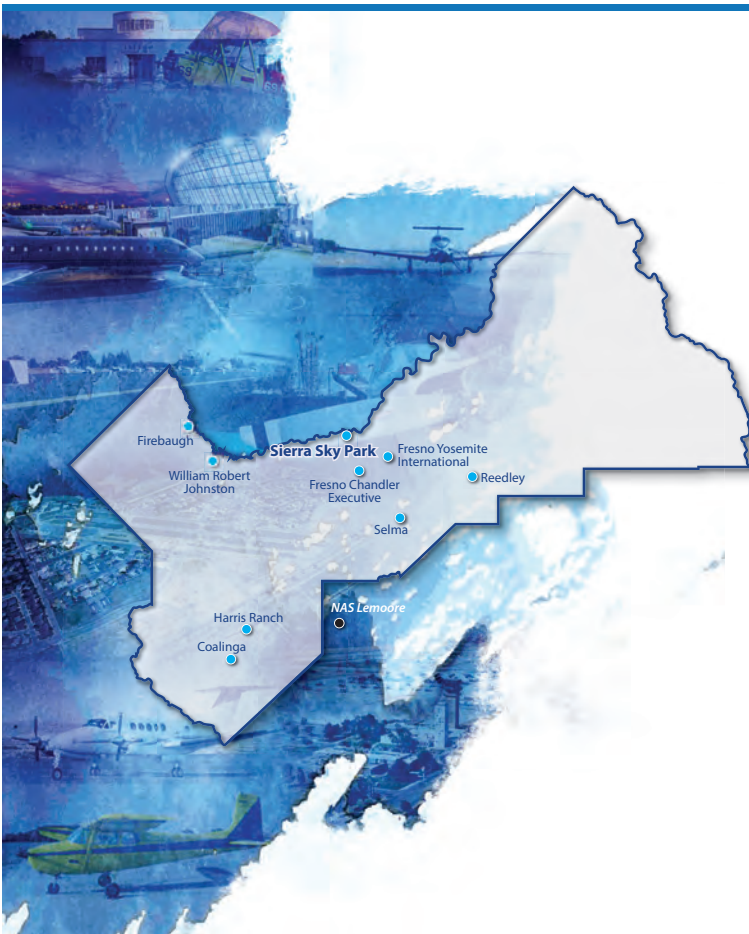




Fresno Council
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Appendix H

SIERRA SKY PARK AIRPORT



Appendix H: Sierra Sky Park Airport

Appendix H provides an overview of Sierra Sky Park Airport's (Airport) setting, airport influence area (AIA), safety zones, noise, and airspace and overflight areas. This Appendix will also discuss existing and planned land uses, as well as current and future Airport facilities.

Sierra Sky Park Airport is privately owned by Herndon-Doolittle Association, Inc., but available for public use. The Airport is not classified in the 2017 – 2021 *National Plan of Integrated Airport Systems*; however, it is considered a community facility in the 2013 *California Aviation System Plan*. Sierra Sky Park is an airpark and is therefore embedded within a residential community that supports and maintains the facility. The Airport covers 34 acres of land and is at an elevation of 321 feet.

SAFETY ZONES

The Airport Influence Area (AIA) and Safety Zones for Sierra Sky Park Airport are shown on **Exhibit H1**. Figure 3A of the California Airport Land Use Planning Handbook (Handbook) provides three example zones for general aviation airports, which are differentiated by runway length. The Handbook zone examples are provided as a starting point for developing safety zones specific to an airport. As discussed below, Sierra Sky Park Airport has one runway, Runway 12-30, which is 2,473 feet long. The California Department of Transportation, Division of Aeronautics-approved airport diagram does not include any changes to the runway length. Therefore, the Safety Zones are based on the Short General Aviation Runway example. For this plan, the outermost zone in the Handbook examples was replaced by the 14 CFR Part 77 Conical Surface, which also represents the airspace and overflight review area boundaries. Additional information regarding the safety compatibility zones can be found in **Appendix M**.

NOISE

The standard methodology for analyzing noise conditions at airports involves the use of a computer simulation model. The Airport Environmental Design Tool Version 2c (AEDT) is accepted by the State of California and required by the FAA for developing noise exposure contours. This is the model used to develop the noise exposure contours for this Airport Land Use Compatibility Plan (ALUCP). The following sections describe the noise modeling inputs for the Sierra Sky Park Airport noise exposure contours shown on **Exhibit H2**. Additional information regarding the noise modeling process and land use compatibility thresholds can be found in **Appendix M**.

AIRCRAFT OPERATIONS AND FLEET MIX

As outlined in Public Utilities Code (PUC) Section 21675(a), the noise contours included in an ALUCP must reflect the anticipated growth of the airport during at least the next 20 years. **Table H1** summarizes the 2037 operations for the Airport using the Model for Estimating General Aviation Operations at Non-Towered Airports (GRA, Inc. 2001) and also includes the aircraft types used in the noise model. Airfield observations and based aircraft lists were used to determine the types of aircraft which frequently use the Airport. To accurately represent the noise conditions at the Airport, the AEDT provides aircraft noise data for many of the aircraft operating in the national fleet.

The selection of individual aircraft types is important to the modeling process because different aircraft types generate different noise levels. The aircraft fleet mix for Sierra Sky Park Airport was derived from an interview with the Airport manager and based aircraft list. **Table H1** summarizes the generalized fleet mix data input into the noise analysis.

TABLE H1
Sierra Sky Park Airport
Aircraft Fleet Mix and Operations

Operations	AEDT Designator	2017	2037 ²
Itinerant			
Single Engine, Fixed	GASEPF	5,684	6,100
Single Engine, Variable	GASEPV	5,684	6,100
Twin Engine	BEC58P	231	248
Subtotal		11,599	12,448
Local			
Single Engine, Fixed	GASEPF	1,361	1,461
Single Engine, Variable	GASEPV	1,361	1,461
Twin Engine	BEC58P	28	30
Subtotal		2,751	2,952
Grand Total		14,350	15,400

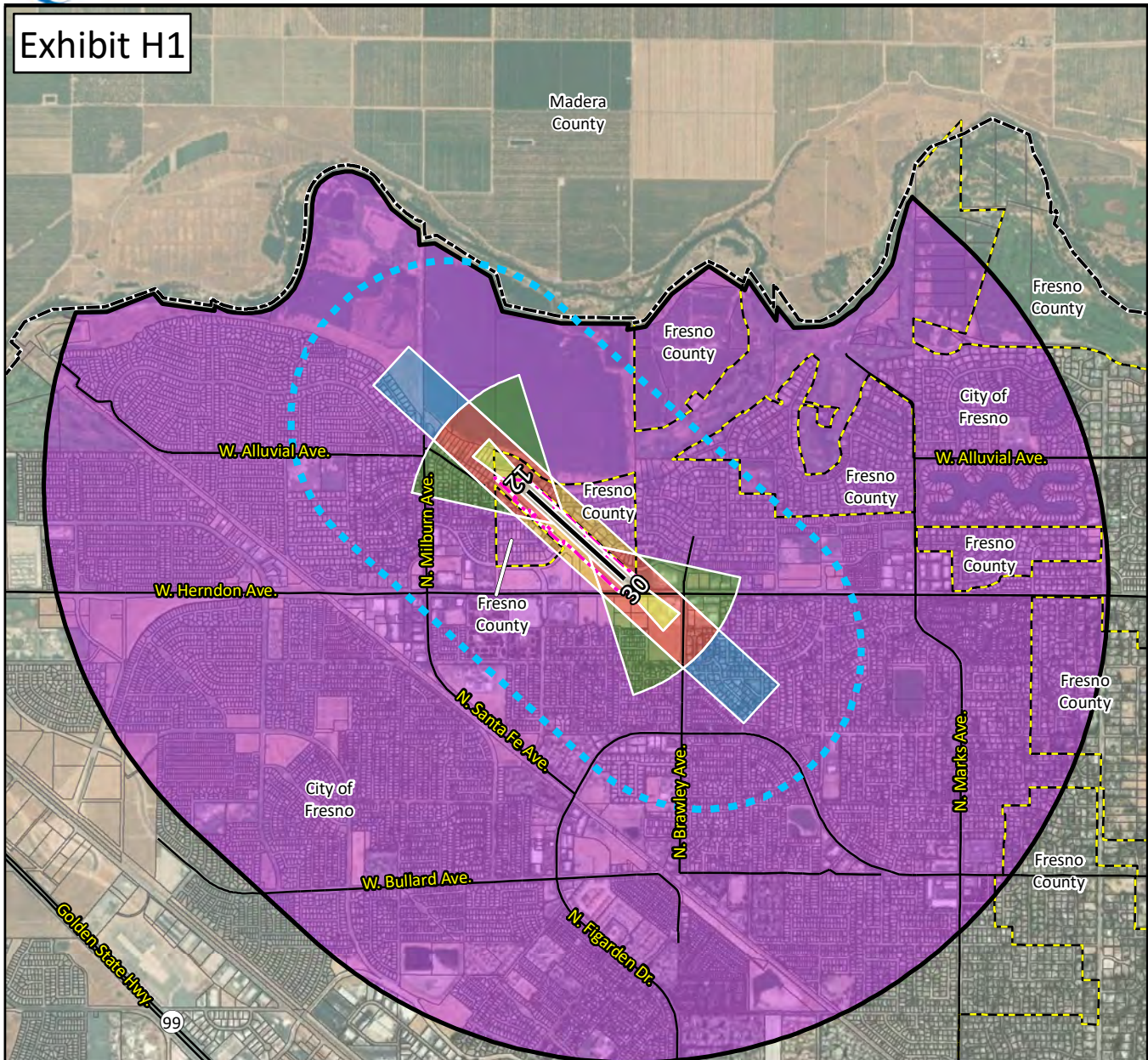
Source:

¹ FAA 5010 Airport Master Record, operations for 12 months ending June 14, 2016

² Model for Estimating General Aviation Operations at Non-Towered Airports (GRA, Inc. 2001)



Exhibit H1



LEGEND

- Runway¹
- Airport Property²
- Parcel Boundary
- Municipal Boundary
- County Boundary
- Streets
- Airport Influence Area (AIA)³
- Vulnerable Occupants Review Area (See Section 3.2.2 & Table 3A)

Safety Zones³

- 1. Runway Protection Zone
- 2. Inner Approach/Departure Zone
- 3. Inner Turning Zone
- 4. Outer Approach/Departure Zone
- 5. Sideline Zone
- 6. Traffic Pattern Zone



0 3,000 6,000
1" = 3,000'

¹FAA 5010 Master Record

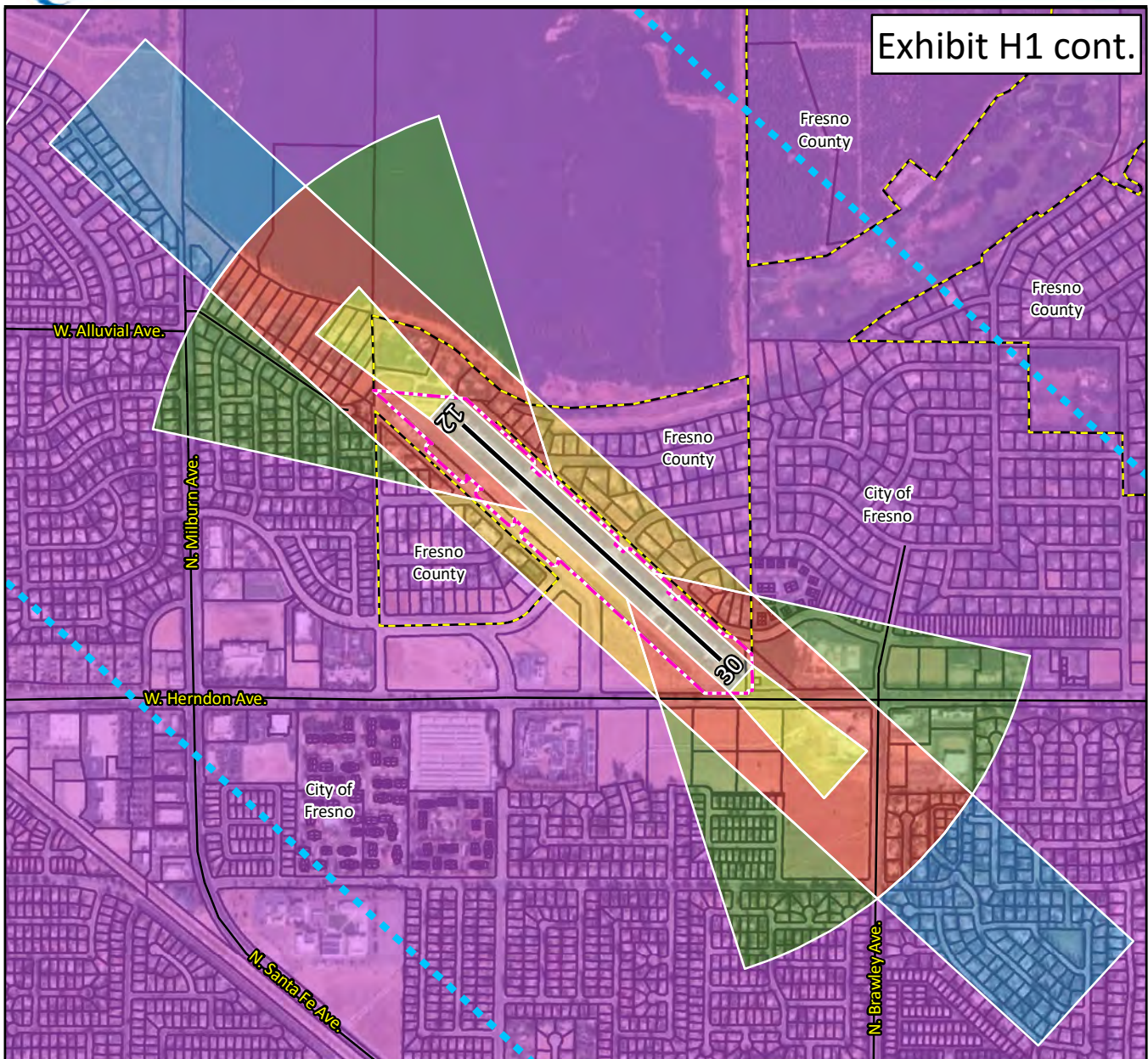
²APN's: 50103102, 50103402, 50104202, 50105001, 50104702.

³Part 77 Conical Surface. See 14 CFR, Subchapter E, Part 77, §77.25.

⁴Figure 3A, California Airport Land Use Planning Handbook (2011), and Coffman Associates Analysis. Sources: Fresno County Parcels, Fresno County Streets, ESRI Basemap Imagery (2020).



Exhibit H1 cont.



LEGEND

- Runway¹
 - Airport Property²
 - Parcel Boundary
 - Municipal Boundary
 - County Boundary
 - Streets
 - Vulnerable Occupants Review Area (See Section 3.2.2 & Table 3A)
- Safety Zones³
- 1. Runway Protection Zone
 - 2. Inner Approach/Departure Zone
 - 3. Inner Turning Zone
 - 4. Outer Approach/Departure Zone
 - 5. Sideline Zone
 - 6. Traffic Pattern Zone



0 1,000 2,000
1" = 1,000'

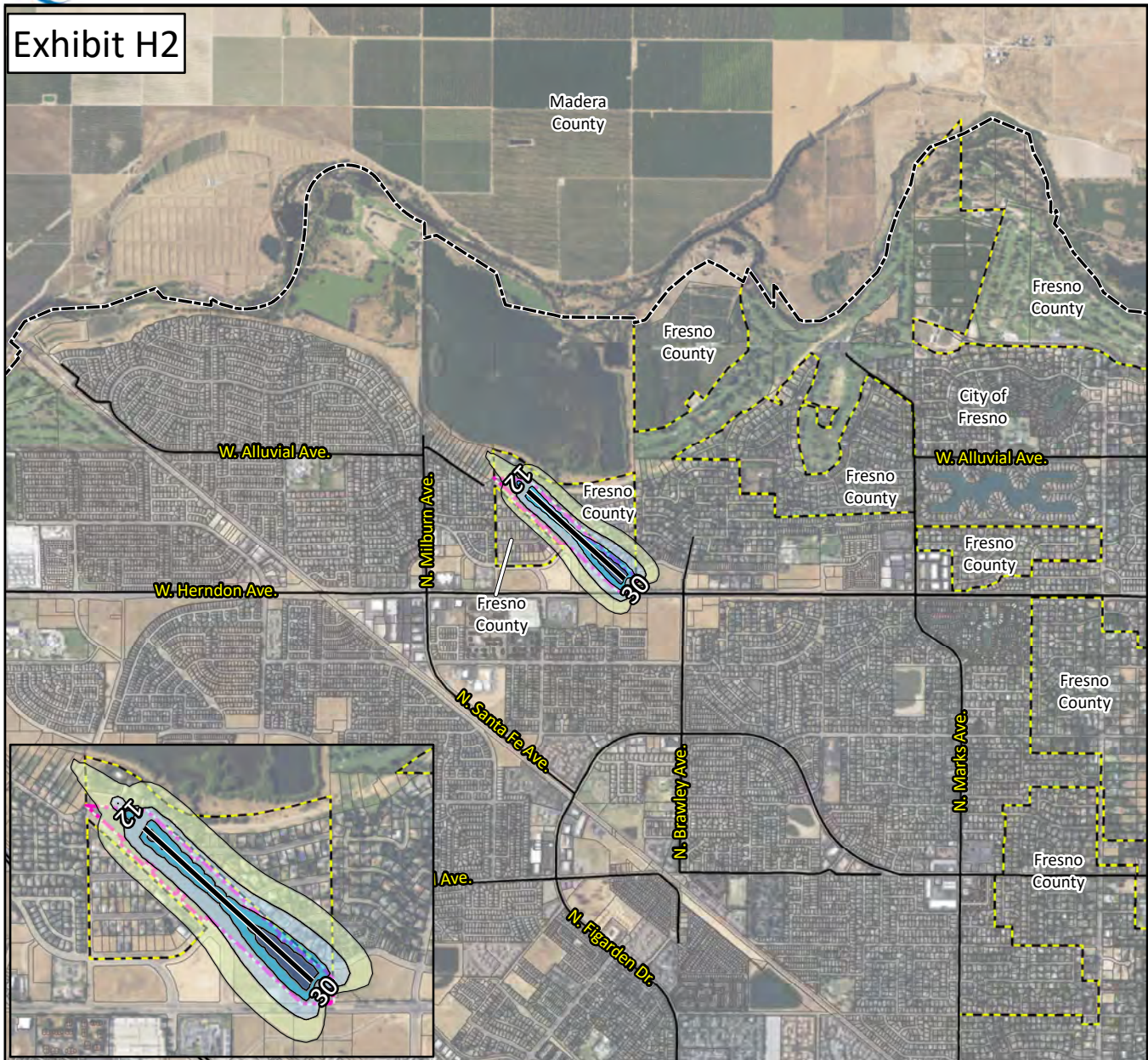
¹FAA 5010 Master Record

²APN's: 50103102, 50103402, 50104202, 50105001, 50104702.

³Figure 3A, California Airport Land Use Planning Handbook (2011), and Coffman Associates Analysis. Sources: Fresno County Parcels, Fresno County Streets, ESRI Basemap Imagery (2016).



Exhibit H2



LEGEND

- Runway¹
- Airport Property²
- Parcel Boundary
- Municipal Boundary
- County Boundary
- Streets

Future Noise Contours

- 60 CNEL
- 65 CNEL
- 70 CNEL
- 75 CNEL



0 3,000 6,000
1" = 3,000'

¹FAA 5010 Master Record.

²APN's: 50103102, 50103402, 50104202, 50105001, 50104702.

³Community Noise Equivalent Level - Coffman Associates analysis.

Sources: Fresno County Parcels, Fresno County Streets, ESRI Basemap Imagery (2016).



Exhibit H2 cont.

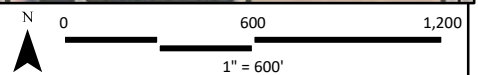


LEGEND

- Runway¹
- Airport Property²
- Parcel Boundary
- Municipal Boundary
- Streets

Future Noise Contours

- 60 CNEL
- 65 CNEL
- 70 CNEL
- 75 CNEL



¹FAA 5010 Master Record.

²APN's: 50103102, 50103402, 50104202, 50105001, 50104702.

³Community Noise Equivalent Level - Coffman Associates analysis.

Sources: Fresno County Parcels, Fresno County Streets, ESRI Basemap Imagery (2016).

A variety of general aviation, single engine fixed-propeller aircraft are modeled with the GASEPV and GASEPF aircraft in the AEDT. The GASEPV represents many single engine general aviation aircraft including the Mooney M-20, Cessna 172 and 180, Piper Cherokee Arrow, and the Air Tractor AT-502 and AT-802. The general aviation, single engine fixed-pitch propeller model, the GASEPF, also represents several single engine general aviation aircraft. These include the Cessna 150, Piper Archer, and the Piper Tomahawk.

The Beech Baron (BEC58P) represents light twin-engine aircraft, such as Beech 50, Beech 55, Piper PA-23, PA-30, PA-34, Cessna 304, Cessna 310, and Cessna 401.

Time-of-Day

The time-of-day which aircraft operations occur is important as input to the AEDT due to the 10-decibel nighttime (10:00 p.m. to 7:00 a.m.) and 4.8-decibel evening (7:00 p.m. to 10:00 p.m.) weighting of flights.

Since the Airport is not equipped with an airport traffic control tower (ATCT), time-of-day information was estimated based upon Airport staff interviews and time-of-day activity levels at similar airports. Currently, most operations occur during the daytime hours, with an estimated one percent occurring during evening hours, and approximately one percent occurring during nighttime hours.

Runway Use

Runway usage data is also an essential component for developing noise exposure contours. Based on a review of regional airport activity and wind conditions, the following assumptions were made for runway use:

- Runway 12 – 20 percent
- Runway 30 – 80 percent

Flight Tracks

A review of local flight procedures was used to develop consolidated flight tracks for use in the AEDT. As discussed below, the traffic pattern for Runway 12 is right hand and the traffic pattern for Runway 30 is left hand. Accordingly, it is assumed that touch-and-go traffic occurs to the south and west of the airport.

Flight Profiles

The standard arrival profile used in the AEDT program is a three-degree approach. No indication was given by Airport staff that there was any variation on this standard procedure for civilian aircraft. Therefore, the standard approach was included in the model as representative of local operating conditions.

AIRSPACE AND OVERFLIGHT

Exhibit H3 depicts the Airspace Plan from the prepared as part of this study. This exhibit includes the 14 CFR Part 77 Conical Surface which is also the AIA for Sierra Sky Park Airport.

AIRPORT INFORMATION

AIRPORT FACILITIES

Airport facilities are summarized in **Table H2** and **Exhibit H4** shows the Airport Diagram (June 2017).

TABLE H2
Airport Facilities
Sierra Sky Park Airport

	Runway 12-30
RUNWAY(S)	
Length (feet)	2,473
Width (feet)	50
Threshold Displacement (feet)	90 90
Runway Pavement Surface Material	Asphalt
Runway Pavement Surface Treatment	None
Runway Pavement Condition	Good
Traffic Pattern	Left Right
Runway Pavement Load Bearing Strength (lbs.)	
Single Wheel	Not listed
Dual Wheel	Not listed
Double Tandem	Not listed
Double Dual Tandem	Not listed
Runway Pavement Markings	
Type	Basic
Condition	Good
Runway Lighting	
Runway Edge Lighting	LIRL
Approach Lighting System (ALS)	None
Touchdown Point	None
Runway End Identifier Lights (REILs)	No
VISUAL APPROACH AIDS	
Type	None 2-Light PAPI on left
Glide Path	N/A 3.00 degrees
INSTRUMENT APPROACH AIDS	
Instrument Landing System (ILS)	No
Global Positioning System (GPS)	No
VOR/DME	No

N/A: Not Applicable

LIRL: Low Intensity Runway Lights

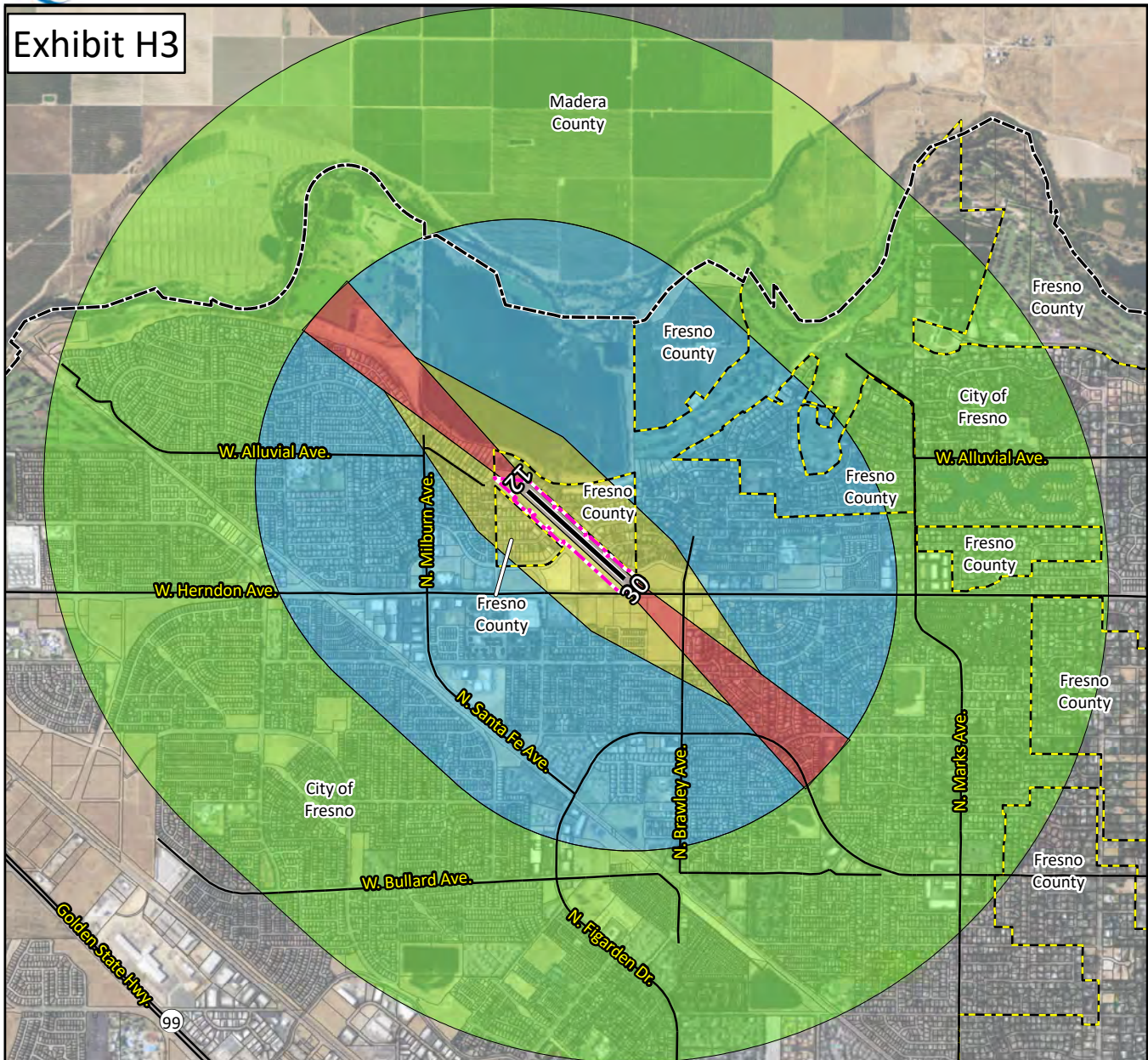
PAPI: Precision Approach Path Indicator

VOR/DME: Very High Frequency Omnidirectional Range Distance Measuring Equipment

Source: AirNav (July 2017)



Exhibit H3

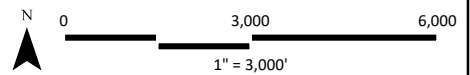


LEGEND

- Runway¹
- Airport Property²
- Parcel Boundary
- Municipal Boundary
- County Boundary
- Streets

Part 77 Surfaces³

- Primary Surface
- Approach Surface
- Transitional Surface
- Horizontal Surface
- Conical Surface



¹FAA 5010 Master Record.

²APN's: 50103102, 50103402, 50104202, 50105001, 50104702.

³14 CFR, Subchapter E, Part 77, §77.25.

Sources: Fresno County Parcels, Fresno County Streets, ESRI Basemap Imagery (2016).



Sierra Sky Park airport has one runway, Runway 12-30, which is 2,473 feet long and 50 feet wide. The runway is constructed of asphalt and in good condition. Runway 12 has a left-handed traffic pattern and Runway 30 has a non-standard, right-handed traffic pattern. The runway has basic markings that are in good condition. There are low-intensity runway lights. Runway 30 has a two-light precision approach path indicator (PAPI) on the left; however, there are no instrument approach aids.

FUTURE AIRPORT PLANS

There are currently no changes proposed for the Airport during the planning horizon this plan covers.

AIRPORT ENVIRONS

EXISTING LAND USES

Exhibit H5 illustrates existing land uses in the AIA. Note that the AIA for the purposes of this ALUCP only include the area within Fresno County.

Adjacent land to the north, east, and northwest of the Airport are part of unincorporated Fresno County, whereas land immediately to the southwest and south are part of the City of Fresno. The areas around the Airport within Fresno County are predominantly single family residential, with select parcels for commercial and industrial land use. North of the Airport, where there is no land use data, are bluffs, bounded by the Airport to the south and the San Joaquin River to the north. In the northeastern and eastern parts of the AIA, there are several parcels that are part of unincorporated Fresno County; however, most of the AIA is within the City limits of Fresno, which is primarily single family residential. Other uses in the AIA include commercial, open space, multi-family residential, and public. The primary roadway to access the Airport is off of West Herndon Avenue.

ZONING

Exhibit H6 shows zoning in the AIA.

To the north, east, and northwest of the Airport property are zoned for single family residential. West of the Airport, the areas are zoned primarily for commercial. South of Runway 30 is zoned for open space. Most of the northern areas of the AIA are zoned for open space and agriculture uses, with single family residential zoned in the eastern, western, and southern portion of the AIA. There are zones for commercial, industrial, open space, multi-family residential, and public throughout the AIA; however, the predominant zoning is for single family residential.

GENERAL PLAN

General plan land uses in the AIA are shown on **Exhibit H7**.

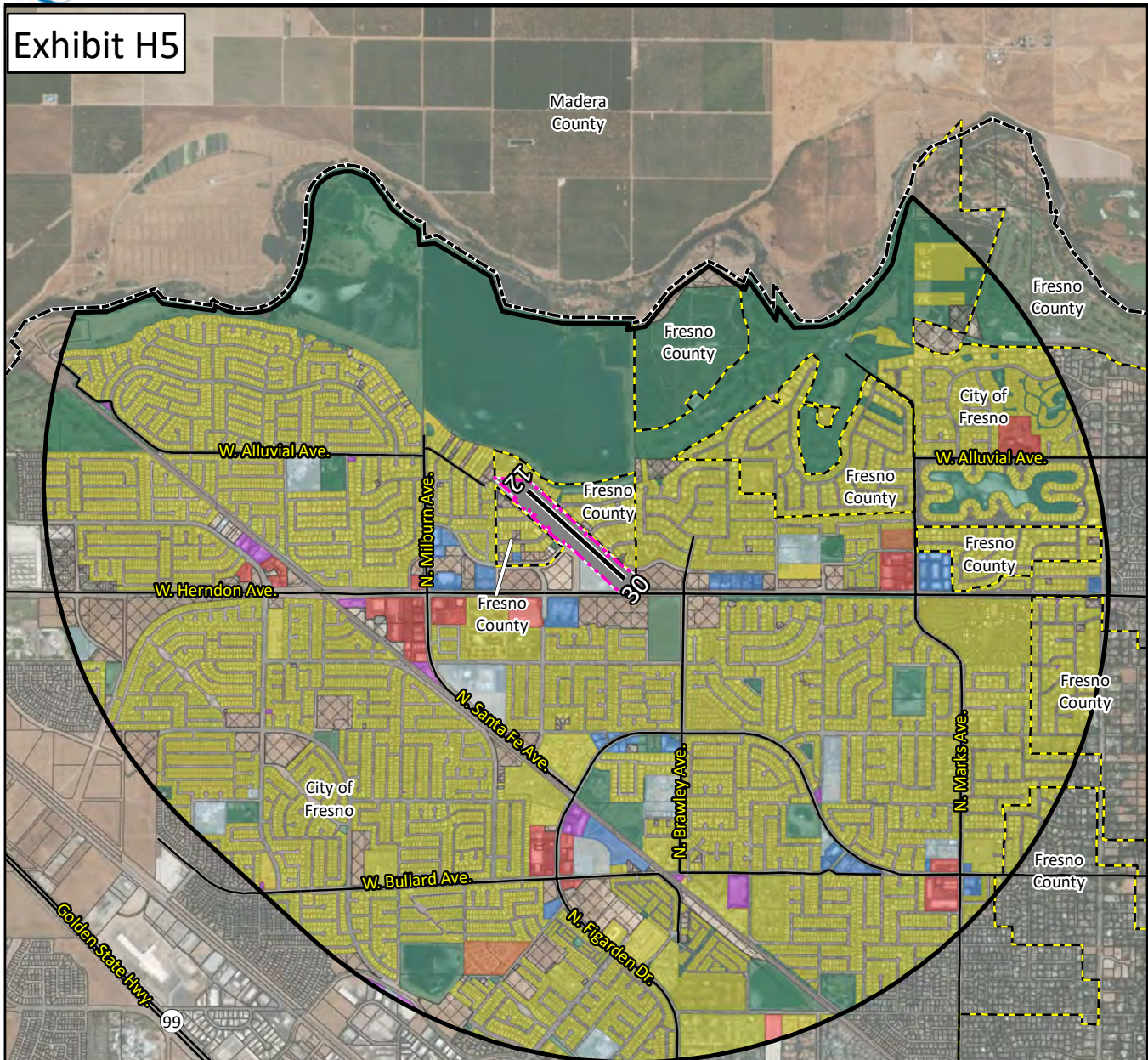
Areas to the northwest and east of the Airport area planned for single family residential. To the west and southwest, uses are planned for public and commercial uses. The area south of Runway 30 is planned for open space and office, and areas to the southeast are planned for commercial and mixed use, which contains a combination of commercial and residential uses. North of Runway 12 is planned for mostly open space, but some parcels are planned for mixed use as well. Unlike the existing land uses and zoning exhibits, the general plan map shows that much of the AIA is planned for mixed use in the future versus mostly residential. Much of the eastern area of the AIA is still planned for single family residential and northern portions are to remain as open space.

COMPATIBILITY FACTORS

Exhibit H8 is a compatibility factors map, which compiles National Transportation Safety Board flight accident data for all airports in the United States, noise exposure contours, and arrival and departure flight tracks from the noise exposure contours. The purpose of this exhibit is to illustrate the methodology behind the shape and size of the safety, noise, and airspace compatibility zones.



Exhibit H5

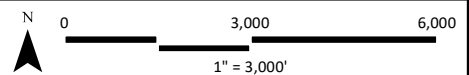


LEGEND

- Runway¹
- Airport Property²
- Parcel Boundary
- Municipal Boundary
- County Boundary
- Streets
- Airport Influence Area (AIA)³

Existing Land Use⁴

- Single Family Residential
- Multi-Family Residential
- Commercial
- Industrial
- Public
- Agricultural
- Open Space
- Transportation/Right-of-Way
- Vacant
- No Data



¹FAA 5010 Master Record.

²APN's: 50103102, 50103402, 50104202, 50105001, 50104702.

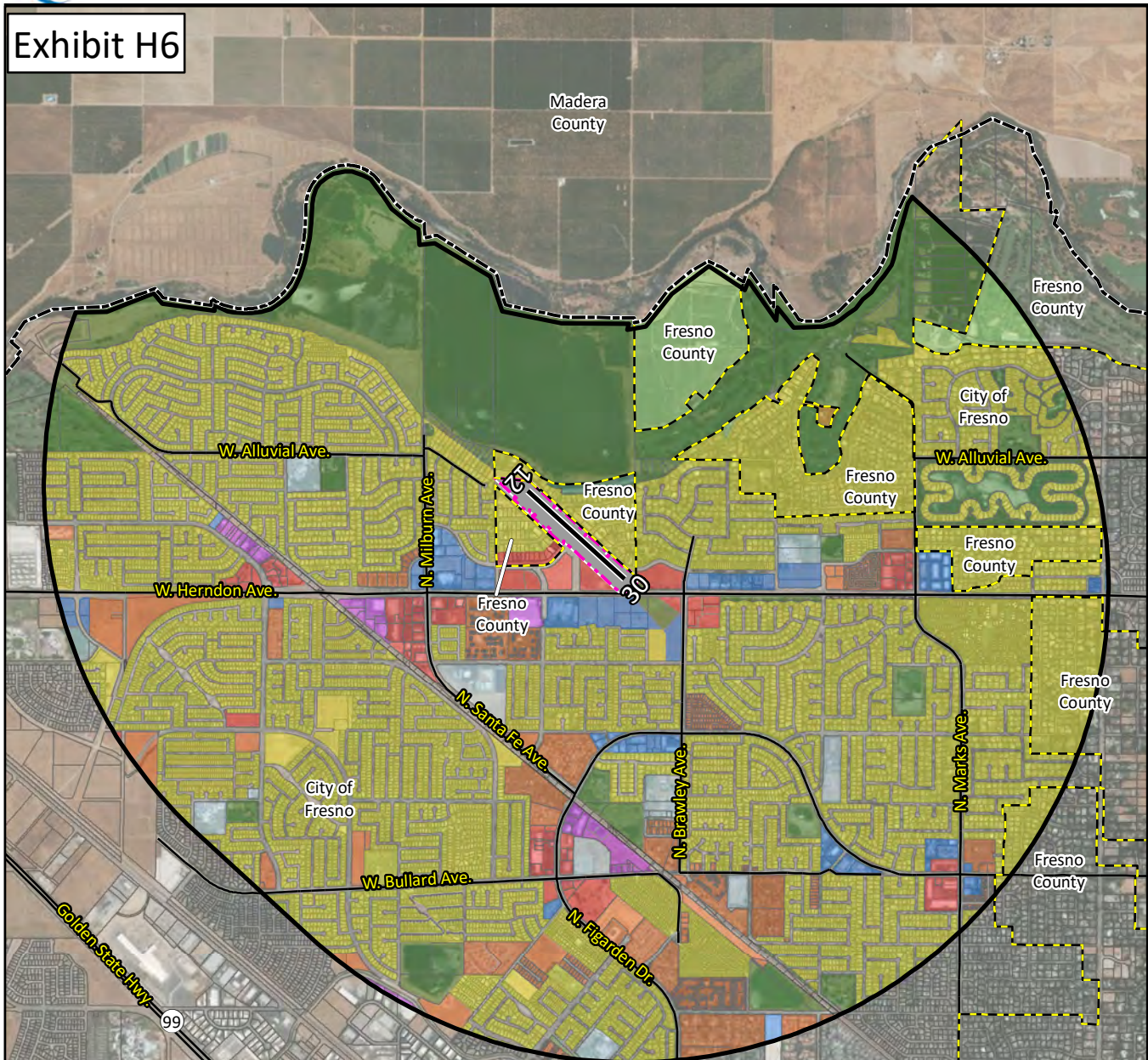
³Part 77 Conical Surface. See 14 CFR, Subchapter E, Part 77, §77.25.

⁴City of Fresno.

Sources: Fresno County Parcels, Fresno County Streets, ESRI Basemap Imagery (2016).



Exhibit H6

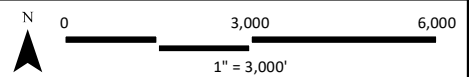


LEGEND

- Runway¹
- Airport Property²
- Parcel Boundary
- Municipal Boundary
- County Boundary
- Streets
- Airport Influence Area (AIA)³

Zoning⁴

- Single Family Residential
- Multi-Family Residential
- Commercial
- Office
- Industrial
- Public
- Open Space
- Agriculture
- No Data



¹FAA 5010 Master Record.

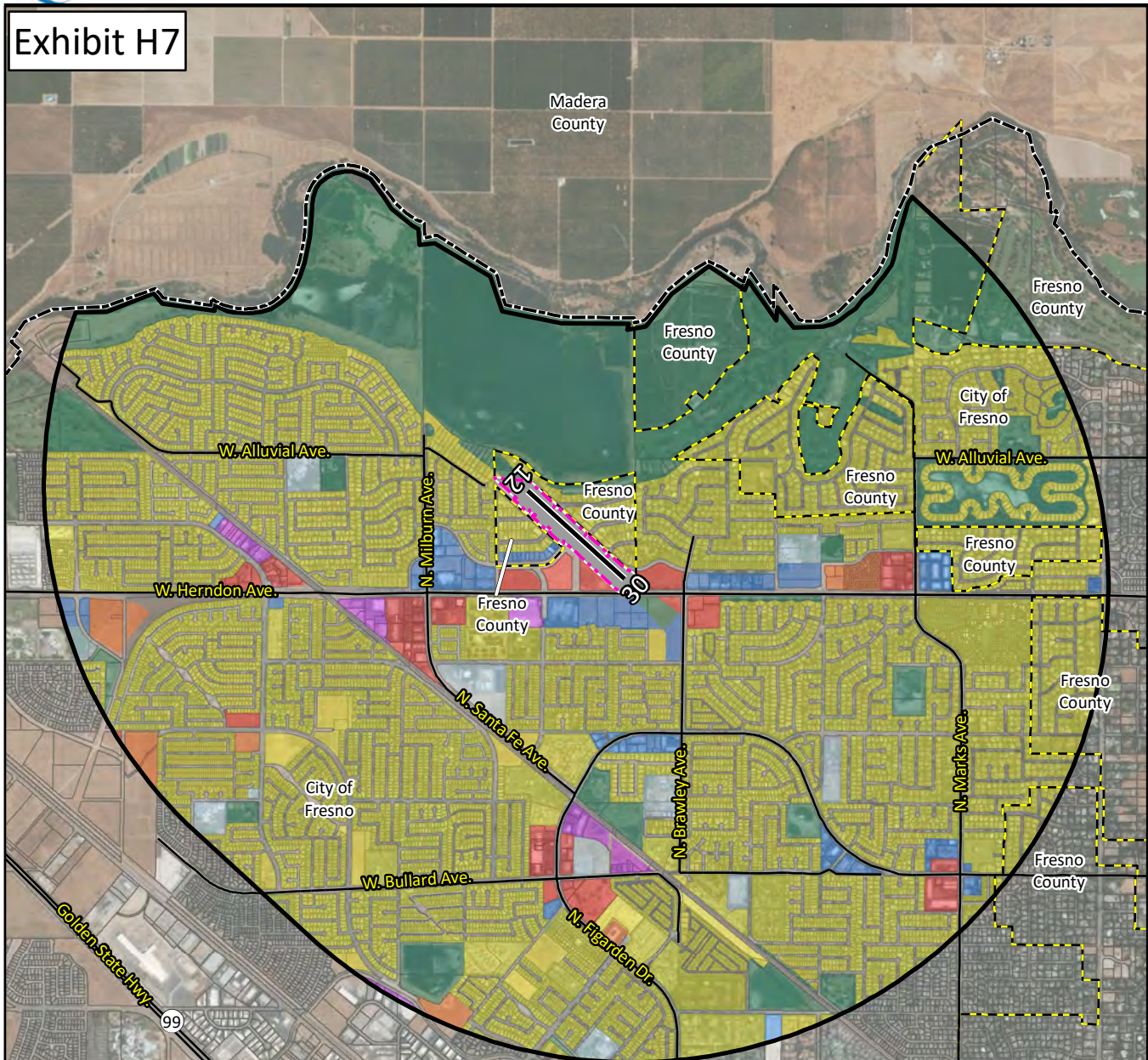
²APN's: 50103102, 50103402, 50104202, 50105001, 50104702.

³Part 77 Conical Surface. See 14 CFR, Subchapter E, Part 77, §77.25.

⁴Fresno County Zoning, City of Fresno Zoning. Sources: Fresno County Parcels, Fresno County Streets, ESRI Basemap Imagery (2016).



Exhibit H7

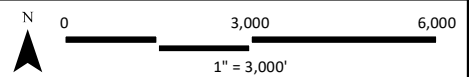


LEGEND

- Runway¹
- Airport Property²
- Parcel Boundary
- Municipal Boundary
- County Boundary
- Streets
- Airport Influence Area (AIA)³

General Plan⁴

- Single Family Residential
- Multi-Family Residential
- Mixed Use
- Commercial
- Office
- Industrial
- Public
- Open Space
- No Data



¹FAA 5010 Master Record.

²APN's: 50103102, 50103402, 50104202, 50105001, 50104702.

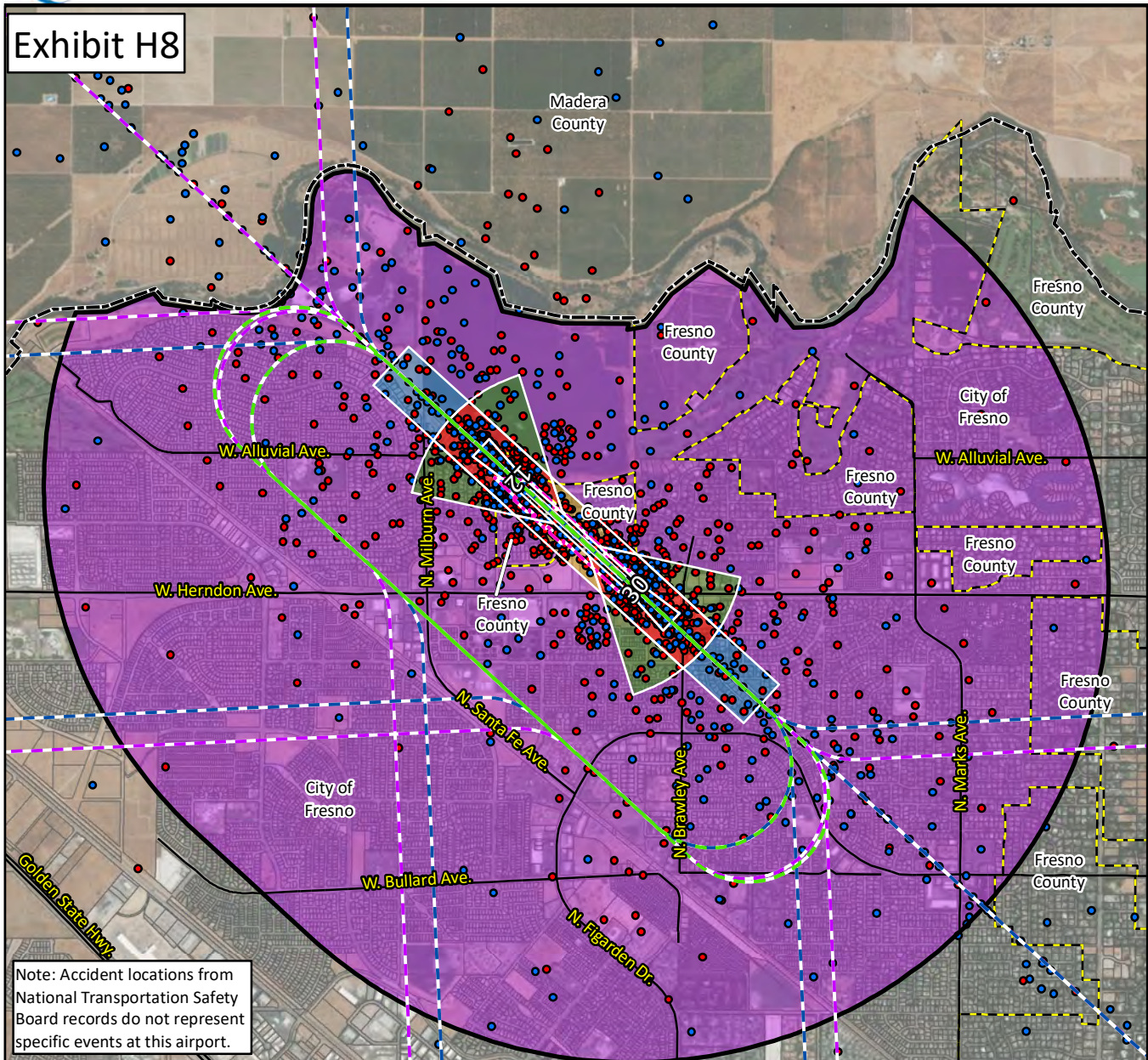
³Part 77 Conical Surface. See 14 CFR, Subchapter E, Part 77, §77.25.

⁴City of Fresno General Plan.

Sources: Fresno County Parcels, Fresno County Streets, ESRI Basemap Imagery (2016).



Exhibit H8



Note: Accident locations from National Transportation Safety Board records do not represent specific events at this airport.

LEGEND

- Runway¹
- Airport Property²
- Parcel Boundary
- Municipal Boundary
- County Boundary
- Streets
- Arrival Accidents³
- Departure Accidents³
- Airport Influence Area (AIA)⁴

Flight Tracks⁵

- Approach
- Departure
- Touch And Go

Safety Zones⁶

1. Runway Protection Zone
2. Inner Approach/Departure Zone
3. Inner Turning Zone
4. Outer Approach/Departure Zone
5. Sideline Zone
6. Traffic Pattern Zone



0 3,000 6,000
1" = 3,000'

¹FAA 5010 Master Record.

²APN's: 50103102, 50103402, 50104202, 50105001, 50104702.

³California Airport Land Use Planning Handbook, 2011. Normalized from airports in United States.

⁴Part 77 Conical Surface. See 14 CFR, Subchapter E, Part 77, §77.25.

⁵Coffman Associates Analysis.

⁶Figure 3A, California Airport Land Use Planning Handbook (2011), and Coffman Associates Analysis. Sources: Fresno County Parcels, Fresno County Streets, ESRI Basemap Imagery (2016).