



APPENDIX H

Date: September 15, 2019
 To: Morgan Einspahr, LEED GA. Aviation, Inc.
 From: Mike Alberts
 Subject: **Noise Analysis Falcon Field Environmental Assessment**

Introduction

As part of the Falcon Field Airport (FFZ) Environmental Assessment (EA), a noise screening analysis was prepared to evaluate the potential changes in noise levels associated with the planned new development at the airport. The noise analysis was prepared to meet the requirements of the Federal Aviation Administration (FAA) Order 1050.1F Environmental Impacts: Policies and Procedures and accompanying Desk Reference. Order 1050.1F contains the FAA’s procedures for complying with the National Environmental Policy Act (NEPA).

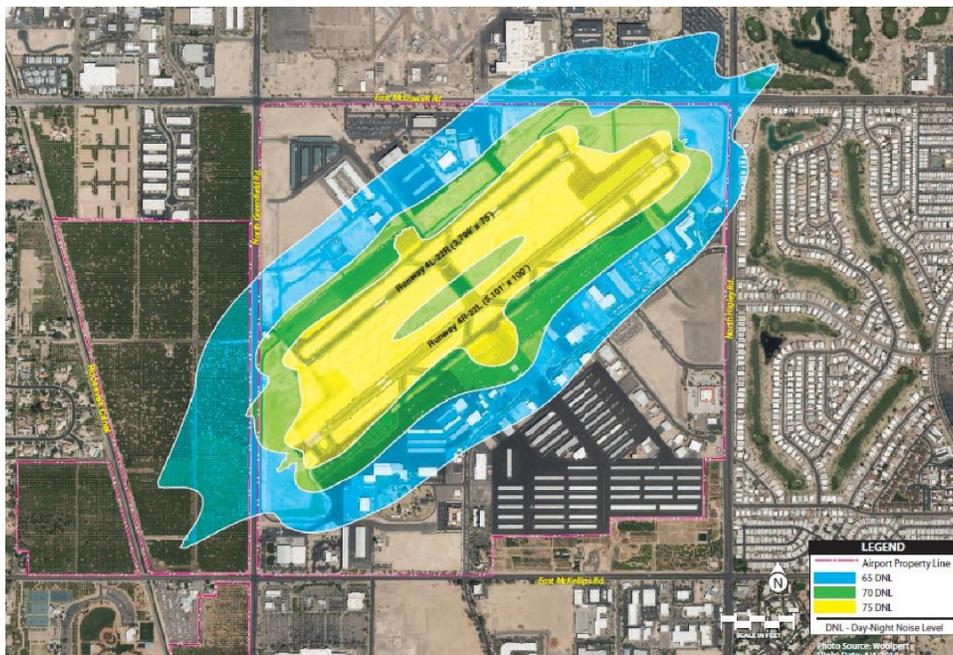
Affected Environment

Existing Noise And Compatible Land Use

The airport is surrounded by a variety of land uses including residences and golf course to the east, commercial development north and south and residences to the west. This analysis did not determine a baseline level of noise exposure in the vicinity of the airport, because it was only necessary to compute the *difference* in noise exposure due to the Proposed Action as compared to the No Action Alternative.

The most current noise contours were presented in the recent FFZ Airport Master Plan. This study included year 2017 baseline Day-Night Average Sound Level (DNL) contours showing eight residences within the 65 DNL contour. The DNL contours are shown on **Figure 1**.

Figure 1 - 2017 65-75 DNL Contours



Source: FFZ Master Plan, **Chapter Five: Master Plan Concept (5/24/19)**, Exhibit 5B, Coffman Associates, 2019.



Environmental Consequences

Methodology

The potential for changes in noise exposure due to the Proposed Action was assessed based on the forecast changes to aircraft operations and fleet mix for the future years 2021 and 2026. For projects in which the planned changes involve only operations and fleet mix (and not flight tracks, flight profiles, or runway modifications), the procedure for assessing noise exposure for an airport NEPA assessment is two-tiered:

1. Conduct a noise screening analysis using the FAA's Area Equivalent Method (AEM) model. If the potential for significant noise impact results, proceed to step 2.
2. Conduct detailed noise contour modeling and develop DNL contours using the FAA's Aviation Environmental Tool (AEDT).

For step 1, FAA regulations stipulate that a 17% or greater increase in 65 DNL contour area could result in a 1.5 DNL increase, therefore the development noise contours using AEDT is required under step 2. If AEM computes an increase of less than 17%, then there are no significant noise impacts and no further noise analysis is required.

The AEM does not produce noise contours, only an estimate (in square miles) of the area potentially impacted. The most recent available version of AEM, Version 2c SP2, was used for this analysis.

Proposed Action Forecast Aircraft Operations

For this assessment, the year 2021 and 2026 forecast aircraft operations data has been used. The operations were included in the recent FFZ Master Plan and show 316,360 annual operations in 2021 and 346,320 in 2026.

The aircraft fleet mix and time of day percentages that were modeled in the 2017 FFZ Master Plan DNL contours have been applied to the 2021 and 2026 forecast operations. While helicopter operations are not included in the AEM, a substitute of a heavy turboprop (DHC6) aircraft was assigned to represent these in the AEM. In 2021 and 2026, the helicopters operations are forecast to be minimal and account for only 6% of the total operations at the airport.

With the Proposed Action, aircraft operations at the airport are planned to increase by 4,500 annual operations over the No Action condition, which is an approximately 1.4% increase. These operations would include a mix of general aviation aircraft types. For conservative noise planning purposes, all of the additional operations as a result of the Proposed Action have been assigned to high-performance heavy turboprops and jets in the AEM.

AEM Noise Assessment Results

The AEM noise modeling for the Proposed Action indicates that there would be a very minor increase in the 65 DNL contour (1.7%). The 1.7% increase is well below the FAA's noise impact criterion of 17% and therefore the Proposed Action does not result in a significant noise impact. The increase in the size of the 65 DNL as a result of the Proposed Action is shown in **Table 1**. The 2021 and 2026 AEM input and results are shown in Attachments A and B respectively.



TECHNICAL MORANDUM

Table 1: FFZ AEM Results – 65 DNL Contour Area

Year	No Action Area (Sq. Mi.)	Proposed Action Area (Sq. Mi.)	Change in Area (Sq. Mi)
2021	0.57	0.58	1.7%
2026	0.61	0.62	1.7%

Source : KB Environmental Sciences, Inc., 2019.

Mitigation

There would be no significant impacts related to noise; therefore, no mitigation or measures to avoid and minimize impacts are necessary.

Attachment A – 2021 AEM Results

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http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/aem_model/

Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	FFZ Year 2021
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DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	0.6	0.6	1.7%

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
BEC58P	56.01	1.73	56.01	1.73
CIT3	1.40	0.04	2.20	0.07
CL600	0.14	0.00	0.22	0.01
CNA208	1.40	0.04	2.20	0.07
CNA441	1.40	0.04	2.20	0.07
CNA55B	2.10	0.06	3.30	0.10
CNA750	0.14	0.00	0.22	0.01
DHC6	27.03	0.84	29.02	0.90
GASEPF	165.17	5.11	165.17	5.11
GASEPV	165.16	5.11	165.16	5.11
GIV	0.07	0.00	0.11	0.00
GV	0.14	0.00	0.22	0.01
LEAR35	0.21	0.01	0.33	0.01
Total LTOs	420.37	13.00	426.35	13.19

Attachment B – 2026 AEM Results

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http://www.faa.gov/about/office_org/headquarters_offices/apl/research/models/aem_model/

Area Equivalent Method (AEM) Version 2c SP2

Airport Name/Code:	FFZ Year 2026
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DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Percent Change in Area
65	0.6	0.6	1.7%

Aircraft Type	BASE Case		ALTERNATIVE Case	
	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
BEC58P	61.32	1.90	61.32	1.90
CIT3	1.53	0.05	2.33	0.07
CL600	0.15	0.00	0.23	0.01
CNA208	1.53	0.05	2.33	0.07
CNA441	1.53	0.05	2.33	0.07
CNA55B	2.30	0.07	3.50	0.11
CNA750	0.15	0.00	0.23	0.01
DHC6	29.59	0.92	31.58	0.98
GASEPF	180.81	5.59	180.81	5.59
GASEPV	180.80	5.59	180.80	5.59
GIV	0.08	0.00	0.12	0.00
GV	0.15	0.00	0.23	0.01
LEAR35	0.23	0.01	0.35	0.01
Total LTOs	460.18	14.23	466.16	14.42