

Chapter Four:

Environmental Consequences

4.1 Introduction

The potential for environmental effects resulting from implementation of the Proposed Action and No Action Alternatives are presented in this chapter. The analysis of potential effects on environmental resources includes a description analysis methodology, thresholds of significance, and potential construction and operational impacts. Environmental consequences were analyzed within the geographic area where the Alternatives would potentially cause impacts, either the Direct or Indirect Study Area, as defined in *Chapter 3, Affected Environment*.

4.2 Air Quality

FAA Orders 1050.1F and 5050.4B (NEPA), and the federal CAA *General Conformity Rule* (40 CFR Parts 51 and 93) are the primary regulations that apply to the assessment of air quality impacts attributable to the Proposed Action. NEPA requires the disclosure of the proposed project's impacts on the human environment; and because the project is in an EPA-designated non-attainment area for O₃, the CAA requires that the Proposed Action does not cause, or contribute to, violations of the NAAQS for these pollutants.

4.2.1 Methodology

Emissions inventories were prepared to evaluate the change in pollutant or pollutant precursor emissions associated with the proposed airport improvements. The primary sources for emissions were from

aircraft, GSE, APU, and construction activities. *Appendix A, Air Quality and Climate*, provides a detailed discussion of and presents data for the development of the inventories for both sources. The following provides a brief overview of the methodologies that were used.

Aircraft emissions were estimated using the FAA's AEDT, Version 2d for which the input of aircraft fleet, engine assignments and runway use are discussed in Chapter 3, Section 3.10, *Noise and Noise Compatible Land Use*, of this EA. The Existing Condition taxi times were used to prepare the future year 2021 emission inventories for the No Action Alternative and the Proposed Action Alternative during construction. It was assumed that the taxi times in the No Action Alternative would be the same as the Existing Condition assuming small increase in the operations would not pressure the infrastructure enough to introduce additional delays. For the Proposed Action Alternative, the taxi times during the Runway 13R-31L closure in 2017 were analyzed. It was determined that the taxi-out times did not vary significantly compared with the same period in 2018. The taxi-in times, however, increased approximately 12% compared with the same period in 2018. This increase in taxi-in times were assumed in the Proposed Action Alternative when Runway 13R-31L would be closed for re-construction. When the runway is operational, it was assumed that the taxi times would be the same as the Existing Condition.

The proposed reconfiguration of taxiway exits from high-speed exits to 90-degree exits was considered as it relates to potential changes in taxi-in times. The proposed taxiway geometry would locate taxiway exits at optimum distances along the runway to maintain average runway occupancy times (ROT) at or below existing levels. The existing taxiway exits were not designed for the current fleet of aircraft, which results in airfield inefficiencies. For example, while there are multiple existing high-speed exits from Runway 13R-31L, the only high-speed exit used along Runway 13R-31L is Taxiway C4 for 31L arrivals. Therefore, taxi-in times are expected to remain the same or decrease under the proposed reconfiguration to all 90-degree exits. To be conservative in the emissions analysis, taxi times were assumed to be the same as the Existing Condition when the runway is operational.

Air pollutant and pollutant precursor emissions associated with construction activity in 2020, 2021, and 2022 were estimated using FAA Texas Airports District Office's NEPA Construction Emissions Worksheets. The Airport Construction Emissions Inventory Tool (ACEIT) was used to derive construction activity levels, including equipment hours and vehicle miles traveled (VMT) for use in the emissions worksheet.

The difference between the Proposed Action Alternative during construction and the No Action Alternative emissions for each pollutant was used to determine applicability of general conformity. For more detailed information regarding the methodology used for the air quality conformity analysis, refer to *Appendix A, Air Quality and Climate*.

4.2.2 Thresholds of Significance

As identified in FAA Order 1050.1F, the threshold for significance for air quality impacts is defined as when "the action would cause pollutant concentrations to exceed one or more of the National Ambient Air Quality Standards (NAAQS), as established by the Environmental Protection Agency under the Clean Air Act, for any of the time periods analyzed, or to increase the frequency or severity of any such existing violations."¹

As discussed in Chapter 3, because DAL is currently in a "moderate non-attainment"² area for O₃, project-related emissions of O₃ precursors (NO_x and VOC) are subject to the General Conformity requirements of the CAA. As such, the threshold of significance for these precursors is 100 tons per year for NO_x and 100 tons per year for VOC (the *de minimis* levels). A comparison of the project-related emissions to the *de minimis* levels indicate whether the General Conformity requirements of the CAA are applicable to the proposed improvements.

4.2.3 Environmental Consequences

4.2.3.1 No Action Alternative

As indicated in Section 4.2.3.2, there is minimal difference in aircraft emissions between the No Action and Proposed Action Alternative in 2021. The minimal difference can be attributed to the variation in taxi-in times for aircraft operating on a single runway versus a two-runway airfield. Under the No Action Alternative, construction activities would not occur and therefore, there would be no construction emissions.

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4.2.3.2 Proposed Action Alternative

Aircraft Emissions

Table 4.2.1 presents the aircraft, GSE, and APU emissions inventories for the 2021 No Action Alternative and 2021 Proposed Action Alternative during construction efforts. See *Appendix D, Noise Analysis* for details on how taxi times were determined for the Proposed Action Alternative during construction. During construction there will

be a slightly higher average taxi-in time (5.80 minutes), as compared to the No Action Alternative (5.18 minutes). Therefore, aircraft emissions are slightly higher for the Proposed Action during construction as compared to the No Action, with the exception of NO_x. Default GSE and APU assignments for commercial aircraft were applied in AEDT, and therefore the emissions are the same for the No Action and Proposed Action Alternatives.

Table 4.2.1
2021 Operation Emissions

Alternative	Emissions Source	Annual Emissions (tons/year) ¹					
		CO	NO _x ²	VOC	SO ₂	PM ₁₀	PM _{2.5}
2021 No Action	Aircraft	870	726	178	70	6	6
	GSE	277	30	10	2	1	1
	APU	36	31	2	5	4	4
	Total	1,182	787	190	76	11	11
2021 Proposed Action	Aircraft	882	724	181	70	6	6
	GSE	277	30	10	2	1	1
	APU	36	31	2	5	4	4
	Total	1,194	785	193	76	11	11
Difference (Project-Related)		12	-2	3	<0.1	<0.1	<0.1
<i>De Minimis Levels</i> ³		--	100	100	--	--	--
<i>Exceed De Minimis?</i>		--	No	No	--	--	--

Note: Totals may not add up due to rounding

¹ Although lead is a criteria pollutant, it was not evaluated because the proposed project would have no impacts on lead emissions.

² Due to the inconsistency of NO_x emissions decreasing in the Proposed Action, a coordination ticket was submitted to the FAA AEDT support website on January 7, 2019. The AEDT model and run outputs were provided to verify that the results are valid. A response was received on January 11, 2019 that the results are valid.

³ Represents the current “moderate non-attainment” status for 8-hour O₃ (2008 standard). The SIP will be updated following the forthcoming status change to “serious non-attainment” for 8-hour O₃ (2008 standard), at which time the proposed project will adhere to the new SIP.

Source: AEDT and HNTB analysis, 2018.

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The Proposed Action Alternative would not affect the number or type of aircraft using DAL, which is the main contributor to emissions. Additionally, the reconfiguration of taxiway exits to optimize ROT and the reconstruction of deteriorated pavements under the Proposed Action Alternative would likely result in minor reductions in operational emissions as is typically recognized with improved airfield efficiencies.

Construction Emissions

Emission sources from construction include exhaust emissions from off-road construction equipment, haul and water trucks and construction worker vehicles; fugitive VOC emissions from paving and architectural coating; and fugitive dust emissions from

grading, materials handling, bulldozing and vehicles traveling on paved and unpaved areas.

Table 4.2.2 presents the construction emission inventories for the years of proposed construction (2020/2021/2022). NO_x and VOC would not exceed the *de minimis* threshold levels (for marginal and serious ozone nonattainment) in any construction year. As such, the General Conformity requirements of the CAA are not applicable, and it can be presumed that the emissions would not cause or contribute to a violation of or exceed the NAAQS for O₃, and therefore would not result in a significant impact. See *Appendix A, Air Quality and Climate* for details on the emissions analysis.

Table 4.2.2
2020, 2021, and 2022 Construction Emissions

Year	Emission Type	Annual Emissions (tons/year)	
		NO _x	VOC
2020	Off-Road Equipment	3.2	0.2
	On-Road Equipment	0.4	0.2
	2020 Total	3.6	0.4
2021	Off-Road Equipment	31.6	2.3
	On-Road Equipment	8.1	4.0
	2021 Total	39.7	6.3
2022	Off-Road Equipment	3.1	0.3
	On-Road Equipment	0.6	0.3
	2022 Total	3.7	0.6
<i>De minimis</i> Levels ¹		100	100
Exceed <i>De Minimis</i> ?		No	No

¹ Represents the current “moderate non-attainment” status for 8-hour O₃ (2008 standard). The SIP will be updated following the forthcoming status change to “serious non-attainment” for 8-hour O₃ (2008 standard), at which time the proposed project will adhere to the new SIP.

Source: ACEIT analysis 2019 and FAA NEPA Construction Emissions Worksheets, 2019.

Due to the large quantity of concrete pavement needed for runway and taxiway projects, a concrete batch plant is proposed to be located on site (see Figure 1-3), which will eliminate the need for large quantities of concrete cement delivery by truck. ACEIT's default model assumption of 40 miles roundtrip delivery for cement mixing was updated to assume a conservative four-mile roundtrip delivery distance between the on-site batch plant and project site.

Additionally, project design will evaluate the potential to remove, crush, and reuse existing concrete pavements as part of the proposed projects. The crushed concrete materials can be reused as aggregate subbase and fill material. In addition to supporting the Airport's sustainability initiatives to limit waste and increase recycling, the reuse of concrete pavements would reduce the volume of materials to be hauled off-site and new material to be hauled to the site. The construction emissions analysis assumes a 40-mile roundtrip haul distance for material delivery. The reuse of concrete pavements would decrease the emissions from these hauling activities.

To minimize air quality effects, all construction activities must follow local rules and obtain any necessary permits. All construction equipment and vehicles should be properly maintained to reduce emissions. A Dust Control Plan may include measures to water unpaved areas being disturbed, broom cleaning, installation of a vehicle tracking pad to reduce tracking materials off-site, and wetting or application of a dust palliative to stockpiles of soil for dust control.

4.3 Biological Resources

This section analyzes the potential for the alternatives to result in direct or indirect impacts to plant or wildlife species, including

state and federally listed threatened and endangered species and critical habitat.

4.3.1 Methodology

Scoping letters were sent to TPWD and USFWS on November 15, 2018. No responses were received from either agency. A USFWS IPaC Report was generated to document the presence of any state or federally-listed threatened or endangered species as well as the presence of any critical habitats. A TPWD list of protected species and species of greatest conservation need in Dallas County was also generated.

4.3.2 Thresholds of Significance

Per FAA's 1050.1F Exhibit 4-1, a significant impact to biological resources would occur when: "The U.S. Fish and Wildlife Service or the National Marine Fisheries Service 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."

Additional factors for consideration listed in FAA's 1050.1F Exhibit 4-1 when determining impacts to biological resources include (but are not limited to) situations in which the proposed action or alternative(s) would have the potential for:

- "A long-term or permanent loss of unlisted plant or wildlife species, i.e., extirpation of the species from a large project area (e.g., a new commercial service airport);
- Adverse impacts to special status species (e.g., state species of concern, species proposed for listing, migratory birds, bald and golden eagles) or their habitats;

- Substantial loss, reduction, degradation, disturbance, or fragmentation of native species' habitats or their populations; or
- Adverse impacts on a species' reproductive success rates, natural mortality rates, non-natural mortality (e.g., road kills and hunting), or ability to sustain the minimum population levels required for population maintenance."

4.3.3 Environmental Consequences

4.3.3.1 No Action Alternative

Under the No Action Alternative, construction activities would not occur and therefore, there would be no impacts to biological resources.

4.3.3.2 Proposed Action Alternative

The Proposed Action Alternative is entirely within the developed Airport property. The USFWS IPaC Report and TWPD County list identified potential protected species within the Direct Study Area but did not indicate any area of known critical habitat. Vegetation in the Direct Study Area includes mowed, maintained turf grasses. No suitable habitat for threatened and endangered species is known to occur in the Direct Study Area, and no threatened and endangered species are known to be present. Therefore, threatened and endangered species would not be impacted by the Proposed Action Alternative. Additionally, the Proposed Action Alternative would not introduce new wildlife habitat.

Indirect impacts to biological resources could result from proposed airfield lighting, noise, air emissions or changes to surface water caused by construction or operations. Construction measures would be implemented to limit indirect impacts to

biological resources, including a Dust Control Plan, a construction SWPPP, and BMPs. Operational changes in lighting, noise, air emissions, and stormwater management would be consistent with the Airport environment and would not indirectly impact biological resources.

4.4 Climate

There is presently a broad scientific consensus that GHGs associated with human activities are contributing to changes in the earth's atmosphere. These GHGs, brought about principally by the combustion of fossil fuels, decomposition of waste materials, changes in land uses, and deforestation, are linked to an increase in the earth's average temperature by means of a phenomenon called the "greenhouse effect."

4.4.1 Methodology

GHG emissions inventories were prepared to evaluate the change in pollutant or pollutant precursor emissions associated with the proposed airport improvements. As with the air quality analysis discussed in *Section 4.2*, inventories were prepared for aircraft operations during construction using AEDT.

The GHGs inventoried were carbon dioxide (CO₂) and methane (CH₄). As is customary for GHG emissions inventories, the results are reported in units of metric tons (MT) of carbon dioxide equivalents (CO₂e) by source, on an annual basis. A more detailed discussion of the methodology and assumptions used to prepare the GHG inventories is provided in *Appendix A, Air Quality and Climate*.

4.4.2 Thresholds of Significance

The FAA has not established a significance threshold for climate. Although there are no federal standards for aviation-related GHG

emissions, it is well-established that GHG emissions can affect climate.³

4.4.3 Environmental Consequences

4.4.3.1 No Action Alternative

As indicated in Section 4.4.3.2, there is minimal difference in aircraft GHG emissions between the No Action and Proposed Action Alternative in 2021. The minimal difference can be attributed to the variation in taxi-in times for aircraft operating on a single runway versus a two-runway airfield. Under the No Action Alternative, construction activities would not occur and therefore, there would be no impacts to GHG emissions.

4.4.3.2 Proposed Action Alternative

Aircraft Emissions

Table 4.4.1 presents the estimated annual CO₂e aircraft emissions for the 2021 No Action and Proposed Action Alternatives. Projected operations in 2021 are the same between the No Action and Proposed Action Alternatives. The only difference in aircraft operations between the Proposed Action and No Action Alternatives are the taxi-in times for aircraft operating on a single runway (Proposed Action) versus a two-runway airfield (No Action) during construction. See *Appendix A, Air Quality and Climate* for details on how taxi times were determined for the Proposed Action Alternative during construction. However, the taxi times have minimal effect on total CO₂e emissions. While not considered in the analysis of taxi times, the reconfiguration and addition of taxiway connectors and reconstruction of deteriorated pavements under the Proposed Action Alternative would likely result in minor reductions in operational emissions as is typically recognized with improved airfield efficiencies.

Construction Emissions

GHG emissions were not specifically calculated for construction of the Proposed Action Alternative in 2020, 2021, and 2022. However, as indicated in Section 4.2, construction activities would temporarily increase emissions which would include emissions of CO₂e. However, this would only be for the short term and the projects would have no long-term impacts to CO₂e emissions. Because this project represents such a small amount of total U.S. GHG emissions, and given the related uncertainties involving the assessment of such emissions regionally and globally, the incremental contribution of constructing the Proposed Action Alternative to U.S. and global GHG emissions cannot be adequately assessed given the current state of the science and assessment methodology.

Table 4.4.1

2021 Aircraft Operation CO₂e Emissions

Year	Alternative	Annual GHG Emissions (MT/year)		
		CO ₂	CH ₄	Total (CO ₂ e)
2021	No Action	188,065	155	191,940
	Proposed Action	188,037	157	191,962
	<i>Difference (Project-Related)</i>	-28	2	22

Note: MT = metric ton; CO₂e = carbon dioxide equivalent

The product of each GHG emissions and its Global Warming Potential (GWP) is known as “carbon dioxide equivalent” (CO₂e). GWPs used for this analysis are 25 for CH₄.

Totals may not add up due to rounding

Source: AEDT and HNTB analysis, 2018.

4.5 Department of Transportation Act, Section 4(f)

This section analyzes the potential for the alternatives to impact Section 4(f) resources within the Direct or Indirect Study Area, as identified in *Chapter 3, Section 3.5*, which include public parks and recreation areas, and historic resources.

4.5.1 Methodology

The potential for the Proposed Action Alternative to result in a physical use, constructive use, visual impact or temporary occupancy of Section 4(f) properties was assessed. A physical use would result from a permanent or temporary taking of a Section 4(f) property, such as through purchase of land or alteration of property. A constructive use would result from an action that does not physically take a property but impairs the attributes of a property that qualify it for protection under Section 4(f), such as impacts related to noise, air pollution or access restrictions.

4.5.2 Thresholds of Significance

FAA Order 1050.1F provides the FAA’s significance threshold for Section 4(f) properties as the following: “A significant impact would occur when: The action involves more than a minimal physical use of a Section 4(f) resource or constitutes a “constructive use” based on an FAA determination that the aviation project would substantially impair the Section 4(f) resource.”⁴

4.5.3 Environmental Consequences

4.5.3.1 No Action Alternative

Under the No Action Alternative, construction activities would not occur and therefore, there would be no impacts to Section 4(f) properties.

4.5.3.2 Proposed Action Alternative

The Proposed Action Alternative is consistent with the visual character of the Direct Study Area and would not result in visual impacts to Section 4(f) resources or historic resources within the Direct or Indirect Study Areas.

The parks and recreation areas, and historic resources within the Indirect Study Area would experience a temporary change in noise exposure due to construction of the Proposed Action Alternative. As a result of the nine-month closure of Runway 13R-31L, the noise exposure would shift to the northeast extending further off the Runway 13L-31R ends and extending less off the Runway 13R-31L ends. For this reason, the following Section 4(f) resources within the Indirect Study Area (located off the Runway 13L and 31R ends and along Lemmon Drive) are likely to experience a temporary increase in noise exposure during construction (see *Section 4.10.3.4* for the expected increase in noise exposure at these sites):

- Bachman Creek Greenbelt Park
- Bachman Lake Park and Trail (eastern portion of park and trail)
- Northaven Trail
- Craddock Park and Trail
- Former Dalfort site OMB
- KB Polk Park
- Letot Cemetery

Weichsel Park, located off the Runway 31L end and within the Indirect Study Area, is likely to experience a decrease in noise exposure during construction due to the shift in noise over the east runway. Additionally, the historical markers at the Airport (Love Field, the Oath of Office of President Johnson, and Texas' First Airmail and Passenger Service) would not be impacted by the construction or operation of the Proposed Action Alternative.

To determine the effect of temporary noise increases on Section 4(f) resources, the resources were analyzed to determine whether a quiet setting is a generally

recognized purpose or attribute of the resource. All of the Section 4(f) resources are located within an urban/suburban setting with ambient noise from aircraft and vehicular roadways, where a quiet setting would not be considered an attribute of the resource. Letot Cemetery is an inactive cemetery from the mid-1900s that has limited visitors. Any temporary increase in noise exposure due to aircraft or construction operations is not anticipated to interfere with the Section 4(f) resource activities. Therefore, any temporary change in noise exposure would not constitute a direct or constructive use of the resources. Additionally, the Proposed Action Alternative would not change the existing visual character of the Airport or viewsheds from Section 4(f) resources of the Airport.

4.6 Hazardous Materials, Pollution Prevention, and Solid Waste

This section identifies the potential for the alternatives to generate, disturb or dispose of hazardous materials or solid waste, and how the alternatives will prevent and minimize potential impacts related to the use of hazardous materials.

4.6.1 Methodology

The potential for the Proposed Action Alternative to impact known contaminated sites was accessed. The potential for the project to result in impacts related to the generation or disposal of solid wastes was evaluated. Pollution prevention measures are also identified.

4.6.2 Thresholds of Significance

The FAA has not established significance thresholds for hazardous materials, solid waste or pollution prevention. Instead, the

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FAA has identified factors to consider when evaluating impacts. These factors include assessing whether a project has 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 NPL);
- 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; or
- Adversely affect human health and the environment.

4.6.3 Environmental Consequences

4.6.3.1 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed. The use of hazardous materials and production of solid waste associated with construction activities would not occur. Any increase in use of hazardous materials or production in solid waste would be proportional to the growth in aircraft operations also proposed as part of the Proposed Action Alternative. Therefore, there would be no significant impacts to hazardous materials or solid waste as a result of the No Action Alternative.

4.6.3.2 Proposed Action Alternative

Hazardous Materials

There are no known contaminated sites within the Direct Study Area, and therefore

the Proposed Action Alternative would have no impact on known hazardous sites.

Under the Proposed Action Alternative there would be no planned uses of any hazardous materials that would not comply with applicable federal, state and local regulations. Contractors would be required to store, label and dispose of hazardous substances in accordance with established regulations, and would be responsible for reporting any release of hazardous substances. Therefore, the Proposed Action Alternative would have no significant impacts with regard to hazardous materials.

Solid Waste

Solid waste associated with the construction of the Proposed Action Alternative would include demolition debris such as concrete and asphalt. These materials would either be transported and disposed of in a landfill, or repurposed and recycled for use in the reconstructed runway and new taxiways.

In support of the Airport's sustainability initiative, project design will evaluate the potential to remove, crush, and reuse existing concrete pavements as part of the Runway 13R-31L reconstruction and adjacent taxiway projects. Crushed recycled concrete materials are eligible to be used in new pavement sections as aggregate subbase, stabilized lean concrete base, and as underdrain aggregate fill material. Additionally, the finer portion of the crushed recycled concrete can be used as a manufactured sand, bedding material for storm sewer and utility pipes, and possibly as a stabilizing agent for treated subgrade.

The existing runway pavement section consists of approximately 25 inches of concrete and two inches of asphalt pavement to recycle. Within the

reconstruction of the Runway, this represents approximately 140,000 cubic yards of available recycled concrete material. Preliminary review of potential use of recycled concrete materials shows all, except approximately 10,000 cubic yards, of the material could be incorporated into the Proposed Action Alternative. This would reduce the volume of materials to be hauled off-site and new material to be hauled to the site, which reduces the total solid waste generated from the Proposed Action Alternative.

Any solid waste not able to be reused can be accommodated in the Airport's waste stream that goes to the McCommas Bluff Landfill. Therefore, the Proposed Action Alternative would have no significant short-term impact with regard to solid waste. Additionally, operation of the Proposed Action Alternative is not expected to result in a change in generation of solid waste.

Pollution Prevention

The design and use of the Proposed Action Alternative will adhere to federal, state, and local regulations as well as best practices pertaining to the use of hazardous materials, petroleum storage and waste disposal. This includes precautionary measures aimed at preventing the release of gasoline, diesel, hydraulic fluid or other materials that could impact surface waters, groundwater, soils and air. Construction activities would comply with the requirements in the Airports SWPPP to prevent contamination due to surface water runoff during construction.

4.7 Historical, Architectural, Archaeological, and Cultural Resources

Potential impacts to historic and archaeological resources were identified and

evaluated as part of the EA. This section includes a description of temporary construction impacts and their effect on historic resources within the Direct and Indirect APEs.

4.7.1 Methodology

As summarized in *Chapter 3*, historic resources were identified within the Indirect and Direct APEs by reviewing the NPS NHRP Mapper and THC's Historic Sites Atlas. Additionally, FAA consulted with THC on January 3, 2019 for concurrence on the proposed undertaking APEs and for identification of any areas of concern within the APEs (See *Appendix C, THC Consultation*).

4.7.2 Thresholds of Significance

The FAA has not established a significance threshold for historical, architectural, archaeological, and cultural resources. However, FAA Order 1050.1F Exhibit 4-1 lists the following factor to consider when determining impacts: "The action would result in a finding of Adverse Effect through the Section 106 process. However, an adverse effect finding does not automatically trigger preparation of the EIS (i.e., a significant impact)."

4.7.3 Environmental Consequences

4.7.3.1 No Action Alternative

There would be no construction or ground disturbing activities under the No Action Alternative. Therefore, the No Action Alternative would not affect any historic, architectural, archaeological or cultural resources.

4.7.3.2 Proposed Action Alternative

THC responded by email on February 1, 2019 with a finding of no historic properties present or affected by the proposed project. However, if historic or buried cultural materials are encountered during construction, or unanticipated effects on historic properties are found, work must cease in the immediate area. See *Appendix C* for the THC email response.

Under Section 106, adverse effects on historic properties include those which could: “introduce an atmospheric, audible, or visual feature to the area that would diminish the integrity of the property’s significant historic features (including its setting, provided the setting has been identified as a contributing factor to the property’s historical significance).”⁵

Historic resources within the Indirect APE were reviewed to determine whether an increase in noise would have an effect on the property’s historic features. As summarized in Table 4.10.5, the Former Dalfort site OMB and Letot Cemetery are expected to experience a temporary noise increase during runway reconstruction.

- The Former Dalfort site OMB building is currently under renovation but will be completed prior to construction of the Proposed Action Alternative. The OMB is located on Airport property between Runway 13L-31R and Lemmon Ave. Due to its proximity to the airfield and local roadways, a quiet setting would not be considered a feature of the property.
- Letot Cemetery is an inactive cemetery from the mid-1900s with limited visitors. The cemetery is located within a suburban setting with

ambient noise from aircraft and vehicular roadways, where a quiet setting would not be considered a feature of the property.

Therefore, a temporary change in noise exposure due to construction of the Proposed Action Alternative would not result in an adverse effect to the OMB or the cemetery.

4.8 Land Use

State and local land use plans, comprehensive plans, and zoning laws provide context for land use compatibility. Section 1506.2(b) of CEQ Regulations requires that NEPA documents discuss any inconsistency with approved state and/or local plan(s) and law(s) (whether or not Federally-sanctioned). Advisory Circular 150/5200-33, *Hazardous Wildlife Attractants on or Near Airports*, is also relevant to the evaluation of land use impacts.

4.8.1 Methodology

The Proposed Action Alternative was reviewed to determine its consistency with existing and future land use plans. Additionally, potential impacts in other resource categories were analyzed as they relate to land use, such as impacts related to socioeconomics, and noise.

4.8.2 Thresholds of Significance

There is no established threshold of significance for land use. While the proposed project should be consistent with land use plans, the determination of significance is typically related to the impact of other resource categories on land use.

4.8.3 Environmental Consequences

4.8.3.1 No Action Alternative

The No Action Alternative would not involve construction activity noise, a change in aircraft noise due to single runway operation, or other direct impacts to adjacent and nearby land uses.

4.8.3.2 Proposed Action Alternative

Construction of the Proposed Action Alternative would occur entirely on Airport property. Noise generated by construction equipment and vehicles would be temporary and localized in nature and would cease upon project completion.

The closure of Runway 13R-31L for reconstruction results in a temporary shift of the noise exposure, with areas off the Runway 13L and 31R ends experiencing increases in noise and areas off the Runway 13R and 31L ends experiencing decreases in noise. As detailed in Section 4.10.3.4, the total residential land uses (mobile home, single family and multi-family residential) identified within the Proposed Action Alternative 65+ DNL noise contours during construction decreases by 53.9 acres as compared to the No Action Alternative contours, however the total area of multi-family residential land uses increases in the Proposed Action Alternative during construction (136.6 acres) as compared to the No Action Alternative (119.1 acres). Tables 4.10.3 and 4.10.4 summarize the total acreage of land use by land use category within the No Action Alternative and Proposed Action Alternative during construction noise contours. As shown in these tables, there is no significant shift in exposure among the land use categories between the No Action Alternative and the

and Proposed Action Alternative during construction.

The Proposed Action Alternative would be consistent with existing land use plans and no significant impacts related to land use are expected.

4.9 Natural Resources and Energy Supply

This section identifies the potential for the alternatives to impact local supplies of natural resources and energy, and the methods used to minimize temporary and long-term use of natural resources and energy.

4.9.1 Methodology

When analyzing the potential impacts to natural resources and energy supply the following was considered: impacts to utilities servicing the area; capacity of water resources to support projects; fuel consumption; impacts to consumable materials, especially scarce or unusual materials; and state or local regulations.

4.9.2 Thresholds of Significance

There is no established threshold of significance for natural resource and energy supply impacts. However, FAA Order 1050.1F identifies a factor to consider when evaluating potential impacts: "situations in which the proposed action or alternative(s) would have the potential to cause demand to exceed available or future supplies of these resources."

4.9.3 Environmental Consequences

4.9.3.1 No Action Alternative

Under the No Action Alternative, construction activities would not occur. Therefore, the No

Action Alternative would not use or impact natural resources and minerals that are unusual in nature or are in short supply.

4.9.3.2 Proposed Action Alternative

Energy in the form of electricity, gasoline, and diesel fuel would be consumed during construction of the Proposed Action Alternative. The use of natural resources including water, sand, gravel, and paving materials would temporarily increase during the construction period.

The Proposed Action Alternative includes the installation of new signage and LED light fixtures, which would improve energy efficiency in the long-term. Electricity for construction lighting during nighttime hours would be required, however the Runway and Taxiway lighting system would not require power during this period.

As detailed in Section 4.6.3.2, the project design will evaluate the potential to reuse existing concrete pavements as part of the Runway 13R-31L reconstruction and adjacent taxiway projects. The reuse of pavements would reduce the volume of new materials (concrete cement) required to construct the Proposed Action Alternative. Construction of the Proposed Action Alternative would comply with the Airport's Sustainability Initiatives to reduce waste and increase recycling of materials to the extent possible.

The Proposed Action Alternative would require the consumption of natural resources and energy supply during both construction and operation. However, sufficient supply exists to meet the project demands and the use of natural resources in short supply is not anticipated. The use of energy and natural resources during construction would be temporary and not result in a significant

impact. The operation of the Proposed Action Alternative would result in decreased energy demand due to the upgraded LED light fixtures. Therefore, the Proposed Action Alternative would not have a significant impact on natural resources or energy supply.

4.10 Noise and Noise Compatible Land Use

FAA Orders 1050.1F, "Environmental Impacts: Policies and Procedures" and 5050.4B, "National Environmental Policy Act Implementing Instructions for Airport Actions," as well as FAA 14 C.F.R. Part 150 "Airport Noise Compatibility Planning" are the guiding criteria for compatible land use evaluation.

4.10.1 Methodology

The noise contours for 2021 No Action and 2021 Proposed Action were modeled using the fleet mixes developed as part of this EA, see *Appendix E, Fleet Mix Forecast*, for details. The noise contours were modeled using AEDT version 2d, which is the current FAA required noise model. The DNL metric was used as required by FAA Order 1050.1F. The noise analysis results were tabulated to evaluate potential impacts to the following:

- Population impacted within the 65 DNL noise contour.
- Noise sensitive land uses within the 65 DNL noise contour.
- General land use within the 65 DNL noise contour

Details on data sources, assumptions, and methodologies used to develop the noise contours are included in *Appendix D, Noise Analysis*.

4.10.1.1 2021 Fleet Mixes and Operations

An airfield capacity analysis determined that restrictions of all operations to Runway 13L-31R during the nine-month closure of Runway 13R-31L is not expected to restrict the number of aircraft operations or fleet mix at the Airport. This analysis is provided in **Appendix G, Airfield Capacity Analysis**. As a result of this analysis, the Proposed Action and No Action Alternative fleet mixes were assumed to be identical. The future (2021) fleet mix was developed based on the base year (2018) fleet mix and published airline fleet replacement plans, and the adjusted 2017 Terminal Area Forecast (2017 TAF).⁶ The total number of operations is projected to increase from 233,759 in the existing conditions (2018) to 238,092 in the future conditions (2021). **Table 4.10.1** summarizes the number of future operations by operating categories.

Table 4.10.1
2021 DAL Total Operations

Operations Category	Number of Operations
Air Carrier	145,538
Air Taxi	33,806
GA	57,762
Military	986
TOTAL^a	238,092

Notes:

(a) Totals may not add up due to rounding

Source: Based on base year (2018) fleet mix, published airline replacement plans, and adjusted 2017 TAF.

4.10.1.2 No Action AEDT Inputs

The AEDT model inputs for runway use, track geometry and use, and terrain were

assumed to be the same as the Existing Condition for the No Action Alternative. The 30-year average weather parameters (AEDT default) at DAL were used for the 2021 AEDT models.

4.10.1.3 Proposed Action AEDT Inputs

Under the Proposed Action Alternative, Runway 13R-31L would be closed for nine months from mid-February to mid-November for reconstruction and would be open for the remaining three months in 2021. Therefore, the Airport would operate with a single runway, Runway 13L-31R, for nine months and two runways for the remaining three months. This assumption was applied in development of runway use for the modeling of the Proposed Action Alternative noise contour during the year of construction. **Table 4.10.2** provides the 2021 Proposed Action runway use as compared to the 2021 No Action runway use. Other parameters, such as weather parameters, track geometry and use, and terrain remain the same as the Existing Condition and No Action Alternative.

4.10.2 Thresholds of Significance

FAA Order 1050.1F defines the significance threshold for noise to be when “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.”

Table 4.10.2

2021 Proposed Action Alternative and 2021 No Action Alternative Runway Use

Runway	2021 Proposed Action Alternative					2021 No Action Alternative				
	Arrival		Departure		Grand Total	Arrival		Departure		Grand Total
	Day	Night	Day	Night		Day	Night	Day	Night	
13R	7.9%	11.4%	9.2%	12.0%	8.9%	32.2%	46.4%	37.6%	49.1%	36.3%
31L	4.3%	6.1%	4.1%	5.0%	4.3%	17.4%	24.7%	16.7%	20.3%	17.7%
13L	60.3%	59.1%	53.6%	45.0%	56.5%	34.3%	20.2%	28.8%	17.4%	30.2%
31R	27.4%	23.2%	33.0%	37.6%	30.2%	15.9%	8.4%	16.7%	12.8%	15.7%
H01	0.1%	0.3%	0.1%	0.5%	0.2%	0.1%	0.3%	0.1%	0.5%	0.2%

Sources: MACNOMS 2017 Radar Data and HNTB Analysis, 2018.

4.10.3 Environmental Consequences

The noise impact analysis was completed for noise sensitive areas within the 65+ dB DNL to evaluate whether the Proposed Action would cause a noise increase of 1.5 dB DNL or more compared with the No Action. The detailed data sources, assumptions, and methodologies applied in developing the No Action and Proposed Action Alternative noise contours are included in *Appendix D, Noise Analysis*.

4.10.3.1 No Action Alternative

The detailed data sources, assumptions, and methodologies applied in developing the No Action Alternative noise contour are included in *Appendix D, Section D.2*, including a comparison of the No Action and Existing Condition noise contours. The DNL contours for the No Action Alternative are shown in **Figure 4-1**.

4.10.3.2 Proposed Action Alternative

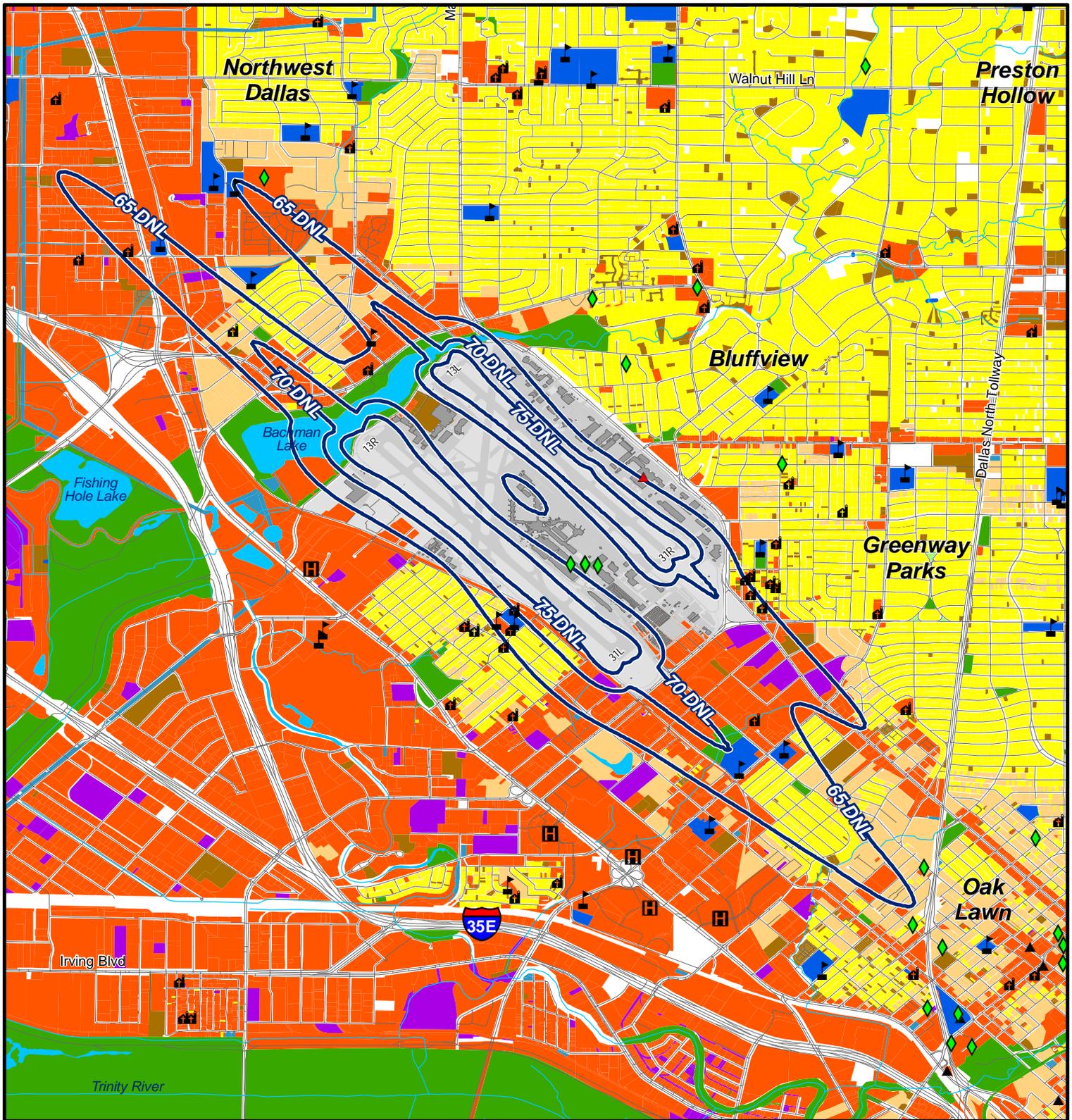
The detailed data sources, assumptions, and methodologies applied in developing the No Action Alternative noise contour are included in *Appendix D, Section D.3*. The DNL contours for the Proposed Action Alternative

for the year of construction are shown in **Figure 4-2**.

4.10.3.3 Comparison of Proposed Action and No Action Alternatives

The Proposed Action Alternative noise contours are expected to be markedly larger along Runway 13L-31R because of heavier usage of this runway during reconstruction, while the noise contours along Runway 13R-31L are expected to be smaller because of the reconstruction and scheduled closure. Noise-Compatible Land Use

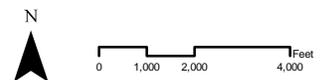
Tables 4.10.3 and 4.10.4 summarize land use type and noise sensitive sites, including population and housing counts, within the 2021 noise contours for the No Action Alternative and Proposed Action Alternative during construction. Figures 4-1 and 4-2 illustrate the land use and noise sensitive sites within the 2021 No Action Alternative and 2021 Proposed Action Alternative during construction, respectively. It should be noted that once construction is completed the Proposed Action Alternative noise exposure will revert to the noise exposure represented by the No Action Alternative in 2021 as the runway will operate as it did prior to reconstruction of Runway 13R-31L.

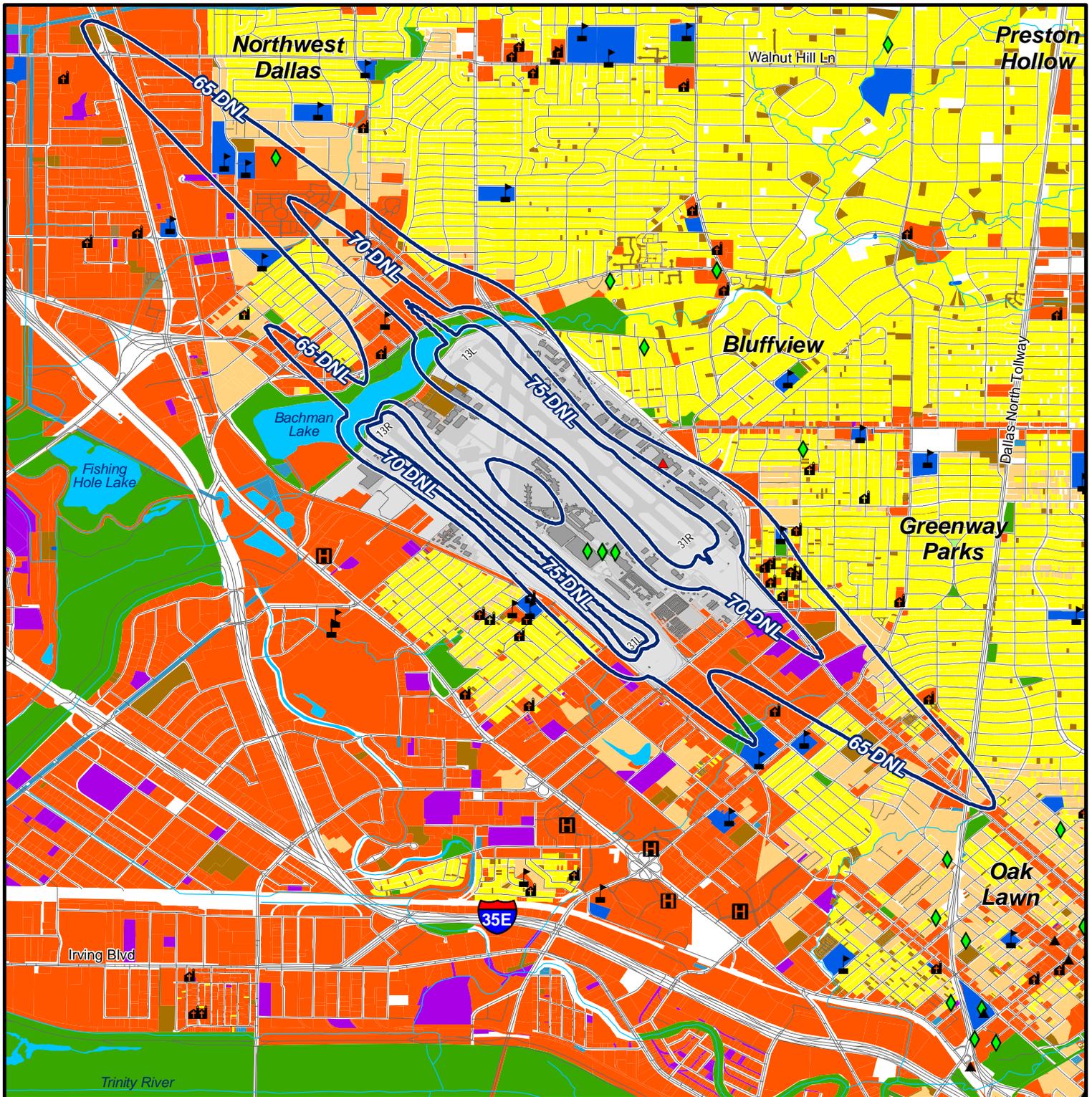


Legend

- | | | | | | |
|---|---------------------------|---|---------------------------|---|----------------------------------|
|  | No Action Noise Contour |  | Single Family Residential |  | School |
|  | Agricultural |  | Transportation |  | Place of Worship |
|  | Airport Property |  | Utility |  | Hospital |
|  | Commercial |  | Vacant / Undefined |  | National Register Historic Place |
|  | Industrial |  | Park |  | NRHP-eligible Property |
|  | Mobile Home |  | Vacant / Undefined |  | Texas Historical Marker |
|  | Multi-Family Residential |  | Water | | |
|  | Open Space / Recreational | | | | |
|  | Public Use | | | | |

Figure 4-1
No Action Noise Contour and Noise Compatible Land Use

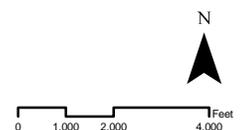




Legend

- | | |
|--|--|
|  Proposed Action Noise Contour |  Utility |
|  Agricultural |  Vacant / Undefined |
|  Airport Property |  Park |
|  Commercial |  Vacant / Undefined |
|  Industrial |  Water |
|  Mobile Home |  School |
|  Multi-Family Residential |  Place of Worship |
|  Open Space / Recreational |  Hospital |
|  Public Use |  National Register Historic Place |
|  Single Family Residential |  NRHP-eligible Property |
|  Transportation |  Texas Historical Marker |

Figure 4-2
Proposed Action Noise Contour and Noise Compatible Land use



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Population and housing units within the contours were determined using 2010 U. S. Census Bureau block group data. The population and housing units calculated within a contour were based on the assumption that residential populations within a block group were evenly distributed by area. Based on this calculation method, the population and housing counts within the Proposed Action Alternative during construction contour increase as compared to the No Action Alternative contour, with the most significant increase being within the 70 DNL contour.

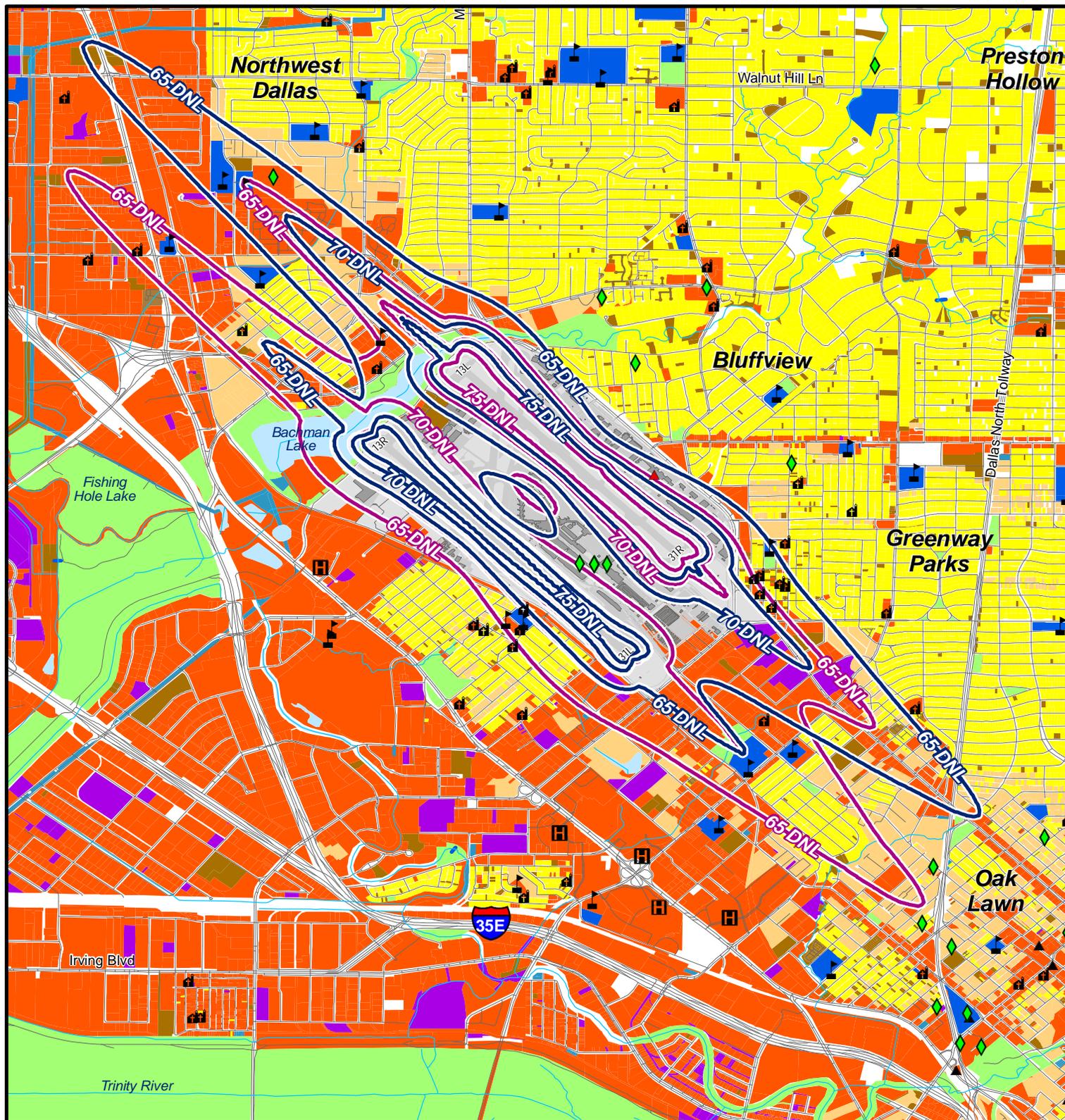
The total acres of residential land use (mobile home, single family and multi-family residential) within the Proposed Action Alternative during construction contour decreases by 53.9 acres as compared to the No Action Alternative contour. However, during construction the total acres of multi-family residential land use increases in the Proposed Action Alternative (136.6 acres) as compared to the No Action Alternative (119.1 acres), especially within the 70 DNL contour, while the total acres of single-family residential land use decreases in the Proposed Action Alternative (89.0 acres) as compared to the No Action Alternative (159.3 acres). Therefore, during construction while the total residential area/population within the Proposed Action Alternative contour may decrease, the residential area/population within the 70 DNL contour will increase under the Proposed Action Alternative. The temporary runway closure results in a shift of the contour, benefiting some areas and increasing noise exposure for other areas.

There are 19 noise sensitive sites within the 65+ DNL No Action Alternative noise contour and 16 noise sensitive sites within the 65+ DNL Proposed Action Alternative during construction noise contour. **Table 4.10.5** summarizes the change in noise exposure at

these noise sensitive sites. As is expected with the shift in the noise contour, some noise sensitive sites will experience an increase in noise while others will experience a decrease in noise under the Proposed Action. As detailed in Table 4.10.5 and shown in **Figure 4-3**, there are six churches, four schools, one NRHP-eligible property, and one THC historical marker that would experience greater than a 1.5 DNL noise increase, placing them above the threshold for a significant impact. However, the noise impact would be temporary and aircraft operations would continue to utilize the two-runway system at DAL following construction.

Noise associated with construction activities would occur on Airport property and be limited to the duration of the construction period. Dallas City Code limits construction activity that is on or adjacent to residential uses to the hours of 7 am to 7 pm on weekdays and 8 am to 7 pm on Saturdays and legal holidays.⁷ Residential properties and noise sensitive sites (schools and churches) located nearest to the construction site are separated from the Airport by Denton Drive and the MARC train tracks. Construction noise levels would be expected to be insignificant in relation to surrounding ambient noise sources however coordination through Good Neighbor Meetings and similar venues would be undertaken to inform the public of construction activities.

Following construction of the Proposed Action Alternative, aircraft operations would resume on both runways, noise exposure would be typical of that experienced in the past as reported quarterly and annual by the DOA, and there would be no permanent noise exposure impacts.



Legend

- Proposed Action Noise Contour
- No Action Noise Contour
- Agricultural
- Airport Property
- Commercial
- Industrial
- Mobile Home
- Multi-Family Residential
- Open Space / Recreational

- Public Use
- Single Family Residential
- Transportation
- Utility
- Vacant / Undefined
- Park
- Vacant / Undefined
- Water

- School
- Place of Worship
- Hospital
- National Register Historic Place
- NRHP-eligible Property
- Texas Historical Marker

Proposed Action vs. No Action Noise Contours and Noise-Compatible Land Use



0 1,000 2,000 4,000 Feet

Figure 4-3

4.10.4 Mitigation

The City DOA plans to mitigate temporary noise impacts through community outreach and meetings with the leaders of the surrounding communities. The City DOA will provide updates on the project and construction impacts via the DAL website, the Good Neighbor Program, and other community meetings. Mailings/flyers will be sent to noise affected residents notifying them of the construction timeline and temporary closure of Runway 13R-31L.

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Table 4.10.3

2021 No Action Alternative Noise Contour Land Use and Sensitive Sites

Land Use Classification (acres)	65 to 70 DNL	70 to 75 DNL	Over 75 DNL	Total
Airport Property	436.5	309.1	338.4	1084.0
Agricultural	0.0	0.0	0.0	0.0
Commercial	601.0	87.3	0.2	688.5
Industrial	44.5	4.1	0.0	48.6
Mobile Home	0.0	1.1	0.0	1.1
Multi-Family Residential	119.1	0.0	0.0	119.1
Open Space / Recreational	44.5	18.8	2.9	66.2
Public Use	33.5	0.1	0.0	33.6
Single Family Residential	151.6	7.7	0.0	159.3
Transportation	220.1	26.8	3.5	250.4
Utility	0.3	0.0	0.0	0.3
Water	53.4	33.8	3.4	90.6
Vacant / Undefined	37.4	1.3	0.0	38.7
Total	1741.9	490.1	348.4	2580.4
Number of Noise Sensitive Sites	65 to 70 DNL	70 to 75 DNL	Over 75 DNL	Total
Places of Worship	7	1	0	8
Schools	7	0	0	7
Historic (NRHP-eligible)	1	0	0	1
Historic (THC Historical Markers)	3	0	0	3
Hospitals	0	0	0	0
Population and Housing Units	65 to 70 DNL	70 to 75 DNL	Over 75 DNL	Total
Population	11,903	318	0	12,221
Housing Units	4,091	92	0	4,183

Notes:

(a) Totals may not add up due to rounding.

(b) Population and Housing Units are noise-sensitive sites.

Source: Dallas County Land Use, US Census Bureau 2010 Block Group data, and HNTB analysis, 2018.

**Draft Environmental Assessment for the
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Table 4.10.4

**2021 Proposed Action Alternative During Year of Construction Noise Contour
Land Use and Sensitive Sites**

Land Use Classification (acres)	65 to 70 DNL	70 to 75 DNL	Over 75 DNL	Total
Airport Property	442.5	320.4	308.6	1071.5
Agricultural	0.0	0.0	0.0	0.0
Commercial	595.6	56.0	2.8	654.4
Industrial	39.6	8.0	0.0	47.6
Mobile Home	0.0	0.0	0.0	0.0
Multi-Family Residential	110.2	26.4	0.0	136.6
Open Space / Recreational	36.4	12.3	5.3	54.0
Public Use	27.5	0.0	0.0	27.5
Single Family Residential	88.7	0.3	0.0	89.0
Transportation	226.5	30.0	2.9	259.4
Utility	0.0	0.0	0.0	0.0
Water	45.6	18.5	4.0	68.1
Vacant / Undefined	49.3	10.8	0.0	60.1
Total	1661.9	482.7	323.6	2468.2
Number of Noise Sensitive Sites	65 to 70 DNL	70 to 75 DNL	Over 75 DNL	Total
Places of Worship	7	0	0	7
Schools	4	0	0	4
Historic (NRHP-eligible)	1	0	0	1
Historic (THC Historical Markers)	4	0	0	4
Hospitals	0	0	0	0
Population and Housing Units	65 to 70 DNL	70 to 75 DNL	Over 75 DNL	Total
Population	11,632	2590	0	14,222
Housing Units	4,103	831	0	4,934

Notes:

- (a) Totals may not add up due to rounding.
- (b) Population and Housing Units are noise-sensitive sites.

Source: Dallas County Land Use, US Census Bureau 2010 Block Group data, and HNTB analysis, 2018.

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Table 4.10.5

Noise Exposure Change at Noise Sensitive Sites During Year of Construction

Sensitive Site	No Action Exposure (DNL)	Proposed Action Exposure (DNL)	Exposure Change (DNL)
Places of Worship			
Bethany Missionary Baptist Church	65.1	68.3	3.2
The Greater North Park Church Of God In Christ	65.7	68.8	3.1
St Lukes Missionary Baptist Church	63.4	66.5	3.2
Macedonia Missionary Church	62.9	66.0	3.1
New Jerusalem AME Church	65.6	68.8	3.2
North Park CME Church	64.2	67.5	3.3
Cristo Rey Presbyterian Church	66.0	66.5	0.5
Our Lady of Perpetual Help Parish	66.3	61.3	-5.0
Cathedral of Hope	66.2	64.6	-1.6
Iglesia Pentecostal Roca De Poder	69.5	64.5	-5.0
Letot Baptist Church	65.7	61.2	-4.5
Dallas Spanish Love Field Church	69.8	64.4	-5.4
Schools			
Uplift Triumph Preparatory School	65.4	68.2	2.9
K B Polk Center for Academically Talented	61.8	65.1	3.4
Francisco "Pancho" Medrano Middle School	64.2	68.0	3.8
Jose "Joe" May Elementary School	65.1	69.0	3.9
Obadiah Knight Elementary School	68.3	63.1	-5.3
Maple Lawn Elementary School	65.9	64.0	-1.9
Thomas J Rusk Middle School	68.9	64.1	-4.8
Letot Campus	66.0	62.3	-3.7
Our Lady of Perpetual Help School	65.8	60.9	-5.0
NRHP-Eligible			
Former Dalfort Site OMB	65.9	69.7	3.8
THC Historical Markers			
Letot Cemetery	62.8	66.7	3.9
Oath of Office of President Johnson	68.3	67.2	-1.1
Texas' First Airmail and Passenger Service	68.3	67.2	-1.1
Love Field	68.3	67.2	-1.1

Notes: Highlighted rows indicate a temporary noise exposure increase of 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.

Source: AEDT Version 2d and HNTB Analysis, 2018.

4.11 Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks

This section analyzes the potential for the alternatives to result in a socioeconomic, environmental justice or children's health and safety impact, or an impact to traffic on the roads serving the Airport and its surrounding communities.

4.11.1 Methodology

4.11.1.1 Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks

The potential for the Proposed Action Alternative to result in the relocation of residences or businesses, division of established communities, disruption of orderly planned development, or changes in employment was evaluated. Additionally, any actions resulting from the alternatives that could result in high or adverse human health or environmental impacts that would disproportionately impact minority or low-income population, or children's health and safety, were also evaluated.

4.11.1.2 Surface Transportation and Traffic

The potential for the Proposed Action Alternative to increase traffic or disrupt traffic patterns on surrounding roadways during construction or operation was evaluated, including the potential to reduce the level of service on surrounding roadways.

4.11.2 Thresholds of Significance

For consideration in evaluating potential impacts to socioeconomics, environmental justice, and children's environmental health and safety risks, the FAA has not established significance thresholds. However, FAA Order 1050.1F provides factors to consider in determining whether the threshold of significance would be exceeded, including:

Socioeconomics

- Inducing substantial economic growth in an area;
- Disrupting or dividing an established community;
- Causing extensive relocation of residential or community business;
- Causing disproportionately high and adverse effects on minority and/or low-income populations;
- Disrupting local traffic patterns, including reducing the level of service of roads; and
- Producing a substantial change in the community tax base.

Environmental Justice

"...a situation in which the proposed action or alternative(s) would have the potential to lead to a disproportionately high and adverse impact to an environmental justice population, i.e., a low income or minority population, due to:

- Significant impacts in other environmental impact categories; or
- Impacts on the physical or natural environment that affect an environmental justice population in a way that the FAA determines is unique to the environmental justice population and significant to that population."

Children’s Environmental Health and Safety
Risks

“...situations in which the proposed action or alternative(s) would have the potential to lead to a disproportionate health or safety risk to children.”

4.11.3 Environmental Consequences

4.11.3.1 No Action Alternative

Under the No Action Alternative, the construction would not occur and therefore there would be no impacts to existing socioeconomic, traffic, or public services, or minority and low-income populations.

4.11.3.2 Proposed Action Alternative

Socioeconomic Impacts, Environmental
Justice, and Children’s Environmental Health
and Safety Risks

The Proposed Action Alternative is located entirely on Airport property and would not require the acquisition or displacement of residents or businesses, or division of communities, and therefore would have no direct effect on minority and low-income populations. The only direct effect associated with the Proposed Action Alternative would be temporary construction employment and expenditure in the local community. These impacts are expected to be beneficial, and the economic activity generated by the temporary construction activity can be absorbed within the existing community infrastructure.

The majority of the CTs within the Indirect Study Area are considered environmental justice communities due to minority populations above the regional average. Many of these communities would experience temporary increases in noise exposure during the construction period. The construction phasing planned as part of

the Proposed Action Alternative minimizes the total duration of construction and noise impacts to surrounding communities.

There are residential properties adjacent to the Direct Study Area along Denton Drive, including two schools: Our Lady of Perpetual Help School and Obadiah Knight Elementary School. These residents and schools are within CT 4.06, which has a total minority population of 77.6%, greater than the regional average of 49.9%. These communities are surrounded by commercial land use and adjacent to the DART train tracks and the Airport to the northeast. Therefore, indirect impacts to this community from construction (noise, air, traffic) would not be significant. See *Section 4.10.4.2* for a discussion of noise exposure increases at four schools in the Indirect Study Area.

The City of Dallas DOA will continue to engage with the surrounding communities through the Good Neighbor Program, which will include quarterly meetings to update the public on the project and construction impacts. Additionally, DOA distributes information on their website related to progress of Airport construction projects.

Following construction of the Proposed Action Alternative, aircraft operations would resume on both runways, noise exposure would be typical of that experienced in the past as reported quarterly and annual by the DOA, and there would be no permanent noise exposure impacts.

Surface Transportation and Traffic

The proposed realignment of the VSR on the south side of Runway 13R-31L would provide a more efficient route for service vehicles traveling on this side of the Airport and would eliminate the confusion associated with the turn movements along the existing VSR.

The construction entrance for the Proposed Action Alternative would be off Denton Drive, in the vicinity of the intersection with Gilford Street (see Figure 1-3). Construction traffic utilizing this entrance would include material and equipment delivery, and employee vehicles. Construction prior to and following the runway closure will likely occur from 7 am to 7 pm during the weekdays, and construction during the runway closure period will likely occur 24 hours/day, 7 days per week. While the Proposed Action Alternative would result in a temporary increase in traffic along Denton Drive, it would not disrupt existing traffic patterns and no significant decrease in the level of service along Denton Drive is anticipated. Additionally, a Dust Control Plan will increase measures to reduce track of sediment from vehicles onto neighboring roadways.

In support of the Airport's sustainability initiative, project design will evaluate the potential to reuse existing concrete pavements as part of the Runway 13R-31L reconstruction and adjacent taxiway projects (as detailed in *Section 4.6.3.2*). The reuse of materials would reduce the volume of waste materials to be hauled off-site and new material to be hauled to the site, which would help reduce the traffic on local streets and the associated impacts to the local neighborhoods.

4.12 Visual Effects

There are no Federal regulations for airport related light emissions or visual effects. However, there are special purpose laws and regulations which protect resources from visual impacts, including Section 106 of the National Historic Preservation Act, and Department of Transportation Act, Section 4(f), as discussed in the relevant sections of this EA.

4.12.1 Methodology

The potential light emissions and visual impacts of the Proposed Action Alternative were determined by evaluating the existing land uses in the vicinity of the Study Area to determine current airport light sources (i.e., parking lots, roadways, etc.), and assess future light sources from the Proposed Action Alternative.

4.12.2 Thresholds of Significance

There is no established threshold of significance for visual effects. However, FAA Order 1050.1F provides factors to consider in determining whether the threshold of significance for visual effects would be exceeded.

Light Emissions

An action may be considered significant if light emissions would create significant annoyance or interference with normal activities; or if light emissions affect the visual character of an area (i.e. importance, uniqueness, aesthetic value).

Visual Resources and Visual Character

An action may be considered significant if it would affect the nature of the visual character of an area; contrast with visual resources or character in the study area; or block or obstruct the views of visual resources.

4.12.3 Environmental Consequences

4.12.3.1 No Action Alternative

Under the No Action Alternative, no proposed construction would occur and therefore there would be no changes to light emissions or the visual character of the Study Area.

4.12.3.2 Proposed Action Alternative

Light Emissions

Light emissions in the Direct Study Area come from airport facilities, including terminals, support buildings, parking structures and airfield lighting, and from street lights along adjacent roadways. Light emissions in the Study Area are expected to remain similar to current conditions.

The Proposed Action Alternative would upgrade existing airfield lighting to LED lights, and would include new and relocated airfield lighting along reconfigured taxiways. While there are residential land uses directly west of the Direct Study Area, the residences are currently subject to light emissions from adjacent roadways, commercial land uses and the DAL airfield. The upgraded airfield lighting will be consistent with the existing environment and therefore, there would be no significant light emission impacts associated with the Proposed Action Alternative.

Visual Resources and Visual Character

The immediate vicinity of the Direct Study Area consists of a combination of residential, commercial, industrial, and open space land uses. The Proposed Action Alternative would be visually consistent and compatible with the Airport environment and with the land uses in the immediate vicinity. Therefore, the Proposed Action Alternative would not create significant visual impacts.

There would be temporary views of construction equipment and personnel within the Direct Study Area off Denton Drive. The area of the proposed concrete batch plant (Figure 1-3) is an existing stockpile site that typically houses construction equipment. This area is fenced in and the visual character of the parcel is consistent with its

proposed temporary use as a concrete batch plant site. Additional construction equipment and personnel would be present for a relatively short duration and upon completion of construction, the equipment and personnel would be removed from the site. Therefore, construction of the Proposed Action Alternative would not create significant visual impacts.

4.13 Water Resources

This section assesses potential impacts from the alternatives on wetlands, floodplains, surface waters, groundwater, and water quality.

4.13.1 Methodology

4.13.1.1 Wetlands

The alternatives were reviewed regarding their potential to directly or indirectly impact wetlands and waters of the U.S. from construction or operation.

4.13.1.2 Floodplains

The alternatives were reviewed regarding their potential to directly or indirectly impact floodplains, as it relates to stormwater run-off volumes and water quality during construction and operation.

4.13.1.3 Water Quality

Federal and state regulations on water resources were reviewed for the analysis of potential water quality impacts. The applicable statutes establish water quality standards, control discharges and pollution sources, protect drinking water systems, and protect aquifers and other sensitive ecological areas.

4.13.1.4 Groundwater

Impacts to groundwater at airports are largely associated with fuel spills/leaks and the potential vertical migration or exfiltration of aircraft deicing fluids. Because the Proposed Action Alternative would not involve changes in the location of deicing operations, the Proposed Action Alternative was reviewed regarding its potential to impact known hazardous material and/or soil contamination sites during construction.

4.13.2 Thresholds of Significance

FAA Order 1050.1F defines thresholds of significance for the following water resource impact categories.

4.13.2.1 Wetlands

Per FAA Order 1050.1F, a significant impact would occur to wetlands “when the action would:

- Adversely affect a wetland’s function to protect the quality or quantity of municipal water supplies, including surface waters and sole source and other aquifers;
- Substantially alter the hydrology needed to sustain the affected wetland system’s values and functions or those of a wetland to which it is connected;
- Substantially reduce the affected wetland’s ability to retain floodwaters or storm runoff, thereby threatening public health, safety or welfare (the term welfare includes cultural, recreational, and scientific resources or property important to the public);
- Adversely affect the maintenance of natural systems supporting wildlife and fish habitat or economically important timber, food, or fiber

resources of the affected or surrounding wetlands;

- Promote development of secondary activities or services that would cause the circumstances listed above to occur; or be inconsistent with applicable state wetland strategies.

4.13.2.2 Floodplains

In accordance with the FAA Order 1050.1F Desk Reference, “Floodplain impacts would be significant if: *The action would cause notable adverse impacts on natural and beneficial floodplain values.*”⁸

4.13.2.3 Water Quality

A significant impact would occur to surface waters if an 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.”

4.13.2.4 Groundwater

A significant impact would occur to groundwater if an action would “exceed groundwater quality standards established by Federal, state, local, and tribal regulatory agencies; or contaminate an aquifer used for public water supply such that public health may be adversely affected.”

4.13.3 Environmental Consequences

4.13.3.1 No Action Alternative

The No Action Alternative would not involve any construction activities that would result in impacts to water resources in the Study Area. The stormwater drainage system would remain in its existing conditions as the proposed upgrades to the drainage system would not occur.

4.13.3.2 Proposed Action Alternative

Preliminary design indicates the Proposed Action Alternative would result in a decrease in total impervious acreage by approximately 54,000 square feet (1.2 acres), which would decrease the total stormwater run-off from the project site. The Proposed Action Alternative includes improvements to the existing stormwater drainage system beneath Runway 13R-31L. The improvements would address the current drainage issues that cause erosion and rutting within the RSA. While specific stormwater design has not been completed, the Proposed Action Alternative would include proper drainage systems to support the reconstructed runway and realigned taxiway pavements.

While the Proposed Action Alternative does not include development of open stormwater ponds, all drainage features and structures will be designed and constructed to minimize potential attractants to wildlife.

The Airport would continue to operate under the City of Dallas' MS4 TPDES Permit and MSG Permit for Industrial Facilities, which allows the Airport to discharge stormwater into surface waters. The Airport would continue to operate in accordance with these permits, including meeting effluent limitations and monitoring requirements for stormwater discharges.

Construction activities include ground disturbance and use of fuels, oils and greases for construction equipment, which increases the potential for sediments and pollutants present in stormwater runoff. In accordance with the Airport's SWPPP, BMPs would be incorporated in the construction plans and implemented to minimize the introduction of contaminants to the groundwater supply, and the discharge of

sediments and other pollutants to the storm drain system or surface waters during construction.

Project designs would adhere to the requirements in the City of Dallas' MS4 and MSG permits for stormwater treatment and control, as well as the Airport SWPPP. As a result of the proposed reduction in impervious surface and improvements to the drainage system, no significant impacts are anticipated to wetlands, floodplains, surface waters or groundwater.

4.14 Cumulative Impacts

The regulations implementing NEPA require an assessment of cumulative impacts in the decision-making process. Cumulative impacts are defined as "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."⁹

Cumulative impacts were determined by combining the impacts of the Proposed Action Alternative with other past, present, and reasonably foreseeable future actions (as summarized in Table 3.14.1).

4.14.1 Resource Categories

Environmental resource categories appropriate for analysis for cumulative impacts are addressed in this section. The categories included were identified for cumulative impact analysis because of potential impacts identified under the Proposed Action Alternative that are discussed individually within this chapter.

There are no anticipated long-term operational impacts associated with the Proposed Action Alternative, with the

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exception of the beneficial impacts related to airfield safety and efficiency. Therefore, cumulative impacts are generally associated with construction-related impacts from other projects occurring within the Proposed Action Alternative construction period (2020-2022).

As detailed on in Table 3.14.1, one Airport project and three City projects are planned to occur in a timeframe that may overlap with the Proposed Action Alternative, including:

- Taxiway B Reconstruction and Taxiway M Extension (Phase III and IV)
- Bachman Regional Family Aquatic Center (Phase 1)
- K.B Polk Park Upgrades
- Street and Transportation Projects (Street Resurfacing, Street Reconstruction, Sidewalk Improvements, Drainage Relief, etc)

Air Quality: A significant impact to air quality could occur if the Proposed Action Alternative, when considered in combination with other past, present, or reasonably foreseeable actions, would exceed a NAAQS or would not conform to the State Implementation Plan. The majority of the cumulative projects include temporary construction related emissions. Construction BMPs would be utilized to minimize impacts related to fugitive dust. As discussed in *Section 4.2, Air Quality*, the Proposed Action Alternative is expected to result in construction emissions associated with the use of heavy equipment and trucks required to haul materials to the site. Peak-year (2021) construction emissions for each pollutant would be less than the *de minimis* threshold. The Taxiway B Reconstruction and Taxiway M Extension (Phase III and IV) project would be complete in 2020 and

therefore peak construction emissions would likely occur in 2020. No significant on- or off-airport projects are known to exist that, in combination with the construction emissions from the Proposed Action Alternative, would generate emissions above the *de minimis* threshold for the individual pollutants in 2020, 2021, or 2022. Therefore, significant cumulative construction emissions are not anticipated.

Hazardous Materials, Pollution Prevention, and Solid Waste: The Proposed Action Alternative and all other past, present and future projects would be constructed and operated in accordance with all federal and state hazardous laws and regulations. Pollution prevention techniques, including initiatives to reuse and recycle construction materials, would be utilized to address all construction and operational activities of the Proposed Action Alternative and all additional on- and off- airport projects. Therefore, the Proposed Action Alternative would not cumulatively contribute to a significant impact to hazardous materials or solid waste.

Land Use: The Proposed Action Alternative and all other past, present, and future projects are in compliance with the City of Dallas' designations of land use, and therefore no cumulative impacts on land use would occur.

Natural Resources and Energy Supply: Significant cumulative impacts to natural resources or energy would occur if there were not adequate supply available to meet all regional needs. As noted in *Section 4.8, Natural Resources and Energy Supply* the Proposed Action Alternative would result in demand for natural resources to construct the Proposed Action Alternative. However, the demand when considered in combination with other projects can be met with the

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available supply. Therefore, there would be no significant cumulative impacts to natural resources and energy supply.

Noise: The Proposed Action Alternative would include temporary noise impacts associated with the closure of Runway 13R-31L for reconstruction when all aircraft operations would utilize Runway 13L-31R. Areas off the Runway 13L and 31R ends are expected to experience a noise exposure increase of greater than 1.5 dB, however the noise increase would be temporary in nature. There are no additional projects planned at DAL that would result in temporary or permanent changes to the noise exposure from aircraft.

Noise impacts from past, present and future projects are limited to construction-related noise impacts associated with an assortment of construction equipment including the use of heavy trucks required to haul materials to project sites. During construction, various noise levels would combine with aircraft noise and surface transportation noise. These levels would be limited to the duration of the construction period for projects. Construction noise levels would be expected to be individually and cumulatively insignificant, and in accordance with Dallas City Code requirements.¹⁰ For these reasons, the Proposed Action Alternative, in combination with past, present and future projects, would not generate a significant cumulative noise impact.

Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks: Construction of the Proposed Action Alternative would add short-term construction employment to the area, which would be a beneficial effect. While the Proposed Action Alternative would result in temporary noise increases over surrounding communities, including

environmental justice areas and schools, the impacts would be temporary. City of Dallas street and transportation projects, K.B. Polk Park upgrades, and Bachman Regional Family Aquatic Center projects would result in beneficial impacts to the surrounding communities. Therefore, impacts would not combine to create cumulative impacts and no significant adverse cumulative social impacts would occur.

Surface Transportation and Traffic: The Proposed Action Alternative would result in minor, temporary impacts to traffic along Denton Drive where the proposed construction entrance is located. Construction entrances for Airport projects are dependent on the location of the project, but there are no other significant construction projects in the 2020-2022 timeframe that would utilize the construction entrance off Denton Drive. City of Dallas street and transportation projects would enhance surface traffic safety and efficiency. Combined with past, present and future projects, there would be no significant cumulative impacts to surface transportation and traffic.

Water Resources: The Proposed Action Alternative would result in a decrease in impervious surfaces at the Airport. Temporary increases in stormwater runoff, erosion and sedimentation would be generated during construction activities for the Proposed Action Alternative and all past, present and future projects. All projects would be undertaken in accordance with all federal, state, and local water quality requirements and applicable permits, and there would be no significant cumulative impacts to groundwater or surface water quality. Therefore, the Proposed Action Alternative would not cumulatively contribute to a significant impact on water resources.

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For these reasons, the Proposed Action Alternative, in combination with past, present and future projects, would not produce significant cumulative construction impacts.

Endnotes

¹ FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, July 2015, p. 4-4.

² Dallas County is currently designated as “marginal non-attainment” of ozone. On November 14, 2018, a Proposed Rule was issued to reclassify the DFW Region from marginal to “serious non-attainment” for ozone. For purposes of this analysis, the Airport is assumed to be within a “serious non-attainment” area for ozone.

³ *Massachusetts v. E.P.A.*, 549 U.S. 497, 508-10, 521-23 (2007).

⁴ FAA Order 1050.1F, *Environmental Impacts: Policies and Procedures*, July 2015, p. 4-6.

⁵ FAA 1050.1F Desk Reference, p.8-18

⁶ FAA Terminal Area Forecast (TAF), https://www.faa.gov/data_research/aviation/taf/, accessed July 2018.

⁷ Dallas City Code, Chapter 30, Noise, Section 30-2(8), 6/11/2016, <http://www.nonoise.org/lawlib/cities/ordinances/Dallas,%20Texas.pdf>

⁸ FAA Order 1050.1F Desk Reference (July 2015), p. 4-11.

⁹ 40 CFR 1508.7

¹⁰ Dallas City Code, Chapter 30, Noise, Section 30-2(8), 6/11/2016.