NOISE EXPOSURE MAP UPDATE - 2017

Fresno Yosemite International Airport

In compliance with 14 CFR Part 150

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Airport Sponsor:

CITY OF FRESNO

Prepared for
City of Fresno
Airports Department

Prepared by

hmmh

Sub-consultants:
C&S Consultants
and
CommuniQuest

September 2017

Noise Exposure Map Update – Appendices

Fresno Yosemite International Airport

HMMH Report No. 307400
September 2017

Prepared for:

City of Fresno Airports Department
Fresno Yosemite International Airport

4995 E. Clinton Way

Fresno CA, 93727

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HMMH Report No. 307400
September 2017

Prepared for:

City of Fresno Airports Department
Fresno Yosemite International Airport
4995 E. Clinton Way
Fresno, CA 93727

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U.S. Department
of Transportation
**Federal Aviation
Administration**

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Blvd., Suite 220
Brisbane, CA 94005-1835

February 21, 2018

Kevin R. Meikle
Director of Aviation
City of Fresno
4995 E. Clinton Way
Fresno, CA 93727-1525

Subject: Fresno Yosemite International Airport – FAA Acceptance of Noise Exposure Map Update

Dear Mr. Meikle:

This letter is to notify you that the Federal Aviation Administration (FAA) has evaluated and accepted the Noise Exposure Maps and supporting documentation dated September 2017 for the Fresno Yosemite International Airport. In accordance with 49 United States Code (USC) Section 47503 (formerly the Aviation Safety and Noise Abatement Act of 1979), as amended, we have determined that:

1. The 2017 noise contours and supporting documentation meet the requirements for the current Noise Exposure Map as of the date of submission as set forth in Title 14, Code of Federal Regulations (CFR), Part 150, *Airport Noise Compatibility Planning*, Section 150.21, and are accordingly accepted under this Part.

2. The projected aircraft operations, the 2022 noise contours and supporting documentation are accepted as the description of the future conditions as set forth in Part 150, and are accordingly accepted under this Part.

3. The documentation provides sufficient evidence consultation was accomplished in accordance with section 150.21(b).

FAA's acceptance of the Noise Exposure Maps on February 16, 2018 is limited to the determination that the maps were developed in accordance with the procedures contained in Appendix A of Part 150. Such acceptance does not constitute approval of your data, information, or plans.

The FAA will publish a notice in the *Federal Register* announcing the acceptance of the Noise Exposure Maps for Fresno Yosemite International Airport. The FAA's acceptance of these Noise Exposure Maps under Part 150 in no way approves or endorses a Noise Compatibility Program, potential related federal funding of projects identified in such a program, or any related operating restrictions at the subject airport.

Should any questions arise concerning the precise relationship of specific properties to noise exposure contours depicted on the Noise Exposure Maps, you should note that the FAA will not be involved in any way in the determination of relative locations of specific properties with regard to the depicted noise contours, or in interpreting the maps to resolve questions concerning, for example, which properties should be covered by the provision of 49 USC 47506. These functions are inseparable from the ultimate land use control and planning responsibilities of local government. These local responsibilities are not changed in any way under Part 150 or through FAA's acceptance of your Noise Exposure Maps Update. Therefore, the responsibility for the detailed overlaying of noise contours onto the maps depicting properties on the surface rests exclusively with you the airport operator, or those public agencies and planning agencies with which consultation is required under 49 USC 47503. The FAA relies on the certification by you under 150.21 of 14 CFR Part 150, that the statutorily required consultation has been accomplished. (14 CFR 150.5)

Your notice of this determination, and the availability of the Noise Exposure Maps, which when published at least three (3) times in a newspaper of general circulation in the county where the affected properties are located, will satisfy the requirements of 49 USC 47506 of the Act. A sample publication announcement has been enclosed for your use.

Your attention is called to the requirements of Section 150.21(d) of Part 150, involving the prompt preparation and submission of revisions to these maps, if any actual or proposed change in the operation of the subject airport might create any substantial, new noncompatible land use in any areas depicted on the maps, or if there would be a significant reduction in noise over existing incompatible land uses that is not reflected in either map now on file with the FAA.

Thank you for your continued interest in noise compatibility planning.

Sincerely,

Anthony M. Butters
Acting Manager, San Francisco Airports District Office

Enclosure

cc:
Mark Davis, Fresno Yosemite International Airport

Sponsor's Certification

The City of Fresno has completed a comprehensive update of the Title 14 Code of Federal Regulations (CFR) Part 150 Noise Exposure Map for Fresno Yosemite International Airport

1) The Noise Exposure Maps and associated documentation submitted by the City of Fresno to the Federal Aviation Administration under Code of Federal Regulations Part 150, Subpart B, Section 150.21, are true and complete under penalty of 18 U.S.C.1001.

2) Pursuant to Part 150, Subpart B, Section 150.21(b), all interested parties have been afforded adequate opportunity to submit their views, data, and comments concerning the correctness and adequacy of the draft noise exposure map and of the descriptions of forecast aircraft operations.

3) The "Existing Conditions (2017) Noise Exposure Map" (Figure 14) accurately represents conditions for calendar year 2017

4) The "Forecast Conditions (2022) Noise Exposure Map" (Figure 15) accurately represents forecast conditions for calendar year 2022.

By: [signature]

Title: DIRECTOR OF AVIATION

Date: 10/25/17

Airport Name:	Fresno Yosemite International Airport
Airport Owner/Operator:	The City of Fresno
Address:	4995 E. Clinton Way, Fresno, CA 93727

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1 Introduction

This document provides an update of the Fresno Yosemite International Airport (FAT) Noise Exposure Map (NEM) as required through Title 14 of the Code of Federal Regulations Part 150("14 CFR Part 150" or simply "Part 150"). This 2017 NEM update presents the noise exposure from FAT aircraft operations and identifies the associated incompatible land uses with current and forecast aircraft operational activity. The primary product of an NEM update is a set of maps that display the aircraft noise exposure in terms of Community Noise Equivalent Level (CNEL) along with the surrounding land uses. Aircraft noise exposure is presented on the maps in contours of equal noise exposure much like terrain maps use contours to show equal ground elevations. These aircraft noise exposure contour maps are used to define the areas in which federal funds may be available to assist the City of Fresno Airports Department with implementation of the FAT Noise Compatibility Program (NCP), which includes measures such as land acquisition and sound insulation.

Part 150 "Airport Noise Compatibility Planning" is a voluntary program provided to airports and communities by the Federal Aviation Administration (FAA) to assess and mitigate aircraft noise around airports. For airports that choose to participate in Part 150, the associated regulations require airports to mitigate incompatible aircraft noise in areas from highest to lowest noise levels. According to the FAA's Airport Improvement Program Handbook (FAA Order 5100.38D), federal funds may be used to mitigate aircraft noise within the CNEL 65 dB contour (CNEL 65 dB and higher noise exposure levels) at noise sensitive properties identified in a current FAA-approved NEM. These mitigation efforts must also be identified as an approved measure in the NCP Record of Approval. For residential sound insulation programs in particular, only structures within the CNEL 65 dB contour having an average interior CNEL of 45 dB or higher in noise sensitive rooms are eligible for federal funding.

To ensure federal funds are appropriately used for NCP implementation, FAA guidelines require airports to maintain their NEM to reasonably represent current conditions. Specifically, if changes have occurred resulting in an expected CNEL increase or decrease of 1.5 dB or greater, over incompatible land uses (Part 150, Section 150.21(d)), the NEM must be updated. If the FAA-accepted NEM for FAT is more than five years old, the sponsor, which in this case is the City of Fresno Airports Department as the owner and operator of FAT, must certify in writing that the maps continue to be a reasonable representation of the conditions at the airport. Since the preparation and acceptance of the 2004 NEM, the California Air National Guard (CANG) has altered their mission at FAT and replaced F-16 aircraft with F-15 aircraft. Due to the aircraft conversion by the CANG and other changes in flight operations at FAT, the City of Fresno Airports Department is updating the FAT NEM and expects to submit the NEM update in calendar year 2017.

This section provides a summary of the regulation supporting airport noise compatibility planning, a brief history of noise compatibility planning at FAT, an overview on implementation of the regulation, roles and responsibilities of the participating groups, and a completed copy of the FAA NEM review checklist. The balance of the document presents the information required by regulation and FAA guidance including:

- Background on Fresno Yosemite International Airport – Chapter 2
- Land use in the communities surrounding the Airport – Chapter 3
- Development of the Fresno Yosemite International Airport aircraft noise exposure contours – Chapter 4
- The updated Noise Exposure Maps and land use compatibility assessment – Chapter 5
- The public consultation program implemented for this NEM update – Chapter 6

Appendix A of this document provides a reference to aircraft noise fundamentals and terminology to assist the reader in understanding the information contained herein.

1.1 Purpose of this NEM Update

As an Airport that voluntarily participate in the federal Part 150 program, The City of Fresno Airports Department (City) manages noise mitigation measures identified in the NCP (such as sound insulation and land acquisition of residential properties) under its Sound Mitigation Acoustic Remedy Treatment (SMART) Program. In order to be eligible for continued federal funding to implement the SMART Program, the City is required to maintain their NEM and the maps included must reflect current conditions. Given the CANG's mission change at FAT and other changes in aircraft and aircraft operations at FAT, the City initiated the process to update the NEM to accomplish the following goals:

- Accurately reflect current NCP implementation and current and forecast aircraft operations at FAT
- Collect and analyze information regarding current and forecast operations as it relates to aircraft noise and land use compatibility at FAT
- Determine and report the updated existing and forecast aircraft noise exposure contours at FAT
- Evaluate land use compatibility within the updated existing and forecast aircraft noise exposure contours to determine whether there is potential for continued eligibility of the FAT NCP measures using federal funds
- Share updated data and information with the public

1.2 Overview of the Airport Noise Compatibility Planning Regulation

The emphasis on aircraft noise compatibility planning in the United States started with the passing of the Aviation Safety and Noise Abatement (ASNA) Act of 1979. This act gave the FAA authority to provide assistance to airport operators to prepare and carry out noise compatibility programs. The FAA assistance includes both regulatory guidance and financial support. The FAA implemented the ASNA noise-related regulatory requirements in Title 14 of the Code of Federal Regulations (C.F.R.) Part 150, "Airport Noise Compatibility Planning".

The regulation, most commonly referred to as "Part 150" sets forth standards for airport operators to use in documenting noise exposure in their airport environs and for establishing programs to minimize noise-related land use incompatibilities. While participation in this program by an airport is voluntary, over 250 airports, including FAT, have participated in the program, which assists in standardizing noise analysis at a national level. FAA provides funding support under the federal Airport Improvement Program (AIP). The agency has provided over $100 million in AIP grants for Part 150 studies, and over $5 billion in grants for implementation of noise compatibility measures.

Part 150 sets forth a process for airport proprietors to follow in developing and obtaining FAA approval of programs to reduce or eliminate incompatibilities between aircraft noise and surrounding land uses. In establishing the requirements for the development of noise compatibility programs at airports, Part 150 prescribes specific standards and systems for:

- Measuring noise
- Estimating cumulative noise exposure
- Describing other means to assess the impacts of noise (including single aircraft event levels and cumulative levels)
- Coordinating Noise Compatibility Program (NCP) development with local land use officials and other interested parties
- Documenting the analytical process used in developing the NCP
- Submitting documentation to the FAA
- Providing for FAA and public review processes

A Part 150 study includes two principal elements: (1) the Noise Exposure Map (NEM) and (2) the Noise Compatibility Program (NCP), however, the NEM may be updated independently of the NCP. The NEM identifies existing and potential future noise / land use compatibility within the 65-decibel (dB) Community Noise Equivalent

Level (CNEL)[1] noise contour. Federal guidelines and standards adopted by The City of Fresno and local jurisdictions identify certain categories of land use within the CNEL 65-dB noise contour as potentially incompatible with aircraft noise (for example, residences, schools, and places of worship). The NCP recommends actions that may be taken – by a wide range of entities – to minimize or eliminate those incompatibilities.

The City of Fresno is updating only the NEM at this time.

1.2.1 Noise Exposure Map

The NEM documentation describes the airport layout and operation, aircraft-related noise exposure, land uses in the airport environs, and the resulting noise/land use compatibility. The aircraft noise exposure is expressed in decibels (dB) in terms of the Community Noise Equivalent Level (CNEL). Contours of equal CNEL values, similar to topographic contours of equal elevation, form the basis for evaluating the noise exposure to the community. The NEMs must address two time frames: (1) data representing the year of submission (the “existing conditions”) and (2) the fifth calendar year or later following the year of submission (the “forecast conditions”). The NEMs and associated background data also address how the forecast operations will affect the compatibility of the land uses depicted.

The primary objective is to describe the current and forecast conditions at the airport and the noise effects of the aircraft activity on the surrounding communities. While this description is normally processed into individual noise exposure maps, Part 150 requires more than a simple “map” to provide all the necessary information. The information required to provide the graphics and background for analysis includes such tasks as:

- Collecting historical aviation activity data such as aircraft fleet mix, number and type of operations, and runway utilization
- Developing a forecast aircraft activity for a period at least five years in the future from the year representing the existing conditions
- Determining aircraft flight tracks and usage based on radar data from FAA’s National Offload Program (NOP)
- Creating the necessary inputs to the FAA Aviation Environmental Design Tool using the average annual input conditions to include airport configuration, meteorological data, operations, etc.
- Obtaining approval for user-specified aircraft substitutions and profiles from the FAA
- Collecting data from local jurisdictions to establish detailed land use data in the airport environs
- Estimating population data within the local area

Therefore, in addition to the graphical elements, the NEM submission must document, through tabulated information and text discussions, the noise environment due to aircraft activity at the airport now and in the future. Thus, the NEM documentation describes the data collection and analysis undertaken in the development and graphic depictions of existing and future noise exposure resulting from aircraft operations and the land uses in the airport environs. During the process, the airport initiates and maintains contact with airport users and other interested stakeholders to get the various perspectives on the modeling inputs. After considering all stakeholder and public comments, the airport sponsor submits the NEM documents to the FAA, and, subsequent to a thorough review, the FAA makes a determination of compliance with the Part 150 standards.

The year of submission for this update is 2017. Therefore, the noise contours for 2017 represent existing conditions and the projected contours for 2022 represent the five-year forecast conditions.

1.2.2 Noise Compatibility Program

The purpose of a Noise Compatibility Program (NCP), according to Part 150, is to provide the airport with a planning process for improving the compatibility of aircraft operations within the airport environment and with

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[1] *Part 150 requires cumulative noise exposure be expressed in terms of the Day-Night Average Sound Level (DNL). Due to the State of California Division of Aeronautics adopting the Community Noise Equivalent Level (CNEL) as part of their noise standards, the FAA allows California airports to use CNEL in place of DNL. CNEL and other noise metrics and noise effects are discussed in detail in Appendix A.*

neighboring noise-sensitive land uses while continuing to fulfill its role in the National Plan of Integrated Airport Systems (NPIAS). Upon completion of the analyses and coordination, the NCP is submitted to the FAA for review and approval. The FAA approves or disapproves each measure on its merits and adherence to the national aviation policy. Acceptance of the submission and approval of individual measures is a prerequisite to application to the FAA for federal funding assistance under the Airport Improvement Program (AIP).

The present document represents only an NEM update.

1.3 Roles and Responsibilities

Several groups were involved in the development of this 2017 NEM update, including the Federal Aviation Administration, the City of Fresno Airports Department, and the consulting team.

1.3.1 The City of Fresno Airports Department

As the "airport operator", The ***City of Fresno Airports Department*** has authority over the NEM Update study elements, must certify that the NEM was prepared in accordance with the Part 150 regulation and submit the NEM to the FAA for acceptance. The City of Fresno retained a team of consultants to conduct the technical work required to fulfill Part 150 analysis and documentation requirements, and to assist in public outreach and consultation. Section 1.3.6 describes the composition of the consulting team and the general assignment of responsibilities among its members.

1.3.2 Federal Aviation Administration

The ***Federal Aviation Administration*** (FAA) has ultimate review authority over the noise compatibility program and noise exposure maps submitted under Part 150. FAA's review covers the details of technical documentation as well as much broader issues of safety and constitutionality of recommended noise abatement alternatives.

1.3.3 Local Jurisdictions

Public planning agencies have control of the land uses identified on the noise exposure maps. Each of the jurisdictions with responsibility either wholly or partially in areas of incompatible land uses as defined by Part 150 have been identified and include the City of Fresno, County of Fresno and City of Clovis.

1.3.4 Airport Users

Airport users, particularly operators of aircraft, have control of the aircraft as they arrive and depart the Airport. Airport users at FAT include the California Air National Guard, airlines, and fixed base operators, such as Signature Flight Support.

1.3.5 SMART Program

The ***Sound Mitigation Acoustical Remedy Treatment*** (SMART) program was established by the City of Fresno Airports Department following the completion of the 1988 NCP for FAT. Under the direction of the Airports Planning Manager, the SMART Program administers and implements the residential sound insulation and land acquisition/relocation measures identified in the NCP as approved in the associated FAA Record of Approval[2] (ROA). Airport staff use the NEM as one factor in determining a participant's eligibility for participation in the SMART Program.

[2] U.S. Department of Transportation, Federal Aviation Administration, Record of Approval, 14 CFR Part 150 Noise Compatibility Program, Fresno Yosemite International Airport, Fresno, California, approved July 28, 2008.

1.3.6 Consulting Team

The City of Fresno contracted with the consulting firm of ***HMMH***[3] to complete the technical work required for the NEM update. Under this agreement, HMMH has overall project management responsibility for the NEM Update, and is responsible for all noise-related technical elements. Other elements of the NEM Update are being handled through sub-consultant agreements with:

C&S Companies – Provided services to develop aircraft activity forecasts for the year of submittal and the five-year forecast.

CommuniQuest – Managed the public consultation program activities including public outreach, coordinating the FAT NEM Update public workshops, and arranging translation services.

1.4 FAA Checklist

The FAA produced Advisory Circular 150/5020-1, "Airport Noise and Land Use Compatibility Planning", that includes a checklist to aid in both the development and review of NEM and NCPs. The FAA prefers that the NEM documentation include a copy of the NEM checklist with appropriate page numbers or other references and other notes and comments (as presented in Table 1).

Table 1. Part 150 Noise Exposure Maps Checklist

Source: FAA/APP, Washington, DC, March 1989; revised June 2005; reviewed for currency 6/2016[4]

PART 150 NOISE EXPOSURE MAP CHECKLIST-PART I			
Airport Name: Fresno-Yosemite International Airport	REVIEWER:		
	Yes	No	Supporting Pages/Review Comments
I. Submitting and Identifying the NEM:			
A. Submission properly identified:			
1. 14 C.F.R. Part 150 NEM?	X		Sponsor's Certification (p. v) and Section 1 (p. 1)
2. NEM and NCP together?		X	Only NEM Update
3. Revision to NEM FAA previously determined to be in compliance with Part 150?	X		Section 2.2 (p. 11)
B. Airport and Airport Operator's name are identified?	X		Sponsor's Certification (p. v)
C. NCP is transmitted by operator's dated cover letter, describing it as a Part 150 submittal and requesting appropriate FAA determination?		X	Only NEM Update
II. Consultation: [150.21(b), A150.105(a)]			
A. Is there a narrative description of the consultation accomplished, including opportunities for public review and comment during map development?	X		Section 6 (p. 67) and Appendix G
B. Identification of consulted parties:			
1. Are the consulted parties identified?	X		Section 6 (p. 67) and Appendix G
2. Do they include all those required by 150.21(b) and A150.105 (a)?	X		Section 6 (p. 69) and Appendix G

[3] *Harris Miller Miller & Hanson Inc. d/b/a HMMH*
[4] http://www.faa.gov/airports/environmental/airport_noise/part_150/checklists/

PART 150 NOISE EXPOSURE MAP CHECKLIST-PART I			
Airport Name: Fresno-Yosemite International Airport	**REVIEWER:**		
	Yes	**No**	**Supporting Pages/Review Comments**
3. Agencies in 2. above, correspond to those indicated on the NEM?	X		Section 6 (p. 69) and Appendix G
C. Does the documentation include the airport operator's certification, and evidence to support it, that interested persons have been afforded adequate opportunity to submit their views, data, and comments during map development and in accordance with 150.21(b)?	X		Sponsor's Certification (p. v) and Section 6 (p. 69)
D. Does the document indicate whether written comments were received during consultation and, if there were comments that they are on file with the FAA regional airports division manager?	X		Section 6.1.2 (p. 69) and Appendix G
III. General Requirements: [150.21]			
A. Are there two maps, each clearly labeled on the face with year (existing condition year and one that is at least 5 years into the future)?	X		Existing Conditions 2017 NEM is Figure 14 (p. 57); Forecast Conditions 2022 NEM is Figure 15 (p. 59)
B. Map currency:			
1. Does the year on the face of the existing condition map graphic match the year on the airport operator's NEM submittal letter?	X		Existing Conditions 2017 NEM is Figure 14 (p. 57)
2. Is the forecast year map based on reasonable forecasts and other planning assumptions and is it for at least the fifth calendar year after the year of submission?	X		Forecast Conditions 2022 NEM is Figure 15 (p. 59)
3. If the answer to 1 and 2 above is no, the airport operator must verify in writing that data in the documentation are representative of existing condition and at least 5 years' forecast conditions as of the date of submission?	N/A		
C. If the NEM and NCP are submitted together:			
1. Has the airport operator indicated whether the forecast year map is based on either forecast conditions without the program or forecast conditions if the program is implemented?	N/A		
2. If the forecast year map is based on program implementation:	N/A		
a. Are the specific program measures that are reflected on the map identified?	N/A		
b. Does the documentation specifically describe how these measures affect land use compatibilities depicted on the map?	N/A		

PART 150 NOISE EXPOSURE MAP CHECKLIST-PART I			
Airport Name: Fresno-Yosemite International Airport	REVIEWER: Yes	No	Supporting Pages/Review Comments
3. If the forecast year NEM does not model program implementation, the airport operator must either submit a revised forecast NEM showing program implementation conditions [B150.3 (b), 150.35 (f)] or the sponsor must demonstrate the adopted forecast year NEM with approved NCP measures would not change by plus/minus 1.5 DNL [or Community Noise Equivalent Level, CNEL]? [150.21(d)]	N/A		
IV. MAP SCALE, GRAPHICS, AND DATA REQUIREMENTS: [A150.101, A150.103, A150.105, 150.21(a)]			
A. Are the maps of sufficient scale to be clear and readable (they must not be less than 1" to 2,000'), and is the scale indicated on the maps? (Note (1) if the submittal uses separate graphics to depict flight tracks and/or noise monitoring sites, these must be of the same scale, because they are part of the documentation required for NEM.) (Note (2) supplemental graphics that are not required by the regulation do not need to be at the 1" to 2,000' scale)	X		The maps provided in the pockets following each map within the document have 1" = 2000' scale
B. Is the quality of the graphics such that required information is clear and readable? (Refer to C. through G., below, for specific graphic depictions that must be clear and readable)	X		Figure 9. Civilian Arrival Model Tracks (p. 41), Figure 10. Civilian Departure Model Tracks (p. 43), Figure 11. Military Arrival Model Tracks (p.45), Figure 12. Military Departure Model Tracks (p. 47)
C. Depiction of the airport and its environs.			
1. Is the following graphically depicted to scale on both the existing condition and forecast year maps:			Figure 9. Civilian Arrival Model Tracks (p. 41), Figure 10. Civilian Departure Model Tracks (p. 43), Figure 11. Military Arrival Model Tracks (p.45), Figure 12. Military Departure Model Tracks (p. 47)
a. Airport boundaries	X		
b. Runway configurations with runway end numbers	X		
2. Does the depiction of the off-airport data include?			Figure 1. Land Use Base Map (p. 19), Figure 9. Civilian Arrival Model Tracks (p. 41), Figure 10. Civilian Departure Model Tracks (p. 43), Figure 11. Military Arrival Model Tracks (p.45), Figure 12.
a. A land use base map depicting streets and other identifiable geographic features	X		
b. The area within the DNL 65 dB (or beyond, at local discretion) [or Community Noise Equivalent Level, CNEL]	X		

PART 150 NOISE EXPOSURE MAP CHECKLIST-PART I			
Airport Name: Fresno-Yosemite International Airport	REVIEWER:		
	Yes	No	Supporting Pages/Review Comments
c. Clear delineation of geographic boundaries and the names of all jurisdictions with planning and land use control authority within the DNL 65 dB (or beyond, at local discretion) [or Community Noise Equivalent Level, CNEL]	X		Military Departure Model Tracks (p. 47)
D. 1. Continuous contours for at least DNL 65, 70, and 75 dB? [or Community Noise Equivalent Level, CNEL]	X		All contour figures
2. Has the local land use jurisdiction(s) adopted a lower local standard and, if so, has the sponsor depicted this on the NEM?	X		Section 3.1.2 (p. 15), Appendix Q
3. Based on current airport and operational data for the existing condition year NEM, and forecast data representative of the selected year for the forecast NEM?	X		Sponsor's Certification (p. v), Section 4.2 (p. 23), and Appendix E
E. Flight tracks for the existing condition and forecast year timeframes (these may be on supplemental graphics which must use the same land use base map and scale as the existing condition and forecast year NEM), which are numbered to correspond to accompanying narrative?	X		Figure 9. Civilian Arrival Model Tracks (p. 41), Figure 10. Civilian Departure Model Tracks (p. 43), Figure 11. Military Arrival Model Tracks (p. 45), Figure 12. Military Departure Model Tracks (p. 47)
F. Locations of any noise monitoring sites (these may be on supplemental graphics which must use the same land use base map and scale as the official NEM)	X		Figure 1 (p. 23), Figure 9 (p. 41) through Figure 16 (p. 61)
G. Noncompatible land use identification:			
1. Are noncompatible land uses within at least the DNL 65 dB [or Community Noise Equivalent Level, CNEL] noise contour depicted on the map graphics?	X		Figure 1. Land Use Base Map (p. 19), Figure 14. Existing Conditions (2017) Noise Exposure Map (p. 57), Figure 15. Forecast Conditions (2022) Noise Exposure Map (p. 59)
2. Are noise sensitive public buildings and historic properties identified? (Note: If none are within the depicted NEM noise contours, this should be stated in the accompanying narrative text.)	X		Section 5.2.1 (p. 63)
3. Are the noncompatible uses and noise sensitive public buildings readily identifiable and explained on the map legend?	X		Figure 1. Land Use Base Map (p. 19), Figure 14. Existing Conditions (2017) Noise Exposure Map (p. 57), Figure 15. Forecast Conditions (2022) Noise Exposure Map (p. 59)
4. Are compatible land uses, which would normally be considered noncompatible, explained in the accompanying narrative?	X		Section 5.2 (p. 63)
V. NARRATIVE SUPPORT OF MAP DATA: [150.21(a), A150.1, A150.101, A150.103]			

PART 150 NOISE EXPOSURE MAP CHECKLIST-PART I			
Airport Name: Fresno-Yosemite International Airport	REVIEWER: Yes	No	Supporting Pages/Review Comments
A. 1. Are the technical data and data sources on which the NEM are based adequately described in the narrative?	X		Section 4 (p. 21), Appendix E, Appendix F, Appendix J, Appendix K, Appendix L, Appendix M, Appendix N
2. Are the underlying technical data and planning assumptions reasonable?	X		
B. Calculation of Noise Contours:			
1. Is the methodology indicated?	X		Section 4 (p. 21)
a. Is it FAA approved?	X		
b. Was the same model used for both maps? (Note: The same model also must be used for NCP submittals associates with NEM determinations already issued by FAA where the NCP is submitted later, unless the airport sponsor submits a combined NEM/NCP submittal as a replacement, in which case the model used must be the most recent version at the time the update was started.)	X		
c. Has AEE approval been obtained for use of a model other than those that have previous blanket FAA approval?	N/A		
2. Correct use of noise models:			Appendix H, Appendix I
a. Does the documentation indicate, or is there evidence, the airport operator (or its consultant) has adjusted or calibrated FAA-approved noise models or substituted one aircraft type for another that was not included on the FAA's pre-approved list of aircraft substitutions?	X		
b. If so, does this have written approval from AEE, and is that written approval included in the submitted document?	X		Appendix H, Appendix I Note: Approval from AEE obtained through ADO
3. If noise monitoring was used, does the narrative indicate that Part 150 guidelines were followed?	X		Appendix O
4. For noise contours below DNL 65 dB [or Community Noise Equivalent Level, CNEL], does the supporting documentation include an explanation of local reasons? (Note: A narrative explanation, including evidence the local jurisdiction(s) have adopted a noise level less than DNL 65 dB as sensitive for the local community(ies), and including a table or other depiction of the differences from the Federal table, is highly desirable but not specifically required by the rule. However, if the airport sponsor submits NCP measures within the locally significant noise contour, an explanation must be included if it wants the FAA to consider the measure(s) for approval for purposes of eligibility for Federal aid.)	X		Appendix Q

PART 150 NOISE EXPOSURE MAP CHECKLIST-PART I			
Airport Name: Fresno-Yosemite International Airport	REVIEWER:		
	Yes	No	Supporting Pages/Review Comments
C. Noncompatible Land Use Information:			
1. Does the narrative (or map graphics) give estimates of the number of people residing in each of the contours (DNL 65, 70 and 75, at a minimum) [or Community Noise Equivalent Level, CNEL] for both the existing condition and forecast year maps?	X		Table 14 (p. 64), Section 5.2 (p. 63)
2. Does the documentation indicate whether the airport operator used Table 1 of Part 150?	X		Section 3.1.2 (p. 15)
a. If a local variation to table 1 was used:			
(1) Does the narrative clearly indicate which adjustments were made and the local reasons for doing so?	N/A		
(2) Does the narrative include the airport operator's complete substitution for table 1?	N/A		
3. Does the narrative include information on self-generated or ambient noise where compatible or noncompatible land use identifications consider non-airport and non-aircraft noise sources?		X	
4. Where normally noncompatible land uses are not depicted as such on the NEM, does the narrative satisfactorily explain why, with reference to the specific geographic areas?	N/A		
5. Does the narrative describe how forecast aircraft operations, forecast airport layout changes, and forecast land use changes will affect land use compatibility in the future?	X		Section 5.2 (p. 63)
VI. MAP CERTIFICATIONS: [150.21(b), 150.21(e)]			
A. Has the operator certified in writing that interested persons have been afforded adequate opportunity to submit views, data, and comments concerning the correctness and adequacy of the draft maps and forecasts?	X		Sponsor's Certification (p. v)
B. Has the operator certified in writing that each map and description of consultation and opportunity for public comment are true and complete under penalty of 18 U.S.C. Section 1001?	X		

2 Background

The City of Fresno has a nearly 30 year history of noise compatibility planning at Fresno Yosemite International Airport, having completed its first Part 150 study in 1988. The following sections provide background information relating to the airport's physical location and environs, as well as a description of prior Part 150 participation and associated studies.

2.1 Project Location and Setting

The Fresno Yosemite International Airport is located in Fresno County within the City of Fresno approximately five miles northeast of Fresno City Hall. It is generally contiguous to commercial and industrial land uses on the north, south and east with residential to the west. Primary access to the Airport is provided via two major freeways – California Highway180 south of the Airport and California Highway 168 to the west of the Airport. Highway 168 terminates at Highway 180 from the north. Highway 180 intersects with Highway 41 and subsequently Highway 99 in the west.

The physical parameters of the airport, as required for noise modeling purposes, are discussed in Section 4.1. A map of the airport and its surrounding area is presented in the Land Use Base Map, Section 3.1, Figure 1.

2.2 Brief History of Noise Compatibility Planning at FAT

The City of Fresno Airports Department, in its role as owner and operator of FAT, completed its first full Part 150 study for the Airport in 1988, including both the NEM and NCP. That study demonstrated The City of Fresno's goal of addressing aircraft noise issues and included 45 strategies, or measures, designed to reduce noise exposure and mitigate incompatible land uses at FAT. The FAA accepted the associated NEM on February 7, 1990 and issued a Record of Approval (ROA) for the NCP on September 14, 1990 (Appendix B) approving 36 of the 45 proposed NCP measures.

The City of Fresno updated the FAT NEM in March 2005 and its NCP in December of 2007. FAA reviewed and approved the NEMs on July 6, 2005 and issued a record of approval for the NCP on July 28, 2008 (Appendix C). The updated NCP contained 2 noise abatement measures, 14 land use measures, and 9 program management measures. FAA approved all 25 measures, which included the continuation of the SMART program, purchase of avigation easements, and the adoption of a Noise Overlay Zone.

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3 Land Use

The Fresno Yosemite International Airport is located approximately 5 miles northeast of Fresno City Hall and one mile south southeast of the California State University, Fresno campus. The land uses in the vicinity of the Airport are a mixture of residential, commercial and industrial. To the east of the Airport, the land use is predominantly industrial, agricultural and rural residential. To the immediate northwest is a small patch of agricultural land and a City of Fresno groundwater recharge facility.

In 2012 the City of Fresno and the Fresno County Airport Land Use Commission adopted land use compatibility plans for the Airport (ALUCP) as required by state law and based on guidance contained in the California "Airport Land Use Planning Handbook", published by the California Department of Transportation, Division of Aeronautics.[5, 6, 7] The purpose of the plan is to further protect the public interests in aeronautics while "assuring that persons residing in the vicinity of airports are protected to the greatest possible extent against intrusions by unreasonable levels of aircraft noise."[8] The Airport Land Use Planning Handbook promotes California state compatibility planning guidance between the Airport and the land uses that surround it by providing detailed guidance to affected local government jurisdictions in areas surrounding the airport and emphasizing prevention of future land use compatibility conflicts rather than mitigating existing land use incompatibilities. One element of the ALUCP is that it establishes noise policies for evaluating new development including residential and nonresidential uses that include maximum interior noise levels and requirements for acquiring avigation easements.[9]

3.1 Land Use Base Map

Detailed, existing land uses beyond the Airport boundary were aggregated into the following seven, general categories: Residential, Public Use 1, Public Use 2, Recreational/Open Space, Commercial Use, Manufacturing and Production, and Vacant/Undefined. The residential category includes both single-family and multi-family dwelling units. The public use 1 category includes non-residential noise-sensitive uses, such as schools, places of worship, etc. The public use 2 category includes areas of non-noise-sensitive use such as public parking lots, landfills, etc. The recreational/open space category includes all publicly or privately owned lands held for park, conservation, or golf course uses and cemeteries. The commercial category includes all types of retail and business uses, as well as offices. The manufacturing and production use category includes manufacturing and warehousing. The vacant or undefined category includes those uses where the property is vacant or for which a specific land use has not been assigned.

The City of Fresno, the County of Fresno, and the City of Clovis provided land use data for use in this NEM update.

3.1.1 Jurisdiction and Land Use Planning around the Airport

The City of Fresno, the County of Fresno, and the City of Clovis have jurisdiction over land use planning and implement the zoning regulations for the entire study area.

[5] *California State Aeronautics Act*, Article 3.5, Airport Land Use Commissions, September 2001.

[6] *Fresno Yosemite International Airport Land Use Compatibility Plan*, City of Fresno, August 2012.

[7] *California Airport Land Use Planning Handbook*, State of California Department of Transportation, Division of Aeronautics, updated October 2011.

[8] Ibid.

[9] *Fresno Yosemite International Airport Land Use Compatibility Plan,* City of Fresno, August 2012.

The City of Fresno

The City of Fresno adopted the Fresno General Plan on December 18, 2014 with amendments through December 2015[10]. The plan identifies goals and policies to guide future land use development. The plan addresses airport noise in the Noise and Safety section.

> **Strategy NS-1-i – Mitigation by New Development.** Require an acoustical analysis where new development of industrial, commercial or other noise generating land uses (including transportation facilities such as roadways, railroads, and airports) may result in noise levels that exceed the noise level exposure criteria established by Tables 9-2 and 9-3 to determine impacts, and require developers to mitigate these impacts in conformance with Tables 9-2 and 9-3 as a condition of permit approval through appropriate means.
>
> Noise mitigation measures may include:
>
> - The screening of noise sources such a s parking and loading facilities, outdoor activities, and mechanical equipment;
> - Providing increased setbacks for noise sources from adjacent dwellings;
> - Installation of walls and landscaping that serve as noise buffers;
> - Installation of soundproofing materials and double-glazed windows; and
> - Regulating operations, such as hours of operation, including deliveries and trash pickup.
>
> Alternative acoustical designs that achieve prescribed noise level reduction may be approved by the City, provided a qualified Acoustical Consultant submits information demonstrating that the alternative designs will achieve and maintain the specific targets for outdoor activity areas and interior spaces. As a last resort, developers may propose to construct noise walls along roadways when compatible with aesthetic concerns and neighborhood character. This would be a developer responsibility, with no City funding.
>
> **Strategy NS-1-p – Airport Noise Compatibility.** Implement the land use and noise exposure compatibility provisions of the adopted Fresno Yosemite International Airport Land Use Compatibility Plan, the Fresno-Chandler Executive Airport Master and Environs Specific Plan, and the Sierra Sky Park Land Use Policy Plan to assess noise compatibility of proposed uses and improvements within airport influence and environs areas.

The City of Clovis

The City of Clovis adopted the City of Clovis General Plan in August 2014[11]. The plan identifies goals and policies to guide future land use development. The plan addresses airport noise in the Environmental Safety Element section.

> **Goal 3, Policy 3.10 – Airport Changes.** Coordinate with the Fresno Yosemite International Airport to minimize noise impacts on properties in Clovis due to changes in flight patterns or airport expansion.

The County of Fresno

The County of Fresno adopted the Fresno County General Plan in October 2000 with amendments through 2003[12]. The plan identifies goals and policies to guide future land use development. The plan addresses airport noise in the Health and Safety Element section.

> **Policy HS-E.1** The County shall review the Fresno County Airport Land Use Commission's Airport Land Use Policy Plans (CLUPPs) to determine the appropriate land uses around airports. The County shall limit land uses in airport safety zones to those uses listed in the applicable CLUPPs as compatible uses. Exceptions shall be made only as provided for in the CLUPPs. Such uses shall also be regulated to ensure compatibility in terms of location, height, and noise.

---

[10] https://www.fresno.gov/darm/wp-content/uploads/sites/10/2016/11/consolidatedGP.pdf

[11] http://www.ci.clovis.ca.us/Portals/0/Documents/Planning/GeneralPlan2014/ClovisGP_Adopted_Aug2014_wFig.pdf?ver=2015-04-03-100817-897

[12] http://www.co.fresno.ca.us/DepartmentPage.aspx?id=68048

3.1.2 Compatible Land Use Guidelines

Cities and counties exercise planning and land use regulatory authority in California as authorized by state statute[13], which requires counties to establish an airport land use commission (ALUC) along with comprehensive planning as a prerequisite for the establishment of land use regulations in order to "provide for the orderly development of each public use airport" and "protect public health, safety, and welfare" by minimizing exposure to noise and safety hazards.[14] Once the ALUC makes a recommendation on the airport's influence area and land use compatibility guidelines, the corresponding cities and counties with land use authority powers make their general and specific plans compatible with the ALUC's recommendations. The California Airport Land Use Handbook, published in October 2011 by the Department of Transportation – Division of Aeronautics, describes the process, powers, and responsibilities of the ALUCs.

The Fresno County ALCU has adopted compatibility guidelines in accordance with the recommended compatibility criteria in the California Airport Land Use Handbook, as paraphrased below:[15]

- "The basic state guidance sets a CNEL of 65 dB as the maximum noise level normally compatible with urban residential land uses. For airports not located in an urban environment, 65 dB CNEL may be too high, and adjustments to noise compatibility criteria may be guided by local standards or an adjustment that reflects ambient sound levels around the airport (e.g. "normalization")"
- CNEL 65 dB is generally not appropriate for most new development
- CNEL 60 dB, or in some locations, even CNEL 55 dB may be more appropriate for land use planning purposes.
- For residences, the standard for interior noise levels due to exterior noise sources should be CNEL 45 dB or lower.
- Sound insulation should not be regarded as a mitigation measure which allows noise-sensitive land uses to be developed in areas of high noise exposure – it is not a substitute for good land use compatibility planning. Nevertheless, in some circumstances – infill or redevelopment, for example – new construction may be unavoidable in areas where noise exposure is high.
- In any situation where sound insulation is required as a condition for development approval, ALCUs should require that an avigation easement addressing noise impacts be dedicated to the airport proprietor.

Under the provisions of Part 150, land uses exposed to noise levels of less than CNEL 65 dB are considered compatible. The land use compatibility guidelines contained in Part 150, which are based on empirical studies of the correlation between reported levels of annoyance and levels of cumulative noise exposure, identify the types of land uses that are most "sensitive" to airport related noise. For example, residential uses (including mobile home parks and transient lodgings), schools, and amphitheaters are, with few exceptions, considered incompatible with noise levels of CNEL 65 dB or greater. Other uses, including hospitals, nursing homes, churches and auditoriums, are also considered incompatible within levels of CNEL 65 dB or greater.

FAA land use guidelines, as defined in Part 150 and reproduced here in Table 2 are unchanged since the previous Part 150 update and again used for this NEM update. Figure 1 shows the land uses, as defined in Table 2, in the vicinity of the airport. The land use base map includes location points where portable noise monitors were set up as part of a temporary noise monitoring program. The noise monitor locations are noted by a red triangle with a site number. The noise monitoring program is discussed in Section 5.3 and Appendix O of this document.

[13] *State Aeronautics Act*, California Public Utilities Code, Section 21001 et seq., California Department of Transportation, Division of Aeronautics, Sacramento, CA, February 2013.
[14] California Public Utilities Code, section 21670(a)(b)
[15] United States of America. California Department of Transportation. Division of Aeronautics. N.p., n.d. Web.

Table 2. Part 150 Noise/Land Use Compatibility Guidelines

Source: 14 CFR Part 150, Appendix A, Table 1

	Yearly Day-Night Average Sound Level, DNL, [or Community Noise Equivalent Level, CNEL], in Decibels					
Land Use	<65	65-70	70-75	75-80	80-85	>85
Residential Use						
Residential other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade--general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Key to Table 2 – *Notes are presented on the following page*

SLUCM: Standard Land Use Coding Manual.
Y(Yes): Land use and related structures compatible without restrictions.
N(No): Land use and related structures are not compatible and should be prohibited.
NLR: Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.
25, 30, or 35: Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

Notes for Table 2

The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under 14 CFR Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

1. Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often started as 5, 10, or 15 dB 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 dB 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 dB 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 dB 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.
7. Residential buildings require an NLR of 30.
8. Residential buildings not permitted.

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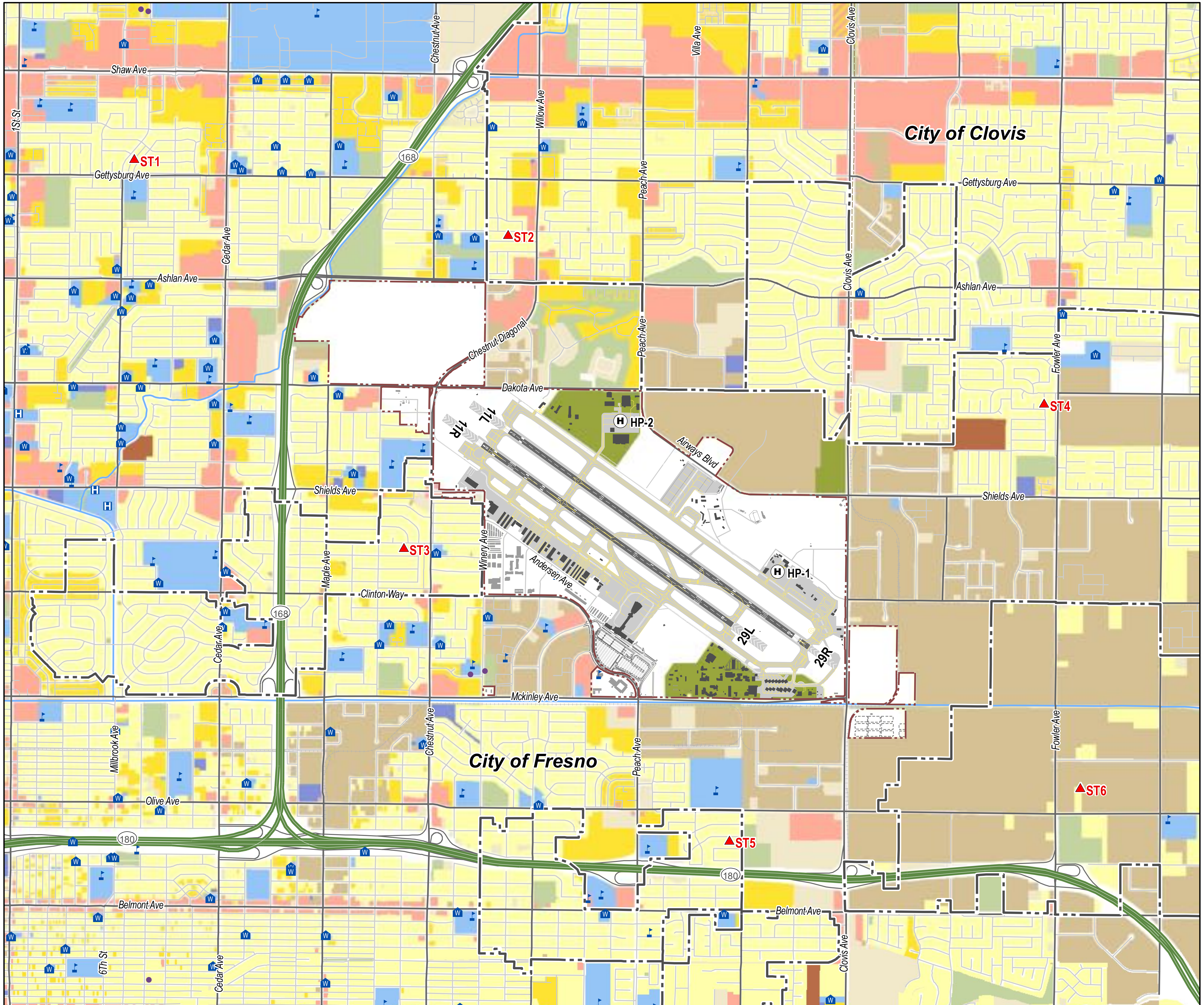

FRESNO YOSEMITE INTERNATIONAL AIRPORT

Figure: 1
Existing Land Use

ST# Noise Monitor Location

Airport Boundary

Runway

Taxiway / Apron

Helicopter Pad

Airport Buildings

Municipal Boundary

Highways

Major Roads

Local Roads

Railroad

Residential Use

Multi-Family Residential

Mobile Homes

Public Use 1 (School, Place of Worship, Hospitals)

Public Use 2 (Government, Transportation, Parking)

Military Use

Recreational / Open Space

Commercial Use

Industrial Use

Vacant / Undefined

Water

School

Library

Place of Worship

Hospital

Historic Site

Service Layer Credits: Fresno County GIS; City of Fresno, CA; City of Clovis, CA; California Department of Water Resources (DWR); Environmental Systems Research Institute (ESRI);

0 1" 2" 3"

0 2,000 4,000 6,000 Feet

hmmh

Document Path: G:\Projects\307XXX\307400_Fresno\GIS\307400_Fresno_Figure1_Land_Use_Basemap.mxd

4 Development of Noise Exposure Maps

There are several elements that need to be defined or derived for input to the modeling process. Part 150 requires the use of the Aviation Environmental Design Tool (AEDT), a software system that models aircraft performance in space and time to estimate fuel consumption, emissions, noise, and air quality consequences.[16] The AEDT includes databases containing information that includes aircraft noise and emissions profiles and airport layout data, which are used in conjunction with various user inputs to perform the noise computations.

The AEDT requires inputs in the following categories:

- Physical description of the airport layout
- Number and mix of aircraft flight operations
- Aircraft noise and performance characteristics
- Runway utilization rates
- Prototypical flight track descriptions and accompanying utilization rates
- Meteorological data
- Terrain data

AEDT version 2.b was used to prepare all noise exposure contours without any unauthorized "calibration" or "adjustment" as presented in this NEM update.

Sections 4.1 through 4.7 present this information (in the order listed above) for the noise contours presented in Section 5.1.

4.1 Airport Physical Parameters

FAT is located within Fresno County and the City of Fresno northeast of Downtown Fresno near the intersection of California Highway 41 and California Highway 180. The Airport has two parallel runways: Runway 11L/29R and Runway 11R/29L. Figure 1 shows the Airport Diagram and Table 3 provides the runway specifications required for modeling.

Each end of the runways is designated by a number that, with the addition of a trailing "0", reflects the magnetic heading of the runway to the nearest 10 degrees, as seen by the pilot. The two parallel runways, 11L-29R and 11R-29L, are oriented on approximate magnetic headings of 110° and 290° and are 9,539 feet long by 150 feet wide and 8,008 feet long by 150 feet wide, respectively. The parallel runways are distinguished from each other with letter endings "L", meaning left, and "R", meaning right, as seen by the pilot.

Runway length, runway width, instrumentation and declared distances[17] may affect which aircraft might use a particular runway and under what conditions, and therefore how often a runway would be used relative to the other runways at the airport.

Helicopters were modeled as arriving and departing from two helipads on the northern end of the airport. Helipad HP-1 is located in the vicinity of the US Forestry Service pad near Roger's Helicopters. All civilian helicopter operations are modeled as departing from and arriving to HP-1. Helipad HP-2 is located near the Army National Guard ramp, where the UH-60 Blackhawk helicopters are based. All military helicopters are modeled as departing from and arriving to HP-2.

[16] https://aedt.faa.gov/

[17] *"Declared distances represent the maximum distances available and suitable for meeting takeoff, rejected takeoff, and landing distances performance requirements for turbine powered aircraft.", FAA Advisory Circular 150/5300-13A, Section 322, September 28, 2012.*

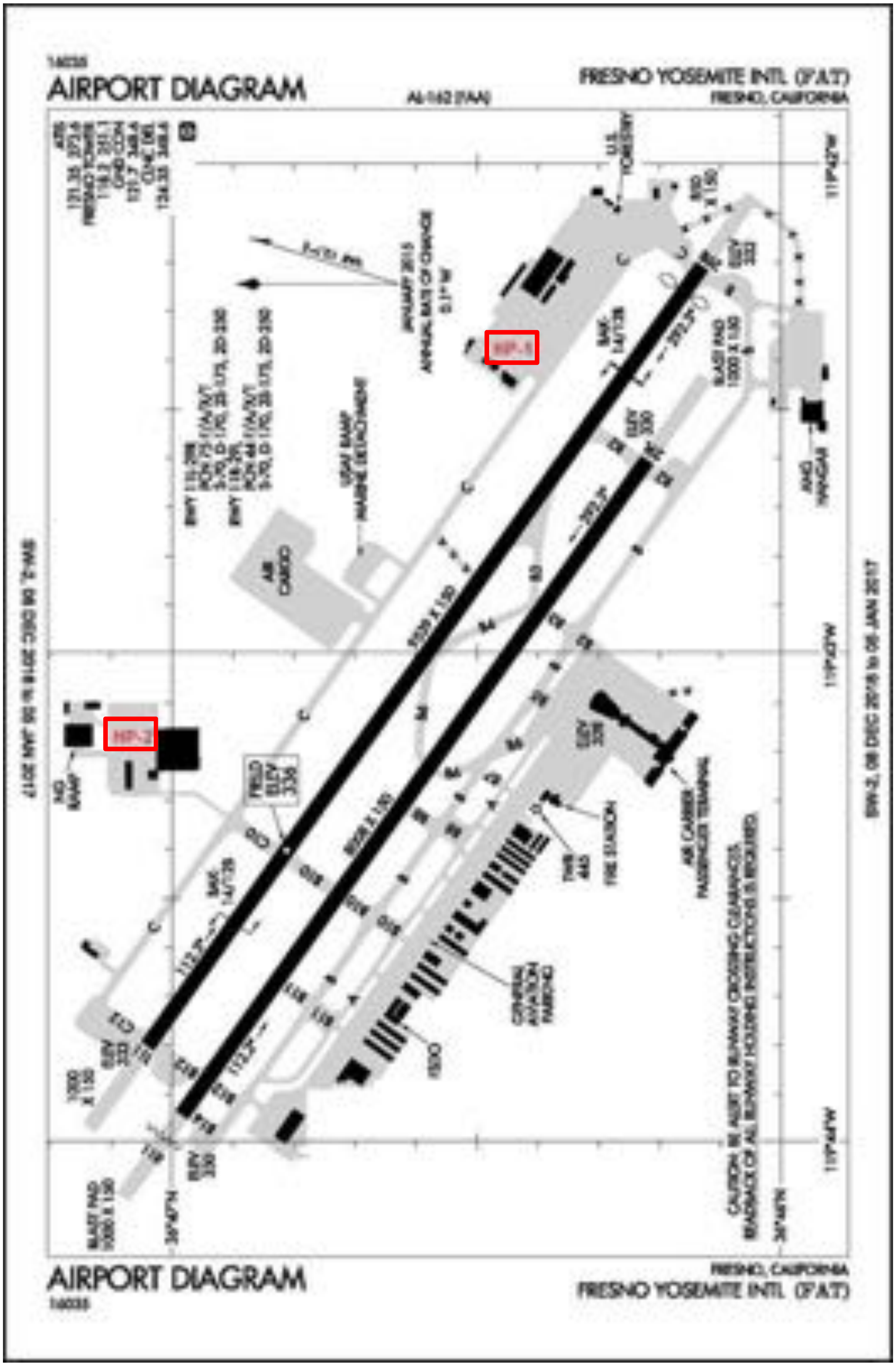

Figure 2. Existing FAT Airport Layout

Source: FAA, digital Terminal Procedures, effective December 8, 2016 to January 5, 2017

Table 3. Runway Details

Source: FAA 5010 data accessed 2/29/2016, AEDT default inputs

Runway	Latitude (degrees)	Longitude (degrees)	Elevation (ft. MSL)	Runway Length (ft.)	Displaced Threshold (ft.)	Glide Slope (degrees)	Threshold Crossing Height (ft.)	Magnetic Orientation (degrees)*
11L	36.784002N	-119.730086W	335.8	9539	0	3	50	112.3
29R	36.768839N	-119.703524W	332.9	9539	312	3	50	292.3
11R	36.783061N	-119.732421W	328.6	8008	0	3	50	112.2
29L	36.770335N	-119.710123W	329.8	8008	0	3	50	292.3
HP-1	36.774092N	-119.7062268W	332	N/A	N/A	N/A	N/A	N/A
HP-2	36.784506N	-199.719972W	340	N/A	N/A	N/A	N/A	N/A

Notes:
HP-1 and HP-2 are representative landing pads for helicopter aprons corresponding to the areas where civilian and military helicopters operate, respectively.
**From the FAA's Airport Diagram, current 12/8/2016 to 1/5/2017.*

4.2 Airport Operations

Part 150 and its table of noise/land use compatibility guidelines, as provided in Table 1, require the calculation of "yearly Day-Night Average Sound Levels (DNL)" values.[18] In California, the Community Noise Equivalent Level, or CNEL, is the recognized noise metric that is allowed to replace DNL for the preparation of NEM contours. The AEDT produces these values of exposure utilizing an "average annual day" of airport operations. The annual average day operations are determined by dividing the annual operations by 365 days. In this NEM update, calendar year 2014 FAT aircraft activity from the FAA National Offload Program (NOP) and information obtained from interviews with various airport operators were used as the baseline to develop the average annual day's operations for 2017. Section 4.2.1 provides information on the development of the forecast aircraft operations for the year of submittal (Existing Conditions 2017) and five-year forecast (Forecast Conditions 2022). The 2014 flight operations were also used to determine the general flight range of the various operations by reviewing city-pairs of flights departing FAT.[19] This flight range is used following guidelines in the FAA's AEDT to assign a "stage length", which provides an estimate of aircraft weight on departure.[20] These stage lengths were used in the 2017 and 2022 forecasts unless additional future data indicated a change in city-pairs.

4.2.1 Development of aircraft operations

The 2017 operations and fleet mix information were developed from several sources. Aircraft flight track and aircraft identification data were obtained from the FAA's National Offload Program (NOP) for calendar year 2014. These 12 months of data were then adjusted to represent annual forecast aircraft operations (arrivals and

[18] Day-Night Average Sound Level or DNL is a 24-hour average sound level that accounts for greater sensitivity to noise at night. See Appendix A for how it is developed.
[19] The FAA's Aviation Environmental Design Tool (AEDT) uses city pairs, which are the origin and destination cities of the FAT aircraft operations, to estimate aircraft weight on departure.
[20] Stage length is the category of distance as determined by the city pairs, which is used in the FAA's Aviation Environmental Design Tool (AEDT) as a surrogate for aircraft weight on departure.

departures) in 2017, as discussed below. Information analyzed during the preparation of these forecasts includes data from the City of Fresno, the California Air National Guard (CANG) 144th fighter wing, various FAA data systems (including TAF, ATADS, and TFMSC), ASDI information (via FlightAware.com), FAT Airport Traffic Control Tower (ATCT) data, and economic data from Woods & Poole Economics, Inc.[21,22,23,24]

These forecast operations levels were submitted to the FAA for approval in June of 2016, and the FAA approved the forecasts on October 19, 2016. Copies of the forecast and its associated approval letter are given in Appendix E and Appendix F.

The forecasts looked at aircraft operations trends over the period from 2006 through 2015. In addition, a comparison of the monthly aircraft operations indicated there was neither a continued decline nor a substantial increase in aircraft operations at FAT. The five-year forecast of aircraft operations (2022) shown in Table 4 focuses on estimated changes in levels of passenger and cargo aviation activity to include changes in the aircraft fleet mix. From 2017 to 2022, the passenger aircraft operations are expected to increase 1.5% while the all-cargo aircraft operations are estimated to not change. The forecast for operations from the General Aviation type aircraft is forecast to increase approximately 0.3% from 2017 to 2022. A comparison of the resulting forecasts for 2017 and 2022 with the FAA Terminal Area Forecast (TAF) data for 2015 shows the NEM forecasts to be in line with the TAF with the forecasts being approximately 1% greater than the TAF levels.

Table 4 shows the aircraft operations for 2017 and the expected growth to operations in 2022.

Table 4. Forecast of Operations - 2017 to 2022

Aircraft Category	2017 Operations	2022 Operations	Average Annual Growth Rate
Commercial Air Carrier	31,571	34,010	1.5%
GA Jet	3,635	3,714	0.4%
GA Single/Multi-Engine Piston	49,123	49,487	0.1%
GA Turboprop and Rotorcraft	15,468	16,362	1.1%
Cargo and Military	9,083	9,083	0.0%
Total	**108,880**	**112,656**	**0.7%**
Source: 14 CFR Part 150 Noise Exposure Map Update Final Activity Forecast 2017-2022, June 2016			

Table 6 and Table 8 list the detailed modeled annual average day aircraft operations by AEDT aircraft type for the 2017 and 2022 cases, respectively.

4.2.2 Aircraft operations in 2017 – the Existing Conditions

This section presents the detailed average daily aircraft activity summaries developed for calendar year 2017 as described in the previous section. Table 5 shows the annual and annual average day operations by aircraft category. Table 6 shows the number of average annual daily aircraft arrivals and departures, as well as whether they occur during the day (7:00 am to 7:00 pm), evening (7:00 pm to 10:00 pm), or night (10:00 pm to 7:00 am)

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[21] TAF – the Terminal Area Forecast is the official FAA forecast of aviation activity for U.S. airports. Activity estimates are derived from national estimates of aviation activity that are then assigned to individual airports based upon multiple market and forecast factors. The FAA looks at local and national economic conditions, as well as trends within the aviation industry, to develop each forecast. The latest TAF was published in January 2016.

[22] ATADS – the Air Traffic Activity Data System contains the official air traffic operations data available for public release.

[23] TFMSC – The Traffic Flow Management System Counts contains data derived from the FAA's Air Traffic Airspace Lab's Traffic Flow Management System. The data provides historical records of aircraft operations that can be reviewed and filtered to provide specific historical information on the aircraft types operating at FAT during a defined period of time.

[24] ASDI - Aircraft Situation Display for Industry data includes the near real time position and other relevant flight data for every civil IFR aircraft receiving radar services with the military and sensitive operations removed. FlightAware is a business providing on-line access to current and historical ASDI information including departures and arrivals at US airports.

time period. The day/evening/night breakdown is critical to the calculation of CNEL because the metric weights evening operations by a factor of 3 and night operations by a factor of 10 (mathematically equivalent to adding 4.77 decibels to evening noise levels and 10 decibels to night noise levels produced by aircraft). The aircraft are designated by the AEDT type with which they were modeled.

Table 5. 2017 Operations Summary

Source: C&S, HMMH

Category	Number of Forecast Annual Operations	Number of Daily Average Operations Modeled
Commercial Air Carrier	31,571	86.4959
GA Jet	3,635	9.9589
GA Single/Multi-Engine Piston	49,123	134.5836
GA Turboprop and Rotorcraft	15,468	42.3781
Cargo and Military	9,083	24.8849
Total	**108,880**	**298.0140**
Notes: Totals may not add up due to rounding		

Table 6. Modeled Average Daily Aircraft Operations for 2017

Source: C&S, HMMH

Aircraft Category	Aircraft Type	Annual Average Day Operations						
		Arrivals			Departures			Total
		Day	Evening	Night	Day	Evening	Night	
Commercial Air Carrier	A319	0.5096	0.0548	0.0329	0.0658	0.4932	0.0384	1.1945
	A320	0.0466	0.0082	1.4575	0.1315	0.0110	1.3699	3.0247
	B737	0.0822	0.0055	0.0685	0.1068	0.0055	0.0438	0.3123
	B738	0.0521	0.0000	0.6603	0.0521	0.0055	0.6548	1.4247
	CRJ2	4.9589	1.6411	2.9479	6.7644	2.4575	0.3233	19.0932
	CRJ7	2.4603	0.5808	3.0411	5.2466	0.8027	0.0329	12.1644
	CRJ9	4.1753	1.4603	3.0055	6.1014	2.3973	0.1397	17.2795
	E135	0.0603	0.0329	0.0110	0.0630	0.0411	0.0027	0.2110
	E190	0.0466	0.0466	0.0082	0.0274	0.0603	0.0137	0.2027
	MD82	0.7863	0.1397	0.7452	1.6384	0.0192	0.0137	3.3425
	MD83	1.4493	0.4712	0.5123	1.6082	0.6603	0.1616	4.8630
	MD88	0.0603	0.0603	0.0082	0.0274	0.0795	0.0219	0.2575
	E120	3.1288	1.9781	1.6548	5.2000	1.3616	0.3370	13.7973
	DH8D	1.6877	1.7178	1.2603	3.2438	1.1178	0.3014	9.3288
Subtotal		**19.5041**	**8.1973**	**15.4137**	**30.2767**	**9.5123**	**3.4548**	**86.4959**

Aircraft Category	Aircraft Type	Annual Average Day Operations						
		Arrivals			Departures			Total
		Day	Evening	Night	Day	Evening	Night	
GA Jet	E55P	0.0740	0.0137	0.0027	0.0740	0.0164	0.0000	0.1808
	C25B	0.3123	0.1315	0.0411	0.2904	0.1425	0.0466	0.9644
	C501	0.1178	0.0658	0.0137	0.1534	0.0384	0.0027	0.3918
	C510	0.1397	0.0274	0.0000	0.1370	0.0274	0.0027	0.3342
	C525	0.1562	0.0986	0.0411	0.2164	0.0603	0.0164	0.5890
	C550	0.1699	0.0384	0.0192	0.1507	0.0466	0.0274	0.4521
	C56X	0.4329	0.1562	0.0630	0.4877	0.1260	0.0411	1.3068
	C680	0.1205	0.0548	0.0137	0.1562	0.0301	0.0027	0.3781
	C750	0.1288	0.0219	0.0137	0.1342	0.0247	0.0055	0.3288
	E50P	0.0822	0.0438	0.0137	0.0740	0.0575	0.0055	0.2767
	EA50	0.2466	0.1890	0.0548	0.4055	0.0795	0.0055	0.9808
	F2TH	0.1726	0.0630	0.0192	0.1781	0.0658	0.0055	0.5014
	GLF4	0.2329	0.0959	0.0548	0.3014	0.0740	0.0082	0.7671
	GLF5	0.0712	0.0466	0.0110	0.1041	0.0164	0.0110	0.2603
	H25B	0.5370	0.1068	0.0630	0.5973	0.0959	0.0164	1.4164
	LJ45	0.3288	0.0712	0.0137	0.3041	0.0877	0.0247	0.8301
Subtotal		**3.3233**	**1.2247**	**0.4384**	**3.7644**	**0.9890**	**0.2219**	**9.9589**

Aircraft Category	Aircraft Type	Annual Average Day Operations						
		Arrivals			Departures			Total
		Day	Evening	Night	Day	Evening	Night	
GA Single Engine and Multi Engine Piston	BE58	2.7808	1.2548	0.3507	3.4329	0.8438	0.1123	8.7753
	C340	0.8986	0.2411	0.1260	0.9562	0.2822	0.0274	2.5315
	C421	2.8904	1.1671	0.4219	3.6247	0.7699	0.0849	8.9589
	DA40[1]	0.4356	0.1123	0.0986	0.3644	0.1699	0.1123	1.2932
	C208	3.9973	0.2110	0.0274	3.8055	0.4329	0.0000	8.4740
	AT8T	0.9973	0.8712	0.0000	0.6329	1.2356	0.0000	3.7370
	BE35	1.5507	0.7452	0.1397	2.0411	0.3096	0.0849	4.8712
	BE36	1.8740	0.6192	0.1397	1.8493	0.3945	0.3945	5.2712
	C152	0.7151	0.1973	0.4767	0.5753	0.3370	0.4767	2.7781
	C172	0.3315	1.4192	0.5973	3.0849	1.4055	0.8438	10.6712
	C182	3.9178	1.1260	0.2658	3.7425	1.0630	0.5068	10.6219
	C206	1.6575	0.7452	0.0712	1.5178	0.5342	0.4219	4.9479
	C210	2.7260	1.2384	0.2521	3.7671	0.3370	0.1123	8.4329
	M20P	1.4329	0.5068	0.2658	1.6438	0.2247	0.3370	4.4110
	PA46	0.9699	0.4575	0.1836	1.3534	0.2521	0.0000	3.2164
	SR22	3.3425	0.7315	0.5616	3.9123	0.5836	0.1397	9.2712
	P46T	1.1671	0.4986	0.1233	1.3671	0.3644	0.0575	3.5781
	PA28	5.0575	2.1370	0.6603	6.2082	1.3753	0.2767	15.7151
	PA34	0.9260	0.9342	0.3945	1.5781	0.5068	0.1699	4.5096
	PA38	1.8110	3.2959	1.1534	4.5726	1.2356	0.4493	12.5178
Subtotal		**39.4795**	**18.5096**	**6.3096**	**50.0301**	**12.6575**	**4.6082**	**134.5836**

Aircraft Category	Aircraft Type	Annual Average Day Operations						
		Arrivals			Departures			Total
		Day	Evening	Night	Day	Evening	Night	
GA Turboprop and Rotorcraft	AC90	0.1151	0.0356	0.0082	0.0904	0.0603	0.0082	0.3178
	B350	0.5123	0.1425	0.0274	0.5370	0.1068	0.0384	1.3644
	BE10	0.1233	0.0356	0.1205	0.1205	0.0603	0.1014	0.5616
	BE20	0.5096	0.1644	0.0986	0.5507	0.1096	0.1123	1.5452
	BE30	0.1562	0.0247	0.0164	0.1397	0.0466	0.0110	0.3945
	BE9L	1.1205	0.5616	0.1616	1.3425	0.3671	0.1342	3.6877
	C441	0.4301	0.0904	0.0110	0.4301	0.0849	0.0164	1.0630
	PA44	0.1151	0.1726	0.3123	0.1863	0.1233	0.2904	1.2000
	PAY2	0.1726	0.0356	0.0192	0.1315	0.0630	0.0329	0.4548
	PC12	0.6301	0.2493	0.0986	0.8219	0.1288	0.0274	1.9562
	SW4	0.0740	0.1096	0.0027	0.0575	0.1233	0.0055	0.3726
	PA31	0.7205	0.4548	0.1068	0.7096	0.4301	0.1397	2.5616
	S70[2]	0.1100	0.0000	0.0000	0.1100	0.0000	0.0000	0.2200
	B430[2]	4.3284	5.3808	3.6301	7.5558	3.8986	1.8822	26.6759
Subtotal		**9.1178**	**7.4575**	**4.6137**	**12.7836**	**5.6027**	**2.8000**	**42.3781**
Cargo and Military	7572	1.8000	0.1808	0.0192	0.0932	1.8849	0.0219	4.0000
	F15	6.0904	0.0000	0.3123	6.4110	0.0000	0.0000	12.8219
	F16	0.1973	0.0000	0.0000	0.1973	0.0000	0.0000	0.3945
	F18	0.6575	0.0000	0.0000	0.6575	0.0000	0.0000	1.3151
	SP2[3]	1.4575	1.4575	0.0000	0.3479	2.5699	0.0000	5.8329
	C130	0.1370	0.1233	0.0000	0.0411	0.2192	0.0000	0.5205
Subtotal		**10.3397**	**1.7616**	**0.3315**	**7.7479**	**4.6740**	**0.0219**	**24.8849**
Total		**81.7644**	**37.1507**	**27.1068**	**104.6027**	**33.4356**	**11.1068**	**298.0356**

Notes:
1 DA40 modeled as AEDT aircraft type GASEPV, per FAA non-standard aircraft types (see Appendix H and I)
2 Helicopter aircraft type designated as "HELO" in FAA approved forecast (see Appendix E)
3 SP2 modeled as AEDT aircraft type T29, per FAA non-standard aircraft types (see Appendix H and I)

4.2.3 Aircraft operations in 2022 – the Forecast Conditions

A five-year forecast of operations was prepared using procedures similar to those for 2017. The operations and category groupings were adjusted to reflect anticipated changes to the fleet mix that are expected to occur during the forecast period.

Appendix E presents a forecast document prepared for this NEM Update. On October 19, 2016 the FAA approved the forecast (see Appendix F). Table 7 presents the 2022 operations forecast and the associated daily average modeled operations. The five-year forecast projects 112,656 total operations in 2022 with estimated growth in all aircraft operation categories. No change in the level of military flight activity is anticipated based on the results of the interviews completed with the CANG personnel. CANG personnel stated that nothing will change at FAT in terms of their aircraft operations unless instructed by the national Department of Defense (DoD) and there has been no such communications at the time of the interviews, which were in August 2015.

Table 7. 2022 Operations Summary

Source: C&S, HMMH

Category	Number of Forecast Annual Operations	Number of Daily Average Operations Modeled
Commercial Air Carrier	34,010	93.1781
GA Jet	3,714	10.1753
GA Single/Multi-Engine Piston	49,487	135.5808
GA Turboprop and Rotorcraft	16,362	44.8274
Cargo and Military	9,083	25.2795
Total	**112,656**	**309.0411**
Notes: Totals may not add up due to rounding		

Table 8 shows the number of annual average daily aircraft arrivals and departures, as well as whether they occur during the day, evening, or night time period.

Table 8. Modeled Average Daily Aircraft Operations - 2022

Aircraft Category	Aircraft Type	Annual Average Day Operations						
		Arrivals			Departures			Total
		Day	Evening	Night	Day	Evening	Night	
Commercial Air Carrier	A319	0.2301	0.0247	0.0137	0.0301	0.2219	0.0164	0.5370
	A320	0.0740	0.0137	2.2658	0.2082	0.0137	2.1315	4.7068
	B737	0.0959	0.0055	0.0685	0.1096	0.0055	0.0521	0.3370
	B738	0.1562	0.0000	2.0274	0.1562	0.0137	2.0137	4.3671
	CRJ2	5.4000	1.7890	3.2110	7.3644	2.6795	0.3507	20.7945
	CRJ7	3.4000	0.8027	4.1973	7.3671	0.9890	0.0438	16.8000
	CRJ9	6.4904	2.2685	4.6767	9.4849	3.7315	0.2164	26.8685
	E135	0.5644	0.3014	0.1096	0.5781	0.3699	0.0274	1.9507
	E175	1.3753	1.3726	0.2740	0.8274	1.7863	0.4110	6.0466
	E190	0.1534	0.1534	0.0301	0.0904	0.1973	0.0466	0.6712
	MD82	0.3918	0.0712	0.3726	0.8247	0.0055	0.0055	1.6712
	MD83	1.4027	0.4767	0.4712	1.5562	0.6411	0.1534	4.7014
	MD88	0.1096	0.1096	0.0164	0.0521	0.1425	0.0411	0.4712
	E120	0.1479	0.0986	0.0795	0.2438	0.0630	0.0164	0.6493
	DH8D	0.4712	0.4712	0.3616	0.9123	0.3041	0.0849	2.6055
Subtotal		**20.4630**	**7.9589**	**18.1753**	**29.8055**	**11.1644**	**5.6110**	**93.1781**
GA Jet	E55P	0.0740	0.0137	0.0027	0.0740	0.0164	0.0000	0.1808
	C25B	0.3178	0.1342	0.0411	0.2932	0.1479	0.0493	0.9836
	C501	0.1178	0.0658	0.0137	0.1562	0.0384	0.0027	0.3945
	C510	0.1452	0.0274	0.0000	0.1397	0.0274	0.0055	0.3452
	C525	0.1589	0.1014	0.0411	0.2219	0.0630	0.0164	0.6027
	C550	0.1726	0.0384	0.0192	0.1534	0.0493	0.0274	0.4603
	C56X	0.4438	0.1589	0.0630	0.4959	0.1288	0.0411	1.3315
	C680	0.1233	0.0548	0.0137	0.1589	0.0301	0.0027	0.3836
	C750	0.1315	0.0219	0.0137	0.1370	0.0247	0.0055	0.3342
	E50P	0.0849	0.0438	0.0137	0.0767	0.0603	0.0055	0.2849

Aircraft Category	Aircraft Type	Annual Average Day Operations						
		Arrivals			Departures			Total
		Day	Evening	Night	Day	Evening	Night	
	EA50	0.2521	0.1918	0.0548	0.4137	0.0795	0.0055	0.9973
	F2TH	0.1753	0.0658	0.0192	0.1836	0.0685	0.0082	0.5205
	GLF4	0.2384	0.0986	0.0575	0.3096	0.0767	0.0082	0.7890
	GLF5	0.0712	0.0493	0.0137	0.1068	0.0164	0.0110	0.2685
	H25B	0.5479	0.1096	0.0658	0.6055	0.0986	0.0164	1.4438
	LJ45	0.3370	0.0740	0.0164	0.3123	0.0904	0.0247	0.8548
Subtotal		**3.3918**	**1.2493**	**0.4493**	**3.8384**	**1.0164**	**0.2301**	**10.1753**
GA Single Engine and Multi Engine Piston	BE58	2.8027	1.2658	0.3534	3.4575	0.8493	0.1123	8.8411
	C340	0.9041	0.2411	0.1260	0.9616	0.2822	0.0274	2.5425
	C421	2.9123	1.1753	0.4247	3.6493	0.7753	0.0849	9.0219
	DA40[1]	0.4384	0.1123	0.0986	0.3671	0.1699	0.1123	1.2986
	C208	4.0274	0.2110	0.0274	3.8356	0.4356	0.0000	8.5370
	AT8T	1.0055	0.8767	0.0000	0.6356	1.2466	0.0000	3.7644
	BE35	1.5616	0.7507	0.1425	2.0575	0.3123	0.0849	4.9096
	BE36	1.8877	0.6219	0.1425	1.8630	0.3973	0.3973	5.3096
	C152	0.7205	0.2000	0.4822	0.5808	0.3397	0.4822	2.8055
	C172	3.3452	1.4301	0.6027	3.1068	1.4164	0.8493	10.7507
	C182	3.9479	1.1342	0.2685	3.7699	1.0767	0.5096	10.7068
	C206	1.6685	0.7507	0.0712	1.5288	0.5370	0.4247	4.9808
	C210	2.7452	1.2493	0.2548	3.7945	0.3397	0.1123	8.4959
	M20P	1.4438	0.5096	0.2685	1.6575	0.2274	0.3397	4.4466
	PA46	0.9753	0.4603	0.1836	1.3644	0.2548	0.0000	3.2384
	SR22	3.3671	0.7370	0.5671	3.9397	0.5890	0.1425	9.3425
	P46T	1.1753	0.5014	0.1260	1.3781	0.3671	0.0575	3.6055
	PA28	5.0932	2.1562	0.6685	6.2521	1.3863	0.2795	15.8356
	PA34	0.9342	0.9397	0.3973	1.5890	0.5096	0.1699	4.5397
	PA38	1.8247	3.3205	1.1616	4.6055	1.2438	0.4521	12.6082
Subtotal		**42.7808**	**18.6438**	**6.3671**	**50.3945**	**12.7562**	**4.6384**	**135.5808**

Aircraft Category	Aircraft Type	Annual Average Day Operations						
		Arrivals			Departures			Total
		Day	Evening	Night	Day	Evening	Night	
GA Turboprop and Rotorcraft	AC90	0.1151	0.0356	0.0082	0.0904	0.0603	0.0082	0.3178
	B350	0.5123	0.1425	0.0274	0.5370	0.1068	0.0384	1.3644
	BE10	0.1233	0.0356	0.1205	0.1205	0.0603	0.1014	0.5616
	BE20	0.5096	0.1644	0.0986	0.5507	0.1096	0.1123	1.5452
	BE30	0.1562	0.0247	0.0164	0.1397	0.0466	0.0110	0.3945
	BE9L	1.1205	0.5616	0.1616	1.3425	0.3671	0.1342	3.6877
	C441	0.4301	0.0904	0.0110	0.4301	0.0849	0.0164	1.0630
	PA44	0.1151	0.1726	0.3123	0.1863	0.1233	0.2904	1.2000
	PAY2	0.1726	0.0356	0.0192	0.1315	0.0630	0.0329	0.4548
	PC12	0.6301	0.2493	0.0986	0.8219	0.1288	0.0274	1.9562
	SW4	0.0740	0.1096	0.0027	0.0575	0.1233	0.0055	0.3726
	PA31	0.7205	0.4548	0.1068	0.7096	0.4301	0.1397	2.5616
	S70[2]	0.2200	0.0000	0.0000	0.2200	0.0000	0.0000	0.4400
	B430[2]	4.6238	5.8712	3.9616	8.1416	4.2548	2.0548	28.9078
Subtotal		**9.5233**	**7.9479**	**4.9452**	**13.4795**	**5.9589**	**2.9726**	**44.8274**
Cargo and Military	7572	1.8000	0.1808	0.0192	0.0932	1.8849	0.0219	4.0000
	F15	6.0904	0.0000	0.3205	6.4110	0.0000	0.0000	12.8219
	F16	0.1973	0.0000	0.0000	0.1973	0.0000	0.0000	0.3945
	F18	0.8548	0.0000	0.0000	0.8548	0.0000	0.0000	1.7096
	SP2[3]	1.4575	1.4575	0.0000	0.3479	2.5699	0.0000	5.8329
	C130	0.1370	0.1233	0.0000	0.0411	0.2192	0.0000	0.5205
Subtotal		**10.5370**	**1.7616**	**0.3397**	**7.9452**	**4.6740**	**0.0219**	**25.2795**
Total		**86.6959**	**37.5616**	**30.2767**	**105.4630**	**35.5699**	**13.4740**	**309.0411**

Notes:
1 DA40 modeled as GASEPV, per FAA non-standard aircraft types (see Appendix H and I)
2 Helicopter Aircraft Type designated as “HELO” in FAA approved forecast (see Appendix E)
3 SP2 modeled as T29, per FAA non-standard aircraft types (see Appendix H and I)

4.3 Aircraft Noise and Performance Characteristics

Specific noise and performance data must be entered into AEDT for each aircraft type operating at the Airport. Noise data are included in the form of Sound Exposure Level (SEL) at a range of distances (from 200 feet to 25,000 feet) from a particular aircraft with engines at a specific thrust level. Performance data include thrust, speed and altitude profiles for takeoff and landing operations. The AEDT database contains standard noise and performance data for over 300 different fixed-wing aircraft types, most of which are civilian aircraft. AEDT automatically accesses the noise and performance data for takeoff and landing operations by those aircraft. Not all aircraft types identified as operating at FAT have specific AEDT aircraft types or FAA-approved substitutions. Therefore, for those aircraft types, recommended substitutions were submitted to the FAA, as provided in Appendix H, for review and approval on January 7, 2016. FAA approved the substitutions, as provided in Appendix I, on February 25, 2016[25].

[25] *FAA/AEE Approval Letter, February 25, 2016.*

During the previous NEM Update, HMMH developed user-specified Integrated Noise Model (INM) profiles for the arrivals and departures of the F-16 (CANG) and F-18 (transient) aircraft that follow the profiles specified in the noise abatement procedures[26]. During our discussions with CANG staff for this NEM update, and requests for profiles, they recommended that the efforts used to develop noise modeling for the F-16s in the 2004 NEM update were still relevant to the current F-15, F-16 and F-18 aircraft that utilize the airfield. The two overhead patterns, for which there is no standard profile, consists of a final approach at 2,000 feet above field elevation (AFE) or 5,000 feet AFE at 300 knots, a break over the approach runway end, power to idle, a descent to landing begun at approximately 45 degrees to the runway end with decreasing airspeed, and final landing and roll out. The 5,000 foot AFE overhead pattern was recently developed and implemented by the CANG since the previous NEM update for noise abatement. These flight procedures vary from those provided in AEDT and require approval by the FAA for inclusion in the NEM update. Therefore, for these profiles, user-defined profiles were submitted to the FAA, as provided in Appendix J and L, for review and approval on August 25, 2016. FAA approved the user-defined AEDT profiles, as provided in Appendix N, on September 26, 2016[27].

Within the AEDT database, aircraft takeoff or departure profiles are usually defined by a range of trip distances identified as "stage lengths." A longer trip distance or higher stage length is associated with a heavier aircraft due to the increase in fuel requirements for the flight. For this study, we recommend using city pair distances, as determined for each departure flight, to define the specific stage length according to the AEDT standard definitions. City pair distances are determined by the great-circle distance from FAT to the planned arrival city.

Besides identifying the aircraft type in the database, AEDT has STANDARD and ICAO aircraft flight profiles for takeoffs, landings, and flight patterns or touch-and-go operations. HMMH recommends using these standard profiles for all civilian aircraft types in the preparation of the noise contours for the FAT NEM.

4.4 Runway Utilization

The primary factor affecting runway use at airports is weather, in particular, the wind direction and wind speed. Additional factors that may affect runway use include the position of the facility or ramp relative to the runways or operational proficiency training for military units. There are no anticipated changes to the runway utilization expected from 2017 to 2022.

Based on 2014 data derived from FAA NOP radar data and the interviews with airport operators and FAA ATCT personnel, the overall runway usage tables for FAT were compiled by arrival or departure; day, evening, or night. Since actual radar tracks are used in the modeling process, these variations will be adapted and applied in the modeling process. Table 9 and Table 10 present the preliminary runway utilization rates that will result when modeling the CNEL contours for 2017 and 2022 operations as recommended herein.

Table 9. Runway Utilization for All Fixed-Wing Aircraft

Operation	Runway	Day	Evening	Night
Arrival	11L	8.2%	2.5%	1.8%
	11R	5.5%	1.0%	1.1%
	29L	33.5%	23.8%	21.6%
	29R	52.8%	72.7%	75.5%
	Total	**100.0%**	**100.0%**	**100.0%**
Departure	11L	2.7%	0.7%	1.1%
	11R	10.0%	2.9%	3.4%
	29L	42.0%	54.0%	27.9%
	29R	45.3%	42.4%	67.6%
	Total	**100.0%**	**100.0%**	**100.0%**
Note: Totals may not match exactly due to rounding				

[26] *Fresno-Yosemite International Airport Part 150 Update Noise Exposure Map, November 2004.*

[27] *FAA/AEE Approval Letter, September 26, 2016.*

Table 10. Runway Utilization

Arrival/Departure	Runway				Total
	11L	29R	11R	29L	
Arrivals	6.4%	59.0%	4.2%	30.4%	**100.0%**
Departures	2.3%	48.6%	8.3%	40.9%	**100.0%**

Graphical depictions of runway use are given in Figure 3 through Figure 8.

4.5 Flight Track Geometry and Utilization

Model tracks were developed using a standard method, which entailed analyzing all radar data from FAA NOP for FAT and splitting the flight tracks into similar and manageable groups. This was first done by separating tracks by phase of flight (e.g., arrival or departure) and then by runway. Following this, the flights were separated by destination direction, like Northeast, South, or West. Finally, at this point, radar flight tracks were analyzed and split into groups according to their degree of similar geometry.

Model tracks were developed for each geometrically similar group. For example, Runway 11L Departures with a North West destination were split into three geometrically similar groups, and three 'backbone' tracks were developed. Each of these backbone tracks were then assigned two 'dispersion' sub tracks on either side of the backbone, for a total of five tracks (one backbone and four dispersion) for each geometrically similar group. Figure 9 through Figure 12 show the modeled tracks layered over the airport base map, and Figure 13 presents a flight track density plot of all radar operations used in generating the model tracks.

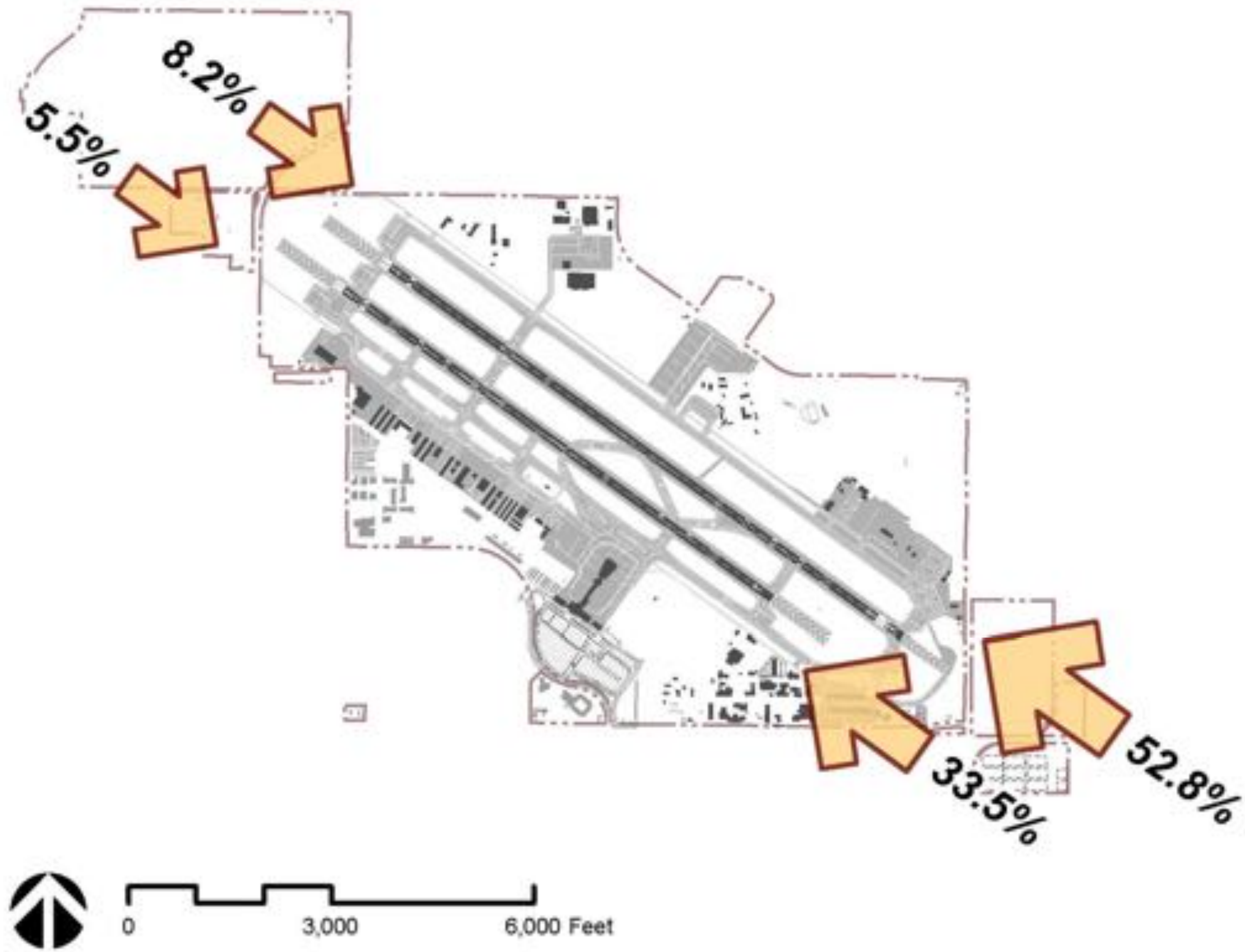

Figure 3. Overall Runway Use Percentages for Arrivals - Day

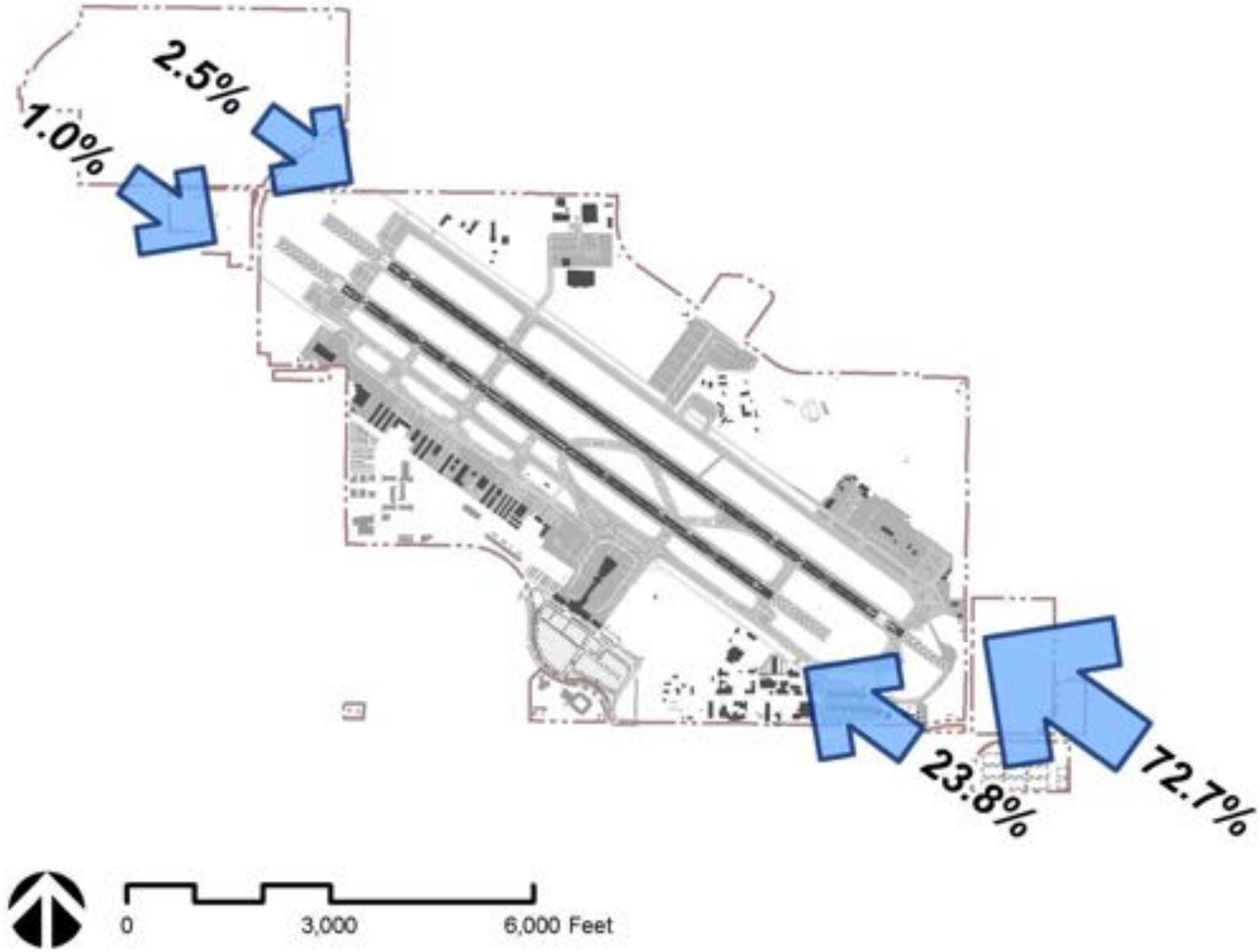

Figure 4. Overall Runway Use Percentages for Arrivals – Evening

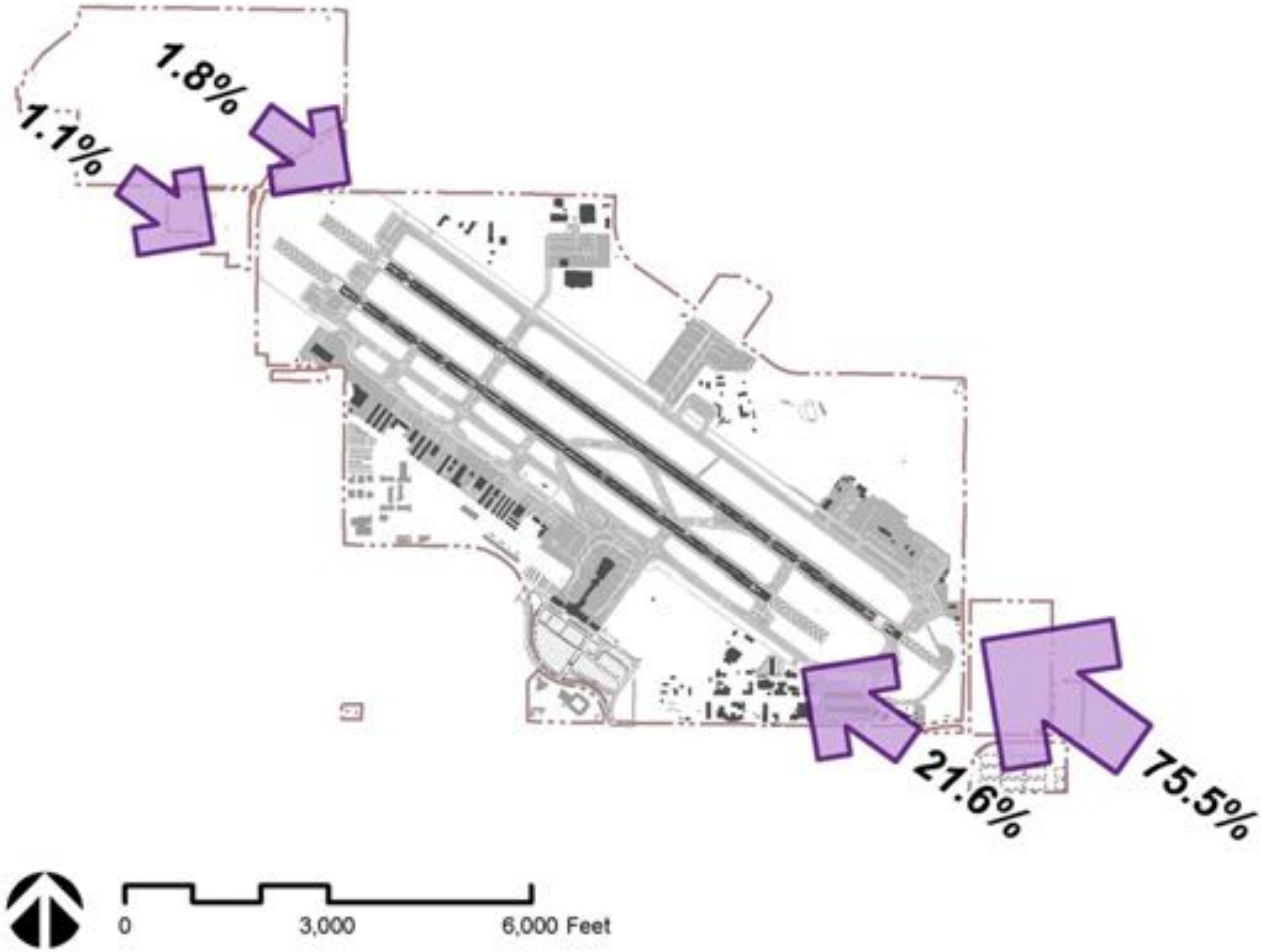

Figure 5. Overall Runway Use Percentages for Arrivals - Night

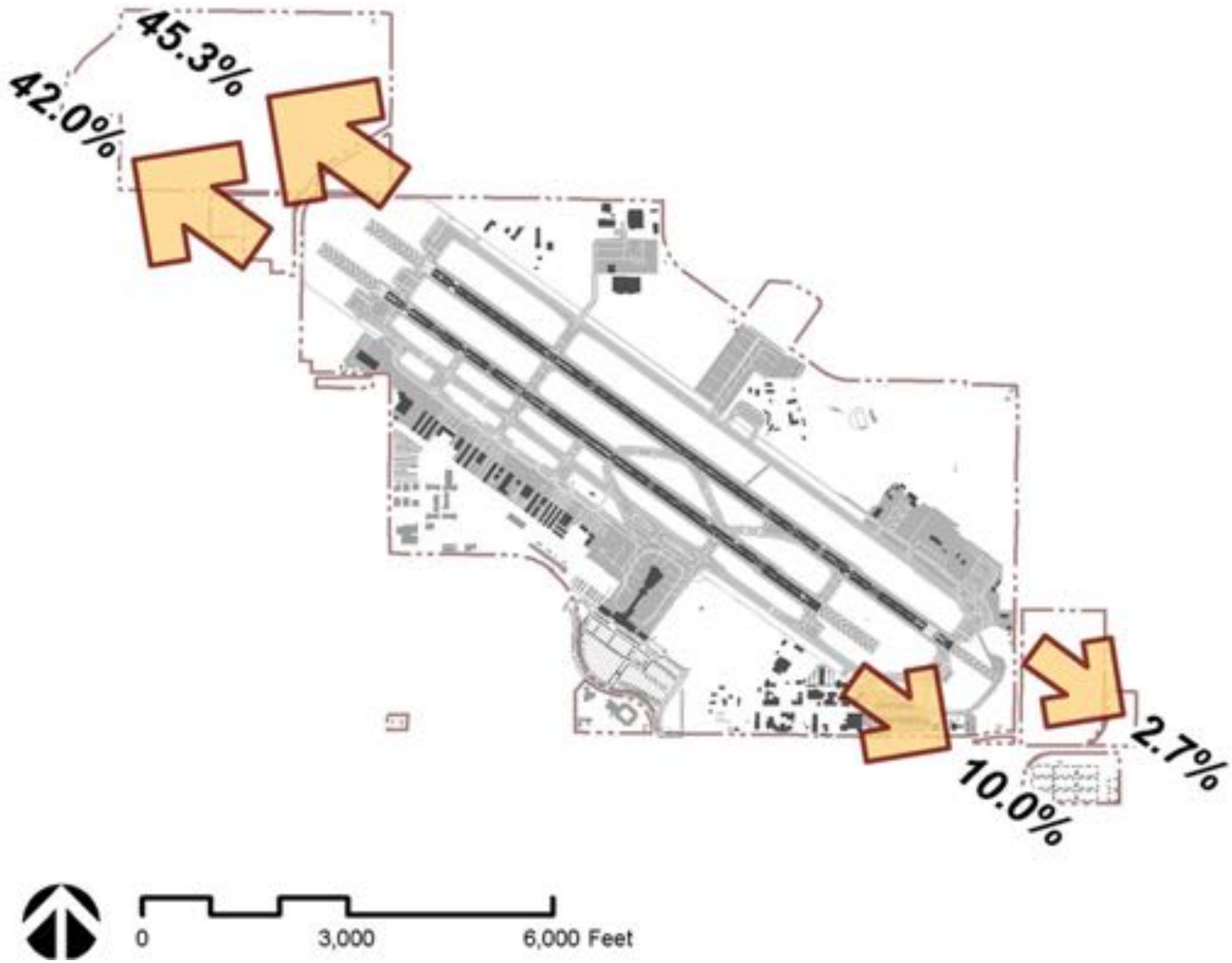

Figure 6. Overall Runway Use Percentages for Departures - Day

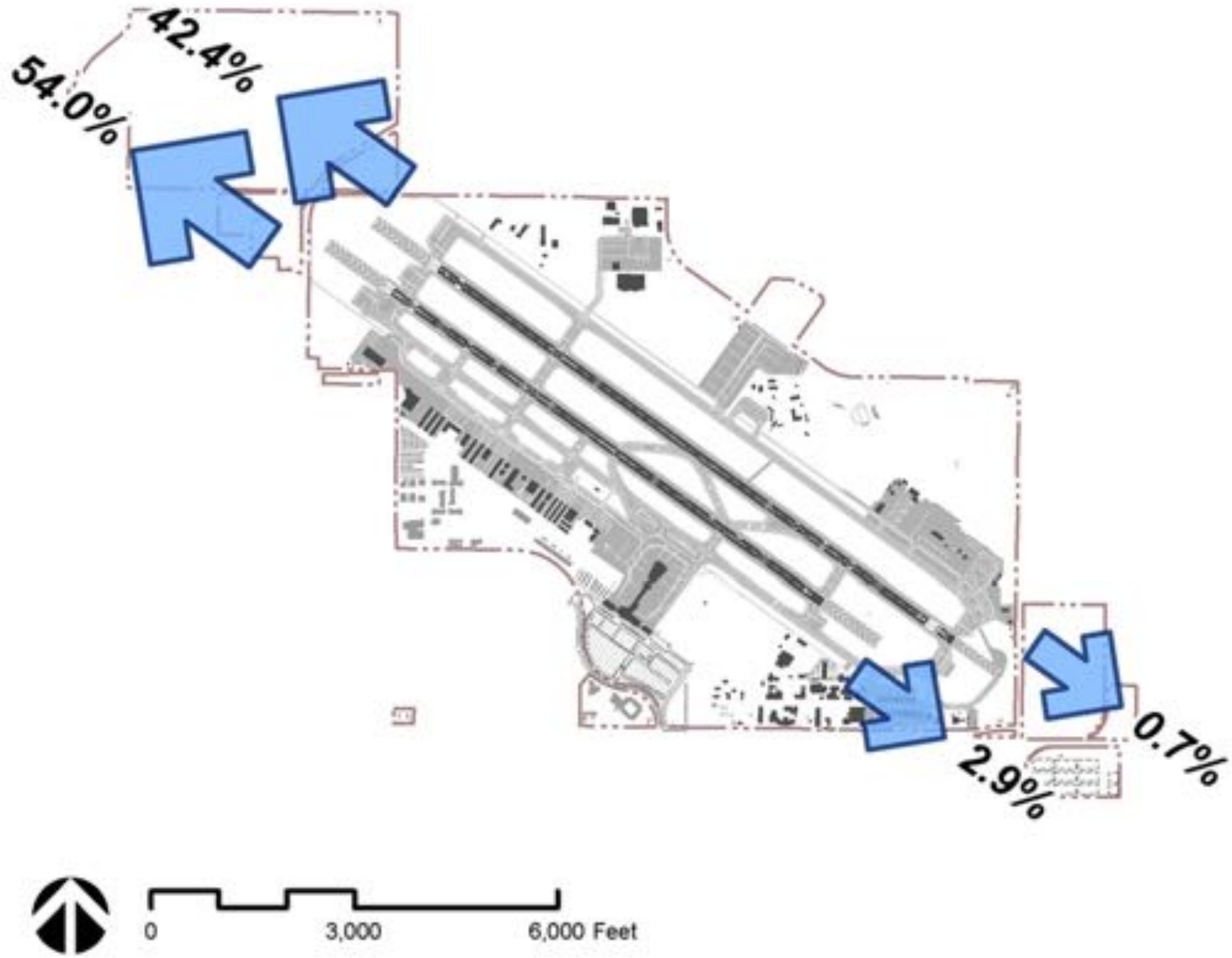

Figure 7. Overall Runway Use Percentages for Departures - Evening

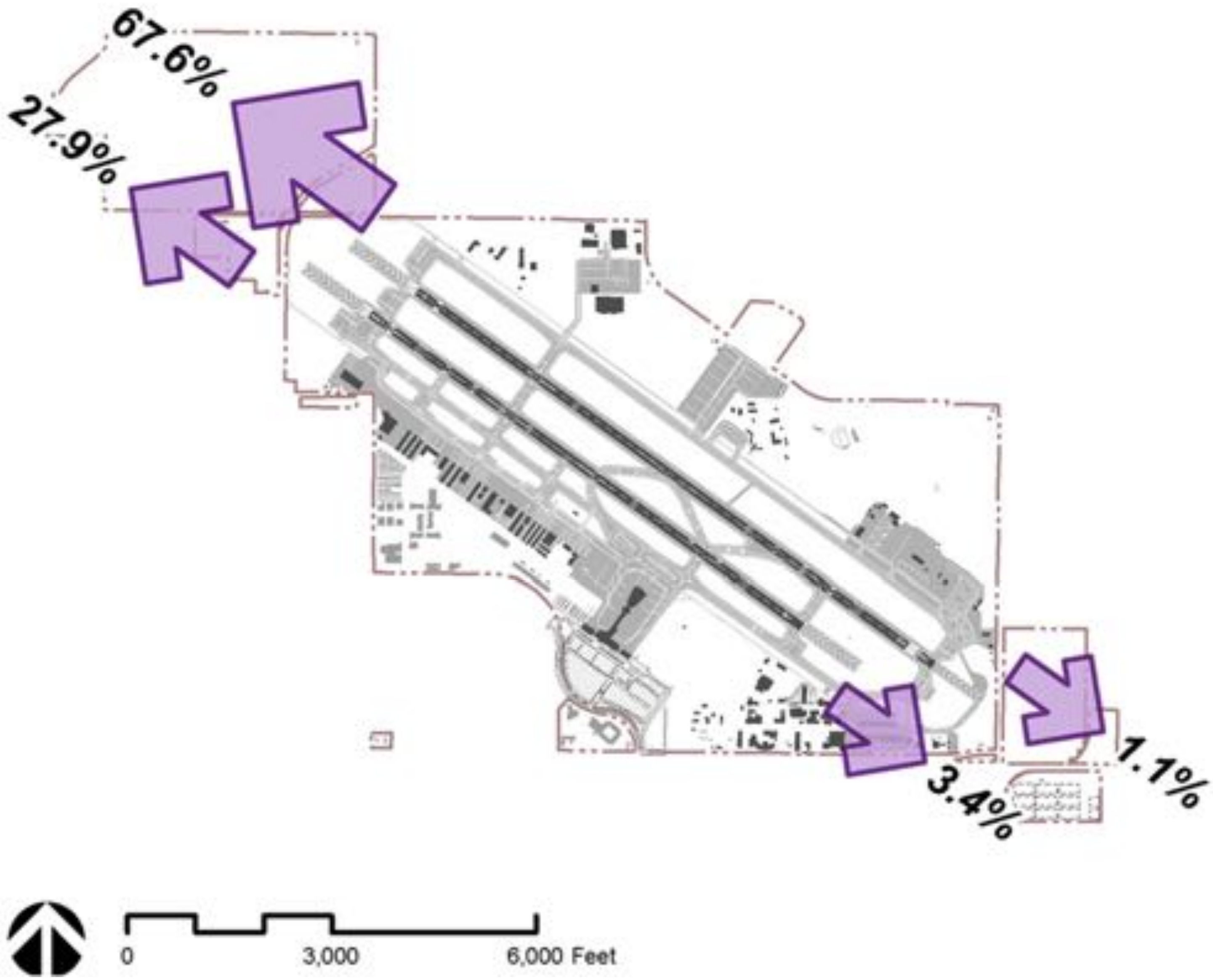

Figure 8. Overall Runway Use Percentages for Departures - Night

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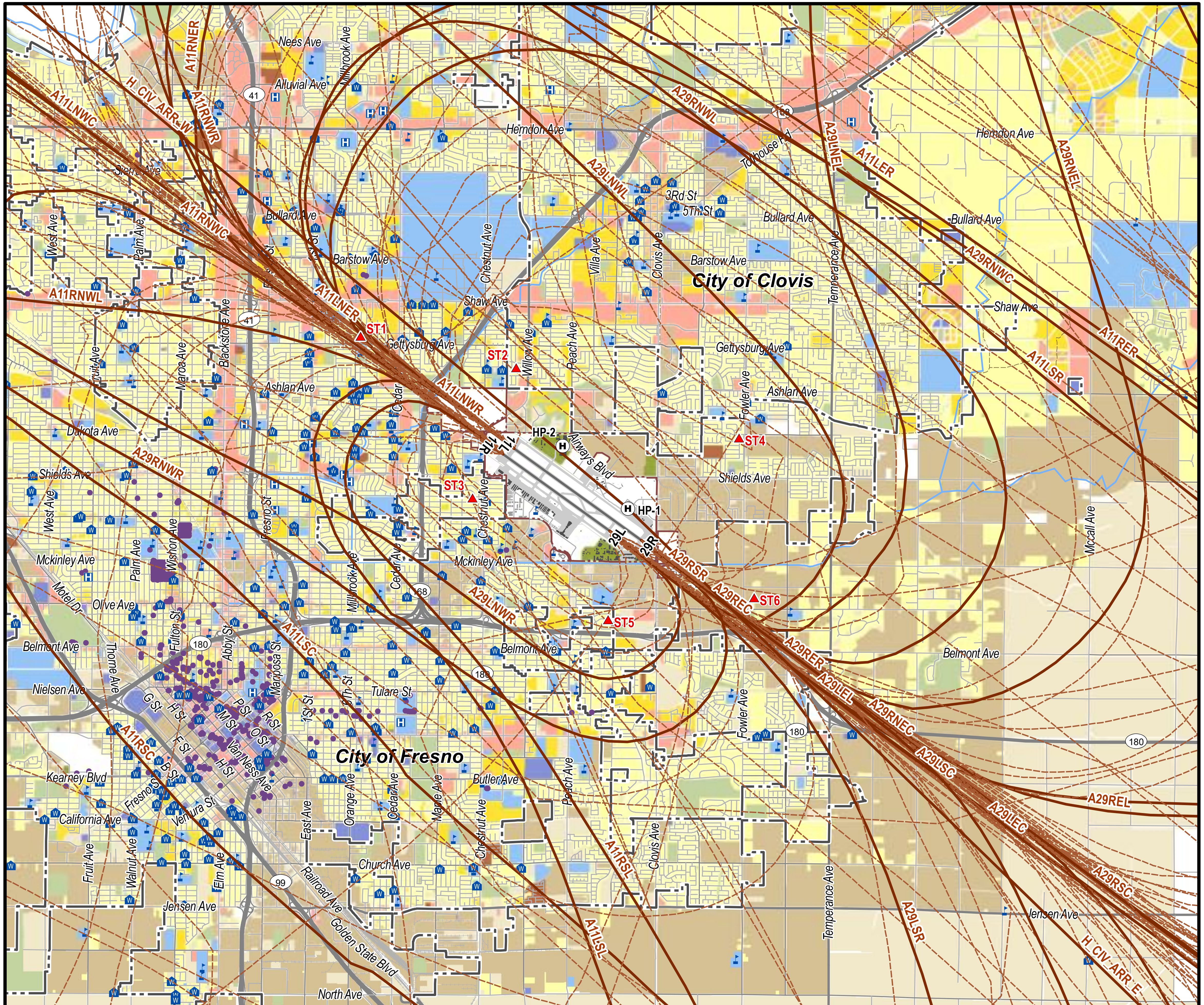
FRESNO YOSEMITE INTERNATIONAL AIRPORT

Figure: 9
Civilian Arrival Model Tracks



Model Backbone Track (Arrival)
Model Track (Arrival)
ST# Noise Monitor Location
Airport Boundary
Runway
Taxiway / Apron
Helicopter Pad
Airport Buildings
Municipal Boundary
Highways
Major Roads
Local Roads
Railroad
Residential Use
Multi-Family Residential
Mobile Homes
Public Use 1 (School, Place of Worship, Hospitals)
Public Use 2 (Government, Transportation, Parking)
Military Use
Recreational / Open Space
Commercial Use
Industrial Use
Vacant / Undefined
Water
School
Library
Place of Worship
Hospital
Historic Site

Service Layer Credits: Fresno County GIS; City of Fresno, CA; City of Clovis, CA; California Department of Water Resources (DWR); Environmental Systems Research Institute (ESRI);

0 1" 2" 3"
0 2,000 4,000 8,000 12,000 Feet

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FRESNO YOSEMITE
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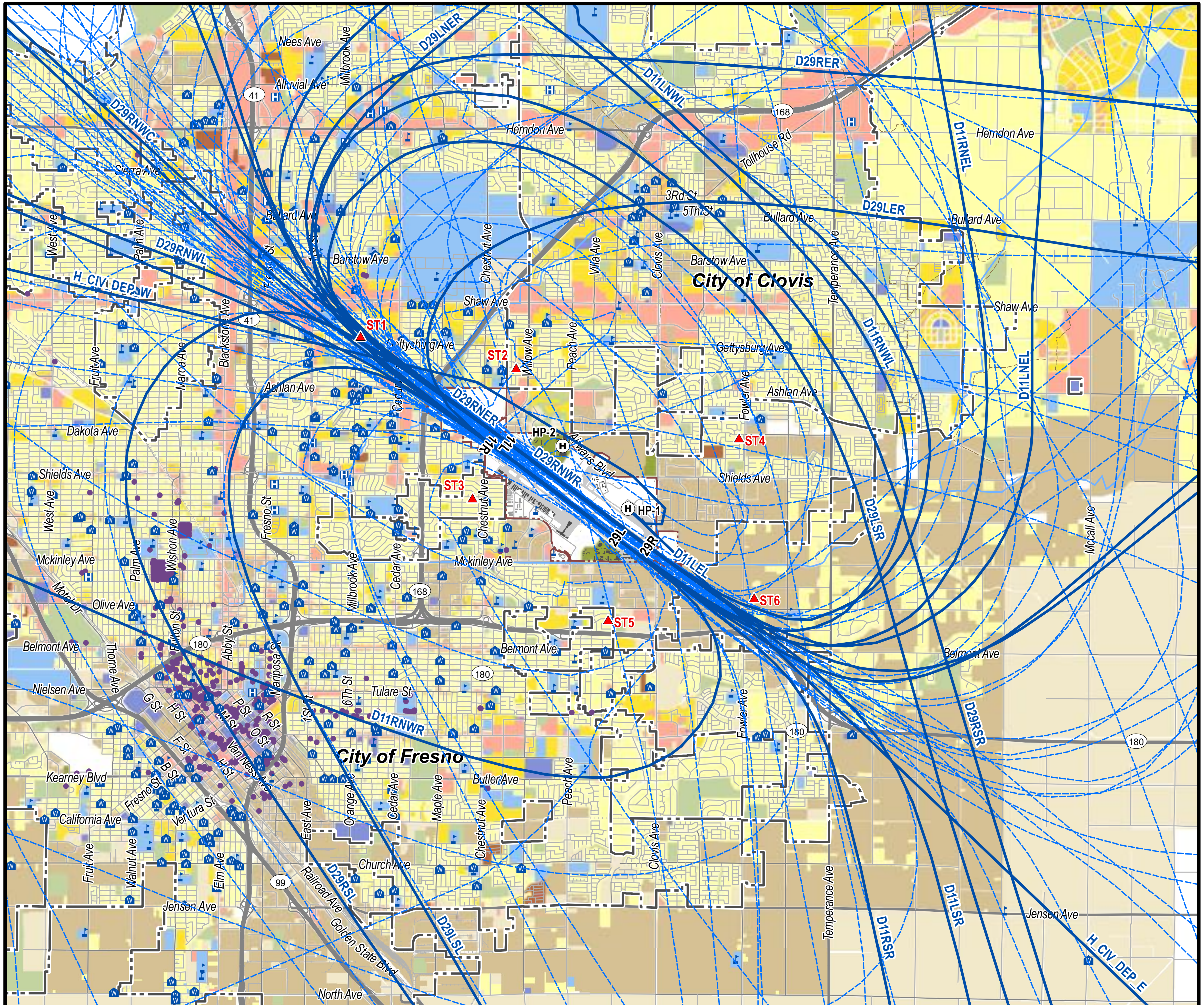
Figure: 10
Civilian Departure Model Tracks



Model Backbone Track (Departure)
Model Track (Departure)

ST# Noise Monitor Location
Airport Boundary
Runway
Taxiway / Apron
Helicopter Pad
Airport Buildings
Municipal Boundary
Highways
Major Roads
Local Roads
Railroad
Residential Use
Multi-Family Residential
Mobile Homes
Public Use 1 (School, Place of Worship, Hospitals)
Public Use 2 (Government, Transportation, Parking)
Military Use
Recreational / Open Space
Commercial Use
Industrial Use
Vacant / Undefined
Water
School
Library
Place of Worship
Hospital
Historic Site

Service Layer Credits: Fresno County GIS; City of Fresno, CA; City of Clovis, CA; California Department of Water Resources (DWR); Environmental Systems Research Institute (ESRI);

0 1" 2" 3"
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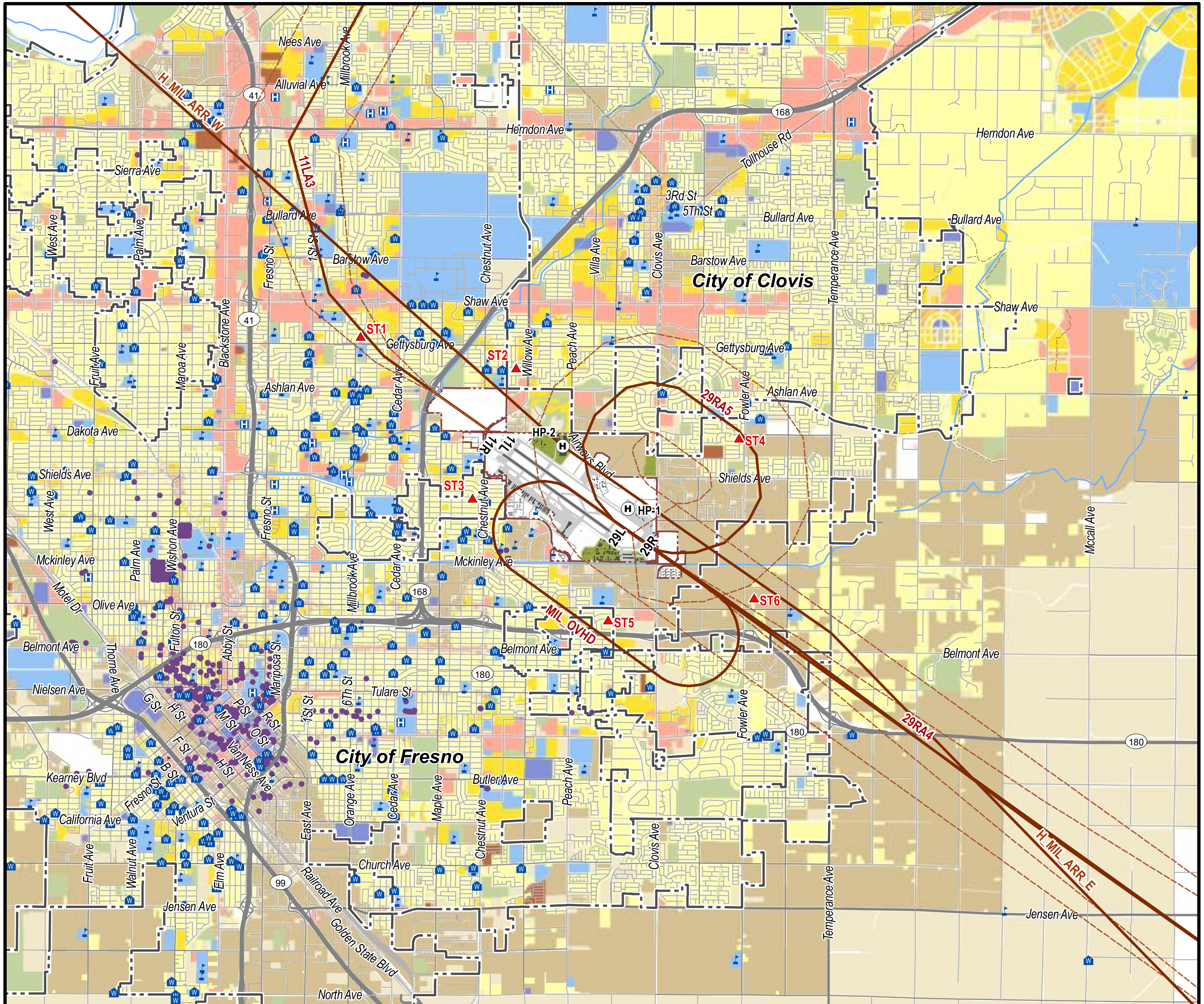

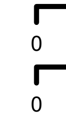

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Figure: 11
Military Arrival Model Tracks

Model Backbone Track (Arrival)
Model Track (Arrival)
ST# Noise Monitor Location
Airport Boundary
Runway
Taxiway / Apron
Helicopter Pad
Airport Buildings
Municipal Boundary
Highways
Major Roads
Local Roads
Railroad
Residential Use
Multi-Family Residential
Mobile Homes
Public Use 1 (School, Place of Worship, Hospitals)
Public Use 2 (Government, Transportation, Parking)
Military Use
Recreational / Open Space
Commercial Use
Industrial Use
Vacant / Undefined
Water
School
Library
Place of Worship
Hospital
Historic Site

Service Layer Credits: Fresno County GIS; City of Fresno, CA; City of Clovis, CA; California Department of Water Resources (DWR); Environmental Systems Research Institute (ESRI);

0 1" 2" 3"
0 2,000 4,000 8,000 12,000 Feet

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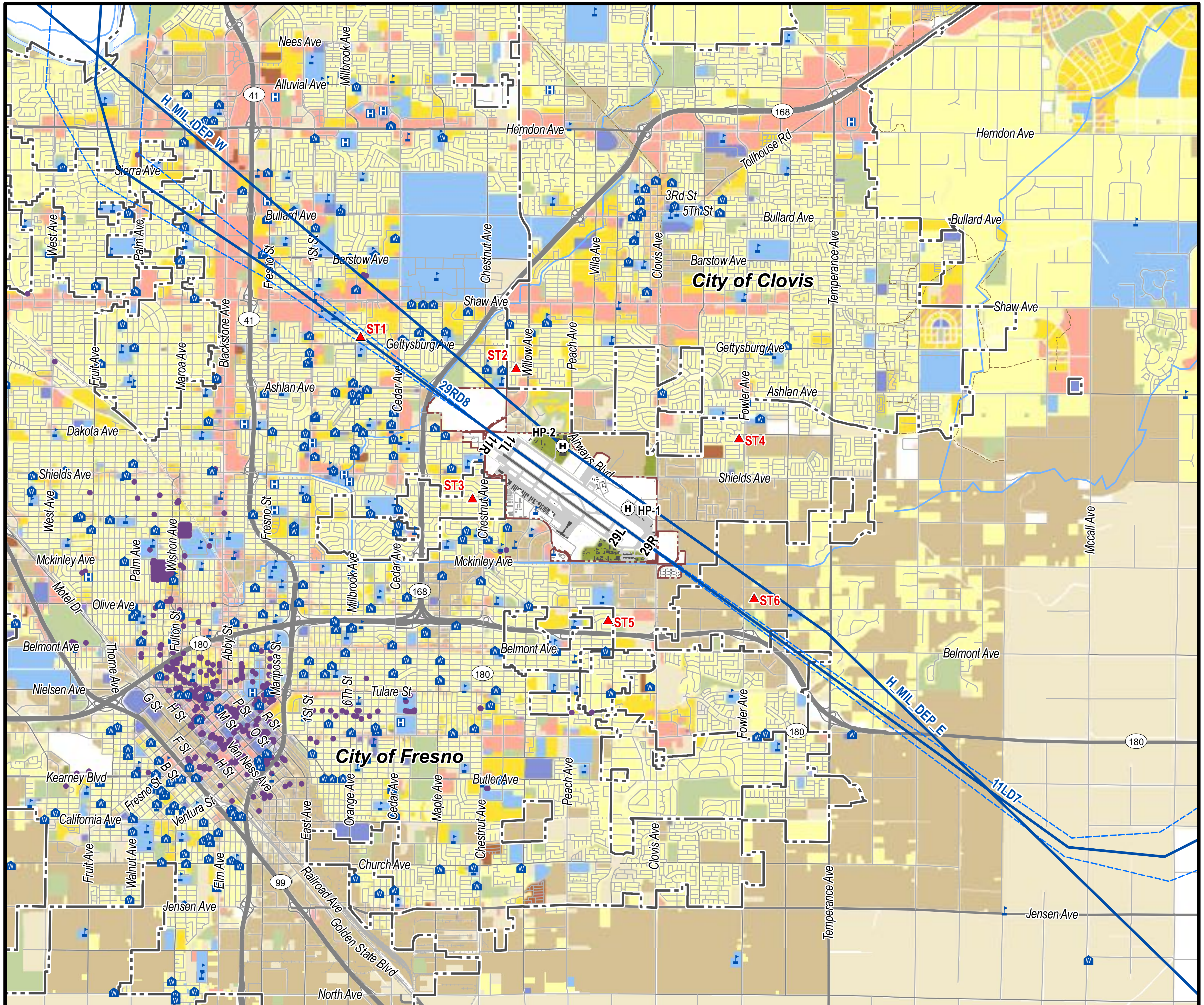

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Figure: 12
Military Departure Model Tracks

- Model Backbone Track (Departure)
- Model Track (Departure)
- ST# Noise Monitor Location
- Airport Boundary
- Runway
- Taxiway / Apron
- Helicopter Pad
- Airport Buildings
- Municipal Boundary
- Highways
- Major Roads
- Local Roads
- Railroad
- Residential Use
- Multi-Family Residential
- Mobile Homes
- Public Use 1 (School, Place of Worship, Hospitals)
- Public Use 2 (Government, Transportation, Parking)
- Military Use
- Recreational / Open Space
- Commercial Use
- Industrial Use
- Vacant / Undefined
- Water
- School
- Library
- Place of Worship
- Hospital
- Historic Site

Service Layer Credits: Fresno County GIS; City of Fresno, CA; City of Clovis, CA; California Department of Water Resources (DWR); Environmental Systems Research Institute (ESRI);

0 1" 2" 3"

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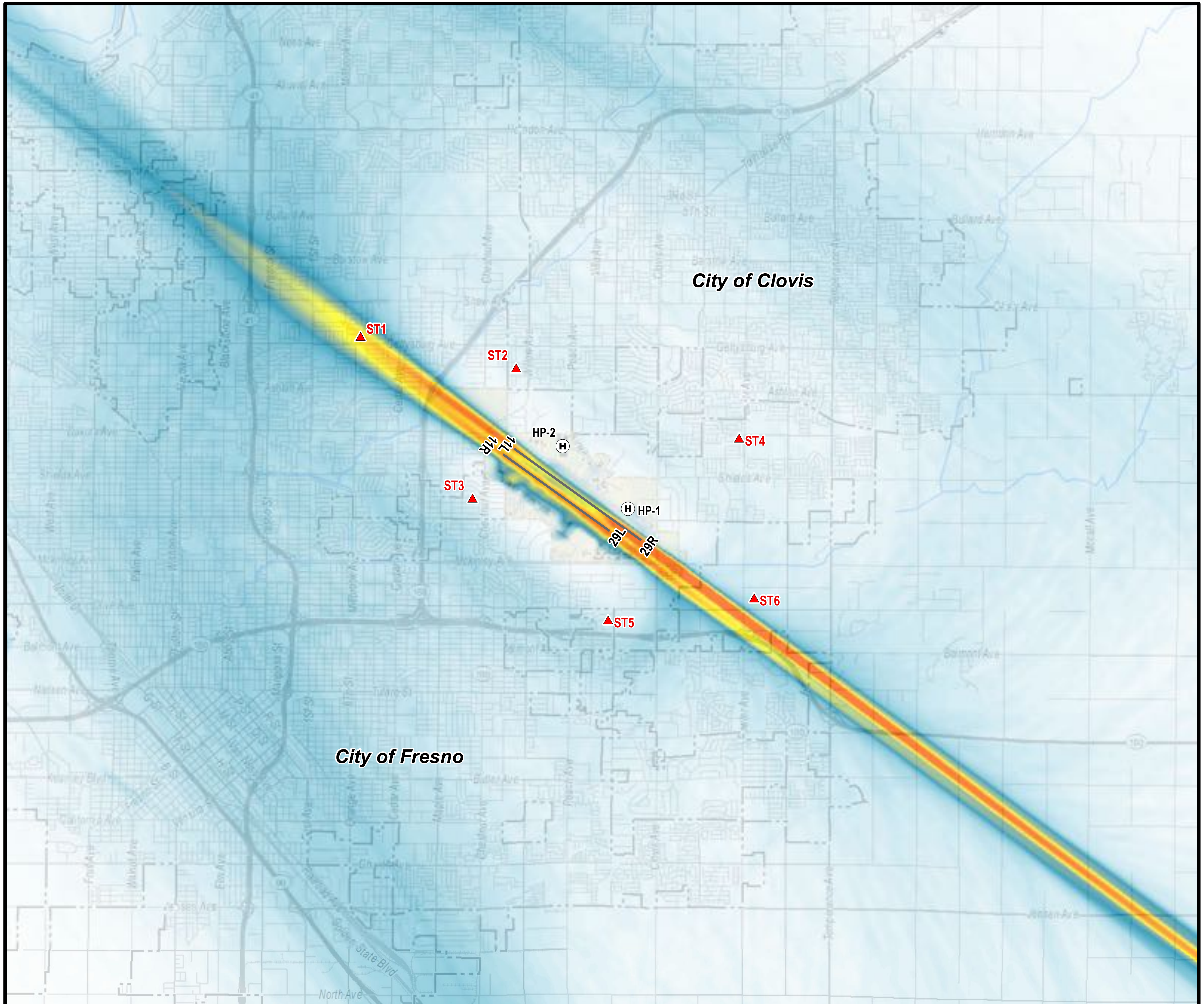
Figure: 13
Flight Track Density Plot



ST# Noise Monitor Location

Airport Boundary

Runway

Taxiway / Apron

Helicopter Pad

Airport Buildings

Municipal Boundary

Highways

Major Roads

Local Roads

Railroad

Flight Track Density - 41,321 Flight Tracks

High Medium Low

Service Layer Credits: Fresno County GIS; City of Fresno, CA; City of Clovis, CA; California Department of Water Resources (DWR); Environmental Systems Research Institute (ESRI);

0 6,000 12,000 Feet

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Table 11 presents the utilization rates for each of the developed model tracks. The relative ratio of flight track usage was preserved according to those ratios in the entire radar dataset.

Table 11. Track Utilization

Runway	Arrivals		Departures	
	Track ID	Percent Use	Track ID	Percent Use
11L	11LA3	0.6%	11LD7	14.4%
	A11LER	38.0%	D11LSR	36.5%
	A11LNWC	31.6%	D11LEL	26.8%
	A11LNER	17.2%	D11LNEL	11.5%
	A11LNWR	7.1%	D11LNWL	8.0%
	A11LSL	1.8%	D11LNWR	1.6%
	A11LSR	1.3%	D11LNW	0.7%
	A11LSC	1.0%	D11LS	0.5%
	A11LNW	1.0%		
	A11LS	0.3%		
	A11LNE	0.1%		
	A11LE	0.1%		
	Total	**100.0%**	**Total**	**100.0%**
11R	A11RNWC	34.5%	D11RSR	44.4%
	A11RSL	30.3%	D11REL	17.7%
	A11RER	12.4%	D11RNWL	16.6%
	A11RNWR	6.0%	D11RNEL	12.5%
	A11RNWL	5.1%	D11RNWR	8.6%
	A11RNER	4.6%	D11RS	0.1%
	A11RNW	3.6%	D11RNW	0.1%
	A11RSC	2.6%		
	A11RS	0.4%		
	A11RE	0.4%		
	Total	**100.0%**	**Total**	**100.0%**
29L	A29LSR	32.9%	D29LSL	44.7%
	A29LNWR	26.7%	D29LNER	13.8%
	A29LSC	17.2%	D29LNWC	13.6%
	A29LNWL	14.2%	D29LNWR	13.4%
	A29LEC	3.7%	D29LNWL	10.9%
	A29LEL	2.8%	D29LSR	2.2%
	A29LNEL	1.6%	D29LER	0.5%
	A29LS	0.6%	D29LNW	0.5%
	A29LE	0.2%	D29LS	0.2%
	A29LNW	0.2%	D29LEL	0.1%
	A29LNE	0.0%	D29LE	0.0%
	Total	**100.0%**	**Total**	**100.0%**

Runway	Arrivals		Departures	
	Track ID	Percent Use	Track ID	Percent Use
29R	A29RSC	42.8%	D29RSL	37.5%
	A29RNWL	16.5%	D29RNER	29.1%
	A29REC	12.3%	D29RNWR	10.2%
	A29REL	7.2%	D29RNWC	7.8%
	A29RNWC	5.3%	D29RSR	2.7%
	A29RSR	2.8%	D29RNWL	2.4%
	A29RNEL	1.9%	D29RER	1.3%
	A29RS	1.0%	D29RNW	0.1%
	A29RNWR	0.8%	D29RS	0.1%
	A29RNEC	0.5%	D29RNE	0.0%
	A29RER	0.4%	D29RE	0.0%
	A29RE	0.3%	29RD8	8.9%
	A29RNW	0.1%		
	A29RNE	0.0%		
	29RA4	0.7%		
	29RA5	0.2%		
	MIL_OVHD	7.2%		
	Total	**100.0%**	**Total**	**100.0%**
HP-1	H_CIV_ARR_E	50.0%	H_CIV_DEP_E	50.0%
	H_CIV_ARR_W	50.0%	H_CIV_DEP_W	50.0%
	Total	**100.0%**	**Total**	**100.0%**
HP-2	H_MIL_ARR_E	50.0%	H_MIL_DEP_E	50.0%
	H_MIL_ARR_W	50.0%	H_MIL_DEP_W	50.0%
	Total	**100.0%**	**Total**	**100.0%**

4.6 Meteorological Conditions

AEDT has several settings that affect aircraft performance profiles and sound propagation based on meteorological data. Meteorological settings include average annual temperature, barometric pressure, and relative humidity at the airport. AEDT holds the following values for annual average weather conditions at Fresno Yosemite International Airport:

- Temperature: 63 °F
- Pressure: 1003.460022 millibars
- Sea-level Pressure: 1015.549988 millibars
- Relative Humidity 58.11%
- Dew Point: 47.34998 °F
- Wind Speed: 5.4 Knots

4.7 Terrain

Terrain data describes the elevation of the ground surrounding the airport and on airport property. If the AEDT user selects the use of terrain data, AEDT uses terrain data to adjust the ground level under the flight paths. The terrain data does not affect the aircraft's performance or noise levels, but does affect the vertical distance between the aircraft and a "receiver" on the ground. This in turn affects noise propagation assumptions about how noise propagates over ground. The terrain data were obtained from the United States Geological Survey (USGS) National Map Viewer and was used with the terrain feature of the AEDT in generating the noise contours for the FAT NEM.

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5 2017 and 2022 Noise Exposure Maps and Land Use Compatibility

As discussed in Section 1.2.1 the most fundamental elements of the NEM submission are cumulative noise exposure contours for annual operations at the airport for: (1) data representing the year of submission and (2) data representing a forecast year at least five years from the year of submission.

The year of submission for this NEM Update is 2017. Therefore, the existing conditions noise contours are for 2017 and the five-year forecast contours are for 2022.

Section 4 summarized the noise modeling assumptions, identified data sources, reviewed the modeling process, and presented the land use base map. This section describes the updated NEM figures and associated land use compatibility as follows:

- Section 5.1 presents the NEM figures
- Section 5.2 documents incompatible land uses within the NEM noise contours

5.1 Noise Exposure Map Figures

Figure 14 and Figure 15 present the NEM figures for existing (2017) and forecast (2022) conditions, respectively. ***Figure 14 and Figure 15 are the official Noise Exposure Maps that the City of Fresno is submitting under Part 150 for appropriate FAA review and determination of compliance, pursuant to Part 150, §150.21.***

The copies of the figures bound into this volume on the following pages are at a scale of 1" = 2,500', which is smaller than the minimum scale permitted under §A150.103(b)(1); i.e., 1" = 2,000'. Copies of the figures at the required 1" = 2,000' scale are provided in a pocket following each figure.

The two figures identify the following items (per Part 150 in the sections cited):[28]

- Runway layout as required in §A150.103(b)(1). Section 4.1 provides more detailed information on Part 150 requirements related to runway layout and other airfield geometry data, including a more detailed airport layout diagram (Figure 1).
- Calendar year 2017 and 2022 noise contours (for 65, 70, and 75 dB CNEL) resulting from aircraft operations, as required in §A150.101(e)(3).
- Outline of the airport boundaries, as required in §A150.101(e)(4) and §A150.103(b)(1).
- Non-compatible land uses within the contours, as required in §A150.101(e)(5), including Part 150 land use categories.
- Locations of noise sensitive public buildings, as required in §A150.101(e)(6).
- There are no properties within the contours that are on or eligible for inclusion in the National Register of Historic Places, as required in §A150.101(e)(6)
- The extent of the CNEL 65 dB contours is primarily within the jurisdictional boundary of the City of Fresno, however there is a small area (approximately five acres) of overlap with the City of Clovis. The area depicted on the maps extend beyond the CNEL 65 dB contours and additional jurisdictions are shown for reference as required in §A150.105.

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[28] §A150.103(b)(1) also requires depiction of flight tracks out to 30,000' from each runway end. As noted in the FAA's "Part 150 Noise Exposure Maps Checklist" presented in Table 1 (pages 6-10 of this document), FAA permits separate flight track figures, to accommodate the high level of detail and large size required for this purpose. Section 2.1.5 presents flight track figures out to the required distance at a scale of 1" = 5,000'; these same figures are provided at the required 1" to 2,000' scale in a pocket following each figure.

Figure 16 presents a comparison of the 2017 and 2022 contours, in the same format as the official NEM figures. The modeling assumptions related to airport layout remain unchanged from 2017 to 2022; however, the conditions differ in terms of the level and mix of aircraft activity as described in Section 4 and the forecast in Appendix E. The aircraft operations assumptions used in developing these two sets of contours are presented in Section 4.2, the runway use for the existing and forecast conditions is presented in Section 4.4 and the flight track use is described in Section 4.5.

The comparison of the two NEM years (2017 and 2022) shows slight increases in 2022 to the northwestern and southeastern extent of the contours along the extended runway centerlines. The slight increases in 2022 are related to the increase in operations projected over the forecast period. As shown in Table 12 the increase in overall area within the CNEL 65 dB contour was approximately 4% from 2017 to 2022.

Table 12. Comparison of Land Area Enclosed by the 2017 and 2022 CNEL Contours

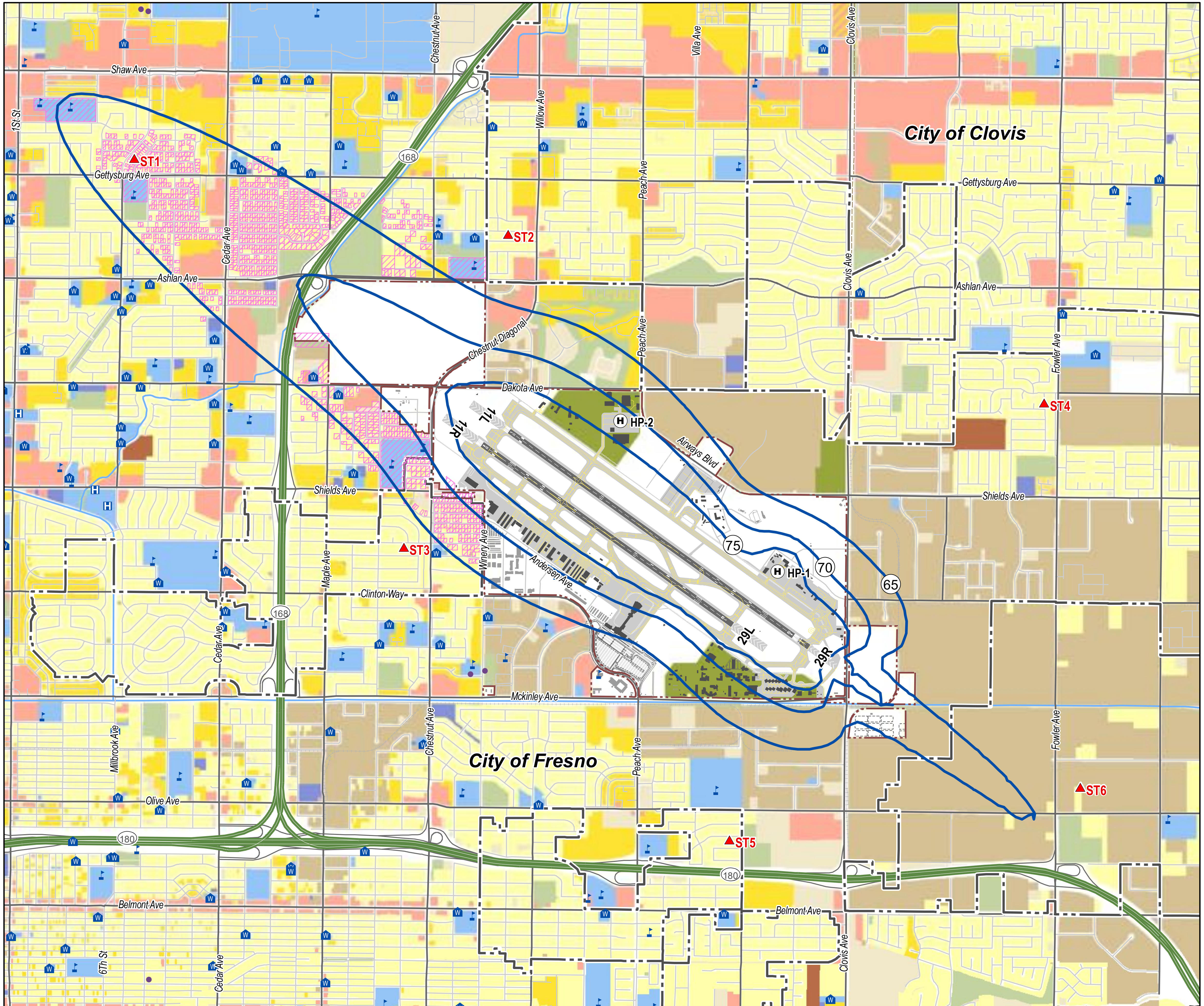
Source: HMMH

Noise Level, CNEL	Contour Land Area (Square Miles)		
	Existing Contours 2017	Forecast Contours 2022	Percent Change
65-70	2.46	2.59	5.28%
70-75	0.96	1.01	5.21%
75+	1.02	1.04	1.96%
Total 65+	**4.44**	**4.64**	**4.50%**

Notes:
Totals and sub-totals may not match exactly due to rounding
Percent change denoted is relative to the existing conditions (2017) contours.

FRESNO YOSEMITE INTERNATIONAL AIRPORT

Figure: 14
Existing Conditions (2017) Noise Exposure Map



Existing (2017) NEM Contour (65-75 dB CNEL)

ST# Noise Monitor Location

Airport Boundary

Runway

Taxiway / Apron

Helicopter Pad

Airport Buildings

Municipal Boundary

Highways

Major Roads

Local Roads

Railroad

Residential Use

Multi-Family Residential

Mobile Homes

Public Use 1 (School, Place of Worship, Hospitals)

Public Use 2 (Government, Transportation, Parking)

Military Use

Recreational / Open Space

Commercial Use

Industrial Use

Vacant / Undefined

Water

Sound Insulated Property

School

Library

Place of Worship

Hospital

Historic Site

Service Layer Credits: Fresno County GIS; City of Fresno, CA; City of Clovis, CA; California Department of Water Resources (DWR); Environmental Systems Research Institute (ESRI);

0 1" 2" 3"

0 2,000 4,000 6,000 Feet

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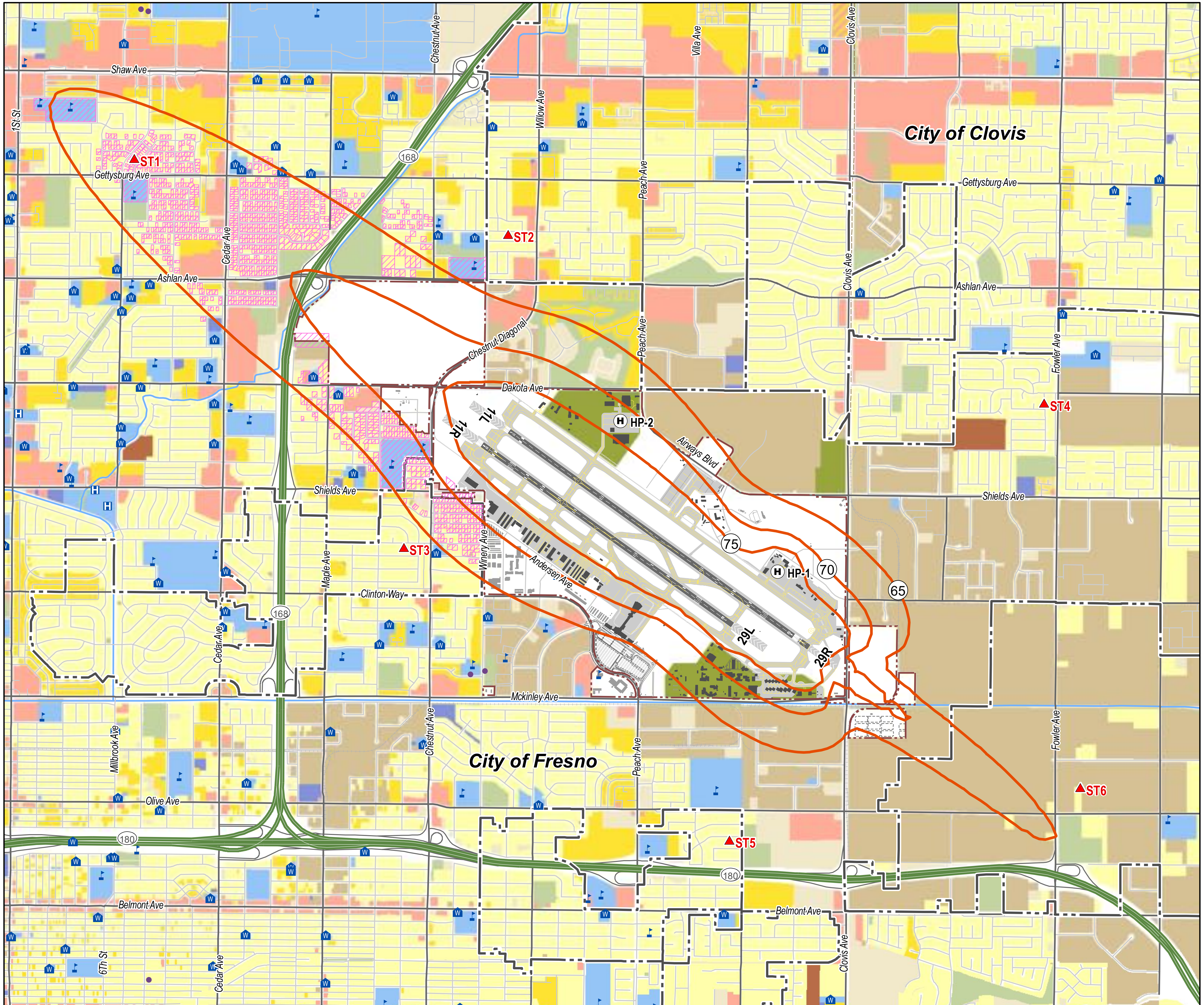

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Figure: 15
Forecast Conditions (2022) Noise Exposure Map

- Forecast (2022) NEM Contour (65-75 dB CNEL)
- ST# Noise Monitor Location
- Airport Boundary
- Runway
- Taxiway / Apron
- Helicopter Pad
- Airport Buildings
- Municipal Boundary
- Highways
- Major Roads
- Local Roads
- Railroad
- Residential Use
- Multi-Family Residential
- Mobile Homes
- Public Use 1 (School, Place of Worship, Hospitals)
- Public Use 2 (Government, Transportation, Parking)
- Military Use
- Recreational / Open Space
- Commercial Use
- Industrial Use
- Vacant / Undefined
- Water
- Sound Insulated Property
- School
- Library
- Place of Worship
- Hospital
- Historic Site

Service Layer Credits: Fresno County GIS; City of Fresno, CA; City of Clovis, CA; California Department of Water Resources (DWR); Environmental Systems Research Institute (ESRI);

0 1" 2" 3"

0 2,000 4,000 6,000 Feet

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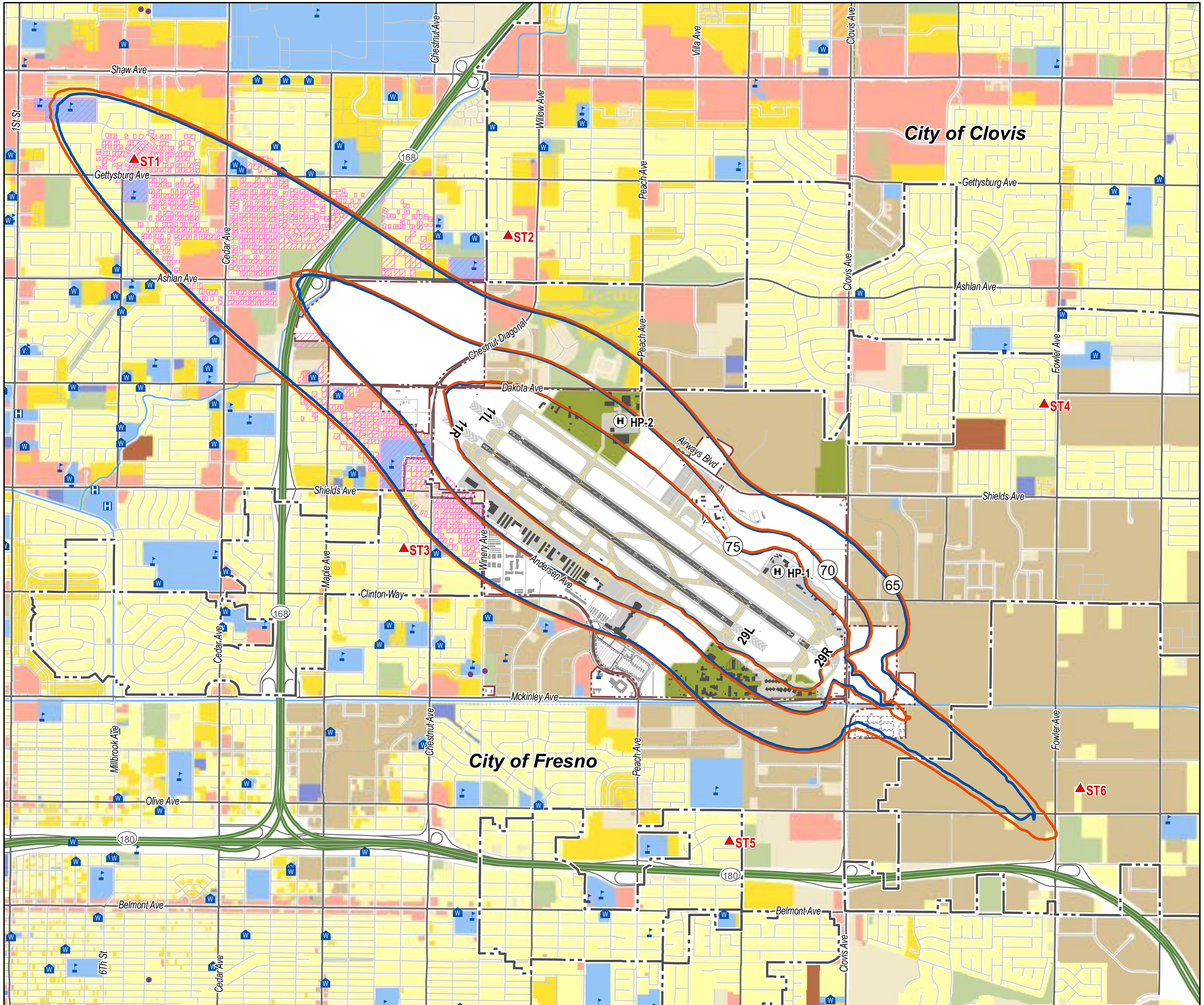

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Figure: 16
Comparison of Existing (2017) and Forecast (2022) Conditions Noise Exposure Maps

Existing (2017) NEM Contour (65-75 dB CNEL)
Forecast (2022) NEM Contour (65-75 dB CNEL)
ST# Noise Monitor Location
Airport Boundary
Runway
Taxiway / Apron
Helicopter Pad
Airport Buildings
Municipal Boundary
Highways
Major Roads
Local Roads
Railroad
Residential Use
Multi-Family Residential
Mobile Homes
Public Use 1 (School, Place of Worship, Hospitals)
Public Use 2 (Government, Transportation, Parking)
Military Use
Recreational / Open Space
Commercial Use
Industrial Use
Vacant / Undefined
Water
Sound Insulated Property
School
Library
Place of Worship
Hospital
Historic Site

Service Layer Credits: Fresno County GIS; City of Fresno, CA; City of Clovis, CA; California Department of Water Resources (DWR); Environmental Systems Research Institute (ESRI);

0 1" 2" 3"
0 2,000 4,000 6,000 Feet

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5.2 Compatible Land Use Analysis

The objective of airport noise compatibility planning is to promote the compatible growth and development of airports with their surrounding communities. The City of Fresno adopted the FAA's land-use compatibility guidelines, as set forth in Part 150, Appendix A, Table 1, which is reproduced as Table 2 in Section 3.1.2 of this document. As the table indicates, the guidance considers all land uses to be compatible with aircraft-related CNEL below 65 dB. Residential hotels, retirement homes, intermediate care facilities, hospitals, nursing homes, schools, preschools, and libraries are subject to the same criteria.

Based on the compatibility guidelines provided in Section 3.1.2, a list of noise-sensitive land uses was prepared and the existing land use from the City of Fresno, County of Fresno, and City of Clovis databases were refined to identify the location of all existing noise-sensitive land uses. This list of uses includes public and private schools and universities, hospitals, nursing homes, libraries, historic sites, parks, and places of worship. Existing noise-sensitive facilities located within the study area are depicted on the NEMs, Figure 14 and Figure 15.

5.2.1 Non-Residential Noise-Sensitive Land Uses within the Noise Contours

The NEM base map depicts existing land uses from the City of Fresno GIS data and verified through a windshield survey of the area near and within the 65 dB contours, which correspond to or are included in the major categories identified in Part 150 guidelines and detailed in Section 3.1.2.

As mentioned previously, Figure 14 and Figure 15 present NEMs for 2017 and 2022, respectively. A listing of non-residential non-compatible land uses for 2017 and 2022 are given in Table 13.

Table 13. Non-Residential Land Uses within the 2017 and 2022 Contours

Source: HMMH

Name	Class	Address	2017 Contour Contained By	2022 Contour Contained By	Mitigated
Calvary Worship Center	Church	4581 E. Dakota Ave, Fresno, CA 93726	65-70 dB	65-70 dB	No
Calvary World Outreach Center	Church	4317 E. Gettysburg Ave, Fresno, CA 93726	65-70 dB	65-70 dB	No
East Princeton Baptist Church	Church	2726 N. Chestnut Ave, Fresno, CA 93703	65-70 dB	65-70 dB	No
Fellowship Word Center	Church	4626 E. Dakota Ave, Fresno, CA 93726	65-70 dB	65-70 dB	No
Hamms School	School	3132 E. Fairmont Ave, Fresno, CA 93726	65-70 dB	65-70 dB	Yes
New Apostolic Church	Church	4505 E. Gettysburg Ave, Fresno, CA 93726	65-70 dB	65-70 dB	No
Peace Lutheran Church	Church	4672 N. Cedar Ave, Fresno, CA 93726	65-70 dB	65-70 dB	No
Thomas Elementary School	School	4444 N. Millbrook Ave, Fresno, CA, 93726	65-70 dB	65-70 dB	Yes
Tioga Middle School	School	3232 E. Fairmont Ave, Fresno, CA 93726	65-70 dB	65-70 dB	Yes
Viking Elementary School	School	4251 N. Winery Ave, Fresno, CA 93727	-	65-70 dB	Yes
Irwin O Addicot Elementary School	School	4784 E. Dayton Ave, Fresno, CA 93726	70-75 dB	70-75 dB	Yes
Scandinavian Middle School	School	3216 N. Sierra Vista Ave, Fresno, CA 93726	70-75 dB	70-75 dB	Yes
Note: Land uses with a "Yes" denoted in "Mitigated" field have been sound insulated and as such are compatible under 14 CFR Part 150. Land uses marked with a "No" have not been sound insulated and as such are non-compatible under 14 CFR Part 150.					

As shown in the table, there are 12 noise-sensitive structures within the 65 CNEL contour and of these six are compatible due to noise mitigation, which leaves six structures incompatible.

5.2.2 Residential Land Uses and Population within the Noise Contours

Estimates of existing population and future population within the study area are an essential part of the Part 150 process. These estimates, along with the land uses within the airport environs, provide a basis for determining the aircraft noise and land use compatibility for the existing and forecast conditions.

The objective of airport noise compatibility planning is to promote the compatible growth and development of airports with their surrounding communities. The FAA considers all land uses to be compatible with aircraft-related CNEL below 65 dB.

In order to estimate the number of people residing within the noise contours, existing parcel boundary land use maps were overlaid on 2010 US Census TIGER file maps that depict the smallest Census enumeration unit. "Populated Area" data polygons were then created by combining Census blocks with the residential land use concentrating population and housing unit values into the residential portion of the census block where people actually live. For example, in some areas the population is concentrated along the road rather than over several square miles of open or undeveloped land.

Using Geographic Information Systems (GIS) tools, the noise contours were intersected with these "Residential/Census" data for each CNEL noise contour 5-dB interval. The resulting wholly or partially encompassed Residential/Census areas were then identified; the proportion of total area within the contour level was then calculated to determine the estimated residential population and housing unit counts ascribed to those levels as shown in Table 14.

Table 14. Estimated Residential Population within the 2017 and 2022 CNEL Contours

Source: HMMH

Noise Level, CNEL	Existing Contours – 2017		Forecast Contours – 2022	
	Estimated Population	Estimated Number of Housing Units	Estimated Population	Estimated Number of Housing Units
65-70	7,476	2,682	8,215	2,967
70-75	46	17	64	22
75+	0	0	0	0
Total 65+	**7,522**	**2,699**	**8,279**	**2,989**

One of the recommended and approved measures of the 1988 NCP provided for acoustical treatment, purchase assurance, and neighborhood enhancement of developed, incompatible land. As of 2016, the City has provided noise mitigation to 1,271 dwelling units resulting in those properties being compatible with aircraft noise exposure levels.

The objective of the land acquisition program is to acquire residential dwelling units within the CNEL 65 dB and higher contours, relocate the affected residents to quieter neighborhoods, and open up the prospect of replacing the residential units with compatible uses. The goal is to remove and prevent an incompatible use from recurring.

The objective of the residential sound insulation program, locally known as the SMART Program, is to provide interior noise levels compatible with normal indoor activities for those residential uses not acquired by the Airport that lie within the CNEL 65 dB or higher contours. Sound attenuation treatments typically include installation of acoustical windows, doors, and other modifications to reduce the transmission of aircraft noise into the living spaces. Participation in the SMART Program is voluntary. Those residential units located inside the FAA-accepted CNEL 65 dB contour with an average interior noise level of CNEL 45 dB or greater may be eligible for the program, subject to the availability of annual AIP appropriations by the FAA. The goals of the program are to provide an interior aircraft noise environment not to exceed CNEL 45 dB indoors and provide a noticeable improvement, which is at least a 5 dB increase in noise level reduction of the structure. Upon completion of the construction and verification of goal attainment, the soundproofed residential units are considered compatible under Part 150 guidelines.

Table 15 and Table 16 present the total number of residential noise-sensitive parcels, parcels mitigated through the acoustical treatment programs or land acquisition, and those parcels remaining as incompatible in each of the 5-dB CNEL intervals for 2017 and 2022, respectively.

Table 15. Compatibility Analysis Results by Parcel within 2017 (Exiting Conditions) Noise Contours

Source: HMMH

Noise Level, CNEL	Noise Compatibility by Parcel		
	Total Parcels	Compatible Parcels Noise Mitigated	Incompatible Parcels
65-70	2,036	1,162	874
70-75	28	28	0
75+	0	0	0
Total	**2,064**	**1,190**	**874**

Note: "Mitigated Parcels" refers to any formerly incompatible parcel that has been treated for sound exposure under the SMART program.

Table 16. Compatibility Analysis Results by Parcel within 2022 (Forecast Conditions) Noise Contours

Source: HMMH

Noise Level, CNEL	Noise Compatibility by Parcel		
	Total Parcels	Compatible Parcels Noise Mitigated	Incompatible Parcels
65-70	2,180	1,166	1,014
70-75	37	37	0
75+	0	0	0
Total	**2,217**	**1,203**	**1,014**

Note: "Mitigated Parcels" refers to any formerly incompatible parcel that has been treated for sound exposure under the SMART program.

As the tables above show, there are 874 incompatible parcels within the 2017 existing conditions contour, and 1,014 incompatible parcels within the 2022 forecast conditions contour.

Figure 14 and Figure 15 show the various noise mitigated parcels, in relation to the 2017 and 2022 CNEL contours, that have been a part of the Airport's noise mitigation program that included both sound insulating residences and purchasing properties to remove any incompatible land uses.

5.3 Comparison of Measured and Modeled Results

The City of Fresno Airports Department elected to perform a short-term noise measurement program in several neighborhoods in the vicinity of the airport. The study was conducted between August 17, 2015 and August 25, 2015 at locations that complemented the sites chosen in the April 2004 short-term noise measurement program. Measurements were conducted at six locations for at least seven full consecutive days. A complete description of the measurement program is provided in Appendix O.

Using the AEDT CNEL values modeled for each of the measurement sites. Table 17 presents the measured noise levels (from all noise sources) at each measurement location and the modeled aircraft noise results from AEDT at the same measurement locations. At sites ST1, ST2 and ST3, the aircraft noise modeled in AEDT produced higher noise levels than measured at those locations from all noise sources. At Site ST4, the aircraft noise modeled in AEDT produced lower noise levels than measured indicating that aircraft noise may not be the highest contributor to the total noise measured at this particular site. At Sites ST5 and ST6 the aircraft noise modeled in AEDT produced nearly equal values as the measurements obtained at those sites, which would indicate that the aircraft noise may be one of the dominant noise sources whereas Sites ST1, ST2 and ST3 may have aircraft as the predominant noise source given that AEDT produced much higher noise levels from aircraft than measured for all noise sources.

In accordance with 14 CFR Part 150, Sec.A150.103, the Noise Exposure Maps contours were developed "using an FAA approved methodology or computer program." Noise measurement data were not used to "adjust" or "calibrate" the AEDT.[29]

Table 17. Comparison of Measured and Modeled Results

Source: HMMH

Site	Measured Total CNEL (dB)	Modeled Aircraft CNEL (dB)	Difference
ST1	61.2	66.4	5.2
ST2	55.5	60.0	4.5
ST3	56.9	62.4	5.5
ST4	56.5	50.2	-6.3
ST5	57.7	57.1	-0.6
ST6	59.7	58.9	-0.8
Note: "Modeled" CNEL values are from 2017 Existing Conditions data. Measured values contain community noise in addition to aircraft events.			

[29] 14 CFR Part 150 Sec.A150.1(b) states "Noise monitoring may be utilized by airport operators for data acquisition and data refinement, but is not required by this part for the development of noise exposure maps or airport noise compatibility programs."

6 Stakeholder Engagement

The City of Fresno considered it essential to involve the interested stakeholders throughout the NEM Update. The public consultation program for this NEM Update was open to the general public and included an informal public workshop/meeting at the beginning of the project and a second workshop/meeting near the end of the project to review the process and the results. Public consultation activities and announcement of opportunities to provide input are summarized below.

Per Part 150 regulation[30] the project team consulted with representatives from airport users (e.g. Fixed Based Operators, flight schools, US Forest Service, California Highway Patrol, various flight departments, among others), the FAA, the California Air National Guard, the County of Fresno, the City of Fresno, the City of Clovis, and the Airport to obtain current information related to aircraft operations and specific projects and plans at FAT. A full list of airport stakeholders contacted and consulted is provided in Appendix G.1.2. Consultation with airport users is an important step in the process when developing the NEM to ensure the thoroughness and accuracy of data in determining aircraft noise levels for this NEM Update. This information included aircraft fleet mix, operational levels, runway construction projects, land use data and other relevant information. A complete list of airport stakeholders consulted is given below:

- California Highway Patrol (CHP)
- U.S. Forest Service
- Roger's Helicopters
- SkyLife (now Air Methods Corporation)
- California Air National Guard (CANG) 144th Fighter Wing
- California Army National Guard 1106th TASMG
- FAA Airport Traffic Control Tower (ATCT)
- Signature Flight Support
- FedEx
- UPS
- Commercial Airlines
- County of Fresno – Public Works and Planning
- City of Fresno – Planning & Development
- City of Clovis – Planning & Development

6.1 Public Workshop 1

The initial public workshop was held Thursday August 6, 2015 from 5:30 – 7:30 pm at the Piccadilly Inn Airport, Ballroom Californian B, 5115 E. McKinley Avenue, Fresno, CA 93727. Stakeholders were notified through mailed letters, and the public was notified through advertisements in local newspapers. Copies of these letters and notifications are given in Appendix G.1.1 and G.2. This first of three scheduled public workshops was designed to

[30] Part 150.21(b) requires consultation with "states, and public agencies and planning agencies whose area, or any portion of whose area, of jurisdiction is within the Ldn 65 dB contour depicted on the map, FAA regional officials, and other Federal officials having local responsibility for land uses depicted on the map. This consultation must include regular aeronautical users of the airport."

Part 150.105(a) requires consultation with "each public agency and planning agency whose jurisdiction or responsibility is either wholly or partially within the Ldn 65 dB boundary," and requires that the document "identify their geographic areas of jurisdiction."

introduce the Part 150 process and study to the public and receive any concerns and comments on the process. An English-to-Spanish translator was available to provide assistance as necessary.

HMMH provided a brief presentation (provided in Appendix G.2.2) on Part 150 regulations, key elements for the FAT NEM Update, public review of the FAT NEM Update and the project schedule. The remainder of the workshop was dedicated to providing attendees the opportunity to review the project information as displayed on poster boards (provided in Appendix G.2.3) and to ask questions of the project team members including FAT staff. Approximately 112 people attended the workshop.

The following sections provide further details on the project initiation and notification, information presented, attendees, and comments received. Supplemental, detailed material is included in Appendix G.

6.1.1 Information disseminated

The purpose of the initial workshop was to introduce the Part 150 process, what it includes, the various roles and responsibilities, the project schedule, and how the public can be involved in the process. The workshop consisted of three information stations, a brief presentation to provide background information, and a comment table for written comments. Appendix G displays the materials related to this public workshop including copies of the presentation boards at each station, the presentation slides, handouts, attendance logs, and any public comments received. Links to the presentation and handouts were also included on the project website to make the information available to those not able to attend.

The project website (www.fresnonem.com) contains detailed information pertaining to the Part 150 process, aircraft noise terminology, as well as information on this particular NEM update. The site is organized into the following pages:

Table 18. Project Website Summary

Page	Description
Part 150 Process	This page has a brief history of noise compatibility planning at FAT, as well as an overview of the tools used and the results obtained from a Part 150 study.
Public Involvement	This page presents information on the public workshops held as part of the Part 150 study.
Schedule	This page shows an overview of the major project milestones and their dates of completion or planned dates of completion and details on project delays and postponements.
Documents	This page presents documentation relevant to the Part 150 study.
Basics of Aircraft Noise	This page gives the definition of the decibel (dB) and provides a link to an HMMH prepared noise-analysis overview handout which was given out during the first public workshop.
FAQ	This page contains answers to frequently asked questions pertaining to the Part 150 process.
Contact Us	This page gives contact information for public commenting on the Part 150 study at FAT. A toll-free phone number is provided, in addition to an e-mail address and mailing address for written comments.

Screenshots of the website as displayed during the public comment period are provided in Appendix G.1.3.

6.1.2 Public comment process

The City of Fresno welcomed public comments on the project through the public comment table provided at the public workshop as well as by three additional means provided on the project website:

- Email: elodia.cavazos.@fresno.gov
- Toll-Free Comment Hotline: 1-844-306-4988
- Mail:

  Elodia Cavazos
  City of Fresno Airports Dept.
  4995 E. Clinton Way
  Fresno, CA 93727

A total of nine comments were received in writing at or immediately following the first workshop. Topics covered in the comments consisted of noise complaints, questions on the SMART program, comments on workshop format, and military operations. All comments that were received are included in Appendix G.2.4 and were filed with the FAA Regional Airports Division Manager.

6.2 Public Workshops 2 & 3

The final public workshops were held Tuesday, August 1, 2017 from 5:30 – 7:30 pm at the Piccadilly Inn Airport, Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727, and again on Thursday August 31, 2017 from 3:00 – 5:00 pm at the Fresno Yosemite International Airport Terminal Conference Room, 5175 E. Clinton Way, Fresno, CA 93727. Stakeholders were notified through mailed letters, and the public was notified through advertisements in local newspapers. The City issued press advisories and distributed it to all area media. The City publicized the Draft NEM public workshop and subsequent public review period on the project website as well as social media, including Facebook, Twitter and Next Door. Copies of these letters and notifications are given in Appendix G.3.1 and G.3.2. This second set of public workshops was designed to present the results of the NEM study and receive any concerns and comments on the process. An English-to-Spanish translator was available to provide assistance as necessary.

The workshops were dedicated to providing attendees the opportunity to review the project information as displayed on twelve poster boards (provided in Appendix G.3.5) and to ask questions of the project team members including FAT staff. Approximately 51 people attended the workshop on August 1, 2017, and approximately 25 people attended the workshop on August 31, 2017.

The following sections provide further details on notification, information presented, attendees, and comments received. Supplemental, detailed material is included in Appendix G.

6.2.1 Information disseminated

The workshops consisted of three information stations with a total of twelve presentation boards, a noise 101 handout, two copies of the Draft NEM document and a comment table for written comments. Appendix G displays the materials related to this public workshop including copies of the presentation boards at each station, handouts, attendance logs, and any public comments received. Links to the document and handouts were included on the project website to make the information available to those not able to attend.

6.2.2 Public comment process

The City of Fresno welcomed public comments on the project through the public comment table provided at the public workshop as well as by three additional means:

- Email: elodia.cavazos.@fresno.gov
- Toll-Free Comment Hotline: 1-844-306-4988

- Mail:

  Elodia Cavazos
  City of Fresno Airports Dept.
  4995 E. Clinton Way
  Fresno, CA 93727

A total of 20 comments were received in writing at or immediately following the workshops: 17 after the August 1, 2017 workshop and an additional three after the August 31, 2017 workshop. A total of nine comments were received from the toll-free hotline between July 22, 2015 and August 10, 2017. Topics covered in the comments primarily consisted of questions on the SMART program and noise complaints, with the remaining comments on workshop information, quality of life, and military operations. No comments received during the public comment period required changes to the NEM document or maps. All comments received are included in Appendix G.3.6 through Appendix G.3.8 and were filed with the FAA Regional Airports Division Manager.

Appendix A Introduction to Noise Evaluation

This appendix introduces the acoustic metrics that provide a basis for evaluating and understanding a broad range of noise situations. Understanding these fundamental terms or metrics is helpful in explaining and comprehending the noise environment around an airport.

Noise is a complex physical quantity. To provide a basic reference, this appendix provides an introduction to fundamentals of acoustics and noise terminology (Section A.1), the effects of weather on outdoor sound propagation (Section A.2), and the effects of aircraft noise on people (Section A.3).

A.1 Introduction to Noise Terminology

To assist reviewers in interpreting the complex noise metrics used in evaluating airport noise, this appendix introduces the following acoustical descriptors of noise, roughly in increasing degree of complexity:

- Decibel, dB
- A-Weighted Decibel
- Maximum A-Weighted Sound Level, Lmax
- Sound Exposure Level, SEL
- Equivalent A-Weighted Sound Level, Leq
- Day-Night Average Sound Level, DNL

A.1.1 Decibel, dB

All sounds come from a sound source -- a musical instrument, a voice speaking, an airplane passing overhead. It takes energy to produce sound. The sound energy produced by any sound source is transmitted through the air in sound waves -- tiny, quick oscillations of pressure just above and just below atmospheric pressure. These oscillations, or sound pressures, impinge on the ear, creating the sound we hear.

Our ears are sensitive to a wide range of sound pressures. Although the loudest sounds that we hear without pain have about one million times more energy than the quietest sounds we hear, our ears are incapable of detecting small differences among these pressures. Thus, to better match how we hear this sound energy, we compress the total range of sound pressures to a more meaningful range by introducing the concept of sound pressure level.

Sound pressure levels (SPL) are measured in decibels (or dB). Decibels are logarithmic quantities reflecting the ratio of the two pressures, the numerator being the pressure of the sound source of interest, and the denominator being a reference pressure (the quietest sound we can hear).

The logarithmic conversion of sound pressure to SPL means that the quietest sound that we can hear (the reference pressure) has a sound pressure level of about 0 dB, while the loudest sounds that we hear without pain have sound pressure levels of about 120 dB. Most sounds in our day-to-day environment have sound pressure levels on the order of 30 to 100 dB.

Because decibels are logarithmic quantities, combining decibels is unlike common arithmetic. For example, if two sound sources each produce 100 dB operating individually and they are then operated together, they produce 103 dB -- not the 200 decibels we might expect. Four 100-dB sources operating simultaneously produce another three decibels of noise, resulting in a total SPL of 106 dB. For every doubling of the number of equal sources, the SPL goes up another three decibels. A tenfold increase in the number of sources makes the sound pressure level increase 10 dB.

If one noise source is much louder than another, the two sources operating together will produce virtually the same SPL (and sound to our ears) that the louder source would produce alone. For example, a 100 dB source plus an 80 dB source produce approximately 100 dB of noise when operating together (actually, 100.04 dB). The louder source "masks" the quieter one. But if the quieter source gets louder, it will have an increasing effect on the total SPL such that, when the two sources are equal, as described above, they produce a level three decibels above the sound of either one by itself.

People hear changes in sound level according to the following rules of thumb: (1) a 6 to 10 dB increase in the SPL is sometimes described to be about a doubling of loudness, and (2) changes in SPL of less than about three decibels are not readily detectable outside of a laboratory environment.

A.1.2 A-weighted Decibel

An important characteristic of sound is its frequency, or "pitch". This is the per-second rate of repetition of the sound pressure oscillations as they reach our ear, expressed in units known as Hertz (Hz).

When analyzing the total noise of any source, acousticians often break the noise into frequency components (or bands) to determine how much is low-frequency noise, how much is middle-frequency noise, and how much is high-frequency noise. This breakdown is important for two reasons:

- Our ear is better equipped to hear mid and high frequencies and is less sensitive to lower frequencies. Thus, we find mid- and high-frequency noise more annoying.
- Engineering solutions to a noise problem are different for different frequency ranges. Low-frequency noise is generally harder to control.

The normal frequency range of hearing for most people extends from a low of about 20 Hz to a high of about 10,000 to 15,000 Hz. People respond to sound most readily when the predominant frequency is in the range of normal conversation, typically around 1,000 to 2,000 Hz. The acoustical community has defined several “filters,” which approximate this sensitivity of our ear and thus, help us to judge the relative loudness of various sounds made up of many different frequencies.

The "A" filter (or “A weighting”) does this best for most environmental noise sources. A-weighted sound levels are measured in decibels, just like unweighted. To avoid ambiguity, A-weighted sound levels should be identified as such (e.g. "an A-weighted sound level of 85 dB") or stated up front that all noise levels presented in this document are A-weighted unless otherwise specified (as in this study).

Government agencies in the U.S (and most governments worldwide) recommend or require the use of A-weighted sound levels for measuring, modeling, describing, and assessing aircraft sound levels (and sound levels from most other transportation and environmental sources).

Figure A-1 depicts A-weighting adjustments to sound from approximately 20 Hz to 10,000 Hz.

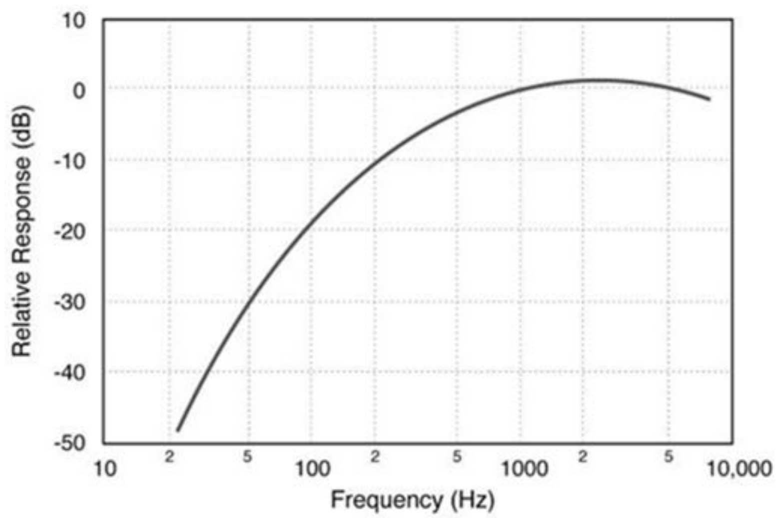

Figure A-1. A-Weighting Frequency Response

Source: HMMH

The A-weighted filter significantly de-emphasizes those parts of the total noise at lower and higher frequencies (below about 500 Hz and above about 10,000 Hz) where we do not hear as well. The filter has very little effect, or is nearly "flat", in the middle range of frequencies between 500 and 10,000 Hz where we hear quite easily. Because this filter generally matches our ears' sensitivity, sounds having higher A-weighted sound levels are usually judged to be louder than those with lower A-weighted sound levels. It is for this reason that acousticians normally use A-weighted sound levels to evaluate environmental noise sources.

Figure A-2 depicts representative sound levels for a variety of common sounds.

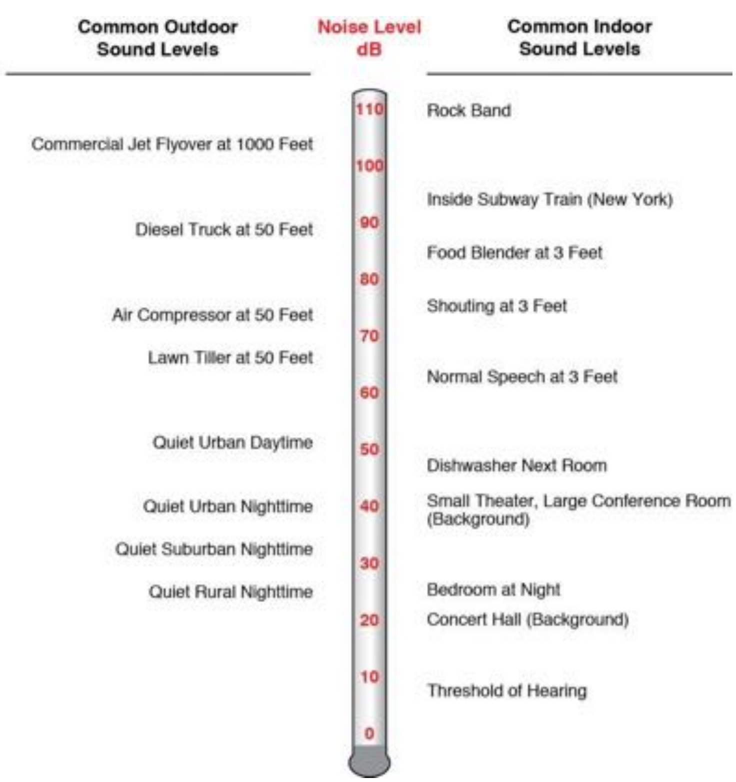

Figure A-2. Representative Sound Levels

Source: HMMH

A.1.3 Maximum sound level, Lmax

An additional dimension to environmental noise is that noise levels vary with time. For example, the sound level increases as an aircraft approaches, then falls and blends into the background as the aircraft recedes into the distance (though even the background varies as birds chirp, the wind blows, or a vehicle passes by). This is illustrated in Figure A-3.

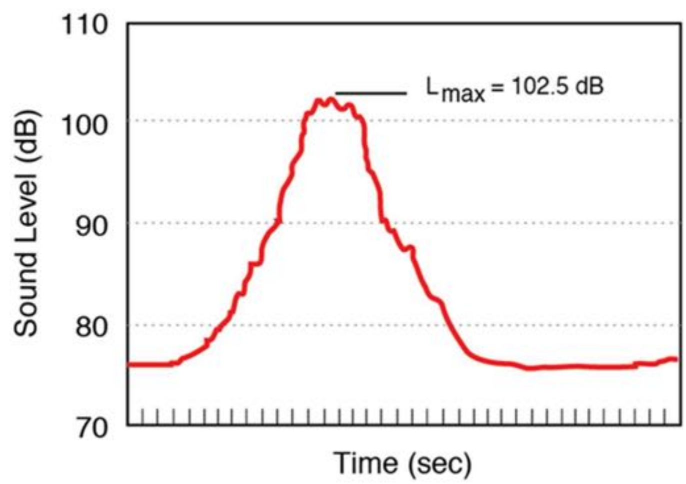

Figure A-3. Variation in the Sound Level over Time

Source: HMMH

Because of this variation, it is often convenient to describe a particular noise "event" by its maximum sound level, abbreviated as Lmax. In Figure A-3 the Lmax is approximately 102.5 dB.

While the maximum level is easy to understand, it suffers from a serious drawback when used to describe the relative “noisiness” of an event such as an aircraft flyover; i.e., it describes only one dimension of the event and provides no information on the event’s overall, or cumulative, noise exposure. In fact, two events with identical maximum levels may produce very different total exposures. One may be of very short duration, while the other may continue for an extended period and be judged much more annoying. The next sections introduce two closely related measures that account for this concept of a noise "dose," or the cumulative exposure associated with an individual “noise event” such as an aircraft flyover.

A.1.4 Sound exposure level, SEL

The most commonly used measure of cumulative noise exposure for an individual noise event, such as an aircraft flyover, is the Sound Exposure Level, or SEL. SEL is a summation of the sound energy over the entire duration of a noise event. SEL expresses the accumulated energy in terms of the one-second-long steady-state sound level that would contain the same amount of energy as the actual time-varying level. In simple terms, SEL “compresses” the energy into a single second.

Figure A-4 depicts this compression.

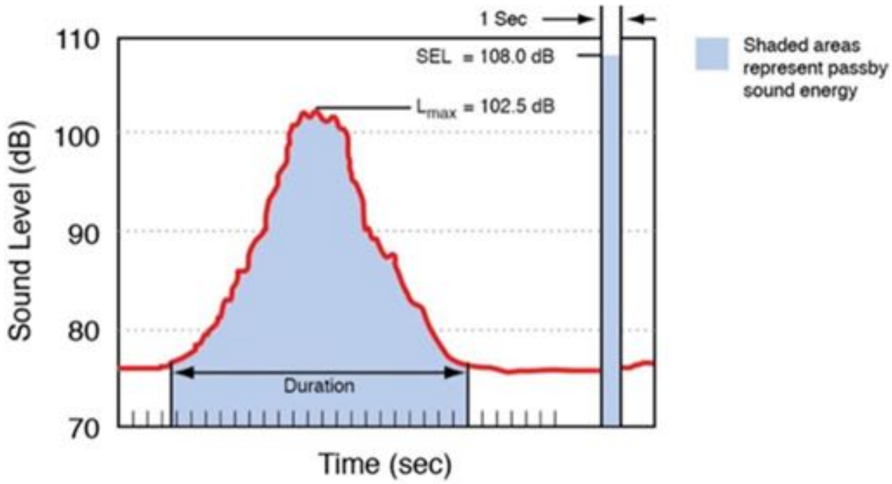

Figure A-4. Graphical Depiction of Sound Exposure Level

Source: HMMH

Note that because SEL is normalized to one second, it almost always will be a higher value than the event's Lmax. In fact, for most aircraft flyovers, SEL is on the order of 5 to 12 dB higher than Lmax.

A.1.5 Equivalent sound level, Leq

The Equivalent Sound Level, abbreviated Leq, is a measure of the exposure resulting from the accumulation of sound levels over a particular period of interest; e.g., an hour, an eight-hour school day, nighttime, or a full 24-hour day. The applicable period should always be identified or clearly understood when discussing the metric.

Leq may be thought of as a constant sound level over the period of interest that contains as much sound energy as the actual varying level. It is a way of assigning a single number to a time-varying sound level. This is illustrated in Figure A-5.

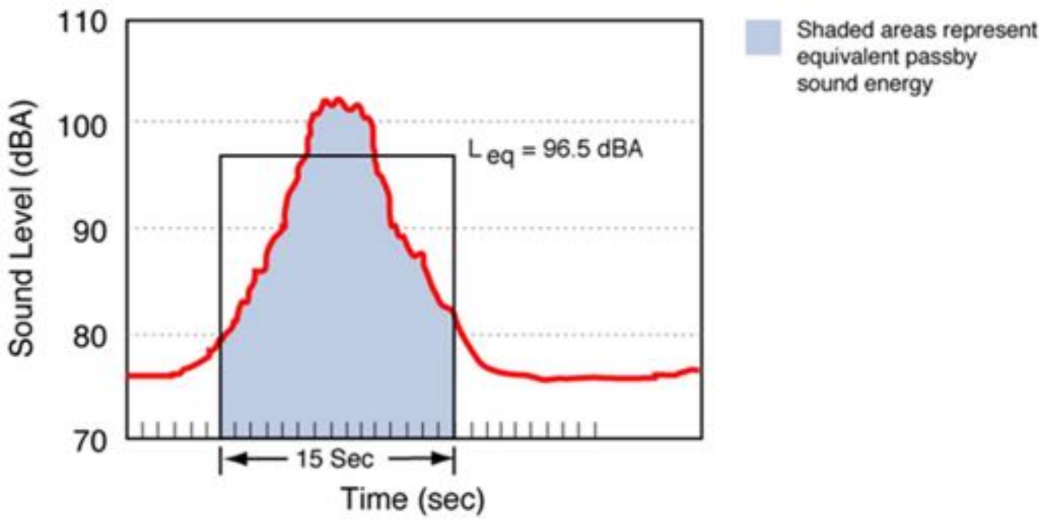

Figure A-5. Example of a One-Minute Equivalent Sound Level

Source: HMMH

In airport noise applications, Leq is often presented for consecutive one-hour periods to illustrate how the hourly noise dose rises and falls throughout a 24-hour period as well as how certain hours may be significantly affected by only a few loud aircraft.

A.1.6 Day-night average sound level, DNL

The previous sections address noise measures that account for short term fluctuations in levels as sound sources come and go affecting the overall noise environment. The FAA requires that airports use a more complex measure of noise exposure than either a single, peak event metric (Lmax) or a single event total energy metric (SEL or SENEL). Therefore, the Day-Night Average Sound Level (DNL or Ldn) was developed to represent a 24-hour noise dose. DNL is essentially equal to the 24-hour Leq, with one important adjustment: noise occurring at night – from 10 pm through 7 am – is "factored up." The factoring up can be made in one of two ways:

- Weighting, by counting each nighttime noise contribution 10 times; e.g., if DNL is calculated by summing the SEL of aircraft operations over a 24-hour period, each nighttime operation is represented by 10 identical daytime operations.
- Penalizing, by adding 10 dB to all nighttime noise contributions; e.g., if DNL is calculated from the SEL of aircraft operations occurring over a 24-hour period, 10 dB are added to the SEL values for nighttime operations.

The 10 dB adjustment accounts for our greater sensitivity to nighttime noise and the fact lower ambient levels at night tend to make noise events, such as aircraft flyovers, more intrusive.

Figure A-6 depicts this adjustment graphically

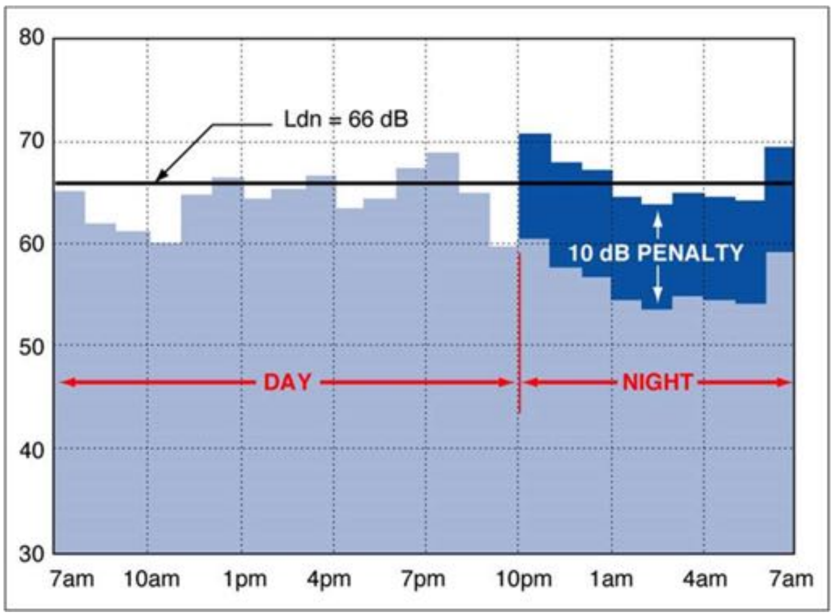

Figure A-6. Example of a One-Minute Equivalent Sound Level

Source: HMMH

Most aircraft noise studies use computer-generated estimates of DNL, determined by adding up the energy from the SELs for each event, with the 10 dB adjustment applied to night operations. Computed values of DNL are often depicted as noise contours reflecting lines of equal exposure around an airport (much as topographic maps indicate contours of equal elevation). The contours usually reflect long-term (annual average) operating conditions, taking into account the average flights per day, how often each runway is used throughout the year, and where over the surrounding communities aircraft normally fly. Alternative time frames may also be helpful in understanding shorter term aspects of a noise environment.

Why is DNL used to describe noise around airports? The U.S. Environmental Protection Agency identified DNL as the most appropriate measure of evaluating airport noise based on the following considerations:

- The measure should be applicable to the evaluation of pervasive long-term noise in various defined areas and under various conditions over long periods of time.

- The measure should correlate well with known effects of the noise environment on the individual and the public.
- The measure should be simple, practical, and accurate. In principle, it should be useful for planning as well as for enforcement or monitoring purposes.
- The required measurement equipment, with standard characteristics, should be commercially available.
- The measure should be closely related to existing methods currently in use.
- The single measure of noise at a given location should be predictable, within an acceptable tolerance, from knowledge of the physical events producing the noise.
- The measure should lend itself to small, simple monitors which can be left unattended in public areas for long periods of time.

Representative values of DNL range from a low of 40 to 45 dB in extremely quiet, isolated locations, to highs of 80 or 85 dB immediately adjacent to a busy truck route. DNL would typically be in the range of 50 to 55 dB in a quiet residential community and 60 to 65 dB in an urban residential neighborhood.

Figure A-7 presents representative outdoor DNL values measured at various U.S. locations.

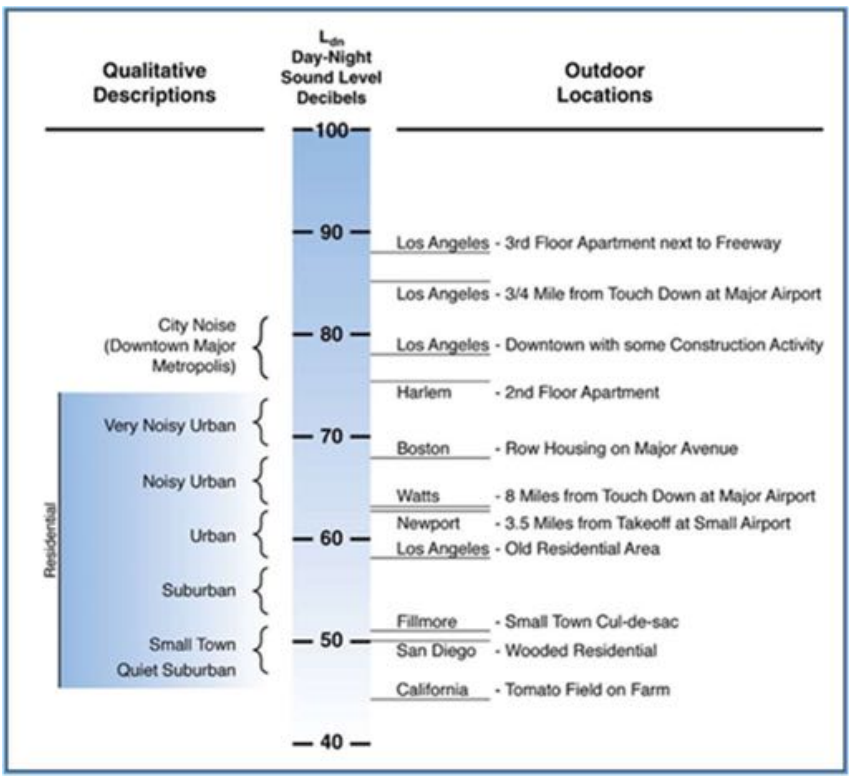

Figure A-7. Example of a One-Minute Equivalent Sound Level

Source: EPA, 1974. Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety. https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=2000L3LN.txt

Most public agencies dealing with noise exposure, including the Federal Aviation Administration (FAA), Department of Defense, and Department of Housing and Urban Development (HUD), have adopted DNL in their guidelines and regulations. As noted in the following section, the state of California requires the use of a variant of DNL for use in airport noise assessments.

A.1.7 Community noise equivalent level, CNEL

California Division of Aeronautics noise standards regulations require use of a slight variation of DNL to express cumulative noise exposure over any number of days – the Community Noise Equivalent Level (CNEL). CNEL differs from DNL in one way: It adds an "evening" (7 pm – 10 pm) period during which noise events are weighted by a factor of three, which is mathematically equivalent to adding approximately a 4.77 dB penalty.

Figure A-8 depicts this adjustment graphically.

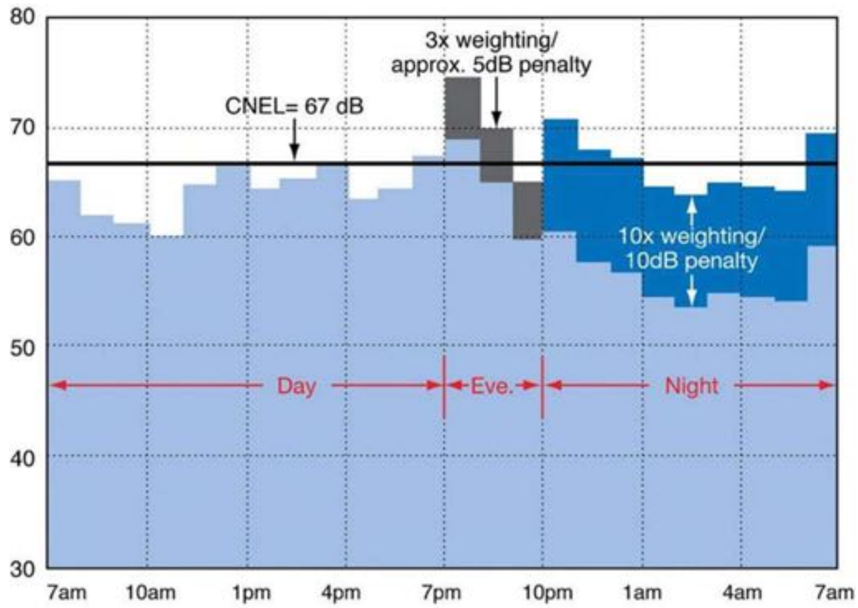

Figure A-8. Example of a Community Noise Equivalent Level Calculation

Source: HMMH

Unless noise exposure is calculated for an unlikely situation where there is no noise-producing activity during the evening period (an unlikely situation) CNEL will always be greater than DNL. However, from a practical standpoint this difference is rarely more than one decibel. For this reason, the DNL values shown in Figure A-7 are reasonably representative of CNEL values for the same environments.

A.2 Effects of Weather on Outdoor Sound Propagation

Atmospheric effects that can influence the propagation of sound include (in roughly increasing order of importance) humidity and precipitation, temperature and wind gradients, and turbulence (or gustiness). The effects of wind, and in particular, of turbulence, generally are of more importance than other factors, however, the importance of temperature gradients is enhanced under calm wind conditions, and, under unusual conditions, can be extreme. Attenuation caused by humidity is generally of small relative importance to the other effects.

Influence of Humidity and Precipitation

In general, humidity and precipitation have little effect on the propagation of sound. Attenuation due to humidity only becomes important with high-frequency noise under fairly calm wind conditions. Rain, snow, and fog also have little, if any noticeable effect on sound propagation. A substantial body of empirical data supports these conclusions[31].

[31]Ingard, Uno. "A Review of the Influence of Meteorological conditions on Sound Propagation," *Journal of the Acoustical Society of America*, Vol. 25, No. 3, May 1953, p. 407.

Influence of Temperature

The velocity of sound in the atmosphere is dependent upon the air temperature[32], and if the temperature varies at different heights above the ground, the sound will travel in curved paths rather than straight lines. Normally, during the daytime, the temperature decreases with increasing height; this condition, characterized by a negative temperature gradient, is known as temperature lapse. In temperature lapse conditions, sound waves are refracted upwards and an acoustical shadow zone may exist at some distance from the noise source.

Under certain weather conditions, a layer of cool air may be trapped beneath a layer of warmer air. This condition, known as a temperature inversion, is prevalent throughout many regions in the evening, at night, and early in the morning when heat absorbed by the ground during the day is released into the night sky through radiation[33]. The effect of an inversion is just the opposite of lapse conditions; sound propagating through the atmosphere refracts downward. Under inversion conditions, no shadow zones can be formed, and, barring effects due to terrain or other obstructions, sound levels at observer locations are not affected.

Often, however, the downward refraction caused by temperature inversions allows sound rays with originally upward-sloping paths to bypass obstructions and ground effects. As a result, audibility of distant sounds is often somewhat better at night (during the most common time for temperature inversions) than in the daytime[34]. Under extreme conditions, one study found that noise from ground-borne aircraft may be amplified 15 to 20 dB by a temperature inversion. In a similar study, noise caused by an aircraft on the ground registered a higher level at an observer location 1.8 miles away than at a second observer location only 0.2 miles from the aircraft[35].

Influence of Wind

Just as there is a temperature gradient in the atmosphere, there is also a wind gradient; typically, higher wind speeds exist at greater heights above the ground. The wind gradient affects sound propagation similarly to the temperature gradient by causing upward or downward refraction of sound. Because temperature is a scalar quantity (i.e., described by magnitude alone with no regard for direction), the refraction of sound caused by variations in the vertical gradient is the same in all horizontal (compass) directions[36]. Wind, on the other hand, is a vector quantity (described by both magnitude and direction) and affects sound propagation differently in various directions. Wind results in downward refraction downwind and upward refraction upwind with a shadow zone formed in the upwind direction. Receivers in a predominately downwind direction will experience higher sound levels, and those upwind will experience lower sound levels. Sound propagating perpendicular to the wind direction will not be affected.

The refraction caused by vertical gradients of wind is additive to the refraction due to temperature gradients[37]. One study suggests that for frequencies greater than 500 Hz, the combined effects of these gradients tends towards two extreme values: approximately 0 dB in conditions of downward refraction (inversion or downwind propagation) and -20 dB in upward refraction conditions (lapse or upwind propagation). At lower frequencies, the effects of refraction due to wind and temperature gradients are less pronounced[38].

The preceding discussion of the influence of wind is somewhat idealized due to the assumption of laminar conditions (i.e., the assumption of no turbulence). In reality, a wind is generally "gusty," and sound levels heard at

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[32]In dry air, the approximate velocity of sound can be obtained from the relationship:
$c = 331 + 0.6T_c$ (c in meters per second, T_c in degrees Celsius). Pierce, Allan D., *Acoustics: An Introduction to its Physical Principles and Applications.* McGraw-Hill. 1981. p. 29.
[33]Embleton, T.F.W., G.J. Thiessen, and J.E. Piercy, "Propagation in an inversion and reflections at the ground," *Journal of the Acoustical Society of America*, Vol. 59, No. 2, February 1976, p. 278.
[34]Ingard, p. 407.
[35]Dickinson, P.J., "Temperature Inversion Effects on Aircraft Noise Propagation," (Letters to the Editor) *Journal of Sound and Vibration.* Vol. 47, No. 3, 1976, p. 442.
[36]Piercy, J.E. and T.F.W. Embleton, "Review of noise propagation in the atmosphere," *Journal of the Acoustical Society of America*, Vol. 61, No. 6, June 1977, p. 141.
[37]Piercy and Embleton, p. 1412. Note, in addition, that as a result of the scalar nature of temperature and the vector nature of wind, the following is true: under lapse conditions, the refractive effects of wind and temperature add in the upwind direction and cancel each other in the downwind direction. Under inversion conditions, the opposite is true.
[38]Piercy and Embleton, p. 1413.

remote receiver locations will fluctuate with gustiness. In addition, gustiness can cause considerable attenuation of sound through the effects of eddies traveling with the wind. The attenuation due to eddies is essentially the same in all directions, with or against the flow of the wind, and can often mask the refractive effects discussed above[39].

A.3 Effects of Aircraft Noise on People

To residents around airports, aircraft noise can be an annoyance and a nuisance. It can interfere with conversation and listening to television, it can disrupt classroom activities in schools, and it can disrupt sleep. Relating these effects to specific noise metrics helps in the understanding of how and why people react to their noise environment.

A.3.1 Speech interference

A primary effect of aircraft noise is its tendency to drown out or "mask" speech, making it difficult to carry on a normal conversation. The sound level of speech decreases as the distance between a talker and listener increases. As the background sound level increases, it becomes harder to hear speech. Figure A-9 presents typical distances between talker and listener for satisfactory outdoor conversations, in the presence of different steady A-weighted background noise levels for raised, normal, and relaxed voice effort. As the background level increases, the talker must raise his/her voice, or the individuals must get closer together to continue talking.

As indicated in the figure, "satisfactory conversation" does not always require hearing every word; 95% intelligibility is acceptable for many conversations. Listeners can infer a few unheard words when they occur in a familiar context. However, in relaxed conversation, we have higher expectations of hearing speech and generally require closer to 100% intelligibility. Any combination of talker-listener distances and background noise that falls below the bottom line in Figure A-9 (thus assuring 100% intelligibility) represents an ideal environment for outdoor speech communication and is considered necessary for acceptable indoor conversation as well.

One implication of the relationships in Figure A-9 is that for typical communication distances of 3 or 4 feet (1 to 1.5 meters), acceptable outdoor conversations can be carried on in a normal voice as long as the background noise outdoors is less than about 65 dB. If the noise exceeds this level, as might occur when an aircraft passes overhead, intelligibility would be lost unless vocal effort increased or communication distance decreased.

Indoors, typical distances, voice levels, and intelligibility expectations generally require a background level less than 45 dB. With windows partly open, housing generally provides about 10 to 15 dB of interior-to-exterior noise level reduction. Thus, if the outdoor sound level is 60 dB or less, there is a reasonable chance that the resulting indoor sound level will afford acceptable conversation inside. With windows closed, 25 dB of attenuation is typical.

[39] Ingard, pp. 409-410.

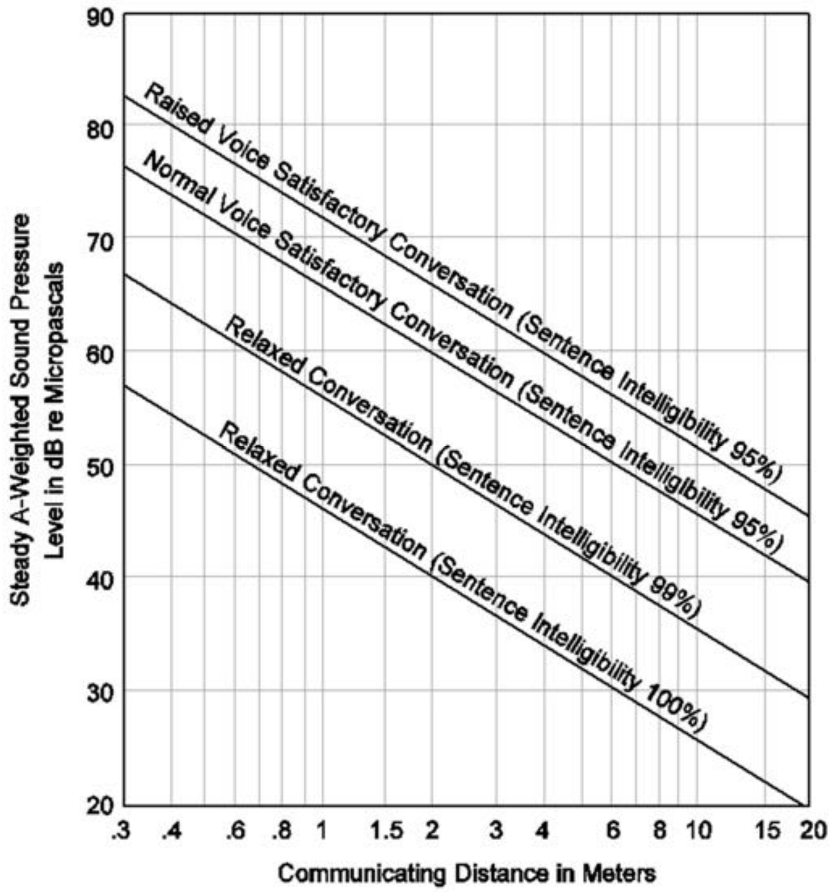


Figure A-9. Outdoor Speech Intelligibility

Source: United States Environmental Protection Agency, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974, p. D-5

A.3.2 Sleep interference

Research on sleep disruption from noise has led to widely varying observations. In part, this is because (1) sleep can be disturbed without awakening, (2) the deeper the sleep the more noise it takes to cause arousal, (3) the tendency to awaken increases with age, and other factors.

Figure A-10 shows a summary of findings on the topic.

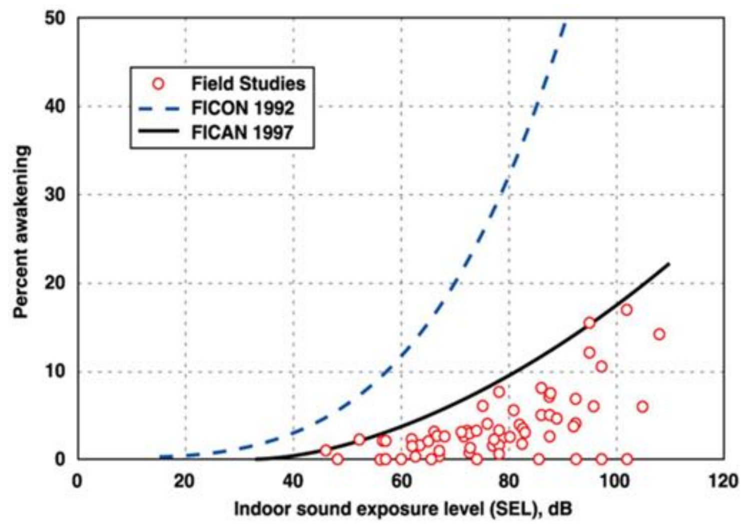


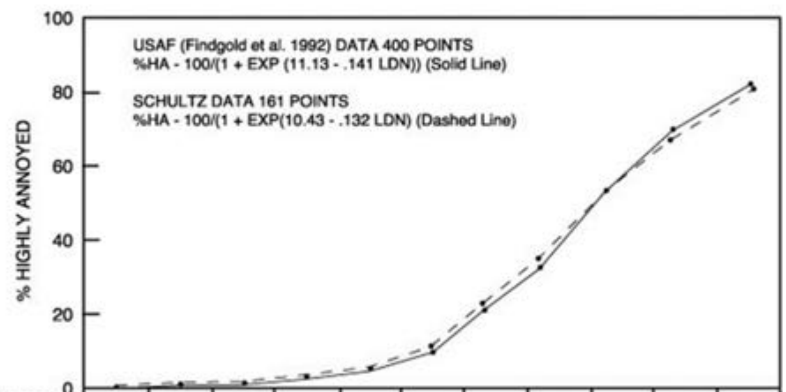
Figure A-10. Recommended Sleep Disturbance Dose-Response Relationship

Source: Federal Interagency Committee on Aviation Noise (FICAN), "Effects of Aviation Noise on Awakenings from Sleep", June 1997, page 5

Figure A-10 uses indoor SEL or SENEL as the measure of noise exposure; recent work supports the use of this metric in assessing sleep disruption. However, awakening data presented in the form of Figure A-10 apply to only one noise event; it says nothing about what happens with a full night of noise events of different levels. The American National Standards Institute (ANSI) has published a standard that provides a method for estimating the number of people awakened at least once from a full night of noise events: ANSI/ASA S12.9-2008 / Part 6, "Quantities and Procedures for Description and Measurement of Environmental Sound – Part 6: Methods for Estimation of Awakenings Associated with Outdoor Noise Events Heard in Homes." This method can use the information on single events computed by a program such as the FAA's Integrated Noise Model, to compute awakenings.

A.4 Community Annoyance

Numerous psychoacoustic surveys provide substantial evidence that individual reactions to noise vary widely for a given noise exposure level. However, since the early 1970's, researchers have determined (and subsequently confirmed) that a community's aggregate response is generally predictable and relates reasonably well to measures of cumulative noise exposure such as DNL. Figure A-11 shows the widely recognized relationship between environmental noise and the percentage of people "highly annoyed," with annoyance being the key indicator of community response usually cited in this body of research.



Day - Night Average Sound Level in dB		40	45	50	55	60	65	70	75	80	85	100
Calculated %HA Points	USAF	0.41	0.831	1.66	3.31	6.48	12.29	22.1	36.47	53.74	70.16	82.64
	SCHULTZ	0.576	1.11	2.12	4.03	7.52	13.59	23.32	37.05	53.25	68.78	81

Figure A-11. Percentage of People Highly Annoyed

Source: Federal Interagency Committee on Noise, Vol. 2, Technical Report. "Federal Agency Review of Selected Airport Noise Analysis Issues". August 1992. (From data provided by USAF Armstrong Laboratory). pp. 3-6

Based on data from 18 surveys conducted worldwide, the curve indicates that at levels as low as DNL 55 dB, something on the order of 3 to 4 percent of the persons would be highly annoyed, whereas this percentage of persons annoyed increases more rapidly as exposure increases above DNL 65 dB.

Separate work by the EPA has shown that overall community reaction to a noise environment is also dependent on DNL. This relationship is shown in Figure A-12. Levels have been normalized to the same set of exposure conditions to permit valid comparisons between ambient noise environments. Data summarized in Figure A-12 suggest that little reaction would be expected for intrusive noise levels five decibels below the ambient, while widespread complaints can be expected as intruding noise exceeds background levels by about five decibels. Vigorous action is likely when the background is exceeded by 20 dB.

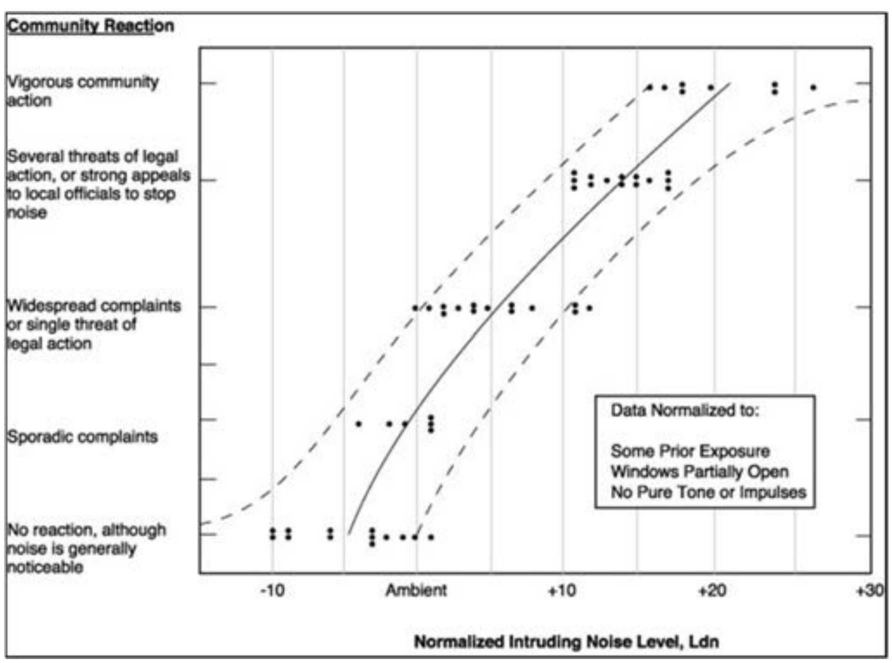


Figure A-12. Community Reaction as a Function of Normalized Outdoor DNL

Source: U.S. EPA, "Community Noise," NTID300.3, December 1971, derived from Figure 25, page 63.

A.5 Land Use Compatibility

The Federal Aviation Administration Part 150 Airport Noise Compatibility Planning guidelines provide the following:

- A basis for comparing existing noise conditions to the effects of noise abatement procedures and/or forecast changes in airport activity.
- A quantitative basis for identifying potential noise impacts.

Both of these functions require the application of objective criteria for evaluating noise impacts. 14 CFR Part 150 provides the FAA's recommended guidelines for noise-land use compatibility evaluation. Table A-1 reproduces the FAA guidelines.

These guidelines represent a compilation of the results of extensive scientific research into noise-related activity interference and attitudinal response. However, reviewers should recognize the highly subjective nature of response to noise, and that special circumstances can affect individuals' tolerance. For example, a high non-aircraft background noise level can reduce the significance of aircraft noise, such as in areas constantly exposed to relatively high levels of traffic noise. Alternatively, residents of areas with unusually low background levels may find relatively low levels of aircraft noise annoying.

Response may also be affected by expectation and experience. People may get used to a level of exposure that guidelines indicate may be unacceptable, and changes in exposure may generate response that is far greater than that which the guidelines might suggest.

The cumulative nature of DNL means that the same level of noise exposure can be achieved in an essentially infinite number of ways. For example, a reduction in a small number of relatively noisy operations may be counterbalanced by a much greater increase in the number of relatively quiet flights, with no net change in DNL. Residents of the area may be highly annoyed by the increased frequency of operations, despite the seeming maintenance of the noise status quo.

With these cautions in mind, the Part 150 guidelines can be applied to the DNL contours to identify the potential types, degrees and locations of incompatibility. Measurement of the land areas involved can provide a quantitative measure of impact that allows a comparison of at least the gross effects of existing or forecast operations.

14 CFR Part 150 guidelines indicate that all land uses normally are compatible with aircraft noise at exposure levels below 65 DNL. This limit is supported in a formal way by standards adopted by the U. S. Department of Housing and Urban Development (HUD). The HUD standards address whether sites are eligible for Federal funding support. These standards, set forth in Part 51 of the Code of Federal Regulations, define areas with DNL exposure not exceeding 65 dB as acceptable for funding. Areas exposed to noise levels between DNL 65 and 75 are "normally unacceptable," and require special abatement measures and review. Those at 75 and above are "unacceptable" except under very limited circumstances.

14 CFR Part 150 permits airports and local land use control jurisdictions to adopt land use compatibility criteria that differ from the guidelines reproduced in Table A-1.

Table A-1. 14 CFR Part 150 Noise/Land Use Compatibility Guidelines

Source:14 CFR Part 150, Appendix A, Table 1

	Yearly Day-Night Average Sound Level, DNL (or Community Noise Equivalent Level, CNEL), in Decibels (Key and notes on following page)					
Land Use	**<65**	**65-70**	**70-75**	**75-80**	**80-85**	**>85**
Residential Use						
Residential other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home park	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail--building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade--general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Key to Table A-1

- SLUCM: Standard Land Use Coding Manual.
- Y (Yes): Land use and related structures compatible without restrictions.
- N (No): Land use and related structures are not compatible and should be prohibited.
- NLR: Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

- 25, 30, or 35: Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

Notes for Table A-1

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.

- Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often started as 5, 10, or 15 dB 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.
- Measures to achieve NLR of 25 dB 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.
- Measures to achieve NLR of 30 dB 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.
- Measures to achieve NLR of 35 dB 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.
- Land use compatible provided special sound reinforcement systems are installed.
- Residential buildings require an NLR of 25.
- Residential buildings require an NLR of 30
- Residential buildings not permitted

Appendix B FAA Record of Approval for 1988 Noise Compatibility Program

FEDERAL AVIATION ADMINISTRATION

RECORD OF APPROVAL

FAR PART 150 NOISE COMPATIBILITY PROGRAM

Fresno Air Terminal

Fresno, California

		CONCUR	NONCONCUR
[illegible signature] Assistant Administrator for Policy and International Aviation, API-1	9/10/90 Date	✓	
Gregory S. Walden Chief Counsel, AGC-1	Sept 14, 1990 Date	✓	
[illegible signature] Assistant Administrator for Airports, ARP-1	Sept 14/90 Date	✓ Approved	Disapproved

SEP 24 '90 14:28 FROM AIRPORTS-DIVISION PAGE.002

RECORD OF APPROVAL
FRESNO AIR TERMINAL
NOISE COMPATIBILITY PROGRAM

Introduction

The Fresno Air Terminal (FAT) Noise Compatibility Program (NCP) describes the current and future noncompatible land uses based upon the parameters as established in FAR Part 150, Airport Noise Compatibility Planning. The Noise Compatibility Program recommends 44 elements to remedy existing noise problems and prevent future noncompatibilities. These elements are presented in a nine-page fold out chart. Table III-2, *Far Part 150 NCP FAT (Matrix)*, on page III-24. Table III-2 organizes the elements into six (6) categories:

I Aircraft Operations
II Airport Operations
III Airspace Use
IV Airport Facilities
V Land Use
VI Program Management

Each action is identified below by plan category with page reference given for location in the NCP. Note that certain program elements, which are not discussed in the narrative portion of the NCP but are presented in Table III-2, are referenced to that table.

The recommended elements listed below summarize as closely as possible the airport operator's recommendations in the Noise Compatibility Program and are cross-referenced to the program. Any statements contained within the summarized recommendations and before the indicated FAA approval, disapproval, or other determination, do not represent the opinions or decisions of the FAA.

The approvals listed include approvals of actions that the airport recommends be taken by the Federal Aviation Administration. It should be noted that these approvals indicate only that the actions would, if implemented, be consistent with the purposes of Part 150. These approvals do not constitute decisions to implement the actions. Later decisions concerning possible implementation of these actions may be subject to applicable environmental or other procedures or requirements.

Noise Compatibility Program Elements

I Aircraft Operations

1. Service Level

A. Implementation of the Airport Master Plan (NCP, pages III-4, -5, -16, -33,-35, -43, and Table III-2).

Page 1 of 10

Disapproved pending submission of sufficient information to permit an informed analysis. This recommendation would freeze the noise contours around the airport based on a projected 1991 operational level and assumptions of 60 percent Stage 3 operations by certificated air carriers and the replacement of California Air National Guard (CANG) F-4 aircraft with quieter F-16's. The NCP does not provide a reasoned analysis supporting the need to freeze the noise contours as opposed to other non-restrictive noise compatibility techniques, the criteria for selecting the forecast 1991 operational level, or the burden on commerce of selecting this level as demand rises or if assumptions regarding transition to quieter aircraft are not fulfilled. The achievement of the desired service level contours (Scenario 6 in the NCP) relies heavily on both a 60 percent transition to Stage 3 by the commercial service operators and to the F-16's by the military. The FAA is unable to clearly distinguish in the documentation the respective Stage 3 and F-16 contributions to the Scenario 6 contours (e.g., Chart II-21 and page III-35 discussion of impact reductions due to introduction of F-16's not consistent) or to judge the reasonableness of the assumptions regarding the established targets in Scenario 6 for each of them. Part of the additional analysis should include comparisons in future years, using reasonable forecast and fleet mix assumptions, of unrestricted noise contours to the restricted contours in Scenario 6. The airport operator should also clarify what happens if and when the fixed contours are reached.

2. Military Operations

A. Hours of Operation (NCP, page III-34)

Approved per the existing agreement between the City of Fresno and the California Air National Guard (CANG) (NCP, Appendix A.3).

B. Power Management (NCP, Appendix A.3.)

Approved. This element would continue the existing procedure, a provision of the March 31, 1987, agreement between CANG and the City of Fresno.

C. F-16 to replace F-4 (NCP, Page III-40)

Approved as a voluntary measure. The City of Fresno desires to encourage conversion by the CANG to F-16 aircraft at the earliest possible date and develop noise abatement measures. Implementation of this measure depends on actions by the CANG.

3. Noise Levels (NCP, Pages III-35, -36, -39, -40, Table III-2)

A. Single event noise level standard (NCP, page III-39). The City of Fresno adopt single event standards for departures which would conform to the FAR Part 36 takeoff reference location: 6,500 meters (21,327 feet) from brake release. The basis would be L_{max} standards, the maximum A-weighted level determined by using the slow meter response of a sound level meter compared to the standards. The recommended standards are 95 dBA from 0600 to 2400 hours and 85 dBA from 0000 to 0600 hours, except for emergencies and unavoidable delays. Military aircraft would be exempt. Although this measure would not restrict the aircraft types presently in service at FAT between 0600 and 2400 hours, it would require the quieter aircraft types (primarily those meeting FAR Part 36 Stage 3 standards) be used between 0000 and 0600 hours.

Disapproved pending submission of sufficient information to make an informed analysis. The chosen noise levels were apparently selected in order to maintain the 65 CNEL contour at the frozen level recommended in NCP measure No. 1 (NCP, page III-40). There is presently insufficient analysis to support NCP measure No. 1, as previously stated, and insufficient analysis provided for the FAA's review in the NCP relating the single-event levels selected to the maintenance of NCP measure No. 1. If the daytime level would affect no current or anticipated air carrier users of the airport, then presumably the nighttime limit would be the controlling factor. The NCP includes no analysis of the noise benefits versus the burden on commerce of the nighttime level. In attempting to analyze this proposed measure on its own merits, FAA could find no analysis supporting the use of a single-event noise standard. Also, it was not possible to determine how the noise reduction benefits described on page III-36 relate to the reduction of the 65 CNEL in Scenario 6 based on other figures contained in the chart on page II-21.

B. Use Minimum Reverse Thrust (NCP, III-36, -40, Table III-2).

Approved. This measure is noted as "Standard procedures commensurate with safety" expected "to lower single event noise in nearby noise sensitive areas."

C. Use of Quieter Fire Suppression Aircraft (NCP, pages II-36, -40).

Approved as a voluntary measure. The City of Fresno desires to support efforts by the United States Forest Service (USFS) and the State of California to obtain quieter aircraft for fire suppression activities.

4. Helicopters

A. Restrict military helicopter training operations to 0700 -1700 (NCP, page III-41, Table III-2).

Disapproved pending submission of sufficient information to permit an informed analysis. There is no analysis in the NCP of the current nighttime noise problem caused by military helicopter training or of the noise benefits of such a restriction. Neither is there information regarding the Army Air Guard's ability to accommodate such a restriction. FAA has no objection to any voluntary agreements that may be worked out between the airport and the Army Air Guard.

B. Modify existing VFR routes to avoid helicopter overflight of noise-sensitive areas, except in the case of law enforcement activities and medical emergencies (NCP, Pages III-36, -41).

Approved as a voluntary measure. The contribution of helicopter traffic to noncompatible land use is not discussed; however, it is recognized that the potential for resolving community annoyance issues through continuing efforts in advising users of preferred routing could have some value in a comprehensive noise abatement plan. Implementation depends upon voluntary agreement of the Army Air Guard.

C. Southeast departures (NCP, Table III-2).

Disapproved. No definitive contribution to the NCP has been demonstrated, although a cooperative agreement between military helicopter operators (U.S. Army, National Guard) and the City of Fresno presently in force could assist in lessening helicopter noise over certain sensitive areas. An analysis by AWP-500 advises that the safe, efficient use of available airspace could be compromised.

5. Training/Aircraft Certification

A. CANG Flight Training Activity (NCP, Table III-2, Appendix A.3). An existing agreement with the California Air National Guard (CANG) limits the type of operations conducted at FAT. The CANG must conduct only that training necessary to maintain pilot proficiency. All transition training and operational flying exercises are to be conducted away from FAT.

Approved as a voluntary measure.

B. Military Helicopter Training (NCP, Page III-41, Appendices A.2. and A.3.).

Approved. This element intends to minimize military training activities in the area around the airport, restricting local helicopter training to an "Alpha" pattern. The measure depends upon a successful negotiation with the specific user.

C. Civilian Training/Aircraft Certification (NCP, Pages III-34, -37, Appendices A.2. and A.4.).

Approved. An existing element that prohibits touch-and-go operations between 2200 and 0700 hours for aircraft over 12,500 pounds gross takeoff weight (GTOW) is included in an FAA 1986 Informal Runway Use Agreement (Appendix A.2.).

II Airport Operations

1. Runway Usage

A. Establish Preferential Use of Runway 11L for Departures (NCP, Page III-41).

Approved as a voluntary measure.

B. Control Intersection Departures Runway 29 (NCP, Tables III-2 and III-3, page III-37).

Approved as a voluntary measure. No multi-engine aircraft intersection departures would be allowed and no single engine departures allowed west of Taxiway "T" on Runways 29R and 29L. This measure could prove to be self-defeating if rigidly enforced or applied without concern for aircraft operating capability.

2. Engine Runups

A. Establish Maintenance Runup Areas in Least Noise Impacted Areas (NCP Pages III-37, -42, Table III-2, Appendix A.2.).

Approved.

III Airspace Use

1. Flight Paths

A. Military Departure Procedures (NCP, Page III-34).

Approved. California Air National Guard (CANG) departures are restricted to runway heading until they reach an altitude of 4,000 feet MSL on Runway 29R, safety permitting.

B. 1. Increase Minimum Altitudes Before Turns (NCP, Page III-14, -42).
Approved. Recommended minimum altitudes before turns off Runway 29 are:

a. 1,000 feet MSL for single and twin piston engine aircraft under 12,500 pounds GTOW;

b. 2,500 feet MSL for piston engine aircraft over 12,500 pounds GTOW and all turbine-powered aircraft (fire suppression aircraft exempt during emergencies).

2. Minimum Arrival Altitudes (Table III-2, Page III-34, Appendices A.2. and A.3.).

a. Civil and Military Jet Operations (NCP, Page III-34, Appendix A.2.).

Approved. This existing procedure requires arriving high-performance aircraft to maintain 1,700 feet MSL until abeam the outer marker and to maintain maximum altitude on approach to Runways 11R and 11L.

b. Military Jet Operations (NCP, Table III-2, Page III-34, Appendix A.3.).

Approved. This is an existing military procedure.

c. Helicopter Pattern (NCP, Page III-34, Appendix A.3.)

Approved as a voluntary measure. Existing procedure. Helicopters are presently required to maintain a local pattern altitude of 800 feet MSL.

IV Airport Facilities

1. NAVAIDS on Runways 11L and 11R (NCP, Table III-3, Page III-42)

A. Install an ILS on Runway 11L.

Disapproved for purposes of Part 150. The documentation does not make a case for installation of this NAVAID for noise compatibility purposes and, in fact, indicates that Runway 11 NAVAIDS are part of development proposed in the master plan. This disapproval is limited

to Part 150 and should in no way be construed as a determination on the potential benefits of this measure outside of the Part 150 process.

B. Install a Precision Approach Path Indicator on Runway 11R.

Disapproved for purposes of Part 150. The documentation does not make a case for installation of this NAVAID for noise compatibility purposes and, in fact, indicates that Runway 11 NAVAIDS are part of development proposed in the master plan. This disapproval is limited to Part 150 and should no way be construed as a determination on the potential benefits of this measure outside of the Part 150 process.

V Land Use

1. General Planning Guidelines

A. Establish Scenario 6 Noise Contour (NCP, Page III-43).

Disapproved pending submission of sufficient information to permit an informed analysis for the reasons stated under NCP Element I.1., above. The FAA's problem is with the analysis supporting "fixed" noise contours, not with the concept of focusing land use compatibility planning on projected noise contours.

2. Northwest Area

A. Area Northwest of FAT and Clovis Avenue (NCP Page III-43).

Approved. The NCP recommends that existing specific plans be amended to designate the parcels for compatible land uses.

B. Evaluate schools within the 65 CNEL or greater (NCP, Page III-44). The NCP proposes that FAT conduct a school soundproofing study for existing buildings. Schools which cannot be acoustically treated to reduce noise exposure to an acceptable level are to be converted to an alternative, compatible use and the educational use transferred to another location.

Approved.

C. Purchase/Purchase Assurance (NCP, Page III-44). The NCP proposes that land developed with noncompatible land uses within CNEL 70 or higher could be acquired by the airport or offered a purchase assurance program. In addition, land adjoining the CNEL 65 or higher (if developed with noncompatible land uses) could be eligible for the purchase assurance program, as appropriate, to avoid neighborhood discontinuities.

Approved. The description of the purchase assurance program is unclear. For the purchase assurance program, requirements of section 24.101(a)(1) of 49 CFR Part 24 must be met.

D. Neighborhood enhancement (NCP, Page III-45). Neighborhoods remaining under the purchase assurance program would be enhanced by means such as landscaping streets, berms on parkways, pedestrian/bicycle ways, developing cul-de-sac streets and partial lot extensions.

Disapproved for purposes of Part 150. The documentation does not indicate that there would be any notice benefit through neighborhood enhancement; this recommendation is not considered to be a noise mitigation measure under FAR Part 150. Disapproval under FAR Part 150 does not prevent any local jurisdiction from conducting neighborhood enhancement programs on its own.

E. Acoustical Treatment and Avigation Easement (NCP, Page III-45). A voluntary acoustical treatment program for dwellings that are not acquired within CNEL 65 would be coupled with the requirement that property owners grant an avigation easement to the airport in return for acoustical treatment.

Approved.

3. Southeast Area (NCP, Table III-2, Page III-46). The area southeast of FAT and Clovis Avenue is primarily in agricultural use and is compatible with the airport operations. The strategies proposed for this area provide for the continuation of this compatibility through land use zoning, conservation easements, and purchase if necessary. The area affected is shown in Figure III-4. This strategy would be implemented by the City by controlling the

location and capacity of the facilities and through controlling the types of uses that can access the facilities.

Approved with no qualifications with respect to zoning to continue the existing and projected compatible use. The approval of purchase of conservation easements or development rights under Part 150 is subject to a showing at the time of the airport operator's proposed action that such purchase is necessary to prevent a noncompatible conversion of the property.

VI Program Management

1. Performance

A. Increased Aircraft Noise Monitoring (NCP, Table III-2, Pages III-46, -47)

Approved. This element will assist in compliance with State of California Title 21 requirements (Noise Variance). This approval does not extend to enforcing "fixed" noise contours (NCP Recommendation I.1.).

B. Quarterly Airport Noise Report (NCP, Table III-2).

Approved. This publication will ensure improved information for airport users and the community.

C. Special Studies (NCP, Table III-2).

Approved as a voluntary measure. This element may yield some flexibility in noise monitoring at Fresno Air Terminal (FAT), but the process is as yet undefined. It appears to have been included to account for any new or unusual noise abatement problems discovered during the expanded noise monitoring program or due to changing conditions.

D. Complaint Record Summary (NCP, Page I-6, Table III-2).

Approved. This element requires the installation of a dedicated telephone line for the noise abatement officer and the recording of complaint data.

2. Enforcement. Approval of the following five subelements does not constitute FAA approval of any noise rules or regulations not specifically approved elsewhere in this Part 150 Record of Approval.

A. Prepare and Assemble Airport Noise Rules and Regulations (NCP, Table III-2).

Approved. This element of the NCP is intended to provide a comprehensive reference of all local noise regulations for concerned parties.

B. "Noise Page" (NCP, Table III-2).

Approved. A special noise page is to be prepared periodically for publication in an "appropriate publication" to provide expanded public access to the various issues effecting aircraft noise and noise abatement.

C. Lease Citation (NCP, Table III-2).

Approved as a voluntary measure. Fresno Air Terminal (FAT) intends to cite the noise abatement program in all property lease agreements with airport tenants in order to provide noise abatement information to all airport tenants in an official, comprehensive notification.

D. Runway and Building Signs (NCP, Table III-2).

Approved. FAT will provide signs at appropriate points to inform transient airport users of local noise abatement procedures.

E. Pilot Information Program (NCP, Table III-2)

Approved with respect to providing pilots with information on noise control procedures; disapproved with respect to intent to "establish corrective action" pending submission of additional information to make an informed analysis. The additional information should include what type of corrective actions are proposed and for what types of offenses.

3. Funding

A. Obtain Approval of NCP (NCP, Table III-2).

Approved. This element is included to establish local project funding eligibility and initiate local budgeting actions for the required supplemental participation in eligible federally funded projects.

B. Develop Noise Abatement Program with/without Federal Participation (NCP, Table III-2).

Approved. This element includes provisions to implement at least a minimum program undertaken solely with local funds.

C. User Fees (NCP, Table III-2 and Page III-47). This measure would include consideration for the costs associated with the Noise Compatibility Program in conjunction with all other costs when user fees are evaluated.

Disapproved pending submission of more specific information in order to assess the noise abatement fee proposal. Information should include what level of fees are proposed and how they will be applied among the users.

4. Consultation

A. Airport User/Community Information Program (NCP, Table III-2). This program is to provide information concerning the NCP implementation effectiveness as a regular facet of the airport noise abatement program.

Approved.

B. On-going Airport/Community Forum (NCP, Table III-2). This forum is to be organized by the Airports Director to provide a forum for reviewing the details of the noise management program and discussing any inconsistencies discovered.

Approved.

C. Periodic NCP Review and Update (NCP, Table III-2).
Approved. No specific details are disclosed as to the time or circumstances involved in determining the initiation of an update, however, it is assumed that the on-going public forum will dictate the process.

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Appendix C FAA Record of Approval for 2008 Noise Compatibility Program

U.S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

RECORD OF APPROVAL

14 CFR PART 150

NOISE COMPATIBILITY PROGRAM

FRESNO YOSEMITE INTERNATIONAL AIRPORT

FRESNO, CALIFORNIA

Regional Counsel, AWP-7	7/28/08 Date	CONCUR	NONCONCUR
Manager, Airports Division, AWP-600	7/28/08 Date	APPROVED	DISAPPROVED

Record of Approval
Fresno Yosemite International Airport
Noise Compatibility Program

INTRODUCTION

The Fresno Yosemite International Airport Noise Compatibility Program (NCP) describes the current and future noncompatible land uses based on the parameters as established in Title 14, Code of Federal Regulations, Part 150, *Airport Noise Compatibility Planning*. The noise compatibility program includes two recommended noise abatement measures, 14 land use measures, and nine program management elements. These measures are described in Chapters 5 and 6 (pages 91-139) and Tables 13, 14, and 15 of the NCP. FAA notes the City of Fresno includes a number of noise abatement measures that were approved in the previous Noise Compatibility Program, however, the City of Fresno is not seeking FAA approval for these measures.

The approvals listed herein include approval of actions that the airport recommends be taken by the Federal Aviation Administration (FAA). It should be noted that these approvals indicate only that the actions would, if implemented, be consistent with the purposes of Title 14 Code of Federal Regulations (CFR) Part 150. The approvals do not constitute decisions to implement the proposed actions or a commitment by the FAA to provide federal financial assistance for these actions. Later decisions concerning possible implementation of these actions may be subject to applicable environmental or other procedures or requirements. FAA is providing its approvals on only those measures the City of Fresno has identified in the NCP for which they are seeking FAA approval. This Record of Approval does not address existing measures, for which the City does not seek FAA approval.

The recommendations below summarize, as closely as possible, the airport operator's recommendations in the noise compatibility program and are cross-referenced to the program. The statements contained within the summarized recommendations and before the indicated FAA approval, disapproval or other determination do not represent the opinions or decisions of the FAA.

NOISE ABATEMENT MEASURES

1. NA-3 - Maintain CANG Noise Abatement Departure Track Procedures.

Description: Current departure procedures for California Air National Guard (CANG) aircraft on Runway 29 require the aircraft to maintain runway heading until reaching 10 miles out, safety permitting. This straight-out departure procedure provides for maximum climb while using minimum thrust in order to reduce the overall land area exposed to departure noise from CANG aircraft. As originally approved, this measure calls for the aircraft to climb straight-out when departing Runway 29R until clearing 4,000 feet MSL. The approved 4,000-foot altitude is predicated on the Fresno Class-C airspace configuration that has an upper limit of 4,400 feet. The straight out climb to 10,000 feet is specified for CANG fighters more familiar with local airspace and local air traffic control procedures. Transient military aircraft are to depart Runway 29 on runway heading and climb to 4,000 feet MSL until 10 miles out (Instrument Flight Rule [IFR] or Visual Flight Rule [VFR]) safety permitting. The established departure procedure for Runway 11 for both transient and local military/CANG aircraft is to climb to 10,000 feet MSL until 5 miles out (IFR or VFR) safety permitting. This measure is an updated to Measure III(1)(a) from the 1988 NCP and is also described in FAA Tower Order FATZ 7110.8D (September 3, 2006). (NCP Pages 31, 94 and 95, Table 13, Appendix F).

FAA Action: Approved as voluntary subject to safety, weather and operational efficiency.

FAT ROA

2. NA-9 – Continued Use of Minimum Altitudes Before Departure Turns Off Runways 29L and 29R

Description: This existing measure establishes minimum altitudes to be attained prior to turns from runway heading when departing Runway 29L and 29R. As approved in the 1990 [FAA] Record of Approval (ROA), the minimum altitude for single- and multi-engine aircraft under 12,500 pounds gross takeoff weight (GTOW) was 1,000 feet MSL and 2,000 feet MSL for piston-engine and turbine-powered aircraft over 12,500 pounds GTOW. This noise abatement procedure is incorporated into in FAA Tower Order FATZ 7110.8D. This noise abatement element is a continuation Approved Measure III(1)(b) in the 1988 NCP. (NCP Pages 39, 94 and Table 13).

FAA Action: Approved as voluntary subject to safety, weather and operational efficiency.

LAND USE ELEMENTS

1. LU-1 - Land Acquisition of Developed Non-Compatible Property.

Description: The City of Fresno may seek to acquire selected parcels developed with non-compatible land uses inside the Community Noise Equivalent Level (CNEL) 65 decibel (dB) contour of the 2009 Noise Exposure Map (NEM) for the purpose of leasing or converting the properties into compatible uses with deed restrictions and easements. This measure is a modification of Approved Measure V(2)(c). from the 1988 NCP, which provided for the purchase of land developed with non-compatible uses within the CNEL 70 dB or higher to the northwest of FAT. This measure seeks to encompass non-compatible structures built before October 1, 1998 through a voluntary acquisition program for structures that are not determined appropriate for the Sound Mitigation Acoustical Remedy Treatment (SMART) Program. (NCP Page 69, 70, 101, 102 and Table 14)

FAA Action: Approved. The city of Fresno must comply with the requirements of the Uniform Relocation and Real Property Acquisition Act (49 CFR Part 24) when acquiring these properties, The City of Fresno is responsible for ensuring that the re-use of the acquired properties is compatible with airport operations. Properties that are acquired using funds from the Airport Improvement Program by the City of Fresno where the land use is subsequently changed must be disposed of consistent with FAA Order 5100.38C, *Airport Improvement Program Handbook*. .

2. LU-2 - Residential Sound Insulation Program.

Description: This measure continues the City of Fresno's Sound Mitigation Acoustical Remedy Treatment (SMART) program to homes within the CNEL 65 dB contour of the 2009 NEM. This is a continuation of approved Measure V(2)(e) of the 1988 NCP. Participation in the SMART program is voluntary. Eligible residential property owners are required to accept an avigation easement in order to participate in the program. The NCP identifies the acoustical treatment as "structural modifications including replacement of exterior windows and doors, additional insulation, baffles, and other sound attenuation measures" [NCP page 70] to reduce interior noise levels. The City is requesting that the FAA approve the eligible FAT program area to treat contiguous areas affected by the CNEL 65 dB contour in a consistent manner and to aid in neighborhood stabilization consistent with Section 810(b)(2) of FAA Order 5100.38C. (NCP Pages 70, 71, 101, 102, Tables 3 and 14 and Figure 11).

FAA Action: Approved. The FAA notes the identification of specific parcels affected by the 65 CNEL noise contour is the responsibility of the airport sponsor. Installing insulation in a reasonable additional number of otherwise ineligible parcels beyond the 65 CNEL contour contiguous to the project area to achieve equity in the neighborhood is consistent with paragraph 810(b) of FAA Order 5100.38C, *Airport Improvement Program Handbook*.

3. LU-3 - Noise Sensitive Public Building Sound Insulation Program.

Description: This measure addresses noise-sensitive public buildings such as schools and places of worship, medical uses, etc. This measure identified five places structures within the CNEL 65 dB contour that may be eligible for treatment. The City of Fresno will conduct a follow-up study to determine program eligibility and noise reduction requirements set forth in the AIP Handbook. Implementation of the SMART program for residences takes priority over insulation noise sensitive public buildings. This measure is similar to Approved Measure V(2)(b) in the 1988 NCP. (NCP Page 75, 103, 104,105, Tables 4 and 14).

FAA Action: Approved. The City must comply with Airport Sponsor Grant-in-Aid Assurance 5(c) for any noise compatibility program project carried out on a public building that is associated with another unit of local government, such as a school.

4. LU-4 - Purchase of Avigation Easements.

Description: This measure provides for acquiring an avigation easement from the property owner for the existing 950 residential homes inside the 2009 65 CNEL noise contour where the home owner decided not to participate in the residential sound insulation program (SMART). The avigation easement will be recorded to the deed and run in perpetuity with the property. The easement will allow FAT to designate the property as a compatible land use. Homes constructed and first occupied on or after October 1, 1998 are not eligible for this program pursuant to FAA Policy (63 FR 16409). (NCP Pages 75, 76, 105, 106, and Table 14).

FAA Action: Approved.

5. LU-5 - Encourage Comprehensive Planning for Compatible Land Uses and Adoption of NEMs.

Description: This measure encourages the use of aircraft noise compatible land use planning criteria in local comprehensive planning processes for communities inside the 60 CNEL noise contour. The intent of this measure is to facilitate a consistent land use compatibility strategy in the City of Fresno, Fresno County and the City of Clovis to review and amend general, community and specific plans as needed to development of compatible land uses inside the 60 CNEL noise contour. This measure also encourages the City of Fresno, Fresno County and the City of Clovis to adopt the 2009 Noise Exposure Maps into their planning documents to develop a uniform definition of aircraft noise exposure levels for the purpose of aircraft noise and land use compatibility planning. This measure also encourages the Airport Land Use Commission to update the Fresno County Compatible Land Use Plan. (NCP Pages 77, 106, 107, and Table 14).

FAA Action: Approved. The local governments have the authority to implement this measure. The Federal government has no authority to control local land uses.

6. LU-6 - Amend Zoning for Compatible Use.

Description: This measure encourages local jurisdictions to amend existing zoning regulations and maps for areas inside the 2009 Noise Exposure Map in order to promote the development of compatible land uses. This measure promotes no new non-compatible residential land uses within the 65 CNEL noise contour. Noise sensitive uses within the 60-65 contour will be permitted with conditions that they are constructed to achieve an interior noise level of 45 CNEL or lower and include a dedicated avigation easement to FAT. (NCP Pages 81, 82, 108 and Table 14).

FAA Action: Approved. The local governments have the authority to implement this measure. The Federal government has no authority to control local land uses. This measure will help prevent the introduction of new non-compatible land uses within the 65 CNEL noise contour around the airport.

7. LU-7 - Adopt Airport Noise Overlay Zone.

Description: This measure establishes a uniform Airport Noise Overlay Zone for each jurisdiction within the 60 CNEL noise contour. This Overlay Zone would prohibit the development of new noise-sensitive land uses within the 65 CNEL. The overlay zone will also address beyond the 65 CNEL by permitting new noise sensitive land uses within the 60-65 CNEL only if they are constructed to achieve an interior noise level of 45 CNEL or lower per the Airport Land Use Commission criteria. This measure also includes granting of an avigation easement from the property owner to FAT for development of any noise sensitive land use inside the 60 CNEL contour. (NCP Page 82, 83, 84, 109, 110, Figure 13, and Table 14).

FAA Action: Approved. FAA recommends obtaining avigation easements but notes easements are not required by the Federal government. Implementation of this measure is considered within the authority of the Fresno County and the Cities of Fresno and Clovis.

8. LU-8 - Amend Building Codes to Meet Interior Noise Levels.

Description: This measure encourages local jurisdictions to amend building codes to require residential and non-residential noise-sensitive buildings inside the 60 CNEL noise contour, as well as commercial/office development inside the 65 CNEL contour to be constructed to achieve an interior noise level of 45 CNEL or lower per Airport Land Use Commission criteria. This measure will help reduce interior noise levels for new construction and redevelopment that is not subject to zoning review. This measure also includes a provision to conduct a study to develop appropriate standards for the Fresno area. (NCP Pages 87, 110, and Table 14).

FAA Action: Approved. The local governments have the authority to implement this measure. The Federal government has no authority to control local land uses.

9. LU-9 - Require Avigation Easement with New Construction.

Description: This measure requires provision of an avigation easement to FAT for future residential and non-residential noise sensitive land uses within the 60 CNEL noise contour as a condition for issuing building permits for both new development and substantial additions or renovations to existing structures. The purpose of this measure is to provide an avigation easement to FAT for new construction and redevelopment that is not subject to zoning review. . With implementation though the building code, the measure will require avigation easements for new construction and redevelopment that is not subject to zoning review. (NCP Pages 87, 88, 110, 111 and Table 14)

FAA Action: Approved. The local governments have the authority to implement this measure. The Federal government has no authority to control local land uses

10. LU-10 - Support Real Property Noise Disclosure.

Description: This measure proposes to enhance the state of California required disclosure of aircraft noise to potential buyers of real property. Under this measure FAT would prepare specific airport noise information and make it available via pamphlets and online sources. This information includes summarized airport noise exposure levels, the relationship of single event to aircraft noise exposure, aircraft departure and arrival paths, and overall airport operations. This measure only applies to residential properties within the Airport Influence Area/Airport Review Area or within the 60 CNEL noise contour for the year 2009. (NCP Pages 88, 111, 112, and Table 14)

FAA Action: Approved.

11. LU-11 - Transfer of Development Rights.

Description: This measure proposes to create a voluntary program to transfer residential development rights from areas inside the Noise Exposure Maps to areas outside the NEMs. Landowners in the "sending" zone will sell for monetary compensation the development rights to their property, they will also agree to place a permanent deed restriction on their land that will prohibit future non-compatible development. Landowners in the receiving zones will be eligible to purchase development rights from the sending zone and thereby develop their properties at a higher density than would otherwise be permitted. (NCP Pages 88, 89, 112, 113, Figure 13 and Table 14).

FAA Action: Approved. The local governments have the authority to implement this measure. The Federal government has no authority to control local land uses

12. LU-12 - Purchase of Development Rights.

Description: This measure proposes that FAT acquire residential development rights from areas inside the Noise Exposure Maps to areas outside the NEMs. This measure is similar to Measure LU-11, however, FAT would acquire the development rights at an anticipated lower cost than fee simple purchase. Under this measure after purchase FAT would extinguish the development rights, thereby precluding new non-compatible development. The NCP provides and example controlling the land use by owning the development rights. (NCP Pages 89, 113, 114, 115, Figure 13 and Table 14)

FAA Action: Approved. The local governments have the authority to implement this measure. The Federal government has no authority to control local land uses

13. LU-13 - Purchase of Vacant Land That May Be Developed Into Non-Compatible Use.

Description: This measure proposes that FAT acquire vacant land that can be developed into non-compatible land uses inside the 65 CNEL noise contour for the 2009 NEM. This measure is similar to Measure LU-1, however, the intent of this measure is to acquire undeveloped real property, where under Measure LU-1, FAT would acquire already developed non-compatible real property. The purpose of this measure is to maintain the land as vacant or sell the land for development into compatible land uses with deed restrictions, or develop the property for a compatible public use. (NCP Pages 89, 90 and 115, Table 14).

FAA Action: Approved. FAA notes the city of Fresno must comply with the requirements of the Uniform Relocation and Real Property Acquisition Act (49 CFR Part 24) when acquiring these properties. The City of Fresno is responsible for ensuring that the re-use of the acquired properties is compatible with airport operations. Properties that are acquired using funds from Airport Improvement Program by the City of Fresno where the land use is subsequently changed must be disposed of consistent with FAA Order 5100.38C, *Airport Improvement Program Handbook.*

14. LU-14 – Encourage the Local Jurisdictions to Develop Compatible Land Uses in the Airport Environs.

Description: This measure proposes that FAT has a voice in local land use planning and decision making. This includes continued active involvement in the Fresno County Airport Land Use Commission [ALUC] so that FAT, as a department of the City of Fresno, has the opportunity to review and comment on local jurisdiction's land use plans and actions to make sure they are compatible with the ALUC recommendations and the overall goal of improved aircraft noise and land use compatibility. This measure also includes FAT seeking a role in land use decision making that occur below [actions not reviewed by the ALUC] typical actions reviewed by the ALUC. (NCP Pages 116, 117 and Table 14).

FAA Action: Approved.

PROGRAM MANAGEMENT ELEMENTS

1. PM-1 - Monitor Airport Operations to Determine Need for NEM and/or NCP Updates.

Description: Under this measure the airport will monitor airport flight operations and fleet mix to determine if and when airport activity changes occur that would cause a 1.5 dB change in CNEL inside the 65 CNEL contour or if activity creates areas of new non-compatible land use. Appendix L, as part of PM-1, provides a tool for estimating the changes in noise exposure that may result due to changes in fleet mix and numbers of operations. Changes of or approaching plus or minus 1.5 dB in total exposure, total departure exposure, or total arrival exposure from the year of submission will receive closer examination that may indicate a need to update the NEM. An NCP update will be considered when made necessary by revision of the NEM per 14 CFR 150.31(e)(9) or the airport determines element(s) of the approved NCP are no longer effective or determines element(s) need to be added or changed to benefit their noise program at FAT. (NCP Pages 122, 123 and Table 15).

FAA Action: Approved.

2. PM-2 - Acquire a Flight Tracking System and/or Noise and Operations Monitoring System (NOMS)

Description: Under this measure, FAT may pursue acquisition of an integrated NOMS in the event there is uncertainty about changes in the community noise exposure and the need for an NEM update or compliance with flight track and runway use elements of the NCP or if other issues arise that require more detailed analysis of aircraft operations, noise exposure levels and community complaints. (NCP Pages 132, 133 and Table 15)

FAA Action: Approved. Note, for the purpose of aviation safety, this approval does not extend to the use of monitoring equipment for enforcement purposes by in-situ measurement of any pre-set noise thresholds.

3. PM-3 - Monitor Aircraft Engine Run-ups and Complaints as a Trigger for a Future Ground Run-up Enclosure (GRE) Replacement Needs Analysis Study.

Description: This measure proposes FAT staff monitor run-up activity and keep a log of run-up activity and usage of the existing run-up enclosure. The purpose of this measure is to evaluate compliance with aircraft engine run-up rules. This measure indicates that continual monitoring of noise complaints will determine if run-ups become a significant source of community annoyance and the logs will determine if significant changes in demand for run-ups occurs. Analysis of information contained in the logs will also provide information required to evaluate the need for changes in currently established run-up policies, areas and facilities. (NCP Pages 126, 127 and Table 15)

FAA Action: Approved.

4. PM-4 – Establish Staff Position to Monitor and Coordinate Implementation of the NCP Measures.

Description: This measure expands the role of the FAT Acoustical Program Office into one of an overall Airport Noise Programs Office that will provide a central point of contact at FAT for all issues related to noise abatement. This measure would expand the job description for the identified staff and include required training in such areas as airport noise control practices and noise modeling. (NCP Page 127, Table 15)

FAA Action: Approved. Implementation of this measure is within the authority of the city of Fresno, as the sponsor for FAT.

5. PM-5 - Increase Community Outreach.

Description: This measure provides for the FAT Acoustic Program Coordinator to meet with outside groups, as invited, to present information on Part 150 to ensure the understanding of the purpose of Part 150, history, elements, successes, challenges, and opportunities for outside parties to participate. The purpose of this measure is to help various groups understand the efforts, challenges, and possibilities of the Airports Noise Compatibility Program in building trust and cooperation among various entities. (NCP Page 128 and Table 15)

FAA Action: Approved.

6. PM-6 - Expand Airport Noise Section on the FAT Website.

Description: This measure proposes that FAT host a website currently hosted by the City of Fresno's Part 150 consultant that contains the Part 150 Update. This measure also includes a provision to augment the website with maps and information on the City's SMART Program, a history of noise abatement efforts at FAT and information related to the Airport Noise Advisory Committee. (NCP Page 128 and Table 15)

FAA Action: Approved.

7. **PM-7 - Develop Standardize Complaint Collection, Response, and Recording Procedures.**

__Description:__ This measure proposes that FAT develop standardized noise complaint collection, response and recording procedures. This information would be collected and be integrated into a Noise Operations Monitoring System (NOMS), if acquired by FAT as described in Measure PM-2. This measure includes possible designation of a specific noise comment telephone line. (NCP Pages 130 and Table 15).

__FAA Action:__ Approved. Implementation of this measure is considered to be within the authority of the City of Fresno. It is intended to continue to provide a means for community outreach and education regarding airport procedures for noise abatement.

8. **PM-8 - Establish an Airport Noise Advisory Committee.**

__Description:__ This measure proposes FAT would facilitate the formation of an Airport Noise Advisory Committee (ANAC) comprised of community members, airport staff, and airport users to discuss issues for noise abatement policy. The ANAC would provide a forum for continued dialog on current and emerging airport noise issues and to help ensure that the Airport and ANAC member groups are responsive to community concerns. (NCP Pages 129, 130, Table 15)

__FAA Action:__ Approved. Implementation of this measure is considered to be within the authority of the City of Fresno. It is intended to provide a means for community outreach and education regarding airport procedures for noise abatement.

9. **PM-9 - Develop and Distribute Pilot Handouts.**

__Description:__ This measure proposes that FAT will develop and distribute handouts to pilots to identify noise sensitive communities surrounding FAT on three sides and noise abatement elements for consideration when operating aircraft at FAT. (NCP Page 138, Table 15)

__FAA Action:__ Approved. Implementation of this measure is considered to be within the authority of the City of Fresno. It is intended to provide a means for community outreach and education regarding airport procedures for noise abatement. Language of the Pilot Handout is subject to FAA approval.

END OF RECORD OF APPROVAL

FAT ROA

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Appendix D Federal Register Notice of the FAA Record of Approval Issuance for 2008 Noise Compatibility Program

46346 Federal Register / Vol. 73, No. 154 / Friday, August 8, 2008 / Notices

Issued in Washington, DC, on August 1, 2008.

Susan J. M. Cabler,

Assistant Manager, Aircraft Engineering Division, Aircraft Certification Service.

[FR Doc. E8–18133 Filed 8–7–08; 8:45 am]

BILLING CODE 4910–13–M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Approval of Noise Compatibility Program for Fresno-Yosemite International Airport, Fresno, CA

AGENCY: Federal Aviation Administration, DOT

ACTION: Notice

SUMMARY: The Federal Aviation Administration (FAA) announces its findings on the noise compatibility program submitted by the City of Fresno, California under the provisions of 49 U.S.C. (the Aviation Safety and Noise Abatement Act, hereinafter referred to as "the Act") and 14 CFR Part 150. These findings are made in recognition of the description of Federal and nonfederal responsibilities in Senate Report No. 96–52 (1980). On July 6, 2005 (70 FR 50437–50438), the FAA determined that the noise exposure maps submitted by the city of Fresno under Part 150 were in compliance with applicable requirements. On July 28, 2008, the FAA approved the Fresno-Yosemite International Airport noise compatibility program. All of the recommendations of the program were approved. No program elements relating to new or revised flight procedures for noise abatement were proposed by the airport operator.

DATES: *Effective Date:* The effective date of the FAA's approval of the Fresno Yosemite International Airport noise compatibility program is July 28, 2008.

FOR FURTHER INFORMATION CONTACT: David B. Kessler, AICP, Regional Environmental Protection Specialist, Federal Aviation Administration, Western Pacific Region, Mailing address: P.O. Box 92007, Los Angeles, CA 90009–2007. Street Address: 15000 Aviation Boulevard, Hawthorne, California 90261. Telephone 310/725–3615. Documents reflecting this FAA action may be reviewed at this same location.

SUPPLEMENTARY INFORMATION: This notice announces that the FAA has given its overall approval to the Noise Compatibility Program for Fresno-Yosemite International Airport, effective July 28, 2008.

Under section 47504 of the Act, an airport operator who has previously submitted a noise exposure map may submit to the FAA a noise compatibility program which sets forth the measures taken or proposed by the airport operator for the reduction of existing non-compatible land uses and prevention of additional non-compatible land uses within the area covered by the Noise Exposure Maps. The Act requires such programs to be developed in consultation with interested and affected parties including local communities, government agencies, airport users, and FM personnel.

Each airport noise compatibility program developed in accordance with Federal Aviation Regulations (FAR) Part 150 is a local program, not a Federal program. The FAA does not substitute its judgment for that of the airport proprietor with respect to which measures should be recommended for action. The FAA's approval or disapproval of 14 CFR Part 150 program recommendations is measured according to the standards expressed in Part 150 and the Act and is limited to the following determinations:

a. The Noise Compatibility Program was developed in accordance with the provisions and procedures of FAR Part 150;

b. Program measures are reasonably consistent with achieving the goals of reducing existing non-compatible land uses around the airport and preventing the introduction of additional non-compatible land uses;

c. Program measures would not create an undue burden on interstate or foreign commerce, unjustly discriminate against types or classes of aeronautical uses, violate the terms of airport grant agreements, or intrude into areas preempted by the Federal Government; and

d. Program measures relating to the use of flight procedures can be implemented within the period covered by the program without derogating safety, adversely affecting the efficient use and management of the navigable airspace and air traffic control systems, or adversely affecting other powers and responsibilities of the Administrator prescribed by law.

Specific limitations with respect to FAA's approval of an airport noise compatibility program are delineated in FAR Part 150, section 150.5. Approval is not a determination concerning the acceptability of land uses under Federal, state, or local law. Approval does not by itself constitute an FAA implementing action. A request for Federal action or approval to implement specific noise compatibility measures may be required, and an FAA decision on the request may require an environmental assessment of the proposed action. Approval does not constitute a commitment by the FAA to financially assist in the implementation of the program nor a determination that all measures covered by the program are eligible for grant-in-aid funding from the FAA under the Airport and Airway Improvement Act of 1982, as amended. Where federal funding is sought, requests for project grants must be submitted to the FAA Airports District Office in Burlingame, California.

The City of Fresno submitted to the FAA on April 20, 2005, the Noise Exposure Maps, descriptions, and other documentation produced during the noise compatibility planning study conducted from October 2002 through June 2006. The Fresno-Yosemite International Airport Noise Exposure Maps were determined by FAA to be in compliance with applicable requirements on July 6, 2005. Notice of this determination was published in the **Federal Register** on August 26, 2005 (70 FR 50437–50438).

The Fresno-Yosemite International Airport study contains a proposed noise compatibility program comprised of actions designed for phased implementation by airport management and adjacent jurisdictions from (2004 to beyond the year 2009). It was requested that the FAA evaluate and approve this material as a Noise Compatibility Program as described in 49 U.S.C. §47504 of the Act. The City of Fresno initially submitted its noise compatibility program for the subject airport to the FAA on May 26, 2006 (71 FR 33032–33033). In a letter received by FAA on September 15, 2006, the City of Fresno requested that FAA suspend its review and processing of the noise compatibility program in order to modify the document. FAA terminated its formal review of the City of Fresno's noise compatibility program effective September 15, 2006 (71 FR 56582). Subsequently, the City of Fresno submitted their revised noise compatibility program to FAA. Therefore, the FAA has formally received the noise compatibility program for FAT, effective on April 18, 2008. The FAA began its review of the program on April 18, 2008, and was required by a provision of the Act to approve or disapprove the program within 180 days (other than the use of new or modified flight procedures for noise control). Failure to approve or disapprove such program within the 180-day period shall be deemed to be an approval of such program.

Federal Register / Vol. 73, No. 154 / Friday, August 8, 2008 / Notices 46347

The submitted program contained twenty-five (25) proposed actions for noise abatement, land use management and program management on and off the airport. The FAA completed its review and determined that the procedural and substantive requirements of the Act and FAR Part 150 have been satisfied. The overall program was approved, by the Manager of the Airports Division, Western-Pacific Region, effective July 28, 2008.

Outright approval was granted for the two (2) noise abatement measures, all fourteen (14) land use management measures and nine (9) program management measures. The approved noise abatement measures included: Maintain CANG Noise Abatement Departure Track Procedures; and Continued Use of Minimum Altitudes Before Departure Turns Off Runways 29L and 29R.

Approved land use measures include: Land Acquisition of Developed Non-Compatible Property; Residential Sound Insulation Program; Noise Sensitive Public Building Sound Insulation Program; Purchase of Avigation Easements; Encourage Comprehensive Planning for Compatible Land Uses and Adoption of NEMs; Amend Zoning for Compatible Use; Adopt Airport Noise Overlay Zone; Amend Building Codes to Meet Interior Noise Levels; Require Avigation Easement with New Construction; Support Real Property Noise Disclosure; Transfer of Development Rights; Purchase of Development Rights; Purchase of Vacant Land That May Be Developed Into NonCompatible Use; Encourage the Local Jurisdictions to Develop Compatible Land Uses in the Airport Environs.

Approved Program Management measures include: Monitor Airport Operations to Determine Need for NEM and/or NCP Updates; Acquire a Flight Tracking System and/or Noise and Operations Monitoring System (NOMS); Monitor Aircraft Engine Run-ups and Complaints as a Trigger for a Future Ground Run-up Enclosure (GRE) Replacement Needs Analysis Study; Establish Staff Position to Monitor and Coordinate Implementation of the NCP Measures; Increase Community Outreach; Expand Airport Noise Section on the FAT Website; Develop Standardize Complaint Collection, Response, and Recording Procedures; Establish an Airport Noise Advisory Committee; Develop and Distribute Pilot Handouts.

These determinations are set forth, in detail, in the Record of Approval signed by the Manager of the Airports Division, Western-Pacific Region, on July 28, 2008. The Record of Approval, as well as other evaluation materials and the documents comprising the submittal, are available for review at the FAA office listed above and at the administrative offices of the City of Fresno. The Record of Approval will be available on-line at: *http://www.faa.gov/airports_airtraffic/airports/environmental/airport_noise/part_150/states/*.

Issued in Hawthorne, California on July 29, 2008.

Mark A. McClardy

Manager, Airports Division, Western-Pacific Region, AWP–600

[FR Doc. E8–18086 Filed 8–7–08; 8:45 am]

BILLING CODE 4910–13–M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

Notice of Passenger Facility Charge (PFC) Approvals and Disapprovals.

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Monthly Notice of PFC Approvals and Disapprovals. In July 2008, there were three applications approved. This notice also includes information on two applications, approved in June 2008, inadvertently left off the June 2008 notice. Additionally, 20 approved amendments to previously approved applications are listed.

SUMMARY: The FAA publishes a monthly notice, as appropriate, of PFC approvals and disapprovals under the provisions of the Aviation Safety and Capacity Expansion Act of 1990 (Title IX of the Omnibus Budget Reconciliation Act of 1990) (Pub. L. 101–508) and Part 158 of the Federal Aviation Regulations (14 CFR Part 158). This notice is published pursuant to paragraph d of § 158.29.

PFC Applications Approved

Public Agency: San Diego County Regional Airport Authority, San Diego, California.

Application Number: 08–05–C–00–SAN. APPLICATION TYPE: Impose and use a PFC.

PFC Level: $4.50.

Total PFC Revenue Approved in This Decision: $26,301,763.

Earliest Charge Effective Date: April 1, 2009.

Estimated Charge Expiration Date: October 1, 2009.

Class of Air Carriers Not Required to Collect PFC's: Non-scheduled/on-demand air carriers filing FAA Form 1800–31.

Determination: Approved. Based on information contained in the public agency's application, the FAA has determined that the proposed class accounts for less than 1 percent of the total annual enplanements at San Diego International Airport.

Brief Description of Projects Approved for Collection and Use at a $4.50 PFC Level: Security checkpoint improvements. Airfield improvements. Replace aircraft rescue and firefighting vehicle. Noise mitigation.

Brief Description of Projects Approved for Collection and Use at A $3.00 PFC Level: Terminal area 12 kv electrical upgrade, phase I. Upgrade passenger information and paging systems. Part 150 study update. Conduct terminal planning study.

Decision Date: June 27, 2008.

For Further Information Contact: Darlene Williams, Los Angeles Airports District Office, (310) 725–3625.

Public Agency: City of Savannah and Savannah Airport Commission, Savannah, Georgia.

Application Number: 08–07–C–00–SAV.

Application Type: Impose and use a PFC. PFC LEVEL.: $4.50.

Total PFC Revenue Approved in This Decision: $2,558,778.

Earliest Charge Effective Date: March 1, 2013.

Estimated Charge Expiration Date: November 1, 2013.

Class of Air Carriers Not Required to Collect PFC's: Air taxi/commercial operators filing FAA Form 1800–31.00–31.

Determination: Approved. Based on information contained in the public agency's application, the FAA has determined that the proposed class accounts for less than 1 percent of the total annual enplanements at Savannah/Hilton Head International Airport.

Brief Description of Projects Approved for Collection and Use:

Rehabilitation—runway shoulders.
PFC implementation and administration.
Construct taxiway—southwest quadrant.
Taxiway B extension.
Runway 18/36 extension.
Airport master plan.
Cool air system to nine jet bridges.
Taxiway C–2.
Airport layout plan update.
Bio Scrypt 15 boarding bridge doors.
Update main communication 800 Mhz system to digital.

Brief Description of Project Partially Approved for Collection and Use: Navigational aids.

Determination: Partially approved. One component of the proposed project,

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Appendix E Forecast of Operations at Fresno Yosemite International Airport

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Fresno Yosemite
International Airport

Fresno, California

14 CFR Part 150 Noise
Exposure Map Update
Final Activity Forecast
2017–2022

Prepared by:
HMMH
C&S Engineers, Inc.
June 2016

14 CFR Part 150 Noise Exposure Map
Update Activity Forecast, 2017–2022

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Table of Contents

Section 1—Forecast Background

1.1 Forecast Overview

The City of Fresno (City) is performing an update to its Title 14 Code of Federal Regulations (CFR) Part 150 Noise Exposure Maps (NEMs) for Fresno Yosemite International Airport (FAT or Airport). In support of this update, detailed aircraft activity forecasts were necessary to model and evaluate the current and projected levels of noise exposure generated from aircraft operations at the Airport.

The forecasts presented in this document are founded on the historical activity and operations trends found at FAT in conjunction with previously prepared airport and environmental planning studies. The last forecast approved by the Federal Aviation Administration (FAA) was in 2013 as part of the Environmental Assessment (EA) prepared in support of proposed Runway Safety Area (RSA) improvements at FAT. Much of the methodology and assumptions used in developing those forecasts are reiterated in this document. To meet the needs of the noise exposure modeling effort, aviation activity forecasts have been broken down into the following detail per FAA guidance:

- Existing operations (2017, developed according to 2014, 2015 and 2016 activity) and future-year operations (2022)
- Identification of annual average daily operations (i.e., arrivals and departures) by:
  - Activity type (i.e., Passenger Carrier, General Aviation, Cargo and Military)
  - Aircraft type
- Time of day; daytime is defined as 7:00 a.m. to 7:00 p.m., evening is defined as 7:00 p.m. to 10:00 p.m., while nighttime is defined as 10:00 p.m. to 7:00 a.m.

It is important to note that the base year for the purposes of the activity forecasts was generated from aircraft activity statistics provided by the FAA from June 1, 2014, to April 30, 2016. However, the base year for the existing contour map to be used in the Part 150 Study is calendar year 2017.

1.2 Data Sources

Information factored into the forecasting effort included commercial carrier industry trends, aircraft order and retirement programs, FAA General Aviation (GA) fleet trends, anticipated changes in the aircraft fleet mix operating at FAT, and local and regional socioeconomic trends. The data and assumptions used to define baseline conditions and future activity trends were derived from several data sources. The following provides a brief description of these data sources:

- City of Fresno – The City provided previously prepared documentation that included aviation activity forecasts and passenger enplanement data. These included the 2006

Airport Master Plan Update and the 2013 Environmental Assessment (EA) prepared for proposed runway safety area (RSA) improvements.

- California Air National Guard (CANG) – The CANG prepared a Draft Environment Impact Statement (EIS) for the conversion of its fleet from the F-16 Fighting Falcon aircraft to the F-15 Eagle aircraft. This document included information on its existing and proposed activity at the Airport.
- FAA Terminal Area Forecast (TAF) – The TAF is the official FAA forecast of aviation activity for U.S. airports. Activity estimates are derived from national estimates of aviation activity that are then assigned to individual airports based upon multiple market and forecast factors. The FAA looks at local and national economic conditions, as well as trends within the aviation industry, to develop each forecast. The latest TAF was published in January 2016.
- FAA Air Traffic Activity System (ATADS) — The Air Traffic Activity Data System contains the official air traffic operations data available for public release.
- FAT Air Traffic Control Tower (ATCT) — ATCT data is tabulated and recorded by the Tower operators and is available through request. This data includes all operations at the Airport in a monthly (June 1, 2014, to May 31, 2015) summarized format. Separate conversations were also held with ATCT staff to determine the accuracy of previously prepared information.
- FAA Traffic Flow Management System Counts (TFMSC) — TFMSC contains data derived from the FAA's Air Traffic Airspace Lab's Traffic Flow Management System. The data provides historical records of aircraft operations that can be reviewed and filtered to provide specific historical information on the aircraft types operating at FAT during a defined period of time.
- FlightAware — FlightAware provides live flight tracking data and historical information on aircraft operations at individual airports, including; tail numbers, flight numbers, aircraft type, origin and destination, and time en route. FlightAware data is used for its historical and real-time information to provide input on flight schedules and aircraft fleet mix.
- Woods & Poole Economics, Inc. — Woods & Poole is an independent firm that specializes in developing long-term economic and demographic projections. Their database includes every state, county, and Metropolitan Statistical Area (MSA), in the U.S. and contains historic data and projections through 2050, utilizing more than 900 economic and demographic variables.

1.3 Previous Forecasts

The latest aviation activity forecasts developed for FAT were reviewed to evaluate the projected forecasting trends and the methodologies used to prepare those analyses. Future forecast data was provided from the 2006 Airport Master Plan Update (**Table 1.1**), 2013 Final Environmental Assessment (EA) for proposed runway safety area (RSA) improvements (**Table 1.2**), and the FAA TAF for years 2015 to 2022 (**Table 1.3**).

1.3.1 Airport Master Plan Update (2006)

The latest Airport Master Plan Update (Master Plan) for FAT was completed in 2006. The Master Plan included an evaluation of future forecast activity at the Airport. The forecast covered a 20-year planning period beginning in 2001 and ending in 2020. **Table 1.1** provides a breakdown of the Master Plan forecast. The forecast projected a slight in increase (1.1 percent) in the average number of annual aircraft operations, and projected that the majority of gains in operations would be experienced in air freight (cargo) and general aviation. Recent FAA published operations activity for FAT (see **Table 1.4**) has concluded that this projection did not come to realization as neither had measurable gains. As with most forecasts that were completed during or prior to 2001, the forecasting baseline was overstated at 214,352 compared to existing levels.

Table 1.1—Airport Master Plan Update Forecasted Operations

Year	Air Carrier/ Commuter/Air Taxi	Air Freight	GA[1/]	Military[1/]	Total
2001	53,583	6,006	145,777	9,986	214,352
2005	53,947	7,193	151,144	9,530	222,174
2010	55,901	9,082	158,820	9,530	234,317
2015	57,556	11,554	166,010	9,530	246,520
2020	58,980	14,803	173,144	9,530	259,566
Avg. Annual Increase	**0.5%**	**7.3%**	**0.9%**	**-0.2%**	**1.1%**

Source: Fresno Yosemite International Airport Master Plan Update – January 2006
Notes: 1/ - includes both itinerant and local operations

1.3.2 Environmental Assessment – RSA Improvements (2013)

An Environmental Assessment (EA) was prepared by the City in 2013 to evaluate the environmental impacts associated with proposed improvements to the Runway 11R-29L runway safety areas at FAT. That analysis included an evaluation of both noise and air quality impacts. In order to correctly evaluate those environmental resources, modeling was completed for both with-project and without project conditions utilizing aviation activity forecasts (see **Table 1.2**). Since the proposed project was safety related and not a capacity enhancement, the forecast used for both analyses was representative of the existing and future number of aircraft operations at FAT.

The forecast showed little growth in overall aviation activity at FAT. The strongest growth was forecasted to be in commercial, charter, and air taxi operations. For the baseline year 2011, the overall number of aircraft operations fell within four percent of the total reported in ATADS.

Table 1.2—EA Baseline and Forecasted Operations

Year	Air Carrier/ Commuter/Air Taxi	Air Freight	GA1/	Military1/-2/	Total
2011*	31,555	3,052	77,680	10,032	122,319
2015	34,700	3,080	77,680	10,040	125,500
2020	37,720	3,160	77,680	10,040	128,600
Avg. Annual Increase	**1.9%**	**0.4%**	**0.0%**	**0.0%**	**0.5%**

Source: Fresno Yosemite International Airport Final Environmental Assessment (2013)
* 2011 data represents operations from July 1, 2010, to June 30, 2011
Notes: 1/ - includes both itinerant and local operations
2/ - includes operations categorized as government (fise)

1.3.3 Terminal Area Forecast (2015-2022)

The TAF provides forecasted operations data for passenger enplanements, airport operations, Terminal Radar Approach Control Facilities (TRACON) operations, and based aircraft. As such, it serves as the benchmark against which the FAA compares all airport activity forecasts. As shown in **Table 1-3**, the TAF projects an increase of 0.6 percent for total airport operations, both itinerant and local, from 2015 to 2022. Air carrier operations have the largest percentage increase with an annual average increase of 8.1 percent and air taxi operations are forecasted to decrease by 8.7 percent annually. This is reflective of the recent trend in changes in the aircraft fleet mix at FAT. Other aircraft categories show no or only modest growth (less than 0.5 percent) in the seven-year timeframe.

The Airport is currently served by multiple airlines with daily non-stop flights to Dallas, Denver, Las Vegas, Los Angeles, Phoenix, Portland, Salt Lake City, San Diego, San Francisco, Seattle, and Guadalajara, Mexico. FAT has experienced uninterrupted enplanement growth from 2009 through 2014 and, according to the TAF, will continue its strong growth at an average annual increase of 2.8 percent over the next seven years. Although recent changes made by airlines, with regards to routes and aircraft fleet mix, have lowered enplanement projections for 2015, the rate of annual increase moving forward is projected to increase at the level outlined in the TAF.

Table 1.3—Enplanement/Operations Forecast

Year	Enplane-ments	Air Carrier	Air Taxi & Commuter	GA1/	Military1/	Total
2015	691,614	13,366	18,422	69,421	7,369	108,578
2016	720,107	14,947	15,366	70,204	7,369	107,886
2017	739,348	15,900	15,042	70,378	7,369	108,689
2018	758,248	17,161	14,415	70,552	7,369	109,497
2019	777,252	18,573	13,656	70,726	7,369	110,324
2020	799,290	20,129	12,845	70,900	7,369	111,243
2021	820,956	21,950	11,783	71,075	7,369	112,177
2022	842,771	24,115	10,379	71,251	7,369	113,114
Avg. Annual Increase	**2.8%**	**8.1%**	**-8.7%**	**0.4%**	**0.0%**	**0.6%**

Source: FAA TAF, January 2016
Notes: 1/ - includes both itinerant and local operations

1.4 Historical and Existing Aviation Activity

To derive the annual average daily forecasts of aircraft operations by aircraft type required for the NEM update, it is first necessary to identify the baseline level of annual operations on which future activity levels will be based. Historical operations data for 2005 through 2015 was pulled from the FAA ATADS system. ATADS provides historical activity for the following four major users of the air traffic system:

- Air Carrier: Operations include scheduled service on aircraft with more than 60 seats operated by carriers certified under Federal Aviation Regulations (FAR) Part 119 (Certification: Air Carriers and Commercial Operators), whose operations are governed under FAR Part 121 (Operating Requirement: Domestic, Flag and Supplemental Operations).
- Air Taxi and Commuter: Carriers that operate aircraft with 60 or fewer seats or have a cargo payload capacity of less than 18,000 pounds, and carry passengers on an on-demand basis only (charter service) and/or carry cargo or mail on either a scheduled or charter basis. Commuter operators provide scheduled passenger service (five or

more round trips per week on at least one route according to published flight schedules) while utilizing aircraft of 60 or fewer seats. Air taxi and commuter carriers are governed under FAR Part 135 (Commuter and On Demand Operations).

- Military: Operations conducted by the nation's military forces.
- General Aviation: All other operations not including air carrier, air taxi and commuter, and military. These operations are conducted under FAR Part 91 (General Operating and Flight Rules).

As shown in **Table 1-4**, the FAA ATADS recorded a decrease of 32.2 percent for total airport operations over the 10-year reporting period (calendar year 2006 compared to 2015). The major reductions in operations were associated with GA and air taxi activity.

Table 1.4— Historical and Existing Aircraft Operations Data

	Itinerant					Local			All
Calendar Year	Air Carrier	Air Taxi	GA	Military	Sub-Total	Civil	Military	Sub-Total	Total
2006	15,290	30,733	75,219	10,418	131,660	22,190	1,212	23,402	155,062
2007	18,776	27,996	76,318	8,680	131,770	25,596	836	26,432	158,202
2008	18,819	23,703	73,707	7,792	124,021	30,260	1,886	32,146	156,167
2009	11,828	24,582	48,341	6,571	91,322	28,584	3,805	32,389	123,711
2010	9,794	26,019	45,273	5,849	86,935	28,285	3,844	32,129	119,064
2011	9,896	24,118	51,236	5,568	90,818	32,877	2,975	35,852	126,670
2012	10,642	23,034	43,409	5,799	82,884	34,593	3,438	38,031	120,915
2013	11,830	21,779	44,710	5,205	83,524	41,866	3,674	45,540	129,064
2014	13,061	22,592	43,069	5,852	84,574	31,930	3,127	35,057	119,631
2015	13,587	17,057	44,492	5,400	80,536	23,206	1,384	24,590	105,126
Avg. Annual Increase (5 year trend)	**6.3%**	**-9.4%**	**-0.8%**	**-2.0%**	**-1.7%**	**-6.5%**	**-30.6%**	**-8.0%**	**-2.8%**
Avg. Annual Increase (10 year trend)	**-3.3%**	**-7.3%**	**-7.3%**	**-8.0%**	**-6.1%**	**-1.20%**	**-10.1%**	**-1.2%**	**-4.8%**

Source: ATADS, May 2016

1.5 Forecast Factors

This section will describe the socioeconomic and industry forecast factors, or trends, that are expected to influence airport usage over the planning horizon.

1.5.1 Socioeconomic Trends Affecting Aviation

Commercial service airports are typically influenced by national and regional trends in population, per capita income, and employment, as well as airport prominence, and flights offered. The population growth, or decline, could have a direct influence on the level of demand for aviation services. Per capita income is usually a strong indicator of a community's discretionary income and ability to afford flying, either commercially or recreationally. For these reasons, a clear understanding of local demographic and economic forces and trends is important for developing an accurate aviation activity forecast.

To this end, historic and projected data of population and per capita income in the United States, State of California, and Fresno County (which makes up the Fresno Metropolitan Statistical Area [MSA]), were obtained from Woods & Poole Economics, Inc. The socioeconomic data shows projected growth in the two key indicators of future Airport use, population growth, and per capita income, for the Fresno County/Fresno MSA over the forecast period. The following describes these trends.

1.5.2 Fresno County Population Trends

The historic and projected populations and corresponding average annual growth rates (AAGR) for the Fresno County/Fresno MSA, the State of California, and the United States, for years 2005 through 2013 (historic) and 2014 through 2022 (projected), are shown in **Table 1-4**. These trends show that the historic Fresno population growth is equivalent to that reported for the State of California, and greater than that of the United States.

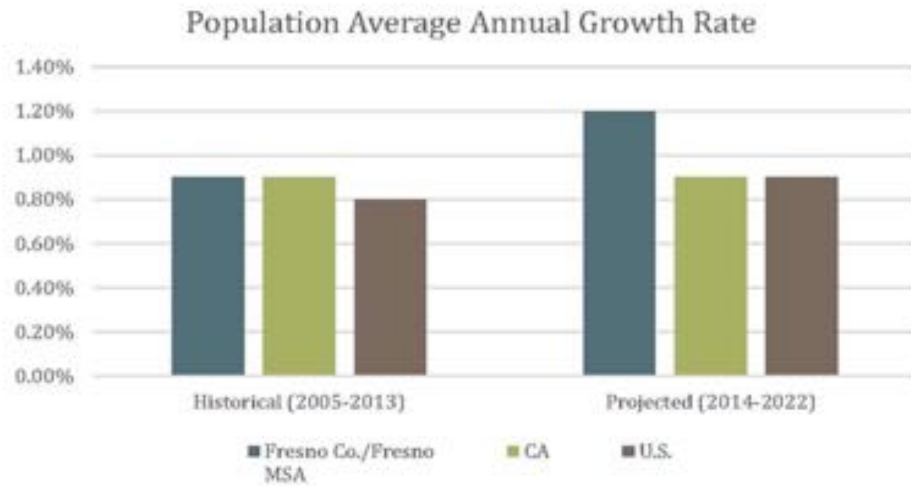
For years 2014 through 2022, the projected population growth of the Fresno County/Fresno MSA is anticipated to be greater than those projected for the State of California and the national average.

Table 1.4— Historic and Projected Population

Year	Fresno County/ Fresno MSA	Growth Rate	CA (1000s)	Growth Rate	U.S. (1000s)	Growth Rate
2005	872,470	-	35,828	-	295,517	-
2010	932,719	1.3%*	37,334	0.8%*	309,326	0.9%*
2011	940,974	0.9%	37,669	0.9%	311,583	0.7%
2012	947,581	0.7%	38,000	0.9%	313,874	0.7%
2013	955,272	0.8%	38,333	0.9%	316,129	0.7%
2005 – 2013 AAGR		0.9%		0.9%		0.8%
2014	965,885	1.1%	38,659	0.9%	318,699	0.8%
2015	977,079	1.2%	39,007	0.9%	321,449	0.9%
2016	988,894	1.2%	39,378	1.0%	324,392	0.9%
2017	1,000,857	1.2%	39,753	1.0%	327,372	0.9%
2018	1,012,952	1.2%	40,131	1.0%	330,383	0.9%
2019	1,025,188	1.2%	40,513	1.0%	333,427	0.9%
2020	1,037,550	1.2%	40,897	0.9%	336,500	0.9%
2021	1,050,039	1.2%	41,285	0.9%	339,602	0.9%
2022	1,062,657	1.2%	41,675	0.9%	342,733	0.9%
2014 – 2022 AAGR		1.2%		0.9%		0.9%

*Compound Annual Growth Rate
Source: Woods & Poole Economics, Inc. 2015; C&S Engineers, Inc.

Figure 1.1— Historic and Projected Population Growth Rates



Source: Woods & Poole Economics, Inc. 2015; C&S Engineers, Inc.

1.5.3 Fresno County/Fresno MSA per Capita Income Trends

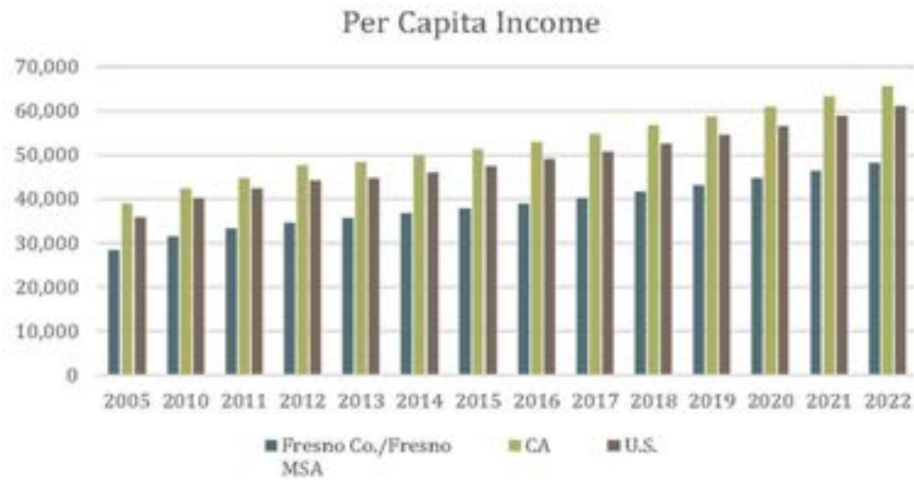
The historic and projected per capita income for the Fresno County/Fresno MSA, the State of California, and the United States are shown in **Table 1-5**. As shown, the historic per capita income growth rate for the Fresno County/Fresno MSA is below the State of California but above the United States. For the years 2014-2022, the projected per capita income growth for the Fresno County/Fresno MSA will drop below both the State of California and the United States, though not significantly (3.3 percent compared to 3.4 and 3.5 percent, respectively). While the growth rate is anticipated to remain within range of the state and national projections, the per capita income is noticeably lower. The projected growth will therefore keep the Fresno County/Fresno MSA's per capita income below both the state and national average.

Table 1.5 — Historic and Projected Per Capita Income

Year	Fresno County/ Fresno MSA ($)	Growth Rate	CA ($)	Growth Rate	U.S. ($)	Growth Rate
2005	28,362	-	38,964	-	35,888	-
2010	31,516	2.1%*	42,282	1.6%*	40,145	2.3%*
2011	33,321	5.7%	44,749	5.8%	42,332	5.4%
2012	34,539	3.7%	47,505	6.2%	44,200	4.4%
2013	35,635	3.2%	48,434	2.0%	44,765	1.3%
2005 – 2013 AAGR		3.6%		3.9%		3.4%
2014	36,735	3.1%	49,767	2.8%	46,044	2.9%
2015	37,809	2.9%	51,273	3.0%	47,472	3.1%
2016	38,977	3.1%	52,908	3.2%	49,022	3.3%
2017	40,250	3.3%	54,687	3.4%	50,709	3.4%
2018	41,628	3.4%	56,609	3.5%	52,532	3.6%
2019	43,100	3.5%	58,659	3.6%	54,479	3.7%
2020	44,677	3.7%	60,851	3.7%	56,563	3.8%
2021	46,332	3.7%	63,157	3.8%	58,757	3.9%
2022	48,096	3.8%	65,611	3.8%	61,092	4.0%
2014– 2022 AAGR		3.4%		3.4%		3.5%

*Compound Annual Growth Rate
Source: Woods & Poole Economics, Inc. 2015; C&S Engineers, Inc.

Figure 1.2— Historic and Projected Per Capita Income



Note: 2014 and beyond are projected.
Source: Woods & Poole Economics, Inc. 2015; C&S Engineers, Inc.

1.5.4 Aviation Industry Trends

Multiple industry data sources, in addition to those described previously, were used to identify aviation trends that are anticipated to influence activity at FAT over the planning horizon. The following describes these sources and how the identified trends were applied to the aviation activity forecasts:

- The FAA National Aviation Forecast is a cumulative total of all U.S. airports and provides the anticipated national growth in enplanements, operations, and GA aircraft. The national growth rates and forecasts will differ from the Airport-specific FAT TAF forecast since the FAT TAF is, as is each individual airport's TAF, based on assumptions of local growth and market demand.
- The FAA Aerospace Forecast, Fiscal Years (FY) 2016-2036 provides an overview of aviation industry trends and expected growth for the commercial passenger carrier,

cargo carrier, and GA activity segments. National growth rates in enplanements, operations, fleet growth and fleet mix for commercial fleets and the GA fleet are provided over a 20-year forecast horizon.

- The Boeing Current Market Outlook 2015-2034 provides insight into future commercial carrier fleet growth and anticipated fleet mix of both domestic and foreign airlines.

These insights were used to assist in developing and confirming the validity of future FAT commercial carrier fleet mix assumptions.

The biennial Boeing World Air Cargo Forecast 2014-2015 provides anticipated growth factors in the domestic aft cargo market, as well as growth factors for international trade lanes (e.g., U.S.-Asia Pacific traffic). These factors were used to gauge potential air cargo growth at the Airport.

Section 2—Commercial Operations Forecasts

This section presents the development and results of the activity forecast and fleet mix for passenger commercial air carrier and air taxi operations, including discussions of overall trends, airline and market factors, and trends in the use of specific aircraft types.

2.1 Commercial Operations Forecast Factors

Commercial operations at FAT were adjusted upward to follow the trends provided in the FAA TAF for the five-year forecasting period. The increase in operations is also indicative of the continued increase in passenger enplanements projected by the FAA TAF and recent studies prepared by the City. Based on the continued trend in the reduction of domestic fares at FAT, it is anticipated that the Airport will continue to maintain its current market share for the central California region and meet the anticipated growth trends in the area (see Section 1.5 Forecast Factors). The adjustments were consistent with Woods & Poole demographic data showing above average population growth and strong per capita income in the FAT catchment area, historic market share growth, and recent airline activity trends.

The anticipated increase in the local passenger market share has already begun to influence the aircraft fleet mix at FAT. Airlines are transitioning to larger aircraft that can accommodate 50 plus passengers to meet the projected activity demand.

Data in **Table 2-1** presents the Air Carrier forecast for the years 2017 to 2022. Commercial operations growth at FAT is directly associated with the growth in passenger activity and commercial aircraft fleet mix changes. The forecast incorporated specific factors directly related with FAT:

- Gains in passenger activity as a result of the population growth and national/regional trends
- A shift from twin turboprop commuter aircraft to 50 plus seat commuter jets and larger regional jets with increased seating capacity
- Continued increase in passenger load factors over the five-year forecasting period with no anticipated decline (forecasted to average between 83 to 84 percent over timeframe)
- Increasing the Airport's share of national enplanements

According to the TAF and a recent evaluation of passenger enplanements at FAT, the level of passengers per departure is expected to increase 2.8 percent along with the average numbers of seats per departure. This translates to more passengers per flight on larger aircraft than what formerly served FAT. With the shift to larger regional and mid-size jet (e.g. Boeing 737) aircraft, it is assumed that the number of operations to accommodate the growing number of passenger enplanements will grow at a slightly lower rate (1.5 percent) to that of enplanements but in-line with population and income growth in the region. The overall growth will be experienced in air carrier aircraft (greater than 50 seats) as air taxi aircraft will continue to decrease operations at FAT as airlines adjust their fleet mix. This falls in-line with current and forecasted trends published in the TAF for the Airport.

Baseline operations (2015, which will represent the chosen baseline year of 2017 for the analysis) were calculated from data provided by the FAA TFMSC and ATADS programs.

Table 2-1— Commercial Air Carrier Forecast

Year	Air Carrier	Air Taxi & Commuter	Annual Operations
2015	13,587	17,057	30,644
2016	14,783	16,321	31,104
2017	16,084	15,487	31,571
2018	17,499	14,545	32,044
2019	19,039	13,486	32,525
2020	20,714	12,298	33,012
2021	22,537	10,970	33,507
2022	24,520	9,490	34,010
Avg. Annual Increase	**8.8%**	**-8.0%**	**1.5%**

Source: FAA TFMSC and ATADS, May, 2016; C&S Engineers, Inc.

2.2 Fleet Mix Assumptions

The commercial aircraft fleet mix projections are a function of the scheduled commercial airlines that operate (or are expected to operate) at the Airport during the forecast period. FAT currently has eight airlines that provide service to 11 destinations in the U.S. and Mexico. Each airline's fleet mix and forecasted enplanement levels influence a carrier's aircraft type and level of operations. This data is then coupled with the forecast commercial air carrier operations to determine the number of annual arrival and departures by aircraft type.

The first step in determining FAT's future commercial carrier fleet mix is identifying the overall market trends that will drive future airline fleets, as well as aircraft fleet mix decisions specific to each airline operating at the Airport. Recent trends at FAT have shown that domestic air carriers have begun retiring smaller twin-turboprop aircraft (50 seats or less) at an accelerated rate. These aircraft are being replaced by 50-seat regional jets (CRJ200) and larger 70- and 90-plus seat regional jets, as well as single aisle aircraft (e.g. Boeing 737). This falls in-line with the 2015 Boeing Current Market Outlook which predicts a slowdown in the retirement of regional jets, versus what was previously predicted, and the increase in single-aisle mainline aircraft, which will continue to comprise the majority of the domestic fleet.

Specific fleet mix characteristics and trends were identified and applied directly to the passenger carrier forecasts through 2022. In order to provide a detailed picture of future FAT operations, the following assumptions are based upon airline-specific fleet plans and aircraft orders, as well as overall industry trends:

- Allegiant Airlines will continue to serve FAT with MD80 (83/88 variants) aircraft with routes to Las Vegas McCarran and Phoenix Mesa Gateway as the aircraft type continues to make up the majority of the airline's fleet mix and is capable of serving those routes adequately.

- AeroMexico and Volaris will provide non-stop service to Guadalajara, Mexico for the forecasting period utilizing single-aisle aircraft (B737-8 and A320).
- Operations of twin turbo-prop aircraft (EMB120) will be replaced with regional jet aircraft with a passenger capacity of 50 seats or under (Canadair CRJ200 and Embraer ERJ 135/140), while a transition to larger 70-seat plus regional jet aircraft (Canadair CRJ700/900 and Embraer ERJ 170/175) takes place over the forecasting period. This trend has already begun to take place with Skywest retiring the EMB120 aircraft from its fleet.
- American Airlines has begun operations of the ERJ 175 on the FAT to Los Angeles route beginning in Sept. 2015, replacing the CRJ200. American Airlines will maintain the CRJ200 for other routes from FAT for the near-term but will transition to the ERJ 175 over the five-year forecasting period. American Airlines will also transition from an MD80 to a B737-8 on its Dallas-Fort Worth (DFW) route.
- Alaska Airlines will continue to decrease the use of the Bombardier Q-400 (DH8D) and replace those operations with the CRJ700. Alaska now has non-stop service to Seattle, WA; Portland, OR; and San Diego, CA from FAT.
- As 50-seat regional jet operations transition to 70-seat aircraft; likewise, a percentage of 70-seat regional jet operations will transition to larger 80-plus seat and 99-seat regional jets, and smaller narrow body aircraft.

2.3 Forecast Presentation

In accordance with Part 150 guidance, operations are shown by arrivals and departures, and time-of-day. Time-of-day indicates whether the operations take place in the day, evening or night. The following presents the parameters that define the time-of-day metrics:

- Day – arrival and departures that occur between 7:00 am to 7:00 pm
- Evening – arrival and departures that occur between 7:00 pm to 10:00 pm
- Night – arrival and departures that occur between 10:00 pm to 7:00 am

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Update Activity Forecast, 2017 and 2022

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Table 2-2— 2017 Commercial Air Carrier Forecast (Annual Operations)

	Arrivals				Departures				
Seat Capacity	Day	Evening	Night	Total Ops	Day	Evening	Night	Total Ops	Total Ops
≤ 50 passenger	2,974	1,383	1,684	6,041	4,390	1,409	242	6,041	12,082
50-99 passengers	3,055	1,389	2,670	7,114	5,336	1,598	178	7,112	14,226
99+ passengers	1,090	270	1,272	2,632	1,325	465	841	2,631	5,263
Total	7,119	3,042	5,626	15,787	11,051	3,472	1,261	15,784	31,571

Table 2-3— 2022 Commercial Air Carrier Forecast (Annual Operations)

	Arrivals				Departures				
Seat Capacity	Day	Evening	Night	Total Ops	Day	Evening	Night	Total Ops	Total Ops
≤ 50 passenger	2,231	799	1,241	4,271	2,988	1,136	144	4,268	8,539
51-99 passengers	4,340	1,850	3,482	9,672	6,819	2,558	293	9,670	19,342
99+ passengers	898	256	1,911	3,065	1,072	381	1,611	3,064	6,129
Total	7,469	2,905	6,634	17,008	10,879	4,075	2,048	17,002	34,010

Source: C&S Engineers, Inc. 2016
Note: due to rounding some totals in the table may not equal out.

Section 3—Cargo Carrier Operations Forecast

Similar to most sectors within the aviation industry, air cargo activity and demand is cyclical in nature and fluctuates based upon both national and global economic trends. According to the FAA Aerospace Forecasts, FY 2016 – 2036, specific factors that influence air cargo activity include movement of real yields, fuel price instability, and globalization. According to the Aerospace Forecast, air cargo is projected to grow at an AAGR of 3.6 percent throughout the forecast period. However, domestic air cargo growth is forecast to increase at a modest AAGR of 0.5 percent.

Air cargo traffic is comprised of freight and express cargo, and mail. FAT air cargo is transported by dedicated all-cargo aircraft or charter service cargo. There is no belly cargo at the Airport, which is defined as cargo transported in the "belly" compartment during a commercial air carrier operation. All-cargo operations at FAT include two operations per day, a departure and return landing, by both FedEx and United Parcel Service (UPS), using the 757-200. According to discussions with FedEx, no changes in activity are anticipated though the aircraft may be updated to the 767 in the future. Because any charter service cargo is captured under GA operations, the total for **existing and projected annual cargo operations is 1,460** (four operations per day times 365 days per year).

Although the FAA Aerospace Forecast projects an increased air cargo operations trend, no changes in activity are anticipated at the Airport within the five-year forecast under analysis per discussions with FedEx and UPS.

Section 4—General Aviation Operations Forecast

There are a variety of aviation activities that comprise the broad definition of general aviation (GA). GA includes all segments of the aviation industry except commercial air carriers/regional/commuter service, scheduled commercial cargo, and military operations.

GA represents the largest percentage of civil aircraft in the U.S. and accounts for the majority of operations handled by towered and non-towered airports, as well as the majority of certificated pilots. Its activities include flight training, sightseeing, aerial photography, recreational, law enforcement, and medical flights, as well as business, corporate, and personal travel via air taxi charter operations. GA aircraft encompass a broad range of types, from single-engine piston aircraft to large corporate jets, as well as rotorcraft, gliders, and amateur-built aircraft.

GA operations at FAT are divided by local and itinerant activity and include single-engine piston, multi-engine piston, turbo-prop, jet and rotorcraft aircraft. Due to the differing growth rates of local versus itinerant activity, each is forecasted with a unique forecast factor and adjusted for each aircraft type using the FAA Aerospace Forecast for Fiscal Years (FY) 2016 – 2036.

GA growth rates for the forecast period, as presented in the TAF, show itinerant GA operations growing at an AAGR of 0.4 percent from 2017 to 2022 and local GA operations growing at an AAGR of 0.3 percent. The TAF predicts GA operations to grow at a rate below that of the national average for GA operations, which reflects an average annual growth rate of 0.4 percent. Simply put, the TAF for FAT already adjusts the national growth rates for GA operations to levels that reflect conditions of the Airport's market area. However, the projected growth must be adjusted for each aircraft type to reflect their differing growth rates within the overall GA fleet. The forecast scenario utilizes TAF-based growth factors applied to actual 2015 operations.

For the purposes of the approved forecast, the FAT TAF annual growth numbers were used as the variable for yearly GA operations growth. However, the individual aircraft types were adjusted based on the FAA Aerospace Forecast data.

Table 4-1 shows the FAA Aerospace Forecast for FY 2015 – 2025 annual growth rates predictions for active aircraft within the GA fleet. It is important to note that these numbers represent the fleet growth per aircraft type, not to be confused with operations.

Table 4.1— National GA Fleet Growth Rates

Years	Single-Engine Piston*	Multi-Engine Piston	Turbo Prop	Turbo Jet	Rotorcraft
2015 - 2025	-0.8%	-0.4 %	0.0%	+2.1%	+2.5%

Source: FAA Aerospace Forecast for FY 2016 – 2036
*Includes sport and experimental aircraft.

Again, note that these forecast factors do not represent anticipated growth in operations by the respective aircraft type, but rather indicate the anticipated growth in their numbers within the GA fleet. These figures do, however, provide insight into what aircraft will drive incremental operations growth at FAT; piston and turbo prop operations will decline and jet and rotorcraft operations form the bulk of incremental growth. The existing breakdown of GA activity by aircraft type was provided in the FAT Final Environmental Assessment (EA).

Table 4.2— Breakdown of GA Activity by Aircraft Type

% of Local GA Activity		% of Itinerant GA Activity				
Single-Engine Piston	Multi-Engine Piston	Single-Engine Piston	Multi-Engine Piston	Turbo Prop	Turbo Jet	Rotorcraft
67.0%	33.0%	49.0%	12.7%	12.7%	8.0%	17.6%

Source: Fresno Yosemite International Airport Final Environmental Assessment

Although omitted from the FAT Final EA breakdown presented above, there is a flight school (Mazzie Flight Service) based at the Airport that is responsible for approximately 1,678 local rotorcraft operations each year, which is anticipated to remain steady over the forecast period.

ATADS data was used to calculate the baseline scenario. The next step was to apply the previously mentioned growth rates, provided by the TAF forecast, to calculate the operations for local and itinerant GA activity. This was then broken down by aircraft type according to the EA data captured in **Table 4.2** and information provided by the flight school. Adjustments were made to account for the national forecasts for the GA fleet as described in the FAA Aerospace Forecast. Adjustments can be summarized as follows:

- Although the national fleets of both single- and multi-engine aircraft are projected to decrease over the forecasted period, a smaller decrease is anticipated in single-engine aircraft. Therefore, in developing the forecast for the local GA operations, those attributed to multi-engine aircraft are projected to remain steady (because the forecast period is only five years a significant reduction relative to existing activity is unlikely) and growth is seen only by single-engine aircraft. Although the FAA Aerospace Forecast projects growth in rotorcraft, this activity was held steady per discussions with the flight school.

- Growth in itinerant GA activity is projected to be dominated by rotorcraft and jet operations given the anticipated reductions in the national single-engine, multi-engine, and turbo prop fleets. Again, because the forecast period is only five years, a significant reduction relative to existing activity is unlikely.

Table 4.3 shows a summary of these operations by the aircraft categories previously mentioned.

Table 4.3—General Aviation Forecast

	Itinerant						Local				All
Year	Single-Engine Piston	Multi-Engine Piston	Turbo Prop	Jet	Rotor-craft	Sub Total	Single-Engine Piston	Multi-Engine Piston	Rotorcraft	Sub Total	Total
2015	21,801	5,650	5,650	3,559	7,831	44,492	13,525	8,003	1,678	23,206	67,698
2016	21,801	5,650	5,650	3,619	7,963	44,683	13,597	8,003	1,678	23,278	67,961
2017	21,801	5,650	5,650	3,635	8,140	44,875	13,669	8,003	1,678	23,350	68,226
2018	21,801	5,650	5,650	3,651	8,317	45,068	13,742	8,003	1,678	23,422	68,491
2019	21,801	5,650	5,650	3,666	8,495	45,262	13,814	8,003	1,678	23,495	68,757
2020	21,801	5,650	5,650	3,682	8,674	45,457	13,887	8,003	1,678	23,568	69,025
2021	21,801	5,650	5,650	3,698	8,853	45,652	13,960	8,003	1,678	23,641	69,293
2022	21,801	5,650	5,650	3,714	9,034	45,849	14,033	8,003	1,678	23,714	69,563

Source: C&S Engineers, Inc.

The following provides an outline of the assumptions and methodologies that were applied to the forecast:

- ATADS data acquired by C&S provided the existing local and itinerant operations attributed with GA activity
- The FAT TAF forecast provided the projected average annual growth rates for local and itinerant GA operations
- The FAT Final EA provided the existing breakdown of GA activity by aircraft type; this was supplemented with information provided by the flight school for local rotorcraft activity
- The FAA Aerospace Forecast for FY 2016 – 2036 provided information regarding the growth rates for the national aircraft fleet according to aircraft type

Section 5—Military Operations Forecast

Military operations forecasts and projected fleet mix composition at FAT are based on CANG-provided information, refueling records, and operational data provided through ATADS and TFMSC. Military aircraft and operations are simply defined as aircraft and operations conducted by the nation's military forces. Military aircraft are also included in the based aircraft and operations projections, but are not forecast in the same manner as GA activity since their number, location, and activity levels are not a function of anticipated market and economic conditions, but are rather a function of military decisions, national security priorities, and budget pressures that cannot be predicted over the course of the forecast period. Therefore, for the purposes of this forecast, the military operations were projected to remain static at baseline year levels throughout the forecast period. This was corroborated by the CANG Environmental Impact Statement (EIS) for the conversion of its F-16 fleet to F-15s, and direct conversations with staff which stated that operations would remain steady through the five-year forecasting period.

Military operations at FAT are derived in two ways: based military aircraft and transient military operations (i.e., military aircraft not attached to the CANG based at FAT). According to information provided in the EIS, based military aircraft at FAT are comprised of only the F-15 following the conversion from the F-16 fleet. Annual operations are anticipated to remain steady at 4,680. Transient military activity includes operations by the F-16, F-18 and other aircraft used for cargo and emergency response purposes. According to fueling records and airport management, F-16 and F-18 aircraft land at FAT approximately four to six times per weekend. According to TFMSC data, remaining transient military activity is attributed to the Lockheed SP-2 Neptune and C-130 Hercules. The transient aircraft mix is difficult to predict through the forecast period; for the purposes of this forecast, it is assumed that the transient military fleet mix will remain constant. In addition, all transient military operations are categorized as itinerant operations.

The following provides a summary of the assumptions and methodologies used to calculate the 2017 and 2022 Military Operations forecasts.

5.1 Assumptions

- Operation counts are based on information provided by the CANG, ATADS data, and 2015 aircraft refueling records specific to government operated aircraft.
- All non-based aircraft operations are itinerant operations.
- No increases or changes in fleet mix are anticipated.

5.2 Methodologies

- ATADS counts for local military activity were attributed entirely to the based aircraft. The remainder of the 4,680 based operations were attributed to itinerant activity. Per the CANG, no changes in activity are projected.
- The non-based F-16 and F-18 operations were estimated according to information provided by the CANG, airport management, and aircraft fueling records provided

by the fixed-based-operator (FBO) responsible for refueling itinerant military operations.

- The remaining non-based operations were attributed to the Lockheed SP-2 Neptune and C-130 Hercules aircraft based on information provided by the TFMSC and conversations with the FBO.

Table 5.1—Military Forecast

	Itinerant					Local	All
Year	CANG (F-15)	Other (F-16/F-18)	Other (Lockheed SP-2 Neptune)	Other C-130	Sub Total	CANG (F-15)	Total
2015	2,498	624	2,129	190	5,441	2,182	7,623
2016	2,498	624	2,129	190	5,441	2,182	7,623
2017	2,498	624	2,129	190	5,441	2,182	7,623
2018	2,498	624	2,129	190	5,441	2,182	7,623
2019	2,498	624	2,129	190	5,441	2,182	7,623
2020	2,498	624	2,129	190	5,441	2,182	7,623
2021	2,498	624	2,129	190	5,441	2,182	7,623
2022	2,498	624	2,129	190	5,441	2,182	7,623

Source: California Air National Guard EIS and correspondence; C&S Engineers, Inc.

Section 6—Forecast Summary

The Forecast Summary summarizes the total operations profile of FAT through the forecast period (2017 to 2022) by aircraft category and type. This forecast was designed to provide a highly detailed picture of FAT's current and forecasted operations for use in updating the Airport's Part 150 Noise Exposure Maps; it equally provides an overview of the Airport, its users, and the internal and external factors that influence future growth. The data gathered, analyzed, and presented, coupled with industry research and a range of meetings with Airport staff, tenants, and local government representatives, were instrumental in gaining a full understanding of the driving forces behind FAT's future activity levels. In order to ensure the greatest confidence in the findings of this Part 150 forecast, the approach, level of research, data analysis, and due diligence applied were completed to meet the guidance outlined under FAA Advisory Circular (AC) 150/5070-6B–Airport Master Plans.

The following tables are provided to present the entirety of the forecast findings in a concise, yet comprehensive, format that brings together all of the elements from forecasting effort. FAT operations by activity type are shown in **Table 6-1**. Overall, operations are projected to grow at an average annual rate of 0.7 percent, with passenger carrier operations growing the most, and the other categories showing little to no growth.

Table 6.1—Operations Forecast Summary by Aircraft Category

	Year			
Category	**2015**	**2017**	**2022**	**AAGR**
Air Carrier	30,644	31,571	34,010	1.5%
Cargo	1,460	1,460	1,460	0.0%
General Aviation	67,698	68,226	69,563	0.4%
Military	7,623	7,623	7,623	0.0%
Total	107,425	108,880	112,656	0.7%

Source: FAA ATADS, May. 2016; C&S Engineers, Inc.

Table 6.2 provides a comparison of the forecast to the FAA TAF. As shown in the table, the total operations forecast is within ten percent (0.4 percent) of the TAF for the five-year forecast (2022). According to FAA guidance, forecasts that differ by less than ten percent in the five-year forecast period are considered consistent with the TAF.

Table 6.2—Operations Forecast and FAA TAF Comparison

Forecast Year	Aviation Forecast	FAA TAF	Percentage Comparison
2022	112,656	113,114	-0.4%

Source: FAA TAF, January 2016; C&S Engineers, Inc.

Appendix A provides a detailed breakdown of operations by time-of-day for each aircraft type. This includes all aircraft types that will be included in the noise analysis. Due to rounding, some column totals may be off by one operation.

6.1 Critical Aircraft

The selection of appropriate FAA airport design criteria is based upon the critical or design aircraft that operates at an airport. The design aircraft criteria is defined by the FAA as the most demanding aircraft that performs or is projected to perform at least 500 itinerant operations annually at a chosen facility. This can be recognized as a specific aircraft model or composite of similar aircraft models that currently operate, or are forecasted to operate, at the facility. Based on information provided in the 2006 Airport Master Plan Update, the Boeing 757 (B757), Boeing 767 and Airbus 300 were identified as aircraft that met the FAA criteria to be recognized as the critical aircraft. Each aircraft has an FAA identified Airport Reference Code (ARC) of C-IV, which was chosen as the design criteria for which the Airport was planned under the Master Plan Update. Although the Boeing 767 and Airbus 300 are no longer represented in the aircraft fleet mix at FAT, the B757 still continues to operate at the Airport in exceedance of 500 annual aircraft operations, and would remain the critical aircraft under the five-year forecasting scenario developed as part of the NEM Update.

Appendix A – Aircraft Operations Tables

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Table A-1— 2017 Commercial Air Carrier Forecast (Annual Operations)

		Arrivals				Departures				
Aircraft Type		Day	Evening	Night	Total Ops	Day	Evening	Night	Total Ops	Total Ops
A319	Airbus A319	186	20	12	218	24	180	14	218	436
A320	Airbus A320	17	3	532	552	48	4	500	552	1,104
B737	Boeing 737-700	30	2	25	57	39	2	16	57	114
B738	Boeing 737-800	19	0	241	260	19	2	239	260	520
CRJ2	Bombardier CRJ-200	1,810	599	1,076	3,485	2,469	897	118	3,484	6,969
CRJ7	Bombardier CRJ-700	898	212	1,110	2,220	1,915	293	12	2,220	4,440
CRJ9	Bombardier CRJ-900	1,524	533	1,097	3,154	2,227	875	51	3,153	6,307
E135	Embraer ERJ 135/140/Legacy	22	12	4	38	23	15	1	39	77
E190	Embraer 190	17	17	3	37	10	22	5	37	74
MD82	Boeing (Douglas) MD 82	287	51	272	610	598	7	5	610	1,220
MD83	Boeing (Douglas) MD 83	529	172	187	888	587	241	59	887	1,775
MD88	Boeing (Douglas) MD 88	22	22	3	47	10	29	8	47	94
E120	Embraer Brasilia EMB 120	1,142	772	604	2,518	1,898	497	123	2,518	5,036
DH8D	Bombardier Q-400	616	627	460	1,703	1,184	408	110	1,702	3,405
										31,571

Source: C&S Engineers, Inc. 2016

Table A-2— 2022 Commercial Air Carrier Forecast (Annual Operations)

Aircraft Type		Arrivals				Departures				
		Day	Evening	Night	Total Ops	Day	Evening	Night	Total Ops	Total Ops
A319	Airbus A319	84	9	5	98	11	81	6	98	196
A320	Airbus A320	27	5	827	859	76	5	778	859	1,718
B737	Boeing 737-700	35	2	25	62	40	2	19	61	123
B738	Boeing 737-800	57	0	740	797	57	5	735	797	1,594
CRJ2	Bombardier CRJ-200	1,971	653	1,172	3,796	2,688	978	128	3,794	7,590
CRJ7	Bombardier CRJ-700	1,241	293	1,532	3,066	2,689	361	16	3,066	6,132
CRJ9	Bombardier CRJ-900	2,369	828	1,707	4,904	3,462	1,362	79	4,903	9,807
E135	Embraer ERJ 135/140/Legacy	206	110	40	356	211	135	10	356	712
E175	Embraer 175	502	501	100	1,103	302	652	150	1,104	2,207
E190	Embraer 190	56	56	11	123	33	72	17	122	245
MD82	Boeing (Douglas) MD 82	143	26	136	305	301	2	2	305	610
MD83	Boeing (Douglas) MD 83	512	174	172	858	568	234	56	858	1,716
MD88	Boeing (Douglas) MD 88	40	40	6	86	19	52	15	86	172
E120	Embraer Brasilia EMB 120	54	36	29	119	89	23	6	118	237
DH8D	Bombardier Q-400	172	172	132	476	333	111	31	475	951
										34,010

Source: C&S Engineers, Inc. 2016

14 CFR Part 150 Noise Exposure Map
Update Activity Forecast, 2017 and 2022

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Table A-3— 2017 GA Jet Forecast (Annual Operations)

		Arrivals				Departures				
	Aircraft Type	Day	Evening	Night	Total Ops	Day	Evening	Night	Total Ops	Total Ops
E55P	Embraer Phenom 300	27	5	1	33	27	6	0	33	66
C25B	Cessna Citation CJ3	114	48	15	177	106	52	17	175	352
C501	Cessna I/SP	43	24	5	72	56	14	1	71	143
C510	Cessna Citation Mustang	51	10	0	61	50	10	1	61	122
C525	Cessna CitationJet/CJ1	57	36	15	108	79	22	6	107	215
C550	Cessna Citation II/Bravo	62	14	7	83	55	17	10	82	165
C56X	Cessna Excel/XLS	158	57	23	238	178	46	15	239	477
C680	Cessna Citation Sovereign	44	20	5	69	57	11	1	69	138
C750	Cessna Citation X	47	8	5	60	49	9	2	60	120
E50P	Embraer Phenom 100	30	16	5	51	27	21	2	50	101
EA50	Eclipse 500	90	69	20	179	148	29	2	179	358
F2TH	Dassault Falcon 2000	63	23	7	92	65	24	2	91	183
GLF4	Gulfstream IV/G400	85	35	20	140	110	27	3	140	280
GLF5	Gulfstream V/G500	26	17	4	47	38	6	4	48	95
H25B	BAe Hawker 800	196	39	23	258	218	35	6	259	517
LJ45	Bombardier Learjet 45	120	26	5	151	111	32	9	152	303
										3,635

Source: C&S Engineers, Inc. 2016

14 CFR Part 150 Noise Exposure Map
Update Activity Forecast, 2017 and 2022

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Table A-4 — 2022 GA Jet Forecast (Annual Operations)

		Arrivals				Departures				
Aircraft Type		Day	Evening	Night	Total Ops	Day	Evening	Night	Total Ops	Total Ops
E55P	Embraer Phenom 300	27	5	1	33	27	6	0	33	66
C25B	Cessna Citation CJ3	116	49	15	180	107	54	18	179	359
C501	Cessna I/SP	43	24	5	72	57	14	1	72	144
C510	Cessna Citation Mustang	53	10	0	63	51	10	2	63	126
C525	Cessna CitationJet/CJ1	58	37	15	110	81	23	6	110	220
C550	Cessna Citation II/Bravo	63	14	7	84	56	18	10	84	168
C56X	Cessna Excel/XLS	162	58	23	243	181	47	15	243	486
C680	Cessna Citation Sovereign	45	20	5	70	58	11	1	70	140
C750	Cessna Citation X	48	8	5	61	50	9	2	61	122
E50P	Embraer Phenom 100	31	16	5	52	28	22	2	52	104
EA50	Eclipse 500	92	70	20	182	151	29	2	182	364
F2TH	Dassault Falcon 2000	64	24	7	95	67	25	3	95	190
GLF4	Gulfstream IV/G400	87	36	21	144	113	28	3	144	288
GLF5	Gulfstream V/G500	26	18	5	49	39	6	4	49	98
H25B	BAe Hawker 800	200	40	24	264	221	36	6	263	527
LJ45	Bombardier Learjet 45	123	27	6	156	114	33	9	156	312
										3,714

Source: C&S Engineers, Inc. 2016

14 CFR Part 150 Noise Exposure Map
Update Activity Forecast, 2017 and 2022

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Table A-5 — 2017 GA Single-Engine Piston and Multi Engine Piston (Annual Operations)

		Arrivals				Departures				
	Aircraft Type	Day	Evening	Night	Total Ops	Day	Evening	Night	Total Ops	Total Ops
BE58	Beechcraft Baron 58	1,015	458	128	1,601	1,253	308	41	1,602	3,203
C340	Cessna 340	328	88	46	462	349	103	10	462	924
C421	Cessna Golden Eagle 421	1,055	426	154	1,635	1,323	281	31	1,635	3,270
DA40	Diamond Star DA40	159	41	36	236	133	62	41	236	472
C208	Cessna 208 Caravan	1,459	77	10	1,546	1,389	158	0	1,547	3,093
AT8T	Air Tractor AT-802	364	318	0	682	231	451	0	682	1,364
BE35	Beechcraft Bonanza 35	566	272	51	889	745	113	31	889	1,778
BE36	Beechcraft Bonanza 36	684	226	51	961	675	144	144	963	1,924
C152	Cessna 152	261	72	174	507	210	123	174	507	1,014
C172	Cessna Skyhawk 172/Cutlass	1,212	518	218	1,948	1,126	513	308	1,947	3,895
C182	Cessna Skylane 182	1,430	411	97	1,938	1,366	388	185	1,939	3,877
C206	Cessna 206 Stationair	605	272	26	903	554	195	154	903	1,806
C210	Cessna 210 Centurion	995	452	92	1,539	1,375	123	41	1,539	3,078
M20P	Mooney M-20C Ranger	523	185	97	805	600	82	123	805	1,610
PA46	Piper Malibu	354	167	67	588	494	92	0	586	1,174
SR22	Cirrus SR 22	1,220	267	205	1,692	1,428	213	51	1,692	3,384
P46T	Piper Malibu Meridian	426	182	45	653	499	133	21	653	1,306
PA28	Piper Cherokee	1,846	780	241	2,867	2,266	502	101	2,869	5,736
PA34	Piper PA-34 Seneca	338	341	144	823	576	185	62	823	1,646
PA38	Piper Tomahawk PA38	661	1,203	421	2,285	1,669	451	164	2,284	4,569
										49,123

14 CFR Part 150 Noise Exposure Map
Update Activity Forecast, 2017 and 2022

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Table A-6 — 2022 GA Single-Engine Piston and Multi Engine Piston (Annual Operations)

		Arrivals				Departures				
Aircraft Type		Day	Evening	Night	Total Ops	Day	Evening	Night	Total Ops	Total Ops
BE58	Beechcraft Baron 58	1,023	462	129	1,614	1,262	310	41	1,613	3,227
C340	Cessna 340	330	88	46	464	351	103	10	464	928
C421	Cessna Golden Eagle 421	1,063	429	155	1,647	1,332	283	31	1,646	3,293
DA40	Diamond Star DA40	160	41	36	237	134	62	41	237	474
C208	Cessna 208 Caravan	1,470	77	10	1,557	1,400	159	0	1,559	3,116
AT8T	Air Tractor AT-802	367	320	0	687	232	455	0	687	1,374
BE35	Beechcraft Bonanza 35	570	274	52	896	751	114	31	896	1,792
BE36	Beechcraft Bonanza 36	689	227	52	968	680	145	145	970	1,938
C152	Cessna 152	263	73	176	512	212	124	176	512	1,024
C172	Cessna Skyhawk 172/Cutlass	1,221	522	220	1,963	1,134	517	310	1,961	3,924
C182	Cessna Skylane 182	1,441	414	98	1,953	1,376	393	186	1,955	3,908
C206	Cessna 206 Stationair	609	274	26	909	558	196	155	909	1,818
C210	Cessna 210 Centurion	1,002	456	93	1,551	1,385	124	41	1,550	3,101
M20P	Mooney M-20C Ranger	527	186	98	811	605	83	124	812	1,623
PA46	Piper Malibu	356	168	67	591	498	93	0	591	1,182
SR22	Cirrus SR 22	1,229	269	207	1,705	1,438	215	52	1,705	3,410
P46T	Piper Malibu Meridian	429	183	46	658	503	134	21	658	1,316
PA28	Piper Cherokee	1,859	787	244	2,890	2,282	506	102	2,890	5,780
PA34	Piper PA-34 Seneca	341	343	145	829	580	186	62	828	1,657
PA38	Piper Tomahawk PA38	666	1,212	424	2,302	1,681	454	165	2,300	4,602
										49,487

14 CFR Part 150 Noise Exposure Map
Update Activity Forecast, 2017 and 2022

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Table A-7— 2017 GA Turboprop and Rotocraft (Annual Operations)

		Arrivals				Departures				
	Aircraft Type	Day	Evening	Night	Total Ops	Day	Evening	Night	Total Ops	Total Ops
AC90	Aero Commander	42	13	3	58	33	22	3	58	116
B350	Beech Super King Air 350	187	52	10	249	196	39	14	249	498
BE10	Beech King Air 100 A/B	45	13	44	102	44	22	37	103	205
BE20	Beech 200 Super King	186	60	36	282	201	40	41	282	564
BE30	Raytheon 300 Super King Air	57	9	6	72	51	17	4	72	144
BE9L	Beech King Air 90	409	205	59	673	490	134	49	673	1,346
C441	Cessna Conquest	157	33	4	194	157	31	6	194	388
PA44	Piper Seminole	42	63	114	219	68	45	106	219	438
PAY2	Piper Cheyenne 2	63	13	7	83	48	23	12	83	166
PC12	Pilatus PC-12	230	91	36	357	300	47	10	357	714
SW4	Swearingen Merlin 4/4A Metro2	27	40	1	68	21	45	2	68	136
PA31	Piper Navajo PA-31	263	166	39	468	259	157	51	467	935
HELO	Bell 407/430	1,620	1,964	1,325	4,910	2,798	1,423	687	4,908	9,818
										15,468

Source: C&S Engineers, Inc. 2016

Table A-8— 2022 Turboprop and Rotocraft (Annual Operations)

		Arrivals				Departures				
Aircraft Type		Day	Evening	Night	Total Ops	Day	Evening	Night	Total Ops	Total Ops
AC90	Aero Commander	42	13	3	58	33	22	3	58	116
B350	Beech Super King Air 350	187	52	10	249	196	39	14	249	498
BE10	Beech King Air 100 A/B	45	13	44	102	44	22	37	103	205
BE20	Beech 200 Super King	186	60	36	282	201	40	41	282	564
BE30	Raytheon 300 Super King Air	57	9	6	72	51	17	4	72	144
BE9L	Beech King Air 90	409	205	59	673	490	134	49	673	1,346
C441	Cessna Conquest	157	33	4	194	157	31	6	194	388
PA44	Piper Seminole	42	63	114	219	68	45	106	219	438
PAY2	Piper Cheyenne 2	63	13	7	83	48	23	12	83	166
PC12	Pilatus PC-12	230	91	36	357	300	47	10	357	714
SW4	Swearingen Merlin 4/4A Metro2	27	40	1	68	21	45	2	68	136
PA31	Piper Navajo PA-31	263	166	39	468	259	157	51	467	935
HELO	Bell 407/430	1,768	2,143	1,446	5,357	3,052	1,553	750	5,355	10,712
										16,362

Source: C&S Engineers, Inc. 2016

14 CFR Part 150 Noise Exposure Map
Update Activity Forecast, 2017 and 2022

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Table A-9— 2017 Cargo and Military (Annual Operations)

		Arrivals				Departures				
	Aircraft Type	Day	Evening	Night	Total Ops	Day	Evening	Night	Total Ops	Total Ops
7572	Boeing 757-200	657	66	7	730	34	688	8	730	1,460
F15	McDonnell Douglas F-15 Eagle	2,223	0	117	2,340	2,340	0	0	2,430	4,680
F16	F-16 Fighting Falcon	72	0	0	72	72	0	0	72	144
F18	McDonnell Douglas F/A-18 Hornet	240	0	0	240	240	0	0	240	480
SP2	Lockheed SP-2 Neptune	532	532	0	1,064	127	938	0	1,065	2,129
C130	C-130 Hercules	50	45	0	95	15	80	0	95	190
										9,083

Table A-10— 2022 Cargo and Military (Annual Operations)

		Arrivals				Departures				
	Aircraft Type	Day	Evening	Night	Total Ops	Day	Evening	Night	Total Ops	Total Ops
7572	Boeing 757-200	657	66	7	730	34	688	8	730	1,460
F15	McDonnell Douglas F-15 Eagle	2,223	0	117	2,340	2,340	0	0	2,430	4,680
F16	F-16 Fighting Falcon	72	0	0	72	72	0	0	72	144
F18	McDonnell Douglas F/A-18 Hornet	312	0	0	312	312	0	0	312	624
SP2	Lockheed SP-2 Neptune	532	532	0	1,064	127	938	0	1,065	2,129
C130	C-130 Hercules	50	45	0	95	15	80	0	95	190
										9,083

Source: C&S Engineers, Inc. 2016

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Appendix F FAA Approval of Aircraft Operations Forecasts

U.S. Department of Transportation
Federal Aviation Administration

Western-Pacific Region
Airports Division

San Francisco Airports District Office
1000 Marina Boulevard, Suite 220
Brisbane, CA 94005-1835

October 19, 2016

Mr. Mark Davis
Airports Planning Manager
City of Fresno
4995 E. Clinton Way
Fresno, CA 93727

Dear Mr. Davis

RE: FAA Review of Fresno Yosemite International Airport
(Noise Exposure Map Update) Forecast Project No. 3-06-0087-073-2014

The San Francisco Airports District Office (SFO-ADO) has completed the review of the 14 CFR Part 150 Noise Exposure Map Update Final Activity Forecast 2017-2022 dated June 2016. The SFO-ADO review determination is as follows:

- Concur with the aviation activity forecast methodology. The forecast assumptions presented are considered reasonable and well supported.
- Concur with the total forecasted aircraft operations and based aircraft presented in *Table 6.1 Operations Forecast Summary* for the five-year forecast.
- The SFO ADO finds the subject growth rates acceptable from a planning standpoint. Accordingly, the SFO-ADO has determined that the aviation activity forecasts are consistent with the TAF. The aviation activity forecast provides adequate justification for near-term airport planning and development of the subject airport facility.

If you have any questions, please contact me at 650-827-7617.

Kind regards,

Jasmine Evains
FAA Community Planner

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Appendix G Public Consultation

G.1 Public Workshop August 6, 2015

G.1.1 Letter to stakeholders

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

City of Fresno Airports Department

July 14, 2015

Dear Airport Stakeholder,

The City of Fresno as owner and operator of Fresno Yosemite International Airport (FAT) is conducting an update to the Noise Exposure Map (NEM) in accordance with Title 14 of the Code of Federal Regulations Part 150 (Part 150). On Thursday, August 6, 2015 interested residents and stakeholders are encouraged to attend a public workshop between 5:30 p.m. and 7:30 p.m. at the Piccadilly Inn Airport, 5115 East McKinley Avenue, Fresno, CA 93727. Airport officials and study consultants will be available to answer questions regarding the NEM update process. The workshop is an open house format and the public can arrive at anytime during the workshop. There will be a brief 15-minute presentation starting at 6 p.m.

The City completed its first Part 150 noise and land use compatibility study at FAT in 1988 followed by an update to the NEM and NCP in 2004. The City is once again updating the NEM as required by the Federal Aviation Administration (FAA) in order to ensure that the NEM reflects current conditions at the Airport. The NEM will include aircraft noise exposure contours created using the FAA's Aviation Environmental Design Tool (AEDT). These contours, presented on a map, will indicate the noise exposure from aircraft operations occurring during the year of completion (2016) and as forecast in five years (2021). The noise contours depicted on the NEM are one of the elements used to determine eligibility for participation in the Airport's Residential Sound Insulation Program, locally known as the SMART Program.

In addition to the public workshop, the public can review study materials and information on the status of the project online at (http://www.fresnonem.com). There is also a toll-free phone line at (844) 306-4988 for providing comments related to the project.

The Piccadilly Inn Airport is an ADA accessible facility. For special accommodations at meetings associated with this project, please contact Shannon Mulhall, City of Fresno ADA Coordinator, at (559) 621-8716 at least 72 hours prior to the meeting. We appreciate your interest in the Fresno Yosemite International Airport and look forward to discussing the NEM update with you at the meeting.

Sincerely,

Mark W. Davis
Airports Planning Manager

4995 E. Clinton Way · Fresno CA, 93727-1525 · (559) 621-4500 · www.flyfresno.com

G.1.2 List of Contacted Airport Stakeholders

Organization	Point of Contact	Meeting Attendees
FAA/SF-ADO	Camille Garibaldi	
CalTrans-Aeronautics	Philip Crimmins	
FAA/ATCT	John Mombourquette	▪ John Mombourquette ▪ Eugene Reindel ▪ Ralph Redman ▪ Rhea Gundry ▪ Jamison Blanchard ▪ Scott McIntosh
Airport Operations	Ron Ames	
CAN 144th Fighter Wing	CMSgt Bettencourt	▪ Maj "Jersey" Burd ▪ CMSgt Bettencourt ▪ Eugene Reindel ▪ Ralph Redman ▪ Rhea Gundry ▪ Jamison Blanchard ▪ Scott McIntosh
FedEx	Greg Torossian	▪ Greg Torossian ▪ Eugene Reindel ▪ Ralph Redman ▪ Rhea Gundry ▪ Jamison Blanchard ▪ Scott McIntosh
UPS	Chris Hovda	
United Airlines	Calvin Balanay	
Skywest	Dena Petty	
American Airlines/US Airways	Jagdeep Gill	
Allegiant Airlines	Carrie Garcia	
Delta Airlines	Calvin Balanay	
Volaris Airlines	Arturo Quezada	
AeroMexico Airlines	Alvaro Haro	
Signature Flight Support	Brent Kendrick	▪ Brent Kendrick ▪ Eugene Reindel ▪ Ralph Redman ▪ Rhea Gundry ▪ Jamison Blanchard ▪ Scott McIntosh
Landmark Aviation	Glen Dildine	▪ Glen Dildine ▪ Eugene Reindel ▪ Ralph Redman ▪ Rhea Gundry ▪ Jamison Blanchard ▪ Scott McIntosh

Organization	Point of Contact	Meeting Attendees
Fresno Air Attack Base U.S. Forest Service	Ryan Stout	▪ Ryan Stout ▪ Eugene Reindel ▪ Ralph Redman ▪ Rhea Gundry ▪ Jamison Blanchard ▪ Scott McIntosh
1106 TASMG	LTC Gentle	
Rogers Helicopters	Bill Poe	▪ Bill Poe ▪ Eugene Reindel ▪ Ralph Redman ▪ Rhea Gundry ▪ Jamison Blanchard ▪ Scott McIntosh
CHP Air Operations	Sgt Shawn Wills	▪ Sgt Shawn Wills ▪ Sgt Jeff Andriese ▪ Eugene Reindel ▪ Ralph Redman ▪ Rhea Gundry ▪ Jamison Blanchard ▪ Scott McIntosh
Skylife/American Ambulance	Lisa Epps	▪ Lisa Epps ▪ Eugene Reindel ▪ Ralph Redman ▪ Rhea Gundry ▪ Jamison Blanchard ▪ Scott McIntosh
Fresno City Planner	Mike Sanchez	▪ Mike Sanchez ▪ Rhea Gundry ▪ Jamison Blanchard ▪ Scott McIntosh
Fresno County Planner	Chris Motta	▪ Chris Motta ▪ Rhea Gundry ▪ Jamison Blanchard ▪ Scott McIntosh
Fresno Council of Governments	Laural Fawcett	
City of Clovis Planner	Bryan Araki	▪ Lando Ramirez ▪ Stephanie Andersen ▪ Rhea Gundry ▪ Jamison Blanchard ▪ Scott McIntosh

G.1.3 Project Website – www.fresnonem.com

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

14 CFR Part 150 Noise Exposure Map Update

Home | Part 150 Process | Public Involvement | Schedule | Documents | Basics of Aircraft Noise | FAQ | Contact Us

Home > Part 150 Process

Part 150 Process

The Fresno Yosemite International Airport Part 150 Noise Exposure Map (NEM) Update

The City of Fresno, Airport Department completed its first noise and land use compatibility study in 1988 for the Fresno Yosemite International Airport (FAT) per Title 14 of the Code of Federal Regulations Part 150, often denoted "14 CFR Part 150" or "Part 150". The Federal Aviation Administration (FAA) completed its review of the original Noise Exposure Map (NEM) and found it in compliance with Part 150 requirements on February 7, 1990. The FAA approved the Noise Compatibility Program (NCP) and published a "Record of Approval" (ROA) on September 14, 1990. As aircraft types and operations change over the years, a subsequent update to the Noise Exposure Map was conducted in 2004 and the FAA found it to be in compliance with Part 150 on July 6, 2005. An update to the Noise Compatibility Program was also conducted during this time period with the FAA publishing the ROA on July 28, 2008. The City is currently updating the Noise Exposure Maps for FAT to address changes in aircraft types (such as the California Air National Guard change from F-16 to F-15 aircraft), changes in aircraft operations, changes to runways and to meet FAA requirements. The Part 150 Process section of this site briefly describes the 14 CFR Part 150 regulation, what it includes, and how the communities around the airport can be involved in this project at FAT.

What is Part 150

As part of this Noise Exposure Map update process, the City must follow a set of procedures and standards under the U.S. Code of Federal Regulations, Title 14 Part 150, entitled "Airport Noise Compatibility Planning", when assessing noise exposure and when developing means to mitigate its effects. This regulation is commonly referred to as Part 150.

A Part 150 Study is an in-depth noise and land use compatibility study authorized by the FAA that involves working with the community to address its concerns and developing a detailed analysis of aviation related noise levels and the variables that affect them. A Part 150 Study consists of two technical elements: Noise Exposure Maps (NEMs) and Noise Compatibility Program (NCP). The NEMs include aircraft noise exposure contours created using the FAA's Aviation Environmental Design Tool (AEDT). The noise contours are overlaid on a map that depicts the airport's layout and land uses within the communities surrounding the airport. The NCP is a summary of analyses and proposed actions that the FAA, airport operators, active airlines, and communities near the airport can perform to reduce existing and future aircraft noise and land use incompatibilities. These actions may include noise abatement, noise mitigation, and/or other preventive measures.

With funding assistance from the FAA, a consulting team led by HMMH is conducting an update of the Noise Exposure Maps previously accepted in 2005. The current Study will update the 2005 NEM based upon current conditions and aircraft operational activity at the airport including the change in aircraft for the CANG. The resulting NEM's will reflect the noise exposure from aircraft operations occurring during the year of submission to the FAA (2016) and a five-year forecast (2021) as mandated by the FAA.

FAT Part 150 NEM Update Process

The project to update the FAT Part 150 NEMs will include, but is not limited to, the following major tasks:

- Inventory FAT existing conditions;
- Prepare updated FAT fleet mix forecasts for year of submission (2016) and a five-year forecast (2021);
- Prepare draft and final updated Noise Exposure Maps;
- Prepare NEM supporting documentation; and
- Conduct agency and public consultations.

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

14 CFR Part 150 Noise Exposure Map Update

Home > Public Involvement

Public Involvement

An integral part of the FAT Part 150 NEM Update project includes a public outreach process that provides consultations with the public, airport stakeholders, the state, local governments, the airlines and other aircraft operators to afford them the opportunity to submit their views, information, and comments during the project.

The City will schedule two public workshops where community members can learn about the project and provide comments.

First Public Workshop

On Thursday, August 6, 2015, between 5:30 p.m. and 7:30 p.m., the City hosted the first of two public workshops for the FAT Part 150 Noise Exposure Map Update at the Picadilly Inn Airport. Airport officials and consultants were present to answer questions regarding the NEM update process. A brief 15-minute presentation was given at 6 p.m.

Second Public Workshop

A second workshop will be scheduled in the fall of 2016 to present the draft Noise Exposure Map Update and related documentation to the public. Airport officials and consultants will be available to answer questions regarding the updated NEM and to provide a brief presentation on the process and results. The date, time and location of the workshop will be posted on this website and provided in the media.

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

14 CFR Part 150 Noise Exposure Map Update

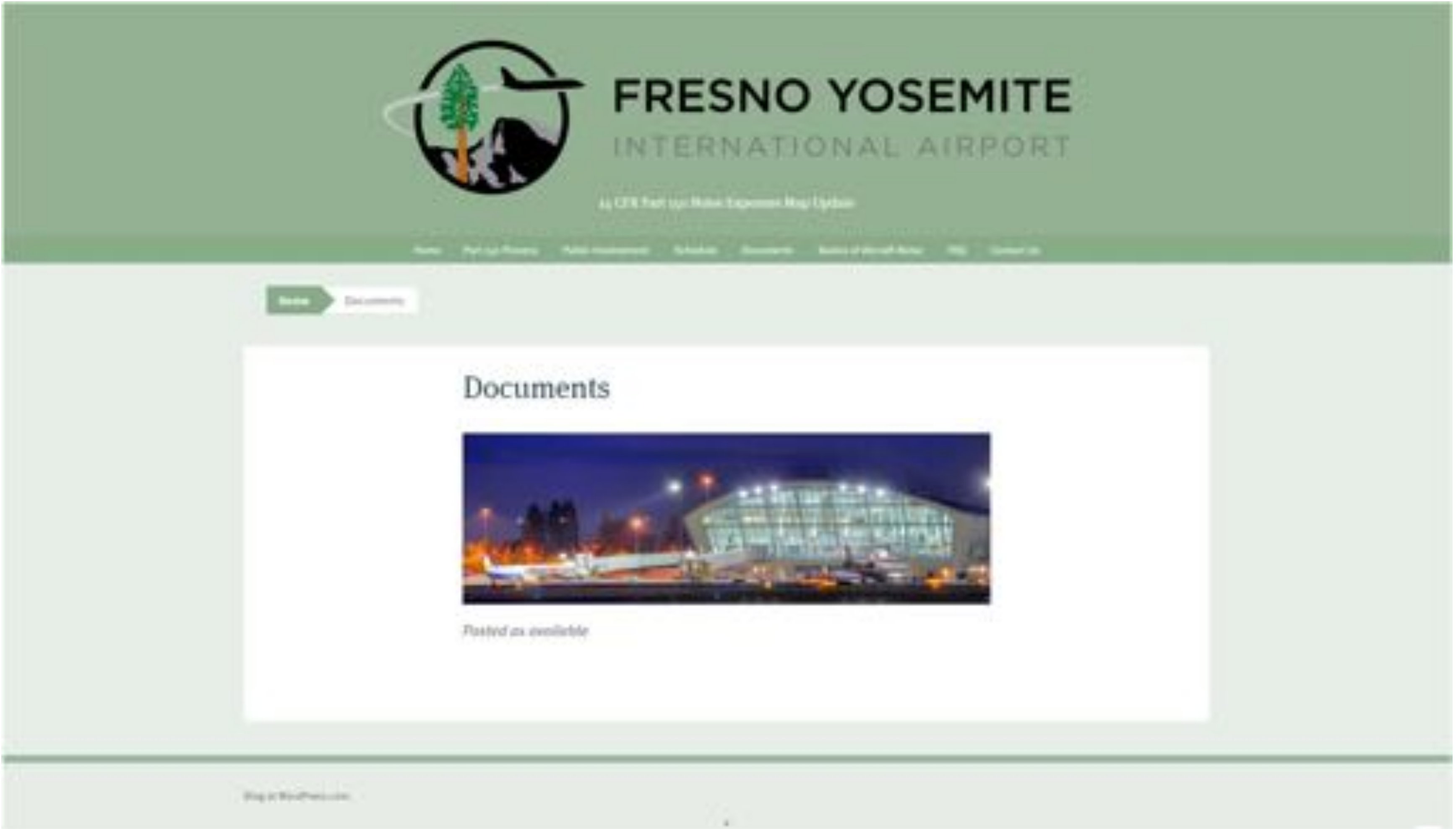
Home > Schedule

Schedule

The City has identified the following major project milestones with estimated completion dates. Additional details will be added as the project progresses.

- The City approves contract – May 1, 2015
- The City issues Notice to Proceed – May 14, 2015
- First public workshop to introduce the project – August 6, 2015
- Release Draft NEM Update for public review – To Be Determined (TBD)
- Second public workshop on Draft NEM Update – TBD
- End public/stakeholder comment period – TBD
- Submit Final NEM update to FAA – TBD

Due to unforeseen delays in developing FAA approved noise modeling inputs, the project has progressed much slower than expected. The second public workshop, originally anticipated for spring of 2016, has been postponed until the fall of 2016. We will solidify the schedule, and provide sufficient advance notice of the next public workshop date, as soon as we have a clear indication of when the Draft NEM Update will be approved for public review.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Documents
Posted as available

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14 CFR Part 150 Noise Exposure Map Update

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Home > Basics of Aircraft Noise

Basics of Aircraft Noise

How Do We Describe Aircraft Noise?

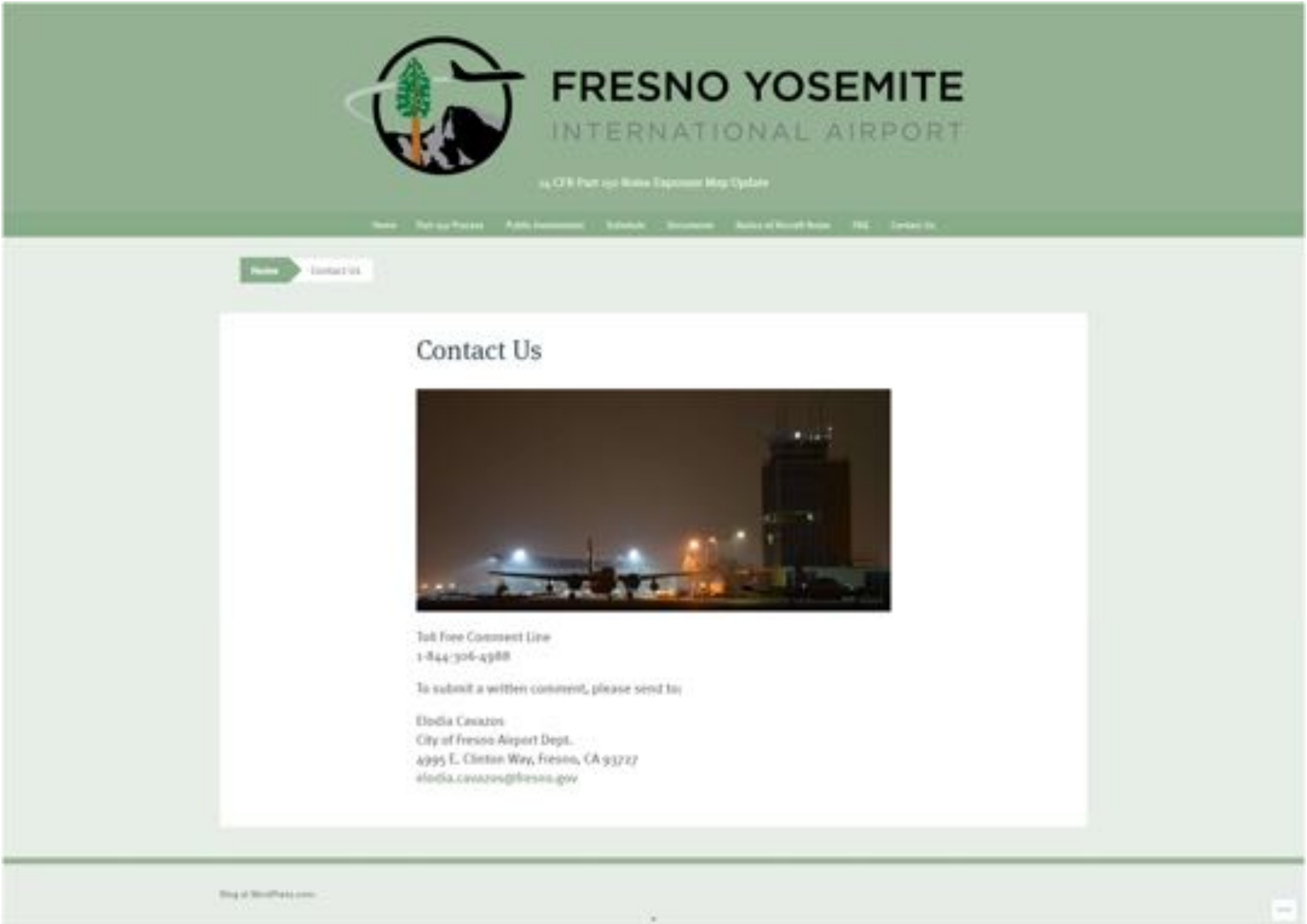
We use a number of terms to describe aircraft noise. These metrics form the basis for the majority of noise analyses conducted at most airports in the United States.

The Decibel, dB
All sounds come from a source – a musical instrument, a voice speaking, an airplane. The energy that produces these sounds is transmitted through the air in waves, or sound pressures, which impinge on the ear, creating the sound we hear.

The decibel is a ratio that compares the sound pressure of the sound source of interest (e.g., the aircraft overflight) to a reference pressure (the quietest sound we can hear). Because the range of sound pressures is very large, we use logarithms to simplify the expression to a smaller range, and express the resulting value in decibels (dB). Two useful rules of thumb to remember when comparing individual noise sources are: (1) most of us perceive a six to ten dB increase to be about a doubling of loudness, and (2) changes of less than about three dB are not easily detected outside of a laboratory. Read more

Blog at WordPress.com.


FRESNO YOSEMITE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14 CFR Part 150 Noise Exposure Map Update
Contact Us
Toll Free Comment Line
1-844-306-4988
To submit a written comment, please send to:
Elodia Cavazos
City of Fresno Airport Dept.
4995 E. Clinton Way, Fresno, CA 93727
elodia.cavazos@fresno.gov

G.2 Announcement/press release

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Advisory

City of Fresno - Airports
4995 E. Clinton Way, Fresno, CA 93727

CONTACT: Vikkie Calderon
559-621-4522

Fresno Airport to Host Public Workshop for Noise Exposure Map Update

Fresno, CA (August 6, 2015) - The public is invited to attend a workshop on the Fresno Yosemite International Airport Noise Exposure Map (NEM) update. The workshop will be held today, August 6 at 5:30 p.m. at the Piccadilly Inn Airport – Ballroom Californian B, 5115 E. McKinley Avenue, Fresno CA 93727.

The NEM update is an evaluation of aircraft noise and land use compatibility as prescribed by the Federal Aviation Administration. The resulting map will identify noise exposure from aircraft operations in the vicinity of the Fresno Yosemite International Airport and will be used to help determine eligibility for the residential sound insulation program.

An informational open house runs from 5:30 - 7:30 p.m. A brief presentation will begin at 6:00 p.m. The public will have the opportunity to view displays, speak individually with the project team and provide comments on the NEM update.

Details on the NEM update process can be found at www.fresnonem.com . Comments on the NEM may be submitted through the toll free line at 1-844-306-4988 or in writing to Elodia Cavazos, City of Fresno Airports Department, 4995 E. Clinton Way, Fresno CA 93727 or at Elodia.Cavazos@fresno.gov .

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THURSDAY JULY 23 2015
FRESNOBEE.COM

The Fresno Bee

Local 3A

Valley water leader resigns

Dave Orth was Kings River Conservation District general manager for 13 years

He is a member of the California Water Commission

Search starts for a new leader

BY MARK GROSSI
mgrossi@fresnobee.com

Kings River Conservation District leader Dave Orth has resigned after 13 years as general manager, the organization announced Wednesday.

Orth, who is well known in California water circles, will pursue other professional opportunities, according to Kings River board chairman David Cehrs.

Orth is the third water leader to leave a high profile post this year in the San Joaquin Valley. The other departing executives are Ron Jacobsma, general manager of Friant Water Authority, and Dan Nelson, executive director of the San Luis & Delta Mendota Water Authority.

Dave Orth

Orth said: "My time at KRCD has been a remarkable experience. It's been a pleasure serving under the direction of KRCD's board and working with KRCD's excellent staff."

Orth, 57, co-chaired Gov. Jerry Brown's Drinking Water Stakeholder Group, providing recommendations for solving drinking water problems among disadvantaged communities.

He also serves on the California Water Commission. The commission is setting priorities for spending nearly $3 billion in bond money on water storage projects.

Among the contenders is Temperance Flat Dam, which would expand water storage above Millerton Lake.

Orth worked on many projects in KRCD, a public agency formed in 1951 to manage water, power and the environment for agriculture, businesses and residents in a 1.2 million-acre swath of Fresno, Kings and Tulare counties.

The highlights of Orth's time include construction of the Malaga Peaking Plant and greater regional water management collaboration through the Kings Basin Water Authority.

The Kings River board will now begin recruitment for a new general manager. Randy Shilling, deputy general manager of business operations, will serve as interim general manager.

Mark Grossi: 559-441-6316, @markgrossi

THE HIGHLIGHTS OF DAVE ORTH'S TIME INCLUDE CONSTRUCTION OF THE MALAGA PEAKING PLANT AND GREATER REGIONAL WATER MANAGEMENT COLLABORATION THROUGH THE KINGS BASIN WATER AUTHORITY.

CHUKCHANSI TRIBE

Judge can't act on group

BY MARC BENJAMIN
mbenjamin@fresnobee.com

A U.S. District Court judge said he doesn't have authority to have members of a Chukchansi tribal faction removed from the tribe's business complex across from the Coarsegold hotel and casino.

Judge Lawrence J. O'Neill issued his ruling Wednesday, saying members of the former Tex McDonald faction have not violated the guidelines of his order in October, which instituted a weapons ban on and near tribal grounds.

A motion filed by the Reggie Lewis faction sought to alter the judge's previous preliminary injunction to allow removal of McDonald group members, who have remained at the complex since October.

O'Neill said by seeking the other side's removal, the motion attempted to turn the McDonald group's ignoring of its eviction notice into a violation of the federal court order, which the judge ruled he lacks authority to do.

The Lewis group, which is comprised of factions representing Nancy Ayala and Morris Reid, has attempted this year to get McDonald group members to leave the business complex.

It said the McDonald faction has not been recognized as a leadership group by the federal government and suggests that the McDonald group members' presence at the business complex hampers the potential reopening of the hotel and casino.

The McDonald faction raided a casino office in October to get audit information. The Lewis group was operating the casino at the time, and the tribe had been ordered by federal officials to submit audits by the end of October or face closure of the casino.

The raid led to the closure of the casino and 15 arrests. A day after the Oct. 9 raid, the National Indian Gaming Commission and state Attorney General's Office closed the casino because of the violence from the previous night.

It has not reopened.

In a February letter to federal gaming officials, the McDonald group "urges the (gaming commission) to not move forward with efforts to reopen the casino because doing so will exacerbate the current volatile conditions and potentially place lives at risk."

In its response, the Lewis led group wanted O'Neill to amend the preliminary injunction that prohibits weapons from within 1,000 yards of tribal buildings to say that "no persons are permitted to occupy the (tribal government buildings) until it is established that such occupation is no longer a threat to the public safety," or until the gaming commission order is lifted.

O'Neill said the Lewis group's motion didn't provide any authority "to support such an intervention by this court."

In conclusion, the judge said, the Lewis group is asking him to ratify its eviction notice, but since the casino is not open, the court "does not need to intervene to protect the public from danger."

After coming to terms on a $35 million financing package, casino officials said earlier this week they could reopen the casino within two months with the approval of the National Indian Gaming Commission and the state Attorney General's Office.

Lewis said once the complex is cleared, tribal offices will be moved and there is no intention of using those buildings for an extended period.

"For a period of two years thereafter, the tribe will notify the state of any proposed tribal activities to take place in the 'modular' complex," the Lewis group said in its motion to O'Neill.

The McDonald group's lawyer, Les Marston, said they are awaiting a ruling on an appeal they filed with the Interior Board of Indian Appeals, which earlier this year named the Lewis/Ayala/Reid group as the "interim council."

Marston said the McDonald group, which refers to itself as the "onsite" tribal council, has no intention to leave and no legal reason exists to compel them to leave.

Marc Benjamin: 559-441-6166, @beebenjamin

THE LEWIS GROUP'S MOTION DIDN'T PROVIDE ANY AUTHORITY 'TO SUPPORT SUCH AN INTERVENTION BY THIS COURT.'
U.S. District Court Judge Lawrence J. O'Neill

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

PUBLIC INFORMATION WORKSHOP

Noise Exposure Map Update

THURSDAY, AUGUST 6, 2015

5:30 pm to 7:30 pm

Open House Format – Stop by Anytime

A brief presentation will begin at 6:00 p.m.

The Noise Exposure Map Update is an evaluation of aircraft noise and land use compatibility as prescribed by the Federal Aviation Administration (FAA). The resulting map will identify noise exposure from aircraft operations in the vicinity of Fresno Yosemite International Airport and will be used to help determine eligibility for the Airport's residential sound insulation program.

Piccadilly Inn Airport
Ballroom Californian B
5115 E. McKinley Avenue
Fresno, CA 93727

For project information and directions to the public workshop visit:
http://www.fresnonem.com

The Piccadilly Inn Airport is an ADA accessible facility. For special accommodations at meetings associated with this project, or to arrange for an interpreter, please contact Elodia Cavazos, City of Fresno Airports Department, at (559) 621-4506 at least 72 hours prior to the meeting.

COMMUNIQUEST
2728 BITTEMUT CIRCLE
ATTN: *Christine Eberhard*
SIMI VALLEY, CA 93065

PROOF OF PUBLICATION

~Fresno Bee~

COUNTY OF FRESNO
STATE OF CALIFORNIA

EXHIBIT A.

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

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The undersigned states:

McClatchy Newspapers in and on all dates herein stated was a corporation, and the owner and publisher of The Fresno Bee.

The Fresno Bee is a daily newspaper of general circulation now published, and on all-the-dates herein stated was published in the City of Fresno, County of Fresno, and has been adjudged a newspaper of general circulation by the Superior Court of the County of Fresno, State of California, under the date of November 28, 1994, Action No. 520058-9.

The undersigned is and on all dates herein mentioned was a citizen of the United Sates, over the age of twenty-one years, and is the principal clerk of the printer and publisher of said newspaper; and that the notice, a copy of which is hereto annexed, marked Exhibit A, hereby made a part hereof, was published in The Fresno Bee in each issue thereof (in type not smaller than nonpareil), on the following dates.

July 23, 2015

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dates: **July 23, 2015**

Christine M. Williams

Proofad.xls

2 August 2, 2015

yes!

supplies & gear

Slick supplies

Go back to school in style

GANNETT

Students are all looking for the same types of items while school shopping. But they can still have some personality. No matter what grade they're off to, it's easy to stand out with a few trendy staples.

■ Make cutting projects sparkle with Inkology Glam scissors, **$11.46** at amazon.com.

■ Flexible rubber ruler, **$4.99** at Office Depot.

■ Yoobi one-inch binders, **$4.29** each at Target.

■ These Ice Cream Shoppe scented pencil sharpener and eraser combinations can also function as pencil toppers. **$17.76** for a box of 24 at raymondgeddes.com.

■ Pilot FriXion Clicker Erasable pens come in several colors, and erase mistakes over and over. **$11.32** at Walmart.

■ Make pencils stand out with pirate pencil toppers. **$4.95** for a set of five at mcphee.com.

■ Bright Avengers pencils, **$2.99** for a dozen at Party City.

■ Zipit zipper pouches mini clip-on, **$3.99**, or classic three-ring binder size, **$6.99**, at A.C. Moore.

COMMUNIQUEST
2728 BITTEMUT CIRCLE
ATTN: *Christine Eberhard*
SIMI VALLEY, CA 93065

PROOF OF PUBLICATION

~Sunday Select~

COUNTY OF FRESNO
STATE OF CALIFORNIA

EXHIBIT A.

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August 2, 2015

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated: **August 2, 2015**

Christine M. Williams

Proofad.xls

G.2.1 Public workshop sign-in sheets – August 6, 2015

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Attendance Roster
Fresno Yosemite International Airport NEM Update

Meeting: NEM Public Information Workshop # 1 **Date:** Thursday, August 6, 2015 5:30-7:30 p.m.

Meeting Location: Piccadilly Inn Airport, Ballroom Californian B, 5115 E. McKinley Avenue, Fresno, CA 93727

Name	Organization	Address	Phone	Email
Amy Deamer		4398 N. Millbrook	269 0441	
[illegible]	Fresno Airports		621-4525	[illegible]@fresno.gov
[illegible] Fresch				
[illegible]				
Jaime Cordeiro		4229 E. [illegible] Ave	559 966-6684	[illegible]
Jacob Villagomez	Asm. Patterson's office	[illegible]	[illegible]	Jacob.Villagomez@[illegible]
Wendy Cavanaugh	Home Owner	5541 E Fairmont Ave	559-239-1583	w.cavanaugh@att.net
Pat Wieder		4761 E. Indianapolis Ave	492 3708	
Emily Foss	home owner	4303 E Rialto Av		
Carlos & Beatriz Poblano		4484 N. Dearing Ave	291-6221	
William [illegible]		3039 E Holland	227-7598	
Leopoldo Meza	Home	4451 N. MAPLE AVE Fresno Ca 93726	(559) 222 2774	N/A
Lauren Filice	City of Fresno DARM	City Hall 2600 Fresno St 3rd floor	(559) 621-8070	Lauren.Filice@fresno.gov
Jennifer Burrell	HOME OWNER	3775 E RICHERT, CA 93726	222-4380	
[illegible] YATES	HOME OWNER	3443 E [illegible] 9372[illegible]		

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

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Name	Organization	Address	Phone	Email
Augusie Massoyan		3342 E. Santa Ana	229-5642	
Anita Powell		3564 E Santa Ana	225-2252	Anita.Powell@aol.com
Rosemary Karsh		4795 E. [illegible]	265-1317	
Louise Magnuson		4018 E Santa Ana	229-7205	
Lucille Sherman		3263 E Rialto	229 9454	
Luis Garcia		2878 Casty Court	621-696-6630	
Teudy Quintana		3464 E. Gettysburg	222-8760	
Dean Dallin		4561 N. Price	291-4272	–
Margot Jeans		4767 E, Indianapolis	291-4750	
Fred + Roz Clark		3860 E Rialto	222-0134	
George Hernandez		3848 E Swift	221-0816	
Jorita Rascon		4566 E. Fedora	289-0650	jrascon@live.com
John Trujillo		4664 N. Rowell Ave	222-5883	
Nancy Campbell		4575 E. Pico	227-9923	
Sharon Beemer		4398 N. Millbrook	224-2653	

FRESNO YOSEMITE
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Name	Organization	Address	Phone	Email
Vicki Bertoldi		4766 E DONNER	519-4734	vickiBertoldi@att.ne
Ray & Linda Prieto		4321 E. Rialto Ave (Fresno	229-4321	prieto4321@comcast.n
TOM KOVAC	Resident	4310 E SAN GABRIEL	226-8276	[illegible]@HOTMAIL.COM
[illegible]		3515 E [illegible]	227-4296	
Elena Duarte	Resident	4639 N 7th St	477-0498	[illegible]
[illegible]	Resident	4773 E Cornell ave	255-2296	
SUSAN & Mario Cruz	Resident	4347 N Archie	5131553	Suzzarita1@att.net
B. Van Oosbree		1595 N Temperance Av.	255-7113	bvanoosbree41@gmail.c
CAMILLE GARIBALDI	FAA	1000 MARINA BLVD SUITE 220 BRISBANE CA 94	650 827-7613	CAMILLE.GARIBALDI@FAA.GOV
Allam Alhabaly		4617 N Jackson Ave Fresno CA 93726	559-473-9462	[illegible]@hotmail.Com
Kelly McNEAL		3761 N. BARTON AVE FRESNO CA 93726	559 304-4767	Kellymcneal@att.NET
CHARLA KELLEY		4006 E. SANTA ANA	559 367 2254	cjkteach@sbcglobal.net
Rhys Twitty	Resident	170 W Ashcroft	559-292-4213	rhysgt@pacbell.net
MOAAZ GILL	Resident	3763 E. SWIFT AVE	559-259-0359	Mgill27836@gmail.com
[illegible]	Resident	[illegible] E. Olive Ave., Fresno	559-25[illegible]	

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

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Name	Organization	Address	Phone	Email
David Hele	homeowner	4670 N. 2nd St. Fresno CA 93726	559-301-5533	davidhele@att.net
David & Beverly Hanes	Hanes - Homeowner	3637 E Norwich Ave Fresno, CA 93726	559-222-2779	BeverlyHanes@yahoo.com
James Garrett	Home owner	3882 E Ashlan 93726	250-9752	
McKenzie Contreras	COF-FARM	2600 Fresno St. Fresno 93721	621-8026	mckenzie.contreras@fresno.gov
Patricia Gonzales		4843 E. Olive Ave. 93727	455-9032	
Juana Esparza		4867 E. Carmen Ave 93727	252-4128	
Terry Fleck	Homeowner	3325 E Norwich 93726	[illegible]	[illegible]
Kyle Myles	Homeowner	4412 E. Princeton Ave 93703	360-2147	[illegible]@hotmail.com
[illegible]	Homeowner	[illegible] 93703	255-4339	—
[illegible]	Homeowner	4344 E. Santa Ana		
[illegible]	Homeowner	629 W. Indianapolis 93612	291-5200	[illegible]
[illegible]	Homeowner	3431 E Fairmont Ave	977-4727	[illegible]
[illegible]				[illegible]@gmail.com
[illegible]	Homeowner	[illegible] 93726	930-8211	[illegible]
[illegible]		3749 E. Balladis Way	322-6436	

FRESNO YOSEMITE
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Name	Organization	Address	Phone	Email
Shelley Perry		3503 E. Santa Ana	2249670	[illegible]
[illegible]		2637 N Winery Ave, Fresno	273-3646	
Leah LaTorre		4035 E. Bellaire Way Fres	510-909-3861	
Adam Hol		4834 E. Carmen Ave Fresno, CA	559-367-2936	
Jim Leyser		3521 E. Rialto Fresno 93726	559-907-1804	histotar@Yahoo.com
Scottie Kasinsky		4034 E Bellaire Wy 93726	559 364 6050	
Rory Elkeen		4574 E Dakota		
~~[illegible]~~ Scott KUSAMURA		3443 E NORWICH AVE 93726	559-246-3160	wkusamura@gmail.com
[illegible] Miranda		4860 E. Brown Ave 93703	(559) 304-0728	
Alicia Tostado		4866 E. Brown Ave 93703	(559) 323-5463	
Geis		6098 N Ninth Fresno 93710	435-3686	159123forme@msn.com
Jean Corks [illegible]		4519 N. Chestnut AVE	559 476-6165	

hmmh

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

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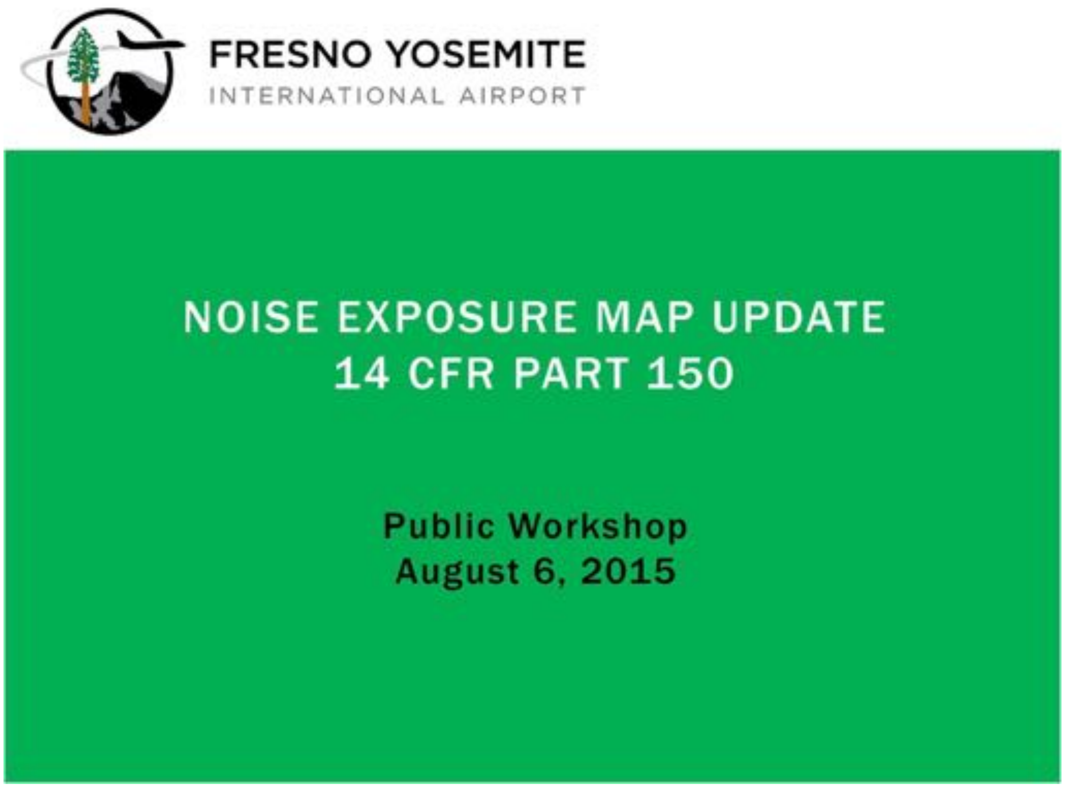
Name	Organization	Address	Phone	Email
N. Neveaux	Community Guest			
Rhea Gundry	HMMH			
Gene Reindel	HMMH			
[illegible]	HMMH			
Jamison Blanchard	HMMH			
Chris Eberhard	Community Guest			
Mack T. Davis	COF Airports			
Eloisa Cavazos	COF Airports			
[illegible]	CCS Engineers, Inc.			
Vikkie Calderon	COF Airports			
Kevin Meikle	"			
Jared Garza	COF Airports			

G.2.2 Presentation



FRESNO YOSEMITE
INTERNATIONAL AIRPORT

AGENDA

- What is Part 150?
- History of Part 150 at FAT
- Roles and Responsibilities
- Project Schedule
- Public Participation Process
- Introduction to Noise
- Next Steps and Wrap-up

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

WHAT IS A PART 150 STUDY?

- Code of Federal Regulations (14 CFR) Part 150, "Airport Noise Compatibility Planning"
  - Voluntary federal program
  - Sets national standards for analysis
  - Over 250 airports have participated
  - Provides access to federal funding
    - Funding primarily associated with Residential Sound Insulation or Acquisition (up to 90% of project costs)
- Two principal Part 150 elements
  - Noise Exposure Map (NEM)
  - Noise Compatibility Program (NCP)

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

PART 150 NOISE EXPOSURE MAP (NEM)

- The NEM process identifies:
  - Airport layout and airport operations
  - Land uses in the airport environs
  - Noise/land use compatibility
  - Aircraft related noise exposure contour maps
- NEM must provide information for two timeframes
  - Base Year - Year of submission (2016)
  - Forecast Year - Five-year forecast (2021)

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

PART 150 NOISE COMPATIBILITY PROGRAM (NCP)

- NCP includes proposed actions to minimize existing and future noise/land use incompatibilities
  - Noise abatement measures
  - Noise mitigation or compensation measures
  - Preventive land use measures
  - Program management measures
- FAT is <u>not</u> updating the NCP at this time

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

HISTORY OF PART 150 AT FAT

- Completed original study in 1988
  - FAA published the Record of Approval in 1990
- Updated the NEM and NCP in 2004
  - FAA published the NEM acceptance in 2005 and ROA for the NCP measures in 2008
- Major elements of the existing NCP
  - Residential sound insulation – "SMART" program
  - Noise abatement procedures for military aircraft
  - Established Runway 11L as preferential runway
  - Improve awareness of the noise abatement program

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

2004 NEM CNEL CONTOURS (BLUE) AND 1988 NEM 65 CNEL CONTOUR (RED)

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

ROLES AND RESPONSIBILITIES FOR NEM UPDATE

- FAT – Project Sponsor
  - Directs consultant team
  - Ultimate responsibility for study
  - Submits NEM to FAA
- FAA
  - Partial study funding
  - "Accepts" NEM
- Local Government
  - Cooperate with land use measures
- Consultant Team
  - Conducts technical work

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM UPDATE PROJECT ANTICIPATED SCHEDULE

DATE	Milestone
June 2015	Project Kickoff
August 2015	Initial public workshop/data collection in surrounding community and public input
October/November 2015	Develop forecast of aircraft operations and noise model inputs
December 2015	Draft noise contours
January/February 2016	Draft NEM update document
March 2016	Second public workshop and 30 day public review of documentation
April/May 2016	NEM update submitted to FAA

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

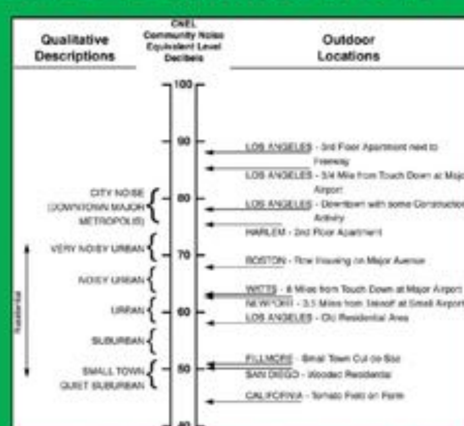
PUBLIC PARTICIPATION PROCESS

- Public workshops
  - One-on-one time for interested public
  - Information and education
  - Hear the public's issues/concerns
- Written comments
  - Comment station or Mail to:
    - Elodia Cavazos
      City of Fresno Airport Dept.
      4995 E. Clinton Way, Fresno, CA 93727
      elodia.cavazos@fresno.gov
- Website
  - www.fresnonem.com
- Comment line
  - Toll-free phone line: 1-844-306-4988

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

INTRODUCTION TO NOISE TERMINOLOGY

- Noise – "unwanted sound"
- The Decibel, **dB**
- A-Weighted Decibel
- Maximum A-Weighted Sound Level, **Lmax**
- Single-Event Noise Exposure Level, **SENEL**
- Day-Night Average Sound Level, **DNL**
- Community Noise Equivalent Level, **CNEL**

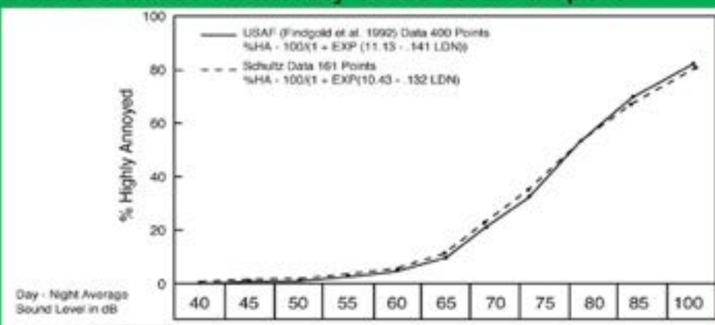


Adopted from: United States Environmental Protection Agency, Information on Levels of Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, March 1974, p. 14

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

AIRCRAFT CNEL AND LAND USE COMPATIBILITY

- Part 150 includes compatibility guidelines
- 65+ dB CNEL is considered incompatible with residential uses
- These levels occur relatively close to an airport



Day - Night Average Sound Level in dB		40	45	50	55	60	65	70	75	80	85	100
Calculated % HA Points	USAF	0.41	0.831	1.66	3.31	6.48	12.29	22.1	36.47	53.74	70.16	82.64
	SCHULTZ	0.576	1.11	2.12	4.03	7.52	13.59	23.32	37.05	53.25	68.78	81

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEXT STEPS - LAND USE INVENTORY AND AVIATION FORECAST

- Land use mapping – City of Fresno/Clovis & Fresno County
  - Residential
  - Schools
  - Places of worship
  - Nursing homes, hospitals
- Forecast
- Noise measurements in the community
- HMMH finalize NEM
- Next public workshop tentatively scheduled for March 2016
- FAT submit NEM to the FAA

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

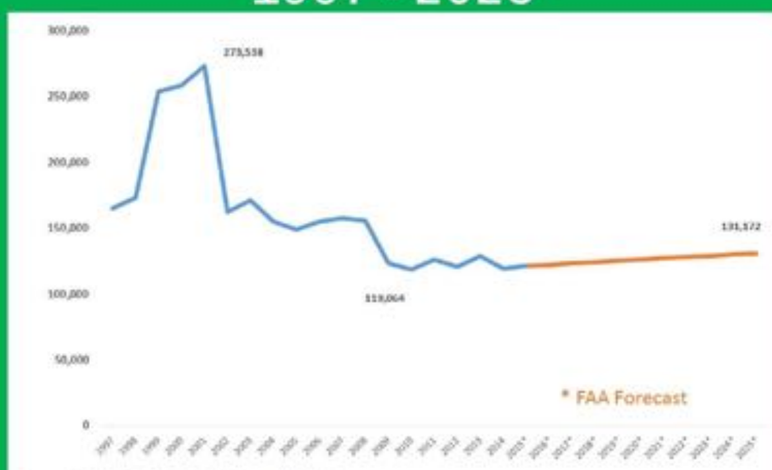
FORECAST METHODOLOGIES

- Regression Analysis – forecast tied to local/regional economic factors
- Market Share Analysis – comparison with other markets in the region
- Trend Analysis & Extrapolation – historical pattern of activity that projects trend

Selected methodology may be a blend of those listed

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

ANNUAL AIRCRAFT OPERATIONS 1997 - 2025



Sources: FAA Air Traffic Activity System (ATADS)
FAA Terminal Area Forecast (posted January 2015)

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

TODAY'S PUBLIC WORKSHOP

- Workshop stations include:
  - Part 150 regulation and NEM Update process
    - Gene Reindel (HMMH)
  - Technical work – noise modeling
    - Rhea Gundry (HMMH)
  - Aircraft operations forecasting
    - Ralph Redman (C&S)
  - Public comments
    - Christine Eberhard (CommuniQuest)

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

THANK YOU

WWW.FRESNONEM.COM

G.2.3 Open house boards – August 6, 2015

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Noise Exposure Maps Update
14 CFR Part 150

Public Workshop
August 6, 2015
5:30 pm to 7:30 pm

Presentation at 6 pm
Written comments accepted

Airport Noise Compatibility Planning Study – 14 CFR Part 150

- Voluntary program – FAA sponsored
- Sets standards for noise analyses
- Over 250 airports have participated
- Provides access to federal funds for:
  - Noise abatement
  - Noise mitigation
    - Residential sound insulation
    - Land acquisition
- Two principal elements:
  - Noise Exposure Map (NEM)
    - Last updated in 2004 with a 2009 forecast
  - Noise Compatibility Program (NCP)
    - Not updating at this time

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INTERNATIONAL AIRPORT

Airport Noise Compatibility Planning Study – 14 CFR Part 150

- **The NEM considers:**
  - Airport layout and operations
  - Aircraft operations
  - Aircraft noise exposure contours
  - Land use compatibility
- **The NEM includes two timeframes:**
  - Year of submission
  - Five-year forecast

NEMs at FAT

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Noise Exposure Map Data Requirements

- Airport configuration and layout
- Annual average aircraft operations for existing and five-year forecast
  - Aircraft fleet mix (aircraft types)
  - Number of arrivals, departures, and pattern operations by time of day
- Runway utilization by aircraft type
- Aircraft flight tracks and utilization
- Annual Average Weather
  - Temperature
  - Barometric pressure
  - Relative humidity
- Land use
  - Existing
  - Planned (zoning)
- Population

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Project Schedule
NEM Update at FAT

Date	Milestone
June 2015	Project kickoff
August 2015	Initial public workshop/data collection in surrounding community and public input
Oct/Nov 2015	Develop forecast of aircraft operations and noise model inputs
December 2015	Draft noise contours
Jan/Feb 2016	Draft NEM update document
March 2016	Second public workshop and 30 day public review
Apr/May 2016	NEM update submitted to FAA

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

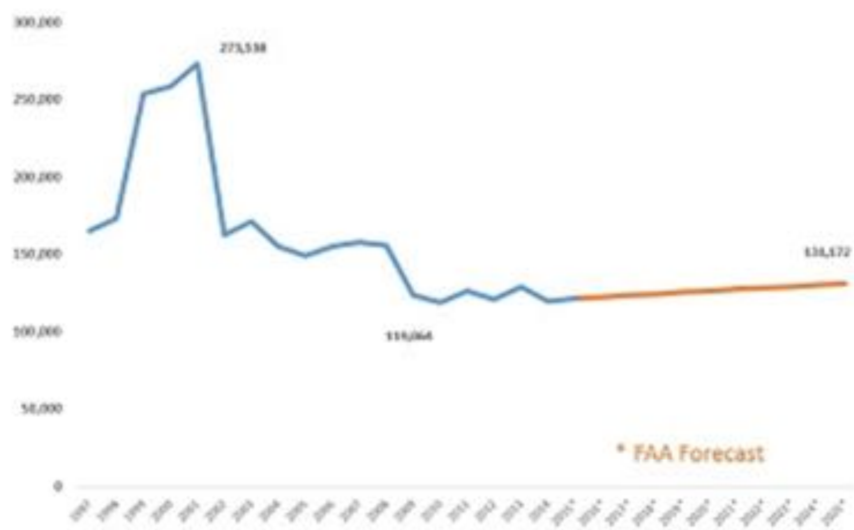
Forecast of Aircraft Operations at Fresno Yosemite International Airport

Forecast Methodologies

- Regression Analysis – forecast tied to local/regional economic factors
- Market Share Analysis – comparison with other markets in the region
- Trend Analysis & Extrapolation – historical pattern of activity that projects trend

Selected methodology may be a blend of those listed

Annual Aircraft Operations 1997 - 2025



Sources: FAA Air Traffic Activity System (ATADS)
FAA Terminal Area Forecast (posted January 2015)

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

G.2.4 Comments received at or immediately following August 2015 public workshop

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Thursday, August 6, 2015

Piccadilly Inn Airport
Ballroom Californian B, 5115 E. McKinley Avenue, Fresno, CA 93727

Date Aug 6, 2015 Name BEVERLY HANES
Address 3627 E. NORWICH AVE. City FRESNO, CA Zip 93726
Phone (optional) 559-222-2778 Email (optional) beverly hanes @YAHOO.com

Comments: I have been diagnosed with 20% hearing loss in my left ear. My hearing physician told me the loss is definitely due to the airplane noise.
We absolutely have jets fly right over our house, even though the past map showed we were 3 houses short of qualifying.
I always have to cover my ears until the planes have left.
My husband has hearing problems and his loss will also increase with such high volume noises.

If needed, please continue on the back side of this page or attach additional pages

Submit Comments to:

Fresno Yosemite International Airport NEM Update Comments
City of Fresno Airports Department, Attn: Elodia Cavazos
4995 E. Clinton Way
Fresno, CA 93727

Or call the toll free comment line: 1-844-306-4988
Or email comments to: elodia.cavazos@fresno.gov

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Thursday, August 6, 2015

Piccadilly Inn Airport
Ballroom Californian B, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8/6/2015 Name Ms Reyes

Address 4616 N. Millbrook Ave Fresno Zip 93726

Phone (optional) (559) 229 1703 Email (optional) freyes7341@gmail.com

Comments: ** please schedule your meetings at location wherever w/ "legal ADA" parking accomodation.
This Hotel Parking not ADA Compliant.
* Look around the room. Can you see who the residents are—
They have problems seeing projected program.
* Acted? * Cater to these peoples needs in presenting
* Hedon't all have printed paper work * Do all these folks
have computers? * What is education level?

Have you considered educating this audience in what you "hope" to do? Take the novel approach of suggesting this as something to help OUR

If needed, please continue on the back side of this page or attach additional pages

Community—the City, the Airport, the County—The population—the people who are here tonight!

Submit Comments to:
Fresno Yosemite International Airport NEM Update Comments
City of Fresno Airports Department, Attn: Elodia Cavazos
4995 E. Clinton Way
Fresno, CA 93727

Or call the toll free comment line: 1-844-306-4988
Or email comments to: elodia.cavazos@fresno.gov

use social media to update?

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Thursday, August 6, 2015

Piccadilly Inn Airport
Ballroom Californian B, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8/6/2015 Name THOMAS W. KOVAC

Address 4310 E SAN GABRIEL City Fresno Zip 93726

Phone (optional) 559-226-8279 Email (optional) TKOVACOZ@HOTMAIL.com

Comments: the previous study was performed on F-16 SINGLE ENGINE aircraft. Since then DOUBLE ENGINE F-18 aircraft are being flown by the National Guard. The F-18's generate double the decibels of the F-16's. Almost always afterburners are utilized at takeoff. It is impossible to have a discussion outdoors due to the afterburner screams. Even indoors telephone conversation is difficult with parties at the other end asking what the loud noise is all about. The noise disruption is not compatible with a residential urban environment. I have been wanting to register my formal disgust → over

If needed, please continue on the back side of this page or attach additional pages

Submit Comments to:

Fresno Yosemite International Airport NEM Update Comments
City of Fresno Airports Department, Attn: Elodia Cavazos
4995 E. Clinton Way
Fresno, CA 93727

Or call the toll free comment line: 1-844-306-4988
Or email comments to: elodia.cavazos@fresno.gov

of this situation for many years. Why can't this military aircraft activity be moved to the more remote Lemoore Naval Air Base only 30 miles away that would still serve the needs of the Nat'l Guard ???

Thomas W Kovac
Professional Civil Engineer

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Thursday, August 6, 2015

Piccadilly Inn Airport
Ballroom Californian B, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8/6/15 Name Leopoldo Ibarra Meza

Address 4451 N. MAPLE AV. City Fresno ca. Zip 93726

Phone (optional) (559) 577-3197 Email (optional) N/A

Comments: wen this work started for my windows

If needed, please continue on the back side of this page or attach additional pages

Submit Comments to:

Fresno Yosemite International Airport NEM Update Comments
City of Fresno Airports Department, Attn: Elodia Cavazos
4995 E. Clinton Way
Fresno, CA 93727

Or call the toll free comment line: 1-844-306-4988
Or email comments to: elodia.cavazos@fresno.gov

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Thursday, August 6, 2015

Piccadilly Inn Airport
Ballroom Californian B, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8-6-15 Name Jovita Rascon

Address 4566 E. Fedora City Fresno Zip

Phone (optional) 559-289-0650 Email (optional)

Comments:

It would be really nice to extend the map lines for the Noise Reduction. The exposure to noise from the Airport (planes, jets) is at a very High Level.

If needed, please continue on the back side of this page or attach additional pages

Submit Comments to:

Fresno Yosemite International Airport NEM Update Comments
City of Fresno Airports Department, Attn: Elodia Cavazos
4995 E. Clinton Way
Fresno, CA 93727

Or call the toll free comment line: 1-844-306-4988
Or email comments to: elodia.cavazos@fresno.gov

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Thursday, August 6, 2015

Piccadilly Inn Airport
Ballroom Californian B, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8-6-2015 Name David Hele
Address 4670 N. 2nd St. City Fresno Zip 93726
Phone (optional) 559-301-5533 Email (optional) davidhele@att.net

Comments: - Please keep me "in the loop."
My wife & I would like to know how to qualify for the SMART Program.
We would also like to be added to any waiting lists, if applicable.
We would really appreciate dual pane windows, etc. to reduce excess aircraft noise within our house.
We live just east of First St. & just north of Gettysburg (within one block). Thank you.

If needed, please continue on the back side of this page or attach additional pages

Submit Comments to:

Fresno Yosemite International Airport NEM Update Comments
City of Fresno Airports Department, Attn: Elodia Cavazos
4995 E. Clinton Way
Fresno, CA 93727

Or call the toll free comment line: 1-844-306-4988
Or email comments to: elodia.cavazos@fresno.gov

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Thursday, August 6, 2015

Piccadilly Inn Airport
Ballroom Californian B, 5115 E. McKinley Avenue, Fresno, CA 93727

Date________ Name________

Address________ City________ Zip________

Phone (optional)________ Email (optional)________

Comments: Lack of professionalism!
A few questions should have been taken.
Lack of common courtesy!

Uds. necitan una classe de politicas para hacen más agradables,

If needed, please continue on the back side of this page or attach additional pages

Submit Comments to:

Fresno Yosemite International Airport NEM Update Comments
City of Fresno Airports Department, Attn: Elodia Cavazos
4995 E. Clinton Way
Fresno, CA 93727

Or call the toll free comment line: 1-844-306-4988
Or email comments to: elodia.cavazos@fresno.gov

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Thursday, August 6, 2015

Piccadilly Inn Airport
Ballroom Californian B, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8-6-15 Name Alma Rosa Hernández

Address 4773 E. Cornell ave City Fresno Calif. Zip 93703

Phone (optional) 559 255-2296 559 cell 286-7306 Email (optional)

Comments: I have a son 1 year old & 3 months the noise scares him. When trying to have a conversation on the phone we have to stop to wait for planes to go by. Window vibrate when (military planes) go over. Thank You So much for your assistance.

If needed, please continue on the back side of this page or attach additional pages

Submit Comments to:

Fresno Yosemite International Airport NEM Update Comments
City of Fresno Airports Department, Attn: Elodia Cavazos
4995 E. Clinton Way
Fresno, CA 93727

Or call the toll free comment line: 1-844-306-4988
Or email comments to: elodia.cavazos@fresno.gov

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Thursday, August 6, 2015

Piccadilly Inn Airport
Ballroom Californian B, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8-7-2015 Name

Address 3342 E. Santa ana City Fresno Ca. Zip 93726

Phone (optional) 559-229-5642 Email (optional)

Comments: I atend to meeting in Tioga Jr. High 10 years ago, they promesd they going to do double window it hasn't done yet if we have to wait another 10 years we be dead my husband 81 years old and I 71 and we been living in that house For 38 years

Thanks
Eugenie Massoyan

If needed, please continue on the back side of this page or attach additional pages

Submit Comments to:

Fresno Yosemite International Airport NEM Update Comments
City of Fresno Airports Department, Attn: Elodia Cavazos
4995 E. Clinton Way
Fresno, CA 93727

Or call the toll free comment line: 1-844-306-4988
Or email comments to: elodia.cavazos@fresno.gov

G.3 Second and Third Public Workshops August 1, 2017 and August 31, 2017

G.3.1 Letter to Stakeholders

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

City of Fresno Airports Department

July 13, 2017

Dear Airport Stakeholder,

The City of Fresno, as owner and operator of Fresno Yosemite International Airport (FAT), is conducting an update to the FAT Noise Exposure Map (NEM) in accordance with Title 14 of the Code of Federal Regulations Part 150 (Part 150) "Airport Noise Compatibility Planning" in order to ensure that the NEM reflects current conditions at the Airport. The NEM includes aircraft noise exposure contours created using Federal Aviation Administration required modeling software. These contours, presented on a map, indicate the noise exposure from aircraft operations during the year of completion (2017) and as forecast in five years (2022). The noise contours depicted in the NEM are one of the elements used to determine eligibility for participation in the Airport's residential sound insulation program, locally known as the SMART Program.

I am pleased to announce that the updated Draft FAT Part 150 NEM Report is available online for public review at the project website (http://www.fresnonem.com), and in hard copy format for review during business hours, at the following locations:

- Fresno Yosemite International Airport
  Administration offices,
  4995 E. Clinton Way, Fresno, CA 93727
- City of Fresno
  Development and Resource Management Department, Permit Counter
  2600 Fresno Street, Room 3043
  Fresno, CA 93721
- Fresno County Public Library
  Clovis Branch
  1155 5th Street
  Clovis, CA 93612
- Fresno County Public Library
  Betty Rodriguez Regional Branch
  3040 N. Cedar Avenue
  Fresno, CA 93703
- Federal Aviation Administration, San Francisco District Offices,
  San Francisco Airports District Office
  1000 Marina Blvd, Suite 220
  Brisbane, California 94005-1835

The comment period for the Draft NEM Report will be from July 17, 2017 through August 16, 2017. Please visit the project website for additional information. Comments may be submitted through the project website or by calling the project toll-free phone line at (844) 306-4988.
(over please)

4995 E. Clinton Way - Fresno CA, 93727-1525 - (559) 621-4500 - www.flyfresno.com

As part of the NEM Update process, we will be holding a public workshop to present the Draft NEM Report. The workshop will be held at the Piccadilly Inn Airport, 5115 East McKinley Avenue, Fresno, CA 93727 on Tuesday, August 1, 2017 between 5:30 p.m. and 7:30 p.m. interested residents and stakeholders are encouraged to attend. The workshop will be in an open house format with an opportunity to ask questions of the study consultant, HMMH, and Airport officials regarding the NEM update process or to comment on the Draft NEM Report.

The Piccadilly Inn Airport is an ADA accessible facility. For special accommodations at meetings associated with this project, or to arrange for an interpreter, please contact Elodia Cavazos, City of Fresno Airports Department, at (559) 621-4506 at least 72 hours prior to the meeting. We appreciate your interest in the Fresno Yosemite International Airport and look forward to discussing the NEM update with you at the meeting.

Sincerely,

Mark W Davis

Mark W. Davis
Airports Planning Manager

G.3.2 Announcement/press release

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Media Advisory

August 30, 2017

CONTACT: Vikkie Calderon, Media & Public Relations Officer
(559) 621-4522

Fresno Airport Yosemite International Airport to Host Public Workshop for Noise Exposure Map Update

FRESNO, CA – The public is invited to attend a workshop on the Fresno Yosemite International Airport Noise Exposure Map (NEM) update. The workshop will be held tomorrow, August 31, 2017 at 3:00 p.m. at Fresno Yosemite International Airport in the Airport Terminal Conference Room, 5175 E. Clinton Way, Fresno CA 93727.

The NEM update is an evaluation of aircraft noise and land use compatibility as prescribed by the Federal Aviation Administration. The resulting map will identify noise exposure from aircraft operations in the vicinity of the Fresno Yosemite International Airport and will be used to help determine eligibility for the residential sound insulation program.

The informational open house runs from 3:00 p.m. - 5:00 p.m. The public will have the opportunity to view displays, speak individually with the project team and provide comments on the NEM update.

This third information workshop is a repeat of the second one held on August 1, 2017 with the same format and opportunity to visit with staff and consultants as well as provide written comments. The August 31, 2017 workshop will be held at Fresno Yosemite International Airport in the Airport Terminal Conference Room, 5175 E. Clinton Way, Fresno CA 93727. Parking will be validated.

Details on the NEM update process can be found at www.fresnonem.com. Comments on the NEM may be submitted until 5:00 p.m. on September 5, 2017 through the toll-free line at 1-844-306-4988 or in writing to Elodia Cavazos, City of Fresno - Airports Department, 4995 E. Clinton Way, Fresno CA 93727 or at Elodia.Cavazos@fresno.gov .

Fresno Yosemite International Airport currently offers Valley passengers daily non-stop flights to Dallas, Denver, Las Vegas, Los Angeles, Phoenix, Portland, Salt Lake City, San Diego, San Francisco, Seattle, and Guadalajara, Mexico on domestic and international carriers. Fresno Yosemite International Airport is a municipally owned entity operating as a self-supporting enterprise. No City of Fresno general funds are used to operate Fresno Yosemite International Airport or Fresno Chandler Executive Airport.

Like us on facebook.com/FresnoYosemiteInternational or follow us on Twitter @FresnoAirport .

# # #

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Noise Exposure Map Update

PUBLIC INFORMATION WORKSHOP

Open House Format - Stop by Anytime

Same Information will be at both Workships

The Draft Noise Exposure Map (NEM) Update is now available for public review. The public comment period will end at 5 p.m. on September 5, 2017.

TUESDAY,
AUGUST 1, 2017
5:30 pm to 7:30 pm
Piccadilly Inn Airport
Grand Californian Ballroom
5115 E. McKinley Avenue
Fresno, CA 93727

OR

THURSDAY,
AUGUST 31, 2017
3 pm to 5 pm
Fresno Yosemite Int'l Airport
Terminal Conference Room
5175 E. Clinton Way, Fresno, CA 93727
(parking validated)

For project information and directions to the public workshop visit:
http://www.fresnonem.com

Both locations are ADA accessible facilities. For Special accommodations at meetings associated with this project, or to arrange for an interpreter, please contact Elodia Cavazos, City of Fresno Airport Department, at (559) 621-4506 at least 72 hours prior to the meeting.

ANDREW KUHN

An airplane drops fire retardant along a ridge above the town of Mariposa as crews battle the Detwiler Fire in Mariposa County.

FROM PAGE 1A

DETWILER FIRE

Jaime Williams, another Cal Fire public information officer, said firefighters were doing whatever they could to protect the historic Gold Rush-era town.

Winds, dense brush and dead trees in the foothills are creating an abundance of fuel. Inflamed grasses often produce flames anywhere from 2 to 6 feet tall, and other brush produced flames 25 feet tall, firefighters reported.

Spot fires constantly popped up, and the fire didn't rest long overnight.

EVACUATION CENTERS OPENED

A Red Cross evacuation and small animal shelter was located at the Groveland Community Center at 18720 8th St.

Another shelter was set up at the Sonora Fair Grounds 220 Southgate Road.

Additional Red Cross shelters are located at the Oakhurst Evangelical Free Church, Sierra Presbyterian Church in Oakhurst, Mountain Christian Center in Oakhurst and the Cesar E. Chavez Middle School in Planada.

YOSEMITE IMPACTED

Yosemite National Park remained open, despite power outages in which electricity would go out, then come back, said Scott Gediman, a park spokesman. Campgrounds, hotels and lodges remain open.

Visitors are advised to take Highway 120 into the park from the east and west and Highway 41 from the south. The park is not accessible from Highway 140.

Gediman said the air in Yosemite Valley is smokey, and visibility is limited.

ANIMALS SHELTERED

As of Wednesday morning, 33 horses, 10 goats, two mini horses, and two donkeys from Mariposa were in temporary housing on the Coarsegold Rodeo Grounds.

Owner Tanner West and manager Donney Linderholm had been up all night accepting large animals that had been evacuated.

"We've had people show up in tears, in fear that their homes are burning, not knowing if they will have a home to go to," an exhausted West said. "They were going to cut their fences and just let their horses go, spray painting phone numbers and addresses on their horses ... definitely a last resort and desperate measure ... so us staying up all night is nothing compared to what they are going through."

Morgan Voorhis of the Sierra Star contributed.
Brianna Calix: 209-385-2477

What is fire doing to Valley's air quality?

BY ASHLEIGH PANOO

MARK EVAN SMITH

Roads were closed to traffic in the Mariposa area as the Detwiler Fire moved toward the town.

A health alert issued for the central San Joaquin Valley will remain in place until the Detwiler Fire is contained, the San Joaquin Valley Air Pollution Control District said Wednesday.

Skies over Fresno have been hazy for several days and residents have awakened to find ash falling outside. With the fire only 7 percent contained as of midday Wednesday, the haziness will continue, according to the National Weather Service. "Areas of smoke from area wildfires will persist across the Central California interior."

Air alerts from the National Weather Service have also been issued for Mariposa and Tuolumne counties, as well as Mono and Alpine counties on the east side of the Sierra. Those areas are being affected by smoke blowing over the range.

Smoke and ash particles can enter eyes or lungs and cause burning, a runny nose and other respiratory illnesses, the district said. Those with chronic heart or lung diseases are more susceptible, and it may trigger asthma attacks and acute bronchitis. The district cautions children and the elderly against strenuous activity and prolonged exposure to the outside air. Air quality tends to get worse in the afternoon.

Community Regional Medical Center in Fresno sees an influx of patients in the emergency room when the temperatures go up and the air quality goes down. "In the summertime, things are dry. It really impacts pulmonary patients who are very vulnerable," said Dr. Rais Vohra, an emergency medical doctor at the hospital and emergency medicine faculty member at the UCSF Fresno Medical Education Program.

"We see patients with asthma and chronic lung disease coming to the ER," he added. "Respiratory infections seem to get worse and flare up."

Although Vohra doesn't keep records on how many people come in for air quality-related illnesses, he said the combination of breathing the air outside and the dehydration from heat is a common trigger that brings people in.

He said smokers risk adding more injuries to their lungs during this time. Even quitting for a short time has acute health benefits, Vohra said. "Any time is a good time to stop smoking."

Carlos Flores, a registered nurse and trauma coordinator at Valley Children's Hospital, says although many kids visit the hospital for respiratory illnesses, he doesn't necessarily see a spike during days with bad air quality.

As of Wednesday, the district's air monitors signaled nothing out of the ordinary, but spokeswoman Cassandra Melching said the danger lies in what the monitors can't pick up.

Monitors are designed to detect fine particulate matter, which can't be seen by the naked eye. "Ash is a lot larger," Melching said. "We tell people, if you can see and smell smoke and see ash falling, treat it as a level four or five. Stay indoors in that cool filtered air."

Melching said wildfires, bad air quality and even raining ash are a normal part of summer in the Valley. "We're surrounded by mountain ranges," she said. "This is what we get."

Ashleigh Panoo: 559-441-6010, @AshleighPan

FROM PAGE 1A

APARTMENTS

there's no city requirement that fixed-up units be priced for low-income families.

Early last year, the city found water leaks, roaches, mice, missing smoke and carbon monoxide detectors, roofs in need of repair and other problems.

The city went to court to have the property, owned by Guadalupe Fernandez of Tulare, put into receivership. The receiver borrowed money from a bank and made about $257,000 in repairs and covered other expenses.

Now there are new doors, locks, windows, carpet, refrigerators, water heaters, counters, paint and repaired roofs.

MAYOR TAKES A TOUR

Mayor Lee Brand on Wednesday toured the two buildings that make up the complex and liked what he saw.

"It's a step in the right direction for the city of Fresno," he said. "We will not tolerate substandard housing in the city."

The city will keep taking over slum properties via receivership and get them into shape for sale, he said.

"When we get to the point where we have an owner who does not cooperate and does not pay their fines - and most importantly doesn't make the necessary corrections to make the units liveable - this is our final tool, receivership," he said.

Assistant city attorney Felicia Espinoza estimated that rents would range between $750 and $850 for the one- and two-bedroom apartments.

Brand, a former property manager, said a family in which two people are working minimum wage jobs should be able to afford that.

"I can't control what landlords are going to rent. I can try to get more housing up that will balance the supply and demand," he said.

The problem isn't high rents, it's low wages, he said.

"We need to develop more jobs in Fresno, more decent-paying jobs," he said.

It's possible that the Fresno Housing Authority could assist with rental subsidies, but the property owner must sign a contract, renters pay 30 percent of their adjusted income and the housing authority pays up to a certain amount, said spokeswoman Brandi Johnson.

A motion to sell the complex, which is currently unoccupied except for a caretaker, will be heard Aug. 15 in Fresno County Superior Court. It's on the market for $701,000, but higher bids are expected.

SEEKING MORE HELP

Andy Levine, executive director of Faith in Fresno, a social justice advocacy group, gave the city credit for getting the apartment units under the control of a receiver and repaired. But one or two buildings at a time won't solve the city's substandard housing issue, he said.

"What's the plan to speed it up?" Levine said.

He also said he's concerned that those living in housing that's placed into a receiver control will be forced out.

Attorney Riley Walter, representing receiver Terence Long of Fresno, said tenants at the Olive and Jackson apartments left voluntarily.

All 13 units were occupied, but "only five were paying rent," he said. It appears that one tenant had not paid rent for four years, he said.

When the receiver took over, the construction company removed eight large garbage bins of trash and debris, including 40 mattresses, he said.

Under the law, the receiver borrows money, repairs the property and then sells it, Walter said. The money covers the costs, including city fines and lawyer fees. Anything left over goes to the original property owner, he said.

Esther Delahay, a housing advocate in the Lowell neighborhood, agreed that there's a limit to the receivership option.

"It's a tool in the toolbox," she said. "Receivership is not going to work across the board for every slumlord."

Meanwhile, city officials said they are compiling a list of problem properties and this week received court approval to have two other properties placed into receivership.

Lewis Griswold: 559-441-6104, @fb_LewGriswold

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

PUBLIC INFORMATION WORKSHOP

Noise Exposure Map Update

TUESDAY, AUGUST 1, 2017

5:30 pm to 7:30 pm

Open House Format – Stop by Anytime

The Draft Noise Exposure Map (NEM) Update is now available for public review. The NEM Update is an evaluation of aircraft noise and land use compatibility as prescribed by the Federal Aviation Administration (FAA). The NEM identifies noise exposure from aircraft operations in the vicinity of Fresno Yosemite International Airport and will be used to help determine eligibility for the Airport's residential sound insulation program. The public comment period will end at 5 p.m. on August 16, 2017.

Piccadilly Inn Airport
Grand Californian Ballroom
5115 E. McKinley Avenue
Fresno, CA 93727

For project information and directions to the public workshop visit:
http://www.fresnonem.com

The Piccadilly Inn Airport is an ADA accessible facility. For special accommodations at meetings associated with this project, or to arrange for an interpreter, please contact Elodia Cavazos, City of Fresno Airports Department, at (559) 621-4506 at least 72 hours prior to the meeting.

The Fresno Bee

Central California's Leading Newspaper

Affidavit of Publication

Name of Publication: The Fresno Bee

Address: 1626 E Street

City, State, Zip: Fresno CA 93786-0001

I, Alicia Pearce, for the publisher of The Fresno Bee, published in the city of **Fresno**, state of **California** hereby certify that the attached noticed was printed in said publication on the following date(s);

Insert Date: 7/20 + 7/30/17
Advertiser: Fresno Yosemite Airport
Size: 3C X 10.5"
Circulation: Thursday and Sunday

Given under my hand, this 22 day of August, 2017

Signature: Alicia Pearce

State of **California**
County of **Fresno**

Subscribed and sworn to (or affirmed) before me on this 22nd day of August, 2017
proved to me on the basis of satisfactory evidence to be the person who appeared before me.

by
Signature of Notary: Christine M. Williams

Commission expires April 24, 2018

Place Notary Seal and/or stamp here:

CHRISTINE M. WILLIAMS
COMM. #2065446
Notary Public - California
Fresno County
My Comm. Expires Apr. 24, 2018

2 July 30, 2017

yes! home & décor

Mix it up

A baker's best friend

USA TODAY NETWORK

Hand mixers are a kitchen essential. No matter what you need – small, powerful, inexpensive or just pretty – there's something out there to help you whip up your next batch of cupcakes.

■ KitchenAid's five-speed ultra power hand mixer comes in an array of fun colors. **$59.99** at Kohl's.

■ Five-speed Brentwood hand mixer has a lightweight, ergonomic design. **$22.19** at overstock.com.

■ With beaters that fold into its body, the compact Dash hand mixer is small enough to fit into a drawer. **$24.99** at Belk.

■ **Black + Decker's** six-speed hand mixer has a turbo setting and easily rests on bowls or counters when not in use. **$18.42** at The Home Depot.

■ Speed-speed Hamilton Beach hand mixer has a snap-on case for storing the cord and attachments. **$24.49** at Target.

■ Holstein Housewares' three-speed hand mixer features clip-on beater storage. **$27.99** at wayfair.com.

■ Krups' 10-speed hand mixer has a turbo boost, and comes with two beaters, two dough hooks and a whisk. **$49.98** at walmart.com.

■ With a sleek chrome finish, the Dualit four-speed mixer adds a sophisticated feel to baking. **$89.99** at amazon.com.

Spice it up

Cookbooks for a creative kitchen

USA TODAY NETWORK

From vegetarian meals to dessert plates, these cookbooks have something for everyone.

■ "The Love & Lemons Cookbook" by Jeanine Donofrio makes it easy to create vegetarian recipes from local produce. **$35** at Anthropologie.

■ Indulge your sweet tooth with "100 Desserts to Die For" by Trish Deseine. **$47.99** at yellowoctopus.com.au.

■ Get ready for fall with "The Soup Bible," featuring more than 150 recipes. **$12.99** at Bed Bath & Beyond.

■ Make lunches creative, fun and easy with "Flatbreads, Wraps & More." **$19.99** at Kohl's.

■ "One Pot of the Day" by Kate McMillan, is perfect for cooks who don't want a messy kitchen. **$34.95** at Williams Sonoma.


AT&T M-Cell 9:12 AM 45%
Fresno Yosemite Int.
589 Tweets
convenient travel experience.
Fresno, CA flyfresno.com
168 Following 715 Followers
Tweets Tweets & replies Media
Fresno Yosemite Int. @... · 5d
Public Information Workshop for the Noise Exposure Map (NEM) Update Tuesday, Aug. 1, 2017 @ 5:30pm–7:30pm Piccadilly Inn Airport
September 5, 2017.
TUESDAY,
AUGUST 1, 2017
5:30 pm to 7:30 pm
Piccadilly Inn Airport
Grand Californian Ballroom
5115 E. McKinley Avenue
Fresno, CA 93727
OR
THURSDAY,
4


Fresno Yosemite Int. @FresnoAirport · Jul 28
Public Information Workshop for the Noise Exposure Map (NEM) Update
Tuesday, Aug. 1, 2017 @ 5:30pm–7:30pm Piccadilly Inn Airport
FRESNO YOSEMITE
INTERNATIONAL AIRPORT
Noise Exposure Map Update
PUBLIC INFORMATION WORKSHOP
Open House Format - Stop by Anytime
Same information will be at both Workshops
TUESDAY, AUGUST 1, 2017
5:30 pm to 7:30 pm
Piccadilly Inn Airport
Grand Californian Ballroom
OR
THURSDAY, AUGUST 31, 2017
3 pm to 5 pm
Fresno Yosemite Int'l Airport
Terminal Conference Room
(parking validated)
For project information and
directions to the public workshop visit:
3


Fresno Yosemite International Airport
FRESNO YOSEMITE
INTERNATIONAL AIRPORT
Noise Exposure Map Update
PUBLIC INFORMATION WORKSHOP
Open House Format - Stop by Anytime
TUESDAY, AUGUST 1, 2017
5:30 pm to 7:30 pm
Piccadilly Inn Airport
Grand Californian Ballroom
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Fresno Yosemite Int'l Airport
Terminal Conference Room


FRESNO YOSEMITE
INTERNATIONAL AIRPORT
Noise Exposure Map Update
PUBLIC INFORMATION WORKSHOP
Open House Format - Stop by Anytime
TUESDAY, AUGUST 1, 2017
5:30 pm to 7:30 pm
OR
THURSDAY, AUGUST 31, 2017
3 pm to 5 pm
Fresno Yosemite Intl.
Public Information Workshop for the Noise Exposure Map (NEM) Update Tuesday, Aug. 1, 2017 @ 5:30pm-7:30pm Piccadilly Inn...

G.3.3 Public workshop sign-in sheets – August 1, 2017

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Attendance Roster

Fresno Yosemite International Airport NEM Update

Meeting: NEM Public Information Workshop # 2 **Date:** Tuesday, August 1, 2017 5:30-7:30 p.m.

Meeting Location: Piccadilly Inn Airport, Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Name	Organization	Address	Phone	Email
Maria G Hernandez		4676 E Gettysburg Ave	559 292-8253	
William Garrett		3038 E Holland	227-7598	
JOHN MACEDO		5190 E. HEDGES	978-9891	
John Medina		3143 E. Rialto	978-7323	
Pedro Chacon		2771 N. Winery		
Susan CRUZ		4347 N ARCHIE	514 9263	SUSAN[illegible]
LUCY SHERMAN		3263 E. RIALTO AVE	2299454	lucysherman@comcast.com
MUN YEE LIEW		4875 N. BACKER AVE #156	287-3962	myliewchristine@hotmail.com
Laura Schellenberg		3981 E. Donner Ave.	972-2624	Laura.S.Schellenberg@gmail.com
Adam Schellenberg		"	301-7311	Adam.Schellenberg@aol.com
Charles F Waseman		4774 E Cornell Ave	785-7303	Chuck.[illegible]@Comcast.Net
Luis Garcia		4775 E. CLINTON WAY	621-4533	Luis.Garcia2@FresnoGov
GAYLE PROFFITT-CRAMPTON		3430 E. DONNER AVE	970-3472	PROSPECTORSROCKART@gmail
Maryann Miyasaki		4654 E Gettysburg Ave	291-7577	
Ashley Mongan		4476 E. Robinson Ave	297 0235	arcangel84@bellsouth.net

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Attendance Roster

Fresno Yosemite International Airport NEM Update

Meeting: NEM Public Information Workshop # 2 **Date:** Tuesday, August 1, 2017 5:30-7:30 p.m.

Meeting Location: Piccadilly Inn Airport, Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Name	Organization	Address	Phone	Email
Karen Ramsden		4654 N. Third St	227-2176	
[illegible]		3623 W. Price Ave	4958857	
Helen Fentz		3515 E. Alamos	227-4296	
DONA SHURTZ		4754 N. 4th St	3554224	dosherfz@hotmail.com
Rosemarie Shurtz	Home Owner	4754 N. FourthSt 93726	707-332-9114	
Francisca Avila	Home Owner	4665 E Cortland Ave 93726	559 696-1226	frany0554@hotmail.com
[illegible]	Home Owner	3737 E. Ashlan	559 709-2280	
Dean, Rate, Dean Dallin	Homeowner	4561 N. Price 559 285-7082	559 291-4272	jdallin34@gmail.com (3)
MARK DAVIS	COF	4995 E. CLINTON		
Jim Davis	Home owner	3882 E Ashlan	250-9762	
KEVIN MEIKLE	AIRPORT	4995 E CLINTON	621-4600	
DAN WEBER	AIRPORT	4995 E. CLINTON	621-4525	
Elodia Cavazos	Airports	4995 E. Clinton Way	621-4506	elodia.cavazos@fresno.gov
Stuart McFeeters	Home owner	4493 E. Norwich Ave	770-6898	stuartmcfeeters5@gmail.com
CHEE VANG	Home owner	4568 E. Garland	259-0298	cvang5@yahoo.com

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Attendance Roster

Fresno Yosemite International Airport NEM Update

Meeting: NEM Public Information Workshop # 2 **Date:** Tuesday, August 1, 2017 5:30-7:30 p.m.

Meeting Location: Piccadilly Inn Airport, Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Name	Organization	Address	Phone	Email
John [illegible]		4664 N. Rowell Ave,	(559) 222-5883 (2)	
David R. [illegible]		3627 E Norwood Ave	559 222-2778	
Juan Sanchez	—	4830 E. Amherst Ave	(559) 260-5913	GEAKS1990@gmail.com
Martin [illegible]	—	5693 E Madison Ave	(559) 385-1500	"
Martha Estrada		4555 E. Fedora Ave	(559) 252 1857	
VIKKIE CALDERON	CITYOFFRESNO	4995 E CLINTON WAY	559 621-4500	
Khan Nguyen	—	4105 E. Sussex Way	559 916 [illegible] (2)	
Jared Garza	City of Fresno	4995 E Clinton Way	559-621-4527	
Sylvia Garrett	—	4385 N. Fifth St.	559 5746780	
THOMAS KOVAC		4310 E SAN GABRIEL	559 226-8279	
JIM LEYSER		3521 E. Rialto	907-1804	
Marilyn Castillo		3631 E Acacia	93726 (2)	
Justin Ameola	Citibank	4515 N. Hayston Ave	559-916-[illegible]	jameola1990@yahoo.com
James [illegible]	—	4653 N. Fisher St	273-5497	
EVELYNA GONZALEZ		4484 E ROBINSON	269-2551	evelyn-evelyn@[illegible].net

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Attendance Roster

Fresno Yosemite International Airport NEM Update

Meeting: NEM Public Information Workshop # 2 **Date:** Tuesday, August 1, 2017 5:30-7:30 p.m.

Meeting Location: Piccadilly Inn Airport, Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Name	Organization	Address	Phone	Email
2 Verl + Gail Tharp		7365 E OLIVE AVE, FRESNO	559 255-4748	invest559@gmail.com
2 John & Shirley Krien		4551 E. San Gabriel, Fresno	559 225-2157	srkrien@yahoo.com
DENA BAKER		5054 E TYLER	559-916-6414	SCOUTHETEATT.NET
Shirley [illegible]		4707 W. Orchard	[illegible]	
Maria Mata serafin		4655 E. Courtland	559 304 5550	marimata090669@yahoo.com

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Attendance Roster

Fresno Yosemite International Airport NEM Update

Meeting: NEM Public Information Workshop # 2 **Date:** Tuesday, August 1, 2017 5:30-7:30 p.m.

Meeting Location: Piccadilly Inn Airport, Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Name	Organization	Address	Phone	Email
SARKIS CHOLAKYAN		4684 N. Bond St	559-230-2817	

G.3.4 Public workshop sign-in sheets – August 31, 2017

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Attendance Roster

Fresno Yosemite International Airport NEM Update

Meeting: NEM Public Information Workshop # 3 **Date:** Thursday, August 31, 2017 3:00-5:00 p.m.

Meeting Location: Airport Terminal Conference Room, 5175 E Clinton Way, Fresno, CA 93727

Name	Organization	Address	Phone	Email
2 Tino & Susan Teruzillo		6271 E. Harvey Ave Fresno CA 93727	559-691-8001	onitnasus@yahoo.com
Bryan Gott		4529 E. Redlands Ave 93726	217-0557	bg3269@yahoo.com
Gloria Nuñez		3525 N. 3RD ST	696-5874	
Morris Cowings		4576 E. Cortland	269 0491	morfin8989@[illegible].com
Julie Curry		1135 N. Temperance	977-3441	goinrodeo@[illegible]
Alice Rogers		704 N. Villa Ave	93727	alicerogers1719@comcast.net
Lachea Deamicis	City of Fresno			lachea.deamicis@fresno.gov
Dan Weber	Airports		559-621-4525	daniel.weber@fresno.gov
Elodia Cavances	Airports		621-4506	
Kaitlin Kruser		4760 E. Ashcroft Fresno, CA	559-905-3174	kkruser@mail.fresnostate.edu
Michelle Prendergrand		4415 N. Lawrence Ave 93726	977-9824	zebrafairy01@gmail.com

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Attendance Roster

Fresno Yosemite International Airport NEM Update

Meeting: NEM Public Information Workshop # 3 **Date:** Thursday, August 31, 2017 3:00-5:00 p.m.

Meeting Location: Airport Terminal Conference Room, 5175 E Clinton Way, Fresno, CA 93727

Name	Organization	Address	Phone	Email
2 Jim & Gail Goede		4270 N. 5th - Fsno	229-5461	traveltothestars@sbcglobal.net
Irma Canti		6559 Amherst	974-2176	IrmayCanti@Yahoo
Arthur Koop		4663 N 2nd St	224-3841	Ackoop36@ATT.NET
Lena Cowings		4576 E. Cortland	981-5215	martin981@Yahoo.com
Maria Niño		4732 E. Normal	374-5570	
Luis Garcia		4995 E. Clinton Way	621-4533	Luis.Garcia2@Fresno.Gov

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Attendance Roster

Fresno Yosemite International Airport NEM Update

Meeting: NEM Public Information Workshop # 3 **Date:** Thursday, August 31, 2017 3:00-5:00 p.m.

Meeting Location: Airport Terminal Conference Room, 5175 E Clinton Way, Fresno, CA 93727

Name	Organization	Address	Phone	Email
Abimael Bolio		895 W Euclid Clovis	559 903-2850	itzaes0001@aol.com
2 Matthew + Lisa Caporossi		6585 E. Harvey Ave Fresno 93727	559 960-5041	Roses4LAZ@gmail.com
Susana Cuevas		2710 N. Dearing 93703	559 906-5930	Susana060@gmail.com
Lisa Bye		5852 E. Illinois Ave 93727	(714) 393-1785	tinkthisgirl@yahoo.com

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Attendance Roster

Fresno Yosemite International Airport NEM Update

Meeting: NEM Public Information Workshop # 3 **Date**: Thursday, August 31, 2017 3:00-5:00 p.m.

Meeting Location: Airport Terminal Conference Room, 5175 E Clinton Way, Fresno, CA 93727

Name	Organization	Address	Phone	Email
Roselyn Clark		3860 E Rialto	559 222-0124	rozclark@yahoo.Com
Tom Cauro		4421 E. Swift	593-5156	tandrcauro@Yahoo.Com
James Hansen		4070 S. Reed Ave Sanger	638 9923	—
2 Jaime & Diana Enriquez		5235 E Washington Ave	562 201-6922	Andy6805at Att.net

G.3.5 Open house boards - August 1, 2017 and August 31, 2017

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Noise Exposure Map Update
14 CFR Part 150

Public Information Workshop
August 1, 2017
5:30 pm to 7:30 pm

Written comments accepted

Airport Noise Compatibility Planning Study – 14 CFR Part 150

- Voluntary program – FAA sponsored
- Sets standards for noise analyses
- Over 250 airports have participated
- Provides access to federal funds for:
  - Noise abatement
  - Noise mitigation
    - Residential sound insulation
    - Land acquisition
- Two principal elements:
  - Noise Exposure Map (NEM)
    - Last updated in 2004 with a 2009 forecast
  - Noise Compatibility Program (NCP)
    - Not updating at this time

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Airport Noise Compatibility Planning Study – 14 CFR Part 150

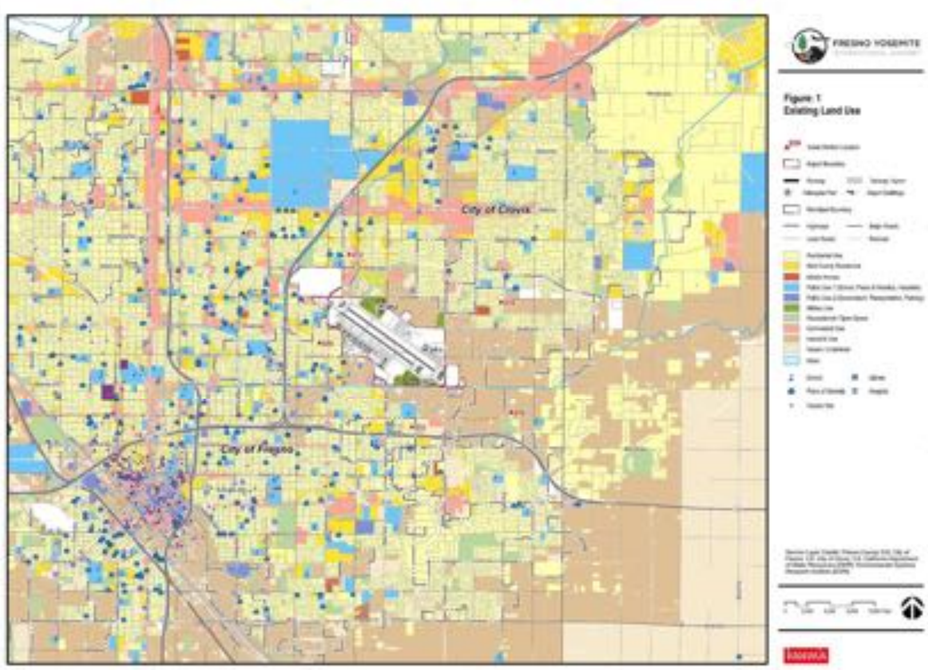
- **The NEM considers:**
  - Airport layout and operations
  - Aircraft operations
  - Aircraft noise exposure contours
  - Land use compatibility
- **The NEM includes two timeframes:**
  - Year of submission
  - Five-year forecast

Historic Noise Contours

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Land Use Inventory

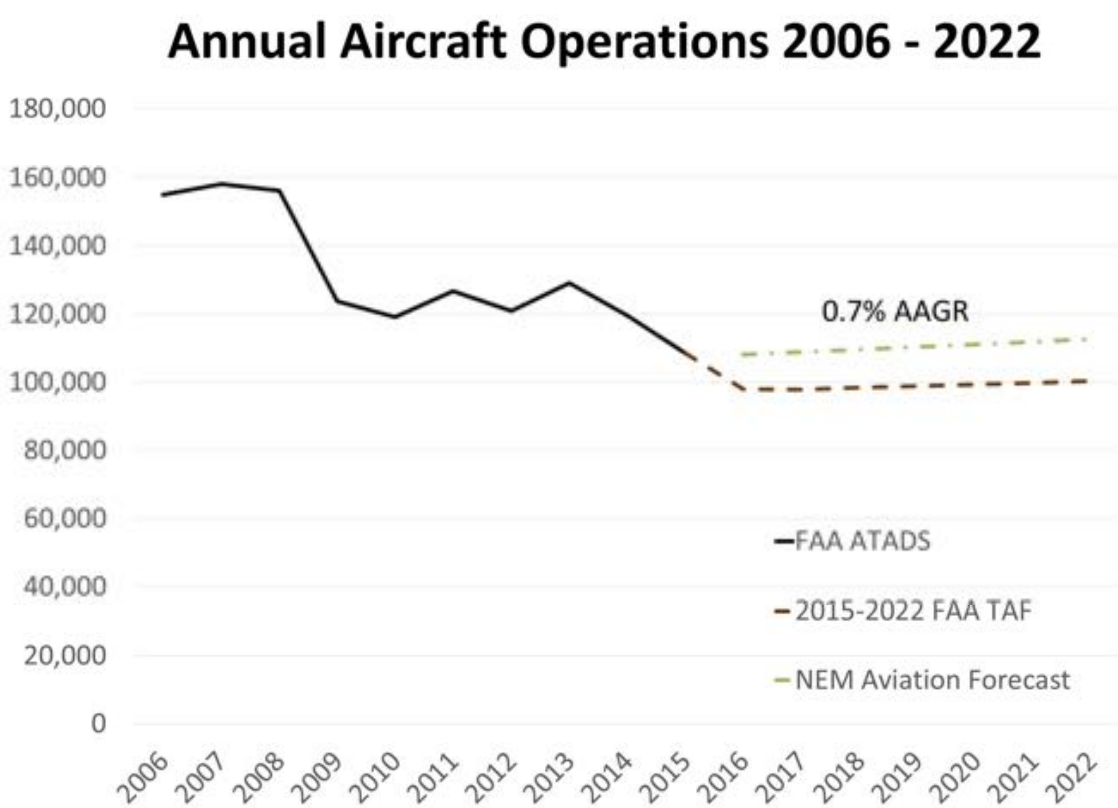
- **FAT expects runway configuration to remain the same through 2022**
- **Communities surrounding airport provided geo-spatial land use category data**
  - **County of Fresno**
  - **City of Fresno**
  - **City of Clovis**
- **Field verified land uses in contour area**



FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Forecast of Aircraft Operations at Fresno Yosemite International Airport

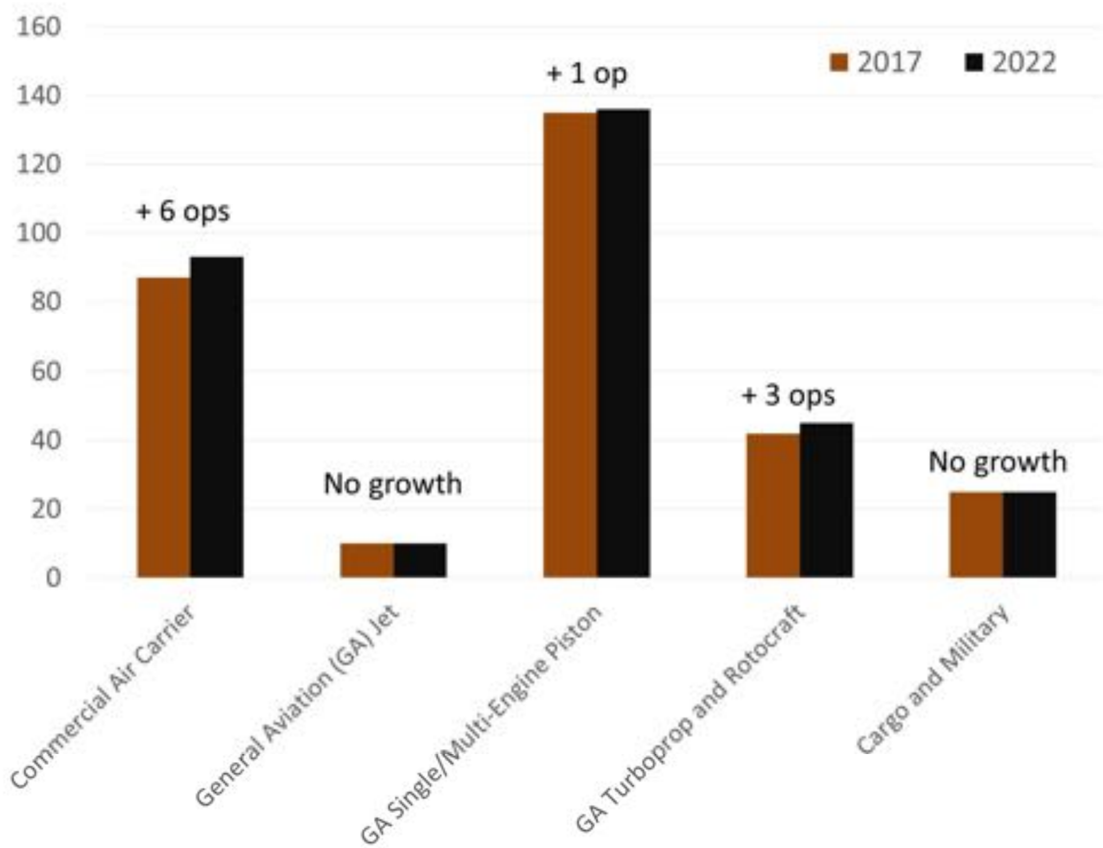
- Operations forecasted to grow at an average annual rate of 0.7 percent
- Main growth in passenger carrier operations
- Similar growth trend to FAA TAF with growth beginning in 2016/17



FRESNO YOSEMITE
INTERNATIONAL AIRPORT

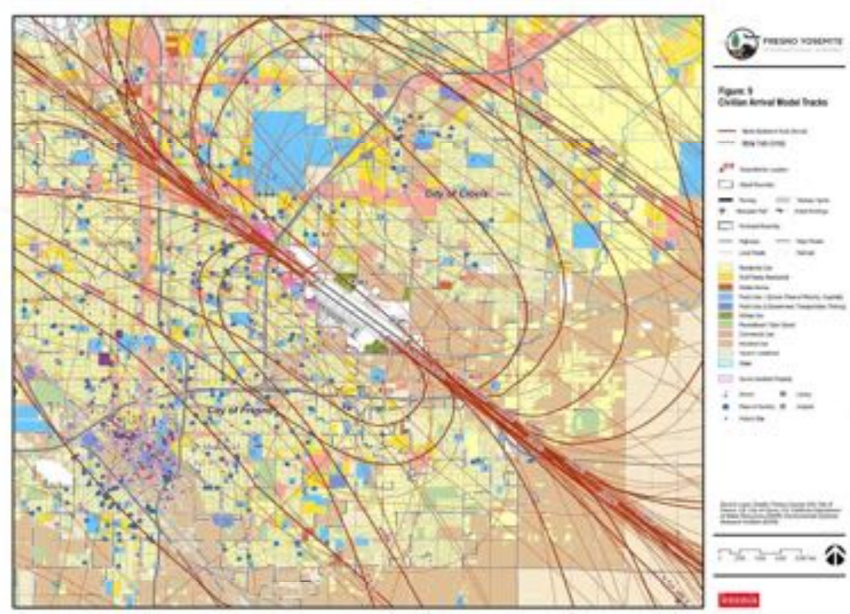
Forecast of Aircraft Operations at Fresno Yosemite International Airport

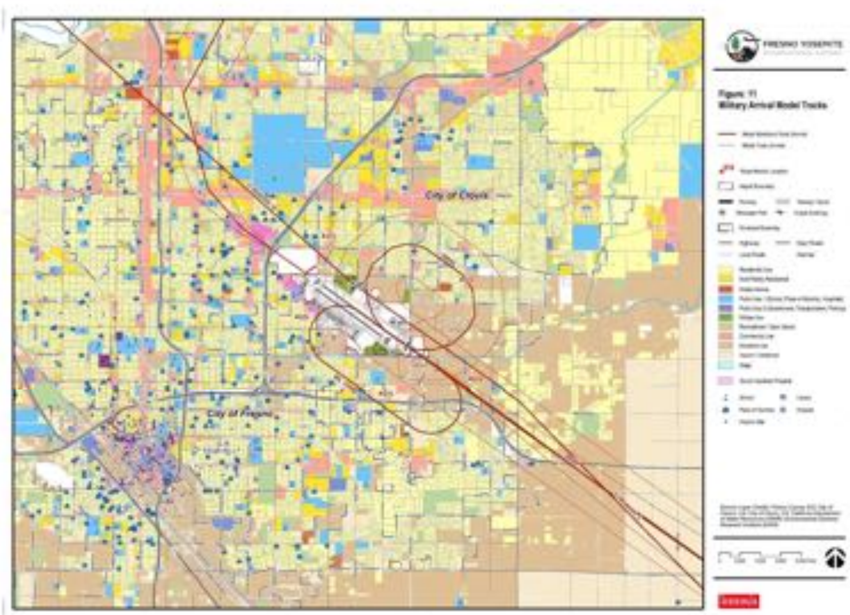
2017 and 2022 Forecasted Annual Average Daily Operations Modeled



FRESNO YOSEMITE
INTERNATIONAL AIRPORT

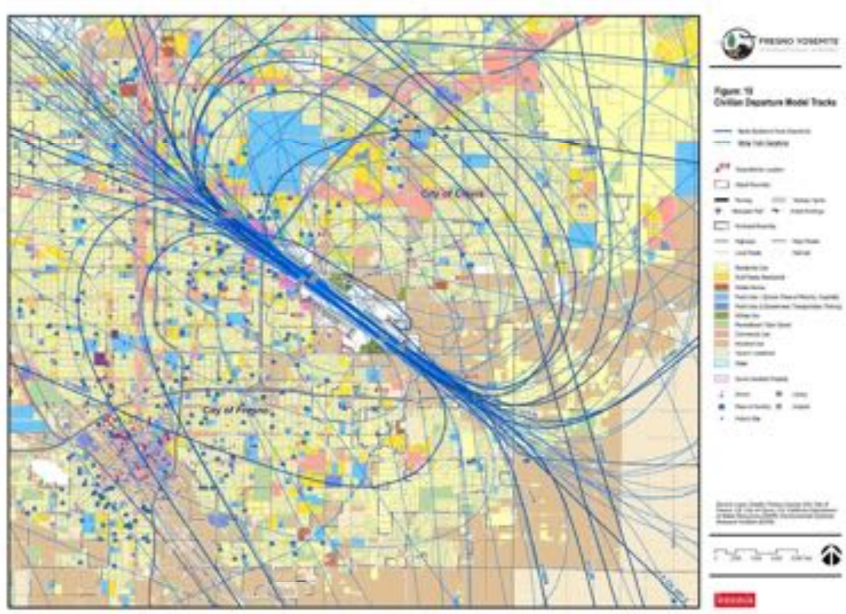
Modeled Aircraft Arrivals at Fresno Yosemite International Airport

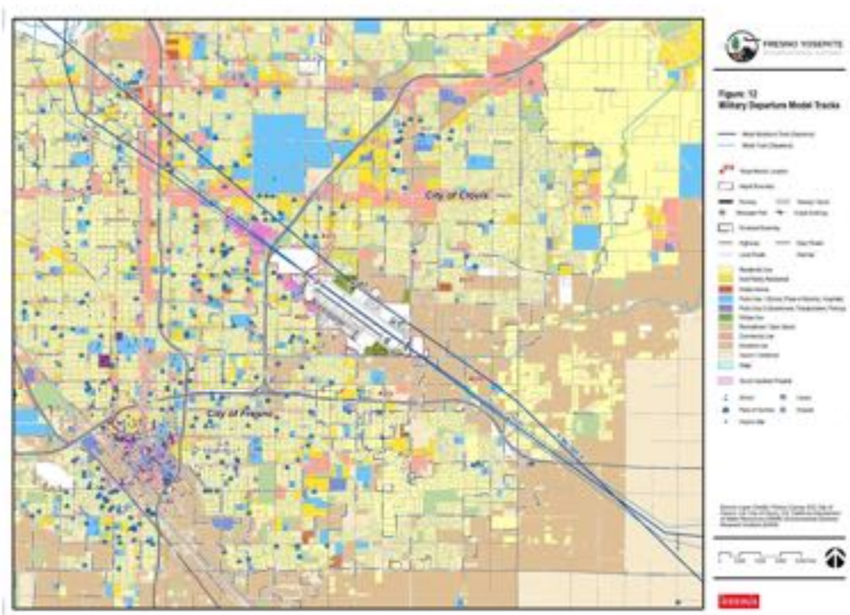




FRESNO YOSEMITE
INTERNATIONAL AIRPORT

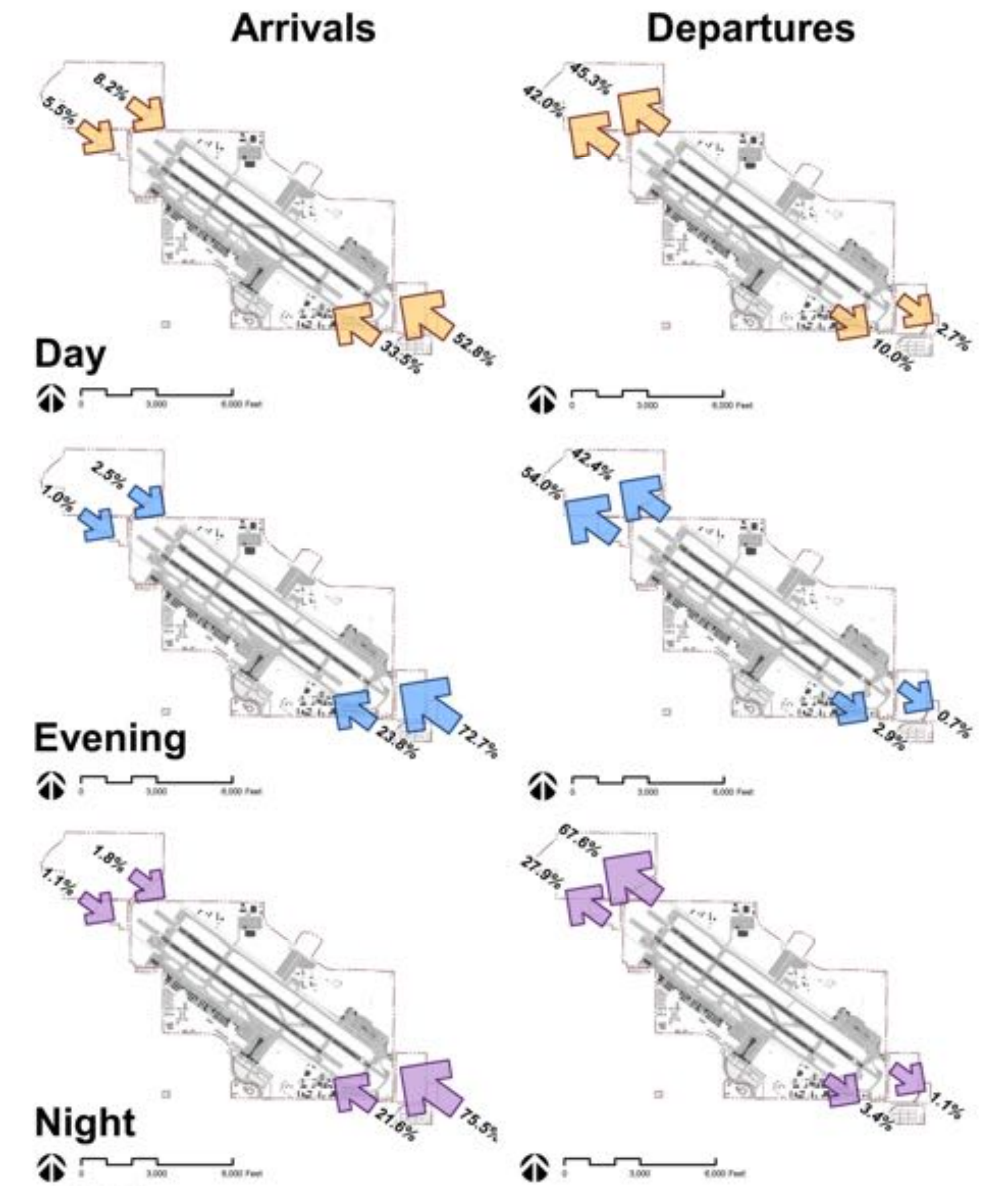
Modeled Aircraft Departure at Fresno Yosemite International Airport



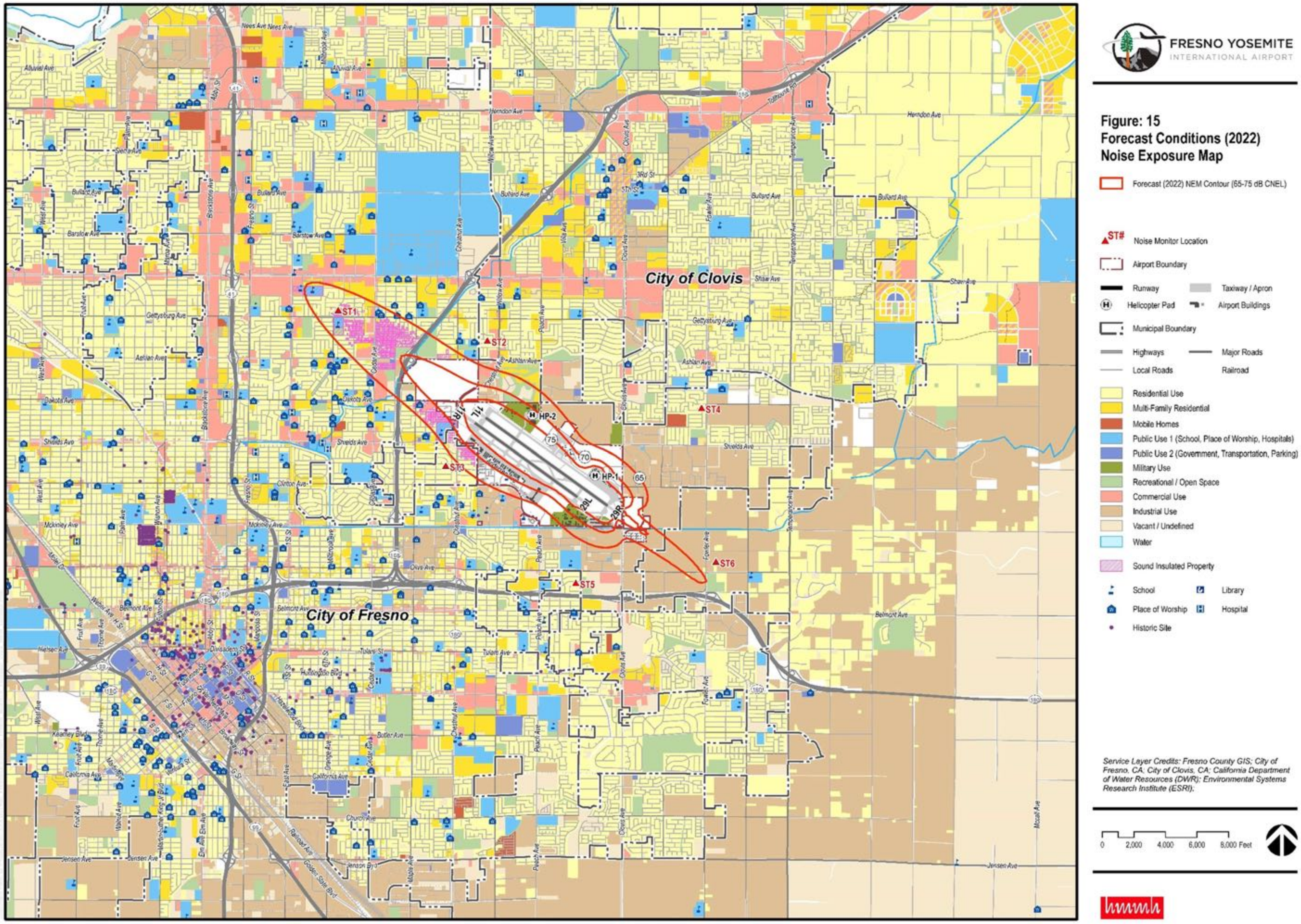


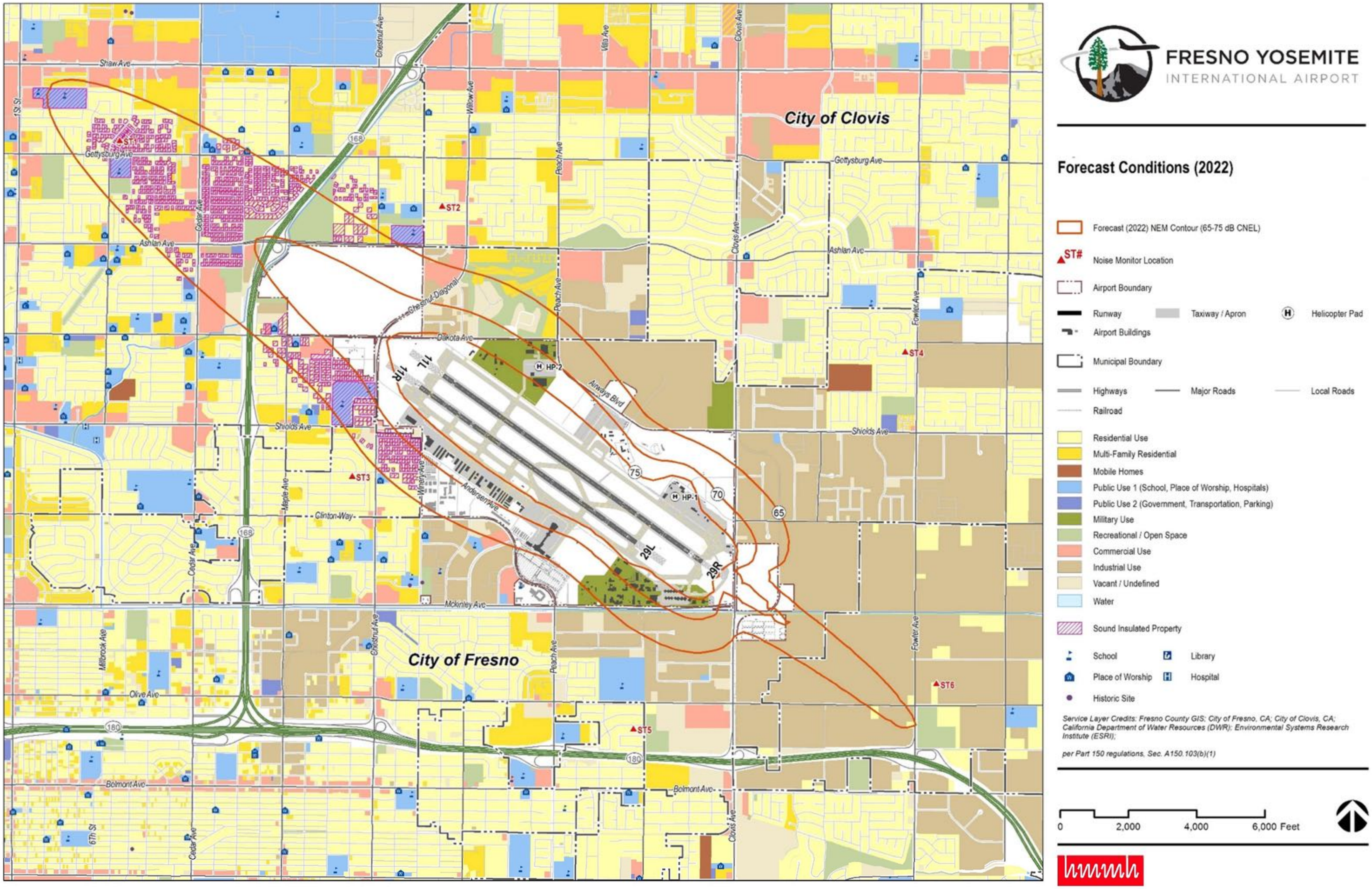
FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Modeled Aircraft Runway Use at Fresno Yosemite International Airport



FRESNO YOSEMITE
INTERNATIONAL AIRPORT


City of Clovis
City of Fresno
ST1
ST2
ST3
ST4
ST5
ST6
HP-1
HP-2
FRESNO YOSEMITE
INTERNATIONAL AIRPORT
Figure: 15
Forecast Conditions (2022)
Noise Exposure Map
Forecast (2022) NEM Contour (65-75 dB CNEL)
ST# Noise Monitor Location
Airport Boundary
Runway
Taxiway / Apron
Helicopter Pad
Airport Buildings
Municipal Boundary
Highways
Major Roads
Local Roads
Railroad
Residential Use
Multi-Family Residential
Mobile Homes
Public Use 1 (School, Place of Worship, Hospitals)
Public Use 2 (Government, Transportation, Parking)
Military Use
Recreational / Open Space
Commercial Use
Industrial Use
Vacant / Undefined
Water
Sound Insulated Property
School
Library
Place of Worship
Hospital
Historic Site
Service Layer Credits: Fresno County GIS; City of Fresno, CA; City of Clovis, CA; California Department of Water Resources (DWR); Environmental Systems Research Institute (ESRI).
0 2,000 4,000 6,000 8,000 Feet
hmmh


City of Clovis
City of Fresno
Shaw Ave
Gettysburg Ave
Ashlan Ave
Shields Ave
Clinton Way
Mckinley Ave
Olive Ave
Belmont Ave
Dakota Ave
Chestnut Diagonal
Airways Blvd
Andersen Ave
Chestnut Ave
Willow Ave
Peach Ave
Villa Ave
Clovis Ave
Fowler Ave
Cedar Ave
Maple Ave
Millbrook Ave
1st St
ST1
ST2
ST3
ST4
ST5
ST6
HP-1
HP-2
11L
11R
29L
29R
FRESNO YOSEMITE
INTERNATIONAL AIRPORT
Forecast Conditions (2022)
Forecast (2022) NEM Contour (65-75 dB CNEL)
ST#
Noise Monitor Location
Airport Boundary
Runway
Taxiway / Apron
Helicopter Pad
Airport Buildings
Municipal Boundary
Highways
Major Roads
Local Roads
Railroad
Residential Use
Multi-Family Residential
Mobile Homes
Public Use 1 (School, Place of Worship, Hospitals)
Public Use 2 (Government, Transportation, Parking)
Military Use
Recreational / Open Space
Commercial Use
Industrial Use
Vacant / Undefined
Water
Sound Insulated Property
School
Library
Place of Worship
Hospital
Historic Site
Service Layer Credits: Fresno County GIS; City of Fresno, CA; City of Clovis, CA; California Department of Water Resources (DWR); Environmental Systems Research Institute (ESRI);
per Part 150 regulations, Sec. A150.103(b)(1)
0
2,000
4,000
6,000 Feet
hmmh

G.3.6 Comments received at or immediately following August 1, 2017 public workshop

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8-1-2017 Name John & Shirley Krien
Address 4551 E. San Gabriel City Fresno Zip CA.
Phone 559-225-2457 Email (optional) srKrien@yahoo.com

Comments:
We would like to be notified when the Federal Goverment has made the appropriations to fund the noise abatement program so that we can be considered for the program that would eliminate the noise produced by the military aircraft from disrupting our ability to hear the phone, the television set, the conversation in the room & the joy of a peaceful environment in our home!

If needed, please continue on the back side of this page or attach additional pages

Comments must be submitted by 5 p.m. on September 5, 2017

Submit Comments to:
Fresno Yosemite International Airport NEM Update Comments
City of Fresno Airports Department, Attn: Elodia Cavazos
4995 E. Clinton Way
Fresno, CA 93727

Or call the toll free comment line: 1-844-306-4988
Or email comments to: elodia.cavazos@fresno.gov

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8/1/2017 Name JAMES LEYSER
Address 3521 E. RIALTO City FRESNO Zip 93726
Phone 559-907-1804 Email (optional) histotec@yahoo.com

Comments:
WE HAVE APPLIED AND FOLLOWED THIS PROGRAM SINCE 2007.
WE SIGNED AND COMPLIED REQUIRE-MENTS BY REMOVING THE PORCH.
WHICH CAUSED US GREAT DISCONFORT. WE HAVE REQUSTED
A START TIME WITH NO REPLE. HOMES ALL AROUND US HAVE
BEEN DONE OVER A YEAR NOW; STILL WE WAIT! LAST TIME
THIS STUDY WAS DONE WE WERE WE DIDN'T APPLY IN TIME,
NOW WE'RE BEING TOLD IT FAA CONTROLE. WE APPLIED AND
WE COMPLIED BY APPLING, ~~SE~~ SIGNED CONTRACKS ETC.
SO WHEN CAN WE EXPECT YOU TOO COMPLY?

If needed, please continue on the back side of this page or attach additional pages

Comments must be submitted by 5 p.m. on September 5, 2017

Submit Comments to:
Fresno Yosemite International Airport NEM Update Comments
City of Fresno Airports Department, Attn: Elodia Cavazos
4995 E. Clinton Way
Fresno, CA 93727

Or call the toll free comment line: 1-844-306-4988
Or email comments to: elodia.cavazos@fresno.gov

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date________ Name THOMAS KOVAC

Address 4310 E SAN GABRIEL City Fresno Zip 93726

Phone 559-226-8279 Email (optional)________

Comments: The report's data, which is minimalist, is biased and slanted toward support of a nation wide model of US. airport noise. No data was collected based solely on military aircraft. If anything the report covers over the ~~completely~~ totally inadequate amount of data, and the complete absence of data specific to military aircraft. Can it be so hard to position dosimeters when the military jets take off. Why was no one from the City of Fresno present at the public workshop? The travesty of this report is disappointing.

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FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8-1-17 Name Guadalupe Hernandez

Address 4676 E. Gettysburg City Fresno CA Zip 93726

Phone 559-292-8253 Email (optional) H.Adrian11@yahoo.com

Comments:
My Home has recently been taking off The new exposure map. Do not understand why when Jets, planes, helicopters pass right over. Noise and vibration rattles my home. That my house has been inside exposer map before why not now. Did not realize this until a few weeks ago and now with this new map layout does not make sence. Can not hear T.V news, phone calls or conversations. Very annoying and stressful. Please reconsider updating map outline ass past when my home was within noise level. because it has not changed. Thank you

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FRESNO YOSEMITE
INTERNATIONAL AIRPORT

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Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 08/01/2017 Name Francisca C. Avila

Address 4665 E. Cortland Ave City Fresno Zip 93726

Phone (559) 776-1226 Email (optional) Frany 0554 @ hotMail.com

Comments:
I'm conBern about the interaption of cell phone conection - the tramblin of the ground and the Loud Noise and the shaking of the house windows also of the smoge. and can they please on the army jets can they leave one atatime instade of 2. the Noise is much tolerant if one flys solo at Least 30 - 45 min apart not one min. ~~away~~ apart from each other. If you can fix all that I will not complain of nothing else. Thanks Francis.

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FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date Aug 1 2017 Name Maryann Miyasaki
Address 4654 E Gettysburg Ave City Fresno Zip Calif.
Phone 559 291-7577 Email (optional)

Comments:
Same as last time ☺ Wishing but.....
① Only 1 block from where work was done - went walking when you were doing wk last time, I was 1 block ~~x~~ off/short didn't make it ☹
② Still hear all the noise everyone else does
③ I know not ~~x~~ your fault + thanks for the water + cookie

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FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 08/01/17 Name Khoa NGuyen
Address 4105 E. Sussex Way City Fresno Zip 93726
Phone (559) 916 6035 Email (optional) khoahong@sbcglobal.net

Comments:

My House is very close to border line (out a little) I hope you can give us something to isolate my house. It's very noisy each time Air plans Take off or landing.

if new Noise Border extension just a little bit – please email me to let me know.

I do appreciated
thanks million

Super Noise neighbor

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FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8/1/17 Name John Medina

Address 3143 E. Rialto City Fresno, CA Zip 93726

Phone _____ Email (optional) _____

Comments:

Please check the prediction of no growth in the military? How can you say no growth. The Jets are the loudest noise makers.

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FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 08/01/2017 Name ESTEVAN TORRALVA

Address 5693 E Madison Ave Fresno Zip 93727

Phone (559) 905-7176 Email (optional) etorralva@comcast.net

Comments:
GOT AloT of information on the work being done.

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FRESNO YOSEMITE
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Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8-1-2017 Name Justin Ameola

Address 4515 N. Hayston City Fresno Zip 93726

Phone 559-916-0026 Email (optional) jameola1990@yahoo.com

Comments:

I would like to see more transparency with the process. I have kept up with the status of this program in fear of missing the opportunity and I've noticed that there is a lack of information/ Resources. No one knows when the program will be funded, if it will be funded. The questions I ask are always answered with more questions. Would like for updates, information, and resources to be made more available and easier to access. Would also appreciate updates via mail, email, or someone calling me.

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NEM Update
Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8/01/17 Name Juan Sanchez
Address 4830 E. Amherst Ave City Fresno Zip 93703
Phone (559) 260-5913 Email (optional) Stryker Sanchez@gmail.com

Comments:

Nice work, Liked the visuals/map. Nice Lay out, informative Staff. Elodia & Rhea are doing a good job.

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FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8-1-17 Name Rosemarie Shuetz
Address 4754 N. Fourth St City Fresno CA Zip 93726
Phone 707-332-9114 Email (optional)

Comments: appriciate the info - awaiting distinction of periphreal areas covered for sound proofing of family home. Would like to be represented as I have an investment in my home. Sound levels are interruptive & awake residents trying to get nights & early morning sleep. Are we breathing in more fumes? As flyovers are closer to ground? Sound pollution + fuel exhaust pollution?

Thank You
Rosemarie Shuetz

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FRESNO YOSEMITE
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Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8/01/17 Name Dona Shurtz
Address 4754 N. 4th St. City FRESNO Zip 93726
Phone 559 355-4224 Email (optional) doshurtz@hotmail.com

Comments:
Noise levels are loud
Jets from Base Very loud
Plane's fly directly over my home
I can read #'s on the planes
I have dual pane windows which
reduce some of the noise,
however, it seems in weather they
fly lower over my home.
The retardent planes fly low
over my home and are very
loud. Seems like more planes in Fresno
now

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FRESNO YOSEMITE
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Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8/1/17 Name John Medina

Address 3143 E. Rialto City Fresno, CA Zip 93726

Phone (559)978-7323 Email (optional) john.medina@veritivcorp.com

Comments:
I want to comment about the Boundary line. I hear noise as I am in the flight path. The Jets are especially loud. Is there a different sound level from a block away from the Boundaryline? I am concerned that the boundary line is not a good one. Is there a way to moniter noise from my house versus a house one block away that is in the boundary, I hope there is proper documentation showing noise levels or maybe consider increasing boundary lines thank you

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FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8/1/17 Name Ruth Dallin
Address 4561 N. Price City Fresno Zip 93726
Phone (559) 291-4272 Email (optional)

Comments:

August 1967, when We purchased our home, we checked the "noise level" and it did not affect my home which affected the decision for us to build our home. The flight pattern at that time was over the Dakota area & considered the Dolittle Zone and that there would be no building, etc. in that area due to the noise level. Then businesses were allowed to build there and the flight pattern kept moving and creeping more towards my home making conversations inside & outside of my

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2.

home unbearable. I would have "NEVER"
purchased a home here if I had
Known that promises made at the
time would not be honored.
Both my husband & I (Navy AirCorp/Forces) have served this
country during World War II & I ~~had~~ am
a daughter of a Coast Guard Captain.
We are very patriotic & true to
our word and would appreciate
others to do the same.

Since the noise in our area
has increased over the time we
bought our ~~our~~ home, so should
the Noise Reduction Program
Should be included for our home.

I would like to be aware of the
appeal process, please inform me of
our next step.

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8/1/17 Name JOAN DALLIN
Address 4561 N. Price City Fresno Zip 93726
Phone (559)288-1082 Email (optional) jdallin34@gmail.com

Comments:

As expressed w/the personnel present at the workshop, spend some time at 4561 N. Price and ask if you would buy a home there now. Faulty data – all data is worth questioning. I see where the neighbor across the street qualified for upgrades a couple of years ago, the noise has gotten worse and the map has gotten ~~then~~ smaller! I'm sure whatever model was considered had to "fit" the funding. Was there any consideration of the 631 students

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(Please contact me to know how to appeal the "map" of this program!)

2.

That go to school at Vinland Elementary?
I am the daughter of Dean & Ruth
Dallin. They have worked hard all their
lives to provide an ~~[illegible]~~ clean, safe, friendly
and nice place to raise their children. They
are now at a time where we give back
to their needs as they met ours raising
us. They moved there 53 years ago,
never thought a freeway would be
constructed near our home, and even though
the decisions were already made to build
168, they still expressed their voice. We may
be slight in number, but it doesn't mean the
"quality of life" at their home should continue
to be compromised. Will our voices be left
out again? Again would you buy a home here
now? Expand your program to meet the needs
of those w/ a voice, but maybe not as big a ~~v~~ voice
as yours.

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Tuesday, August 1, 2017

Piccadilly Inn Airport
Grand Californian Ballroom, 5115 E. McKinley Avenue, Fresno, CA 93727

Date 8/1/17 Name DEAN DALLIN

Address 4561 N. Price City Fresno Zip 93726

Phone (559)291-4272 Email (optional)

Comments:

I concur w/ my wifes comments and would also like to add that my experience being in the Navy Air Force, WWII I understand the "after burners" that the Air Force must utilize for the safety of their flight. That noise is increasing over our home. The flights continue to go over our home. Our financial condition donot allow us to leave our home and go elsewhere. We wanted to leave our children something after we are gone, but our disappointed if we cannot leave them w/ some sort of value left. If you spent a week

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2.

at my home, you would realize that the increase of the noise is deafening.

With all due respect, the presenters at the workshop say ~~we~~ to our question about the after burner noise, they said they would talk to the force.... but no guarantee. Basically understanding that its not going to make a difference.

We would appreciate the opportunity to continue to express our thoughts to you. This forum doesn't allow us to express everything we would like to.. Please let us know how we can continue our efforts to appeal this process!

The fair thing to do would be to soundproof all of the homes, not just the few!

G.3.7 Comments received at or immediately following August 31, 2017 public workshop

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Thursday, August 31, 2017

Fresno Yosemite International Airport
Terminal Conference Room, 5175 E Clinton Way, Fresno, CA 93727

Date 8-31-2017 Name Tino and Susan Trujillo

Address 6271 E. Harvey Ave City Fresno CA Zip 93727

Phone 559-691-8001 Email (optional) ONITNASUS @yahoo.com

Comments:
our home is right in the landing path and when the Jet fighters go over our house all the windows raddle and the noise is just unberable. The jets, fighters fly over at all times of the day. We for one, would like that something be done about the noise pollution.

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FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Thursday, August 31, 2017

Fresno Yosemite International Airport
Terminal Conference Room, 5175 E Clinton Way, Fresno, CA 93727

Date 8/31/17 Name Alice Rogers
Address 704 N. Villa Ave City fresno Zip 93727
Phone 559-776-4711 Email (optional) alicerogers1719@comcast.net

Comments:
I'm not in your zone to get help, but I'am
will in your noise area, this was a waste of
time because you cannot help me, I live
live close to Airport, My House Shakes my
window rumble my car alarm goe's off
with your military jets. Please concider
us that live near by.

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FRESNO YOSEMITE
INTERNATIONAL AIRPORT

NEM Update
Comments

Public Information Workshop
Thursday, August 31, 2017

Fresno Yosemite International Airport
Terminal Conference Room, 5175 E Clinton Way, Fresno, CA 93727

Date 8/31/17 Name Irma Conter
Address 6559 Anhuest City FRESNO Zip 93727
Phone (559) 974-2176 Email (optional)

Comments: I would like the milary jets to fly higher not Low enough that the pilot is waving at me. I would like not to fly upside down over my home.

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G.3.8 Comments received through the toll-free hotline

Comment #	Date	Comment	Commenter
1	7/22/2015 15:54	Seven-three, Six-four-seven-three	Vicki Thobe
2	7/23/2015 15:25	Yes, I've been waiting for I think about over 10 year for someone to do something about the noise in my area. Uh, to come and fix the windows and the doors and they have not reached it yet. My address is 4836 North Sixth Street in Fresno. My phone number where I can be reached at is 559-348-1023 so I can know when are they going to start fixing the windows and the doors because its awfully noisy over there at 4863 North Sixth Street.	Lizzie M. Grace
3	7/27/2015 17:16	Hi, my name is Barton Tyler Miller, I live at 3234 East Acacia Avenue in Fresno, California. My phone number is area-code 707-206-5212, and we live right in the flight path, and I would say, especially when the Air Force or the National Guard takes off, like it is crazy noisy by our house. So, the other airlines that come down, they fly pretty low to our house, and so it is really noisy at 3234 East Acacia, and so we would like to be included and I know we haven't in the past. Once again my number is 707-206-5212. Once again my name is Barton Tyler Miller. Thank you, bye.	Barton Tyler Miller
4	9/4/2015 15:38	Yes, this is Joyce Stevenson, 252-4290. I was just calling to see if I was in the flight path for the new dual-pane windows. Anyway, thank you, bye bye.	Joyce Stevenson
5	4/15/2016 11:04	Uh, yes, my name is Rosemary Garcia. My address is 4795 East Vasser Avenue. My phone number is 559-255-1317. I attended your last public information workshop on August the 6th, 2015, and we were notified then that there was going to be another meeting in March of 2016. I have not been informed of that meeting, whether it has taken place or not. If it has not, I would like to be informed so that I may attend. I've been living in this same home for the past 43 years, and I have had to deal with much much noise from the aircraft from Fresno Yosemite Airport. If I missed the meeting it was not through fault of my own, I was not informed of it through the newspaper or through a personal contact. I would appreciate very much if someone would get back to me on this, advising me as far as when is the next meeting and what can be done about the noise that I have to deal with on a daily basis. Thank you very much.	Rosemary Garcia

Comment #	Date	Comment	Commenter
6	5/19/2017 19:29	Hi, my name is Patty Mascarella. I live at 2831 Winery Avenue, Clovis, and my number is 559-291-7000, again that's 559-291-7000. I'm just trying to find out information on the NEM map, I think I might be eligible. I can't even talk on the phone when the jets are taking off and it seems like its getting worse instead of better. So, I would like more information please, either a letter or a phone call. Thank you.	Patty Mascarella
7	7/17/2017 11:31	This is Paul Lucic, 6100 East Olive, Fresno, California, in regard to your letter for the noise complaints. They always put up their equipment on my ranch and I've noticed every time they do that there never is an Army jet that flies over my house until after the thing is over, and I'd like somebody to explain to me why that is, because that's where all the noise comes from. Anyway my phone number is 255-0004, and that's 559 area-code. Thank you.	Paul Lucic
8	7/18/2017 15:01	Hi, my name is Joy Hermillo, phone number is 559-395-2025, address is 3554 East Indianapolis Avenue, Fresno, California 93726. I got the notice here today, just wondering what its all about, I do have old windows and I can hear the noise really good. So I'm not sure if it covers for the noise here at my house. If you can call me back and let me know what its all about, I moved here in 2016 around September. Again, my name is Joy Hermillo, phone number 559-395-2025. Thank you, bye bye.	Joy Hermillo
9	8/10/2017 12:40	Hi, this is Maria Zapata at 4153 East Ashcroft Avenue Fresno California 93726. My phone number is 559-816-3659. This is regarding the noise from the airport, from the jets. I was wondering if this program was going to be provided again for this area, we missed it the last time. If we can get our windows taken care of it would really help us out as far as with the noise. Give me a call at your convenience, I appreciate it, thank you very much. Hoping that the program comes back, thank you.	Maria Zapata

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Appendix H Non-Standard Aircraft Types (Substitution) Request Letter

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

City of Fresno Airports Department

January 7, 2016

Ms. Camille Garibaldi,
Environmental Protection Specialist
Federal Aviation Administration
San Francisco Airports District Office
1000 Marina Boulevard, Suite 220
Brisbane, California 94005-1835

Re: Fresno Yosemite International Airport (FAT)
Part 150 Noise Exposure Map –Substitution Aircraft Request - Revised

Dear Ms. Garibaldi:

As you are aware Harris Miller Miller & Hanson Inc. (HMMH) is assisting City of Fresno, Airport Department in the preparation of a Noise Exposure Map (NEM) for the Fresno Yosemite International Airport (FAT). The study will address aircraft noise and land-use compatibility projections based on Community Noise Equivalent Level (CNEL) contours developed using the most current release of the Aviation Environmental Design Tool (AEDT); i.e., Version 2.0b. We request the AEDT 2.0b substitutes listed in attachment A be reviewed and approved by FAA's Airport Planning and Environmental Division (APP-400) and Office of Environment and Energy Noise Division (AEE-100). Please contact me if you have any questions or concerns related to the Fresno Yosemite International Airport Noise Program.

Sincerely yours,

Elodia Cavazos

Elodia Cavazos,
Staff Assistant

Attachments

Cc. Kevin Meikle, Director of Aviation
Mark W. Davis, Airports Planning Manager
Rhea Gundry, Senior Consultant, HMMH

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ATTACHMENT A

AEDT AIRCRAFT SUBSTITUTION REQUESTS AND SUGGESTIONS

The aircraft types listed in Table 1 are included in the Noise Exposure Map (NEM) Update and require FAA approved substitution. In each case, we have identified a substitute for each aircraft using the AEDT 2.0b database. The basis for our recommendations is discussed following Table 1.

Table 1. Aircraft Types and Recommended Substitutions

#	Group	Aircraft Code	Represented Aircraft Models	Recommended AEDT Substitution
1.1	Jet	E55P	Embraer Phenom 300	CNA560E
1.2	Jet	E50P	Embraer Phenom 100	CNA510
1.3	Turbo Prop	P2	Lockheed P-2 Neptune	T29
1.4	Turbo Prop	PAY2	Piper PA-31T Cheyenne	CNA441
1.5	Turbo Prop	B350	Beechcraft King Air 350	DO228
1.6	Turbo Prop	PC12	Pilatus PC-12	CNA208
1.7	Turbo Prop	P46T	Piper PA-46-500TP Malibu Meridian	CNA208
1.8	Turbo Prop	AT8T	Air Tractor AT-802	CNA208
1.9	Piston Prop	M20P	Mooney M20 Encore	GASEPV
1.10	Piston Prop	SR22	Cirrus SR22	GASEPV
1.11	Piston Prop	BE36	Beechcraft Model 36 Bonanza	CNA206
1.12	Piston Prop	DA40	Diamond DA-40 Katana, Diamond Star	GASEPV

1.1 Embraer Phenom 300 – E55P

We propose to model Embraer Phenom 300 operations with AEDT type CNA560E. Both aircraft are light jets which are similar in weight and both have two Pratt & Whitney fuselage mounted engines. Data from the EASA Type-Certificate Data Sheet for Noise (TCDSN) database shows that the two aircraft are similar in noise levels with the CNA560E being slightly higher on lateral and approach.

Table 2. Noise Certification Data for Embraer EMB 550 Phenom 300 and Cessna 560 Eclipse

Manufacturer	Type Designation	MTOW (lb)	MLW (lb)	Engine Manufacturer / Type Designator	Noise Level (EPN dB)		
					Fly Over	Lateral	Approach
Embraer	EMB 550	17,968	16,865	Pratt & Whitney Canada / PW535E	69.9	88.8	88.5
Cessna Aircraft Company	Cessna 560 Encore	16,630	15,200	Pratt & Whitney Canada / PW535A	70.0	89.8	90.5

Notes: All weights converted from certification data from kilograms to pounds
"TCDSN Jets (150929).xls", at
http://easa.europa.eu/document-library/noise-type-certificates-approved-noise-levels on December 29, 2015.

1.2 Embraer Phenom 100 – E50P

We propose to model Embraer Phenom 100 operations with AEDT type CNA510.

Table 3 presents certification data for the Embraer Phenom 100 (EMB-500) and similar types that are available in AEDT. The Cessna Mustang, identified in AEDT as the CNA510, has the same series of engines as the EMB-500 and provides the closest match in certification levels.

Table 3. Noise Certification Data for Embraer EMB 500 Phenom 100 and Cessna Citation Mustang

Manufacturer	Type Designation	MTOW (lb)	MLW (lb)	Engine Manufacturer / Type Designator	Noise Level (EPN dB)		
					Fly Over	Lateral	Approach
Embraer	EMB 500	10,472	9,766	Pratt & Whitney Canada / PW617F-E	70.4	81.4	86.1
Cessna Aircraft Company	Cessna 510 / Citation Mustang	8,644	8,001	Pratt & Whitney Canada / PW615F-A	73.9	85.0	86.0

Notes: All weights converted from certification data from kilograms to pounds
"TCDSN Jets (121015).xls", at
http://easa.europa.eu/document-library/noise-type-certificates-approved-noise-levels and
http://easa.europa.eu/ws_prod/c/c_tc_noise.php on January 6, 2016.

1.3 Lockheed P-2 Neptune – P2

We propose to model Lockheed P-2 Neptune operations with AEDT type DC3, a wing-mounted two-engine piston aircraft which has profiles in AEDT. The P-2 Neptune has a MTOW of approximately 64,000 lbs which is heavier than the DC3; however the DC3 is the only large two engine piston aircraft available in the model. The comparable T29 military aircraft (based on the Convair 240/340) has a MTOW of approximately 41,740 lbs. and is also modeled using the DC3 in AEDT. Certification values were not available for these aircraft.

1.4 Piper PA-31T Cheyenne – PAY2

We propose to model Piper PA-31T Cheyenne operations with AEDT type CNA441. Similar to the CNA441, the PA-31T is a twin engine turboprop of similar size and similar certification values.

Table 4. Noise Certification Data for Piper PA-31T Cheyenne and Cessna 441

Manufacturer	Type Designation	MTOW (lb)	Engine Manufacturer / Type Designator	Noise Level (EPN dB)	
				Fly Over	Approach
Piper Aircraft, Inc.	PA-31T Cheyenne	9,000	Pratt & Whitney Canada / PT6A-28	72.0	73.4
Cessna Aircraft Company	Cessna 441	9,850	Garrett AiResearch TPE331-10N-515S	73.5	76.3

Notes: All weights converted from certification data from kilograms to pounds
"TCDSN Light Props (150929).xls", at
http://easa.europa.eu/document-library/noise-type-certificates-approved-noise-levels on December 29, 2015.

1.5 Beechcraft King Air 350 – B350

The King Air 350 is a stretched version of the Beech King Air 300 (B300) which uses the Dornier 228 (DO228) as a substitution in the AEDT model. The B350 has the same engines as the B300 but has a slightly higher weight. There is no certification data available for these aircraft. We propose to use the DO228 as the substitution for the B350.

1.6 Pilatus PC-12 EAGLE – PC12

We propose to model Pilatus PC-12 operations with AEDT type CNA208. The PC-12 is a single engine turboprop similar to the Cessna 208 and is the best type match in AEDT.

Table 5. Noise Certification Data for Pilatus PC-12 and Cessna 208

Manufacturer	Type Designation	MTOW (lb)	Engine Manufacturer / Type Designator	Noise Level (EPN dB)	
				Overflight	Take Off
Pilatus Aircraft, Ltd.	PC-12	9,039	Pratt & Whitney Canada / PT6A-67B		77.4
Cessna Aircraft Company	Cessna 208	8,750	Pratt & Whitney Canada / PT6A-114	75.8	84.8

Notes: All weights converted from certification data from kilograms to pounds
"TCDSN Light Props (151012).xls", at
http://easa.europa.eu/document-library/noise-type-certificates-approved-noise-levels and
http://easa.europa.eu/ws_prod/c/c_tc_noise.php on December 29, 2015.

1.7 Piper PA-46-500TP Malibu Meridian – P46T

We propose to model Piper PA-46-500TP Malibu Meridian operations with AEDT type CNA208.

The Piper PA-46T Meridian is a single engine turboprop similar to the Cessna 208 and is the best type match in AEDT.

Table 6. Noise Certification Data for Piper PA-46-500TP Malibu Meridian and Cessna 208

Manufacturer	Type Designation	MTOW (lb)	Engine Manufacturer / Type Designator	Noise Level (EPN dB)	
				Overflight	Take Off
Piper Aircraft, Inc.	PA-46-500TP Malibu Meridian	9,039	Pratt & Whitney Canada / PT6A-42A		76.8
Cessna Aircraft Company	Cessna 208	8,750	Pratt & Whitney Canada / PT6A-114	75.8	84.8

Notes: All weights converted from certification data from kilograms to pounds
"TCDSN Light Props (150929).xls", at
http://easa.europa.eu/document-library/noise-type-certificates-approved-noise-levels on December 29, 2015.

1.8 Air Tractor AT-802 – AT8T

We propose to model Air Tractor AT-802 operations with AEDT type CNA208. The AT8T is a single engine turboprop similar to the Cessna 208. While larger than the Cessna 208 it has the same base model PT6A Turboprop engine.

1.9 Mooney M20 Piston – M20P

We propose to model Mooney M20 Piston operations with AEDT type GASEPV. The M20 Piston refers to the Mooney M20 aircraft with the piston engine. There are three versions of the Mooney M20 in the AEDT substitution list which are all substituted by the GASEPV.

1.10 Cirrus SR22 – SR22

We propose to model Cirrus SR22 operations with AEDT type GASEPV.

The Cirrus SR22 is powered by a single nose mounted 310 hp Continental IO-550-N piston engine. Therefore, the GASEPV AEDT type is recommended.

1.11 Beechcraft Model 36 Bonanza – BE36

We propose to model Beechcraft Model 36 Bonanza operations with AEDT type CNA206. The BE36 Beechcraft Bonanza is a single-engine propeller aircraft that is similar in weight and type engine manufacturer/type designator with the Cessna 206 as shown in Table 7.

Table 7 Estimated Maximum A-weighted Sound Levels for Cessna 206, Beechcraft 36

Manufacturer	Type Designation	MTOW (lb)	MLW (lb)	Engine Manufacturer / Type Designator	Noise Level (Est Lmax dB)	
					Takeoff	Approach
Cessna	206	3,300	3,300	IO-520-A	70.2	63.5
Beech	A36	3,600	3,600	IO-520-BA	71.0	64.0

Source: FAA AC 36-3H, as posted on
http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/22945, as viewed May 30, 2013

1.12 Diamond DA-40 Katana, Diamond Star – DA40

We propose to model Diamond DA-40 Katana, Diamond Star operations with AEDT type GASEPV. The Diamond DA-40 is a single-engine propeller aircraft powered by a Continental IO-360 engine. These aircraft are all small single-engine aircraft with either a two or three-blade, constant-speed, variable pitch propeller that would probably be best modeled as GASEPV[1].

[1] Information on the options for the DA40 can be found on the Diamond Aircraft Industries Inc.'s website.
http://www.diamondaircraft.com/aircraft/da40_xls/specs.php
http://www.diamondaircraft.com/aircraft/da40_cs/specs.php

Appendix I FAA Approval of Non-Standard Aircraft Types

U.S. Department of Transportation
Federal Aviation Administration

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Blvd., Suite 220
Brisbane, CA 94005-1835

February 25, 2016

Mark W. Davis
Airports Planning Manager
City of Fresno
Fresno Yosemite International Airport
4995 E. Clinton Way
Fresno, CA 93727-1525

Subject: Fresno Yosemite International Airport – Noise Exposure Map Update – Aviation Environmental Design Tool – Aircraft Substitution Approval

Dear Mr. Davis:

The Federal Aviation Administration (FAA) has completed its review of the City of Fresno's January 7, 2015 request for Aviation Environmental Design Tool (AEDT) version 2.0b aircraft substitutions for completion of the Noise Exposure Map (NEM) update for Fresno Yosemite International Airport (FAT). The FAA reviewed request and determined that ten of the twelve aircraft are contained in the AEDT database and therefore do not require non-standard substitutions. Use of the AEDT database aircraft is required unless there is ample justification to use a non-standard substitution. The FAA concurs with the aircraft substitutions proposed for the two aircraft that are not in the AEDT database.

AIRCRAFT	PROPOSED SUBSTITUTION	RECOMMENDATION
Embraer Phenom 300	CNA560E	Use AEDT Aircraft
Embraer Phenom 100	CNA510	Use AEDT Aircraft
Lockheed P-2 Neptune	T29	Concur
Piper PA-31T Cheyenne	CNA441	Use AEDT Aircraft
Beechcraft King Air 350	DO228	Use AEDT Aircraft
Pilatus PC-12	CNA208	Use AEDT Aircraft
Piper PA-46-500TP Malibu Meridian	CNA208	Use AEDT Aircraft
Air Tractor AT-802	CNA208	Use AEDT Aircraft
Mooney M20 Encore	GASEPV	Use AEDT Aircraft
Cirrus SR22		Use AEDT Aircraft
Beechcraft Model 36 Bonanza	CNA206	Use AEDT Aircraft
Diamond DA-40 Katana, Diamond Star	GASEPV	Concur

This approval is limited to the NEM Update for FAT. Any additional projects or non-standard AEDT input for this study will require separate approval.

I am available at (650) 827-7613 or email me at Camille.Garibaldi@faa.gov if you have any questions or concerns.

Sincerely,

Camille Garibaldi
Environmental Protection Specialist

cc:
Elodia Cavazos, Fresno Yosemite Airport

Appendix J Request for Approval of User Defined Profiles

From: Elodia Cavazos
Sent: Friday, August 26, 2016 10:43 AM
To: Camille.Garibaldi@faa.gov
Cc: Mark Davis
Subject: FAT P150 Non-Standard CANG Profile Request for use in AEDT

Good morning Camille,

Attached please find the FAT P150 User-Defined non-standard military profiles developed for use in AEDT for your review. Thank you!

FRESNO YOSEMITE

Elodia Cavazos | Staff Assistant
elodia.cavazos@fresno.gov | FlyFresno.com
4995 E. Clinton Way, Fresno, CA 93727
Direct: **559.621.4506** | Fax: 559.251.4825

From: Mark Davis
Sent: Friday, February 12, 2016 4:58 PM
To: Camille.Garibaldi@faa.gov
Cc: Elodia Cavazos
Subject: FAT NEM Update - Non Standard AEDT Profiles

Camille,

Attached please find the FAT User-Defined non-standard military profiles developed for use in AEDT by HMMH for your review and forwarding onto AEE. Please contact me if you have any questions or concerns.

Thanks,

Mark

FRESNO YOSEMITE

Mark W. Davis | Airports Planning Manager
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TECHNICAL MEMORANDUM

To:	Elodia Cavazos
	4995 E. Clinton Way, Fresno, CA 93727
From:	Rhea Gundry Senior Consultant
Date:	February 12, 2016
Subject:	Fresno-Yosemite International Airport Noise Exposure Map Update AEDT 2.0b User-Defined Profiles
Reference:	HMMH Project Number 307400

HMMH is assisting the City of Fresno, CA with a part 150 Noise Exposure Map (NEM) update. The profiles described in this memorandum will be used for the base year and forecast year modeling in Aviation Environmental Design Tool (AEDT) version 2.0b.

1. Background

The California Air National Guard (CANG) Base at Fresno-Yosemite International Airport (FAT) is home to the 144th Fighter Wing, which operates F-15 Eagle tactical fighter aircraft to support their mission to provide air superiority in support of worldwide joint operations and air defense of the United States. In response to the community concerns with noise from military jet operations, City staff, in cooperation with CANG personnel, established noise abatement procedures for tactical military aircraft and implemented the procedures in the year 2000 and subsequently revised them in 2014[1]. In addition to flying the noise abatement procedures when operating at FAT, the F-15 pilots fly 360 degree Visual Flight Rules (VFR) overhead patterns as part of their overall flying proficiency requirements. These flight procedures vary from those provided in the AEDT and HMMH recommended the development of user-defined profiles as was required and approved by the FAA for the previous NEM update.

2. Statement of Benefit

During the previous NEM Update, HMMH developed user-specified Integrated Noise Model (INM) profiles for the arrivals and departures of the F-16 (CANG) and F-18 (transient) aircraft that follow the profiles specified in the noise abatement procedures[2]. During our discussions with CANG staff for this NEM update, and requests for profiles, they recommended that the efforts used to develop noise modeling for the F-16s in the 2004 NEM update were still relevant to the current F-15, F-16 and F-18 aircraft that utilize the airfield. The two overhead patterns, for which there is no standard profile, consists of a final approach at 2,000 feet above field elevation (AFE) or 5,000 feet AFE at 300 knots, a break over the approach runway end, power to idle, a descent to landing begun at approximately 45 degrees to the runway end with decreasing airspeed, and final landing and roll out. The 5,000 foot AFE overhead pattern was recently developed and implemented by the CANG since the previous NEM update.

3. Analysis Demonstrating Benefit

The following tables compare the Sound Exposure Level (SEL) for the AEDT Standard and proposed User Defined profiles at a series of points along runway centerline spaced at 0.5 nmi increments. Negative valued grid points are used for arrivals approaching the runway. Zero nmi is located at the runway end.

[1] Request a change to Noise Abatement Procedures, FAA Memorandum, July 3, 2014. (Appendix B)
[2] Fresno-Yosemite International Airport Part 150 Update Noise Exposure Map, November 2004.

Table 1. Comparison of F15E20 AEDT NOISEMAP and User-Defined Arrival Noise Levels (2000 ft Hold Down)

Grid Points (nmi)	SEL (dB)				
	AEDT NOISEMAP 1 Profile	User Defined IFR @ 2K	User Defined VFR @ 2K	DIFF IFR @ 2K	DIFF VFR @ 2K
-10.0	98.5	96	95.5	-2.5	-3
-9.5	98.2	95.4	94.7	-2.8	-3.5
-9.0	97.2	94.8	93.7	-2.4	-3.5
-8.5	96.2	94.1	92.7	-2.1	-3.5
-8.0	95.2	93.5	91.7	-1.7	-3.5
-7.5	94.1	92.8	90.7	-1.3	-3.4
-7.0	93.1	92.1	89.8	-1	-3.3
-6.5	92.1	91.5	88.8	-0.6	-3.3
-6.0	91.2	90.8	87.9	-0.4	-3.3
-5.5	90.2	90.2	87.2	0	-3
-5.0	89.4	89.6	86.5	0.2	-2.9
-4.5	88.7	89	85.8	0.3	-2.9
-4.0	88	88.4	85.2	0.4	-2.8
-3.5	87.4	87.8	84.5	0.4	-2.9
-3.0	86.7	87.1	84.4	0.4	-2.3
-2.5	86.4	86.2	84.9	-0.2	-1.5
-2.0	86.6	86.6	85.7	0	-0.9
-1.5	87.6	87.6	87.2	0	-0.4
-1.0	89.2	89.2	89.2	0	0
-0.5	90.4	90.4	90.4	0	0
0.0	91.3	91.3	91.3	0	0

Table 2. Comparison of F15E20 AEDT NOISEMAP and User-Defined Arrival Noise Levels (5000 ft Hold Down)

Grid Points (nmi)	SEL (dB)				
	AEDT NOISEMAP 1 Profile	User Defined IFR @ 5K	User Defined VFR @ 5K	DIFF IFR @ 5K	DIFF VFR @ 5K
-10.0	98.5	82.6	95.5	-15.9	-3
-9.5	98.2	82.3	94.7	-15.9	-3.5
-9.0	97.2	81.7	93.7	-15.5	-3.5
-8.5	96.2	81.2	92.7	-15	-3.5
-8.0	95.2	80.7	91.7	-14.5	-3.5
-7.5	94.1	80.3	90.7	-13.8	-3.4
-7.0	93.1	80.2	89.8	-12.9	-3.3
-6.5	92.1	80.2	88.8	-11.9	-3.3
-6.0	91.2	80.6	87.9	-10.6	-3.3
-5.5	90.2	81.2	87.2	-9	-3
-5.0	89.4	81.7	86.5	-7.7	-2.9
-4.5	88.7	82.3	85.8	-6.4	-2.9
-4.0	88	83.1	85.2	-4.9	-2.8
-3.5	87.4	83.9	84.5	-3.5	-2.9
-3.0	86.7	85	84.4	-1.7	-2.3
-2.5	86.4	86	84.9	-0.4	-1.5
-2.0	86.6	86.5	85.7	-0.1	-0.9
-1.5	87.6	87.6	87.2	0	-0.4
-1.0	89.2	89.2	89.2	0	0
-0.5	90.4	90.4	90.4	0	0
0.0	91.3	91.3	91.3	0	0

Table 3. Comparison of F16PW9 AEDT NOISEMAP and User-Defined Arrival Noise Levels (2000 ft Hold Down)

Grid Points (nmi)	SEL (dB)				
	AEDT NOISEMAP 1 Profile*	User Defined IFR @ 2K	User Defined VFR @ 2K	DIFF IFR @ 2K	DIFF VFR @ 2K
-10.0	89.6	87.3	87.2	-2.3	-2.4
-9.5	89.7	86.9	86.7	-2.8	-3
-9.0	89.2	86.4	86.2	-2.8	-3
-8.5	88.7	86	85.7	-2.7	-3
-8.0	88.1	85.5	85.1	-2.6	-3
-7.5	87.6	85	84.5	-2.6	-3.1
-7.0	87	84.5	83.9	-2.5	-3.1
-6.5	86.4	84	83.4	-2.4	-3
-6.0	85.8	83.5	83	-2.3	-2.8
-5.5	85.3	83.1	82.7	-2.2	-2.6
-5.0	84.9	82.8	82.4	-2.1	-2.5
-4.5	84.6	82.6	82.1	-2	-2.5
-4.0	84.3	82.3	81.7	-2	-2.6
-3.5	84	82.1	81.1	-1.9	-2.9
-3.0	83.4	82.3	81.6	-1.1	-1.8
-2.5	83.2	83	83.5	-0.2	0.3
-2.0	85.4	85.4	85.7	0	0.3
-1.5	88.4	88.4	88.5	0	0.1
-1.0	92	92	92	0	0
-0.5	95	95	95	0	0
0.0	97.5	97.5	97.5	0	0

Note: *The AEDT Noisemap 1 profile for the F16PW9 starts its descent from 20,000 ft. above field elevation. During the portion of the descent from 20,000 ft. to 10,000 ft., AEDT uses a Trajectory Mode of "Enroute Descent" and an Operation Mode of "Departure". This causes the model to use the departure noise curves despite the points-style profiles specifying an operation mode of arrival. The units of thrust are different for arrival and departure for the F16PW9. This causes a miscalculation of the noise exposure with SEL values exceeding 1,000 dB throughout the study area. The noise values presented here for the Noisemap 1 profile reflect the use of the full profile with the first point removed. This modified profile begins its descent at 10,000 ft above field elevation.

Table 4. Comparison of F16PW9 AEDT NOISEMAP and User-Defined Arrival Noise Levels (5000 ft Hold Down)

Grid Points (nmi)	SEL (dB)				
	AEDT NOISEMAP 1 Profile*	User Defined IFR @ 5K	User Defined VFR @ 5K	DIFF IFR @ 5K	DIFF VFR @ 5K
-10.0	89.6	74.9	74.6	-14.7	-15
-9.5	89.7	74.7	74.4	-15	-15.3
-9.0	89.2	74.5	74.2	-14.7	-15
-8.5	88.7	74.3	74	-14.4	-14.7
-8.0	88.1	74.1	73.8	-14	-14.3
-7.5	87.6	74.1	73.3	-13.5	-14.3
-7.0	87	74.3	73.2	-12.7	-13.8
-6.5	86.4	74.6	73.9	-11.8	-12.5
-6.0	85.8	75.4	74.9	-10.4	-10.9
-5.5	85.3	76.2	75.9	-9.1	-9.4
-5.0	84.9	77	77	-7.9	-7.9
-4.5	84.6	77.9	78.1	-6.7	-6.5
-4.0	84.3	79	79.4	-5.3	-4.9
-3.5	84	80.1	80.8	-3.9	-3.2
-3.0	83.4	81.5	82.4	-1.9	-1
-2.5	83.2	83.1	84.2	-0.1	1
-2.0	85.4	85.4	86.2	0	0.8
-1.5	88.4	88.4	88.7	0	0.3
-1.0	92	92	92	0	0
-0.5	95	95	95	0	0
0.0	97.5	97.5	97.5	0	0

Note: *The AEDT Noisemap 1 profile for the F16PW9 starts its descent from 20,000 ft. above field elevation. During the portion of the descent from 20,000 ft. to 10,000 ft., AEDT uses a Trajectory Mode of "Enroute Descent" and an Operation Mode of "Departure". This causes the model to use the departure noise curves despite the points-style profiles specifying an operation mode of arrival. The units of thrust are different for arrival and departure for the F16PW9. This causes a miscalculation of the noise exposure with SEL values exceeding 1,000 dB throughout the study area. The noise values presented here for the Noisemap 1 profile reflect the use of the full profile with the first point removed. This modified profile begins its descent at 10,000 ft above field elevation

Table 5. Comparison of F-18 AEDT NOISEMAP and User-Defined Arrival Noise Levels (2000 ft Hold Down)

Grid Points (nmi)	SEL (dB)				
	AEDT NOISEMAP 1 Profile	User Defined IFR @ 2K	User Defined VFR @ 2K	DIFF IFR @ 2K	DIFF VFR @ 2K
-10.0	100.3	93.4	92.6	-6.9	-7.7
-9.5	99.2	92.3	91.3	-6.9	-7.9
-9.0	97.4	91.1	89.9	-6.3	-7.5
-8.5	95.6	89.9	88.5	-5.7	-7.1
-8.0	93.8	88.7	87.1	-5.1	-6.7
-7.5	91.9	87.4	85.7	-4.5	-6.2
-7.0	90.1	86.2	84.7	-3.9	-5.4
-6.5	88.2	85	84	-3.2	-4.2
-6.0	86.8	84.4	83.4	-2.4	-3.4
-5.5	85.9	83.9	83.2	-2	-2.7
-5.0	85.3	83.3	83.6	-2	-1.7
-4.5	85.6	83.2	84.2	-2.4	-1.4
-4.0	86.1	83.6	86.1	-2.5	0
-3.5	87.1	84.3	92.3	-2.8	5.2
-3.0	92.3	88.9	97.3	-3.4	5
-2.5	99.2	98.8	99.2	-0.4	0
-2.0	101.2	101.2	101.4	0	0.2
-1.5	104.1	104.1	104.2	0	0.1
-1.0	107.7	107.7	107.7	0	0
-0.5	109.7	109.7	109.7	0	0
0.0	111.3	111.3	111.3	0	0

Table 6. Comparison of F-18 AEDT NOISEMAP and User-Defined Arrival Noise Levels (5000 ft Hold Down)

Grid Points (nmi)	SEL (dB)				
	AEDT NOISEMAP 1 Profile	User Defined IFR @ 5K	User Defined VFR @ 5K	DIFF IFR @ 5K	DIFF VFR @ 5K
-10.0	100.3	75.4	74.9	-24.9	-25.4
-9.5	99.2	75.1	74.8	-24.1	-24.4
-9.0	97.4	74.9	75.2	-22.5	-22.2
-8.5	95.6	74.8	75.8	-20.8	-19.8
-8.0	93.8	75.1	77.5	-18.7	-16.3
-7.5	91.9	75.8	82.9	-16.1	-9
-7.0	90.1	77.2	88.4	-12.9	-1.7
-6.5	88.2	78.1	89.1	-10.1	0.9
-6.0	86.8	79.7	90.1	-7.1	3.3
-5.5	85.9	81.9	91.2	-4	5.3
-5.0	85.3	84.4	92.3	-0.9	7
-4.5	85.6	87.1	93.4	1.5	7.8
-4.0	86.1	89.8	94.7	3.7	8.6
-3.5	87.1	92.8	96.1	5.7	9
-3.0	92.3	95.9	97.8	3.6	5.5
-2.5	99.2	98.9	99.6	-0.3	0.4
-2.0	101.2	101.2	101.7	0	0.5
-1.5	104.1	104.1	104.4	0	0.3
-1.0	107.7	107.7	107.7	0	0
-0.5	109.7	109.7	109.7	0	0
0.0	111.3	111.3	111.3	0	0

Table 7. Comparison of F15E20 AEDT NOISEMAP and User-Defined Departure Noise Levels

Grid Points (nmi)	SEL (dB)		
	AEDT NOISEMAP 1 Profile	User Defined Profile	Difference
0.0	122.4	96	-26.4
0.5	119.2	95.4	-23.8
1.0	119.1	94.8	-24.3
1.5	116.4	94.1	-22.3
2.0	114.6	93.5	-21.1
2.5	113.1	92.8	-20.3
3.0	111	92.1	-18.9
3.5	109	91.5	-17.5
4.0	107.3	90.8	-16.5
4.5	105.9	90.2	-15.7
5.0	104.6	89.6	-15
5.5	103.5	89	-14.5
6.0	102.3	88.4	-13.9
6.5	101.3	87.8	-13.5
7.0	100.3	87.1	-13.2
7.5	99.4	86.2	-13.2
8.0	98.5	86.6	-11.9
8.5	97.7	87.6	-10.1
9.0	96.9	89.2	-7.7
9.5	96.1	90.4	-5.7
10.0	95.4	91.3	-4.1

Table 8. Comparison of F16PW9 AEDT NOISEMAP and User-Defined Departure Noise Levels

Grid Points (nmi)	SEL (dB)		
	AEDT NOISEMAP 1 Profile	User Defined Profile	Difference
0.0	123.8	127.4	3.6
0.5	118.6	123.8	5.2
1.0	118.3	124.2	5.9
1.5	115.3	122.2	6.9
2.0	113.3	108.9	-4.4
2.5	111.8	104.9	-6.9
3.0	110.5	102.2	-8.3
3.5	108	100.3	-7.7
4.0	105.8	98.8	-7
4.5	104.1	97.6	-6.5
5.0	102.5	96.5	-6
5.5	101.2	95.4	-5.8
6.0	100	94.3	-5.7
6.5	99	93.4	-5.6
7.0	98.1	92.6	-5.5
7.5	97.2	91.8	-5.4
8.0	96.4	91	-5.4
8.5	95.6	90.3	-5.3
9.0	94.8	89.8	-5
9.5	94	89.2	-4.8
10.0	93.3	88.7	-4.6

Table 9. Comparison of F-18 AEDT NOISEMAP and User-Defined Departure Noise Levels

Grid Points (nmi)	SEL (dB)		
	AEDT NOISEMAP 1 Profile	User Defined Profile	Difference
0.0	133.8	130.7	-3.1
0.5	128.8	128.7	-0.1
1.0	125.7	125.7	0
1.5	111.9	111.5	-0.4
2.0	105.6	101.1	-4.5
2.5	102.7	97.3	-5.4
3.0	100.2	94.9	-5.3
3.5	98.4	93.2	-5.2
4.0	97	92	-5
4.5	95.7	91	-4.7
5.0	94.5	90	-4.5
5.5	93.4	89.1	-4.3
6.0	92.4	88.3	-4.1
6.5	91.4	87.6	-3.8
7.0	90.5	86.9	-3.6
7.5	89.6	86.3	-3.3
8.0	88.7	85.7	-3
8.5	87.9	85.1	-2.8
9.0	87.2	84.6	-2.6
9.5	86.4	84.1	-2.3
10.0	85.7	83.6	-2.1

4. Concurrence on Aircraft Performance

The CANG furnished all of the data which was used in the profile modification process and reviewed both the modified procedure steps and the resulting profile points (distance, altitude, speed, and thrust). The following sub-sections present the profiles. Correspondence with CANG can be found in Appendix A.

5. Certification of New Parameters

All of the proposed profiles are defined in terms of profile points. We entered the profiles into AEDT in terms of

- Altitudes are entered into AEDT as above field elevation in feet
- Speed is true airspeed in knots
- All thrusts are in pounds, which is the unit used in the noise-power-distance curves

We certify that we have prepared the data to these requirements.

6. Graphical and Tabular Comparison

6.1 Arrivals

Table 10. Arrival Profiles for F15E20

AEDT NOISEMAP 1 Profile			
Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)
-201200	15000	300	83
-121200	8000	300	86
-61200	1500	300	85
-32050	1500	180	78
-16625	1500	180	76
-7200	300	150	73
-1200	50	135	72.4
0	0	135	72.4
10	0	135	72.4

User Defined IFR @ 2K				User Defined VFR @ 2K			
Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)	Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)
-201200	15000	300	83	-201200	15000	300	83
-121200	8000	300	86	-121200	8000	300	86
-65815	2000	300	85	-65815	2000	300	85
-20552	2000	180	78	-35977	2000	180	78
-16625	1500	180	76	-20552	2000	180	76
-7200	300	150	73	-7200	300	150	73
-1200	50	135	72.4	-1200	50	135	72.4
0	0	135	72.4	0	0	135	72.4
10	0	135	72.4	10	0	135	72.4

User Defined IFR @ 5K				User Defined VFR @ 5K			
Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)	Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)
-201200	15000	300	83	-201200	15000	300	83
-121200	8000	300	86	-121200	8000	300	86
-93508	5000	300	85	-93508	5000	300	85
-44115	5000	180	78	-59540	5000	180	78
-16625	1500	180	76	-44115	5000	180	76
-7200	300	150	73	-7200	300	150	73
-1200	50	135	72.4	-1200	50	135	72.4
0	0	135	72.4	0	0	135	72.4
10	0	135	72.4	10	0	135	72.4

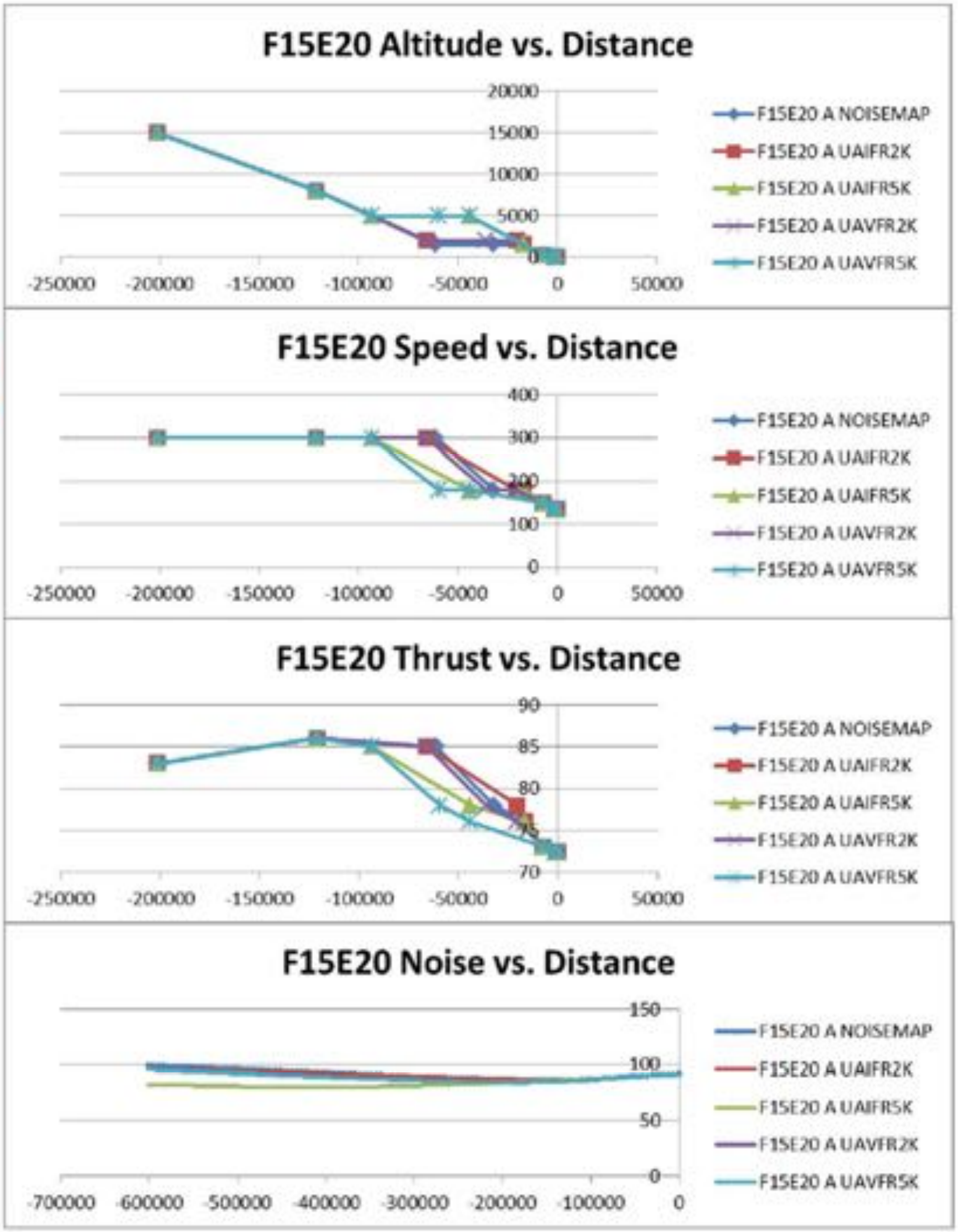
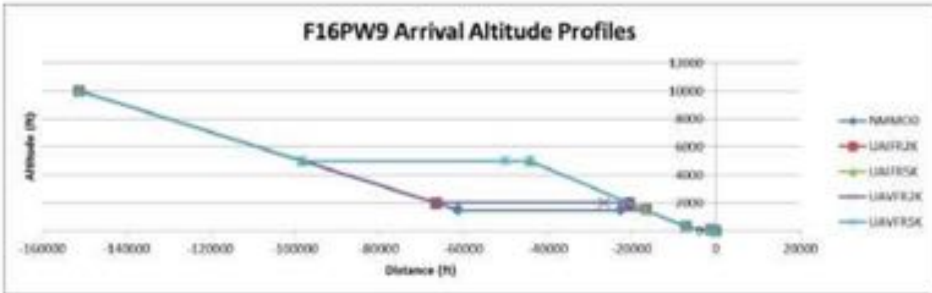

F15E20 Altitude vs. Distance
F15E20 A NOISEMAP
F15E20 A UAIFR2K
F15E20 A UAIFR5K
F15E20 A UAVFR2K
F15E20 A UAVFR5K
F15E20 Speed vs. Distance
F15E20 Thrust vs. Distance
F15E20 Noise vs. Distance

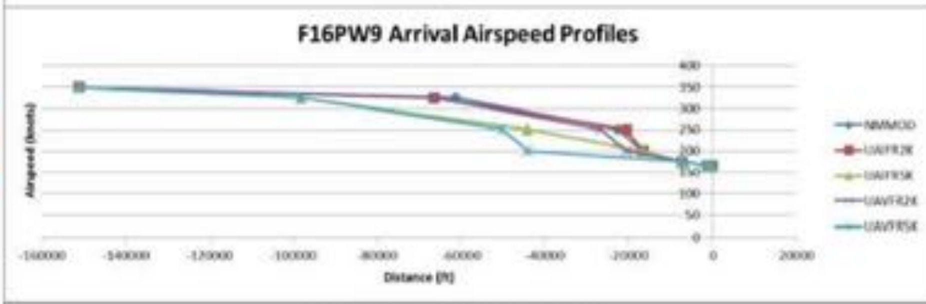
Table 11. Arrival Profiles for F16PW9

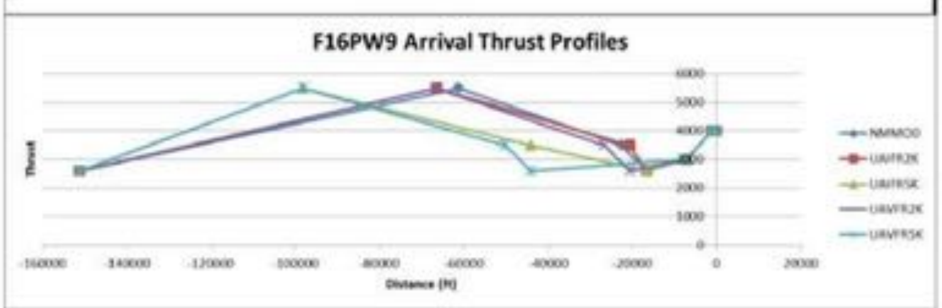
AEDT NOISEMAP 1 Profile			
Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (lbs)
-151200	10000	350	2600
-61200	1500	325	5500
-22625	1500	250	3500
-16625	1500	200	2600
-7200	300	175	3000
-1200	50	165	4000
0	0	165	4000
10	0	165	4000

User Defined IFR @ 2K				User Defined VFR @ 2K			
Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (lbs)	Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (lbs)
-151200	10000	350	2600	-151200	10000	350	2600
-66494	2000	325	5500	-66494	2000	325	5500
-20552	2000	250	3500	-26552	2000	250	3500
-16625	1500	200	2600	-20552	2000	200	2600
-7200	300	175	3000	-7200	300	175	3000
-1200	50	165	4000	-1200	50	165	4000
0	0	165	4000	0	0	165	4000
10	0	165	4000	10	0	165	4000

User Defined IFR @ 5K				User Defined VFR @ 5K			
Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (lbs)	Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (lbs)
-151200	10000	350	2600	-151200	10000	350	2600
-98259	5000	325	5500	-98259	5000	325	5500
-44115	5000	250	3500	-50115	5000	250	3500
-16625	1500	200	2600	-44115	5000	200	2600
-7200	300	175	3000	-7200	300	175	3000
-1200	50	165	4000	-1200	50	165	4000
0	0	165	4000	0	0	165	4000
10	0	165	4000	10	0	165	4000


F16PW9 Arrival Altitude Profiles
Altitude (ft)
Distance (ft)
NMMOD
UAFR2K
UAFR5K
UAVFR2K
UAVFR5K


F16PW9 Arrival Airspeed Profiles
Airspeed (knots)
Distance (ft)
NMMOD
UAFR2K
UAFR5K
UAVFR2K
UAVFR5K


F16PW9 Arrival Thrust Profiles
Thrust
Distance (ft)
NMMOD
UAFR2K
UAFR5K
UAVFR2K
UAVFR5K

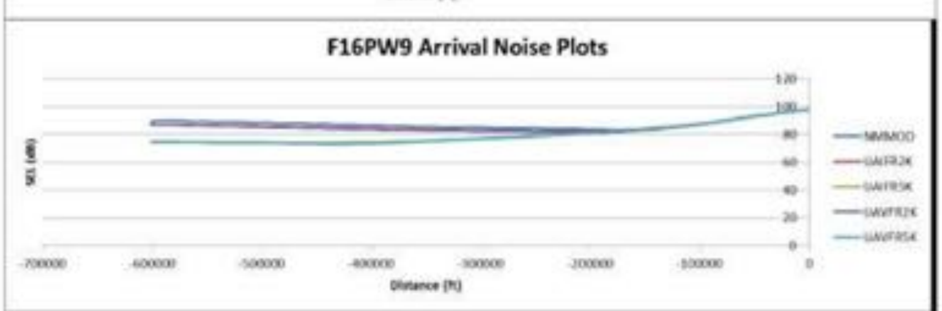

F16PW9 Arrival Noise Plots
SEL (dB)
Distance (ft)

Table 12. Arrival Profiles for F-18

AEDT NOISEMAP 1 Profile			
Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)
-201200	10000	350	84
-101200	3000	350	88
-61200	1500	350	88
-32050	1500	350	80
-22625	1500	250	80
-16625	1500	200	86.1
-7200	300	160	86.1
-1200	50	140	86.1
0	0	140	86.1

User Defined IFR @ 2K				User Defined VFR @ 2K			
Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)	Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)
-201200	10000	350	84	-201200	10000	350	84
-101200	3000	350	88	-101200	3000	350	88
-74533	2000	350	88	-74533	2000	350	88
-29977	2000	350	80	-35977	2000	350	80
-20552	2000	250	80	-26552	2000	250	80
-16625	1500	200	86.1	-20552	2000	200	86.1
-7200	300	160	86.1	-7200	300	160	86.1
-1200	50	140	86.1	-1200	50	140	86.1
0	0	140	86.1	0	0	140	86.1

User Defined IFR @ 5K				User Defined VFR @ 5K			
Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)	Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)
-201200	10000	350	84	-201200	10000	350	84
-129771	5000	350	88	-129771	5000	350	88
-53540	5000	350	80	-59540	5000	350	80
-44115	5000	250	80	-50115	5000	250	80
-16625	1500	200	86.1	-44115	5000	200	86.1
-7200	300	160	86.1	-7200	300	160	86.1
-1200	50	140	86.1	-1200	50	140	86.1
0	0	140	86.1	0	0	140	86.1
10	0	140	86.1	10	0	140	86.1

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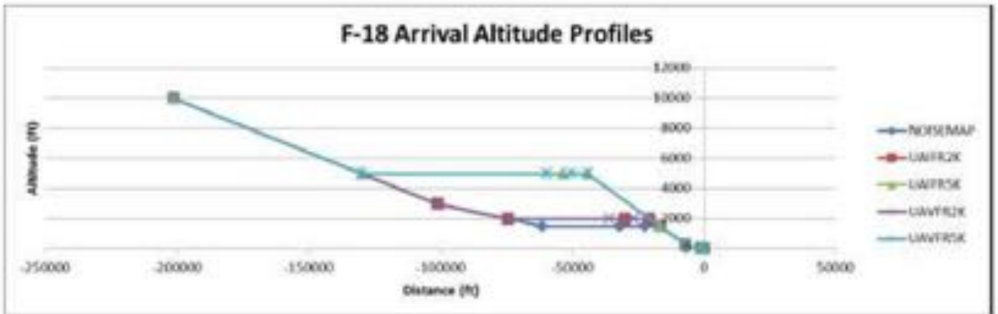
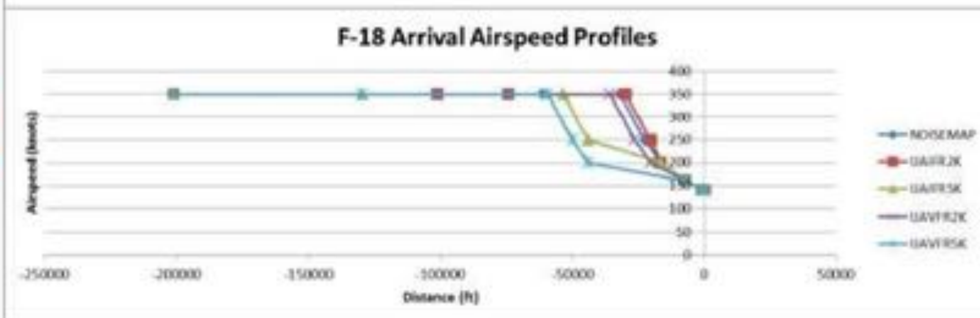
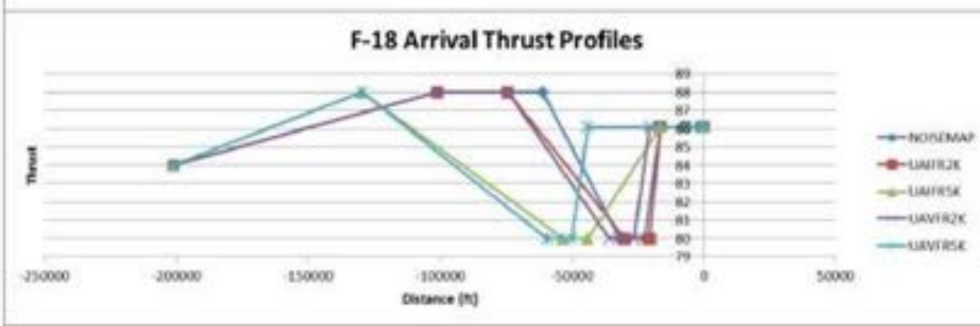
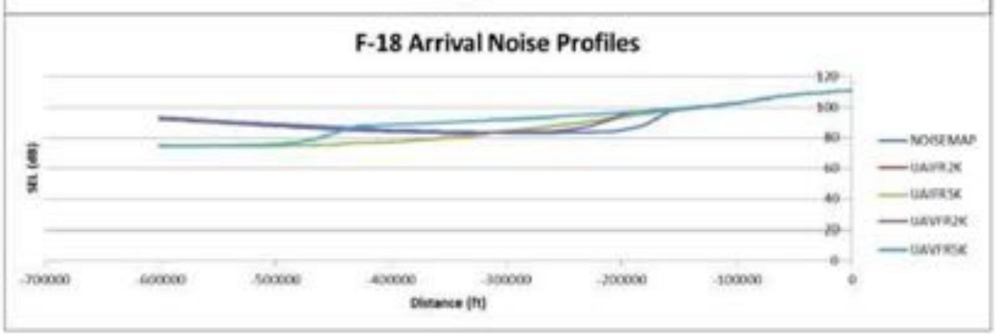








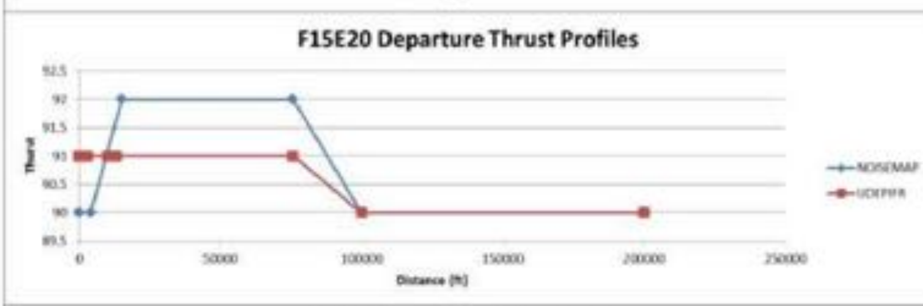
6.2 Departure

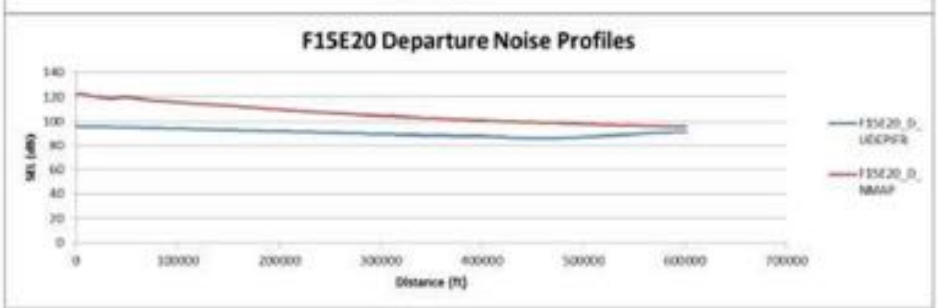
Table 13. Departure Profiles for F15E20

AEDT NOISEMAP 1 Profile				User-Defined Profile			
Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)	Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)
0	0	0	90	0	0	0	91
-	-	-	-	3000	0	180	91
4000	0	150	90	9900	700	285	91
-	-	-	-	10000	700	285	91
15000	1000	300	92	13000	1000	330	91
75600	10000	330	92	75600	10000	330	91
100000	15000	350	90	100000	15000	350	90
200000	18000	350	90	200000	18000	350	90


F15E20 Departure Altitude Profiles
Altitude (ft)
Distance (ft)
NOISEMAP


F15E20 Departure Airspeed Profiles
Airspeed (knots)
Distance (ft)
NOISEMAP


F15E20 Departure Thrust Profiles
Thrust
Distance (ft)
NOISEMAP


F15E20 Departure Noise Profiles
SEL (dB)
Distance (ft)

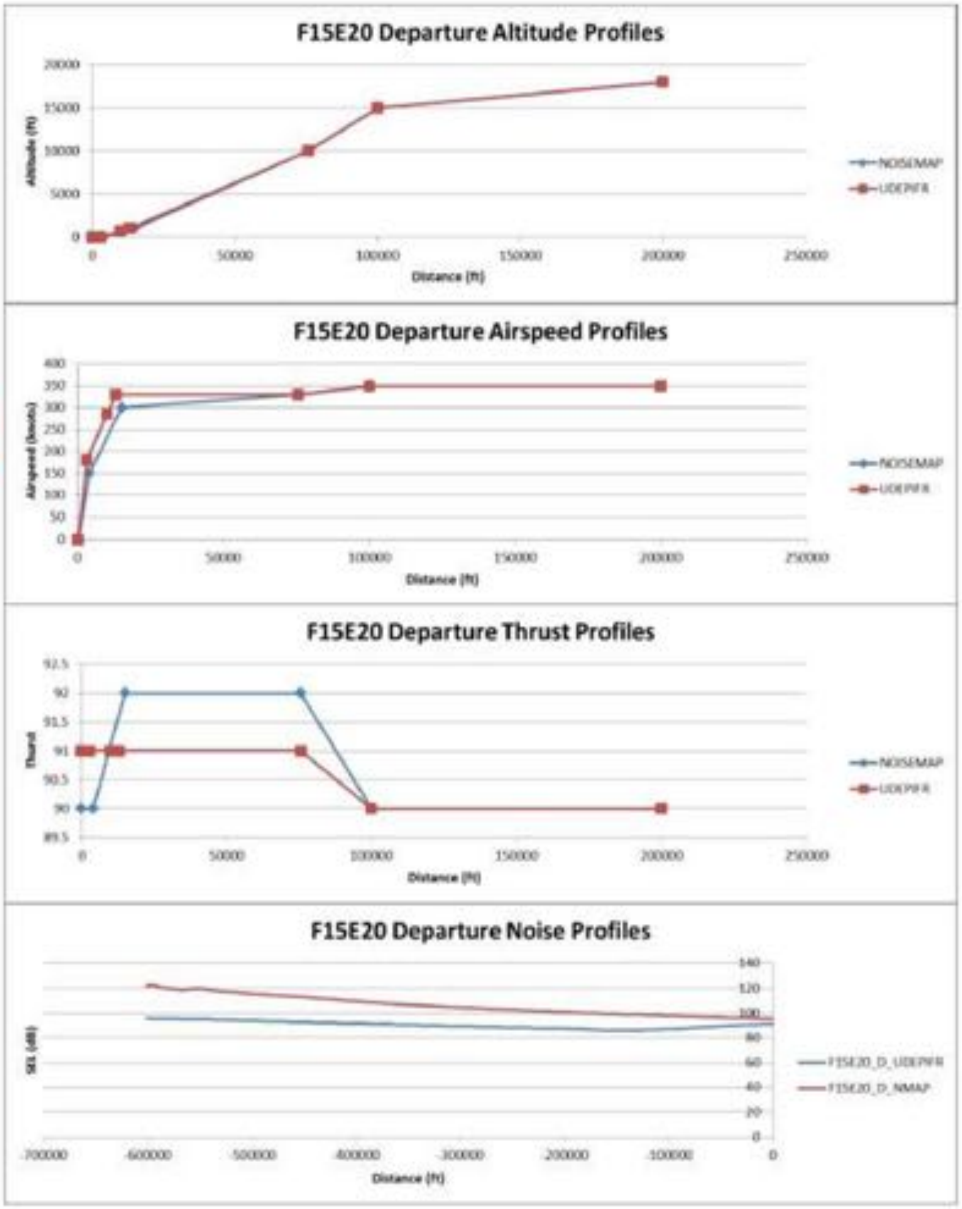
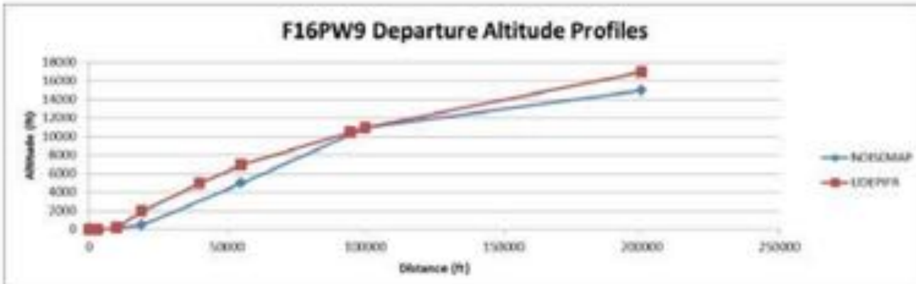
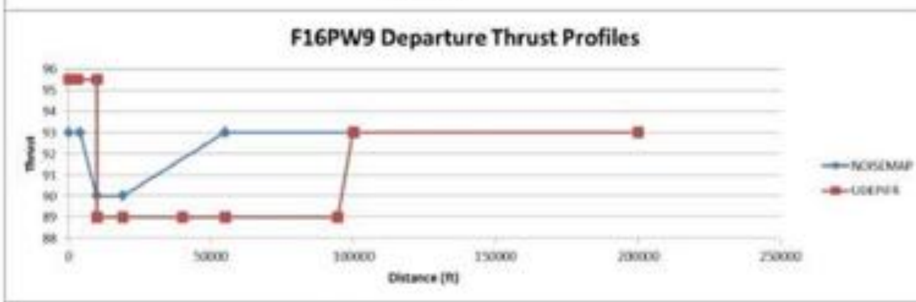

F15E20 Departure Altitude Profiles
Altitude (ft)
Distance (ft)
NOISEMAP
UDEPRFR
F15E20 Departure Airspeed Profiles
Airspeed (knots)
Distance (ft)
NOISEMAP
UDEPRFR
F15E20 Departure Thrust Profiles
Thrust
Distance (ft)
NOISEMAP
UDEPRFR
F15E20 Departure Noise Profiles
SEL (dB)
Distance (ft)
F15E20_D_UDEPRFR
F15E20_D_NMAP

Table 15. Departure Profiles for F16PW9

AEDT NOISEMAP 1 Profile				User-Defined Profile			
Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)	Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)
0	0	0	96.7	0	0	35	96.7
4750	0	150	96.7	4750	0	150	96.7
7000	415	250	96.7	7000	415	250	96.7
-	-	-	-	7900	600	250	96.7
8000	600	250	92.5	8000	600	250	92.5
-	-	-	-	9900	967	250	92.5
-	-	-	-	10000	967	250	89
20000	2800	305	92.5	20000	2800	250	89
80000	11200	365	92.5	80000	11200	365	92.5
200000	20000	365	92.5	200000	20000	365	92.5


F16PW9 Departure Altitude Profiles
Distance (ft)
NOISEMAP


F16PW9 Departure Airspeed Profiles
Distance (ft)
NOISEMAP


F16PW9 Departure Thrust Profiles
Thrust
Distance (ft)
NOISEMAP

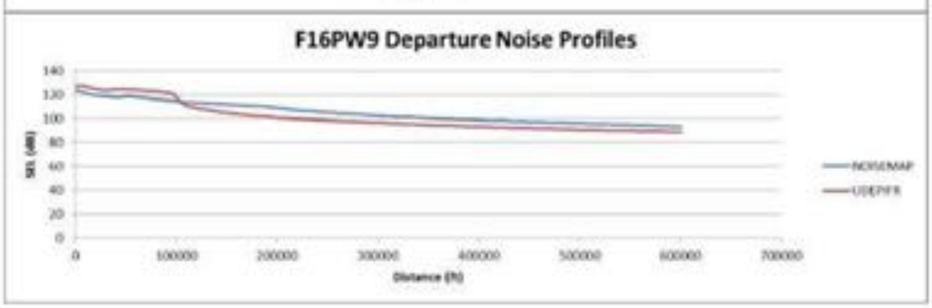

F16PW9 Departure Noise Profiles
Distance (ft)
NOISEMAP

Table 15. Departure Profiles for F-18

AEDT NOISEMAP 1 Profile				User-Defined Profile			
Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)	Distance (ft)	Altitude (ft)	Speed (kts)	Thrust (%)
0	0	0	96.7	0	0	35	96.7
4750	0	150	96.7	4750	0	150	96.7
7000	415	250	96.7	7000	415	250	96.7
-	-	-	-	7900	600	250	96.7
8000	600	250	92.5	8000	600	250	92.5
-	-	-	-	9900	967	250	92.5
-	-	-	-	10000	967	250	89
20000	2800	305	92.5	20000	2800	250	89
80000	11200	365	92.5	80000	11200	365	92.5
200000	20000	365	92.5	200000	20000	365	92.5

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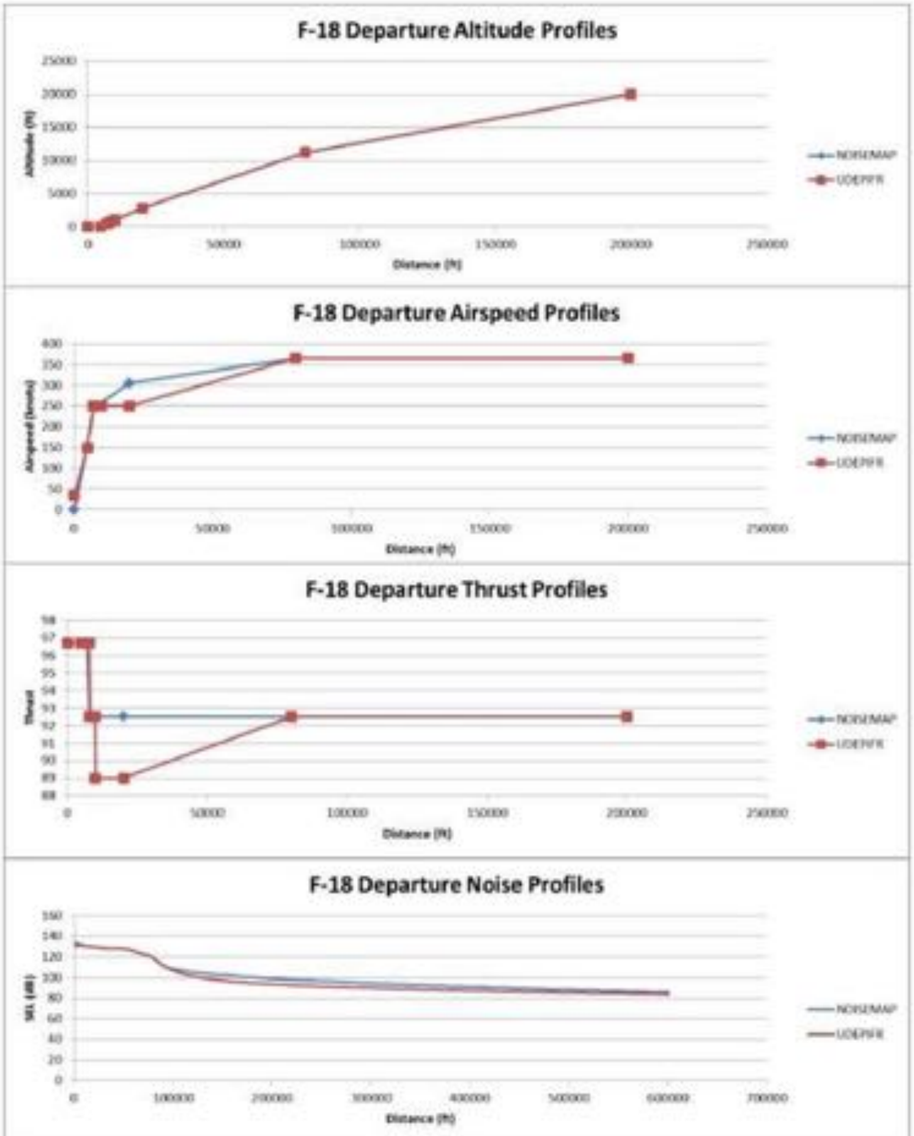

APPENDIX A. CANG CONCURANCE

Rhea Gundry

From:	jerseyf15@yahoo.com
Sent:	Friday, December 11, 2015 1:48 PM
To:	Rhea Gundry
Subject:	Re: Fresno Jet Profile Review Request

Rhea,

I have reviewed the documents, and they correctly depict our departure and arrival procedures.

Please change the comments at the end as follows: we do not want to cancel our current overhead. The 5000' tactical initial is our primary arrival procedure, but we will still execute the lower initial if required (I.E. low ceilings, high traffic, sequencing issues)

With that change made we are good.
Let me know what else you need from me.

- Jersey

On Nov 11, 2015, at 11:04 AM, Rhea Gundry <rgundry@hmmh.com> wrote:

> Maj. "Jersey" Burd,
>
> Thank you for meeting with us back in August where we discussed that HMMH is conducting a Part 150 Study Update at Fresno Yosemite International Airport (FAT). Included in the noise modeling process is to examine the model military jets (F-15) arrival and departure procedures, such as the overhead approach procedure. In the end the model output is only as good as the input so it is critical we get the aircraft flight procedures as close to how they are actually flown at FAT as possible. To that end we request your review of the attached document on our flight procedure assumptions. Please mark up the document with appropriate changes and contact me with any questions.
>
> We appreciate your continued assistance with this project.
>
> Rhea A. Gundry
> Senior Consultant
>
> HMMH
> 8880 Cal Center Drive, Suite 430, Sacramento, CA 95826
> 916.368.0707 x2235
> rgundry@hmmh.com
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APPENDIX B: FAA MEMORANDUM

Federal Aviation Administration

Memorandum

Date:	July 3, 2014
To:	Fresno Airport Department
From:	Jamie DuPuy, Staff Support Specialist Jamie DuPuy
Subject:	Request a change to Noise Abatement Procedures

As discussed in our meeting today, the following are the noise abatement procedures we respectfully request to change or alter.

- The California Air National Guard (CANG) is requesting to cancel their current overhead approach pattern, and implement a new tactical initial at a high traffic pattern altitude. Attached is the proposed tactical initial formations, which would be begin at 5,000 feet.
- Request approval for transient military fighter departures off runway 29 to mirror the current CANG noise abatement departure procedure. The transient military fighter departures would be cleared to 10,000 feet and continue runway heading until 10 miles out.
- Request approval for transient military fighters to fly the overhead approach pattern, which would mirror the overhead approach pattern that is currently approved for the CANG.
- Request approval for intersection departures for propeller aircraft on 29L/11R.

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Appendix K FAA Request for Clarification of User Defined Profiles

U.S. Department of Transportation
Federal Aviation Administration

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Blvd., Suite 220
Brisbane, CA 94005-1835

April 12, 2016

Mark W. Davis
Airports Planning Manager
City of Fresno
Fresno Yosemite International Airport
4995 E. Clinton Way
Fresno, CA 93727-1525

Subject: Fresno Yosemite International Airport – Noise Exposure Map Update – Aviation Environmental Design Tool – Non-Standard Profile Request

Dear Mr. Davis:

The Federal Aviation Administration (FAA) has completed a review of the City of Fresno's (City) approval request for use of non-standard profiles in Aviation Environmental Design Tool (AEDT) version 2.0b for development of the Noise Exposure Map (NEM) Update for Fresno Yosemite International Airport (FAT). The non-standard profile request was supported with a February 12, 2016 memorandum prepared by Harris, Miller, Miller, & Hanson (HMMH). The FAA review resulted in the following comments and questions regarding the user-defined profiles:

1. Table 1 of the memorandum shows a roughly 3 decibel (dB) difference in Sound Exposure Level (SEL) between the Instrument Flight Rule (IFR) and Visual Flight Rule (VFR) profiles (2,000 feet hold down); however it is difficult to discern the difference in the profiles from the data presented in Table 10. The IFR and VFR profiles look almost identical. Can you explain the 3 dB difference in the profiles?

2. Table 2 of the memorandum shows quite a large difference in SEL between the IFR and VFR profiles (5,000 feet hold down); however the profiles look nearly identical. Also, the SEL data for the VFR 5,000 feet hold down in Table 2 looks identical to the SEL data for the VFR 2,000 feet hold down in Table 1. Is there a data entry error in either Table 1 or Table 2 (or both)?

3. Table 5 shows a difference in SEL between the AEDT profile and the VFR @ 2K of 5.2 dB and 5.0 dB at -3.5 nmi. And -3.0 nmi. respectively. These differences seem out of place and are difficult to explain based on the profile data provided. Can you explain these differences?

4. The SEL differences between the AEDT arrival profiles and the user defined arrival profiles for both the 2,000 feet and 5,000 feet hold downs for the F-18 (Tables 5 and 6) are much larger than the differences for the F-15E20 and F-16PW9 aircraft. Why are these differences so much larger?

5. Table 7 of the memorandum shows large differences in the SEL between the AEDT profile and the user defined profile, even at the first few grid points where the profiles are identical except for a one percent difference in thrust. Can you explain this large difference? This looks like either a data entry error in the table or a grid point mismatch.

6. There are two tables in the memorandum labeled Table 15. The data in the tables look identical; however they should be different. One table represents the F-16PW9 and one table represents the F-18. Also, the data in the first Table 15 does not appear to match the data in the accompanying graphs.

7. The departure graphs for the F-15E20 show noisemap altitude, thrust, and speed in blue and user defined data in red. The colors then switch for the SEL data. This makes comparing the graphs very confusing.

8. In general there appear to be several errors in the data presented in the tables and graphs that must be corrected before we can properly analyze the user defined profiles. In addition, it would be helpful for the analysis if the track distance data for the profiles were in the same units as the SEL data. SEL data is presented with grid points shown in nmi. while track distance for the profiles is shown in feet, making comparison of the tables difficult. Also, the SEL data is presented up to 10 nmi. from the runway, however the profile graphs go out to 250,000 feet (roughly 41 nmi,). This makes the profile graphs difficult to read and differences between profiles in the area of interest (closer to the runway) are difficult to discern. The profile graphs need not go out so far. The scales for the SEL graphs should be revised as well. Starting the SEL axis at zero compresses the data and makes it more difficult to read.

We are available to discuss these comments in more detail with the City and HMMH if necessary. These items must be addressed before the FAA can approve the use of user-defined profiles for the FAT Part 150 NEM Update.

I am available at (650) 827-7613 or email me at Camille.Garibaldi@faa.gov if you have any questions, concerns or would like to schedule a conference call to discuss this matter.

Sincerely,

C Garibaldi

Camille Garibaldi
Environmental Protection Specialist

cc:
Elodia Cavazos, Fresno Yosemite Airport

Appendix L Clarification of User Defined Profiles

HMMH
8880 Cal Center Drive, Suite 430
Sacramento, California 95826
916.368.0707
www.hmmh.com

May 3, 2016

Elodia Cavazos
City of Fresno
Fresno-Yosemite International Airport
4995 E. Clinton Way
Fresno, CA 93727

Subject: Response to FAA questions on AEDT User-Defined Profiles for Fresno-Yosemite International Airport Noise Exposure Map Update

Reference: HMMH Project Number 307400.000

Dear Ms. Cavazos:

Please see responses below addressing comments and questions from the Federal Aviation Administration (FAA) letter provided by Camille Garibaldi, dated April 20, 2016.

1. *Table 1 of the memorandum shows a roughly 3 decibel (dB) difference in Sound Exposure Level (SEL) between the Instrument Flight Rule (IFR) and Visual Flight Rule (VFR) profiles (2,000 feet hold down); however it is difficult to discern the difference in the profiles from the data presented in Table 10. The IFR and VFR profiles look almost identical. Can you explain the 3 dB difference in the profiles?*

   Response: The difference in SEL shown in Table 1 of the memorandum compares: (1) the User-Defined IFR at the 2,000 foot hold down (@ 2K) to the Standard AEDT NOISEMAP 1 Profile and (2) the User-Defined VFR @ 2K compared to the Standard AEDT NOISEMAP 1 Profile. The IFR and VFR profiles are quite similar.
   The 3 dB difference in SEL at each grid point is the comparison from the Standard AEDT profile to the proposed User-Defined VFR and IFR profile @ 2K. The SEL differences between the two User-Defined profiles is notably quite small as expected.

2. *Table 2 of the memorandum shows quite a large difference in SEL between the IFR and VFR profiles (5,000 feet hold down); however the profiles look nearly identical. Also, the SEL data for the VFR 5,000 feet hold down in Table 2 looks identical to the SEL data for the VFR 2,000 feet hold down in Table 1. Is there a data entry error in either Table 1 or Table 2 (or both)?*

   Response: Similarly, the SEL difference shown in Table 2 is based on the comparison of the User-Defined IFR and VFR, in this case at a 5,000 foot hold down (@ 5K), to the Standard AEDT Profile. Table 2 was showing the incorrect SEL values for VFR @5K, Table 2 and associated noise graph have been corrected and are provided in the enclosed document.

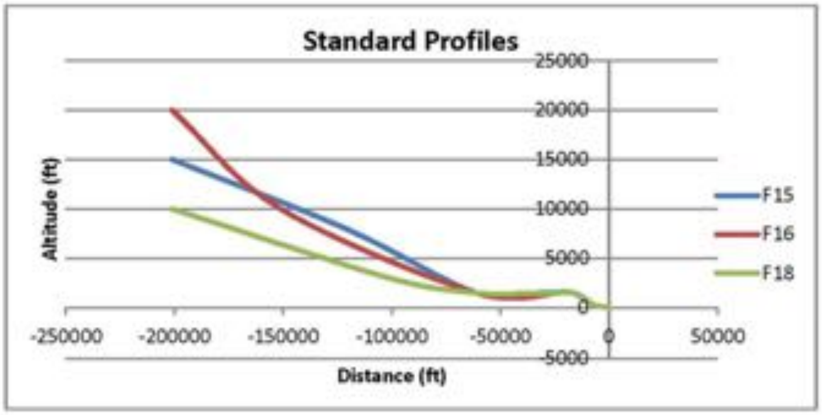
3. *Table 5 shows a difference in SEL between the AEDT profile and the VFR @2K of 5.2 dB and 5.0 dB at -3.5 nmi and -3.0 nmi respectively. These differences seem out of place and are difficult to explain based on the profile data provided. Can you explain these differences?*

   Response: The profile data, as presented in the User-Defined Profile Request Technical Memorandum, was entered directly into AEDT. The SEL data provided in Table 5 were then generated by AEDT.

4. *The SEL difference between the AEDT arrival profiles and the user defined arrival profiles for both the 2,000 feet and 5,000 feed hold down for the F-18 (Tables 5 and 6) are much larger than the differences for the F-15E20 and F-16PW9 aircraft. Why are these differences so much larger?*

To: Ms. Elodia Cavazos
April 29, 2016
Page 2

Response: The arrival SEL data reported in Tables 1 – 6 are calculated by AEDT, the difference in aircraft type and their associated Noise-Power-Distance (NPD) curve used for each profile produce a unique SEL AEDT output. The Standard AEDT NOISEMAP profile for the F-18 is much lower in altitude and therefore has a much larger modification to fit the User-Defined profile hold downs compared to the F-16 and F-15 Standard profiles. The graph below plots the Standard AEDT NOISEMAP altitude vs distance profiles together for the F-15, F-16, and F-18 to illustrate the comparison.



5. *Table 7 of the memorandum shows large differences in the SEL between the AEDT profile and the user define profile, even at the first few grid points where the profiles are identical except for a one percent difference in thrust. Can you explain this large difference? This looks like either a data entry error in the table or grid point mismatch.*

   Response: Table 7 was showing the incorrect SEL values for the user defined profile; Table 7 and associated noise graph have been corrected and are provided in the enclosed document.

6. *There are two tables in the memorandum labeled Table 15. The data in the tables look identical; however they should be different. One table represents the F-16PW9 and one table represents the F-18. Also, the data in the first Table 15 does not appear to match the data in the accompanying graphs.*

   Response: Table 14 was missing in the original submittal and Table 15 was duplicated. Table 14 has has been added. The accompanying graphs were correct and remain. See enclosed document.

7. *The departure graphs for the F-15E20 show noisemap altitude, thrust, and speed in blue and user defined data in red. The colors then switch for the SEL data. This makes comparing the graphs very confusing.*

   Response: Based on FAA comments the departure graphs for the F-15 have been updated.

8. *In general there appear to be several errors in the data presented in the tables and graphs that must be corrected before we can properly analyze the user defined profiles. In addition, it would be helpful for the analysis if the track distance data for the profiles were in the same units as the SEL data. SEL data is presented with grid points shown in nmi while track distance for the profiles is shown in feet, making comparison of the tables difficult. Also, the SEL data is presented up to 10 nmi from the runway, however the profile graphs go out to 250,000 feet (roughly 41 nmi). This makes the profile graphs difficult to read and differences between profiles in the area of interest (closer to the runway)*

are difficult to discern. The profile graphs need not go out so far. The scales for the SEL graphs should be revised as well. Starting the SEL axis at zero compresses the data and makes it more difficult to read.

Response: The data presented is in accordance with section 5.3.2 of 1050.1F Appendix C for submissions to AEE. Per FAA guidance, SEL data is required to be reported in half nautical mile (nmi) increments out to 10 nmi, as done in the submission. Profile data has been presented to the extent required to compare User-Defined profiles with the Standard AEDT profile in units that match what is utilized in AEDT for a direct comparison. To aid in review, the plots below (pages 4-9) present track distances for the profiles in nmi at the same extent of the SEL data.

We trust the information above is adequate for the FAA to complete their review of the City's proposed User-Defined Profiles.

Sincerely yours,

Harris Miller Miller & Hanson Inc. d/b/a/ HMMH

hmmh

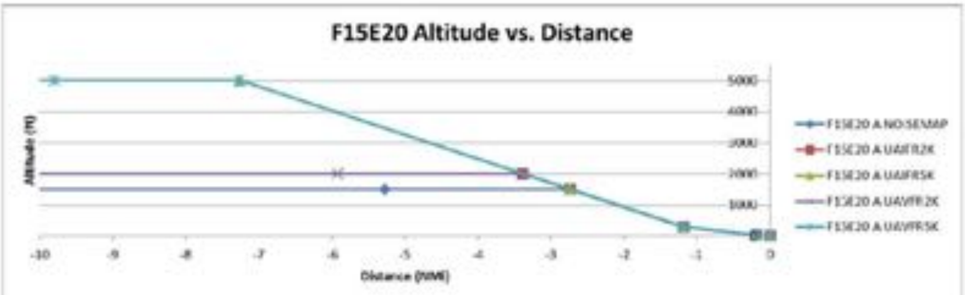
Rhea Gundry

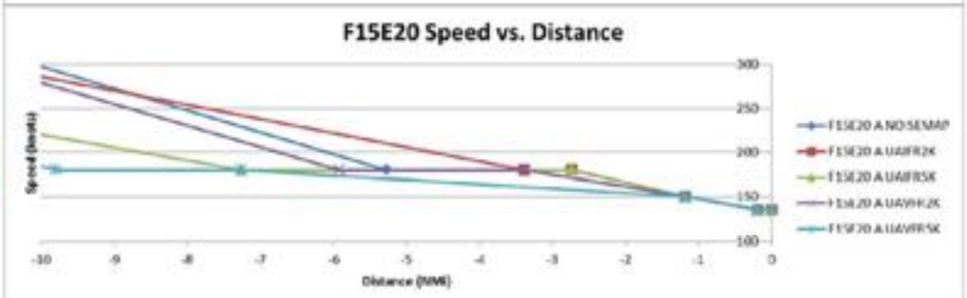
Rhea Gundry
Senior Consultant

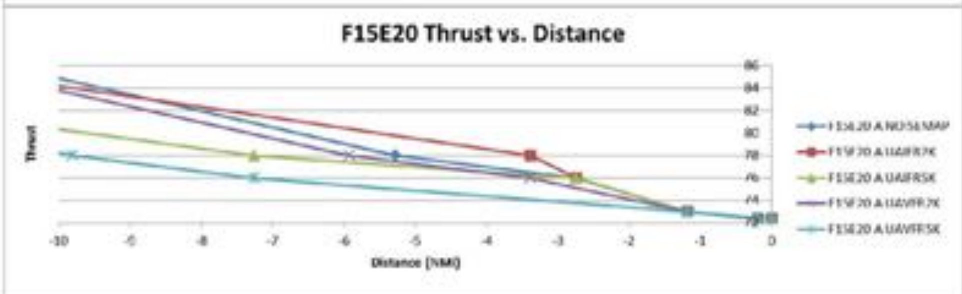
enclosures: Fresno-Yosemite International Airport Noise Exposure Map Update AEDT 2.0b User-Defined Profiles; FAA FAT NEM Non-Standard Profile RVW ltr_2016 04 12.pdf

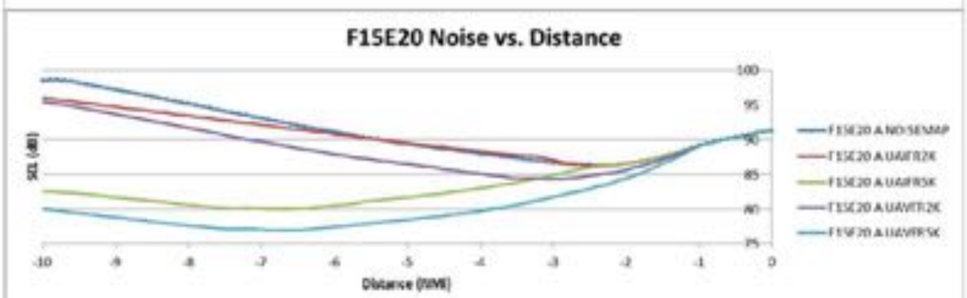
cc: Mark Davis

To: Ms. Elodia Cavazos
April 29, 2016
Page 4









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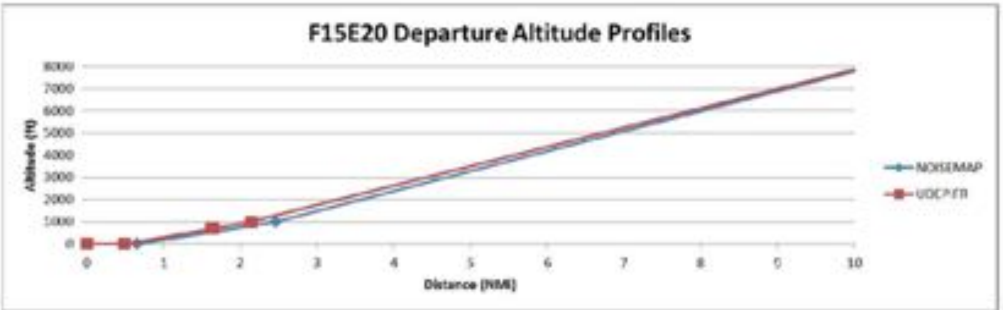
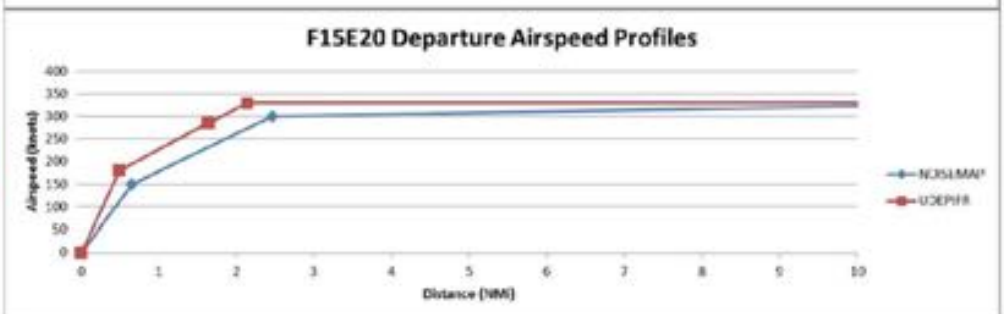
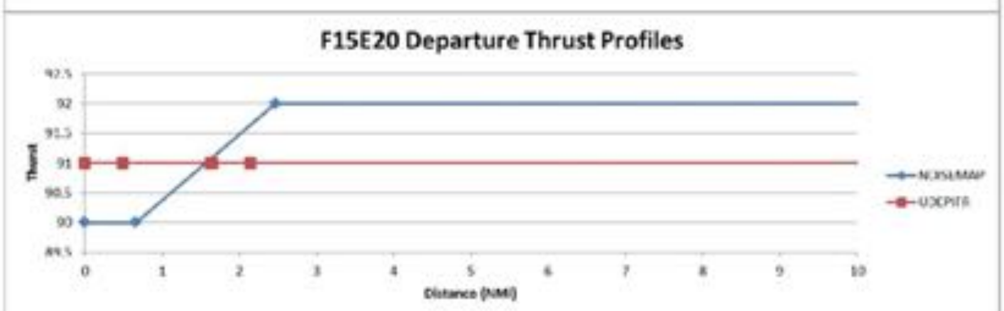
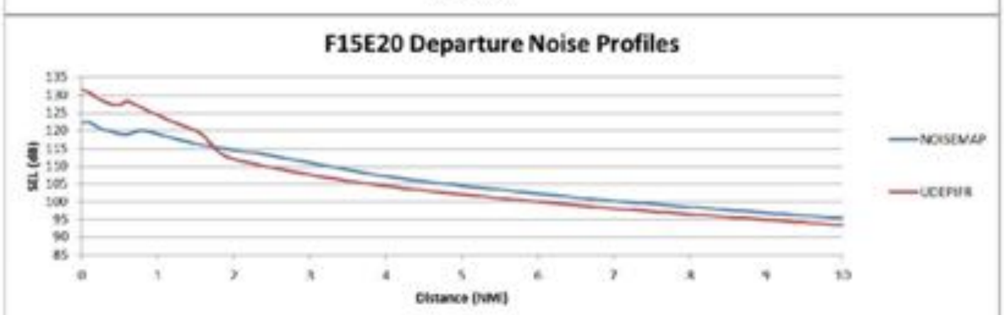
April 29, 2016
Page 5

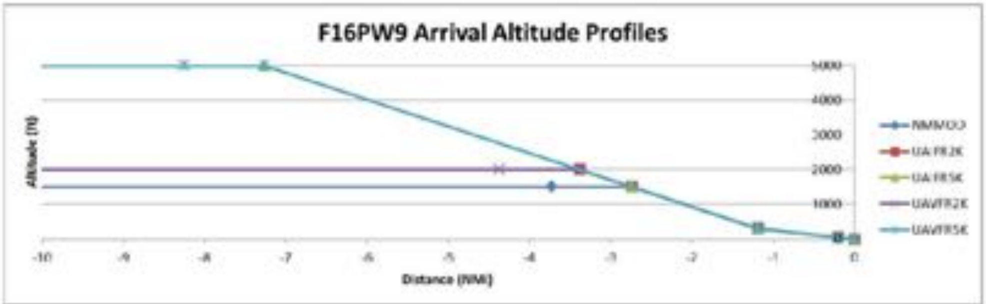


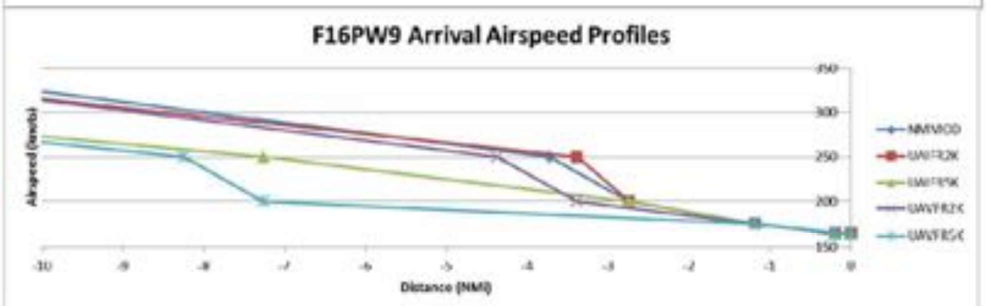


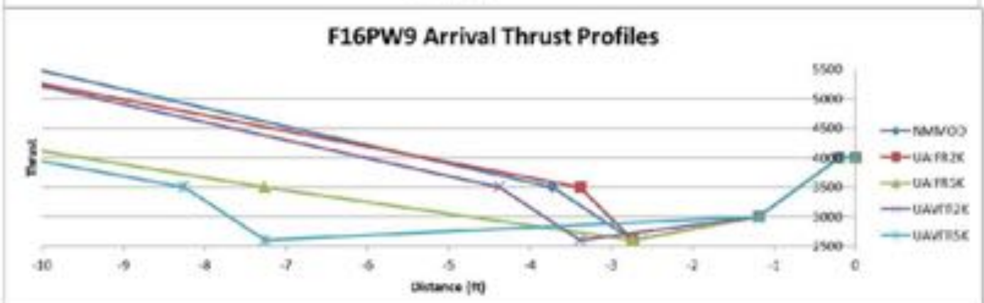


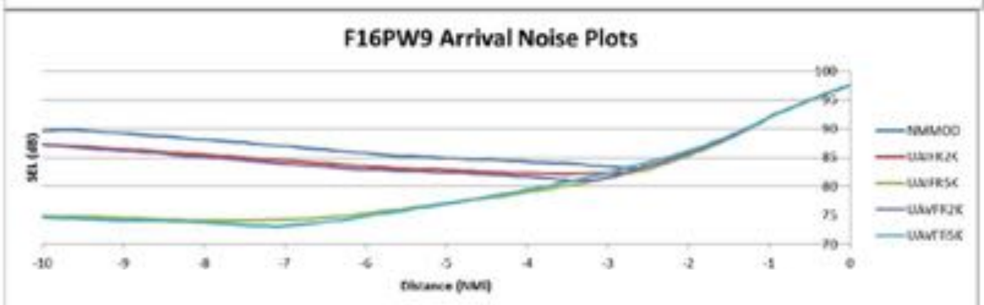


To: Ms. Elodia Cavazos
April 29, 2016
Page 6

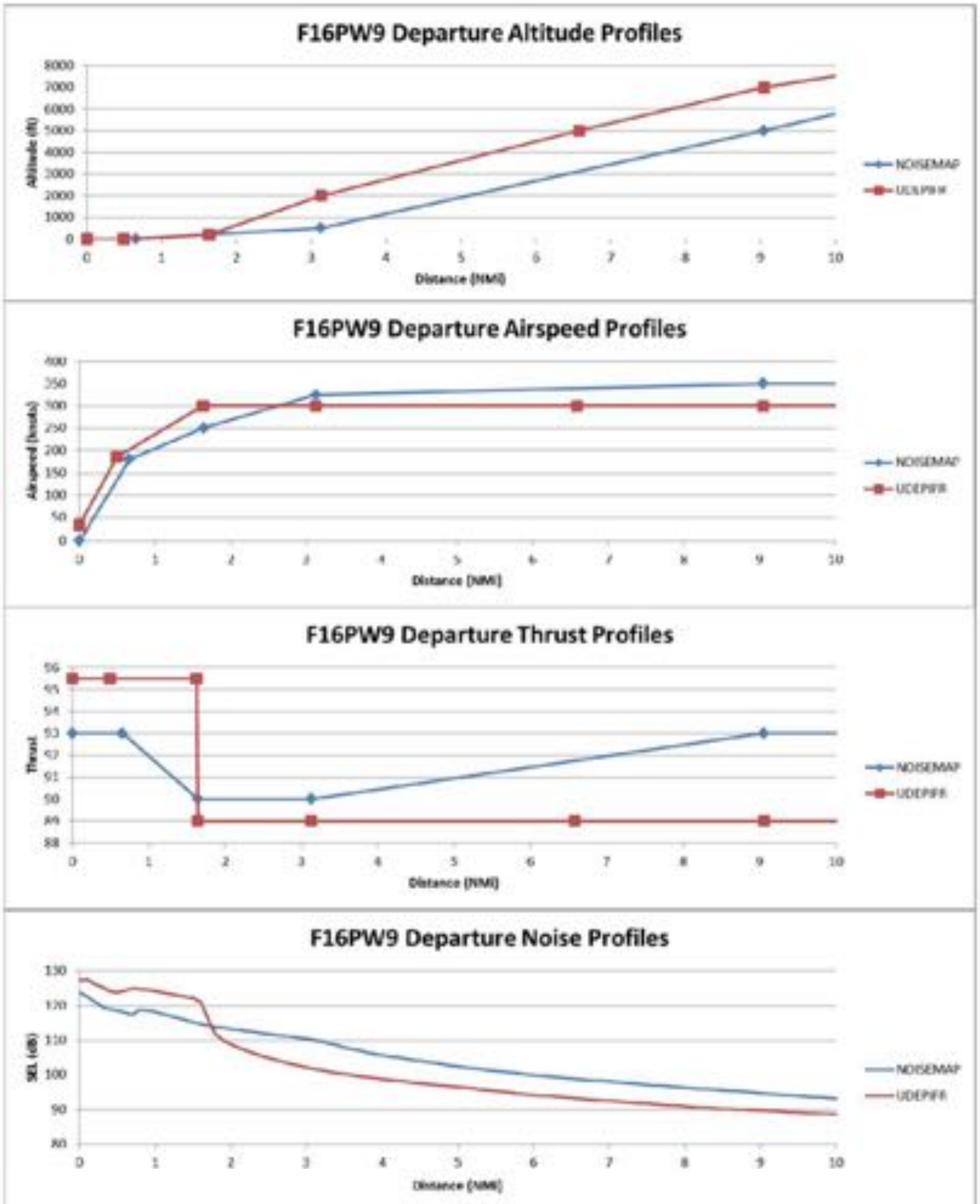








To: Ms. Elodia Cavazos
April 29, 2016
Page 7



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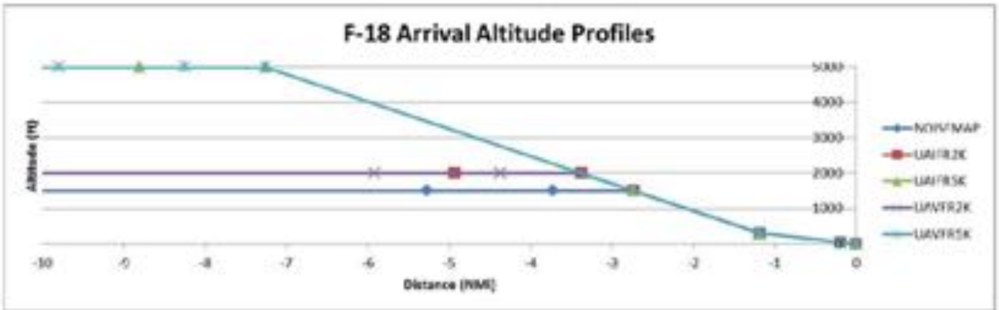
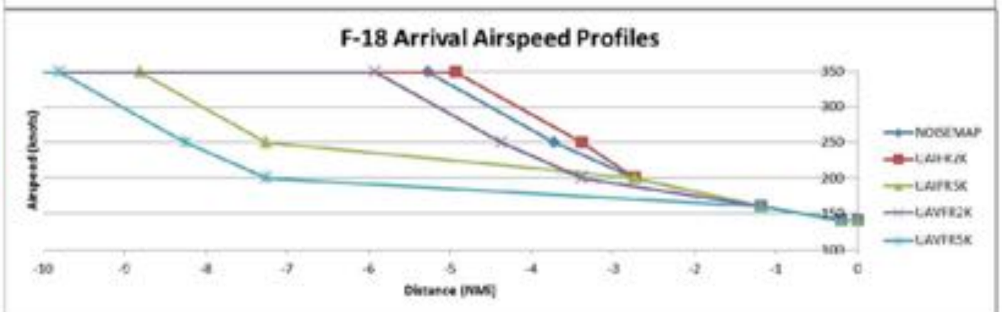
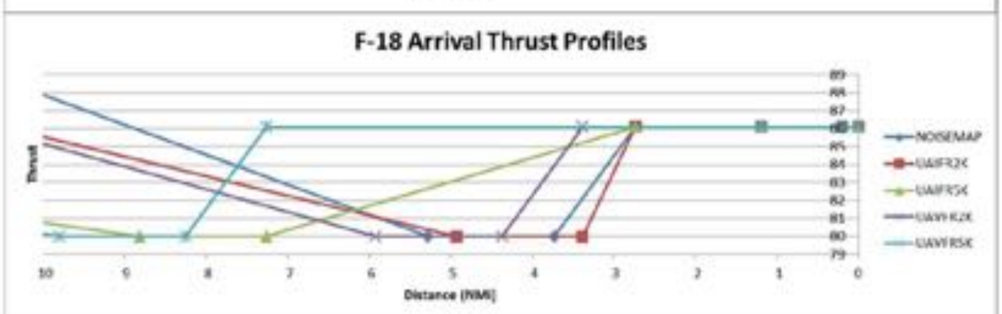
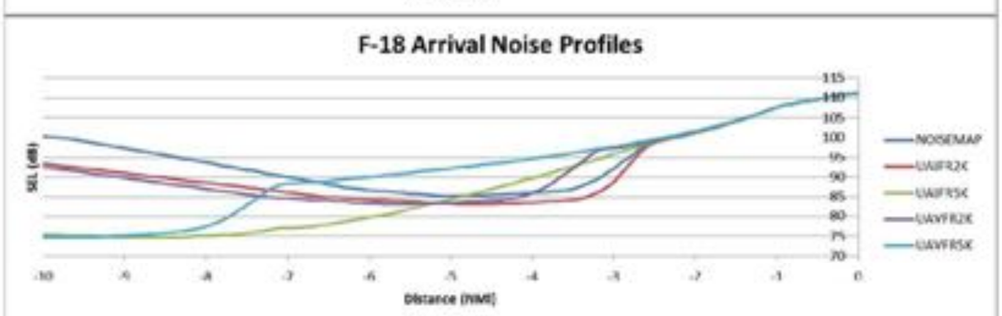
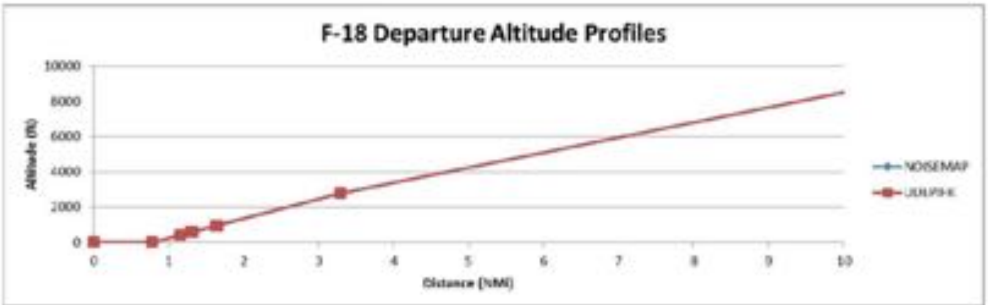
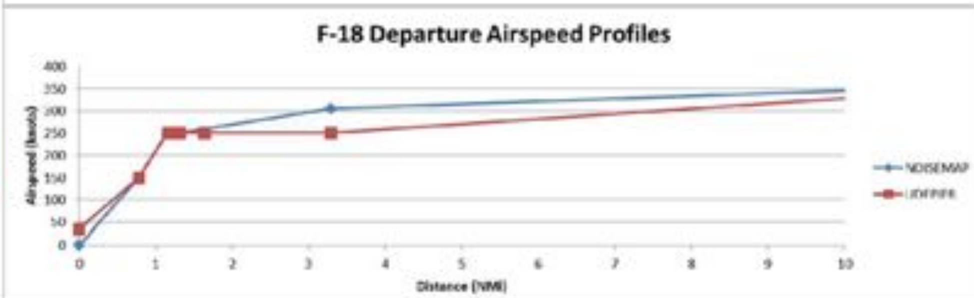


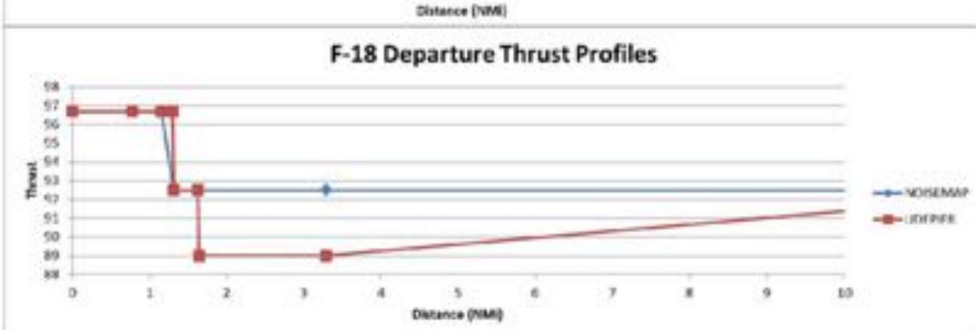


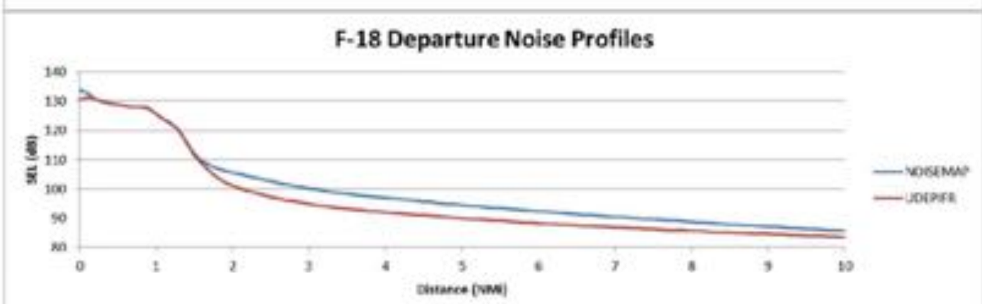





F-18 Departure Altitude Profiles
Altitude (ft)
Distance (NMI)
NOISEMAP


F-18 Departure Airspeed Profiles
Airspeed (knots)
Distance (NMI)
NOISEMAP


F-18 Departure Thrust Profiles
Thrust
Distance (NMI)
NOISEMAP


F-18 Departure Noise Profiles
SEL (dB)
Distance (NMI)
NOISEMAP
UDEPIFR

APPENDIX B: FAA MEMORANDUM

Federal Aviation Administration

Memorandum

Date:	July 3, 2014
To:	Fresno Airport Department
From:	Jamie DuPuy, Staff Support Specialist
	Jamie DuPuy
Subject:	Request a change to Noise Abatement Procedures

As discussed in our meeting today, the following are the noise abatement procedures we respectfully request to change or alter.

- The California Air National Guard (CANG) is requesting to cancel their current overhead approach pattern, and implement a new tactical initial at a high traffic pattern altitude. Attached is the proposed tactical initial formations, which would be begin at 5,000 feet.
- Request approval for transient military fighter departures off runway 29 to mirror the current CANG noise abatement departure procedure. The transient military fighter departures would be cleared to 10,000 feet and continue runway heading until 10 miles out.
- Request approval for transient military fighters to fly the overhead approach pattern, which would mirror the overhead approach pattern that is currently approved for the CANG.
- Request approval for intersection departures for propeller aircraft on 29L/11R.

Appendix M Correspondence with CANG 144th Fighter Wing

HMMH
8880 Cal Center Drive, Suite 430
Sacramento, California 95826
916.368.0707
www.hmmh.com

MEMORANDUM

To:	Maj. "Jersey" Burd 144th Fighter Wing California Air National Guard 5323 E. McKinley Ave Fresno, CA 93727-2199
From:	Rhea Gundry Senior Consultant
Date:	November 10, 2015
Subject:	User Changes to Standard Profiles
Reference:	HMMH Project Number 307400

HMMH submits the following aircraft operating profiles at Fresno Yosemite International Airport (FAT) for review and concurrence by the California Air National Guard (CANG) 144th Fighter Wing.

BACKGROUND

HMMH is conducting a Noise Exposure Map (NEM) update per Title 14 of the Code of Federal Regulations Part 150 study at FAT under a contract with the City of Fresno. The CANG operates F-15 aircraft at FAT. In response to the community, City staff, in cooperation with CANG personnel, established noise abatement procedures for tactical military aircraft that were implemented in the year 2000 and revised in 2014. Attachments at the end of this memorandum provide a copy of the revised procedures. In addition, the F-15 pilots fly 360 degree Visual Flight Rules (VFR) overhead patterns at FAT as part of their overall flying proficiency requirements.

REQUEST FOR REVIEW

During a previous update of the FAT NEM, HMMH developed user-specified Integrated Noise Model (INM) profiles for the arrivals and departures of the F-16 (CANG) and F-18 (transient) aircraft that follow the profiles specified in the noise abatement procedures. These profiles modelled the aircraft altitudes, speeds, and thrust required to follow the specified flight parameters. HMMH gathered the majority of the aircraft performance data from talking with the aircraft pilots, reviewing the existing NOISEMAP[1] profiles, and studying ARTS IIE flight track data of the aircraft altitudes during FAT arrival and departure operations. In addition, an overflight procedure was developed to model the VFR overhead pattern for the F-16 based on discussions with an F-16 pilot at FAT. This overhead pattern, for which there is no standard profile, consisted of a final approach at 2,000 feet above field elevation @ 300 knots, a break over the approach runway end, power to idle, a descent to landing begun at approximately 45 degrees to the runway end with decreasing airspeed, and final landing and roll out. HMMH has revised these profiles to the F-15 CANG procedures which raise the final approach altitude from 2,000 feet above field elevation to 5,000 feet.

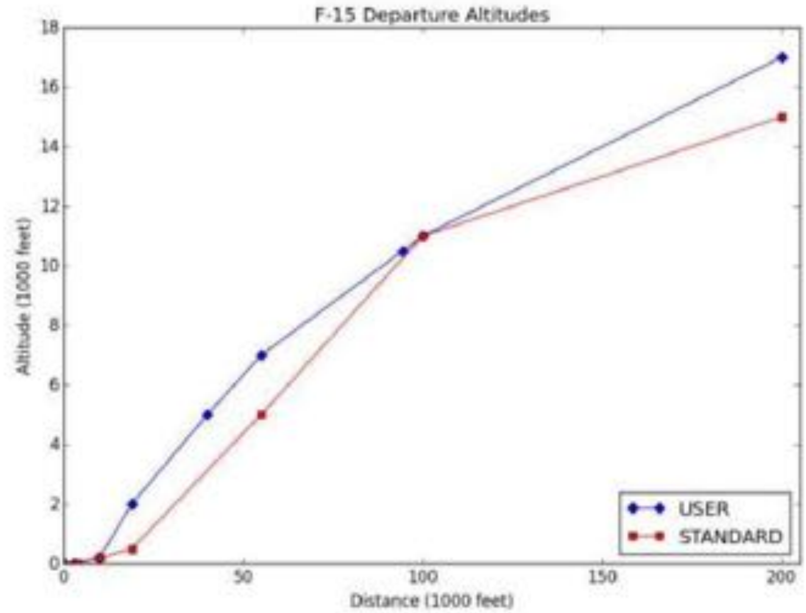
HMMH requests CANG review the F-15 profiles provided herein, mark them up if necessary to reflect comparable flight procedures operating in accordance with established procedures. These profiles are required to accurately determine the actual noise levels of these aircraft in the FAT environment with the established local noise abatement procedures

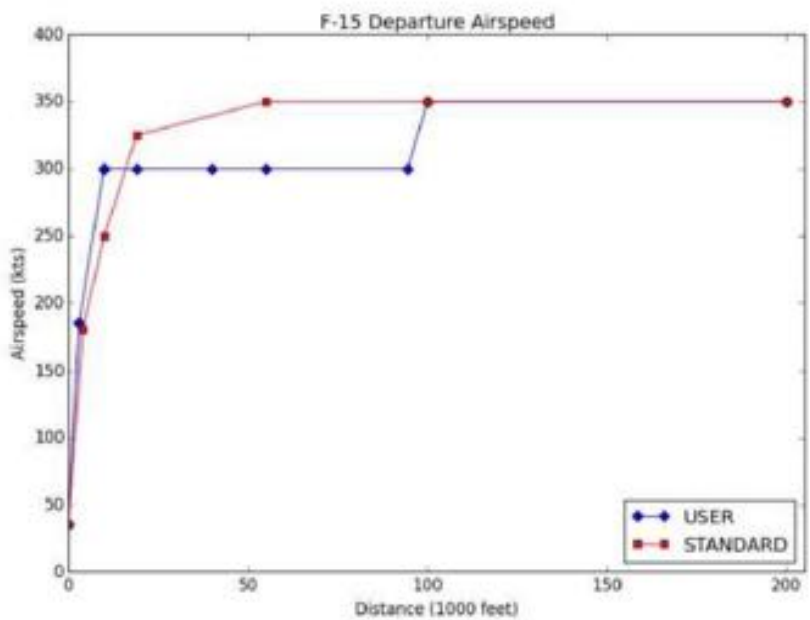
CONFIRMATION OF FLIGHT OPERATIONS

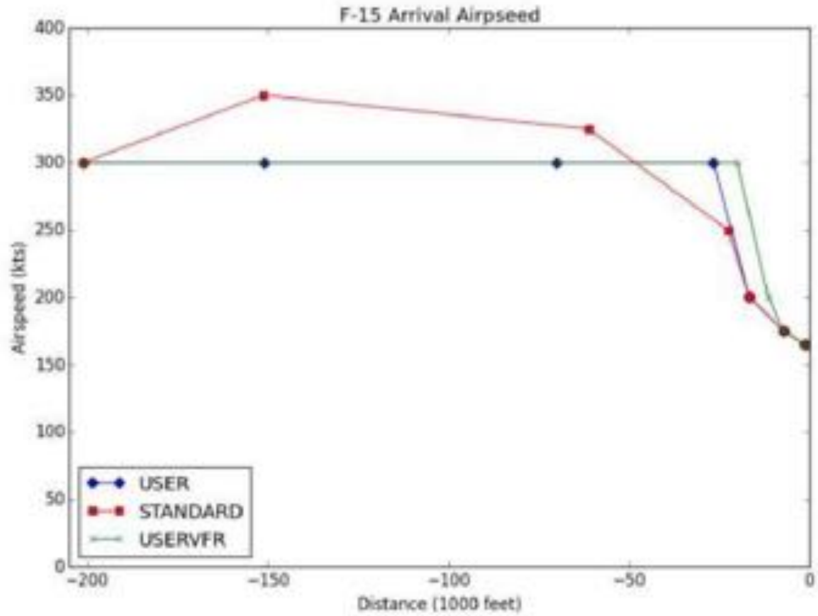
During a recent interview with CANG officers, it was discussed that 8-12 F-15 aircraft depart FAT on average per day over the course of a year. HMMH proposes using an annual average of 10 F-15 aircraft flight operations per weekday. We request CANG concurrence with this assumption for modeling purposes.

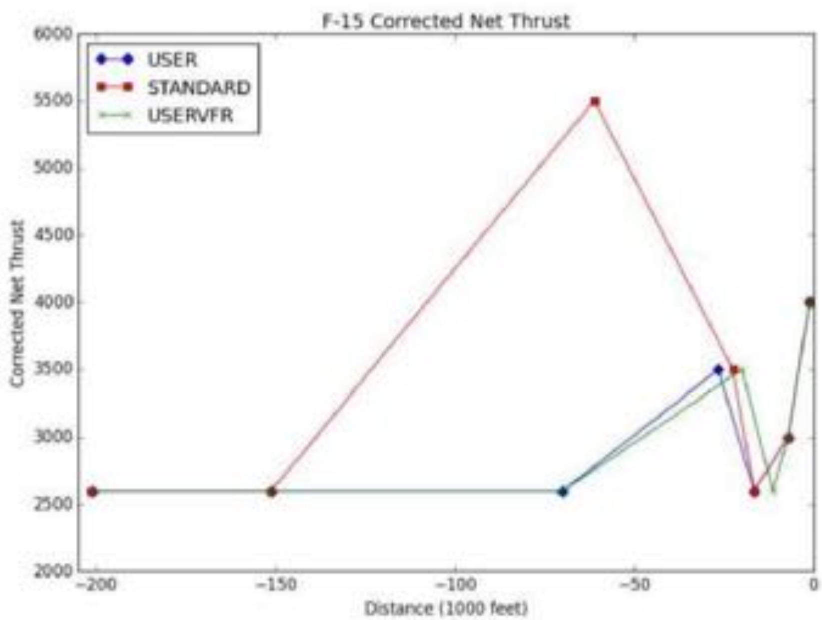
[1] NOISEMAP is the military aircraft noise model akin to the FAA INM, which has recently been replaced with the Aviation Environmental Design Tool (AEDT).

FAT P150 Update
November 10, 2015
Page 2






F-15 Arrival Airpseed
Airspeed (kts)
Distance (1000 feet)
USER
STANDARD
USERVFR
400
350
300
250
200
150
100
50
0
−200
−150
−100
−50
0


F-15 Corrected Net Thrust
Corrected Net Thrust
Distance (1000 feet)
USER
STANDARD
USERVFR
6000
5500
5000
4500
4000
3500
3000
2500
2000
−200
−150
−100
−50
0

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November 10, 2015
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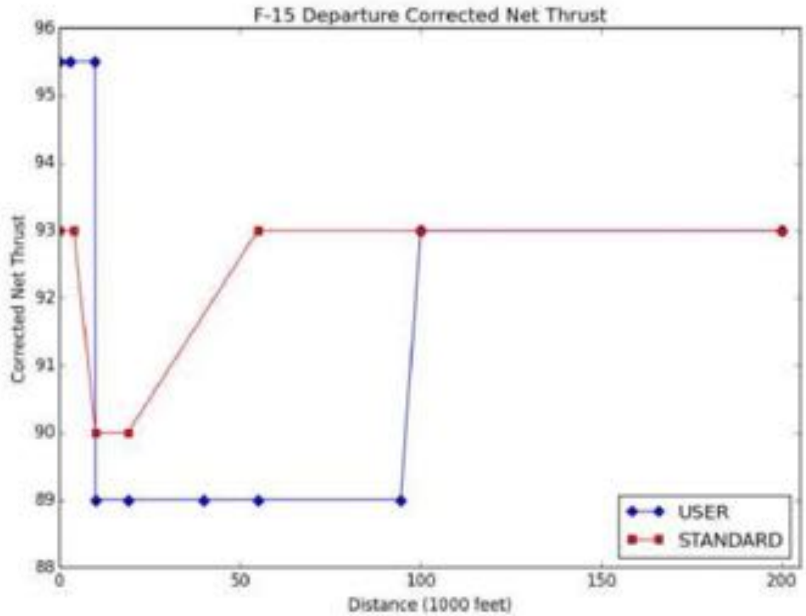

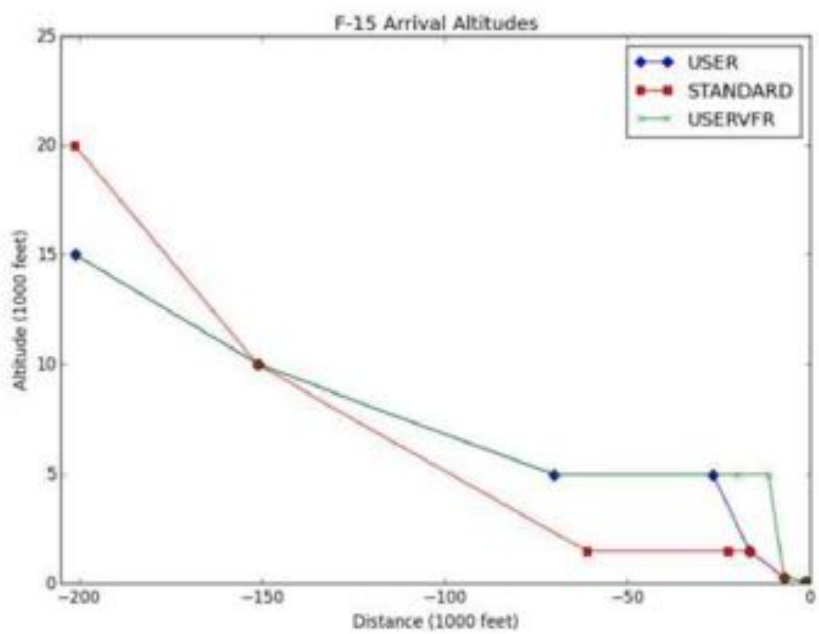

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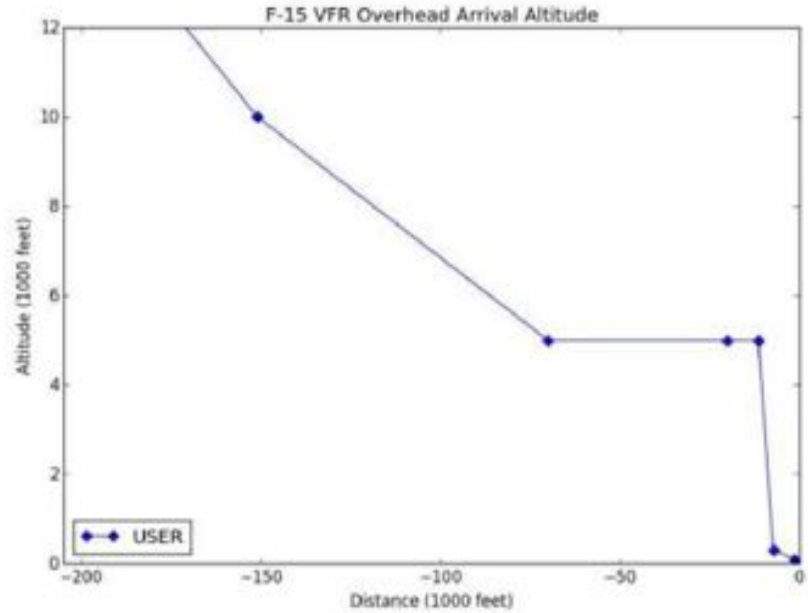
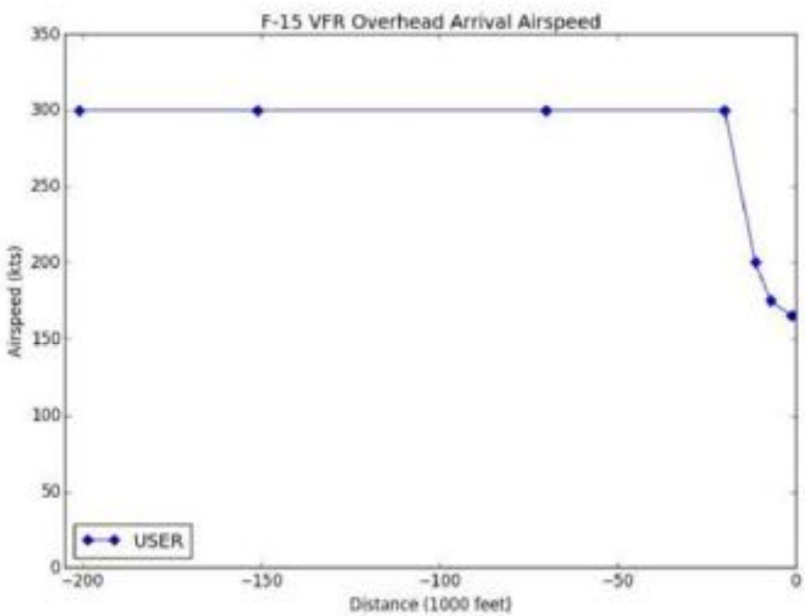
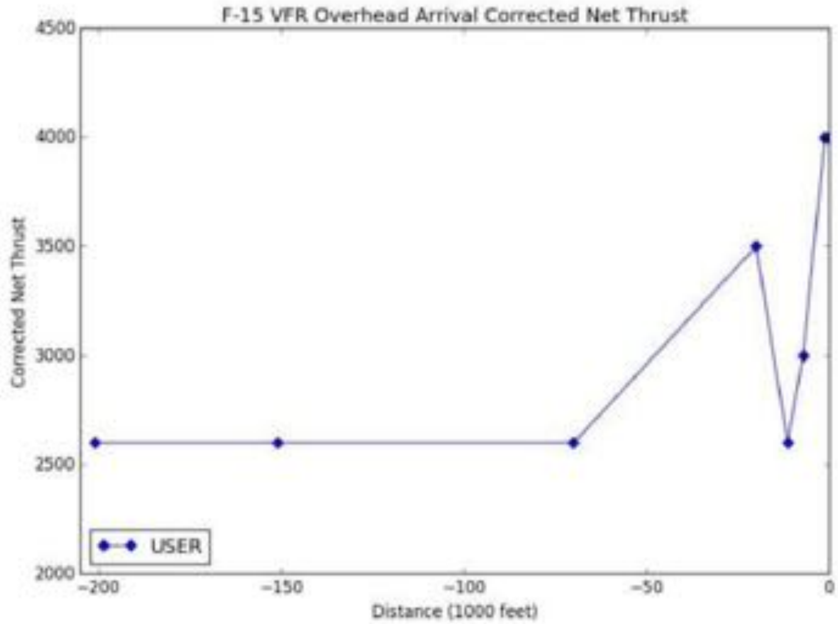
November 10, 2015
Page 5





FAT P150 Update
November 10, 2015
Page 6



FAT P150 Update
November 10, 2015
Page 7

Federal Aviation Administration

Memorandum

Date: July 3, 2014

To: Fresno Airport Department

From: Jamie DuPuy, Staff Support Specialist

Jamie DuPuy

Subject: Request a change to Noise Abatement Procedures

As discussed in our meeting today, the following are the noise abatement procedures we respectfully request to change or alter.

- The California Air National Guard (CANG) is requesting to cancel their current overhead approach pattern, and implement a new tactical initial at a high traffic pattern altitude. Attached is the proposed tactical initial formations, which would be begin at 5,000 feet.
- Request approval for transient military fighter departures off runway 29 to mirror the current CANG noise abatement departure procedure. The transient military fighter departures would be cleared to 10,000 feet and continue runway heading until 10 miles out.
- Request approval for transient military fighters to fly the overhead approach pattern, which would mirror the overhead approach pattern that is currently approved for the CANG.
- Request approval for intersection departures for propeller aircraft on 29L/11R.

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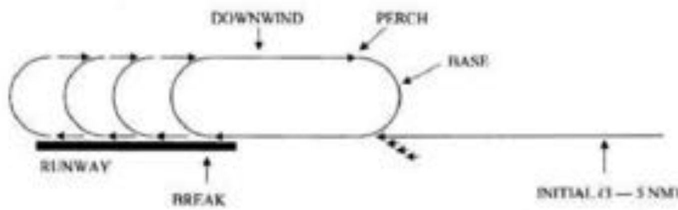
Attachment 1

Overhead Pattern



9

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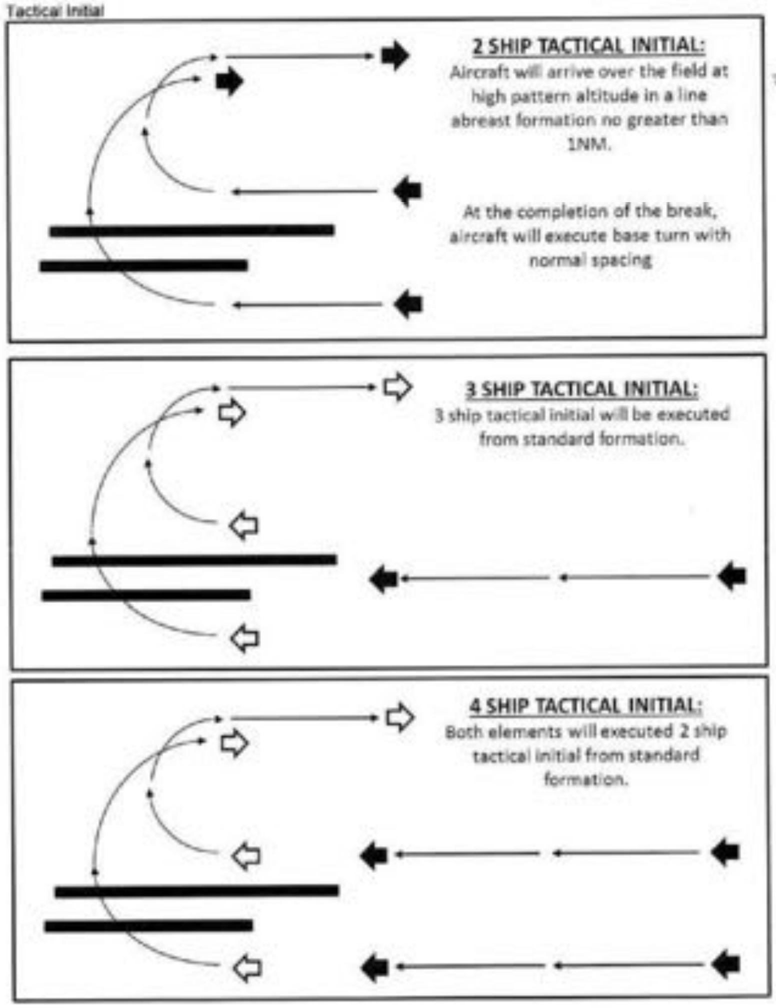
Attachment 2

Tactical Initial



50'

Rhea Gundry

From: jerseyf15@yahoo.com
Sent: Friday, December 11, 2015 1:48 PM
To: Rhea Gundry
Subject: Re: Fresno Jet Profile Review Request

Rhea,

I have reviewed the documents, and they correctly depict our departure and arrival procedures.

Please change the comments at the end as follows: we do not want to cancel our current overhead. The 5000' tactical initial is our primary arrival procedure, but we will still execute the lower initial if required (I.E. low ceilings, high traffic, sequencing issues)

With that change made we are good.
Let me know what else you need from me.

- Jersey

On Nov 11, 2015, at 11:04 AM, Rhea Gundry <rgundry@hmmh.com> wrote:

> Maj. "Jersey" Burd,
>
> Thank you for meeting with us back in August where we discussed that HMMH is conducting a Part 150 Study Update at Fresno Yosemite International Airport (FAT). Included in the noise modeling process is to examine the model military jets (F-15) arrival and departure procedures, such as the overhead approach procedure. In the end the model output is only as good as the input so it is critical we get the aircraft flight procedures as close to how they are actually flown at FAT as possible. To that end we request your review of the attached document on our flight procedure assumptions. Please mark up the document with appropriate changes and contact me with any questions.
>
> We appreciate your continued assistance with this project.
>
> **Rhea A. Gundry**
> Senior Consultant
>
> **HMMH**
> 8880 Cal Center Drive, Suite 430, Sacramento, CA 95826
> 916.368.0707 x2235
> rgundry@hmmh.com
> www.hmmh.com
>
> **Technical Excellence. Client Satisfaction.**
> www.hmmh.com
>
>

HMMH
8880 Cal Center Drive, Suite 430
Sacramento, California 95826
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www.hmmh.com

TECHNICAL MEMORANDUM

To:	Maj. Brett D. Faber 144th Fighter Wing California Air National Guard 5323 E. McKinley Ave Fresno, CA 93727-2199
From:	Rhea Gundry Senior Consultant
Date:	July 8, 2016
Subject:	User Changes to Standard Profiles
Reference:	HMMH Project Number 307400

HMMH submits the following aircraft operating profiles at Fresno Yosemite International Airport (FAT) for review and concurrence by the California Air National Guard (CANG) 144th Fighter Wing.

BACKGROUND

During the 2004 update of the FAT NEM, HMMH developed user-specified Integrated Noise Model (INM) profiles for the arrivals and departures of the F-16 (CANG) and F-18 (transient) aircraft that follow the profiles specified in the noise abatement procedures. These profiles modeled the aircraft altitudes, speeds, and thrust required to follow the specified flight parameters. HMMH gathered the majority of the aircraft performance data through interviews with pilots, reviewing the existing NOISEMAP profiles, and studying ARTS IIE flight track data of the aircraft altitudes during FAT arrival and departure operations. In addition, an overflight procedure was developed to model the VFR overhead pattern for the F-16 based on discussions with an F-16 pilot at FAT. HMMH has created additional arrival and departure profiles for the CANG F-15 procedures which include overhead approach patterns with final approach altitude at 2,000 feet and 5,000 feet above field elevation and the noise abatement departure procedure described below. These profiles are required for input into the current FAA Aviation Environmental Design Tool (AEDT) in order to more accurately establish anticipated noise levels for the F-15 in the FAT environment.

REQUEST FOR REVIEW

Based on recent communication with CANG on their standard F-15 departure procedure used at FAT, which includes the use of afterburners until reaching the airport boundary upon which afterburners are de-selected and throttled back to 88% RPM through 10k feet. HMMH submits the following AEDT profile "UDEPIFR88" (User-defined DEParture IFR with 88% thrust settings) for review and concurrence.

Figure 1. F15E20 Departure Altitude Profiles

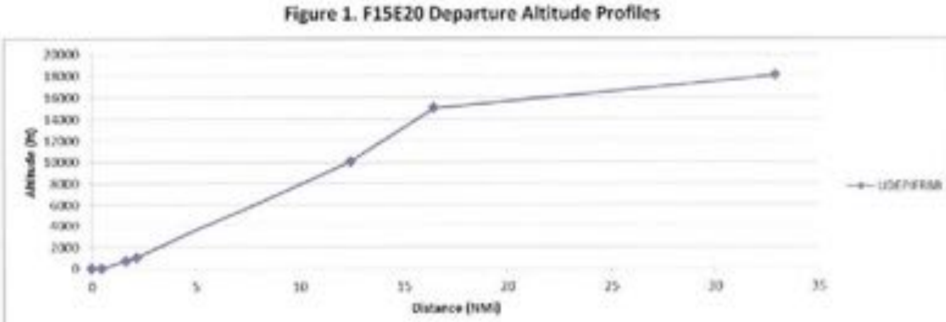


Figure 2. F15E20 Departure Airspeed Profiles

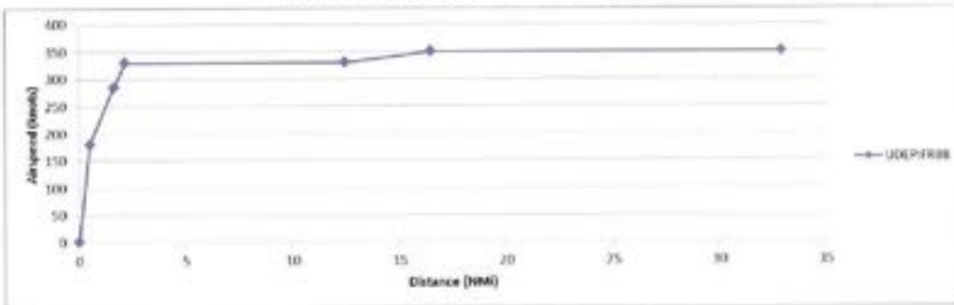
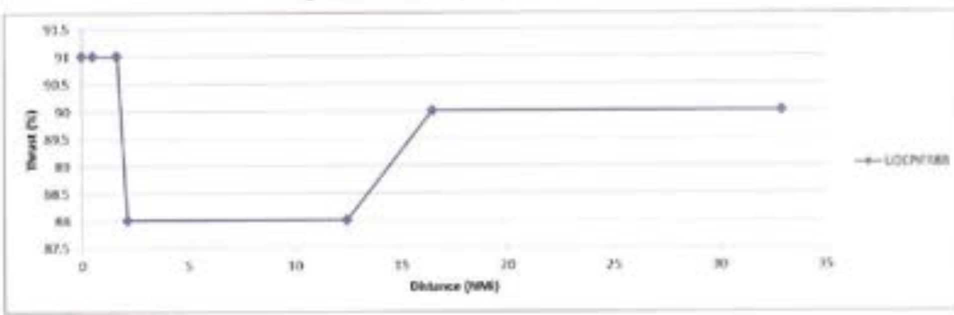


Figure 3. F15E20 Departure Thrust Profiles



The California Air National Guard certifies that the proposed profile, UDEPIFR88 listed above, departing from Fresno-Yosemite International Airport falls within reasonable bounds of the aircraft's performance.

LOVELL, DIRK M LTCOL 18AUG16

Name **Date**

CHIEF OF SAFETY

Position/Title

Appendix N FAA Approval of User Defined Profiles

U.S. Department of Transportation
Federal Aviation Administration

Western-Pacific Region
San Francisco Airports District Office

1000 Marina Blvd., Suite 220
Brisbane, CA 94005-1835

September 26, 2016

Mark W. Davis
Airports Planning Manager
City of Fresno
Fresno Yosemite International Airport
4995 E. Clinton Way
Fresno, CA 93727-1525

Subject: Fresno Yosemite International Airport – Noise Exposure Map Update – Aviation Environmental Design Tool – Aircraft Non-Standard Profile Approval

Dear Mr. Davis:

The Federal Aviation Administration (FAA) has completed its review of the City of Fresno's (City) request for approval of non-standard Aviation Environmental Design Tool (AEDT) user-defined departure and arrival profiles for the Fresno Yosemite International Airport (FAT) Part 150 Noise Exposure Map (NEM) Update. On February 12, 2016 the City and its consultant, HMMH, provided information pertaining to flight procedures associated with military aircraft operations at FAT that vary from the available procedures in AEDT. Clarification of the initial submittal was provided on May 3, 2016 and on August 25, 2016 a revised user defined profile request that included California Air National Guard concurrence regarding the use of afterburner for departures of the F-15 aircraft was provided.

The August 25, 2016 user defined profile request provided in the HMMH Technical Memorandum is approved by the FAA Office of Environment and Energy for use in the FAT Part 150 NEM Update. This approval is limited to this particular Part 150 NEM Update for FAT. Any additional projects or non-standard AEDT input for FAT or any other site requires separate consideration and approval.

I am available at (650) 827-7613 or email me at Camille.Garibaldi@faa.gov if you have any questions or concerns.

Sincerely,

Camille Garibaldi
Environmental Protection Specialist

cc:
Elodia Cavazos, Fresno Yosemite International Airport

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Appendix O Noise Measurement Program

Part 150 does not require airport operators to measure noise levels. However, measurements provide important input to an understanding of the noise environment. HMMH staff conducted a noise measurement program in the airport's environs during a full seven day period from August 18th, 2015 to August 24th, 2015.

This memo summarizes the objectives, design, and execution of the noise measurement program and presents the results, including a summary of the CNEL measurements and site-by-site results.

The locations at which portable noise monitoring was conducted for this study are presented in Figure O-1. The CNEL data from the previous measurements are presented with the existing data to provide a comparison. The other measurement results are presented in the documentation for the respective studies.

O.1 Noise Measurement Program

HMMH designed a portable noise measurement program for the primary purpose to verify the modeling results. The program had two principle objectives:

- To obtain short-term samples of cumulative noise levels at a variety of noise-sensitive locations, for comparison with modeled noise exposure contours. Cumulative exposure is important for land use planning purposes, for evaluating noise exposure trends in the long term, and for evaluating procedures that affect the distribution of noise levels over large areas
- To obtain representative information on aircraft and non-aircraft single-event noise levels at a broad range of sites, primarily in residential areas. Single-event levels are important for responding to citizen concerns about specific operations, evaluating noise abatement flight tracks and comparing the relative noisiness of different aircraft types.

To accomplish these objectives, HMMH conducted noise measurements at 6 temporary locations. At all 6 locations, the measurements covered at least seven continuous, complete days. An HMMH staff member was stationed at each measurement location for several hours during the measurements to observe and record noise-producing activity.

The noise measurement data were not used to "adjust" or "calibrate" the Aviation Environmental Design Tool (AEDT), a process that would require prior approval from the FAA.

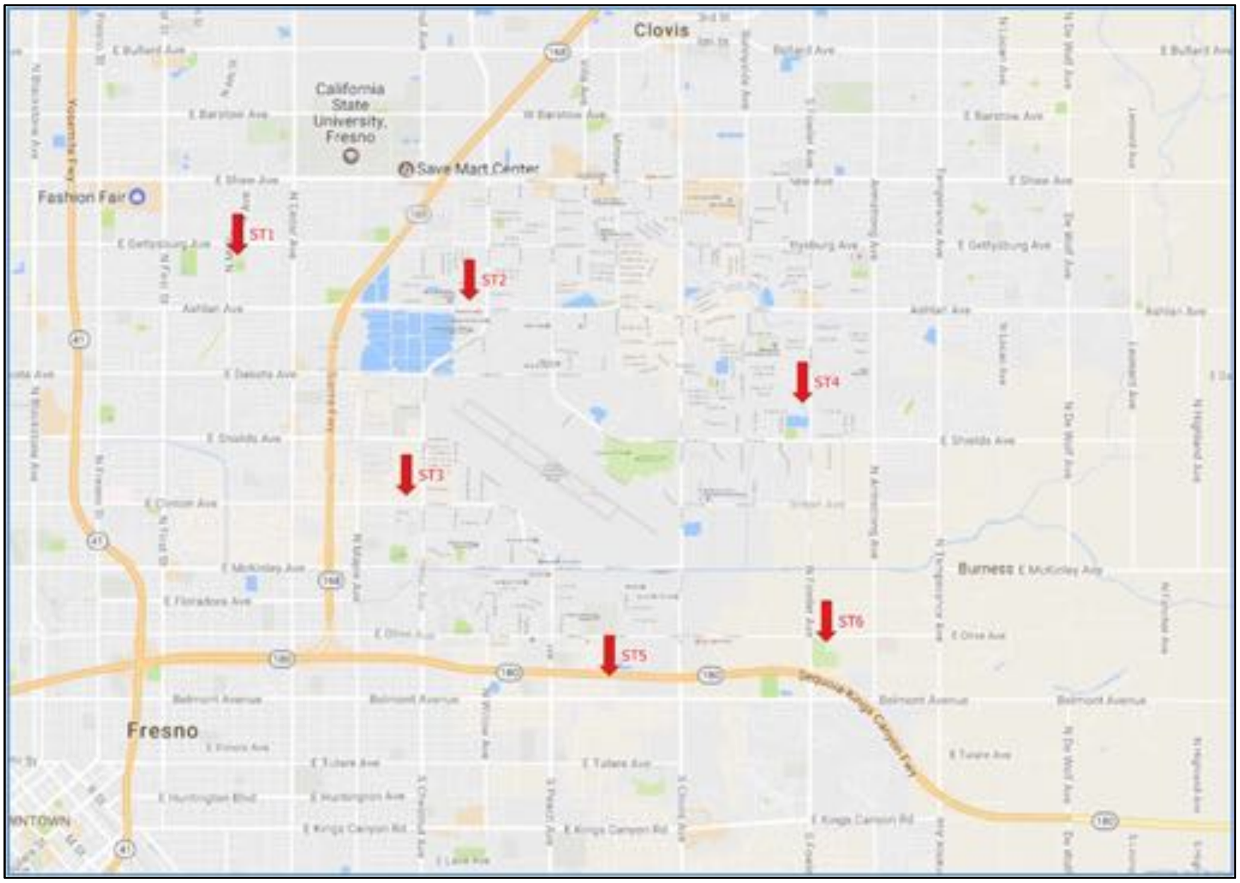

Figure O-1. Map of Noise Measurement Locations in Relation to FAT

Map Data and Image © Google 2017

O.1.1 Noise measurement site selection

The monitoring locations were selected based on HMMH and FAT staff suggestions discussed at a meeting prior to setting up the portable noise monitor measurement program. Sites complemented the previous Part 150 update and the latest noise monitoring results from April of 2004. Some sites provided a basis for comparing noise levels to those measured at locations visited in 2004.

Most sites were near major flight corridors, to maximize the number of operations monitored, however several sites were located away from major flight corridors, to address special noise issues. The focus of the measurements was in the following areas:

- Those exposed to the highest noise levels, which are the nearest residential communities to FAT under the departure and arrival flight corridors;
- Those exposed to gradually decreasing noise levels, which are the residential communities slightly further from FAT under the departure and arrival flight corridors; and
- Residential communities under the pattern flight corridors.

Overall, the group of sites was selected to provide representative data on the broadest range of aircraft operations and geographic areas surrounding the airport. Table O-1 lists the measurement locations, the dates and times of measurements, the number of hours of monitoring, and the number of hours of observations.

Table O-1. Summary of Noise Measurement Sites

Source: HMMH

Site	Address	Start		End		Hours Monitored	Hours Observed
		Date	**Time**	**Date**	**Time**		
ST1	4639 N. 7th St, Fresno	Aug 17	4:45 PM	Aug 25	9:30 AM	185	14h 30m
ST2	916 W. Holland Ave, Clovis	Aug 17	4:05 PM	Aug 25	9:15 AM	185	11h 45m
ST3	4750 E. Princeton Ave, Fresno	Aug 17	2:40 PM	Aug 25	9:00 AM	186	13h 45m
ST4	5959 E. Ramona Ave, Fresno	Aug 17	1:30 PM	Aug 25	8:45 AM	187	13h 15m
ST5	5376 E. Tyler Ave, Fresno	Aug 17	4:30 PM	Aug 25	8:15 AM	184	13h 30m
ST6	6100 E. Olive Ave, Fresno	Aug 17	4:30 PM	Aug 25	8:30 AM	184	14h

O.1.2 Noise measurement instrumentation

Measurements at all sites were conducted with HMMH-owned Brüel & Kjær Model 2250 (“BK 2250”) noise monitors, which meet American National Standards Institute (ANSI) S1.4-1983 standards for Type I “precision” sound level meter, and meet or exceed accuracy requirements defined in Part 150 paragraph A150.5. HMMH staff calibrated the equipment in the field in accordance with standards set by the United States National Institute of Standards and Technology (NIST).

The BK 2250’s were programmed to record Leq and Lmax. All measurements were A-weighted. An introduction to noise terminology can be found in Appendix A.

The units operated on a 24-hour basis during the seven-day measurement session, with breaks for battery changes, calibration, and basic maintenance requirements. To the extent feasible during daylight hours, HMMH staff spent time at the monitoring locations, to observe and log aircraft and non-aircraft noise-producing events, weather data, and other relevant information.

The portable monitors’ clocks were synchronized to local time using the NIST clock in Boulder, Colorado; this facilitates the correlation of aircraft noise events measured at multiple sites.

O.2 Summary of cumulative noise level results

The Community Noise Equivalent Level (CNEL) measurement results for the six temporary measurement locations (“ST1” – “ST6”) during the portable noise measurement period (August 17 through August 25) are summarized in Table O-2.

Table O-2. Summary of Community Noise Equivalent Level (CNEL) Measurements

Source: HMMH

Site	CNEL	Daily CNEL (dB)						
		Tue 8/18	Wed 8/19	Thu 8/20	Fri 8/21	Sat 8/22	Sun 8/23	Mon 8/24
ST1	Total	62.9	60.6	62.0	60.3	59.4	-	-
	Aircraft	54.3	49.4	48.6	46.5	36.5	-	-
	Community	62.2	60.2	61.8	60.1	59.4	-	-
ST2	Total	-	55.2	55.7	56.0	54.3	54.8	56.5
	Aircraft	-	31.2	38.7	41.0	32.6	31.5	39.5
	Community	-	55.2	55.7	55.8	54.2	54.8	56.4
ST3	Total	56.1	59.4	56.8	55.6	55.4	-	-
	Aircraft	28.5	40.9	43.0	39.6	38.9	-	-
	Community	56.1	59.4	56.8	55.6	55.4	-	-
ST4	Total	55.4	58.8	56.4	54.4	52.4	53.5	59.6
	Aircraft	21.8	29.0	26.2	29.8	28.9	21.3	31.8
	Community	55.4	58.8	56.4	54.4	52.4	53.5	59.6
ST5	Total	58.1	57.8	57.1	57.7	57.6	55.1	59.3
	Aircraft	35.4	27.1	28.0	33.5	27.3	0.0	35.6
	Community	58.1	57.8	57.1	57.7	57.6	55.1	59.3
ST6	Total	63.6	60.3	58.1	58.7	58.5	56.1	57.9
	Aircraft	48.7	41.4	41.7	41.6	40.4	36.6	37.8
	Community	63.4	60.2	58.0	58.6	58.4	56.1	57.9

The "Total" CNEL accounts for all measured noise. The "Aircraft" CNEL is calculated from aircraft source noises only, which are derived by matching aircraft radar data with measured noise events. The "Community" CNEL accounts for the non-aircraft noise portion of the Total CNEL.

O.2.1 Site-by-Site Results

This section provides site-by-site discussions of the noise monitoring locations. Measurement results include single event results, in terms of Lmax, and cumulative exposure, in terms of CNEL. Maximum Sound Level, Lmax, measurements provide a basis for comparing the maximum level produced by aircraft and non-aircraft sources at any given site, and for comparing single event levels among sites. For each measurement location, a figure presents Lmax data in a "thermometer" form. Representative sound levels from typical community sources are on the left of the thermometer and Lmax values for observed aircraft operations are on the right. The figures provide a visual basis for comparing levels caused by different aircraft types and types of operations, and for comparing sound levels at different sites. The figures group the aircraft data by type of operations (i.e., arrival, departure, and overflights) and by major aircraft type categories. The aircraft type categories include:

- "Single Piston" – Single engine, piston powered aircraft.
- "Twin Piston" – Twin engine, piston powered aircraft.
- "Turbo-Prop" – Twin engine, turbine powered aircraft.
- "Corporate Jet" – Turbojet or turbofan powered small or medium "jet" aircraft.
- "Helo" – Helicopter flight operations.
- "Airline" – Scheduled airline operations.
- "Cargo" – Air cargo operations.
- "Military" – Military jet powered operations.

Each measurement site discussion also includes figures that graphically present the daily measured total, aircraft, and community (total minus aircraft) CNEL for the seven complete days of measurements. On two of the complete measurement days, the radar data collected did not cover the entire day; therefore, the values of the aircraft and community CNEL were not calculated and are not displayed. The week average values in the figures are determined by averaging the daily noise event energy levels logarithmically. For the short-term measurement sites, the CNEL values for the measurement period are discussed in the text. Where applicable, comparison is given between 2015 sites and the nearest similar site from the April 2004 measurement period. A summary of the comparison locations is given in Table O-3 below:

Table O-3. Comparison of 2015 Site Details to 2004 Site

Source: HMMH

Site	2015 Address	2004 Address	Total Displacement (NMI)
ST1	4639 N. 7th St, Fresno	4452 E. San Gabriel Ave, Fresno	0.55
ST2	916 W. Holland Ave, Clovis	4455 N. Laureen Ave, Fresno	0.17
ST3	4750 E. Princeton Ave, Fresno	4631 E. Fountain Way, Fresno	0.45
ST4	5959 E. Ramona Ave, Fresno	5949 E. Ramona Ave, Fresno	0.02
ST5	5376 E. Tyler Ave, Fresno	-	-
ST6	6100 E. Olive Ave, Fresno	6227 E. Harvey Ave, Fresno	0.38

Each long-term measurement site discussion also includes figures that graphically present CNEL results for each calendar day during which measurements were performed at the site.

O.2.1.1 Site ST1: 4639 N 7th St, Fresno

Site ST1 is approximately three miles northwest of the Airport reference point and lies under the extended centerline of Runway 11L/29R. Aircraft arriving on Runway 11L and departing from Runway 29R operate close to this location. Runway 11L/29R is longer than Runway 11R/29L. As a result, jet aircraft typically use Runway 11L/29R. Due to predominant wind direction and preferential runway use at FAT, Runways 29R and 29L are more heavily utilized than Runways 11R and 11L. The majority of aircraft operations over Site ST1 are aircraft departures for 29R.

Figure O-2 presents the total, aircraft, and community CNEL from the measured data for each of the complete measurement days. On all days of the measurement period the community CNEL was much higher than the aircraft CNEL, which ranged from 36.5 dB on August 22 to 54.3 dB on August 18. The aircraft events with the highest median noise level were the military operations followed by civilian jet operations. Figure O-4 presents the maximum noise levels measured and the associated aircraft operation observed.

The mean total CNEL measured during April 2004 at a location near this site was 63 dB. HMMH measured 2 dB lower, for an average total CNEL of 61 dB during the August 2015 measurement program as shown in Figure O-2. A map comparing the locations of the 2004 and 2015 sites is shown in Figure O-3. The average aircraft CNEL during the 2004 measurements was 60 dB.

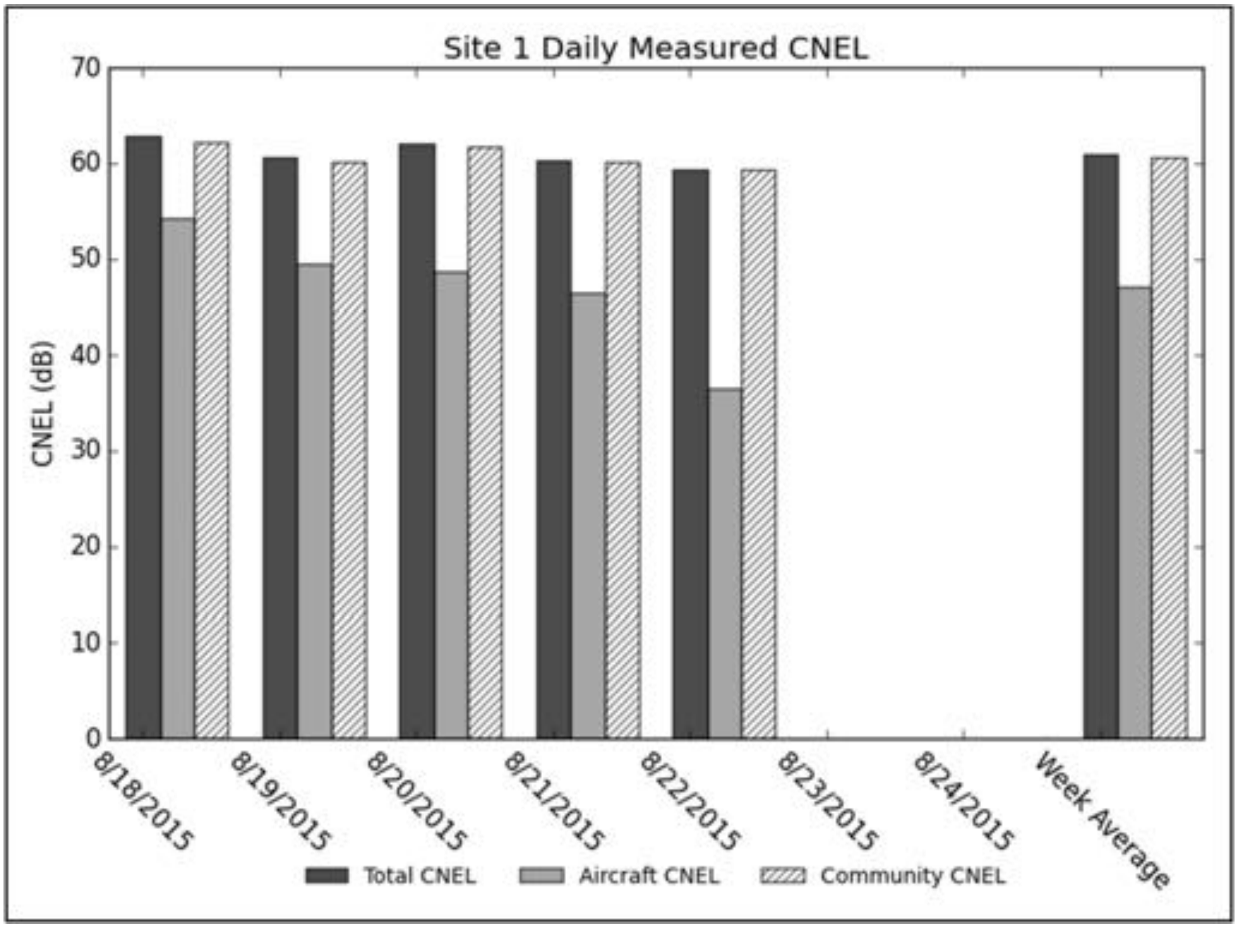

Figure O-2. Site ST1 Daily Measured CNEL

Source: HMMH

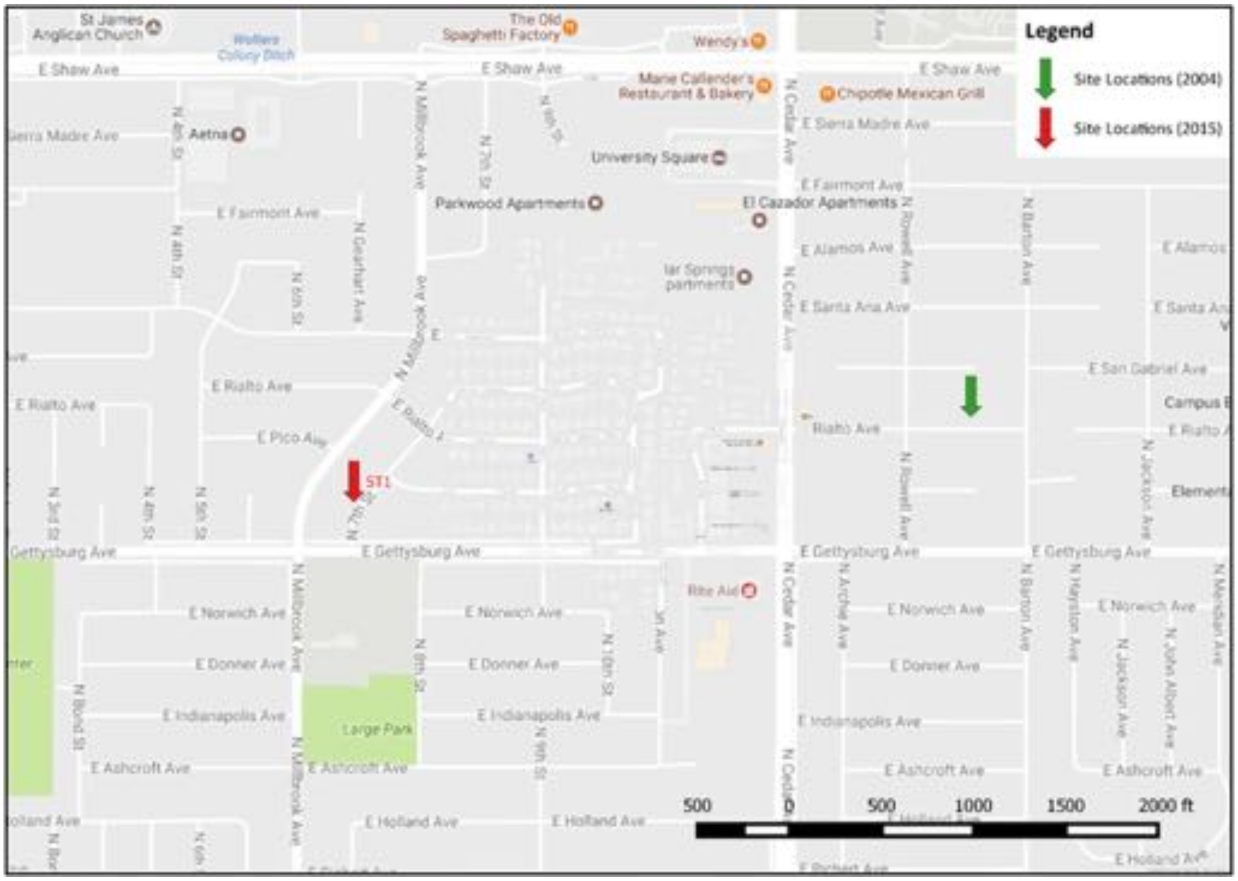

Figure O-3. Comparison of Locations between 2004 and 2015 Measurement Programs (Site ST1)

Map Image and Data © Google 2017

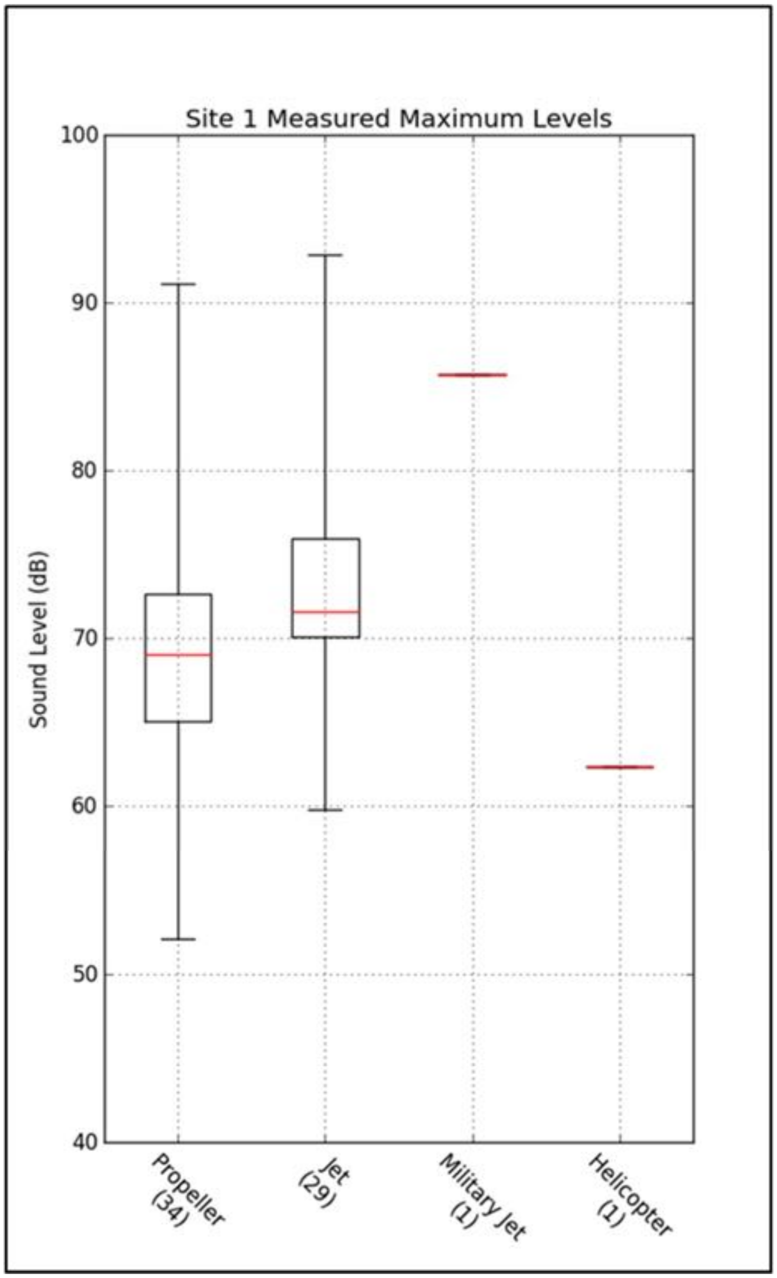

Figure O-4. Site ST1 Measured Maximum Levels

Source: HMMH

O.2.1.2 Site ST2: 916 W. Holland Ave, Clovis

Site ST2 lies approximately one and a half miles north of the Airport reference point. Aircraft arriving on Runway 11L and departing from Runway 29R operate close to this location. The majority of aircraft operations over Site ST2 are aircraft arrivals for both 29 runways.

Figure O-5 presents the total, aircraft, and community CNEL from the measured data for each of the complete measurement days. The total CNEL is primarily influenced by community noise, as the community CNEL was higher than the aircraft CNEL on all days of the measurement period. The aircraft CNEL was somewhat consistent from day to day, ranging from 31.2 dB on August 19 up to 41.0 on August 21. HMMH measured an average total CNEL of 55 dB during the August 2015 measurement program. Figure O-7 presents the maximum noise levels measured and the associated aircraft operation observed. The events with the highest median noise level were the helicopter operations followed by military jet operations.

The mean total CNEL measured during a short-term two day measurement period in April 2004 near this site was 58 dB and 59 dB on each of the days. The average aircraft CNEL during the 2004 measurements were 41 dB and 53 dB each day.

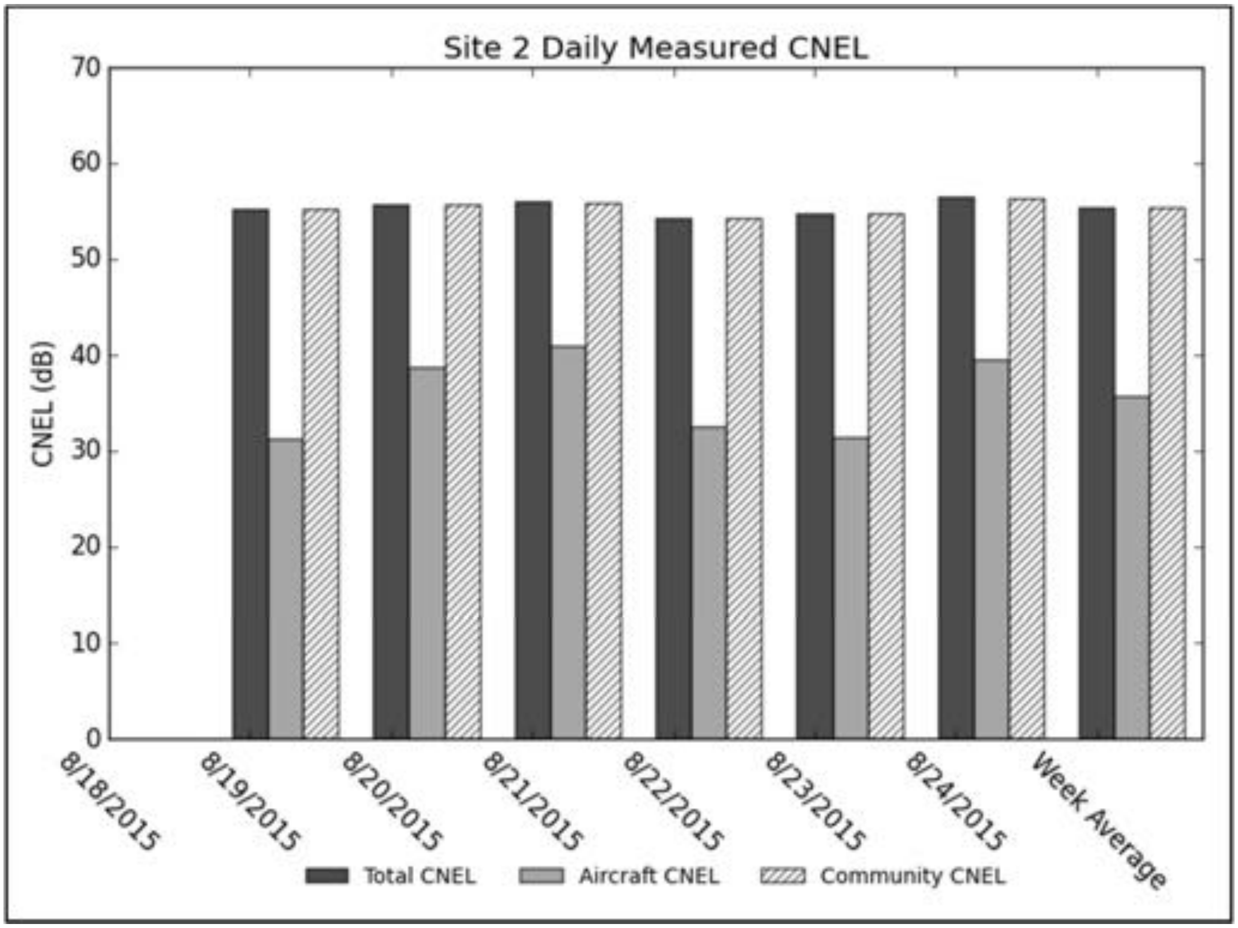

Figure O-5. Site ST2 Daily Measured CNEL

Source: HMMH

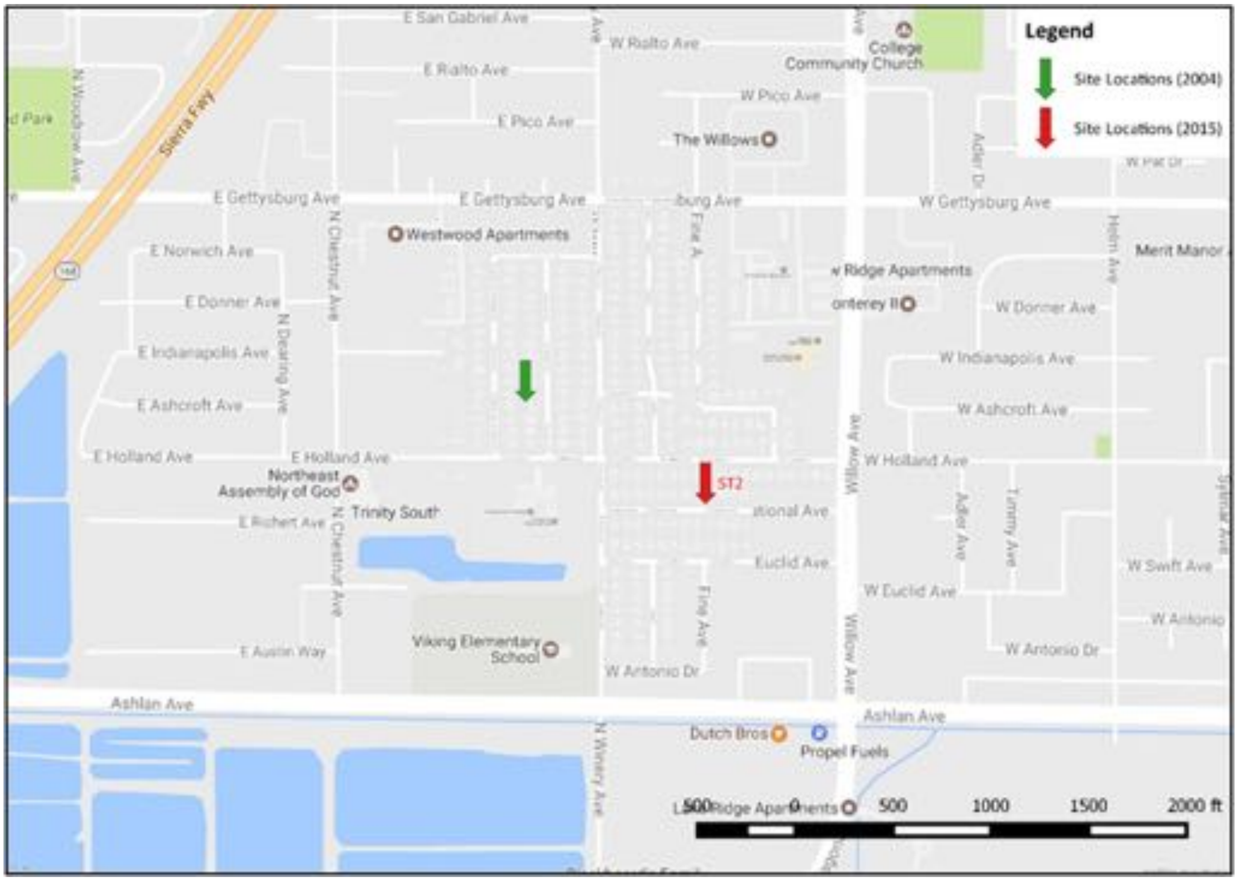

Figure O-6. Comparison of Locations between 2004 and 2015 Measurement Programs (Site ST2)

Image and Map Data © Google 2017

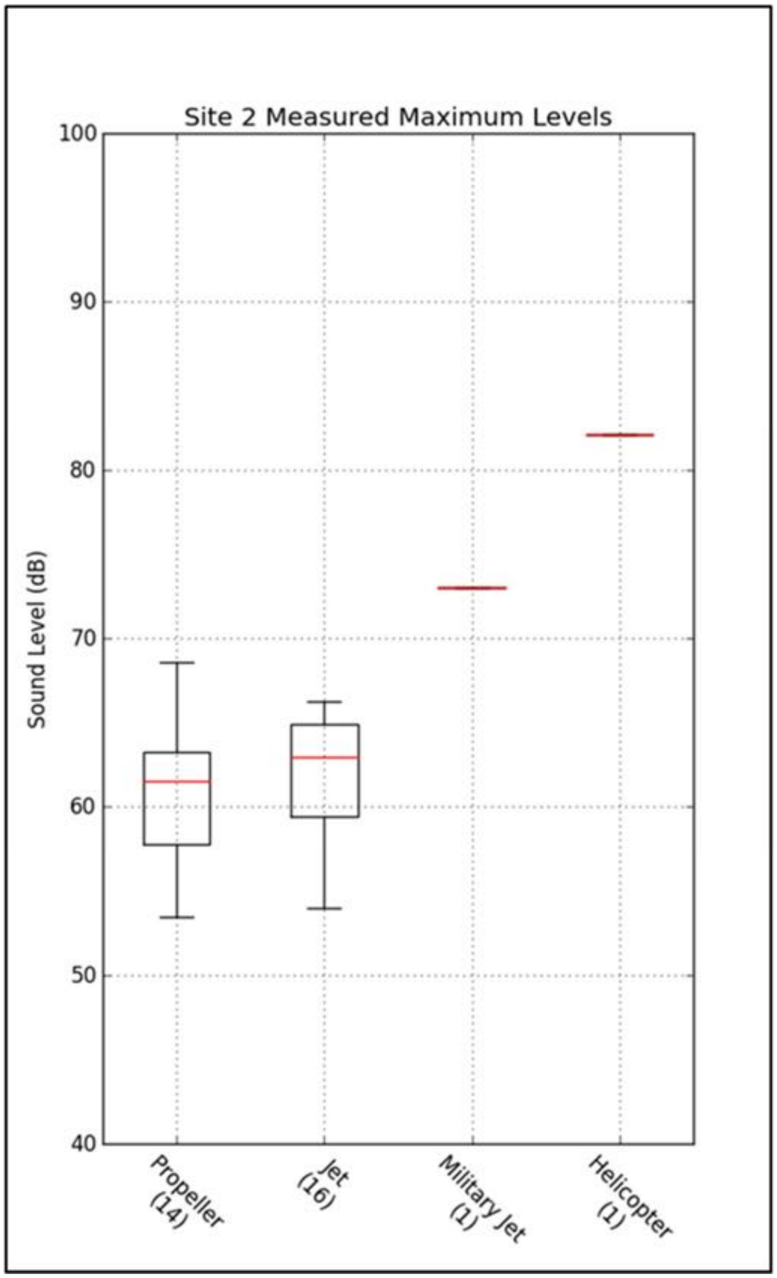

Figure O-7. Site ST2 Measured Maximum Levels

Source: HMMH

O.2.1.3 Site ST3: 4750 E. Princeton Ave, Fresno

Site ST3 is approximately one and a quarter miles west of the Airport reference point. Aircraft arriving on Runway 11R and departing from Runway 29L operate close to this location. The majority of aircraft operations over Site ST3 are aircraft arrivals for 29L.

Figure O-8 presents the total, aircraft, and community CNEL from the measured data for each of the complete measurement days. On all days of the measurement period the community noise was higher than the aircraft noise at this location. The aircraft CNEL ranged from 28.5 dB on August 18 to 43.0 dB on August 20. Figure O-10 presents the maximum noise levels measured and the associated aircraft operation observed. The events with the highest median noise level were the civilian jet operations followed by helicopter operations.

The mean total CNEL measured during April 2004 near this site was 62 dB. HMMH measured 5 dB lower, for an average total CNEL of 57 dB during the August 2015 measurement program. The average aircraft CNEL during the 2004 measurements was 59 dB.

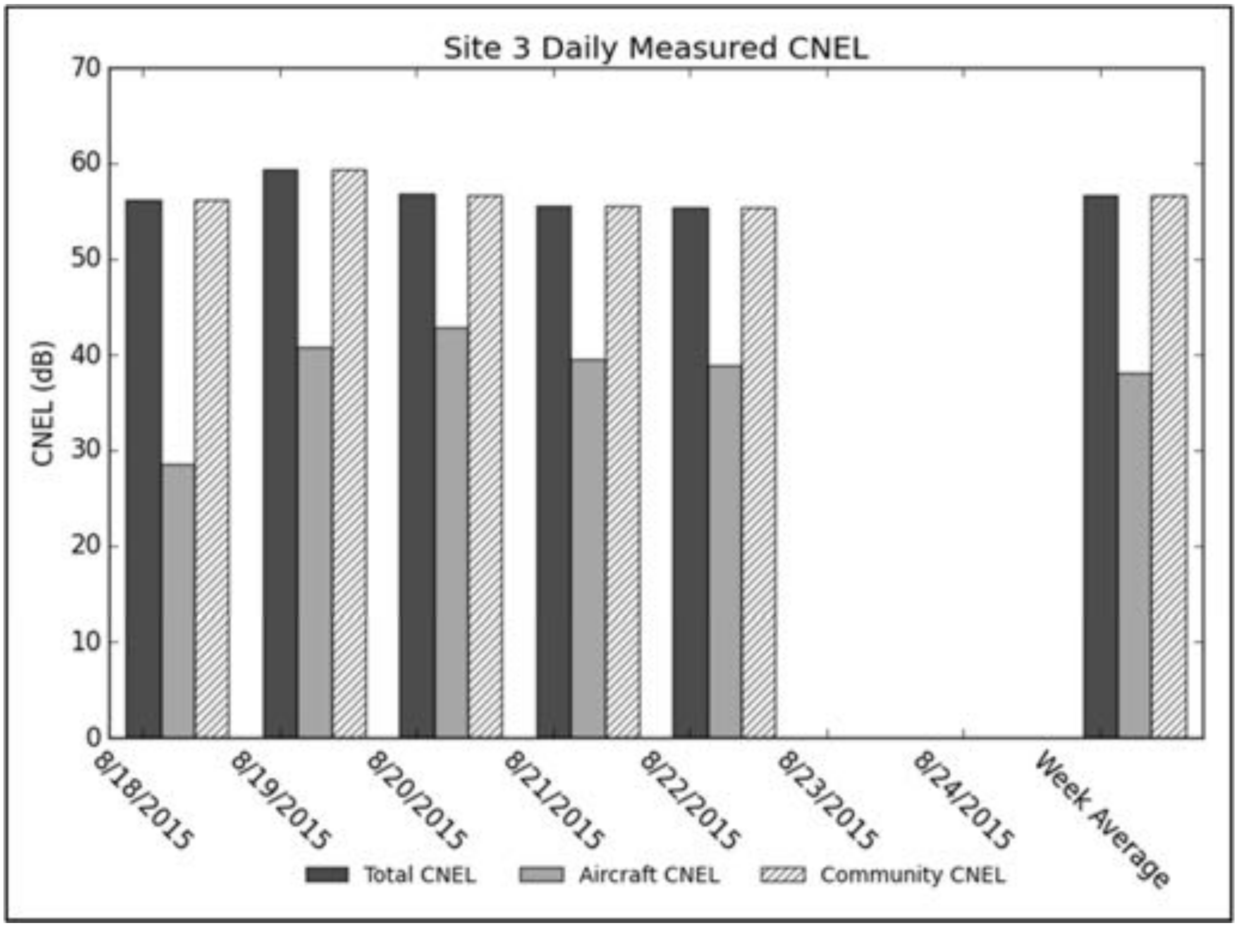

Figure O-8. Site ST3 Daily Measured CNEL

Source: HMMH

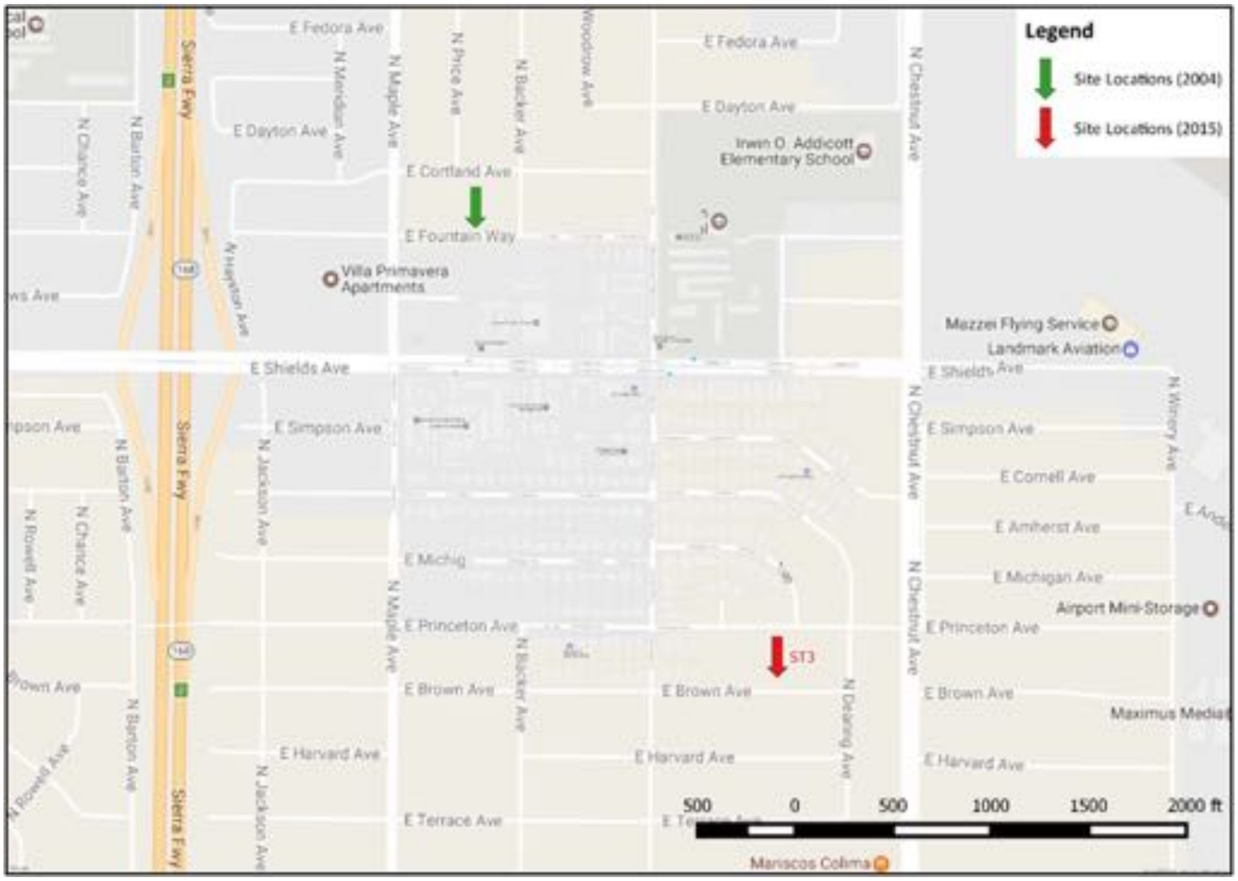

Figure O-9. Comparison of Locations between 2004 and 2015 Measurement Programs (Site ST3)

Image and Map Data © Google 2017

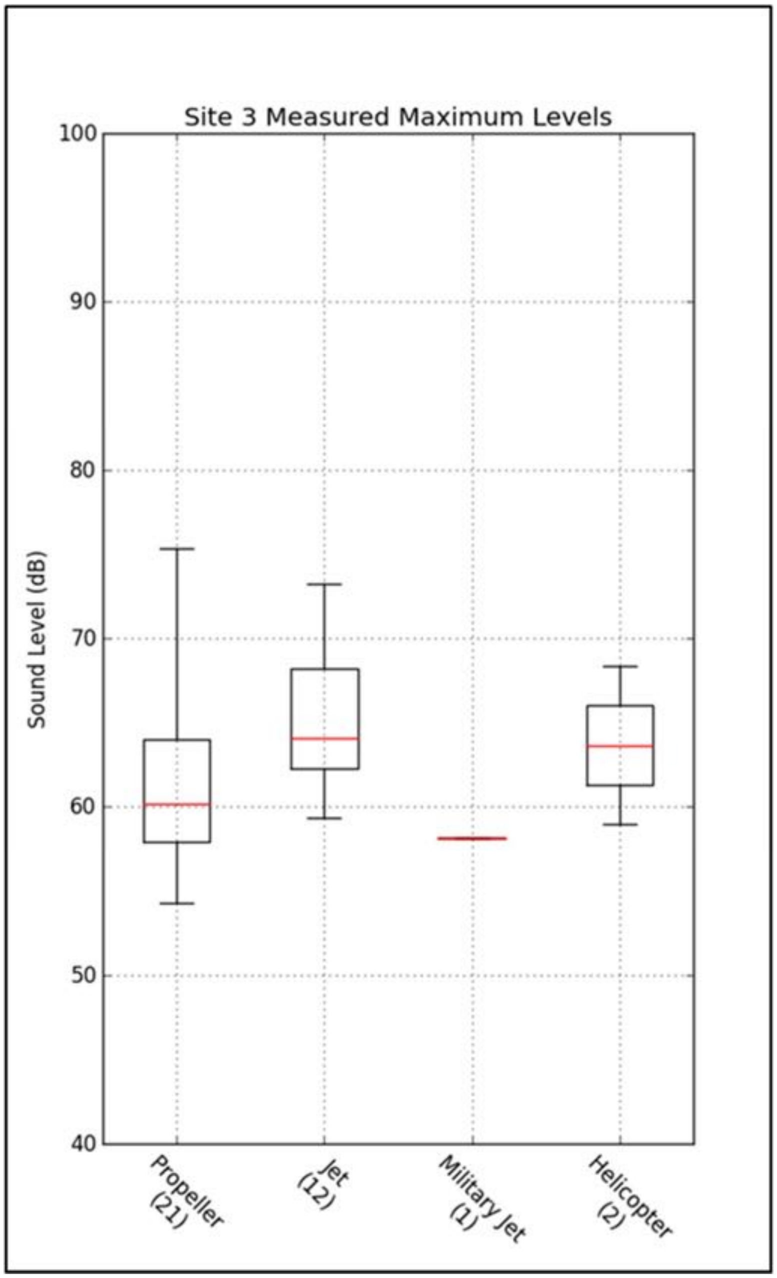

Figure O-10. Site ST3 Measured Maximum Levels

Source: HMMH

O.2.1.4 Site ST4: 5959 E. Ramona Ave, Fresno

Site ST4 is located approximately two miles east of the Airport reference point. Aircraft arriving on the 29 Runways operate close to this location and comprise a majority of the aircraft operations over this site.

Figure O-11 presents the total, aircraft, and community CNEL from the measured data for each of the complete measurement days. On all days in the measurement period the community CNEL was greater than the aircraft CNEL. The aircraft CNEL was somewhat consistent from day to day ranging from 21.3 dB on August 23 to 31.8 dB on August 24. Figure O-13 presents the maximum noise levels measured and the associated aircraft operation observed. The events with the highest median noise level were the military operations followed by helicopter operations.

The mean total CNEL measured during a one-day observation period in April 2004 near this site was 56 dB. HMMH measured 1 dB higher, for an average total CNEL of 57 dB during the August 2015 measurement program as shown in Figure O-11. The average aircraft CNEL during the 2015 measurements was 28 dB.

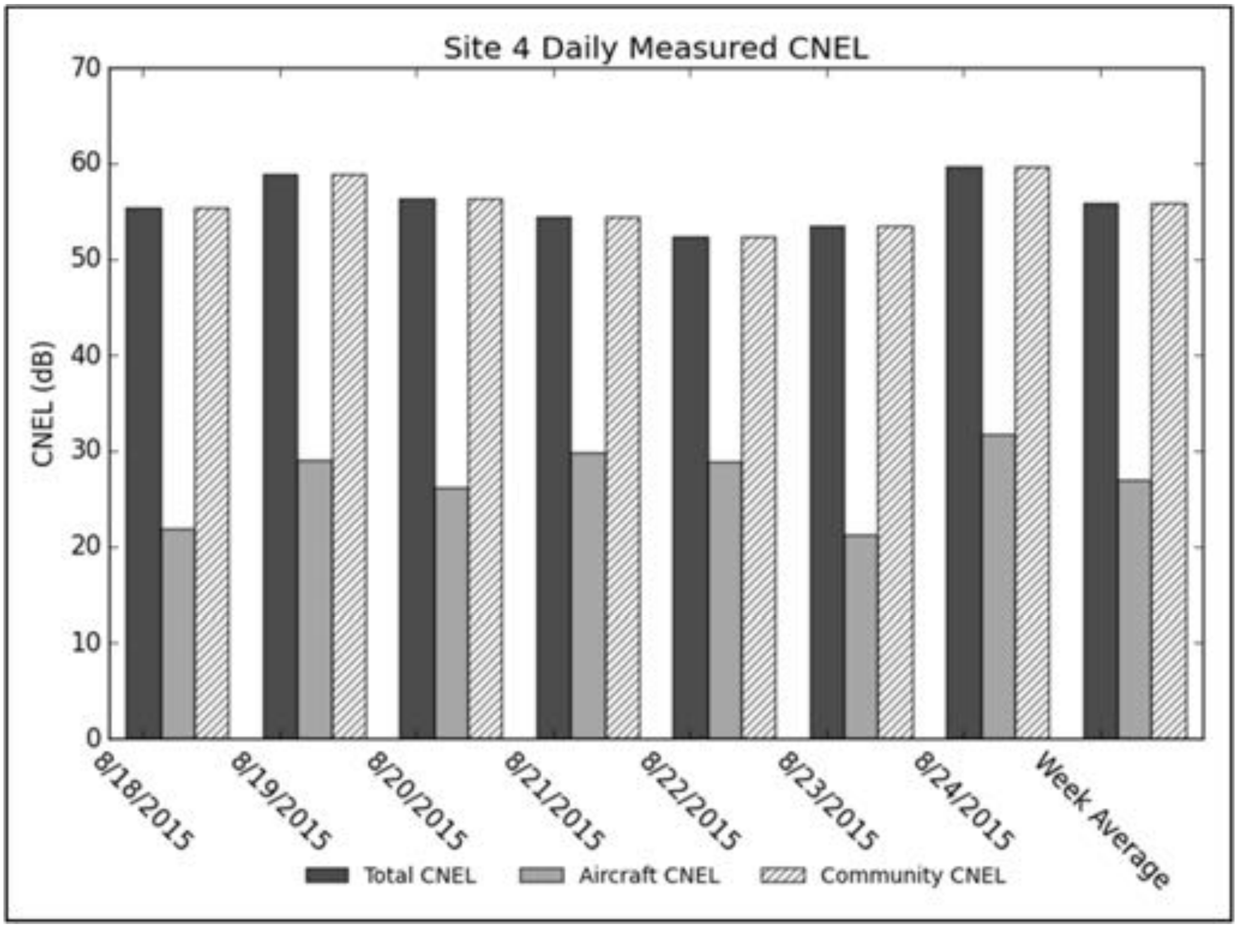

Figure O-11. Site ST4 Daily Measured CNEL

Source: HMMH

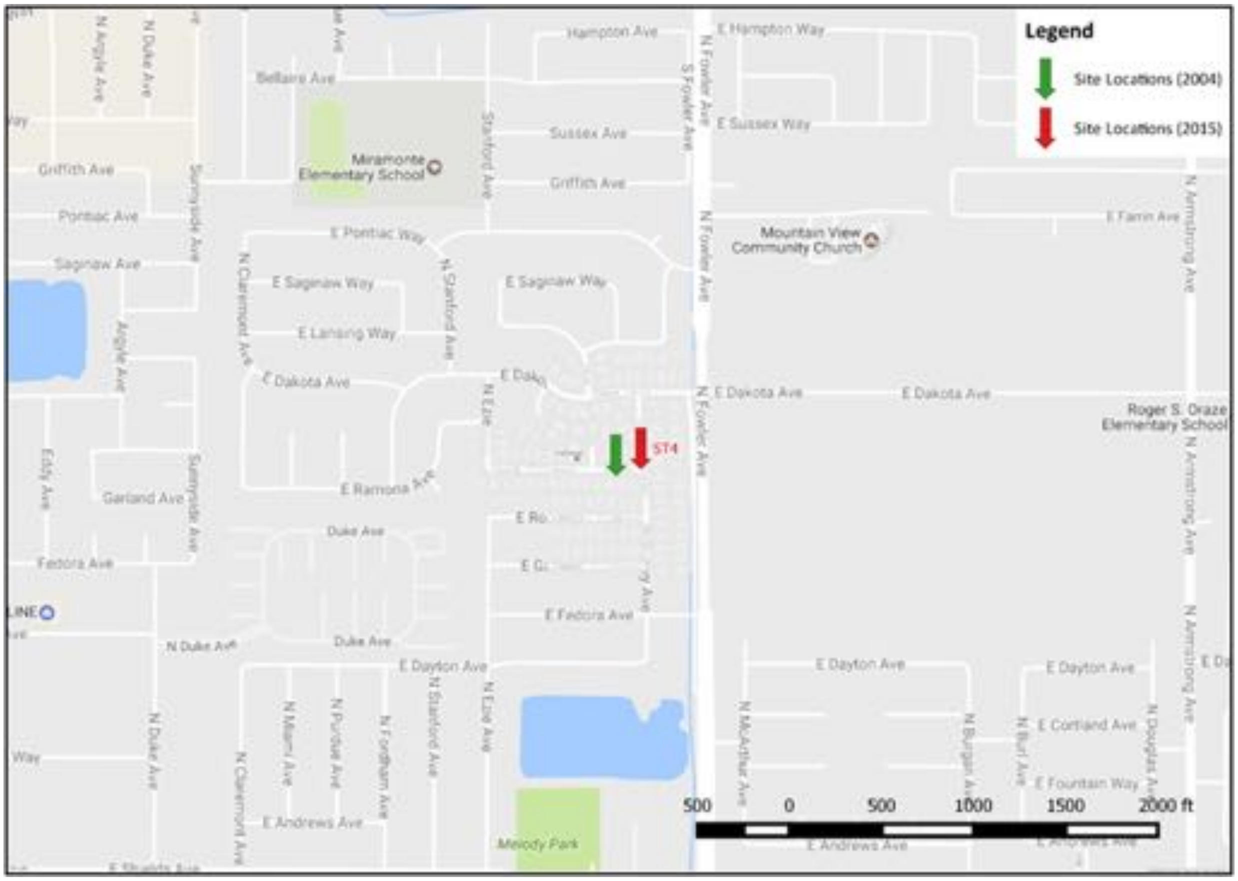

Figure O-12. Comparison of Locations between 2004 and 2015 Measurement Programs (Site ST4)

Image and Map Data © Google 2017

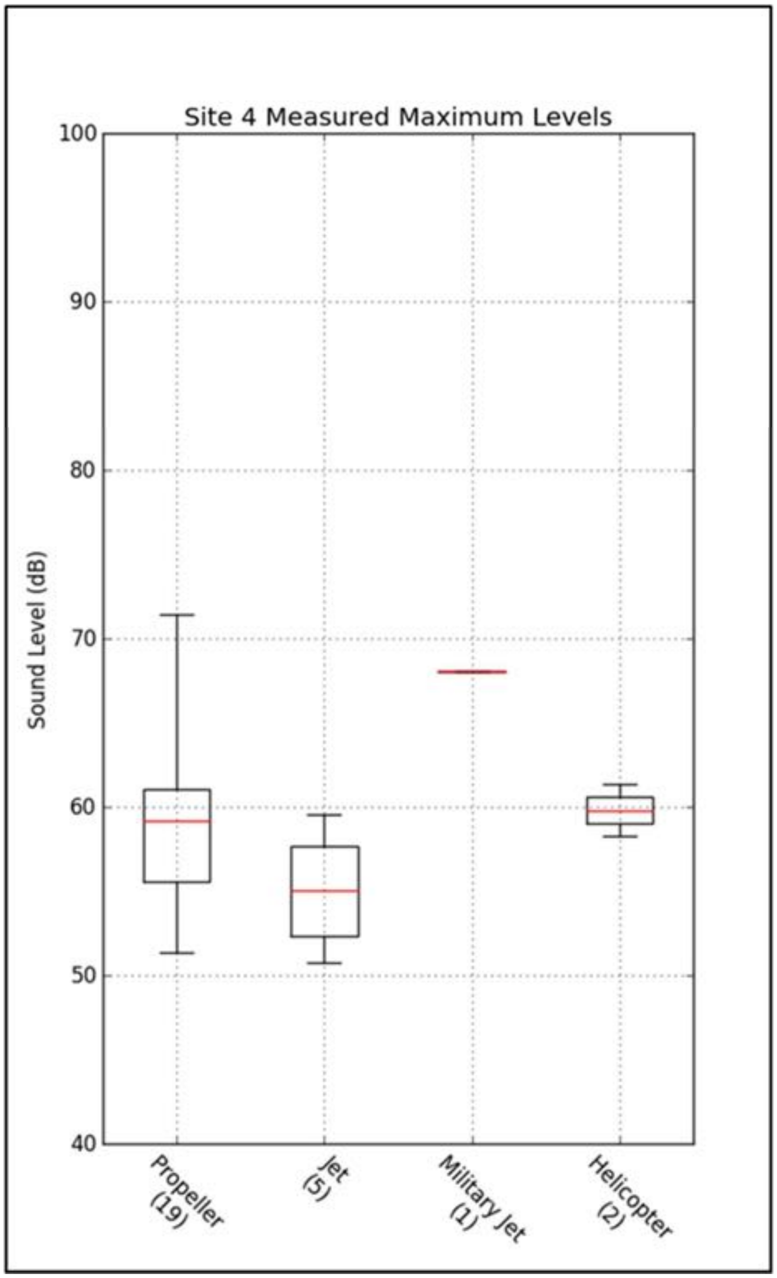

Figure O-13. Site ST4 Measured Maximum Levels

Source: HMMH

O.2.1.5 Site ST5: 5376 E. Tyler Ave, Fresno

Site ST5 is approximately one and a half miles south of the Airport reference point. The majority of aircraft operations over Site ST5 are aircraft arrivals for 29L.

Figure O-14 presents the total, aircraft, and community CNEL from the measured data for each of the complete measurement days. On all days of the measurement period the community CNEL was higher than the aircraft CNEL, which got up to a maximum of 35.6 on August 24. Figure O-15 presents the maximum noise levels measured and the associated aircraft operation observed. The events with the highest median noise level were the military operations followed by helicopter operations.

HMMH measured an average total CNEL of 58 dB during the April 2004 measurement program as shown in Figure O-14. The average aircraft CNEL contribution during the measurements was 32 dB. There was no site located near this location in the April 2004 measurement program, so no comparison is given.

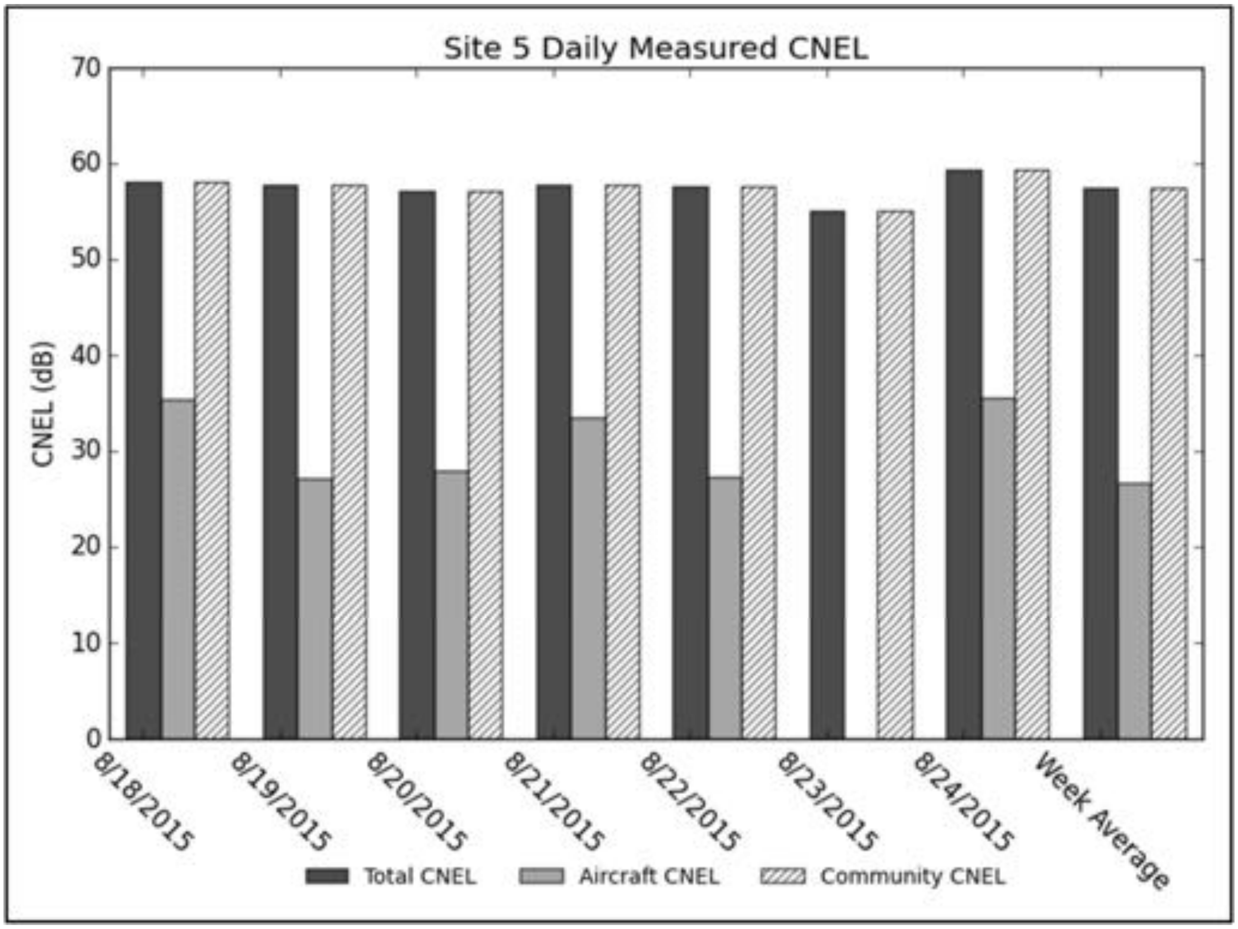

Figure O-14. Site ST5 Daily Measured CNEL

Source: HMMH

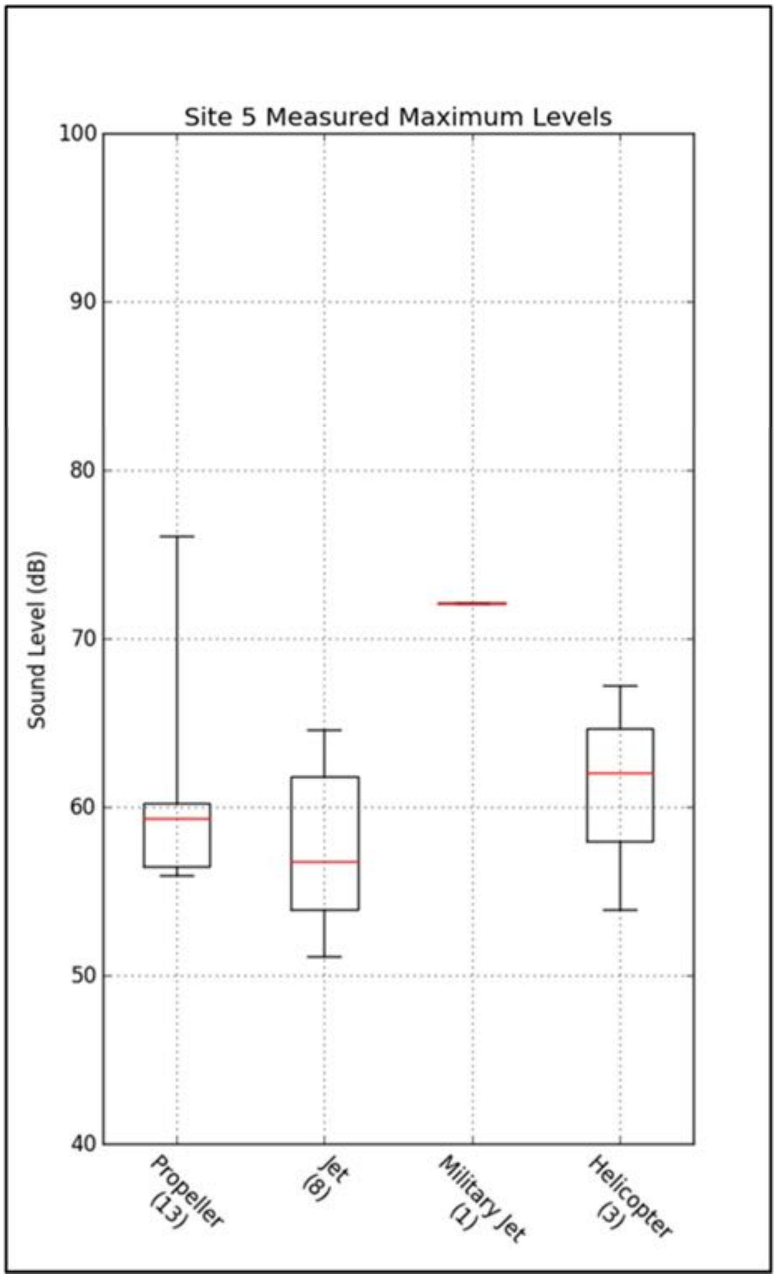

Figure O-15. Site ST5 Measured Maximum Levels

Source: HMMH

O.2.1.6 Site ST6: 6100 E. Olive Ave, Fresno

Site ST6, is approximately two and a half miles southeast of the Airport reference point and is under the extended centerline of Runway 11L/29R. Aircraft arriving on Runway 29R operate close to this location and comprise a majority of the operations near this location.

Figure O-16 presents the total, aircraft, and community CNEL from the measured data for each of the complete measurement days. The total CNEL is primarily influenced by community noise. On all days in the measurement period the community CNEL was higher than the aircraft CNEL, which ranged from 36.6 dB on August 23 to 48.7 dB on August 18. Figure O-18 presents the maximum noise levels measured and the associated aircraft operation observed. The events with the highest median noise level were the civilian jet operations followed by helicopter operations.

The mean total CNEL measured during April 2004 at this site was 66 dB. HMMH measured 6 dB lower, for an average total CNEL of 60 dB during the August 2015 measurement program as shown in Figure O-16. The average aircraft CNEL during the 2015 measurements was 43 dB.

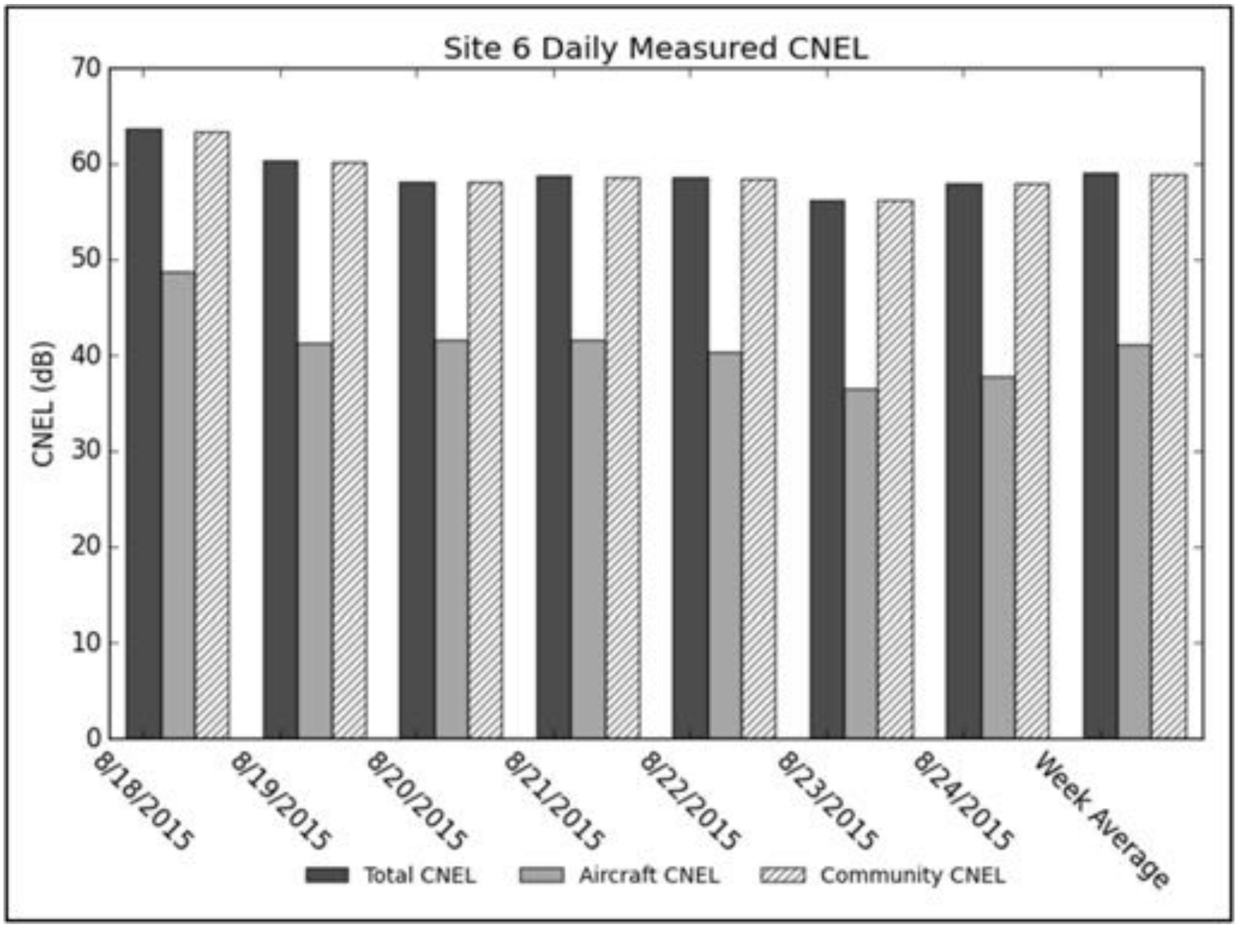

Figure O-16. Site ST6 Daily Measured CNEL

Source: HMMH

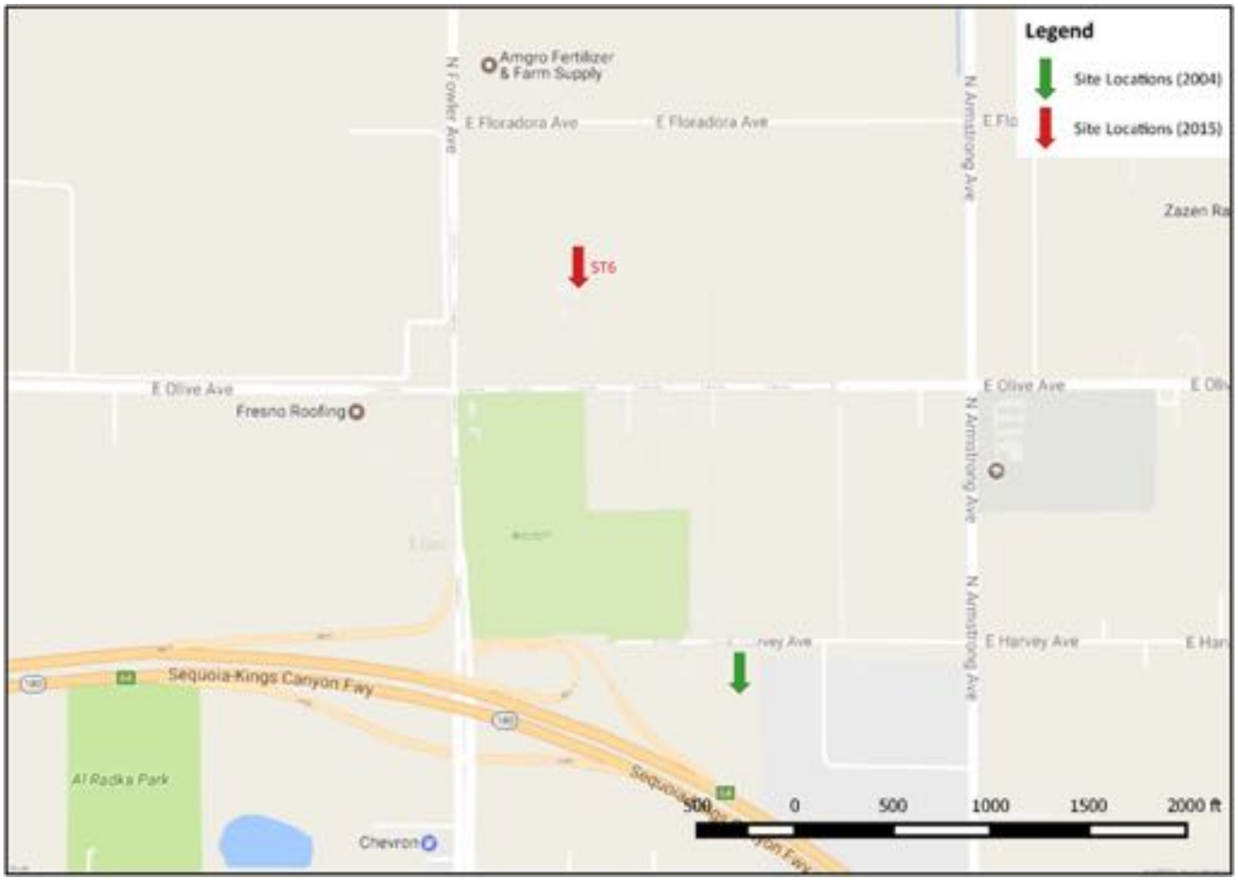

Figure O-17. Comparison of Locations between 2004 and 2015 Measurement Programs (Site ST6)

Image and Map Data © Google 2017

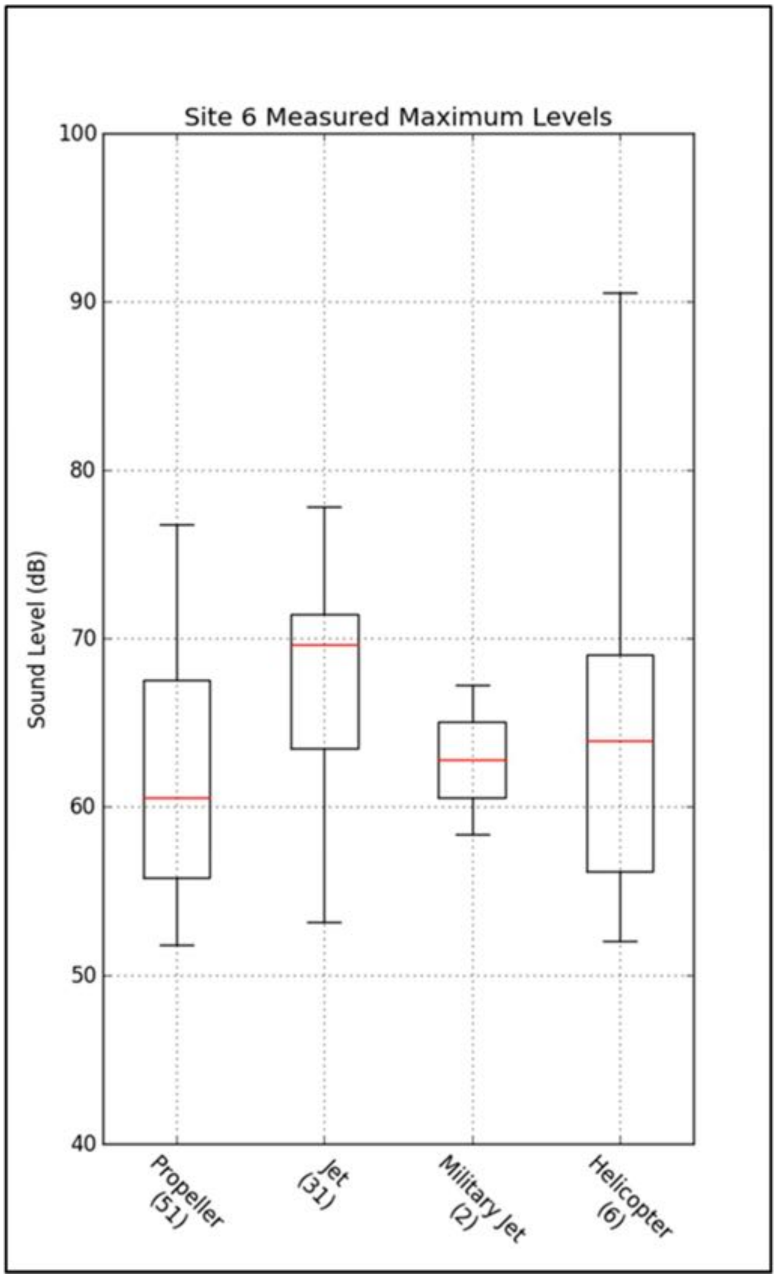

Figure O-18. Site ST6 Measured Maximum Levels

Source: HMMH

Appendix P Municipality Boundary Map

Figure P-1 shows the controlling jurisdictions in the areas surrounding FAT with planning and land use control authority within the CNEL 65 dB and beyond.

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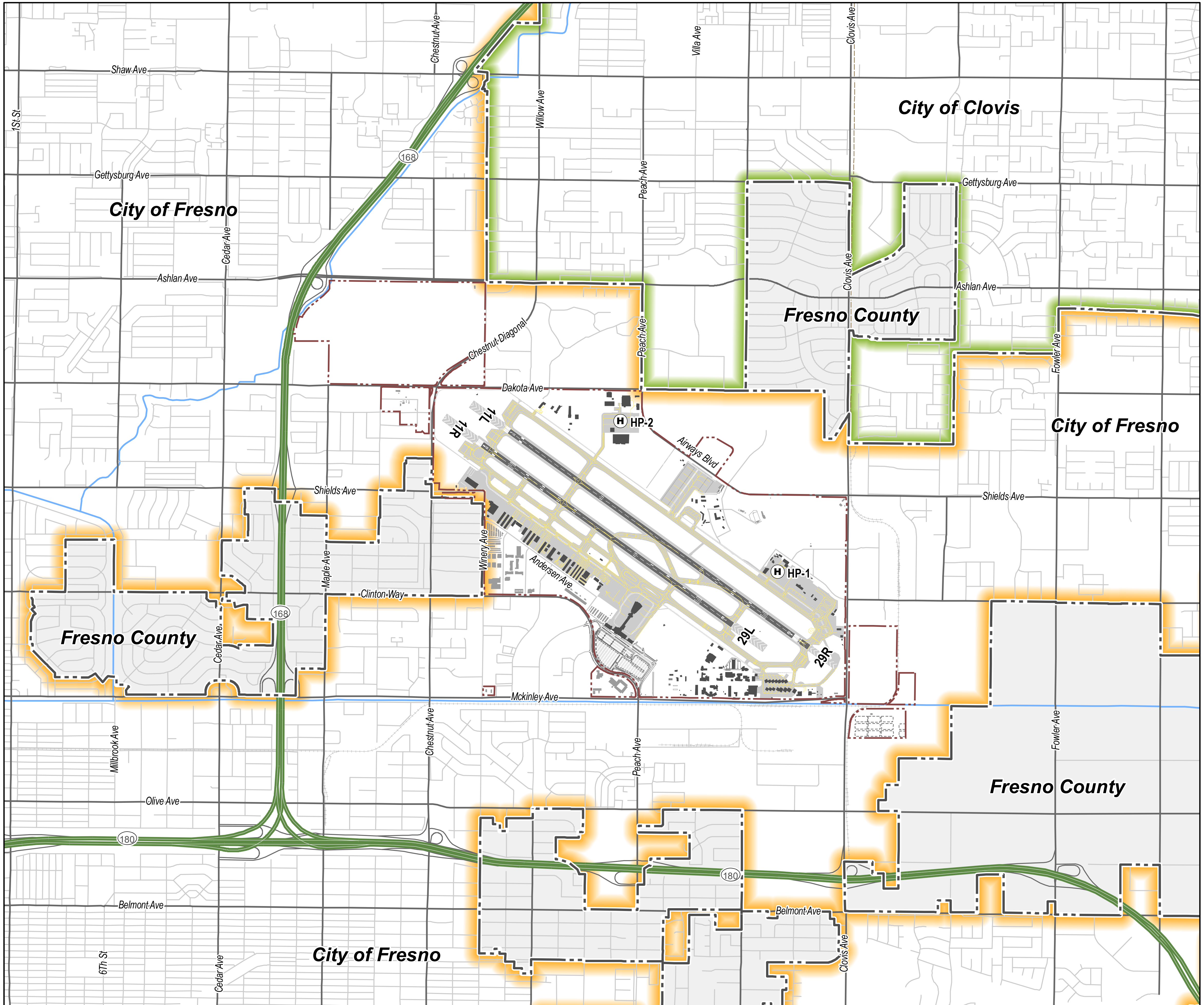

FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Figure: P-1
Municipal Boundaries

City of Fresno Boundary
City of Clovis Boundary
Fresno County
Airport Boundary
Runway
Taxiway / Apron
Helicopter Pad
Airport Buildings
Highways
Major Roads
Local Roads
Railroad

Service Layer Credits: Fresno County GIS; City of Fresno, CA; City of Clovis, CA; California Department of Water Resources (DWR); Environmental Systems Research Institute (ESRI);

0 1" 2" 3"
0 2,000 4,000 6,000 Feet

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Appendix Q Supplemental Contours

Fresno Yosemite International Airport has also generated supplemental noise contours consisting of 60 dB CNEL contours. These supplemental contours are for informational purposes only for the use of local jurisdictions in planning compatible land uses in the airport noise environment.

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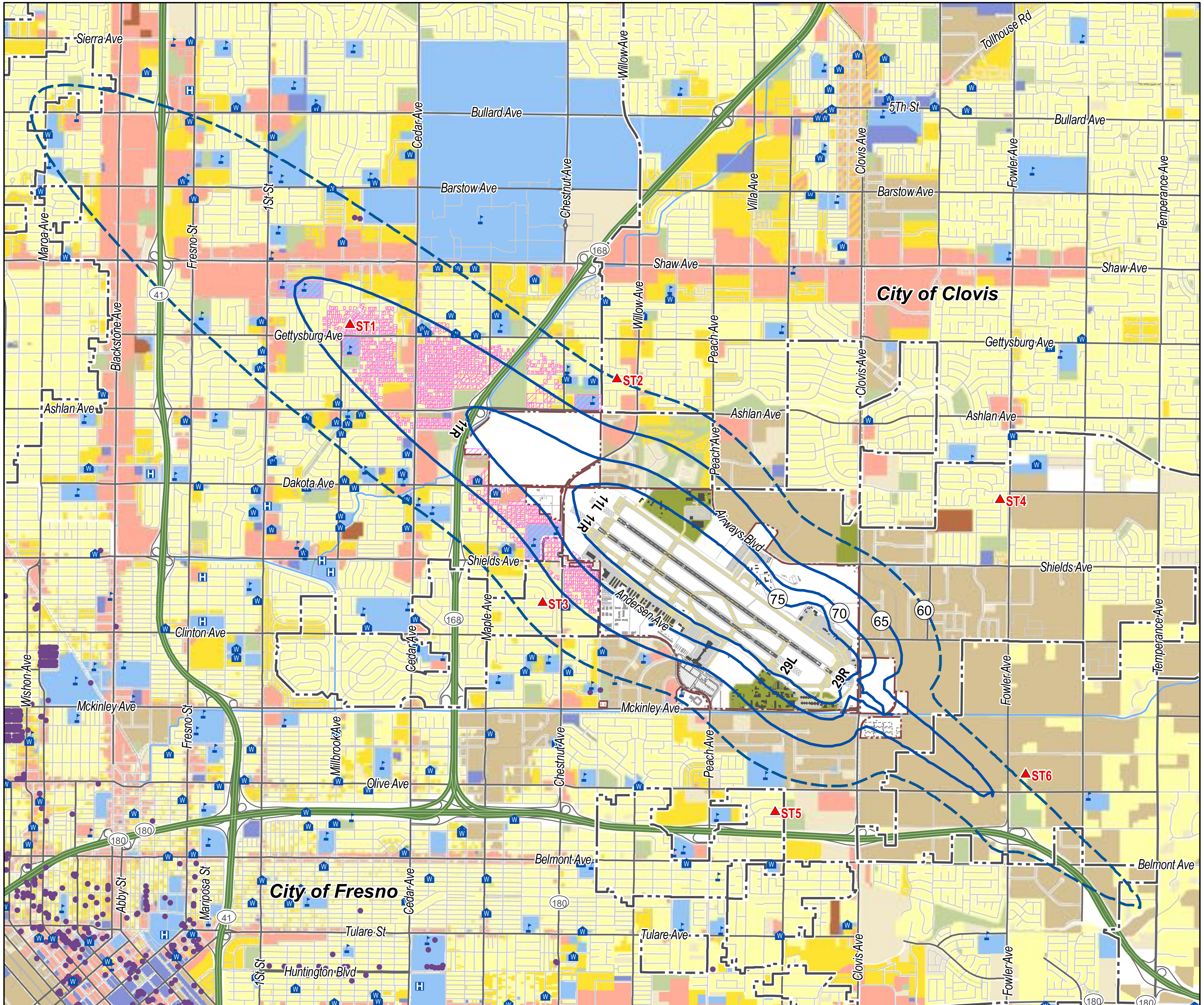
FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Figure: Q-1
Existing Conditions (2017) Noise Exposure Map

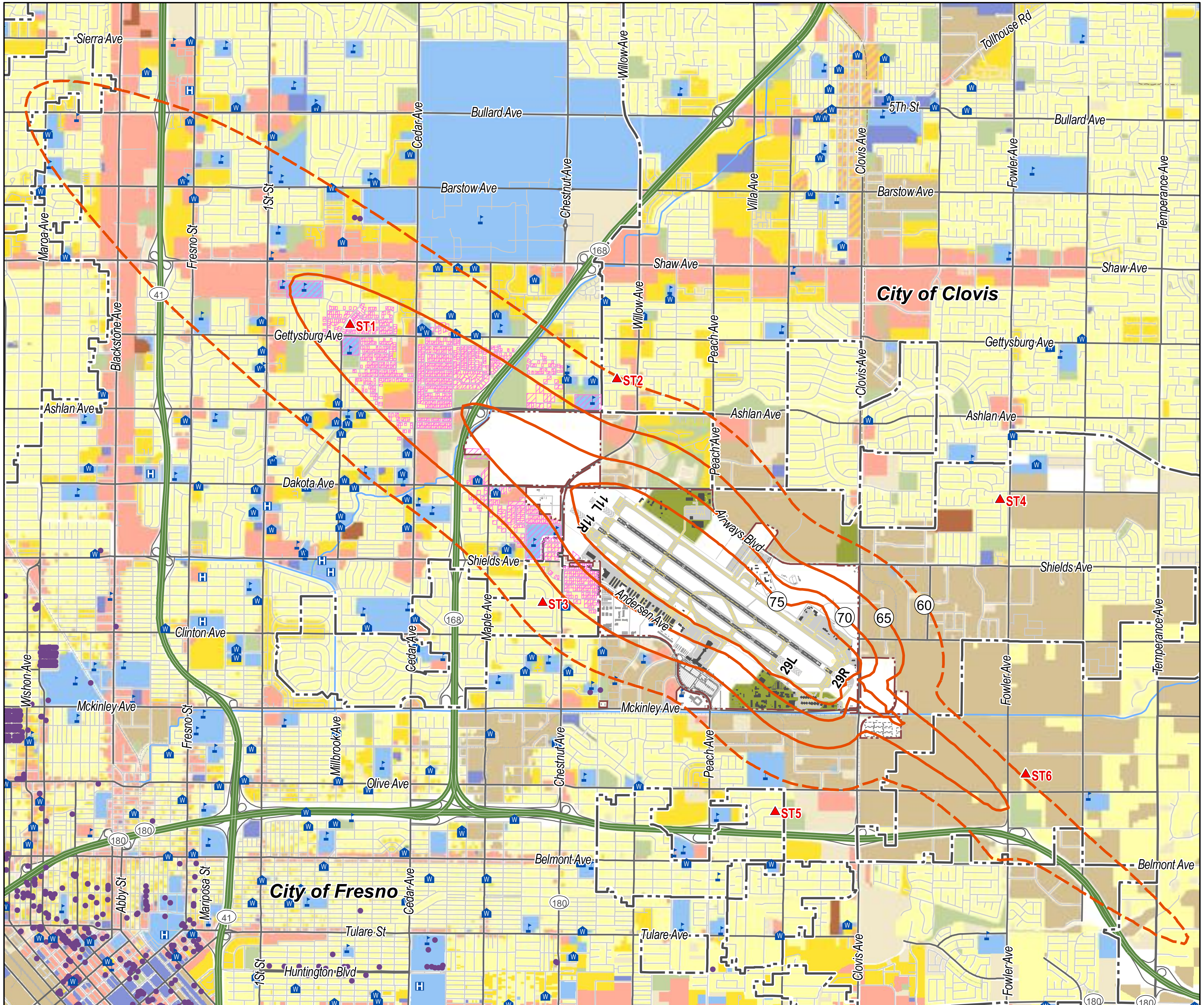


Existing (2017) NEM Contour (65-75 dB CNEL)
Existing (2017) NEM Contour (60 dB CNEL)
ST# Noise Monitor Location
Airport Boundary
Runway
Taxiway / Apron
Airport Buildings
Municipal Boundary
Highways
Major Roads
Local Roads
Railroad
Residential Use
Multi-Family Residential
Mobile Homes
Public Use 1 (School, Place of Worship, Hospitals)
Public Use 2 (Government, Transportation, Parking)
Military Use
Recreational / Open Space
Commercial Use
Industrial Use
Vacant / Undefined
Water
Sound Insulated Property
School
Library
Place of Worship
Hospital
Historic Site

Service Layer Credits: Fresno County GIS; City of Fresno, CA; City of Clovis, CA; California Department of Water Resources (DWR); Environmental Systems Research Institute (ESRI);

0 1" 2" 3"
0 2,000 4,000 8,000 Feet

hmmh



FRESNO YOSEMITE
INTERNATIONAL AIRPORT

Figure: Q-2
Forecast Conditions (2022) Noise Exposure Map

Forecast (2022) NEM Contour (65-75 dB CNEL)
Forecast (2022) NEM Contour (60 dB CNEL)
ST# Noise Monitor Location
Airport Boundary
Runway
Taxiway / Apron
Airport Buildings
Municipal Boundary
Highways
Major Roads
Local Roads
Railroad
Residential Use
Multi-Family Residential
Mobile Homes
Public Use 1 (School, Place of Worship, Hospitals)
Public Use 2 (Government, Transportation, Parking)
Military Use
Recreational / Open Space
Commercial Use
Industrial Use
Vacant / Undefined
Water
Sound Insulated Property
School
Library
Place of Worship
Hospital
Historic Site

Service Layer Credits: Fresno County GIS; City of Fresno, CA; City of Clovis, CA; California Department of Water Resources (DWR); Environmental Systems Research Institute (ESRI);

0 1" 2" 3"
0 2,000 4,000 8,000 Feet

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