumulative impacts of these projects will be quantified and evaluated in the NEPA documentation submitted for FAA review.

6.2.2 Climate

Since aviation activity at DFW represents such a small number of United States and global emissions, and due to the related uncertainties involving the assessment of such emissions regionally and globally, the incremental contribution of the Proposed Action cannot be adequately assessed given the current state of the science and assessment methodology.

6.2.3 Hazardous Materials, Solid Waste, and Pollution Prevention

Through a preliminary review, several of the proposed DFW development actions could involve work in or near areas having known soil contamination or facilities and infrastructure with ACM. Other proposed area development actions may also involve sites with soil contamination and locations at which potentially hazardous materials are used or stored. The project sponsors would comply with federal, state, and local regulations governing hazardous materials and wastes.

The other proposed DFW, outside of transportation, and private development would generate additional MSW and construction wastes. Growth in the DFW Metroplex has resulted in increased demand for services including solid waste collection and disposal services. Implementation of the other projects, particularly the land development projects, would result in further increased demand for solid waste handling/disposal facilities. Solid waste disposal services would be the responsibility of the local municipalities. There are several active, permitted landfills in the DFW area and there is no substantial collective capacity issues indicating that cumulative solid waste disposal would be of concern. The projects are not expected to have substantial impacts to any active, permitted landfill in the DFW area.

In summary, the limited hazardous material, pollution, and solid waste impacts of the Proposed Action, when considered in addition to similar impacts of other on- or off-airport projects would not be expected to lead to additional substantial impact in these areas.

Since the Proposed Action is not expected to induce activity, the generation of MSW attributable to the Proposed Action is not expected to be materially different from the No Action Alternative. Given no expected substantial increase in MSW generation, no substantial cumulative impacts are expected. Other proposed future airport projects and nearby developments would generate additional MSW. Growth of the DFW Metroplex has resulted in the increased demand for various services including solid waste collection and disposal services. The implementation of other land development projects would result in further demand for solid waste handling and disposal services. Solid waste and disposal services and facilities would be the responsibility of local municipalities. There are several active, permitted landfills near DFW, and there is no substantive capacity issues indicating that solid waste handling and disposal would be of concern. The Proposed Action, and other area development projects would not be expected to have any cumulative impacts on active, permitted landfills within the DFW area.

6.2.4 Historical, Architectural, Archeological, and Cultural Resources

There are no recorded historic sites or NRHP eligible historical resources within the areas associated with the proposed other airport development actions. Several recorded archeological sites area located on or near the airport. However, the sites are not considered eligible for inclusion on the NRHP and the proposed airport development projects appear to have little potential to affect recorded or unrecorded sites.

It is possible that the other area development actions could directly or indirectly impact historical or archeological resources. Federal and state funded projects with potential for substantial impacts to archeological or historic resources would coordinate the potential impacts with the SHPO, document the project's impacts in the environmental documentation, and include mitigation measures if warranted.

The Proposed Action would not be expected to generate impacts to historic, architectural, archeological, or cultural resources. Therefore, the Proposed Action, when considered in addition to potential impacts of other on- or off-airport projects would not be expected to lead to additional substantial historic, architectural, archeological, or cultural resources impacted.

6.2.5 Natural Resources and Energy Supply

The Proposed Action would irreversibly and irretrievably commit energy resources, such as the fossil fuels that would be consumed by construction equipment, in addition to human labor and construction materials such as cement, aggregate, and other materials. Large amounts of labor and natural resources are also used in the fabrication and preparation of construction materials. These resources, including fossil fuels are generally not retrievable. Construction will also require a substantial one-time expenditure of DFW and federal funds (for eligible scope items), which are also not retrievable. The decision to commit these resources for construction of the Proposed Action would be based on the concept that passengers, airlines, and the north Texas economy would benefit from the proposed action.

6.2.6 Noise and Noise Compatible Land Uses

The Proposed Action would affect a small area south of Runway 35R/17L 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 Alternative. While the small area south of Runway 35R/17L would experiences changes in noise exposure, these changes would be well below the FAA significance threshold of 1.5dB. Other on-airport and off airport capital projects could result in changes to noise exposure. Therefore, consideration of existing land and future land uses and development plans that may be subject to induced growth are continuously monitored by the DFW Noise Compatibility Office. The office is the primary liaison between neighboring communities, residents, municipalities, airlines, FAA, universities, NASA, and Board staff to demonstrate noise and land use compliance deliverables, meet, educate, research, assist and advise on aircraft noise, flight patterns, airspace, and related actions.

6.2.7 Socioeconomics, Environmental Justice, Public Services, including Traffic Patterns, and Children's Environmental Health & Safety

The Proposed Action, when combined with other foreseeable projects on and around DFW would generate a cumulative balance for regional and local socioeconomic opportunities. Additionally, when combined with DFW's commitment to sustainability and diversity,[40] communities of color and lower income persons would benefit from the economic activities directly contributable to DFW (e.g., concessionaire employment, construction employment, and tenant employment) and indirectly from DFW (e.g., tax revenues, and downstream employment opportunities). Additionally, DFW commitments to NetZero Carbon by 2030 and other sustainability roadmap items will benefit local and regional air quality, long-term.

The Proposed Action would, along with other concurrent development projects, generate new short-term and long-term employment opportunities that would be beneficial to the larger Dallas Fort Worth Metropolitan region. Additionally, operation of a new terminal with new concessionaires would also generate additional tax revenue for local and state entities, which indirectly flows through the larger regional economy. More local to the communities adjacent to DFW, there would be direct and indirect effects associated with other resources areas that create minor, adverse effects.

There is one area of residential land use south of Runway 35R that would be newly exposed to noise at or above the DNL 65 dB contour due to the Proposed Action Alternative, when compared to the No Action Alternative in 2031 and 2036. This area consists of 6 housing units in 2031 and 32 housing units of the same multi-family apartment complex in 2036. The change in noise levels would affect approximately 59 persons located in a minority block group. The noise levels would increase by approximately 0.6 dB bringing the previously mentioned multi-family residential units into the DNL 65 dB noise contour. While there is a change in the noise levels as a result of the Proposed Action, the increase is well below the significance threshold of 1.5 dB or greater change within the DNL 65 dB contour.

The Proposed Action would not degrade the LOS for all on-airport roadway segments. The LOS would be LOS C or better in the future 2036 condition. When combined with other on-going and reasonably foreseeable roadway improvements on and adjacent to DFW, surface transportation would be able to accommodate anticipated increased traffic from the Proposed Action and the continued trend of substantial population growth within North Central Texas. DFW works closely with TxDOT and the adjacent cities to plan for surface transportation improvements.

TCEQ and FAA determined that the Proposed Action Alternative conformed to the CAA through the available excess emissions in the respective SIP. Direct emissions would generate on-airport, so there would be no direct effects to children's health at the point source of emission. Rather, emissions are regionalized and contribute to the overall air quality of North Central Texas.

6.2.8 Visual Effects, Including Light Emissions

New light sources would occur under the Proposed Action with the development of the terminal facilities. However, these light sources would generally be shielded and not visible to off-airport land uses. Thus, the Proposed Action would not contribute to additional light sources that would occur with the cumulative

[40] Shaping Tomorrow. 2022 Environmental, Social, and Governance Report. DFW. https://www.dfwairport.com/business/community/esg/

projects. The Proposed Action would not change the current approaches for arriving aircraft. Therefore, the Proposed Action would not contribute to any cumulative impacts associated with light intensity of arriving aircraft.

6.2.9 Water Resources - Surface Waters and Stormwater Treatment

Other proposed airport development actions could have the potential to exceed applicable water quality standards. Similar to the Proposed Action, the development actions would have construction-related impacts and several projects would result in additional stormwater run-off. It is assumed that similar design, controls, and BMPs would be implemented on projects at DFW to minimize water quality impacts. Implementation of other area development actions could also result in temporary and permanent impacts from land clearing, construction, and operations of the facilities. It is expected that major development actions would also include measures and practices to minimize impacts and not exceed water quality standards.

The limited water quality impacts of the Proposed Action, when considered in addition to similar impacts of other on- and off-airport projects would not be expected to lead to additional substantial water quality impacts.

6.3 Secondary and Induced Impacts

The Proposed Action and Connected Actions would not result in any substantial secondary (induced) impacts in terms of shifts in population movement and growth or changes in public service demands. Direct, indirect, and induced changes in business and economic activity from the proposed project would include a temporary increase in employment, output, and income associated with construction. The temporary increase in construction jobs would be expected to be filled by local workers. If needed, temporary non-local workers would be easily accommodated in the DFW Metroplex area. These impacts would support the anticipated long-term economic growth of the regional economy. The ability of DFW to continue to accommodate the efficient movement of passengers and cargo supports local economic development goals. Overall, the Proposed Action and Connected Actions would not result in significant secondary (induced) impacts.

No specific thresholds for significance for secondary (induced) impacts have been established in FAA Order 1050.1F, Exhibit 4-1, Significance Determination for FAA Actions. However, the proposed project would not include shifts in patterns of population movement or growth; public service demands; or changes in business and economic activity. Since the proposed project would not involve substantial induced or secondary impacts on surrounding communities, as described above, a significant impact threshold would not be exceeded.

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SECTION 7 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

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

7.1 Agency Coordination

DFW consulted with FAA, TCEQ, EPA, and the THC during the development of the EA. Agency coordination with TCEQ and EPA, consisted of scoping letters submitted to the EPA and TCEQ divisions listed below; these scoping letters were sent on 28 October 2022 (**Appendix K**).

- EPA Air and Radiation Department
- EPA Land Chemical, and Redevelopment Division
- TCEQ Remediation Division
- TCEQ Air Quality Division
- TCEQ External Affairs/Relations

TCEQ provided comments on 04 November 2022, indicating that there would be no significant long-term effects so long as BMPs were in place for construction and waste disposal activities. TCEQ requested an analysis of potential air quality effects, which were performed for this EA and found to be above the CAA *de minimis* thresholds. As such, a General Conformity Determination was completed and TCEQ concurred with the Conformity Determination, as described in **Section 5.2.5.** No comments were received from EPA.

A NHPA Section 106 Consultation for Historic Properties was completed for the Proposed Action (**Appendix G**). The Section 106 analysis concluded that no historic properties were present and there were no adverse effects from the project. The SHPO (THC) concurred with the findings from two reports. The first approval was received on 27 July 2022 for the Piers, Terminal C renovation and Terminal C Garage and Roads. This report was updated for the change in Terminal C renovation plans and SHPO concurred with the revised report on 11 September 2023. SHPO concurred with the report for Terminal E and F on 11 September 2023.

7.2 Public Involvement – Availability of Draft EA and Draft General Conformity Determination

DFW and FAA, to meet the NEPA and CAA requirements for public notification and comment, published a public Notice of Availability (NOA) on Tuesday, December 19, 2023 and placed the Draft EA and Draft General Conformity Determination report in publicly accessible locations via appointment at DFW (3003 South Service Road, Annex Building A, DFW Airport, Texas 75261). Notifications of the availability of the Draft EA and Draft General Conformity Determination were published in the following locations:

- Dallas Morning News, dated 20 and 24 December 2023 and 07 January 2024
- Fort Worth Star Telegram, dated 20 and 24 December 2023 and 07 January 2024
- Al Día, dated 20 December 2023, and 24 and 31 January 2024
- DFW Airport Website (https://www.dfwairport.com/business/about/publications/), beginning 20 December 2023
- DFW Facebook and LinkedIn, beginning 20 December 2023

The following public libraries were also provided a hard copy in their government or public documents section.

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

In addition to publications in general circulation newspapers, DFW Airport published social media posts on LinkedIn and Facebook announcing the availability of the Draft EA, Draft General Conformity Determination, and information about public meeting. DFW sent 2,216 adjacent residents a four-fold postcard in English and Spanish announcing the release of the Draft EA, Draft General Conformity Determination, the public comment period, and the public meeting information. The postcard packet also included a prepaid envelope for the adjacent resident to mail comment forms back. DFW also sent email notifications announcing the release of the Draft EA, Draft General Conformity Determination, the public comment period, and the public meeting to 30 City administrative staff, including City Managers at these cities: Arlington, Coppell, Euless, Flower Mound Grapevine, Irving, Lewisville, Southlake, Trophy Club, and Westlake. DFW Airport social media posts also announced the availability of the Draft EA, Draft General Conformity Determination and information about public meeting. Copies of the notices and posts are located in **Appendix M.**

7.3 Public Meeting Open House

Once the Draft EA and Draft General Conformity Determination were released for public review and comments, an in-person public information meeting was held 30-days after the start of the public comment period. The public meeting to present the Proposed Action, NEPA process, and receive public comments was held from 6 to 8 p.m. on Tuesday, 23 January 2024, at the DFW Airport Headquarters Learning Center, located at 2400 Aviation Drive, Euless, Texas 75261. Thirteen members of the public attended the public meeting, and 22 staff members, including DFW media representatives. After the public meeting, members of the public were provided an opportunity to submit comments for 15-days, until 02 February, 2024, which marked the end of the public comment period. Language translation services for Spanish speakers were made available.

7.3.1 Public Meeting Summary

This public meeting summary, located in **Appendix M**, contains the following materials:

- Comment response matrix with comments received during the public comment period
- Sign-in sheets from the public meeting (public, media, and staff)
- Postcard and comment card sent to adjacent residents and provided at public meeting
- DFW Airport social media posts announcing the public meeting
- Project information boards (English and Spanish)

7.3.2 Public Comment Summary

Ten public comment submissions were received during the comment period. Each submission may have included one or more topics. The submissions took several forms, including:

- Hard copy letters or comment forms sent via United States Postal Service (USPS)
- Online comments
- Voicemail messages
- Emails

Table 7-1 summarizes the public comments and DFW responses; **Appendix M** provides the detailed public comment and response matrix and the public involvement summary.

Table 7-1. Public Comments and DFW Responses

Public Comment	DFW Response
1. Airport noise is a big issue for Parkside community. With increase in terminal and making more space for existing terminal means more air traffic, more landings & take off. We would like to limit take off & landings during night time from 10:00 p.m. to 6:00 a.m. on the runways that are closer to the Parkside community. We want DFW airport authority to work with FAA & limit this. 2. The Parkside also faces issue with drainage water that comes off the airport & causes erosion & other issues in the Parkside community. We want DFW airport authority to work with Parkside board to address this issue so that terminal extension doesn't alleviate this issue. 3. With the advent of 5G technology & some communication interference of air traffic controller & any restriction associated with that shouldn't have any impact on increasing the terminals or adding more space to existing terminal. Parkside wants to use 5G technology. 4. Parkside being closer to the airport has challenges with road traffic. We want DFW airport management should work with City of Irving + Parkside board to review the traffic situation & take necessary action.	Thank you for your comment. The impact of noise on our surrounding communities is of utmost importance to the Airport. As such, we do our best to engage and inform local officials and residents about the flight paths and the impacts of runway use. The Parkside community is outside the existing and future proposed action DNL 65 dB noise contours and is considered compatible with aircraft noise levels. Concerning the frequency of operations, the Parkside West neighborhood is within one (1) mile from two of DFW's primary runways. Thus, the area is subject to noise and operational effects from aircraft arrivals (i.e., winds coming from the South, occurring 70% of the year on average) for aircraft landing Runway 17C and 17L (Runway 17L being 1/10 of a mile from the western edge of Parkside West). When winds are northerly (30% of the year on average), departures from DFW main runways may be heard at Parkside due to proximity. At present, DFW has its primary departure runway 17R/35L on its east side closed for rehabilitation. During the closure, the flight paths had to temporarily change. Parkside may experience more flights and noise than typical due to the closure. Once the Runway 17R/35L construction is complete this summer, frequency of flights near Parkside should return to normal levels. The Runway 17R/35L rehabilitation project and associated noise impacts are outside the scope of this CTA Project Environmental Assessment. Also, while DFW is a 24-hour airport, once the runway construction is complete, it is expected DFW will be able to again reduce night operations on the outboard runways, including the two closest to Parkside, when practicable. Visit News Flash Runway Rehabilitation Project at DFW Airport Ma (cityofirving.org) for the City of Irving announcement on the DFW Runway 7R/35L Rehabilitation project. 2. The EA evaluated potential effects to surface water and water quality. Potential impacts to surface water quality are associated with soil erosion during the construction phase and the added volume of stormwater runoff from new impervious surfaces following project completion. These actions are being mitigated through new connections to the existing stormwater collection systems, which were built to incorporate and accommodate runoff from the additional impervious surfaces. Additionally, water quality impacts would be fully mitigated through the development and implementation of a Storm Water Pollution Prevention Plan (SW3P), best management practices (BMPs), and structural controls, in compliance with the CWA Texas Pollutant Discharge Elimination System (TPDES) Construction General Permit (CGP) requirements as well as any other federal, state, and local requirements. DFW is very proactive to ensure any new airport construction projects mitigate runoff. DFW's Design Criteria Manual (DCM) Section 334 details the stormwater and drainage management measures and processes to ensure that airport projects meet federal, state, and local stormwater management regulations. The DCM can be viewed at DFW International Airport 2015 Design Criteria Manual - Rev 2 (dfwairport.com). DFW Airport staff are available to discuss drainage further with the Parkside Board. 3. 5G technology is not within the scope of the CTA Expansion Project. 4. The EA evaluated potential effects to surface transportation and traffic on International Parkway, the primary DFW arterial roadway. The International Parkway Modernization Program TIA can be viewed at: https://www.dfwairport.com/business/about/publications/

Public Comment	DFW Response
1. A resident neighborhood that is right next to DFW north fences, I hear loud noises every early morning from plane engines. I do not support any plan that potentially make that worse for residents. 2. I would like to see DFW connectivity through DART increasing by adding DART stop near Parkside and forward air entrance. Reduce car traffic to DFW. 3. I prefer construction in south of DFW instead of north. Residents should be informed about noise pollution impact due to expansion. Resident must approve noise reduction plan to be proposed by DFW authority.	1. Thank you for your comment. The impact of noise on our surrounding communities is of utmost importance to the Airport. As such, we do our best to engage and inform local officials and residents about the flight paths and the impacts of runway use. The Parkside community is outside the existing and future proposed action DNL 65 dB noise contours and is considered compatible with aircraft noise levels. Concerning the frequency of operations, the Parkside West neighborhood is within one (1) mile from two of DFW's primary runways. Thus, the area is subject to noise and operational effects from aircraft arrivals (i.e., winds coming from the South, occurring 70% of the year on average) for aircraft landing Runway 17C and 17L. When winds are northerly (30% of the year on average), departures from DFW main runways may be heard at Parkside due to proximity. At present, DFW has its primary departure runway 17R/35L on its east side closed for rehabilitation. During the closure, the flight paths had to temporarily change. Parkside may experience more flights and noise than typical due to the closure. Once the Runway 17R/35L construction is complete this summer, frequency of flights near Parkside should return to normal levels. The Runway 17R/35L rehabilitation project and associated noise impacts are outside the scope of this CTA Project Environmental Assessment. Also, while DFW is a 24-hour airport, once the runway construction is complete, it is expected DFW will be able to again reduce night operations on the outboard runways, including the two closest to Parkside, when practicable. Visit News Flash Runway Rehabilitation Project at DFW Airport Ma (cityofirving.org) for the City of Irving announcement on the DFW Runway 7R/35L Rehabilitation project. 2. DFW continues to invest in sustainability and climate action initiatives to reduce emissions, improve efficiency, and proactively prepare to adapt the climate risks. DFW's sustainability initiatives which were developed to also help with climate risk preparedness and adaptation include supporting transit-oriented development and enhancing DART and Trinity Metro access on the airport. DFW and DART partnered and have the Beltline Station (DART Orange Line), the DFW Terminal A (DART Orange Line), and a future station will be at Terminal B (DART Silver Line), at DFW airport. 3.The CTA expansion project is located within the central terminal area of the airport, at existing Terminals A and C, as well as immediately south of Terminal D. The EA provides information on potential increases in noise due to the proposed project through 2036. The Environmental Assessment includes a detailed Noise Analysis in Section 5.7 and Appendix F. DFW continually works with communities to educate and inform residents on airport noise.

Public Comment	DFW Response
I would like to get some data and reports on how the new terminal will impact our homes related to airplane noise. Our address is **[redacted text]** Irving TX 75063. If airplane noise will increase that can lower our home values. I would like a flight path map showing how planes will land and take off if a new terminal is added.	Thank you for your comment. A noise technical analysis was conducted for the CTA Expansion Project comparing the No Action and Proposed Action Alternatives using the FAA's thresholds of significance for changes in noise in accordance with FAA Order 1050.1F. The additional operations would utilize existing runways and would cause a less than DNL (Day-Night Average Sound Level) 1.5 dB increase in noise experienced by noise sensitive residential land-uses adjacent to DFW at the end of the forecasted period in 2036. The Proposed Action Alternative does not result in any area of significant noise increase. Please see the EA Section 5.7 and Appendix F – Noise Technical Report which has details on existing and future runway use, numbers of operations, flight tracks and noise contours. As shown in the EA, noise levels would increase slightly in most areas around the airport but would remain below FAA's threshold of significance. Please see Figure 1-3 in the EA for the Runway Operating Configuration and refer to https://dfw.noiselab.casper.aero/ At present, DFW has its primary departure runway 17R/35L on its east side closed for rehabilitation. During the closure, the flight paths had to temporarily change. Parkside may experience more flights and noise than typical due to the closure. Once the Runway 17R/35L construction is complete this summer, frequency of flights near Parkside should return to normal levels. The Runway 17R/35L rehabilitation project and associated noise impacts are outside the scope of this CTA Project Environmental Assessment. Also, while DFW is a 24-hour airport, once the runway construction is complete, it is expected DFW will be able to again reduce night operations on the outboard runways, including the two closest to Parkside, when practicable. Visit News Flash Runway Rehabilitation Project at DFW Airport Ma (cityofirving.org) for the City of Irving announcement on the DFW Runway 7R/35L Rehabilitation project. The Noise Technical Report can be reviewed at: https://www.dfwairport.com/business/about/publications/
I received the letter about the DFW project and public meeting and went to see the document at the library. I work from 3pm to 11pm on Tuesday and won't be able to attend the meeting. Will this project be providing modern break rooms and facilities for ramp workers especially around the existing terminals and at the new terminal. The documents at the library don't mention employee facilities and its especially tough in the hot Texas summers that are getting hotter. Sometimes as ramp workers we don't have dedicated areas to go shelter from the heat or the areas that are there are very small and don't have a working water station, enough restrooms or even areas for us to recuperate from the heat. Which section of the document should i look at to read about the facilities that will be available for ramp workers in both the summer and even the winter seasons. Thank you for your consideration.	Thank you for your comment. All terminal projects, of recent, and proposed, will have ground support staff accommodations designed to include conditioned space, break rooms, and restrooms on ramp level for each terminal development. We acknowledge the local weather impacts and will continue to design and construct spaces with appropriate size and conditioning for staff assigned to operate aircraft gate locations being developed. Information on the proposed action can be reviewed in the Draft Environmental Assessment (EA), Section 1.3, Proposed Action, and in Section 3.4, Proposed Action Alternatives. The Draft EA can be reviewed at: https://www.dfwairport.com/business/about/publications/.

Public Comment	DFW Response
Any environmental impact during construction/ expansion and afterwards MUST be considered carefully if there is any negative impact on the air quality and hence health of the residents of the cities that are especially very close to the airport.	Thank you for your comment. The Environmental Assessment includes an evaluation of impacts categories on several environmental resource categories, including air quality. Section 5.2 of the Draft Environmental Assessment discusses the project's impacts on air quality. Additional analysis is included in Appendix H - Air Quality Technical Report, and Appendix I - General Conformity Determination Report. The air quality analysis conducted for the CTA Expansion Project is in accordance with the guidelines provided in the Federal Aviation Administration (FAA) Aviation Emissions and Air Quality Handbook Version 3 Update 1 (FAA Handbook); and FAA Order 5050.4B, NEPA Implementing Instructions for Airport Actions; and FAA Order 1050.1F, Environmental Impacts: Policies and Procedures. The General Conformity analysis was performed in accordance with the General Conformity Rule to determine compliance with the Clean Air Act (CAA) and the Texas Commission on Environmental Quality's (TCEQ) Dallas-Fort Worth Eight-Hour Ozone State Implementation Plan (SIP). The Draft Air Quality Analysis is available for review at: https://www.dfwairport.com/business/about/publications/.
Hi, I live at **[redacted text]**, Irving, TX 75063(Parkside community at 114 Highway and Beltline). One of the runways is 0.8 mile away from me. I am very noise sensitive, and I can say that my master bedroom receives a lot of noise which sometimes gets in the way of sleeping properly. Please do something. Thanks in advance	Thank you for your comment. The impact of noise on our surrounding communities is of utmost importance to the Airport. As such, we do our best to engage and inform local officials and residents about the flight paths and the impacts of runway use. The Parkside community is outside the existing and future proposed action DNL 65 dB noise contours and is considered compatible with aircraft noise levels. Concerning the frequency of operations, the Parkside West neighborhood is within one (1) mile from two of DFW's primary runways. Thus, the area is subject to noise and operational effects from aircraft arrivals (i.e., winds coming from the South, occurring 70% of the year on average) for aircraft landing Runway 17C and 17L. When winds are northerly (30% of the year on average), departures from DFW main runways may be heard at Parkside due to proximity. At present, DFW has its primary departure runway 17R/35L on its east side closed for rehabilitation. During the closure, the flight paths had to temporarily change. Parkside may experience more flights and noise than typical due to the closure. Once the Runway 17R/35L construction is complete this summer, frequency of flights near Parkside should return to normal levels. The Runway 17R/35L rehabilitation project and associated noise impacts are outside the scope of this CTA Project Environmental Assessment. Also, while DFW is a 24-hour airport, once the runway construction is complete, it is expected DFW will be able to again reduce night operations on the outboard runways, including the two closest to Parkside, when practicable. Visit News Flash Runway Rehabilitation Project at DFW Airport Ma (cityofirving.org) for the City of Irving announcement on the DFW Runway 7R/35L Rehabilitation project. The Noise Technical Report can be reviewed at: https://www.dfwairport.com/business/about/publications/
1. I'm concerned that this project would increase noise for us. It already super loud and based on document's evaluation, we are going to be subjected to even higher noise levels and rattling windows. 2. You say the noise is going to increase 0.4 dB in 2031 and 0.6 dB in 2036 an increase of 50% between the two analysis years and will only get	1. Thank you for your comment. As shown in the EA, noise levels would increase slightly in most areas around the airport but would remain below FAA's threshold of significance. The Parkside community is outside the existing and future proposed action DNL 65 dB noise contours and is considered compatible with aircraft noise levels. A noise technical analysis was conducted for the CTA Expansion Project comparing the No Action and Proposed Action Alternatives using the FAA's thresholds of significance for changes in noise in accordance with FAA Order 1050.1F. The evaluation shows that no significant impact areas would result due to the Future Proposed Action Alternative in

Public Comment	DFW Response
higher/louder and affect us more and more. 3. Also why is there uniform distribution of the 0.6 dB in the grid point analysis? It seems weirdly convenient that your analysis shows that all areas south of the airport would experience the same change of 0.6dB despite of proximity to the source of noise, i.e. the airport. 4. Can you provide the same grid point analysis for the northern portion of the airport, particularly the area that includes Parkside residential subdivision. 5. Can you collaboratively work with City or Irving and DART so that they can add a Park & Ride station near Parkside. This improvement helps sustainability. It also helps reduce traffic and the congestion on roads, which would be great for the air quality in our city. 6. There are so many trucks (freight forwarders and construction) that drive to and from the airport. Will you be adding more construction truck traffic to the Cabell road? What roads/ travel routes will be used by the Project's construction trucks coming or leaving the airport?	2026, 2031 (0.4 dB) or 2036 (0.6 dB). A significant noise impact would occur if the Proposed Action would increase noise by DNL 1.5 dB or more for a noise sensitive area that is exposed to noise at or above the DNL 65 dB noise exposure level, or that will be exposed at or above the DNL 65 dB level due to a 1.5 dB or greater increase, when compared to the no action alternative for the same timeframe. The Noise Technical Report can be reviewed at: https://www.dfwairport.com/business/about/publications/ 2. Operations would increase due to the proposed project. However, the runway utilization would not change. Operations would be spread across all runways at the airport resulting in a general noise increase. 3. While overall DNL levels drop the further you are from the airport, the level of change due to the proposed project is fairly even. As stated in the response above, operations would increase to all runways, therefore, there is a similar increase in most areas around the airport. 4. Like noise contours, grid points are an output from noise modeling, and represent areas exposed to each DNL. The grid points are defined to cover just beyond the extent of the noise study area. For the EA, the grid consists of a rectangle with points spaced 0.05 nautical miles (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). A noise modeling grid was developed for the study area and the increase in the Parkside community area is similar to the area reported in the EA south of Runway 35R (a general increase in DNL levels of 0.4 dB in 2031 and 0.6 dB by 2036). 5. DFW continues to invest in sustainability and climate action initiatives to reduce emissions, improve efficiency, and proactively prepare to adapt the climate risks. DFW's sustainability initiatives which were developed to also help with climate risk preparedness and adaptation include supporting transit-oriented development and enhancing DART and Trinity Metro access on the airport. DFW and DART partnered and have the Beltline Station (DART Orange Line), the DFW Terminal A (DART Orange Line), and a future station will be at Terminal B (DART Silver Line), at DFW airport. 6. The EA evaluated potential effects to surface transportation and traffic on International Parkway, the primary DFW arterial roadway. The International Parkway Modernization Program TIA can be reviewed at: https://www.dfwairport.com/business/about/publications/. Construction of the Project would generate traffic from heavy-duty construction equipment, truck haul trips, and construction worker and vendor truck trips to and from the project areas. We anticipate the primary construction haul routes would remain on DFW Airport property. Staging areas for construction can be reviewed in the Draft EA, Proposed Action, Section 1.3, Figure 1-4.
Hi, I am a resident of Parkside community. I have seen a sharp increase in the noise levels from the airport recently. I am in favor of airport expansion, development of the airport and surrounding areas but kindly check the noise pollution in the area. There has been increased noise pollution in the area due to the flights at irregular intervals during the day. Kindly	Thank you for your comment. The impact of noise on our surrounding communities is of utmost importance to the Airport. As such, we do our best to engage and inform local officials and residents about the flight paths and the impacts of runway use. The Parkside community is outside the existing and future proposed action DNL 65 dB noise contours and is considered compatible with aircraft noise levels. Concerning the frequency of operations, the Parkside West neighborhood is within one (1) mile from two of DFW's primary runways. Thus, the area is subject to noise and operational effects from aircraft arrivals (i.e., winds coming from the South, occurring 70% of the year on

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address this and I fear there will be more noise in the coming days as the expansion work is completed.	average) for aircraft landing Runway 17C and 17L. When winds are northerly (30% of the year on average), departures from DFW main runways may be heard at Parkside due to proximity. At present, DFW has its primary departure runway 17R/35L on its east side closed for rehabilitation. During the closure, the flight paths had to temporarily change. Parkside may experience more flights and noise than typical due to the closure. Once the Runway 17R/35L construction is complete this summer, frequency of flights near Parkside should return to normal levels. The Runway 17R/35L rehabilitation project and associated noise impacts are outside the scope of this CTA Project Environmental Assessment. Also, while DFW is a 24-hour airport, once the runway construction is complete, it is expected DFW will be able to again reduce night operations on the outboard runways, including the two closest to Parkside, when practicable. Visit News Flash Runway Rehabilitation Project at DFW Airport Ma (cityofirving.org) for the City of Irving announcement on the DFW Runway 7R/35L Rehabilitation project.
Dear Committee, We bought a new house in Parkside community for the fact that it comes in Coppell ISD and pay huge property tax. But just in a month we realized we have invited lot of health issues. We live 2 houses away from east side runway 17L wall and continuous planes keep approaching from North. Not just backyard and front yard are useless but it's difficult to sleep peacefully even at night. We have not measured air pollution yet, but noise pollution is already more than enough to bring health issues. Please do not plan on extending the airport and put a ban on runways just next to homes. Sent emails earlier as well but we are just suffering. Hope you will take humane action this time.	Thank you for your comment. The impact of noise on our surrounding communities is of utmost importance to the Airport. As such, we do our best to engage and inform local officials and residents about the flight paths and the impacts of runway use. The Parkside community is outside the existing and future proposed action DNL 65 dB noise contours and is considered compatible with aircraft noise levels. Concerning the frequency of operations, the Parkside West neighborhood is within one (1) mile from two of DFW's primary runways. Thus, the area is subject to noise and operational effects from aircraft arrivals (i.e., winds coming from the South, occurring 70% of the year on average) for aircraft landing Runway 17C and 17L. When winds are northerly (30% of the year on average), departures from DFW main runways may be heard at Parkside due to proximity. At present, DFW has its primary departure runway 17R/35L on its east side closed for rehabilitation. During the closure, the flight paths had to temporarily change. Parkside may experience more flights and noise than typical due to the closure. Once the Runway 17R/35L construction is complete this summer, frequency of flights near Parkside should return to normal levels. The Runway 17R/35L rehabilitation project and associated noise impacts are outside the scope of this CTA Project Environmental Assessment. Also, while DFW is a 24-hour airport, once the runway construction is complete, it is expected DFW will be able to again reduce night operations on the outboard runways, including the two closest to Parkside, when practicable. Visit News Flash Runway Rehabilitation Project at DFW Airport Ma (cityofirving.org) for the City of Irving announcement on the DFW Runway 7R/35L Rehabilitation project. A noise technical analysis was conducted for the CTA Expansion Project comparing the No Action and Proposed Action Alternatives using the FAA's thresholds of significance for changes in noise in accordance with FAA Order 1050.1F. The evaluation shows that no significant impact areas would result due to the Future Proposed Action. The Noise Technical Report can be reviewed at: https://www.dfwairport.com/business/about/publications/ The Environmental Assessment includes an evaluation of impacts categories on several environmental resource categories, including air quality. Section 5.2 of the Environmental Assessment discusses the project's impacts on air quality. Additional analysis is included in Appendix H - Air Quality Technical Report, and Appendix I - General Conformity Determination Report. The air quality analysis conducted for the CTA Expansion Project is in accordance with the guidelines provided

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	in the Federal Aviation Administration (FAA) Aviation Emissions and Air Quality Handbook Version 3 Update 1 (FAA Handbook); and FAA Order 5050.4B, NEPA Implementing Instructions for Airport Actions; and FAA Order 1050.1F, Environmental Impacts: Policies and Procedures. The General Conformity analysis was performed in accordance with the General Conformity Rule to determine compliance with the Clean Air Act (CAA) and the Texas Commission on Environmental Quality's (TCEQ) Dallas-Fort Worth Eight-Hour Ozone State Implementation Plan (SIP). The Air Quality Analysis and General Conformity Determination are available for review at: https://www.dfwairport.com/business/about/publications/
Please keep us (Parkside East) in mind before deciding to increase air traffic on the east side runway. Noise is unbearable. Thanks!!! RE: This is for Runway 17 L	Thank you for your comment. The impact of noise on our surrounding communities is of utmost importance to the Airport. As such, we do our best to engage and inform local officials and residents about the flight paths and the impacts of runway use. The Parkside community is outside the existing and future proposed action DNL 65 dB noise contours and is considered compatible with aircraft noise levels. Concerning the frequency of operations, the Parkside West neighborhood is within one (1) mile from two of DFW's primary runways. Thus, the area is subject to noise and operational effects from aircraft arrivals (i.e., winds coming from the South, occurring 70% of the year on average) for aircraft landing Runway 17C and 17L. When winds are northerly (30% of the year on average), departures from DFW main runways may be heard at Parkside due to proximity. At present, DFW has its primary departure runway 17R/35L on its east side closed for rehabilitation. During the closure, the flight paths had to temporarily change. Parkside may experience more flights and noise than typical due to the closure. Once the Runway 17R/35L construction is complete this summer, frequency of flights near Parkside should return to normal levels. The Runway 17R/35L rehabilitation project and associated noise impacts are outside the scope of this CTA Project Environmental Assessment. Also, while DFW is a 24-hour airport, once the runway construction is complete, it is expected DFW will be able to again reduce night operations on the outboard runways, including the two closest to Parkside, when practicable. Visit News Flash Runway Rehabilitation Project at DFW Airport Ma (cityofirving.org) for the City of Irving announcement on the DFW Runway 7R/35L Rehabilitation project. A noise technical analysis was conducted for the CTA Expansion Project comparing the No Action and Proposed Action Alternatives using the FAA's thresholds of significance for changes in noise in accordance with FAA Order 1050.1F. The evaluation shows that no significant impact areas would result due to the Future Proposed Action. The Noise Technical Report can be reviewed at: https://www.dfwairport.com/business/about/publications/

SECTION 8 PREPARERS

As required by FAA Order 5050.4A, paragraph 77, the names and qualifications of the principal persons contributing information to this PEA are identified. It should be noted, in accordance with Section 1502.6 of the CEQ regulations, the efforts of an interdisciplinary team, consisting of technicians and experts in various fields were required to accomplish this study. Specialists involved in this EA included those in such fields as airport planning; noise assessment and abatement; land use planning; air quality; biology; historic, architectural, and archaeological resources; and other disciplines. It should also be noted, while an interdisciplinary approach has been used, all decisions made regarding the content and scope of this EA are those of DFW Airport.

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SECTION 9 REFERENCES

Council on Environmental Quality (CEQ)

2016 Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews. https://ceq.doe.gov/docs/ceq-regulations-and-guidance/nepa_final_ghg_guidance.pdf

Dallas Fort Worth International Airport (DFW)

2017 Environmental, Social and Governance Report. Retrieved from https://www.dfwairport.com/business/community/esg/environmental2022/.

2022 Environmental, Social and Governance Report. Retrieved from https://www.dfwairport.com/business/community/esg/environmental2022/.

Department of Energy (DOE)

U.S. energy sector vulnerabilities to climate change and extreme weather. Washington, DC. 2013. https://toolkit.climate.gov/sites/default/files/20130716-Energy%20Sector%20Vulnerabilities%20Report.pdf

Eastern Research Group (ERG)

2022 Update to Reporting of Automated RFP Results in TexN2.2 and Pollutant Selections in the Graphical User Interface. 22 June. https://www.tceq.texas.gov/downloads/air-quality/research/reports/emissions-inventory/5822231630fy2022-20220622-erg-texn2-gui-rfp.pdf. Retrieved 01 November 2022.

2021 TexN2.2 Utility Updates for Compatibility with the US EPA MOES3 Model. 23 April. https://www.tceq.texas.gov/downloads/air-quality/research/reports/emissions-inventory/5822111300fy2021-20210423-erg-texn2-update.pdf. Retrieved 24 October 2022.

Environmental Protection Agency (EPA)

2023a Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021. U.S. Environmental Protection Agency, EPA 430-R-23-002. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2021 | US EPA.

2023b Greenhouse Gas Equivalencies Calculator. https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.

2021 Executive Order 13990. Health and the Environment and Restoring Science to Tackle the Climate Crisis, 86 FR 7037 (January 20, 2021). Federal Register :: Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis

Federal Aviation Administration (FAA)

2020 1050.1F Desk Reference. February 2020. https://www.faa.gov/about/office_org/headquarters_offices/apl/environ_policy_guidance/policy/faa_nepa_order/desk_ref/media/desk-ref.pdf. Retrieved 19 October 2021.

2018 Aviation Climate Change Research Initiative (ACCRI). March 2018. https://www.faa.gov/about/office_org/headquarters_offices/apl/research/science_integrated_modeling/accri/. Retrieved 19 October 2021

2015 Aviation Emissions and Air Quality Handbook Version 3 Update 1. January 2015. https://www.faa.gov/regulations_policies/policy_guidance/envir_policy/airquality_handbook/media/Air_Quality_Handbook_Appendices.pdf. Retrieved 19 October 2021

Federal Register

2021 Protecting Public Health and the Environment and Restoring Science To Tackle the Climate Crisis. Vol. 86, No. 14. Monday, January 25, 2021. Presidential Document. https://www.govinfo.gov/content/pkg/FR-2021-01-25/pdf/2021-01765.pdf.

Forte, A.J.

2023 DFW Airport breaks ground on new renewable energy plant in continued quest for net-zero emissions. wfaa.com, 09 August 2023. https://www.wfaa.com/article/money/business/dfw-airport-breaks-ground-renewable-energy-plant-quest-net-zero-emissions/287-e9ae5300-4fca-4f05-816c-d68e5a0fb26f.

Harris, Miller, Miller, and Hanson, Inc. (HMMH)

2023 DFW CTA Draft Noise Technical Report. 14 June 2023.

2022 Air Quality Technical Report: Construction and Operational Emissions Analysis Results–

Howarth, N. Camarasa, C., Lane, K., and Martin, A. R.

2023 Keeping cool in a hotter world is using more energy, making efficiency more important than ever – analysis. IEA. https://www.iea.org/commentaries/keeping-cool-in-a-hotter-world-is-using-more-energy-making-efficiency-more-important-than-ever.

IPCC (International Panel on Climate Change)

2014 Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II, III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. IPCC, Geneva, Switzerland.

2021. Summary for Policymakers. In: Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change [Masson-Delmotte, V., P. Zhai, A. Pirani, S. L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M. I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T. K. Maycock, T. Waterfield, O. Yelekçi, R. Yu and B. Zhou (eds.)]. Cambridge University Press. In Press.

IWG (Interagency Working Group on the Social Cost of Greenhouse Gases)

2021 Technical Support Document: Social Cost of Carbon, Methane, and Nitrous Oxide, Interim Estimates under Executive Order 13990. https://www.whitehouse.gov/wp-content/uploads/2021/02/TechnicalSupportDocument_SocialCostofCarbonMethaneNitrousOxide.pdf

National Oceanic and Atmospheric Administration (NOAA)

2022 State Climate Summaries 2022. National Oceanic and Atmospheric Administration, National Centers for Environmental Information. Internet website: https://statesummaries.ncics.org.

Ramboll, Inc.

2023 Air Quality Assessment Technical Report: Central Terminal Area Expansion. Prepared for DFW Airport. September.

DFW Central Terminal Area Expansion Draft GHG and Climate Technical Report, September.

Texas Commission on Environmental Quality (TCEQ).

2022a. Texas Air Monitoring Information System (TAMIS) Web Interface. Site List. https://www17.tceq.texas.gov/tamis/index.cfm?fuseaction=report.site_list. Retrieved 24 October 2022.

2022b. Texas Integrated Report of Surface Water Quality for Clean Water Act Section 305(b) and 303(d). Approved 07 July 2022 by EPA. https://www.tceq.texas.gov/waterquality/assessment/22twqi/22txir. Retrieved 13 December 2022.

2020. SIP Revision: Dallas-Fort Worth (DFW) and Houston-Galveston-Brazoria (HGB), Serious Classification Reasonable Further Progress (RFP), March 4, 2020. https://www.tceq.texas.gov/downloads/air-quality/sip/archive/19079sip_dfwhgb_2008ozonenaaqs_seriousrfpsip_archive.pdf. Retrieved 08 June 2023.

2015 SIP Revision: 2008 Eight-Hour Ozone Reasonable Further Progress (RFP), Dallas-Fort Worth (DFW), June 3, 2015. https://www.tceq.texas.gov/downloads/air-quality/sip/archive/dfwrfp_2015_archive.pdf. Retrieved 06 September 2022.

Thrasher, B., Wang, W., Michaelis, A. et al.

2022 NASA Global Daily Downscaled Projections, CMIP6. Sci Data 9, 262. https://doi.org/10.1038/s41597-022-01393-4.

US Global Change Research Program

2018 Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II [Reidmiller, D. R., C. W. Avery, D. R. Easterling, K. E. Kunkel, K. L. M. Lewis, T. K. Maycock, and B. C. Stewart (eds.)]. US Global Change Research Program, Washington, DC. 1515 pp. doi: 10.7930/NCA4.201. Internet website: https://nca2018.globalchange.gov/.

United Nations Environment Programme (UNEP)

2022 Emissions Gap Report 2022: The Closing Window — Climate crisis calls for rapid transformation of societies. Nairobi. https://www.unep.org/emissions-gap-report-2022.

U.S. Environmental Protection Agency (EPA).

2022a. General Conformity Training Module I: The Basics. General Conformity Evaluation Quick Steps: https://www.epa.gov/general-conformity/general-conformity-training-module-i-basics. Updated 26 September 2022. Retrieved 24 October 2022.

2022b. NAAQS Table. https://www.epa.gov/criteria-air-pollutants/naaqs-table. Updated 05 April 2022. Retrieved 24 October 2022.

2022c. Interactive Map of Air Quality Monitors. https://www.epa.gov/outdoor-air-quality-data/interactive-map-air-quality-monitors. Updated 06 September 2022. Retrieved 24 October 2022.

2022d. Design Value Interactive Tool. https://www.epa.gov/air-trends/design-value-interactive-tool. Updated 02 August 2022. Retrieved 24 October 2022.

2022e. Nonattainment Areas for Criteria Pollutants (Green Book), 2008 and 2015 Ozone Standards. https://www.epa.gov/green-book. Updated 30 September 2022. Retrieved 24 October 2022.

2022f. De Minimis Tables. https://www.epa.gov/general-conformity/de-minimis-tables. Updated 20 July 2022. Retrieved 24 October 2022.

2020. Memorandum: Use of Modeling Techniques to Demonstrate General Conformity for Ozone (O_3), Fine Particulate Matter (PM2.5) and Nitrogen Dioxide. https://www.epa.gov/sites/default/files/2020-11/documents/modeling_conformity_memo_11_13_20.pdf. Retrieved 08 November 2022.

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APPENDICES

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