Draft

# LAKE TAHOE AIRPORT

## Airport Land Use Compatibility Plan

Prepared for
Lake Tahoe Airport Land Use Commission

May 2019

ESA

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2600 Capitol Avenue
Suite 200
Sacramento, CA 95816
916.564.4500
www.esassoc.com

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# CHAPTER 1
# Scope of the Plan

## 1.1 Introduction

This document is an update to the state-mandated airport land use compatibility plan (ALUCP) for the areas around Lake Tahoe Airport (Airport). This ALUCP was prepared by the City of South Lake Tahoe Airport Land Use Commission (ALUC) as required under the State Aeronautics Act (Pub. Util. Code, § 21670 *et seq*.) The policies contained in this document are designed to promote compatibility between the Airport and surrounding land uses "to the extent that these areas are not already devoted to incompatible uses" (Pub. Util. Code, § 21674(a)). As adopted by the City of South Lake Tahoe, these policies provide the foundation through which the ALUC can execute its duty to review land use development in areas around the Airport. This ALUCP replaces the Lake Tahoe Airport Comprehensive Land Use Plan, adopted by the City of South Lake Tahoe ALUC in July 1990 (last revised May 2007).

The following sections discuss the State of California's requirements for airport land use compatibility planning, the roles and responsibilities of various agencies that participate in the airport land use compatibility planning process, the airport influence area to which this ALUCP is applicable, the jurisdictions affected by the ALUCP, the need for and purpose of the ALUCP, and the scope of the ALUCP document. This chapter concludes with a list of terms used throughout this document and their definitions, as well as a table of acronyms.

## 1.2 State Requirements for Airport Land Use Compatibility Planning

In 1967, the State of California amended the State Aeronautics Act (Pub. Util. Code, § 21670 *et seq*.) by adding a requirement for the establishment of airport land use commissions (ALUCs) in counties with one or more airports serving the general public. Although the law has been amended several times since 1967, the fundamental purpose of ALUCs has remained unchanged:

> "to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses" (Pub. Util. Code, § 21670(a)(2)).

In 1970, the legislature further amended the State Aeronautics Act requiring each ALUC to develop ALUCPs for areas around public-use and military airports in their jurisdiction. Most counties have established an ALUC to prepare compatibility plans for their airports and to review

land use plans, development proposals, and certain airport development plans for consistency with the compatibility plans.

## 1.3 Airport Land Use Compatibility Planning in California: Roles and Responsibilities

The following sections describe the roles and responsibilities of ALUCs, as well as state and local agencies, with respect to aviation and airport land use compatibility planning in California.

### 1.3.1 Airport Land Use Commissions

ALUCs are charged with assisting local agencies in ensuring compatible land uses in the vicinity of all new airports or heliports and existing airports or heliports to the extent that the land in the vicinity of those airports is not already devoted to incompatible uses (Pub. Util. Code, § 21674). They are also charged with coordinating "planning at the state, regional and local levels so as to provide for the orderly development of air transportation, while at the same time protecting the public health, safety, and welfare" (Pub. Util. Code, § 21674(b)); to prepare and adopt airport land use plans; and to review and make recommendations concerning specified plans, regulations and other actions of local agencies and airport operators. Local agencies include special districts, school districts, and community college districts (Pub. Util. Code, § 21670(f))(see also Section 2.3.4).

There are three important limits to an ALUC's authority:

1. ALUCs have no authority over existing land uses regardless of whether such uses are incompatible with airport activities (Pub. Util. Code, § 21670 (a)(2) and § 21674(a)) (please see Table 1-1 in Section 1.7, *Definitions*, for a definition of "existing land uses");

2. ALUCs have no jurisdiction over the "operation of airports" (Pub. Util. Code, § 21674(e))(please note that non-aviation related development of airport property is subject to ALUC authority); and,

3. ALUCs have no jurisdiction over federal lands, such as military bases and lands controlled by the U.S. Forest Service, U.S. Bureau of Land Management, or lands under the authority of American Indian tribes and bands (Pub. Util. Code, § 21675(b)).

The law emphasizes that local general plans are the primary mechanism for implementing the compatibility policies of an ALUC's compatibility plan. Thus, each local agency with jurisdiction over land located within an airport Influence area (AIA) is required to make its general plan consistent with the ALUCP, or to take special steps to overrule all or part of an ALUCP. The power to overrule all or part of an ALUCP represent a fourth quasi-limit on ALUC authority. Statute allows the local agency's governing body to overrule the ALUC by a two-thirds vote, if it makes specific findings that the project is consistent with the purpose of Article 3.5 of the State Aeronautics Act (see Pub. Util. Code, §§ 21675.1(d), 21676, 21676.5(a)).

### 1.3.2 California Department of Transportation, Division of Aeronautics

The legislature has directed the California Department of Transportation (Caltrans) to "develop and implement a program or programs to assist in the training and development of the staff of airport land use commissions." (Pub. Util. Code, § 21674.5.) Activities undertaken by Caltrans in meeting this obligation include issuance of grants to ALUCs for purposes of funding development of ALUCP documents and preparation of the *California Airport Land Use Planning Handbook* (Handbook or Caltrans Handbook). The Caltrans Handbook provides guidance to ALUCs on the requirements and procedures for preparation of AUCPs.

### 1.3.3 Local Governments

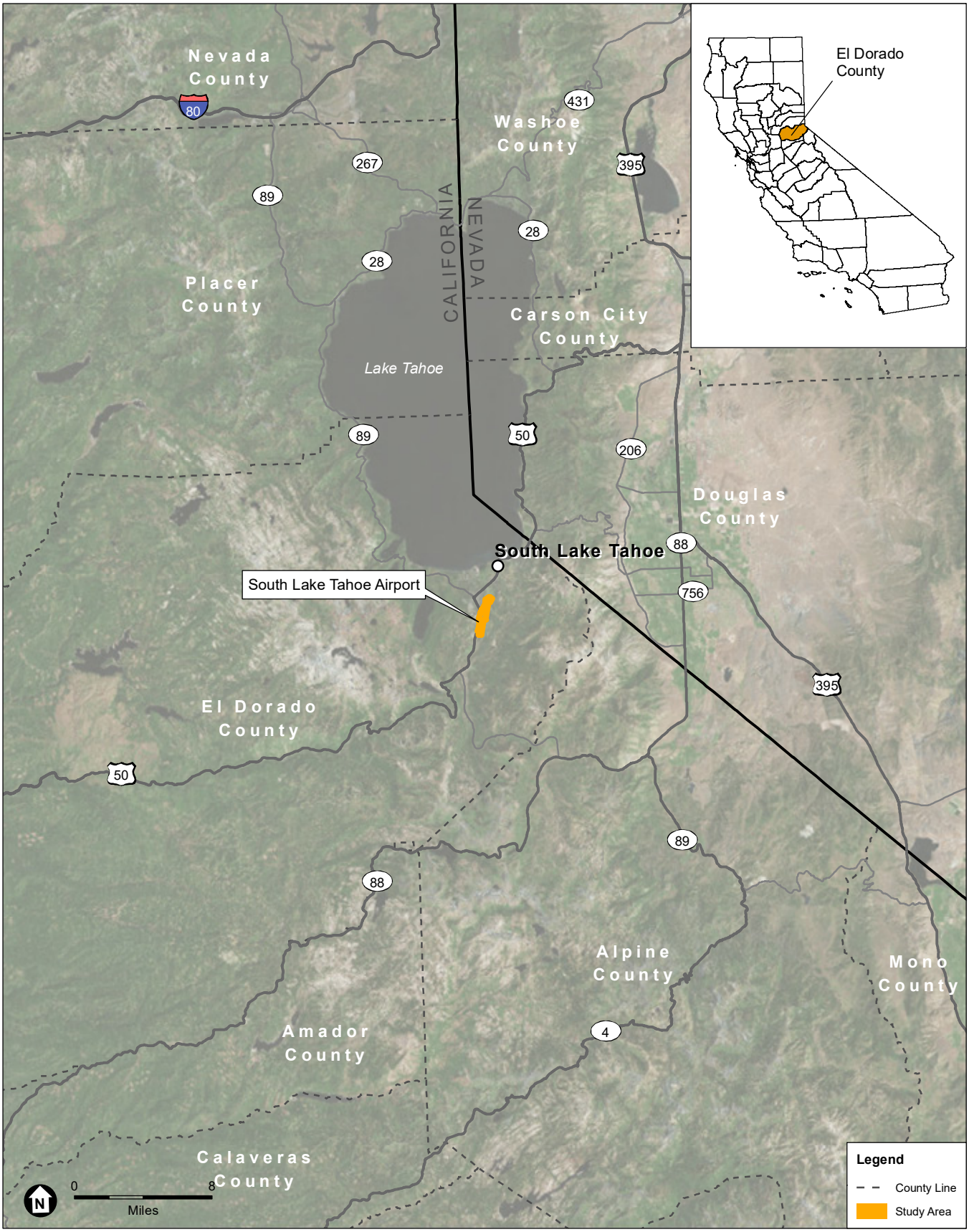
California law requires that after an ALUC has adopted an ALUCP, affected local governments must update their general plans, specific plans, and regulations to be consistent with the ALUCP (Gov't. Code, § 65302.3). Alternatively, the law allows local government agencies to take certain steps to overrule part or all of the ALUCP as it applies to their jurisdiction. The overrule process is discussed further in Chapter 3, *Common Policies and Plan Implementation*. If a local government agency fails to take either action, then it must submit all land use policy actions, development actions, and facility master plans within the airport influence area to the ALUC for review. Even if the local government agency has amended its plan(s) to be consistent with the ALUCP or has overruled the ALUCP, it must still submit proposed new and amended general plans, specific plans, land use ordinances, regulations, and facility master plans to the airport land use commission for review (Pub. Util. Code, § 21676.5(a)).

### 1.3.4 Airports

Airport operators are obligated under State law to submit proposed airport master plans, plans for expansion of an existing airport, and plans for construction of a new airport (or heliport) to the ALUC for review (see Pub. Util. Code, §§ 21676(c), 21664.5, and 21661.5, respectively.) This requirement is in effect regardless of whether an ALUC has adopted an ALUCP or a local jurisdiction has updated its planning documents to be consistent with the ALUCP.

## 1.4 Lake Tahoe Airport and the Airport Influence Area

**Figure 1-1** depicts the location of Lake Tahoe Airport. The Airport is primarily located within the City of South Lake Tahoe, approximately 1.5 miles south of the intersection of Highway 50 and Highway 89. A small portion of Airport property extends into unincorporated El Dorado County. **Figure 1-2** depicts the Airport Influence Area for Lake Tahoe Airport. The AIA boundaries define areas where noise, safety, airspace protection, and overflight notification policies and compatibility criteria are applied to certain proposed future land use policy actions. These areas are described in greater detail in Policy CP-2, *Geographic Scope*. The policies, standards, and criteria applicable within the AIA and contained in this ALUCP are designed to:




SOURCE: ESRI; ESA, 2017

ALUCP for Lake Tahoe Airport. 161008

**Figure 1-1**
Airport and Surrounding Areas
Lake Tahoe Airport

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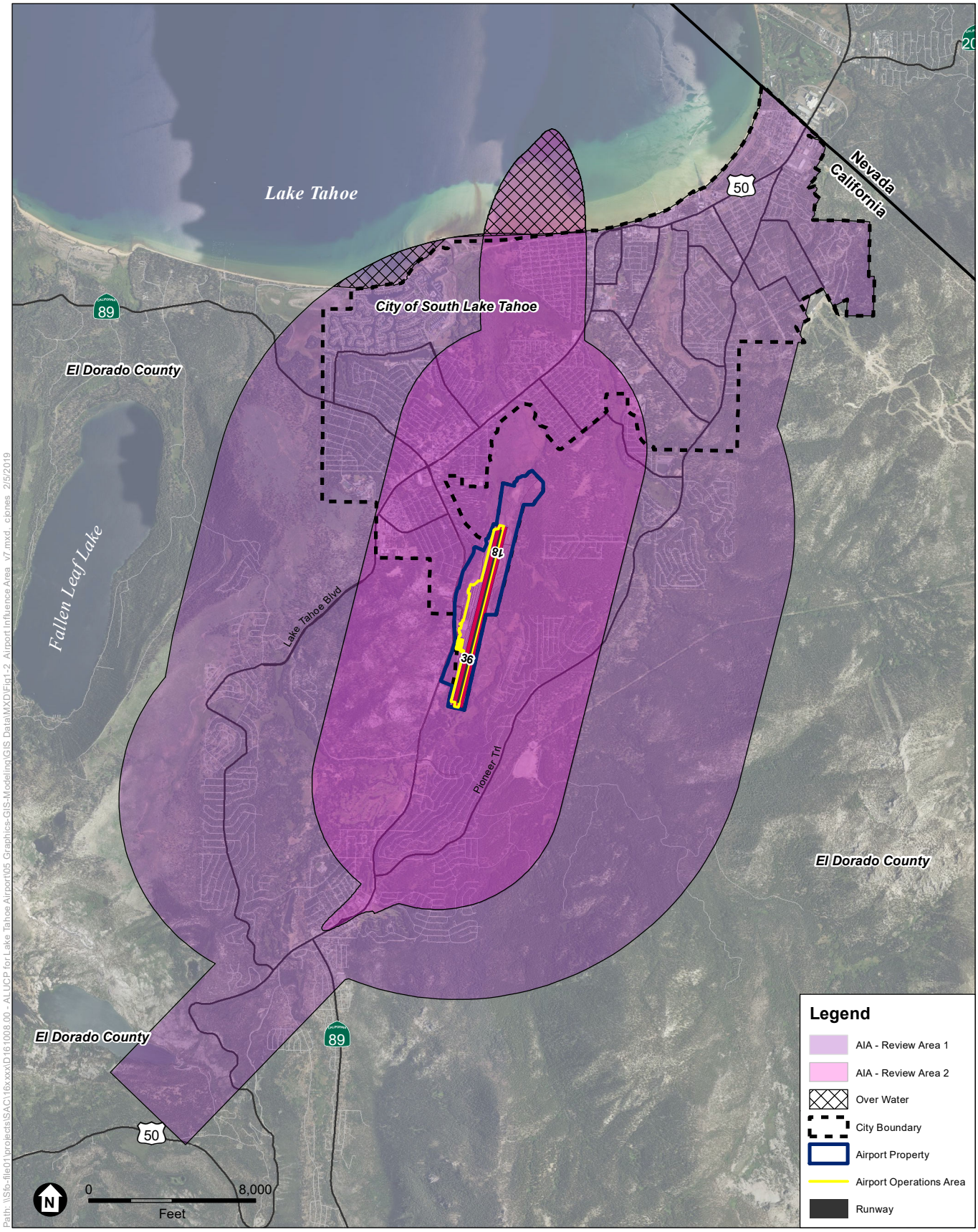


SOURCE: ESRI; ESA, 2018

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**Figure 1-2**
Airport Influence Area
Lake Tahoe Airport

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(1) minimize the exposure of the public to noise and safety hazards,

(2) provide for safer aircraft operations,

(3) protect the airport from encroachment and minimize incompatible development in the immediate vicinity of the airport, and

(4) ensure notification of prospective buyers of real estate of the presence of the Airport and aircraft overflights.

The noise, safety, airspace protection, and overflight notification policies and compatibility criteria are further discussed in Chapter 4.

### 1.4.1 Jurisdictions Affected

The Airport is situated in the City of South Lake Tahoe with portions of Airport property and surrounding areas extending into unincorporated El Dorado County. Responsibility for land use planning throughout the AIA is shared by the Tahoe Regional Planning Agency (TRPA), the City of South Lake Tahoe, and El Dorado County. TRPA is a unique, bi-state planning agency dedicated to the preservation of the Lake Tahoe Basin. The City of South Lake Tahoe and El Dorado County maintain regulatory authority over land use in their respective jurisdictions within the Lake Tahoe Basin so long as it is consistent with the TRPA's Regional Plan. Land use planning in the AIA is further discussed in Chapter 2, *Lake Tahoe Airport and Environs*.

### 1.4.2 South Lake Tahoe Airport Land Use Commission

Pursuant to the requirements of Section 21670.1 of the Public Utility Code, the City of South Lake Tahoe has designated the City's Planning Commission, augmented with two members with aviation expertise, as the ALUC for Lake Tahoe Airport.

## 1.5 Airport Land Use Compatibility Plan: Need and Purpose

The following sections discuss the need and purpose for the ALUCP.

### 1.5.1 Need for the ALUCP Update

As discussed in Section 1.1, the ALUC adopted a Comprehensive Land Use Plan (CLUP) for Lake Tahoe Airport in July 1990. The CLUP was subsequently revised in 1992, 1995, 2002, 2004, and 2007. Portions of the 2007 CLUP are out-of-date and/or are inconsistent with guidance presented in the current version of the *California Airport Land Use Planning Handbook* (Caltrans Handbook or Handbook) produced by Caltrans. The Handbook, first released in 1983, has been updated three times: in 1993, 2002, and 2011. Since the adoption of the 2007 CLUP, the standards and requirements for airport land use planning have been consolidated and streamlined. The 2011 edition of the Handbook also includes additional information on the California Environmental Quality Act (CEQA) and the Next Generation Air Transportation System (NextGen), the Federal Aviation Administration's (FAA's) program to modernize the National Airspace System.

The updated ALUCP is based on the August 2016 Airport Master Plan and Airport Layout Plan (ALP) for Lake Tahoe Airport. The 2016 Master Plan and ALP reflect the forecasted growth of the Airport through 2033. For purposes of this ALUCP, the Master Plan forecast has been extended to 2038 to provide for a 20-year planning horizon. The ALP is provided in **Appendix A**.

### 1.5.2 Purpose of the ALUCP Update

The ALUCP is the primary document used by an airport land use commission to promote compatibility between an airport and the surrounding area. More specifically, the ALUCP is regulatory in nature and should act as a guide for the ALUC and local jurisdictions in safeguarding the general welfare of the public as the airport and the area surrounding the airport grows. The ALUCP also serves as a tool for the ALUC in fulfilling its duty to review airport and land use development proposals within the AIA.

The Lake Tahoe ALUCP is the key to implementation of ALUC policies related to proposed land development in the vicinity of the Airport. The ALUCP provides the standards, criteria, and policies on which the compatibility of proposed local land use policy actions are determined. The ALUCP also establishes the planning boundaries around Lake Tahoe Airport that define noise, safety, airspace protection, and overflight notification, for policy implementation.

## 1.6 Scope of the Lake Tahoe ALUCP

This update to the Lake Tahoe ALUCP includes four chapters. **Chapter 1, *Scope of the Plan***, provides an introduction to the ALUCP. **Chapter 2, *Lake Tahoe Airport and Environs***, provides general background information about the Airport, the City of South Lake Tahoe, El Dorado County, and the southern Lake Tahoe Basin. **Chapter 3, *Common Policies and Plan Implementatio*n**, summarizes land use compatibility criteria and policies and describes the procedures, roles, and responsibilities for the South Lake Tahoe ALUC. **Chapter 4, *Compatibility Factors: Maps and Policies***, provides maps depicting the four compatibility factors addressed in this ALUCP: noise, safety, airspace, and overflight. Chapter 4 also includes detailed policies pertaining to each compatibility factor.

## 1.7 Definitions

**Table 1-1** includes a list of terms that are used throughout this ALUCP and their definitions. Aviation related terms are provided first, followed by land use related terms.

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| ***Aviation Related Terms*** | |
| Aircraft Accident: | An occurrence incident to flight in which, as a result of the operation of an aircraft, a person (occupant or non-occupant) receives fatal or serious injury or an aircraft receives substantial damage. Except as provided below, substantial damage means damage or structural failure that adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component. Engine failure, damage limited to an engine, bent fairings or cowling, dented skin, small puncture holes in the skin or fabric, ground damage to rotor or propeller blades, damage to landing gear, wheels, tires, flaps, engine accessories, brakes, or wingtips are not considered substantial damage. |
| Aircraft Incident: | A mishap associated with the operation of an aircraft in which neither fatal nor serious injuries nor substantial damage to the aircraft occurs. |
| Aircraft Mishap: | The collective term for an aircraft accident or an incident. |
| Aircraft Operation: | The airborne movement of aircraft at an airport or about an en route fix or at other point where counts can be made. There are two types of operations: local and itinerant. An operation is counted for each landing and each departure, such that a touch-and-go flight is counted as two operations. (FAA Stats) |
| Airfields, landing strips and heliports (new non- emergency sites prohibited): | Transportation facilities that are used for the landing or take-off of aircraft, including helicopters, such as airports, heliports, helipads, and seaplane bases. The use also includes any appurtenant areas used for airport buildings and accessory facilities, including terminals, aircraft sales and rentals, and fueling facilities. Outside storage or display is included as part of the use. |
| Airport: | An area of land or water that is used or intended to be used for the landing and taking off of aircraft, and includes its buildings and facilities, if any. (FAR 1) |
| Airport Elevation: | The highest point of an airport's usable runways, measured in feet above mean sea level. (AIM) |
| Airport Layout Plan (ALP): | A scaled drawing, prepared in conformance with criteria promulgated by the FAA, depicting existing and proposed airport facilities, their location on an airport, and pertinent clearance and dimensional information. |
| Airport Master Plan (AMP): | An airport master plan is an airport-sponsored, comprehensive planning study that usually describes existing conditions as well as interim and long-term development plans for the airport that will enable it to meet future aviation demand. An AMP contains an FAA-approved activity forecast and an ALP. |
| Airspace Protection Surfaces: | Imaginary surfaces in the airspace surrounding airports defined in accordance with criteria set forth in Title 14 of the Code of Federal Regulations, Part 77, Subpart C (14 CFR Part 77). |
| Based Aircraft: | Aircraft stationed at an airport on a long-term basis. |
| Ceiling: | Height above the earth's surface to the lowest layer of clouds or obscuring phenomena. (AIM) |
| Class A Airspace: | Generally the airspace from 18,000 feet mean sea level (MSL) up to and including flight level (FL) 600 (60,000 feet MSL), including the airspace overlying the waters within 12 nautical miles (NM) of the coast of the 48 contiguous states and Alaska. |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Class E Airspace: | The controlled airspace not classified as Class A, B, C, or D airspace. A large amount of the airspace over the United States is designated as Class E airspace. This provides sufficient airspace for the safe control and separation of aircraft during IFR operations. In most areas, the Class E airspace base is 1,200 feet above ground level (AGL). In many other areas, the Class E airspace base is either the surface or 700 feet AGL. Some Class E airspace begins at an MSL altitude depicted on navigational charts, instead of an AGL altitude. Class E airspace typically extends up to, but not including, 18,000 feet MSL (the lower limit of Class A airspace). All airspace above FL 600 is Class E airspace. |
| Commercial Operator: | A person who, for compensation or hire, engages in the carriage by aircraft in air commerce of persons or property, other than as an air carrier. (FAR 1) |
| Commercial Service Airports: | Public airports receiving scheduled passenger service and having 2,500 or more enplaned passengers per year. Commercial service airports are further broken down into Primary and Non-Primary Airports. |
| Controlled Airspace: | Any of several types of airspace within which some or all aircraft may be subject to air traffic control. (FAR 1) |
| Departure Surface for Instrument Runways: | Applied to runways with an instrument approach, this surface has a slope of 40: 1 starting from the departure end of the runway with dimensions of 1,000-foot inner width, 6,466-foot outer width, and 10,200-foot length. |
| Displaced Threshold: | A landing threshold that is located at a point on the runway other than the designated beginning of the runway (see *Threshold*). (AIM) |
| FAR Part 77 Surfaces: | Imaginary airspace surfaces established with relation to each runway of an airport. There are five types of surfaces: (1) primary; (2) approach; (3) transitional; (4) horizontal; and (5) conical. |
| FAR Part 77: | The part of the Federal Aviation Regulations that addresses objects affecting navigable airspace. |
| Federal Aviation Administration (FAA): | The U.S. government agency that is responsible for ensuring the safe and efficient use of the nation's airports and airspace. |
| Federal Aviation Regulation (FAR): | Regulations formally issued by the FAA to regulate air commerce. |
| Fixed Base Operator (FBO): | A business which operates at an airport and provides aircraft services to the general public including, but not limited to, sale of fuel and oil; aircraft sales, rental, maintenance, and repair; parking and tie-down or storage of aircraft; flight training; air taxi/charter operations; and specialty services, such as instrument and avionics maintenance, painting, overhaul, aerial application, aerial photography, aerial hoists, or pipeline patrol. |
| Flight Tracks: | Routes aircraft routinely use when arriving and departing from an airport. |
| Forecasts: | A projection of the amount and type of aircraft operations at an airport. |
| General Aviation Airport: | Airports that do not receive scheduled commercial air service, or do not meet the criteria for classification as a commercial service airport. General aviation airports have at least 10 locally based aircraft, are at least twenty miles from the nearest National Plan of Integrated Airport Systems (NPIAS) airports |
| General Aviation (GA): | That portion of civil aviation which encompasses all facets of aviation except air carriers. (FAA Stats) |
| Glide Slope: | An electronic signal radiated by a component of an ILS to provide vertical guidance for aircraft during approach and landing. |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Global Positioning System (GPS): | A navigational system that utilizes a network of satellites to determine a positional fix almost anywhere on or above the earth. Developed and operated by the U.S. Department of Defense, GPS has been made available to the civilian sector for surface, marine, and aerial navigational use. For aviation purposes, the current form of GPS guidance provides en route aerial navigation and selected types of non-precision instrument approaches. Eventual application of GPS as the principal system of navigational guidance throughout the world is anticipated. |
| Helipad: | A small, designated area, usually with a prepared surface, on a heliport, airport, landing/ takeoff area, apron/ramp, or movement area used for takeoff, landing, or parking of helicopters. (AIM) |
| Heliport: | A facility used for operating, basing, housing, and maintaining helicopters. (HAI) |
| Inner Approach/Departure Zone: | A rectangular area extending beyond the Runway Protection Zone (RPZ). If the RPZ widths approximately equal the runway widths, the Inner Approach/Departure Zoned extends along the sides of the RPZ from the end of the runway. |
| Inner Turning Zone: | A triangular area over which aircraft are turning from the base to final approach legs of the standard traffic pattern. It also includes the area where departing aircraft normally complete the transition from takeoff to climb mode and begin to turn on their en route headings. |
| Instrument Approach Procedure (IAP): | A series of predetermined maneuvers for the orderly transfer of an aircraft under instrument flight conditions from the beginning of the initial approach to a landing or to a point from which a landing may be made visually. It is prescribed and approved for a specific airport by competent authority (refer to Nonprecision Approach Procedure and Precision Approach Procedure). (AIM) |
| Instrument Flight Rules (IFR): | Rules governing the procedures for conducting instrument flight. Generally, IFR applies when meteorological conditions with a ceiling below 1,000 feet and visibility less than 3 miles prevail. (AIM) |
| Instrument Landing System (ILS): | A precision instrument approach system that normally consists of the following electronic components and visual aids: (1) Localizer; (2) Glide Slope; (3) Outer Marker; (4) Middle Marker; (5) Approach Lights. (AIM) |
| Instrument Operation: | An aircraft operation in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal control facility. (FAA ATA) |
| Instrument Runway: | A runway equipped with electronic and visual navigation aids for which a precision or non-precision approach procedure having straight-in landing minimums has been approved. (AIM) |
| Localizer (LOC): | The component of an ILS that provides course guidance to the runway. (AIM) |
| Minimum Descent Altitude (MDA): | The lowest altitude, expressed in feet above mean sea level, to which descent is authorized on final approach or during circle-to-land maneuvering in execution of a standard instrument approach procedure where no electronic glide slope is provided. (FAR 1) |
| Navigational Aid (NAVAID): | Any visual or electronic device airborne or on the surface which provides point-to point guidance information or position data to aircraft in flight. (AIM) |
| Non-precision Approach Procedure: | A standard instrument approach procedure in which no electronic glide slope is provided. (FAR 1) |
| Non-precision Instrument Runway: | A runway with an approved or planned straight-in instrument approach procedure that has no existing or planned precision instrument approach procedure. (Airport Design AC) |
| Obstruction: | Any object of natural growth, terrain, or permanent or temporary construction or alteration, including equipment or materials used therein, the height of which exceeds the standards established in Subpart C of Federal Aviation Regulations Part 77, Objects Affecting Navigable Airspace. |
| Outer Approach/Departure Zone: | A rectangular area located along the extended centerline beyond the Inner Approach/Departure Zone. |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Overflight: | Any distinctly visible and audible passage of an aircraft in flight, not necessarily directly overhead. |
| Precision Approach Procedure: | A standard instrument approach procedure where an electronic glide slope is provided. (FAR 1) |
| Precision Instrument Runway: | A runway with an existing or planned precision instrument approach procedure. (Airport Design AC) |
| Runway Protection Zone (RPZ): | A trapezoidal area (formerly called a clear zone) off the end of a runway and outward along the extended runway centerline used to enhance the protection of people and property on the ground. (Airport Design AC) |
| Sideline Zone: | A rectangular area in close proximity and parallel to the runway. |
| Straight-In Instrument Approach: | An instrument approach wherein a final approach is begun without first having executed a procedure turn; it is not necessarily completed with a straight-in landing or made to straight-in landing weather minimums. (AIM) |
| Terminal Instrument Procedures (TERPS): | Procedures for instrument approach and departure of aircraft to and from civil and military airports. There are four types of terminal instrument procedures precision approach, non-precision approach, circling, and departure. |
| Threshold: | The beginning of that portion of the runway usable for landing (also see *Displaced Threshold*). (AIM) |
| Touch-and-Go: | An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway. (AIM) |
| Traffic Pattern Zone: | An elliptical area that includes the majority of other portions of regular air traffic patterns and pattern entry routes, and generally extends to the farthest point of 6,000 foot radius arcs from the centers of each of the primary surfaces and connecting lines tangent to those arcs. |
| Traffic Pattern: | The traffic flow that is prescribed for aircraft landing at, taxiing on, or taking off from an airport. The components of a typical traffic pattern are upwind leg, crosswind leg, downwind leg, base leg, and final approach. (AIM) |
| Visual Approach: | An approach where the pilot must use visual reference to the runway for landing under VFR conditions. |
| Visual Flight Rules (VFR): | Rules that govern the procedures for conducting flight under visual conditions. VFR applies when meteorological conditions are equal to or greater than the specified minimum: generally, a 1,000-foot ceiling and 3-mile visibility. |
| ***Land Use Related Terms*** | |
| Accessory dwelling unit | See *Secondary residence.* |
| Airport Compatibility Zones: | Areas on and near an airport in which land use and development restrictions are established to protect the safety of the public and include the Runway Protection Zone, Inner Approach/Departure Zone, Inner Turning Zone, Outer Approach/ Departure Zone, Sideline Zone, and the Traffic Pattern Zone. |
| Airport Influence Area: | A two-part area, including Review Area 1 and Review Area 2, established by this ALUCP and within which the ALUC exercises its jurisdiction with respect to airport land use compatibility planning. The AIA is depicted on Figure 1-2 in Chapter 1. |
| Airport Land Use Commission (ALUC): | When capitalized, unless the context clearly indicates otherwise, the City of South Lake Tahoe Planning Commission, acting in its capacity as the Airport Land Use Commission for Lake Tahoe Airport. |
| Airport Land Use Compatibility Plan (ALUCP): | A planning document that contains policies for promoting safety and compatibility between public use airports and the communities that surround them. The ALUCP is the foundation of the airport land use compatibility planning process. The ALUCP is adopted by the ALUC (or the body acting in that capacity per PUC Section 21670.1), and is based on a current Airport Master Plan (AMP) or Airport Layout Plan (ALP). |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Allowed in all areas of the region: | Land with no land coverage and maintained in a natural condition or landscaped condition consistent with best management practices, such as deed-restricted properties and designated open space areas. |
| Amusements and recreation services: | Establishments providing amusement or entertainment for a fee or admission charge, such as: arcades and coin-operated amusements; billiard and pool halls; bowling alleys; card rooms; clubs and ballrooms that are principal uses rather than being subordinate to an eating or drinking place; dance halls; gymnasiums; health and athletic clubs; ice skating and roller skating facilities; indoor sauna, spa, or hot tub facilities; motion picture theaters; reducing salons; and tennis, handball, racquetball, indoor archery and shooting ranges, and other indoor sports activities. (TRPA Code of Ordinances) |
| Animal husbandry services: | Establishments primarily engaged in performing services for animals, such as veterinary services, animal hospitals, and animal kennels. The use does not include publicly operated animal control and wildlife care (*see Local public health and safety facilities*). (TRPA Code of Ordinances) |
| Auto repair and service: | Service establishments engaged in repair, alteration, painting, washing, or waxing of automobiles as a principal use. The use also includes storage and maintenance yards for rental of cars, trucks, or trailers. Outside storage or display is included as part of the use. The use does not include: automobile parking (see *Transportation*); repair shops subordinate to and maintained by a vehicle dealership; service stations (which are separately defined); or automobile wrecking yards (see *Recycling and scrap*).(TRPA Code of Ordinances) |
| Auto, mobile home and vehicle dealers: | Retail trade establishments selling new and used automobiles, boats, vans, campers, trucks, mobile homes, recreational and utility trailers, motorcycles, golf carts, snowmobile and jet skis (except bicycles and mopeds; see *General merchandise*). Such businesses are considered a primary use when the establishment sells more than six vehicles per calendar year. The use also includes establishments selling new automobile parts, tires, and accessories (including tire recapping establishments), as well as establishments dealing in used automobiles exclusively. Includes automobile repair shops only when maintained by an establishment selling new vehicles on the same site. Does not include establishments dealing exclusively in used parts (see *Recycling and scrap*) or outside sales (see *Secondary storage* or *Sales lots*).(TRPA Code of Ordinances) |
| Aviation related Use: | Any facility or activity directly associated with the air transportation of persons or cargo or the operation, storage, or maintenance of aircraft at an airport or heliport. These uses specifically include runways, taxiways, and their associated protection areas defined in accordance with FAA criteria, together with aircraft parking aprons, hangars, fixed-base operations facilities, terminal buildings, and related facilities. |
| Avigation easement: | A limited real property right that is granted by a property owner to an airport proprietor that provides for a right-of-way in, through, across, or about any portion of the airspace above and within the vicinity of the subject real property for the free, safe, and unobstructed passage of aircraft in flight. An avigation easement typically also allows for the creation of noise, vibration, and other effects that are attendant to the normal operation of aircraft in flight that may affect the subject real property. The avigation easement does not limit property owners' rights in the event of an abnormal activity. Depending on the specific language of the easement document, it may also limit the height of structures on the property to a certain height. As a legal instrument that is officially recorded with the County, it provides the current property owner and subsequent property owners with formal notice that his or her property is located near an airport and may be subject to impacts from airport and aircraft operations. |
| Batch plant: | Manufacturing establishment for the production of paving materials or concrete. Outside storage or display is included as part of the use. The use does not include quarrying operations supplying material for the production of such materials. (TRPA Code of Ordinances) |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Beach recreation: | Recreational use of a beach, supported by developed facilities such as sanitation facilities, parking, and picnic sites, and nearshore facilities such as multiple-use piers and buoys. Nearshore and foreshore facilities are included in Chapter 81: Permissible Uses and Structures in the Shorezone and Lakezone. (TRPA Code of Ordinances) |
| Bed and breakfast facilities: | Residential-type structures that have been converted to or constructed as tourist accommodation facilities where bedrooms without individual cooking facilities are rented for overnight lodging, and where at least one meal daily is provided. The use does not include *Hotels and motels*, which are defined separately; nor rooming and boarding houses (see *Multiple-Family dwellings*). (TRPA Code of Ordinances) |
| Boat launching facilities: | Recreational establishments that provide boat launching, parking, and short-term trailer storage for the general public. The storage, mooring, and maintenance of boats are included under *Marinas*. Raft launching is included under *Day use areas*. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Broadcasting studios: | Communication establishments such as telegraph, telephone, radio and television broadcasting and receiving stations, and studios, contained entirely within buildings. Transmission and receiving apparatus, such as towers, lines, reflectors, and antennas are included under the definition for *Transmission and receiving facilities*. (TRPA Code of Ordinances) |
| Building materials and hardware: | Retail trade establishments within buildings primarily engaged in selling lumber and other building materials, including paint, wallpaper, glass, hardware, nursery stock, and lawn and garden supplies. The use includes all such stores selling to the general public, even if contractor sales account for a larger proportion of total sales. Outside storage or display is included as part of the use. Establishments primarily wholesaling plumbing, heating and air conditioning equipment, and electrical supplies are classified in *Wholesale and distribution*. (TRPA Code of Ordinances) |
| Business support services: | Service establishments within buildings that provide other businesses with services including maintenance, repair and service, testing, and rental. This includes establishments such as: outdoor advertising services, mail advertising services (reproduction and shipping); blueprinting, photocopying, and photofinishing; computer-related services (rental, repair, and maintenance); commercial art and design (production); film processing laboratories; and services to structures such as window cleaning, exterminators, janitorial services, and business equipment repair services. (TRPA Code of Ordinances) |
| Calamity: | An event causing great and often sudden damage or distress; a disaster. (Oxford) |
| California Environmental Quality Act (CEQA): | Statutes adopted by the state legislature for the purpose of maintaining a quality environment for the people of the state now and in the future. The Act establishes a process for state and local agency review of projects, as defined in the implementing guidelines, which may adversely affect the environment. |
| Cemetery: | Internment establishment engaged in subdividing property into cemetery lots and offering burial plots or air space for sale. This includes establishments such as: animal cemeteries; cemetery associations; and cemetery, mausoleum, and columbarium operations. The use does not include funeral parlors, cemetery real estate operations, and related facilities listed under *Personal services*. (TRPA Code of Ordinances) |
| Collection stations: | Establishments engaged in the temporary accumulation and storage of recyclable or discarded materials, including toxic and hazardous wastes, which are subsequently transported to recycling centers or solid waste disposal sites for further processing on a regular and consistent schedule. Outside storage or display is included as part of the use. The use does not include automobile wrecking yards or any recycling processing facilities, which are listed under *Recycling and scrap* or regional solid waste transfer stations, which are listed under *Recycling and scrap* or *Regional public health and safety facilities*. (TRPA Code of Ordinances) |
| Combining District: | A zoning district that establishes development standards in areas of special concern over and above the standards applicable to basic underlying zoning districts. |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Community Noise Equivalent Level (CNEL): | A 24-hour cumulative noise metric used in the State of California for describing aircraft noise exposure. In computing CNEL, each noise event during the evening hours from 7:00 p.m. to 9:59 p.m. is multiplied by three, which equates to a 4.77-decibel (dB) weighting. Each noise event during the nighttime hours from 10:00 p.m. to 6:59 a.m. is multiplied by ten, which equates to a 10 dB weighting. (State Airport Noise Standards) |
| Compatibility Plan: | As used herein, a plan, usually adopted by an Airport Land Use Commission, which sets forth policies for promoting compatibility between airports and the land uses that surround them. |
| Contract construction services: | Service establishments primarily engaged in construction, such as new development, additions, alterations, and repairs. Construction activities are generally administered or managed from a relatively fixed place of business, but actual construction work is performed at one or more different sites that may be dispersed geographically. Three broad types of construction activity are covered: (a) building construction by general contractors or by operative builders; (b) other construction by general contractors; and (c) construction by special trade contractors such as electrical, air conditioning and plumbing contractors, or others such as well drilling services. Establishments engaged in the installation of prefabricated buildings and equipment also are included. Outside storage or display is included as part of the use. An office not associated with a construction site or without secondary storage is considered under *Professional offices*. (TRPA Code of Ordinances) |
| Cross country ski courses: | Land or premises used as a commercial operation for Nordic skiing. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Cultural facilities: | Permanent public or quasi-public facilities generally of a noncommercial nature, such as art exhibitions, planetariums, botanical gardens, libraries, museums, archives, and arboretums. |
| Day care centers/pre-schools: | Establishments used for the care of seven or more children residing elsewhere. (TRPA Code of Ordinances) |
| Day use areas: | Land or premises, other than *Participant sports facilities*, designated by the owner to be used by individuals or the general public, for a fee or otherwise, for outdoor recreation purposes on a daily basis such as regional and local parks, picnic sites, vista points, snow play areas, rafting facilities, and playgrounds. (TRPA Code of Ordinances) |
| Day-Night Average Sound Level (DNL): | The noise metric adopted by the U.S. Environmental Protection Agency for measurement of environmental noise. It represents the average daytime noise level during a 24-hour day, measured in decibels and with 10 dB added to each event between 10:00:00 pm and 6:59:59 am to account for the lower tolerance of people to noise during nighttime periods. The mathematical symbol is Ldn. |
| Decibel (dB): | A unit measuring the magnitude of a sound, equal to the logarithm of the ratio of the intensity of the sound to the intensity of an arbitrarily chosen standard sound, specifically a sound just barely audible to an unimpaired human ear. For environmental noise from aircraft and other transportation sources, an A-weighted sound level (abbreviated dBA) is normally used. The A-weighting scale adjusts the values of different sound frequencies to approximate the auditory sensitivity of the human ear. |
| Deed notice: | A formal statement added to the legal description of a deed to a property and on any subdivision map. As used in airport land use planning, a deed notice would state that the property is subject to aircraft overflights. Deed notices are used as a form of buyer notification as a means of ensuring that those who are particularly sensitive to aircraft overflights can avoid moving to the affected areas. |
| Developed campgrounds: | Land or premises designed to be used, let, or rented for temporary occupancy by campers traveling by motorized vehicle, and that contain such facilities as campsites with parking area, barbecue grills, tables, restrooms, and at least some utilities. (TRPA Code of Ordinances) |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Development: | Any human-caused change to improved or unimproved real property that requires a permit or approval from any local agency or that is sponsored and proposed to be built by a local agency. Development includes, but is not limited to, buildings or other structures, mining, dredging, filling, grading, paving, an excavation or drilling operation, and/or storage of materials. |
| Division of Aeronautics: | California Department of Transportation, Division of Aeronautics, or any successor agency that may assume the responsibilities of the Division of Aeronautics. |
| Domestic animal raising: | The keeping, feeding, or grazing of animals as an avocation, hobby, or school project, secondary to the principal residential use of a property greater than two acres. The use applies to species commonly considered as farm animals, but does not include exotic animals. Household pets, such as dogs and cats, are included when such animals are being bred for commercial reasons. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Downhill ski facilities: | Uses and facilities pertaining to ski areas, including but not limited to: runs, trails, lift-lines cables, chairs, cars, warming huts, care taking quarters, parking, vehicles, day lodges, shops for sale and rental of ski equipment, ski pro shop, first aid stations, ski school facilities and assembly areas, day nurseries, maintenance facilities, lounges, eating and drinking establishments, and other ski oriented shops. Outside storage or display is included as part of the use. Uses and facilities serving non-skiing activities or operating year-round such as tennis courts, swimming pools, hot tubs, restaurants, bars, and retail sales constructed on lands which serve or are utilized in the operation of a ski area shall be considered under the appropriate use classification in this Code. (TRPA Code of Ordinances) |
| Early successional vegetation management: | Habitat management that results in an area being converted to and/or being maintained in an early successional stage, such as a meadow. (TRPA Code of Ordinances) |
| Easement: | A less-than-fee-title transfer of real property rights from the property owner to the holder of the easement. |
| Eating and drinking places: | Restaurants, bars, and other establishments selling prepared foods and drinks for on-premise consumption, as well as facilities for dancing and other entertainment that are accessory to the principal use of the establishment as an eating and drinking place. The use also includes drive- in restaurants, lunch counters, and refreshment stands selling prepared goods and drinks for immediate consumption. (TRPA Code of Ordinances) |
| Employee housing: | Residential units owned and maintained by public or private entities for purposes of housing employees of said public or private entity. (TRPA Code of Ordinances) |
| Erosion control: | Structural or nonstructural techniques applied to a particular site or region to prevent or minimize over land loss of soil or nutrients. (TRPA Code of Ordinances) |
| Existing land use: | The actual use of land or the proposed use of the land evidenced by a vested right in the land as of the effective date of this ALUCP. See *Vested right*. |
| Farm/Ranch accessory structures: | An uninhabited structure or building designed and built to provide cover for cattle, horses, and other related ranch animals, or for storage of farm or ranch implements, supplies, and products. Outside storage or display is included as part of the use. The use does not include any residential use and is not open to the public. (TRPA Code of Ordinances) |
| Financial services: | Service establishments primarily engaged in the field of finance, such as banks and trust companies, lending and thrift institutions, credit agencies, brokers and dealers in securities and commodity contracts, security and commodity exchanges, holding (but not predominantly operating) companies, vehicle finance (equity) leasing agencies, and other investment companies. (TRPA Code of Ordinances) |
| Findings: | Legally relevant sub conclusions that expose a government agency's mode of analysis of facts, regulations, and policies, and which bridge the analytical gap between raw data and ultimate decision. |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Fire detection and suppression: | Facilities for the detection and suppression of wildfire to protect life, property, public safety, and resource values. The use includes the operation of lookout towers, aircraft, or other surveillance techniques. (TRPA Code of Ordinances) |
| Food and beverage retail sales: | Retail trade establishments primarily engaged in selling food for home preparation and consumption, as well as the retail sale of packaged alcoholic beverages for consumption off the premises. The use includes establishments such as grocery stores, convenience stores, and liquor stores. Such establishments may include no more than two gas pumps as an accessory use. (TRPA Code of Ordinances) |
| Food and kindred products: | Manufacturing establishments producing or processing foods and beverages for human consumption and certain related products for distribution within the region, such as meat and poultry processing, dairy products processing, beverages and liquors processing, and miscellaneous food preparation from raw products. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Fuel and ice dealers: | Retail trade establishments primarily engaged in the sale to consumers of ice, bottled water, fuel oil, butane, propane, and liquefied petroleum gas (LPG), bottled or in bulk, as a principal use. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Fuels treatment management: | Activities required to treat fuels in order to reduce potential for damaging wildfires and secondarily to enhance visual quality and forest health, such as: tree cutting, treating slash by lopping and scattering, piling and burning, chipping, hauling slash to another area for utilization, burning or burial, and broadcast burning. The use also includes pruning limbs, removing ladder fuels such as brush and small diameter trees, thinning for adequate crown spacing, removing ground and surface fuels, etc. Any treatment that disrupts the vertical and horizontal continuity of fuels could be included. Fuels treatment is equivalent to the following terms: “Fuels Treatment Management,” “Fuels Management,” “Fire Hazard Reduction,” “Fuel Hazard Reduction,” and “Hazardous Fuels Reduction.” (TRPA Code of Ordinances) |
| Furniture, home furnishings and equipment: | Retail trade establishments primarily engaged in selling home furnishings such as furniture, floor coverings, draperies, glass and chinaware, domestic stoves, refrigerators, and other household electrical and gas appliances, including televisions and home sound systems. Also includes the retail sale of office furniture. (TRPA Code of Ordinances) |
| General merchandise stores: | Retail trade establishments such as department stores, variety stores, drug and discount stores, and general stores engaged in retail sales of one or more lines of new and used merchandise, including: dry goods, apparel and accessories; small wares; sporting goods and equipment; bicycles and mopeds, parts and accessories. The use also includes sales of miscellaneous shopping goods such as: books; stationery; jewelry; hobby materials, toys and games; cameras and photographic supplies; gifts, novelties and souvenirs; luggage and leather goods; fabrics and sewing supplies; florist and house plant stores; cigar and newsstands; artists supplies; orthopedic supplies; religious goods; handcrafted items (stores for which may include space for crafting operations when such area is accessory to retail sales); and other miscellaneous retail shopping goods. (TRPA Code of Ordinances) |
| General Plan: | A statement of policies, including text and diagrams, setting forth objectives, principles, standards, and plan proposals, for the future physical development of a city or county. |
| Golf courses: | An area of land laid out for the game of golf, including driving ranges and putting greens. A golf course may include accessory uses such as an eating and drinking place, clubhouse, and general merchandise store. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Government offices: | Buildings containing offices for public agencies, including administrative offices, meeting rooms, and regional post offices. The use does not include offices that are incidental and accessory to another government use such as transit terminals, vehicle storage, campground, or storage yards. (TRPA Code of Ordinances) |
| Grazing: | Utilizing natural forage as subsistence for livestock. (TRPA Code of Ordinances) |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Group facilities: | Establishments that provide overnight accommodations and outdoor recreation to organized groups such as recreational camps, group or organized camps, and religious camps. (TRPA Code of Ordinances) |
| Handbook/Caltrans Handbook: | The most recent version (2011) of the California Airport Land Use Planning Handbook published by the California Department of Transportation, Division of Aeronautics. |
| Health care services: | Service establishments primarily engaged in furnishing medical, mental health, surgical, and other personal health services such as: medical, dental, and psychiatric offices; medical and dental laboratories; outpatient care facilities; and allied health services. Associations or groups primarily engaged in providing medical or other health services to members are included. Nursing homes and similar long-term personal care facilities are classified in *Nursing and personal care*, and mental health-related services, including various types of counseling practiced by licensed individuals other than medical doctors or psychiatrists or unlicensed individuals, are included under *Professional offices*. (TRPA Code of Ordinances) |
| Hospitals: | Establishments primarily engaged in providing diagnostic services and extensive medical treatment, including surgical and other hospital services. Such establishments have an organized medical staff, inpatient beds, and equipment and facilities to provide complete health care. (TRPA Code of Ordinances) |
| Hotel, motel, and other transient dwelling units: | Commercial transient lodging establishments, including hotels, motor- hotels, motels, tourist courts, or cabins, primarily engaged in providing overnight lodging for the general public whose permanent residence is elsewhere. This use does not include *Bed and breakfast facilities* or *Vacation rentals*. (TRPA Code of Ordinances) |
| Industrial services: | Service establishments providing other businesses with services, including maintenance, repair, service, testing, and rental. This includes establishments such as: welding repair, armature rewinding, and heavy equipment repair (except vehicle repair; see *Auto repair and service*); research and development laboratories, including testing facilities; soils and materials testing laboratories; equipment rental businesses that are entirely within buildings (for equipment rental yards, see *Sales lots*), including leasing tools, machinery and other business items except vehicles; and other business services of a "heavy service" nature. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Infill: | Development of vacant or underutilized land within established communities or neighborhoods that are already served with streets, water, sewer, and other infrastructure. |
| Insect and disease suppression: | Activities, including use of biological or chemical means, required to suppress wildland infestations of insects or disease, where silvicultural and other management practices have been insufficient to prevent loss of resources. (TRPA Code of Ordinances) |
| Intensity: | Intensity is a measure of the concentration of nonresidential development in a given area. Intensity can be expressed as number of people per acre using a net acreage calculation. |
| Land use map: | A map showing land-use classifications as well as other important surface features such as roads, rail lines, waterways, and jurisdictional boundaries. Land Use Maps may show either existing or proposed land uses. |
| Land use jurisdiction: | The Tahoe Regional Planning Agency, the City of South Lake Tahoe, and the County of El Dorado share land use regulatory jurisdiction within the Airport Influence Area. |
| Land use policy action: | Any city or county general plan, specific plan, or zoning ordinance (including zoning maps and/or text) or any amendment to a city or county general plan, specific plan, or zoning ordinance (zoning maps and/or text). A land use policy action also refers to any school district, community college district, or special district facilities master plans or amendments to such master plans. |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Laundries and dry cleaning plant: | Service establishments primarily engaged in high-volume laundry and garment services, such as power laundries (family and commercial); garment pressing and dry cleaning; linen supply; diaper service; industrial laundries; and carpet and upholstery cleaners. The use does not include coin-operated laundries or dry cleaning pick-up stores without dry cleaning equipment (see *Personal services*). (TRPA Code of Ordinances) |
| Local agency: | A land use jurisdiction, school district, community college district, or other special district. |
| Local assembly and entertainment: | Facilities for public assembly and entertainment for the local community, not to exceed a capacity of 300 people, such as community centers, meeting halls, and multi-purpose centers. (TRPA Code of Ordinances) |
| Local post office: | Establishments providing local neighborhoods with mail service and delivery, such as postal substations and neighborhood delivery centers. (TRPA Code of Ordinances) |
| Local public health and safety facilities: | Facilities operated by public or quasi-public entities for the local protection of the public, such as: fire stations and other fire prevention facilities; police and sheriff substations; satellite highway maintenance and snow removal facilities; water tanks, pumps, wells and related facilities; monitoring facilities; sewage pumps and related facilities; and emergency services.<br>Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Lot of record: | A parcel of land platted and recorded as of the effective date of this ALUCP. |
| Lot coverage: | The ratio between the ground floor area of a building (or buildings) and the area of the lot or parcel on which the building (or buildings) are placed. |
| Mail order and vending: | Establishments primarily engaged in retail sale of products by catalog and mail order. The use includes vending machine distributorships and suppliers. The use does not include product manufacturing, which is included under the appropriate manufacturing use. (TRPA Code of Ordinances) |
| Manufactured Home: | A home built entirely in the factory on a non-removable steel chassis that is transported to the building site on its own wheels and installed under a federal building code administered by the U.S. Department of Housing and Urban Development, according to the Federal Manufactured Home Construction and Safety Standards (commonly known as the HUD Code) that went into effect June 15, 1976. This term does not include a mobile home dwelling or factory-built housing. (TRPA Code of Ordinances) |
| Marinas: | Establishments primarily providing water-oriented services, such as: yachting and rowing clubs; boat rentals; storage and launching facilities; sport fishing activities, excursion boat and sightseeing facilities; and other marina-related activities, including but not limited to fuel sales and boat and engine repair. Marinas contain water-oriented facilities and structures, which are regulated and defined in Chapter 81. Outside storage or display is included as part of the use. The use does not include condominiums, hotels, restaurants, and other such uses with accessory water-oriented, multiple-use facilities. (TRPA Code of Ordinances) |
| Membership organizations: | Permanent meeting facilities for organizations operating on a membership basis for the promotion of the interests of the members, such as: business associations; professional membership organizations; labor unions and similar organizations; civic, social and fraternal organizations; political organizations; and other membership organizations. The use does not include country clubs in conjunction with golf courses (see *Golf courses*); religious organizations (see *Churches*); and lodging (see *Multi-person dwelling*).(TRPA Code of Ordinances) |
| Mobile home dwelling: | A home built entirely in the factory on a non-removable steel chassis that is transported to the building site on its own wheels and was installed prior to June 15, 1976, when the Federal Manufactured Home Construction and Safety Standards (commonly known as the HUD Code) went into effect. (TRPA Code of Ordinances) |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Multi-person dwelling: | A building designed primarily for permanent occupancy by individuals unrelated by blood, marriage, or adoption in other than single-family dwelling units or transient dwelling units. A multi-person dwelling includes, but is not limited to, facilities such as dormitories and boarding houses, but not such facilities as hotels, motels, and apartment houses. (TRPA Code of Ordinances) |
| Multiple-family dwelling: | More than one residential unit located on a parcel. Multiple-family dwellings may be contained in separate buildings such as two or more detached houses on a single parcel, or in a larger building on a parcel such as a duplex, a triplex, or an apartment building. Vacation rentals are included, up to but not exceeding a four-plex, provided they meet the Local Government Neighborhood Compatibility Requirements as defined in this Code. One detached secondary residence is included; see *Secondary residence*. (TRPA Code of Ordinances) |
| Noise contours: | Continuous lines of equal noise level usually drawn around a noise source, such as an airport or highway. The lines are generally drawn in five-decibel increments so that they resemble elevation contours in topographic maps. |
| Nonconforming use: | An existing land use that does not conform to subsequently adopted or amended zoning or other land use development standards. |
| Nonstructural fish habitat management: | Habitat management that maintains or improves fish habitat of any species through non-structural means for the primary purpose of perpetuating the cold-water fisheries resource through management of their habitat.<br>Includes stream barrier removal, human access control, protection and enhancement of riparian vegetation, and beaver control. (TRPA Code of Ordinances) |
| Nonstructural wildlife habitat management: | Habitat management that maintains or improves wildlife habitat of any species through nonstructural means for the primary purpose of perpetuating viable populations of wildlife species native to the area through management of their habitat. Includes activities such as prescribed burning, snag protection, seeding and planting, maintenance of canopy closure, control of livestock, and access control. (TRPA Code of Ordinances) |
| Nursery: | Commercial retail and wholesale establishment where plants are grown or stored for transplanting at other sites. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Nursing and personal care: | Residential establishments with in-patient beds providing nursing and health-related care as a principal use, such as skilled nursing care facilities, extended care facilities, convalescent and rest homes, and board and care homes. (TRPA Code of Ordinances) |
| Off-road vehicle courses: | Areas authorized by the Agency for the use of off-road vehicles including, but not limited to, dirt bike, enduro, hill climbing, or other off-road motorcycle courses. The use also includes areas authorized by the Agency for competitive events utilizing four-wheel-drive vehicles. The use does not include the use of vehicles associated with timber harvest activities on approved skid trails or maintenance vehicles. (TRPA Code of Ordinances) |
| Outdoor amusements: | Commercial establishments for outdoor amusement and entertainment such as: amusement parks; theme and kiddie parks; go cart and miniature auto race tracks; moped, bicycle, and skate rentals; and miniature golf courses. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Outdoor recreation concessions: | Facilities that are dependent on the use of outdoor recreation areas, such as onsite food and beverage sales, onsite recreational equipment rentals, parasailing, rafting, and onsite recreation instruction. The use also includes outfitter or guide service establishments whose base facilities are located on or near a recreation area, such as horse packing outfitters or snowmobiling outfitters. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Outdoor retail sales: | Retail trade establishments operating outside of buildings on a daily or weekly basis, such as: roadside stands; flea markets; swap meets; seasonal sales involving Christmas trees, fireworks, pumpkins, or other seasonal items; regular sales of art or handcrafted items in conjunction with community festivals or art shows; and retail sales of various products from individual motor vehicles locations outside the public right-of-way, not including bakery, ice cream, and similar vending vehicles that conduct all sales within the right-of-way and do not stop in any location except on customer demand. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Overlay zone: | See *Combining District*. |
| Participant sports facilities: | Facilities for various outdoor sports and recreation including, but not limited to, tennis courts, swim and tennis clubs, ice skating rinks, and athletic fields (non-professional). Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Personal services: | Establishments primarily engaged in providing non-medical services generally involving the care of persons, such as: beauty and barber shops; shoe repair shops; saunas and hot tubs; laundromats (self-service laundries); dry cleaning pick-up stores and small-scale dry cleaners without pick-up and delivery services; clothing rental; dating and escort services; funeral parlors, cemetery real estate sales and related facilities; offsite rental of sporting equipment; and wedding chapels. The use may also include the accessory retail sales of products related to the services provided. (TRPA Code of Ordinances) |
| Pipelines and power transmission: | Transportation facilities primarily engaged in the pipeline transportation of refined products of petroleum, such as: gasoline and fuel oils; natural gas; mixed, manufactured, or liquefied petroleum gas; or the pipeline transmission of other commodities. The use includes facilities for the transmission of electrical energy for sale, including transmission and distribution facilities. Outside storage or display is included as part of the use. The use does not include offices or service centers (see *Professional offices*); equipment and material storage yards (see *Storage yards*); distribution substations (see *Public utility centers*); and power plants (see *Power generating*). (TRPA Code of Ordinances) |
| Power generating: | Establishments engaged in the generation of electrical energy for sale to consumers, including biofuel facilities, hydro facilities, gas facilities, and diesel facilities. Outside storage or display is included as part of the use. The use does not include biofuel facilities accessory to a primary use.<br>Transmission lines located off the site of the power plant are included under *Pipelines and power transmission*. Electrical substations are included under *Public utility centers*. (TRPA Code of Ordinances) |
| Prescribed fire/burning management: | Planned burning under controlled conditions to dispose of slash or fuels, control unwanted vegetation, stimulate the growth of vegetation, control insects and pathogens, and maintain natural ecological succession in order to achieve vegetation and wildlife habitat management goals. (TRPA Code of Ordinances) |
| Printing and publishing: | Establishments engaged in printing onsite by letterpress, lithography, gravure, screen, offset or other common process including electrostatic (xerographic) copying and other "quick printing" services; and establishments serving the printing trade such as book binding, typesetting, engraving, photo engraving, and electro-typing. The use also includes establishments manufacturing business forms and binding devices. (TRPA Code of Ordinances) |
| Privately owned assembly and entertainment: | Commercially operated facilities for public assembly and group entertainment with a capacity of greater than 300 people, such as: auditoriums; exhibition and convention halls; theaters, meeting halls and facilities for "live" theatrical presentations or concerts by bands and orchestras; amphitheaters; meeting halls for rent; and similar public assembly uses. (TRPA Code of Ordinances) |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Professional offices: | A place where the following kinds of business are transacted or services rendered: engineering, architectural and surveying; real estate agencies; educational, scientific and research organizations; accounting, auditing, and bookkeeping services; writers and artists; advertising agencies; photography and commercial art studios; publishing with offsite printing facilities; employment, stenographic, secretarial, and word processing services; off premise concessions (OPC); reporting services; data processing and computer services; management, public relations, and consulting services; organizational offices; detective agencies; professional services; attorneys; and counseling services (other than licensed psychiatrists; see *Health care services*). Incidental offices are considered accessory uses to a primary use. (TRPA Code of Ordinances) |
| Public owned assembly and entertainment: | Facilities owned and operated by a public or nonprofit entity for public assembly and group entertainment with a capacity of greater than 300 people, such as: public auditoriums; exhibition and convention halls; civic theaters, meeting halls and facilities for live theatrical presentations or concerts by bands, choirs, and orchestras; meeting halls for rent; community centers; and similar public assembly uses. (TRPA Code of Ordinances) |
| Public utility centers: | Public and quasi-public facilities serving as junction points for transferring utility services from one transmission to another or to local distribution and service, such as: electrical substations and switching stations; major telephone switching centers; natural gas regulating and distribution facilities; public water system wells, treatment plants and storage; and community wastewater treatment plants and settling ponds. Outside storage or display is included as part of the use. The use does not include office or service centers (see *Professional offices* or *Government offices*). (TRPA Code of Ordinances) |
| Range improvement: | Structural and nonstructural improvements and their maintenance designed to increase the forage, make forage areas accessible, provide water, and control livestock movement. The use includes prescribed burning, irrigation, fertilization, water developments, fencing, noxious plant control, type conversion, and seeding. (TRPA Code of Ordinances) |
| Range pasture management: | Activities required to manage the use of pastures for grazing. The primary purpose is to utilize a fenced closure or other type of confined area, and the available forage therein, for livestock, such as pack and saddle horses, mules, and cattle. (TRPA Code of Ordinances) |
| Real estate disclosure: | A written statement that notifies the prospective purchaser of real estate, prior to completion of the purchase, of the potential annoyances or inconveniences associated with airport operations. Typically, a real estate disclosure is provided at the real estate sales or leasing offices. Real estate disclosure is required by state law as a condition of the sale of most residential property if the property is located in the vicinity of an airport and is within its AIA (see Bus. & Prof. Code, § 11010; Civ. Code, §§ 1102.6, 1103.4, 1353). State law does not require the real estate disclosure to be recorded in the chain of title for the affected property. |
| Recreation centers: | Indoor recreation establishments operated by a public or quasi-public agency providing indoor sports and community services, such as swimming pools, ice skating rinks, multi-purpose courts, weight rooms, and meeting and crafts rooms. (TRPA Code of Ordinances) |
| Recreational vehicle parks: | Transient lodging establishments engaged in renting, leasing, or otherwise providing overnight sites for trailers, campers, and recreation vehicles with individual utility hookups. The use also includes accessory facilities such as public restrooms, swimming pools, and manager's quarters. (TRPA Code of Ordinances) |
| Recycling and scrap: | Establishments engaged in assembling, breaking up, sorting, temporary storage, and distribution of recyclable or reusable scrap and waste materials, including auto wreckers engaged in dismantling automobiles for scrap. Outside storage or display is included as part of the use. The use does not include terminal waste disposal sites, which are prohibited, and temporary storage of toxic or radioactive waste materials. (TRPA Code of Ordinances) |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Reforestation: | Reestablishment of trees on forest land to perpetuate tree cover, such as ground preparation prior to natural seed fall, artificial seeding or planting, fertilizing, and protecting young plants until established. Both mechanical and chemical techniques may be used. In heavily used recreation areas, special tending techniques may be necessary. (TRPA Code of Ordinances) |
| Regeneration harvest: | Removal of all trees in one or more cuts from an area for the purpose of creating a new, even-aged stand, especially one dominated by species intolerant of shade. Openings created by regeneration harvests will be reforested by natural seeding, artificial seeding, or through planting. (TRPA Code of Ordinances) |
| Regional public health and safety facilities: | Regional facilities operated by public or quasi-public entities for protection of the public, such as: fire stations and other fire prevention facilities; water and sewage facilities; transportation maintenance/storage facilities; police and sheriff substations and headquarters, including secondary county short-term incarceration facilities; and solid waste transfer stations that TRPA finds to be regionally serving. "Secondary county short-term incarceration facility" means a county jail (not a state or federal prison facility) that is not the primary jail for the county. (TRPA Code of Ordinances) |
| Religious assembly: | Religious organization assembly or institutional facility operated for worship or promotion of religious activities, including churches and incidental religious education. Other establishments maintained by religious organizations, such as full-time educational institutions, hospitals, and other potentially related operations (such as a recreational camp) are not considered a religious assembly and are classified according to their respective activities. (TRPA Code of Ordinances) |
| Repair services: | Service establishments where repair of consumer products is the principal business activity, such as: electrical repair shops; television, radio, and other appliance repair; watch, clock, and jewelry repair; boat repair; small engine repair; and reupholstery and furniture repair. An outdoor storage yard associated with these uses is considered under *Secondary storage*. The use does not include businesses serving the repair needs of heavy equipment (see *Industrial services*). (TRPA Code of Ordinances) |
| Residential care: | Establishments primarily engaged in the provision of residential social and personal care for children, the aged, and special categories of persons with some limits on ability for self-care, but where medical care is not a major element. The use includes, but is not limited to, children's homes, halfway houses, orphanages, rehabilitation centers, and self-help group homes. (TRPA Code of Ordinances) |
| Residential density: | Land use density is a measure of the concentration of residential development in a given area. It is typically expressed as the number of dwelling units per acre using a net acreage calculation. |
| Retail trade establishments | Businesses that sell goods to the public, including but not limited to auto, mobile home and vehicle dealers; building materials and hardware; food and beverage retail sales; furniture, home furnishings and equipment; general merchandise stores; outdoor retail sales; service stations; and fuel and ice dealers. |
| Riding and hiking trails: | Planned paths for pedestrian and equestrian traffic, including trail heads. (TRPA Code of Ordinances) |
| Runoff control: | Structural or nonstructural practices designed to provide reasonable assurance that the runoff water quality standards to the surface or ground waters will be achieved. (TRPA Code of Ordinances) |
| Rural sports: | Establishments that provide for special outdoor recreation group activities, such as: outdoor archery, pistol, rifle, and skeet clubs and facilities; hunting and fishing clubs; and equestrian facilities, stables, and exhibition facilities. The use does not include indoor shooting facilities (see *Amusements and recreational services*). (TRPA Code of Ordinances) |
| Safety Zone: | For the purpose of airport land use planning, an area near an airport in which land use restrictions are established to protect the safety of the public from potential aircraft accidents. |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Sales lots: | Outdoor sales area for permanent display of motor vehicles, recreational vehicles, mobile homes, construction equipment, farm machinery, or other heavy equipment; outdoor equipment rental yards (not including recreational equipment rental); and large-scale, permanent outdoor sales activities such as livestock auctions and sales. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Sanitation salvage cut: | Removal of dead, dying, deteriorating, or highly susceptible trees where insects, disease, animals, fire, wind, or other natural disaster has caused damage. The purpose is to prevent further loss and by allowing salvage of wood before it deteriorates. (TRPA Code of Ordinances) |
| Schools - business and vocational: | Business and secretarial schools and vocational schools offering specialized trade and commercial courses. The use includes specialized non-degree granting schools including, but not limited to: music schools; dramatic schools; language schools; driver education schools; ballet and other dance studios; seminaries and other establishments exclusively engaged in training for religious ministries; and establishments furnishing educational courses by mail. (TRPA Code of Ordinances) |
| Schools – college: | Junior colleges, colleges, universities, and professional schools granting associate arts degrees, certificates, undergraduate and graduate degrees, and requiring for admission at least a high school diploma or equivalent general academic training. (TRPA Code of Ordinances) |
| Schools - kindergarten through secondary: | Kindergarten, elementary, and secondary schools serving grades up to 12, including denominational and sectarian. (TRPA Code of Ordinances) |
| Secondary residence | Secondary units include a guest house; an affordable or market-rate rental unit; a caretaker residence for a residential use, commercial use, public service or recreational use; and a manager's quarters for a tourist accommodation or multi-residential use. Secondary residences are defined under state law as accessory dwelling units (see Govt Code Sec. 65852.2(h)(i)(4)). |
| Secondary storage: | The outdoor storage of various materials or the public display of merchandise on the same site as a principal building or use that supports the activities or conduct of the principle use and does not increase the intensity of the use. This does not apply to primary uses that include outside storage and display as part of the use. (TRPA Code of Ordinances) |
| Selection cut: | A method for maintaining or producing an uneven aged stand, preferably of mixed species. In the Lake Tahoe Basin, the method may be applied to convert even-aged stands to an uneven aged condition, to maintain scenic quality, to prepare an area for use as a developed recreation site, or to maintain tree cover within a developed recreation site. The use includes annual or periodic removal of individual or small groups of trees in order to realize the yield and establish a new crop. (TRPA Code of Ordinances) |
| Sensitive plant management: | Activities or improvements intended to protect, enhance, perpetuate, or increase the habitat of plant species listed by the state, federal government, or the TRPA as threatened, endangered, rare, or sensitive, such as: protective fencing and cages, livestock control, public education, direct control of people access, rerouting of trails, and other protective measures deemed appropriate to secure the survival of the species. (TRPA Code of Ordinances) |
| Service stations: | Retail trade establishments primarily engaged in the sale of gasoline, which may also provide lubrication, oil change and tune-up services, and the sale of automotive products incidental to gasoline sales. The use may also include as accessory uses towing, mechanical repair services, car washing and waxing, and trailer rental. The use does not include storage of wrecked or abandoned vehicles, paint spraying body and fender work, and retail sale of gasoline as an accessory use to food and beverage retail sales when limited to not more than two pumps. (TRPA Code of Ordinances) |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Single-family dwelling: | One residential unit located on a parcel. A single-family dwelling unit may be contained in a detached building such as a single-family house, or in a subdivided building containing two or more parcels such as a town house condominium. Vacation rentals are included provided they meet the Local Government Neighborhood Compatibility Requirements as defined in this Code. A caretaker residence is included (see *Secondary residence*). (TRPA Code of Ordinances) |
| Site approval permit: | A written approval issued by the California Department of Transportation authorizing construction of an airport in accordance with approved plans, specifications, and conditions. Both public use and special-use airports require a site approval permit. (CCR) |
| Small scale manufacturing: | Establishments considered to be light manufacturing or cottage industry that produce jewelry, silverware and plated ware; musical instruments; toys; sporting and athletic goods; pens, pencils, and other office and artists' materials; buttons, costume novelties, miscellaneous notions; brooms and brushes; caskets; and other miscellaneous manufacturing industries. The use also includes artisan and craftsman-type operations that are not home occupations and that are not secondary to on-site retail sales. The use also includes small-scale blacksmith and welding services and the manufacture of trusses. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Snowmobile courses: | Mapped areas, pathways, and trails utilized in, and approved for, commercial snowmobile operations. (TRPA Code of Ordinances) |
| Social service organizations: | Public and quasi-public establishments providing social services and rehabilitation services, counseling centers, welfare offices, job counseling and training centers, or vocational rehabilitation agencies, serving persons with social or personal problems requiring special services and the handicapped and the disadvantaged. The use includes organizations soliciting funds to be used directly for these and related services. The use also includes establishments engaged in community improvement and neighborhood development. (TRPA Code of Ordinances) |
| Sound Exposure Level (SEL): | A time-integrated metric (i.e., continuously summed over a time period) which quantifies the total energy in the A-weighted sound level measured during a transient noise event. The time period for this measurement is generally taken to be that period between the moments when the A-weighted sound level is 10 dB below the maximum level. |
| Special cut: | The cutting of trees for purposes other than timber production, including reasons such as:<br>• Maintenance of a healthy forest so that losses due to insect, disease, or fire will not result in harmful effects to watershed or visual quality on land of Land Capability Districts 1a, 1c, 2, and 1b (stream environment zone), where conventional logging techniques may cause unacceptable water quality impacts or permanent soil damage;<br>• Maintenance of a healthy forest, removal of hazardous trees, and enhancement of foreground views on land developed for recreational, administrative or private purposes, or land intensively used for dispersed recreation; and<br>• Provision of ski trails, conversion of meadow encroachments, provision of vista openings, increase in water yield, or increase in range and wildlife forage.<br>• Harvesting may require aerial techniques, and cutting without removal for consumption may be necessary. Cut trees may be utilized on site for fuel wood, wildlife habitat, traffic barriers, or for other purposes. (TRPA Code of Ordinances) |
| Sport assembly: | Commercial facilities for spectator-oriented, specialized, sports assembly that do not exceed a 5,000-person seating capacity, such as stadiums, arenas, and field houses. (TRPA Code of Ordinances) |
| Storage yards: | Service establishments primarily engaged in the outdoor storage of motor vehicles, construction equipment, materials or supplies, fire wood lots, farm machinery, or industrial supplies on a parcel. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Stream environment zone restoration: | The reestablishment of the natural functions of areas that, prior to modification, were directly influenced by the presence of surface water or near surface groundwater and that have been identified by TRPA as a stream environment zone. Reestablishment includes activities such as the removal of fill material or other encroachments, recontouring, revegetation, or restoration of physical, chemical, and biological attributes. The natural functions of a Stream Environment Zone (SEZ) include the reestablishment of natural floodplains, the provision of wildlife habitat, protection of the soil resource, and filtration of nutrients and sediments from tributary or storm runoff. (TRPA Code of Ordinances) |
| Structural fish habitat management: | Habitat management that includes improvements, such as channel stabilization, fish ladders, the construction and operation of dams, and removal of barriers to fish movement, to benefit specific fish species by replacing or repairing habitat features that have been diminished or altered. (TRPA Code of Ordinances) |
| Structural wildlife habitat management: | Habitat management that includes improvements, such as installation of nest structures, creation of snags from green trees, water impoundments, guzzlers, shelters, and fencing, to benefit specific wildlife species by replacing or repairing habitat features that have been diminished or altered. (TRPA Code of Ordinances) |
| Summer home: | A cabin-type single-family house intended primarily for intermittent vacation use and located in United States Forest Services (USFS) summer home tracts or other remote recreation sites. Such structures are generally located in areas of restricted winter access. (TRPA Code of Ordinances) |
| Taking: | Government appropriation of private land for which compensation must be paid as required by the Fifth Amendment of the U.S. Constitution. It is not essential that there be physical seizure or appropriation for a taking to occur, only that the government action directly interferes with or substantially disturbs the owner's right to use and enjoyment of the property. |
| Thinning: | Reducing the number of trees in a stand to achieve the desired density for healthy, vigorous, fast-growing trees. See *Selection cut*. (TRPA Code of Ordinances) |
| Threshold related research facilities: | Public or non-profit research establishments primarily engaged in implementing social, political, and scientific research relating to the Lake Tahoe Environmental Thresholds or the Lake Tahoe ecosystem. The use includes laboratories, monitoring stations, scientific interpretive centers, research and training classrooms, and related support facilities. Overnight multi-person facilities, outside storage, and caretaker facilities may be considered as accessory to this use. The use does not include facilities unrelated to threshold-related research, such as: general college administrative offices and classrooms (see *Schools-College*); and government administrative offices (see *Government offices*); or non- threshold-related research (which may be conducted under the *Professional office* use). (TRPA Code of Ordinances) |
| Timber stand improvement: | Mechanical or chemical investment-type treatments intended to increase the future value of a timber stand by improving the composition, constitution, condition, and/or growth rate of a timber stand, including, but not limited to thinning, pruning, fertilization, and weeding. (TRPA Code of Ordinances) |
| Time sharing (hotel/motel design): | A right to exclusively use, occupy, or possess a tourist accommodation unit of a hotel/motel design without kitchen units, according to a fixed or floating time schedule on a periodic basis occurring annually over a period of time in excess of three years. (TRPA Code of Ordinances) |
| Time sharing (residential design): | A right to exclusively use, occupy, or possess a tourist accommodation unit of a residential design with kitchen units, according to a fixed or floating time schedule on a periodic basis occurring annually over a period of time in excess of three years. (TRPA Code of Ordinances) |
| Transit stations and terminals: | Passenger stations for vehicular and mass transit systems; also, terminal facilities providing maintenance and service for the vehicles operated in the transit system. The use includes, but is not limited to, buses, taxis, railway, and ferries. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Transmission and receiving facilities: | Communication facilities for public or quasi-public, commercial, and private electronic, optic, radio, microwave, electromagnetic, and photo-electrical transmission and distribution, such as: repeater and receiving facilities, feeder lines, and earth stations for satellite communications for radio, television, telegraph, telephone, data network, and other microwave applications. The use includes local distribution facilities such as lines, poles, cabinets, and conduits. Outside storage or display is included as part of the use. The use does not include uses described under *Broadcasting studios*. (TRPA Code of Ordinances) |
| Transportation routes: | Public right-of-ways that are improved to permit vehicular, pedestrian, and bicycle travel. (TRPA Code of Ordinances) |
| Tree farms: | An area where trees or other vegetation on the TRPA-approved species list are grown for commercial harvest. The use includes establishments where Christmas trees are cultivated or where other native trees and plants are grown for harvest at a later date. (TRPA Code of Ordinances) |
| Uncommon plant community management: | Activities or improvements designed to protect, enhance, or perpetuate and ensure the normal ecological processes of a plant community that is of local, regional, state, or national interest. (TRPA Code of Ordinances) |
| Undeveloped campgrounds: | Land permanently established to be used for temporary occupancy by campers traveling by foot or horse, which may contain tent sites, fire rings, and sanitary facilities, but which does not contain utilities. (TRPA Code of Ordinances) |
| Vehicle and freight terminals: | Transportation establishments furnishing services incidental to transportation, such as: freight forwarding services; transportation arrangement services; packing, crating, inspection and weighing services; freight terminal facilities; joint terminal and service facilities; trucking facilities, including transfer and storage; and postal service bulk mailing distribution centers. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Vehicle storage & parking: | Service establishments primarily engaged in the business of storing operative cars, buses, or other motor vehicles. The use includes both day use and long-term public and commercial garages, parking lots, and structures. Outside storage or display is included as part of the use. The use does not include wrecking yards (see *Recycling and scrap*).(TRPA Code of Ordinances) |
| Vested right: | A right to the proposed use of land as demonstrated by any of the following:<br>• A vesting tentative map that has been approved pursuant to California Government Code section 66498.1, and has not expired; or<br>• A development agreement that has been executed pursuant to California Government Code section 65866, and remains in effect; or<br>• A valid building permit that has been issued, substantial work that has been performed, and substantial liabilities that have been incurred in good faith reliance on the permit, pursuant to the California Supreme Court decision in *Avco Community Developers, Inc. v. South Coast Regional Com*, (1976) 17 Cal.3d 785,791, and its progeny. |
| Visitor information centers: | Nonprofit establishments providing visitor information and orientation. (TRPA Code of Ordinances) |
| Warehousing: | Establishments primarily engaged in the storage of furniture, household goods, or other commercial goods, such as warehouses and storage or mini-storage facilities offered for rent or lease to the general public. The use does not include warehouse facilities where the primary purpose of storage is for goods for wholesaling distribution. Outside storage or display is included as part of the use. The use does not include terminal facilities for handling freight (see *Vehicle and freight terminals*).(TRPA Code of Ordinances) |

**TABLE 1-1**
**DEFINITIONS OF TERMS USED IN THIS ALUCP**

| TERM | DEFINITION |
|---|---|
| Wholesale and distribution: | Establishments engaged in the storage of merchandise for sale to retailers; to industrial, commercial, institutional, farm, or professional business users; or to other wholesalers; or acting as agents or brokers in buying merchandise for or selling merchandise to such persons or companies. The use includes such establishments as: merchant wholesalers; agents, merchandise or commodity brokers, and commission merchants; and assemblers. Outside storage or display is included as part of the use. (TRPA Code of Ordinances) |
| Zoning: | A police power measure, enacted primarily by units of local government, in which the community is divided into districts or zones within which permitted and special uses are established, as are regulations governing lot size, building bulk, placement, and other development standards. Requirements vary from district to district, but they must be uniform within districts. A zoning ordinance consists of two parts the text and a map. |

SOURCE: California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, Appendix L, Glossary of Terms, October 2011; Tahoe Regional Planning Agency, *Code of Ordinances*, Ch. 21, Table 21.4-A: List of Primary Uses and Use Definitions, (TRPA Code of Ordinances), December 12, 2012 (amended May 17, 2017); U.S. Department of Transportation, Federal Aviation Administration, 14 CFR 1, *Definitions and Abbreviations* (FAR 1); U.S. Department of Transportation, Federal Aviation Administration, *Aeronautical Information Manual* (AIM), October 2017; U.S. Department of Transportation, Federal Aviation Administration, *Airport Design Advisory Circular 150/5300-13* (Airport Design AC), September 2012; California Code of Regulations, Title 21, Section 3525 *et. seq*. (CCR); U.S. Department of Transportation, Federal Aviation Administration, *Air Traffic Activity* (FAA ATA); U.S. Department of Transportation, Federal Aviation Administration, *Statistical Handbook of Aviation* (FAA Stats); National Transportation and Safety Board (NTSB); HAI: Helicopter Association International (HAI); Oxford English Dictionaries, 2018 (Oxford).

**Table 1-2** identifies the acronyms used throughout this document.

**TABLE 1-2**
**ACRONYMS USED IN THIS ALUCP**

| ACRONYM | DEFINITION |
|---|---|
| ADU | Accessory Dwelling Unit |
| AEDT | Aviation Environmental Design Tool |
| AIA | Airport Influence Area |
| AIP | Airport Improvement Program |
| ALP | Airport Layout Plan |
| ALUC | Airport Land Use Commission |
| ALUCP | Airport Land Use Compatibility Plan |
| AMP | Airport Master Plan |
| ASOS | Automated Surface Observing System |
| BMP | Best Management Practice |
| Caltrans | California Department of Transportation |
| CASP | California Aviation System Plan |
| CEQA | California Environmental Quality Act |
| CLUP | Compatible Land Use Plan |
| CNEL | Community Noise Equivalent Level |
| dB | Decibel |
| DNL | Day-Night Average Sound Level |

**TABLE 1-2**
**ACRONYMS USED IN THIS ALUCP**

| ACRONYM | DEFINITION |
|---|---|
| FAA | Federal Aviation Administration |
| FAR | Federal Aviation Regulations |
| FBO | Fixed-Base Operator |
| GA | General Aviation |
| GASPA | General Aviation System Needs Assessment |
| GPS | Global Positioning System |
| HMBP | Hazardous Materials Business Plan |
| IAP | Instrument Approach Procedure |
| IFR | Instrument Flight Rules |
| ILS | Instrument Landing System |
| LDA/DME | Localizer-type directional aid with Distance Measuring Equipment |
| LOC | Localizer |
| MALSF | Medium Intensity Approach Lights With Sequenced Flashers |
| MDA | Minimum Descent Altitude |
| MIRL | Medium Intensity Runway lighting |
| MITL | Medium intensity taxiway lighting |
| MSL | Mean Sea Level |
| NAVAID | Navigational Aid |
| NextGen | Next Generation Air Transportation System |
| NPIAS | National Plan of Integrated Airport Systems |
| PAPI | Precision Approach Path Indicator |
| PAS | Plan Area Statement |
| REIL | Runway End Indicator Lights |
| RPZ | Runway Protection Zone |
| SEL | Sound Exposure Level |
| SEZ | Stream Environment Zone |
| TERPS | Terminal Instrument Procedures |
| TRPA | Tahoe Regional Planning Agency |
| VFR | Visual Flight Rules |
| VORTAC | Very High Frequency Omnidirectional Range and Tactical Air Navigation System |

SOURCE: California Department of Transportation, Division of Aeronautics, California Airport Land Use Planning Handbook, Appendix L, Glossary of Terms, October 2011; Tahoe Regional Planning Agency, Code of Ordinances, Ch. 21, Table 21.4-A: List of Primary Uses and Use Definitions, (TRPA Code of Ordinances), December 12, 2012 (amended May 17, 2017); U.S. Department of Transportation, Federal Aviation Administration, 14 CFR 1, Definitions and Abbreviations (FAR 1); U.S. Department of Transportation, Federal Aviation Administration, Aeronautical Information Manual (AIM), October 2017; U.S. Department of Transportation, Federal Aviation Administration, Airport Design Advisory Circular 150/5300-13 (Airport Design AC), September 2012; California Code of Regulations, Title 21, Section 3525 et. seq. (CCR); U.S. Department of Transportation, Federal Aviation Administration, Air Traffic Activity (FAA ATA); U.S. Department of Transportation, Federal Aviation Administration, Statistical Handbook of Aviation (FAA Stats); National Transportation and Safety Board (NTSB); HAI: Helicopter Association International (HAI).

# CHAPTER 2.
# Lake Tahoe Airport and Environs

## 2.1 Airport Setting

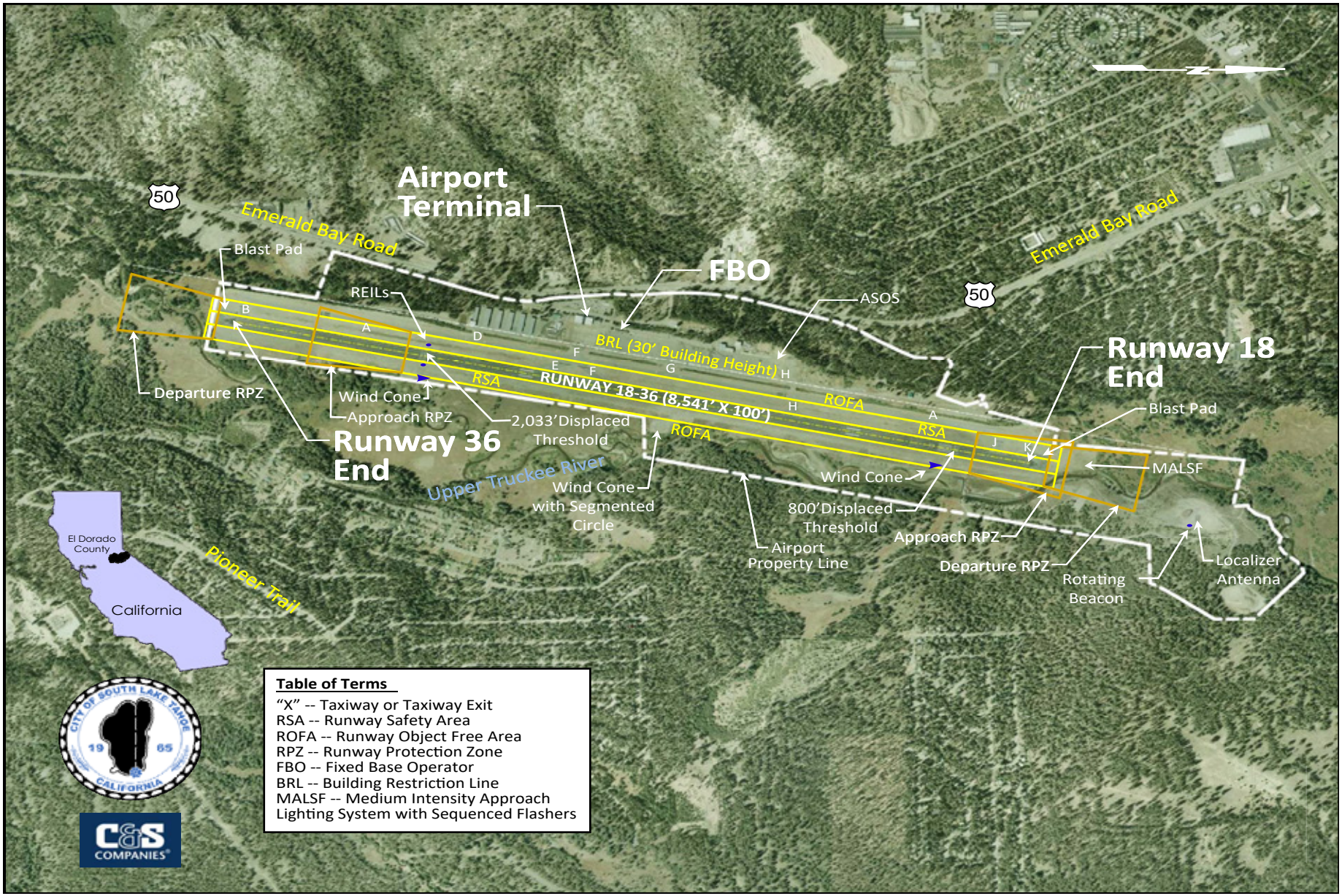
The Airport is primarily located within the City of South Lake Tahoe, approximately 1.5 miles south of the intersection of Highway 50 and Highway 89. The Airport is located at an elevation of 6,269 feet above Mean Sea Level (MSL) and covers 348 acres. To the northwest, north, east, and south, the Airport property boundary runs contiguous with the South Lake Tahoe city limits. To the southwest, between Highway 50 and the airfield, an approximate 15-acre wedge-shaped portion of Airport property extends beyond City of South Lake Tahoe into unincorporated El Dorado County. The Airport is accessible from Airport Road, which connects directly with Highway 50 to the north and south of the terminal building. Figure 1-1 depicts the location of the Airport.

Lake Tahoe Airport is designated as a Local Airport in the National Plan of Integrated Airport Systems (NPIAS). The NPIAS is a roster of airports that are identified as being significant to national air transportation and thus eligible for federal Airport Improvement Program (AIP) grant funds issued by the Federal Aviation Administration (FAA). Local airports account for approximately 38 percent of all NPIAS airports. These airports are considered a critical part of the general aviation system as they provide access to regional markets, as well as often accommodate flight training and emergency services. On the state level, Caltrans classifies Lake Tahoe Airport as a Regional General Aviation airport in the General Aviation System Needs Assessment (GASNA) in the California Aviation System Plan (CASP). The CASP is the State's plan for developing and improving publicly owned, public use airports in California.

The Airport is owned and operated by the City of South Lake Tahoe. First opened in 1960 in preparation for the Squaw Valley Winter Olympics, the Airport accommodated commercial service until 2001. Although commercial service ended in 2001, the Airport maintained Federal Aviation Regulation (FAR) Part 139 Airport Operating Certification until 2015. FAR Part 139 sets the standards for the certification and operation of airports that provide scheduled passenger service. In 2015, the City of South Lake Tahoe decided to cease maintaining FAR Part 139 certification for the Airport.

## 2.2 Airport Facilities

**Figure 2-1** depicts the general layout of Lake Tahoe Airport. The Airport Layout Plan (ALP) is provided in Appendix A. The following sections discuss the Airport facilities. These facilities




SOURCE: C&S Companies; Adpated by ESA, 2017.

ALUCP for Lake Tahoe Airport. 161008

**Figure 2-1**
General Airport Layout
Lake Tahoe Airport

ESA

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include both airside facilities (e.g., runway, taxiway system, and navigational aids) and landside facilities (e.g., terminal building, hangars, and aircraft parking).

### 2.2.1 Runway 18-36

Lake Tahoe Airport has a single grooved asphalt runway, Runway 18-36. Oriented north-to-south, the runway is 8,541 feet long and 100 feet wide. The runway is painted with standard runway markings including runway numbers, centerline markings, demarcation bars, threshold bars on the Runway 18 end, and arrows and chevrons identifying displaced thresholds on both runway ends. The runway has a rated weight bearing capacity of 210,000 pounds for aircraft with dual/tandem wheel landing gear, 125,000 pounds for aircraft with dual wheel landing gear, and 70,000 pounds for single wheel landing gear.

The landing threshold on the Runway 18 end is displaced 800 feet, providing a landing distance of 7,017 feet. The Runway 36 end is displaced 2,033 feet, providing a landing distance of 5,708 feet. The full length of the runway is available for takeoff in both directions.

### 2.2.2 Taxiways

The Airport has one full-length taxiway that runs parallel to the runway (Taxiway A) and eight taxiway segments (Taxiways B through K) that connect the runway to the rest of the Airport, including the apron, terminal building, hangars, and tie-down area. Taxiways E and F provide high-speed exits from the runway. Medium intensity taxiway lighting (MITL) provides lighting to the taxiway system.

### 2.2.3 Navigational Aids

Lake Tahoe Airport is equipped with various navigational aids that provide guidance to aircraft in flight. Navigational aids include a rotating beacon, three wind cones, a segmented circle, and obstruction lighting. Runway 18 is equipped with medium intensity runway lighting (MIRL), medium intensity approach lights with sequenced flashers (MALSF), and a 4-light precision approach path indicator (PAPI). A PAPI provides visual guidance to pilots to help them maintain the correct approach angle to the runway. Runway 36 is equipped with MIRL and runway end indicator lights (REIL) at the displaced threshold.

The Squaw Valley very high frequency omnidirectional range and tactical air navigation system (VORTAC) facility is located approximately 21 to 22 nautical miles from the Airport and provides navigational guidance to aircraft arriving and departing from en route airspace. Other electronic aids to navigation include global positioning system (GPS) and an instrument landing system (ILS) that employs a localizer-type directional aid with distance measuring equipment (LDA/DME). An LDA is an antenna array offset from the runway generally due to interference from terrain that helps guide the pilot to a point where they can see the runway for final approach. GPS is a satellite-based system that provide navigational guidance to properly equipped aircraft.

The Airport also has an Automated Surface Observing System (ASOS) that provides pilots data on weather conditions at the Airport.

### 2.2.4 Published Arrival and Departure Procedures

Lake Tahoe Airport has two Instrument Approach Procedures (IAPs) and two departure procedures. An IAP is a flight procedure that guides an aircraft from the beginning of the final approach to the runway or to a point where the runway is visible under low visibility conditions (e.g., when the runway cannot be seen due to cloud cover). Similarly, departure procedures guide aircraft taking off from an airport during periods of low visibility. Only Runway 18 has published IAPs; one GPS approach (GPS RWY 18) and one approach using the ILS (LDA/DME-1 RWY 18). Both departure procedures (RICHY SIX and SHOLE TWO) serve departures off Runway 36.

### 2.2.5 Landside Facilities

Landside facilities at the Airport include a general aviation terminal building, a hangar complex with 48 aircraft storage hangars, two private hangars, a maintenance and storage hangar, 80,790 square yards of apron space with 127 tie-down spaces including transient spaces, a fuel facility, and 170 public parking spaces. Mountain West Aviation is the sole Fixed Base Operator (FBO) serving the Airport. An FBO provides numerous services to GA pilots including aircraft fueling, tie down and hangar leasing, rental cars, flight-planning services, and a pilot lounge.

### 2.2.6 Airspace

The FAA is responsible for control over the nation's navigable airspace. As part of this role, the FAA has classified airspace in the United States as controlled, uncontrolled, or special use. The airspace surrounding Lake Tahoe Airport has been designated as Class E airspace. Class E airspace is controlled airspace within which aircraft operating under Instrument Flight Rules (IFR) and Visual Flight Rules (VFR) are allowed to fly. The Class E airspace surrounding the Airport begins at the surface and extends upward to 18,000 feet MSL where it meets Class A airspace. An intermittent additional segment of Class E surface area airspace is located north of the Airport, extending from the 4.3-mile radius of Lake Tahoe Airport to 9.8 miles north. This area of Class E airspace is only in effect during specific dates and times announced in advance by the FAA via a Notice to Airmen.

### 2.2.7 Airport Activity Data

**Table 2-1** provides a summary of existing and future airport activity level data for Lake Tahoe Airport.

**TABLE 2-1**
**EXISTING AND PROJECTED ACTIVITY LEVELS AT LAKE TAHOE AIRPORT**

| Itinerant | | | | Local | | Total |
|---|---|---|---|---|---|---|
| Year | Air Taxi | General Aviation | Military | Civil | Military | |
| 2016 | 1,100 | 17,643 | 475 | 4,572 | 55 | 23,845 |
| 2038 | 1,100 | 22,727 | 475 | 5,781 | 55 | 30,138 |

SOURCE: Federal Aviation Administration, Terminal Area Forecast, January 2017.

## 2.3 Local Jurisdictions

As previously discussed, Lake Tahoe Airport is located in the City of South Lake Tahoe. A small portion of the Airport property extends into unincorporated El Dorado County. Both the City of South Lake Tahoe and the Airport are located within the greater Lake Tahoe Basin. Responsibility for land use planning in the AIA for Lake Tahoe Airport is shared by the TRPA, El Dorado County, and the City of South Lake Tahoe. The TRPA has developed a Regional Plan that includes Plan Area Statements, Area Plans and Community Plans for all areas located within its jurisdiction. These documents describe land use in each area covered and represent zoning designations. The City of South Lake Tahoe has adopted the Planning Area Statements, Area Plans and Community Plans as zoning. El Dorado County has designated the Lake Tahoe Basin as (AP) Adopted Plan in its general plan, recognizing TRPA's Regional Plan for the Tahoe Basin and the Plan Area Statements, as the adopted plans for the areas designated AP within the AIA. The El Dorado County zoning ordinance employs the Tahoe Basin (-T) combining zone as overlay for all areas within both the County and the TRPA jurisdiction except the Meyers Community, south of the Airport.

**Table 2-2** identifies the Planning Area Statements and Community Plan areas in effect around the Airport. **Figure 2-2** depicts existing land use in the City of South Lake Tahoe. **Figure 2-3** depicts planned land use in the City of South Lake Tahoe. **Figure 2-4** depicts planned land use in all areas around the Airport under TRPA jurisdiction, including the City of South Lake Tahoe and Unincorporated El Dorado County. The following sections discuss each jurisdiction in greater detail.

**TABLE 2-2**
**PLAN AREAS/COMMUNITY PLANS IN THE AIRPORT AREA**

| City of South Lake Tahoe | | | | | |
|---|---|---|---|---|---|
| Airport Plan Area | Bonanza | Gardner Mountain | South Y Industrial Tract Community Plan | Tahoe Valley Area Plan | Tahoe Island |
| Tahoe Keys | Highland Woods | Tahoe Sierra | Bijou/Al Tahoe Community Plan | Bijou Pines | Winnemucca |
| Sierra Tract Commercial | Sierra Tract | Al Tahoe | Bijou Pines | Bijou Meadows | Bijou |
| Tourist Core Area Plan | Tahoe Meadows | Pioneer/Ski Run | Pioneer Village | Heavenly Valley | |

**TABLE 2-2**
**PLAN AREAS/COMMUNITY PLANS IN THE AIRPORT AREA**

| **El Dorado County** | | | | | |
|---|---|---|---|---|---|
| Truckee Marsh | Twin Peaks | Echo View | Fallen Leaf North | Golden Bear | Montgomery Estates |
| Trout Cold Creek | Tahoe Paradise Washoan | Black Bart | Country Club Meadow | Meyers Community Plan | Tahoe Paradise Meadowvale |
| Tahoe Paradise Mountain | East Eldorado Residential | Meyers Commercial | Meyers Forest | Meyers Residential | Tahoe Valley Campground |

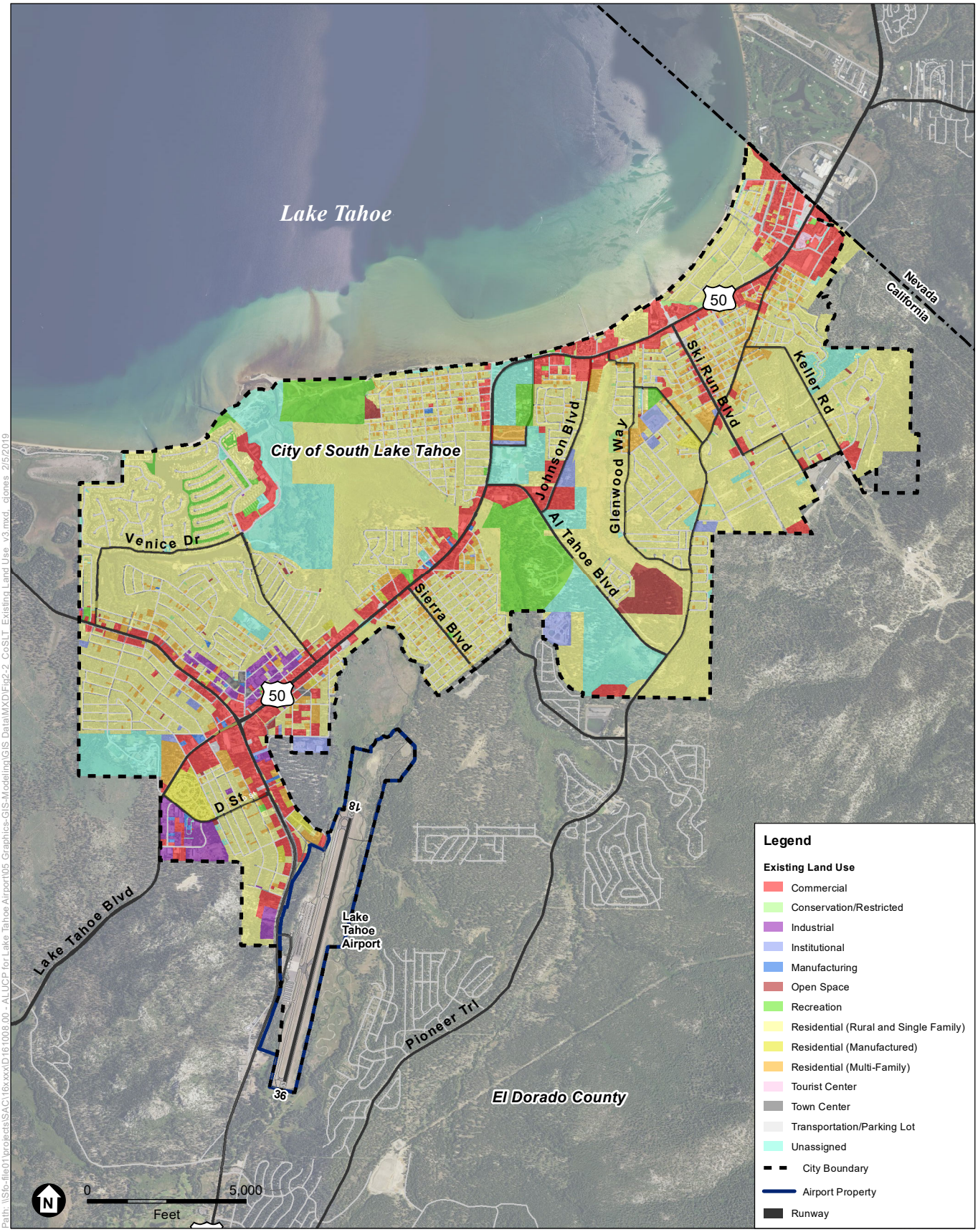
SOURCE: Tahoe Regional Planning Agency, December 2017; City of South Lake Tahoe, December 2017.

### 2.3.1 Tahoe Regional Planning Agency

In 1969, the U.S. Congress and the States of California and Nevada adopted the Tahoe Regional Planning Compact, establishing the TRPA. The TRPA is responsible for protecting the environmental quality of the Lake Tahoe Basin by establishing environmental standards and preparing a regional plan that incorporates elements on land use, transportation, conservation, recreation, and public services and facilities. Areas under TRPA jurisdiction include Lake Tahoe, the adjacent parts of Douglas and Washoe Counties and Carson City in the State of Nevada, and the adjacent parts of the Placer and El Dorado Counties in the State of California. Land use and zoning in areas under TRPA jurisdiction are governed by Plan Area Statements and in some areas by Community Plans and Area Plans that present more refined land use guidance and supersede the Plan Area Statements. The Plan Area Statements and Community Plans were adopted in accordance with the policies of the 1987 Regional Plan. The current Regional Plan, last updated in 2012, calls for preparation of Area Plans that supersede the existing Plan Area Statements and Community Plans.

### 2.3.2 El Dorado County

Both the El Dorado County General Plan and zoning ordinance recognize and acknowledge the County's shared responsibility for land use regulation, planning, and permitting with the TRPA. Accordingly, both the general plan and the zoning ordinance are consistent with the 1987 Regional Plan (readopted in 2012). The areas to the immediate north, northeast, east, and south of the Airport property are within unincorporated El Dorado County. Directly north of the Airport lies the Truckee Marsh. This area is primarily identified as a stream environment zone (SEZ) by the TRPA. A SEZ is a unique feature of the Lake Tahoe Basin and defined in the TRPA Code of Ordinances as "(g)enerally an area that owes its biological and physical characteristics to the presence of surface or ground water." (TRPA Code of Ordinances 90.2). Much of this area lies within the Agricultural Grazing (AG) zoning district. Surrounding areas within the Forest Resource (FR) and Rural Lands (RL) zoning districts.




SOURCE: ESRI, 2017; City of South Lake Tahoe, 2017; USDA (Aerial); C&S Companies, 2017; ESA, 2019

ALUCP for Lake Tahoe Airport.161008

**Figure 2-2**
Existing Land Use - City of South Lake Tahoe
Lake Tahoe Airport

ESA

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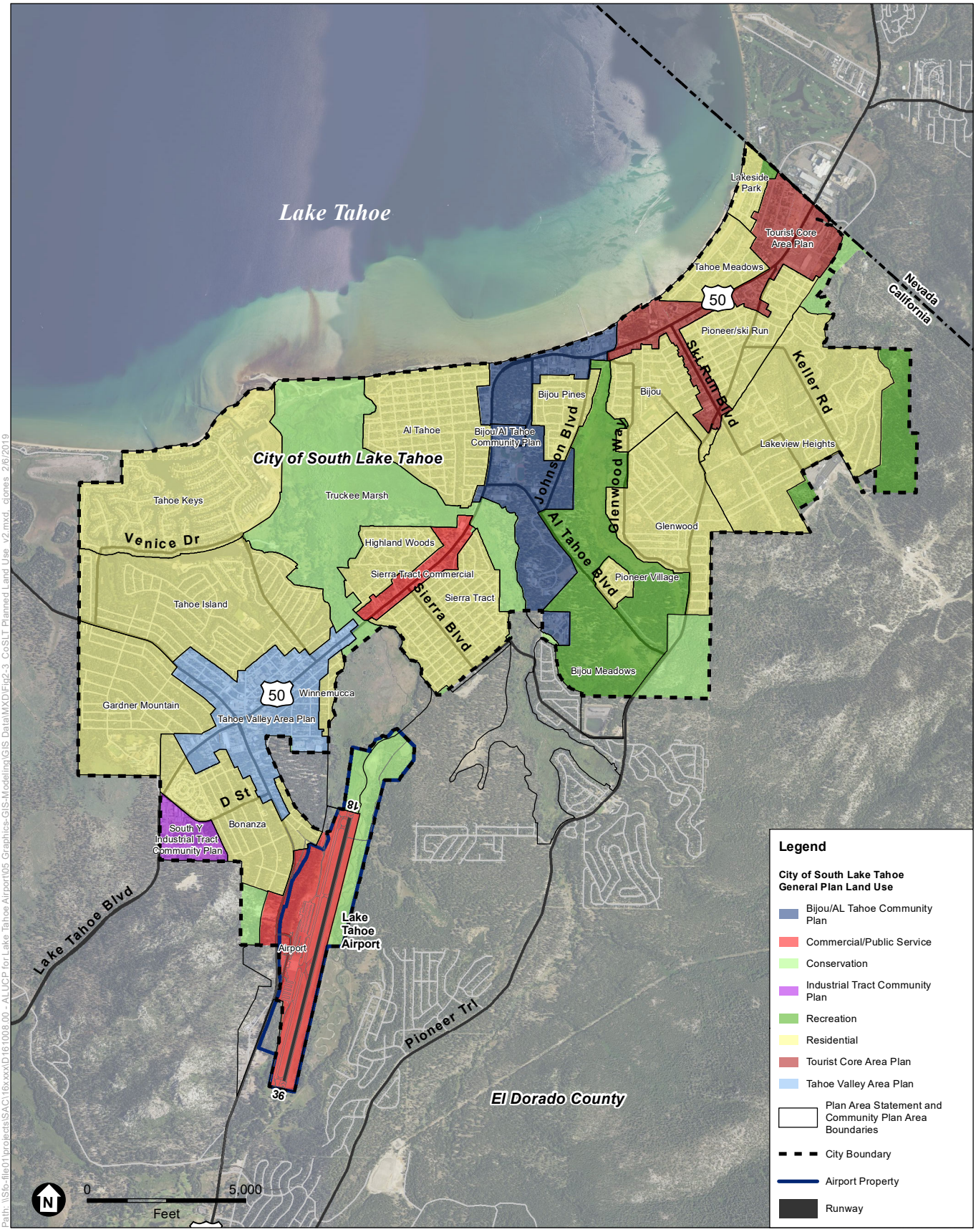


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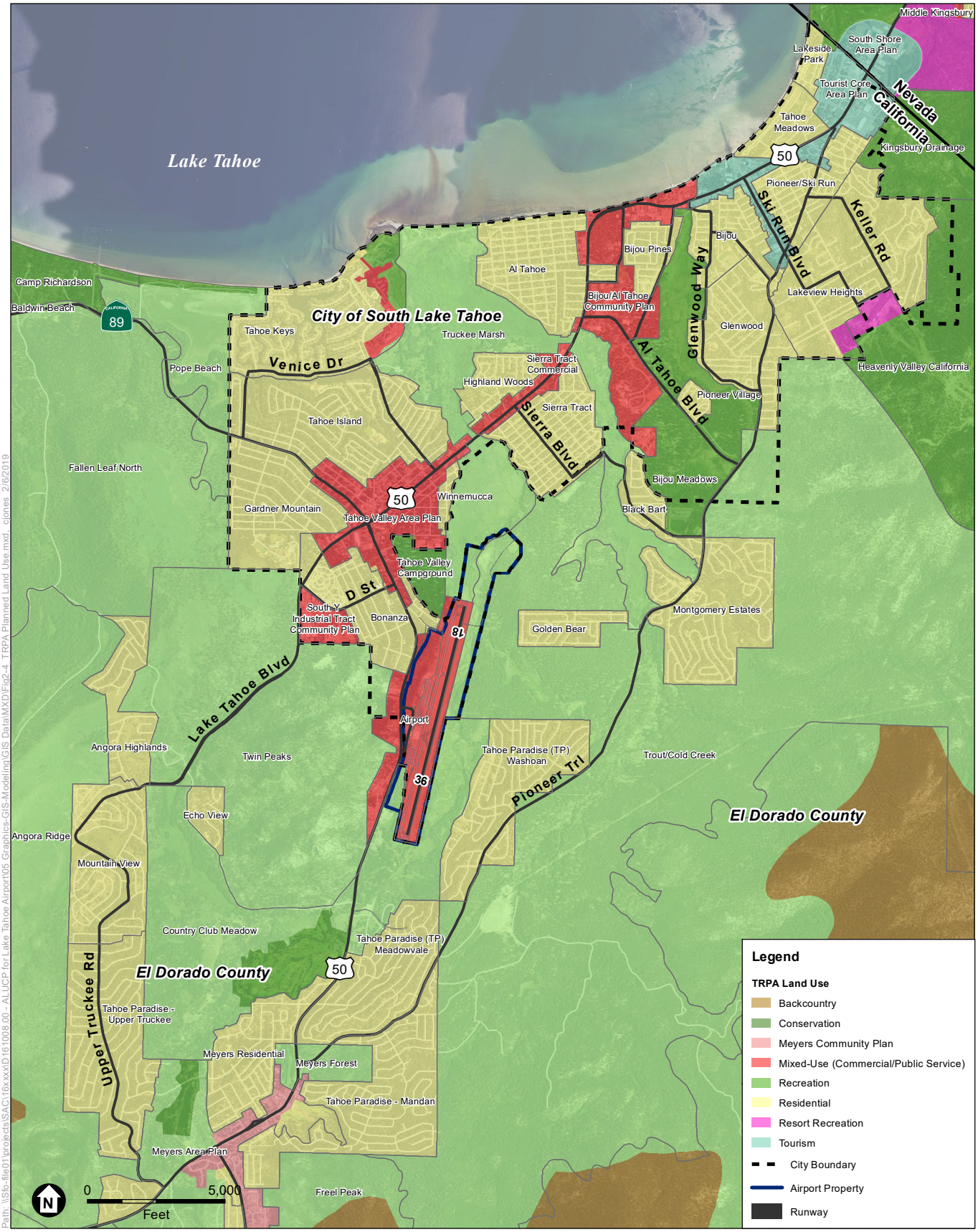
SOURCE: ESRI, 2017; City of South Lake Tahoe, 2017; USDA (Aerial); C&S Companies, 2017; ESA, 2019

ALUCP for Lake Tahoe Airport.161008

**Figure 2-3**
Planned Land Use - City of South Lake Tahoe
Lake Tahoe Airport

ESA

**DRAFT FOR DELIBERATIVE PURPOSES ONLY**

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SOURCE: ESRI, 2017; TRPA, 1987; USDA (Aerial); C&S Companies, 2017; ESA, 2017

ALUCP for Lake Tahoe Airport.161008

**Figure 2-4**
Planned Land Use - Tahoe Regional Planning Agency
Lake Tahoe Airport

ESA

**DRAFT FOR DELIBERATIVE PURPOSES ONLY**

Immediately east of the Airport lies the Trout/Cold Creek Plan Area. Most of this area is within the Forest Resource (FR) zoning district with land immediately east of Airport property zoned for Rural Lands (RL). The Golden Bear and Montgomery Estates Plan Areas are also located to the east of the Airport. These areas are within the Residential, Single Unit (R) zoning district.

Immediately south, southeast, and southwest of the Airport lie areas within the Country Club Meadow Plan Area Plan. These areas are designated for conservation and are within the Forest Resource (FR) zoning district. Within this area to the southeast, lies the Tahoe Paradise (TP) Washoan Plan Area. This area is designated for residential use and zoned Residential, Single Unit (R). South of the Airport and the Country Club Meadow Plan Area lie the Tahoe Paradise (TP) Meadowvale, Tahoe Paradise – Mandan, and the Meyers Residential, and Meyers Forest Plan Areas. Areas in the Tahoe Paradise (TP) Meadowvale, Tahoe Paradise – Mandan, and the Meyers Residential Plan Areas are primarily designated for residential and zoned Residential, Single Unit (R). Areas along Highway 50 in the Meyers Forest Plan Area are designated for industrial uses west of the highway and commercial uses immediately east of the highway with conservation uses further east. These areas are zoned for Industrial Light (IL), Commercial, Community (CC), and Forest Resource (FR) respectively. Areas to the southwest in the Country Club Meadow Plan Area are primarily designated for conservation uses with pockets of residential and recreation uses. These areas are within the Recreational Facilities, Low-Intensity (RF-L), Recreational Facilities, High-Intensity (RF-H), Commercial, Community (CC), and Forest Resource (FR) zoning districts.

Finally, to the west of the Airport lies the Twin Peaks Plan Area, which is designated for conservation and zoned for Forest Resource (FR). Though located in unincorporated El Dorado County, these plan areas fall within the City of South Lake Tahoe's sphere of influence and planning area. Beyond this area, the majority of land in unincorporated El Dorado County located within the Lake Tahoe Basin is owned and managed by the federal government.

### 2.3.3 City of South Lake Tahoe

The City of South Lake Tahoe updated its General Plan in 2011. The document was developed in close coordination with the TRPA, and is consistent with the TRPA's 2012 Regional Plan update. As stated previously, the City of South Lake Tahoe has adopted the TRPA's Plan Area Statements, Area Plans and Community Plans.

The city limits of South Lake Tahoe run contiguous with the Airport property boundary to the north, east, and south. To the immediate west of the Airport, east of the Highway 50 corridor, lies the Bonanza Plan Area designated for residential use and zoned for a mix of high density and single-family residential uses. Northwest of this area, along both sides of Highway 50 lies the Tahoe Valley Area Plan Area. The City of South Lake Tahoe General Plan designates this areas Town Center and it includes a mix of uses, including commercial, recreational, tourist, multi- and single-family residential uses.

Directly north of the Airport, beyond the areas of the Truckee Marsh that border the Airport property lie Tahoe Sierra, Highland Woods, and AI Tahoe Plan Areas, designated and zoned for

residential use. The Sierra Tract-Commercial Plan Area lies along the Highway 50 corridor between the Tahoe Sierra and Highland Woods Plan Areas. The area is primarily designated for commercial and public service uses.

### 2.3.4 Special Districts, School Districts, and Community College Districts

The legislature intended for special districts, school districts, and community college districts to be subject to the ALUCP. Special districts are a type of service agency formed by counties to meet specific needs. Most special districts perform a single function, such as focusing on water, parks and recreation, or libraries. Local residents and landowners can form special districts to pay for and provide services to their communities. While similar, a school or community college district is a separate and distinct type of agency from special districts.

The following special districts, school districts, and community college districts are found within the areas surrounding the Lake Tahoe Airport:

Fallen Leaf Lake Community Services District: The Fallen Leaf Lake Community Services District is located in areas surrounding Fallen Leaf Lake. The Community Services District provides a variety of services including a marina, community center, general store and café.

Happy Homestead Cemetery District: The Happy Homestead Cemetery is located approximately four miles northeast of the Airport. The District covers an area of approximately 212 square miles in the southern portion of the Lake Tahoe Basin, including the city of South Lake Tahoe.

Lake Tahoe Community College District: The Lake Tahoe Community College District oversees Lake Tahoe Community College located in South Lake Tahoe, approximately four miles northeast of the Airport.

Lake Tahoe Unified School District: The Lake Tahoe Unified School District oversees schools in the southern Lake Tahoe Basin, including one high school, one middle school, four elementary schools, a continuation school, and an independent learning program.

Lake Valley Fire Protection District: The Lake Valley Fire Protection District covers areas of unincorporated El Dorado County immediately beyond the South Lake Tahoe city limits. The District "provides fire suppression, emergency medical services, technical rescue, hazardous materials mitigation, fire prevention, public education, and disaster preparedness to approximately 90 square miles of El Dorado County in the Lake Tahoe area."[1]

South Tahoe Public Utility District: The South Tahoe Public Utility District provides drinking water and sewage collection, treatment, and removal to the city of South Lake Tahoe and portions of unincorporated El Dorado County south of Lake Tahoe.

[1] Lake Valley Fire Protection District 2014-2018 Strategic Plan, http://www.lakevalleyfire.org/about-us/strategic-plan, accessed November 16, 2017.

Tahoe Paradise Resort Improvement District: The Tahoe Paradise Resort Improvement District was created in 1965 to oversee the Tahoe Paradise Park. The park is located approximately four miles southwest of the Airport.

Tahoe Regional Conservation District: The Tahoe Regional Conservation District oversees various programs in areas around Lake Tahoe located in California, including "water quality, wildlife habitat, fire defensible space, sustainable recreation, water conservation and community enhancement, …, stormwater management, single-family residence Best Management Practices (BMPs), invasive species control and prevention, and conservation landscaping initiatives."[2]

[2] Tahoe Resource Conservation District, http://tahoercd.org/about-tahoe-resource-conservation-district/, accessed November 16, 2017.

# CHAPTER 3.
# Common Policies and Plan Implementation

## 3.1 Understanding Land Use Compatibility at Lake Tahoe Airport

This ALUCP contains both common and specific policies to regulate, and guide its implementation. The common policies discussed in this chapter are to be used along with the specific policies, procedures, standards, and compatibility criteria, presented in Chapter 4, by the ALUC, affected local agencies, and others, to implement the relevant provisions of this ALUCP. In addition, other local regulations, standards, processes, or applications should be reviewed and considered, as they may be applicable to a specific project. Official policy language is labeled with policy numbers (e.g., CP-1, which means Common Policy number one).

## 3.2 Objectives of the ALUCP

The policies of this ALUCP have four main objectives:

1. To maintain the sustainability of the Airport by safeguarding it from further encroachment by incompatible land uses that limit its ability to meet its purpose;
2. To safeguard the general welfare of people and property around the Airport by ensuring a development pattern that is compatible with airport operations and limits, to the extent practicable, the surrounding community's exposure to aircraft noise and other potential adverse impacts generated by the operation of the Airport.
3. To prevent development that will adversely affect navigable airspace in the Airport environs.
4. To provide guidance to local land use agencies on compatible land uses in the Airport environs.

## 3.3 Common Policies

### CP-1 Effective Date

The policies in this ALUCP shall become effective on the date that the City of South Lake Tahoe Planning Commission, acting in its capacity as the Lake Tahoe Airport ALUC adopts this ALUCP.

1. The adopted Lake Tahoe Airport Comprehensive Land Use Plan (Adopted July 1990, last revised May 2007) shall remain in effect until adoption by the ALUC of this ALUCP, and shall again become effective if the entirety of this ALUCP should be rendered invalid by court action.

2. Once adopted, invalidation by a court of a portion of this ALUCP shall not invalidate the other portions of this ALUCP that are not invalidated by the court action.

## CP-2 Geographic Scope

The geographic scope of this ALUCP is established though an Airport Influence Area. The AIA is presented in Section 1.4 and delineated as follows:

1. The AIA is the area in which current or future airport-related noise, safety, airspace protection, or overflight notification factors may significantly affect land uses or necessitate restrictions on those uses as determined by an airport land use commission (Bus. & Prof. Code, § 11010 (b)(13)).

2. The AIA is divided into two subareas, Review Area 1 and Review Area 2. Review Area 1 consists of the total area contained within the noise contours and safety zones. Review Area 2 consists of the areas within the 14 CFR Part 77 surfaces, and overflight notification area. The combined area of Review Area 1 and Review Area 2 represents the AIA for the Airport.

## CP-3 Compliance with State Law

The ALUC shall comply with the provisions of Public Utilities Code section 21670 *et seq*. when administering this ALUCP and the airport land use compatibility planning process. The Lake Tahoe Airport ALUC shall also establish an AIA within which real estate disclosure of the presence of an airport shall be required consistent with Section 11010(B)(13) of the Business and Professions Code. See **Appendix B** for a compendium of state laws applicable to this ALUCP.

## CP-4 Amendment of this ALUCP

This ALUCP shall be amended not more than once in any calendar year (Pub. Util. Code, § 21675(a)). The ALUCP shall be updated and amended as needed to maintain a current, updated document. The Handbook recommends a comprehensive review and update every five years. Updates should be undertaken as soon as practicable after any of the following occurrences:

- Adoption of a new airport master plan or an updated airport layout plan.
- Update of long-range airport noise exposure forecasts.
- Significant changes occur in the land use pattern within the AIA.

## CP-5 Applicability of Policies to Existing Land Uses

Existing land uses shall be exempt from the policies and criteria of this ALUCP, except as specifically provided for in this section. The definition for “existing land use”, can be found in Section 1.7, *Definitions*.

### *CP-5.1 Nonconforming Uses*

Existing uses (including a parcel or building) not in conformity with this ALUCP are subject to the following restrictions:

1. Nonconforming residential uses:

    a. A nonconforming single-family dwelling may be reconstructed or expanded in building size provided that the reconstruction or expansion does not increase the number of dwelling units. For example, a bedroom could be added to an existing residence, but an additional dwelling unit could not be built unless that unit is a detached secondary residence (accessory dwelling unit). Also, a new single-family dwelling may be constructed in accordance with Policy CP-5.5, *Development by Right*, below. Summer homes are included as single-family dwellings.

    b. A nonconforming multiple-family, multi-person, employee housing, or mobile home use may be reconstructed in accordance with Policy CP-5.2, *Reconstruction of Nonconforming Use*, but must not add additional dwelling units or floor area to the building.

    c. The sound attenuation and avigation easement dedication requirements set by Policy NP-6, *Interior Noise Levels*, and Policy CP-5.6, *Avigation Easement Dedication*, shall apply to reconstructed or expanded single-or multiple-family residences.

2. Nonconforming nonresidential uses:

    a. A nonconforming nonresidential use may be continued, leased, or sold and the facilities may be maintained, altered, or, if required by state law, reconstructed provided that neither the portion of the site devoted to the nonconforming use nor the building's floor area are expanded, and that the usage intensity (the number of people per acre) is not increased above the levels existing at the time of adoption of this ALUCP. The one exception to this rule is that a building's floor area may be expanded if it is intended to meet accessibility requirements.

    b. The sound attenuation and avigation easement dedication requirements set by the Policy NP-6, *Interior Noise Levels*, and Policy CP-5.6, *Avigation Easement Dedication*, shall apply to reconstructed or expanded single-family dwellings.

### *CP-5.2 Reconstruction of Nonconforming Use*

An existing nonconforming development that has been fully or partially destroyed as the result of fire, flood, or other calamity may be rebuilt only under specific conditions. It should be noted that these conditions do not apply to planned reconstruction or redevelopment. A list of the specific conditions are provided below:

1. Nonconforming single-family dwellings may be rebuilt provided that the reconstruction does not result in either more dwelling units than existed on the parcel at the time of the damage. Addition of a detached secondary residence (accessory dwelling unit) to a single-family dwelling is permitted if in accordance with state law and local zoning. Summer homes are included as single-family dwellings.

2. Nonconforming multiple-family, multi-person, employee housing, or mobile home residential uses may be rebuilt provided that reconstruction does not increase the number of dwelling units or increase the floor area of the building.

3. A nonconforming nonresidential development may be rebuilt provided that the reconstruction does not increase the floor area of the previous structure or result in an increased intensity of use (i.e., attract more people per acre), as defined in Section 1.7.

4. Reconstruction under Paragraphs (1), (2), and (3) above:

    a. Must have a permit deemed complete by the local jurisdiction within eighteen (18) months of the date the damage occurred.

    b. Shall incorporate sound attenuation features to the extent required by Policy NP-6, *Interior Noise Levels*, and consistent with the California Noise Standards (Cal. Code Regs., tit. 21, § 5000 *et seq*.).

    c. Shall be conditioned upon dedication of an avigation easement to the airport proprietor if required under Policy CP-5.6, *Avigation Easement Dedication*.

    d. Shall comply with 14 CFR Part 77 requirements (see **Appendix C**).

5. Reconstruction in accordance with Paragraphs (1), (2), and (3) above shall not be permitted in Safety Zone 1 or where it would be in conflict (not in conformance) with the general plan or zoning ordinance of the relevant jurisdiction.

6. Nothing in the above policies is intended to preclude work required for normal maintenance and repair.

### *CP-5.3 Discontinuance of Nonconforming Use*

If a nonconforming use has been discontinued for 18 months or longer, any subsequent use of the property shall comply with the provisions of this ALUCP. Local government policies that specify shorter periods shall be deemed consistent with this ALUCP policy.

### *CP-5.4 Development by Right*

Nothing in these policies prohibits:

1. Other than in Safety Zones 1 and 5, construction of a single-family dwelling, including a secondary residence (accessory dwelling unit), as defined by state law (see Govt Code Sec. 65852.2(h)(i)(4)), on a legal lot of record as of the date of adoption of this ALUCP if such use is permitted by local land use regulations.

2. "Single-family dwelling" and "secondary residence" includes a manufactured home, but not a mobile home (see definitions in Section 1.7). "Summer home" is included as a "single-family dwelling."

3. Construction of other types of uses if local government approvals have been issued at the time of adoption of this ALUCP, thus entitling the development (the approved development would be treated as an existing land use). Please see Section 1.7, *Definitions*, for the definition of existing land use.

4. Lot line adjustments, provided that the resulting density or intensity of the affected property would not exceed the applicable criteria indicated in the **Table 4-2**, *Safety Compatibility Criteria*. The sound attenuation and avigation easement dedication requirements shall apply to development permitted under this policy (see Policy NP-6, *Interior Noise Levels*, and Policy CP-5.6, *Avigation Easement Dedication*.)

### *CP-5.5 Avigation Easement Dedication*

As a condition for approval of projects meeting the conditions in Paragraphs (1) and (2) below, the property owner shall be required to dedicate an avigation easement to the City of South Lake Tahoe, owner of the Airport.

1. Avigation easement dedication is required for all projects situated within the following portions of the Lake Tahoe Airport Influence Area:

    a. All locations within the CNEL 65 dB contour depicted in **Figure 4-1**. The CNEL 65 dB contour is primarily limited to Airport property. The contour extends beyond the Airport property line along the southeastern, southwestern, and northwestern boundaries. See Policy NP-8, *Buyer Notification and Avigation Easements.*

    b. All locations within Safety Zones 1 through 5 as depicted in **Figure 4-4**.

    c. All locations beneath the approach or transitional surfaces or in areas of ground and/or obstacle penetration of airspace protection surfaces as depicted in **Figure 4-7**.

2. Avigation easement dedication shall be required for any proposed development except ministerial actions associated with modification of existing single-family dwellings.

3. The avigation easement shall:

    a. Provide the right of flight in the airspace above the property;

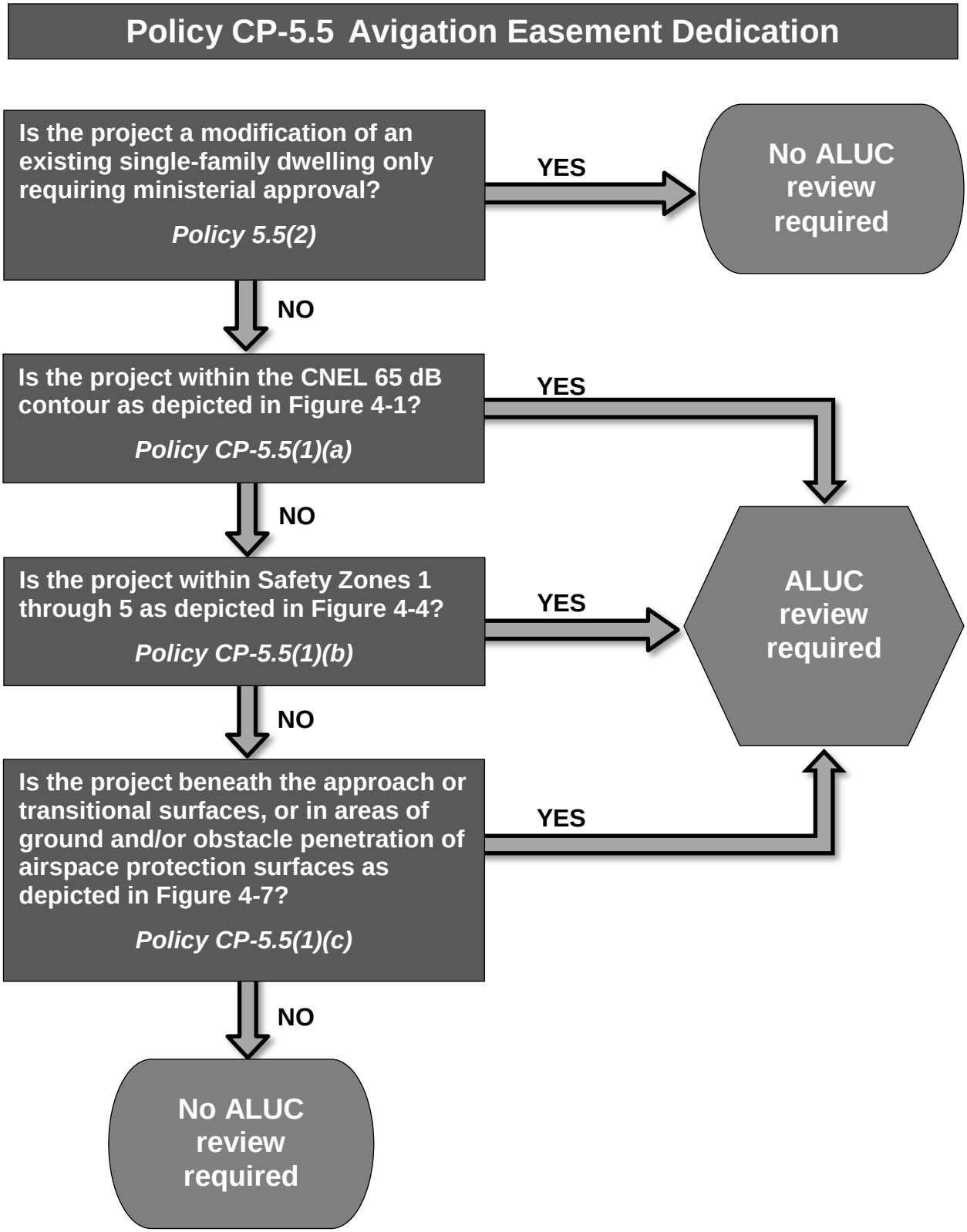
    b. Allow the generation of noise and other impacts associated with aircraft overflight;

    c. Restrict the height of structures, trees and other objects in accordance with the airspace protection policies and the Lake Tahoe Airport 14 CFR Part 77 and the United States Standard for Terminal Instrument Procedures (FAA Order 8260.3D) surfaces (see Figure 4-7) herein;

    d. Permit access to the property for the removal or aeronautical marking of objects exceeding the established height limit; and

    e. Prohibit electrical interference, glare, and other potential hazards to flight from being created on the property.

**Figure 3-1** provides a flow chart depicting the avigation easement dedication process.




ALUCP for Lake Tahoe Airport. 161008

SOURCE: ESA, 2018

**Figure 3-1**
Avigation Easement Dedication Process

# 3.4 ALUCP Implementation and Administration

## 3.4.1 Actions Subject to ALUC Review

### CP-6 Actions that Always Require ALUC Review

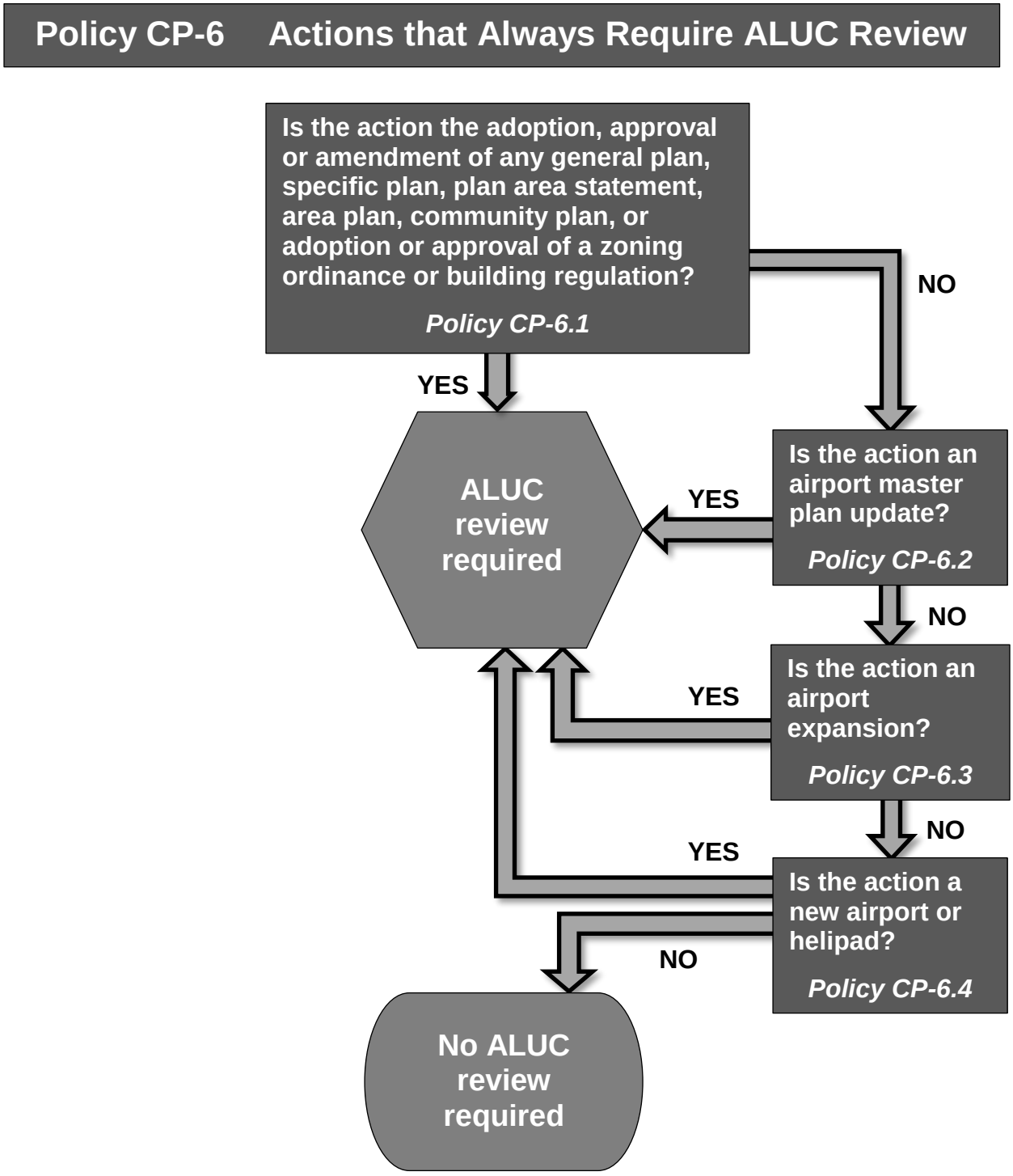
As required by state law, even if a local agency's general plan is consistent with the current ALUCP, the following types of land use actions shall be referred to the ALUC for determination of consistency with this ALUCP prior to their approval by the local agency:

1. The adoption, approval or amendment of any general plan, specific plan, plan area statement, area plan, community plan, or the adoption or approval of a zoning ordinance or building regulation (planning documents) (Pub. Util. Code, § 21676(b)) that affects allowable land uses within the AIA.
2. Adoption or modification of an airport master plan. (Pub. Util. Code, § 21676(c)). This requirement also applies to airport layout plans that would effectively modify any provisions of a previously adopted airport master plan.
3. Any proposal for expansion of the Airport, if such expansion will require an amended airport permit from the State of California (Pub. Util. Code, § 21664.5).
4. Any proposal for construction of a new airport or heliport (Pub. Util. Code, § 21661.5).

### CP-7 Actions Subject to ALUC Review at the ALUC's Discretion

Other types of land use actions or projects are subject to ALUC review under these circumstances:

1. Until such time as the ALUC finds that a local agency's general plan is consistent with this ALUCP, or the local agency has overruled the ALUC's determination of inconsistency, the ALUC may require that the local agency submit all subsequent actions, regulations, and permits to the commission for review until its general plan or specific plan is revised or the specific findings are made. (Pub. Util. Code, § 21676.5(a)).
2. On Airport property, the ALUC may require submittal of proposed non-aviation development for review. "Aviation related use" is defined in Section 1.7, *Definitions*.
3. After a local agency has revised its general plan to be consistent with the ALUCP or has overruled the ALUC's ALUCP, some land use actions still require mandatory review (e.g., General Plan adoption or amendment; see Policy CP-6, *Actions that Always Require ALUC Revie*w, above). Moreover, the local agency can continue to voluntarily request that the ALUC review and comment upon individual projects and the ALUC can agree to review and comment upon individual projects consistent with a local agency's request (Pub. Util. Code, § 21676.5(b)).




ALUCP for Lake Tahoe Airport. 161008

SOURCE: ESA, 2018

**Figure 3-2**
Actions that Always Require ALUC Review

## 3.4.2 General Review Process for Land Use Actions

### *CP-8.1 Timing of Land Use Action Submittal:*

The precise timing of ALUC review of a proposed land use action may vary depending upon the nature of the land use action.

1. General plans and land use actions subject to ALUC review should be referred to the ALUC at the earliest reasonable time so that the ALUC's review can be duly considered by the local agency before formalizing its actions. Depending upon the type of general plan or land use action and the normal scheduling of meetings, ALUC review can be completed before or concurrent with the review by the local planning commission and other advisory bodies, but must be accomplished before final action by the local agency.

2. The most appropriate time for a proposed land use action to be referred to the ALUC for review is once an application has been deemed complete by the local agency. However, the local agency may refer a proposed land use action to the ALUC for a preliminary review with or without a completed application if there is significant policy issue to be addressed. Referral of a proposed land use action to the ALUC for a preliminary review requires the local agency to provide the ALUC with the submittal information for the proposed land use action, as specified in Policy CP-8.2, *Land Use Action Submittal Information*, of this ALUCP. The ALUCs review under these circumstances is discretionary, preliminary, and not binding on subsequent ALUC determinations.

3. If the land use action changes in a substantive way during the local agency's review/approval process, the land use action must be resubmitted for a consistency determination.

### *CP-8.2 Land Use Action Submittal Information*

A proposed land use action submitted to the ALUC for review that requires a new or amended general plan in accordance with Policy CP-6, *Actions that Always Require ALUC Review*, or other land use actions submitted to the ALUC in accordance with Policy CP-7, *Actions Subject to ALUC Review at the ALUC's Discretion*, shall include this information:

1. Property location data (assessor's parcel number, street address, subdivision lot number).

2. An accurately scaled map showing the relationship (distance and direction) of the project site to the Airport boundary and runways. When available, a digital version of the exhibit should be provided electronically along with a paper copy. The map should not exceed 24 x 36 inches.

3. A description of the existing use(s) of the land in question, including land use classification and zoning as described in the applicable Plan Area Statement, Area Plan or Community Plan and height of structures, maximum intensity limits, and other applicable information.

4. A description of the proposed use(s) and the type of land use action being sought from the local agency (e.g., building permit).

5. For residential uses, the proposed number of dwelling units per acre (excluding any detached secondary residences on a parcel); or, for nonresidential uses, the number of people

potentially occupying the total site or portions of it at any one time, and the proposed maximum developable area of the lot allowed for the land use action.

6. If applicable, as determined by ALUC staff, a detailed site plan showing ground elevations, the location of structures, open spaces, and water bodies, and the heights of structures and trees above mean sea level and above ground level. A profile view of proposed features is also to be provided in instances where structure height is an issue. Similar information is provided to the FAA when submitting Forms 7460-1 and -2 requesting an aeronautical study evaluating obstructions to the airspace. When available, a digital version of the drawings will be provided electronically along with the paper version.

7. Identification of any features that would increase the attraction of birds or cause other wildlife hazards to aircraft operations on the Airport or in its environs.

8. Identification of any characteristics that could create electrical interference, confusing or bright lights, glare, smoke, or other electrical, visual, or thermal hazards to aircraft flight.

9. Any draft or final environmental document (initial study, negative declaration, mitigated negative declaration, environmental assessment, environmental impact statement, or environmental impact report) that has been prepared for the land use action.

10. Any staff reports regarding the land use action that may have been presented to local agency decision makers.

11. Any land use action submittal information and final airspace determination that has been obtained from the FAA in accordance with the completion of an aeronautical study.

12. Other relevant information that the ALUC determines to be necessary to enable a comprehensive review of the land use action.

13. The land use action submittal information also shall include applicable review fees, as established by the ALUC (Pub. Util. Code § 21671.5(f)).

14. The documents submitted to the ALUC (or to the ALUC staff) should not exceed 24 x 36 inches.

### *CP-8.3 Public Input*

Where applicable, the ALUC shall provide public notice and obtain public input in accordance with Section 21675.2(d) of the Public Utilities Code before acting on any proposed land use action under consideration.

## 3.4.3 General Review Process for General Plans, Specific Plans, Zoning Ordinances, and Building Regulations

### *CP-9.1 Initial ALUC Review of General Plan Consistency*

Along with the adoption or amendment of this ALUCP, the ALUC shall review the general plans of affected local agencies to determine their consistency with the ALUCP.

1. Within 180 days of the ALUC's adoption or amendment of this ALUCP, each local agency affected by the plan must amend its general plan to be consistent with the ALUCP or, alternatively, provide required notice, adopt findings, and overrule the ALUCP by two-thirds vote of the local agency's governing body in accordance with Sections 21675.1(d), 21676(b), and 21676.5(a) of the Public Utilities Code (Gov. Code, § 65302.3). If a local agency fails to take either action, then it is required to submit all land use actions involving property located within the AIA to the ALUC for review (Pub. Util. Code, § 21676.5(a)).

2. Before taking action on a proposed general plan amendment, the local agency must submit the draft of the general plan to the ALUC for review and a consistency determination.

### *CP-9.2 Subsequent Reviews of Related Land Use Actions*

As indicated in Policy CP-6, *Actions that Always Require ALUC Review*, before taking action on the adoption or amendment of a general plan affecting property located within the AIA defined in this ALUCP, local agencies must submit the proposed general plan to the ALUC for review and a consistency determination. Once the general plan has been made consistent with this ALUCP, subsequent land use actions that are consistent with the general plan are subject to ALUC review only under the conditions indicated in Policy CP-6, *Actions that Always Require ALUC Review*. When subsequent review is required:

1. Copies of the complete text and maps of the proposed general plan and any supporting materials documenting that the land use action is consistent with the ALUCP must be submitted.

2. If the amendment is required as part of a proposed land use action, then the applicable information listed in Policy CP-8.2, *Land Use Action Submittal Information*, shall also be included.

### *CP-9.3 ALUC Action Choices:*

When reviewing a general plan for consistency with the ALUCP, the ALUC has three choices:

1. Find the general plan consistent with the ALUCP. The conditions identified in the policies in Section 3.5 must be met.

2. Find the general plan consistent with the ALUCP, subject to conditions and modifications that the ALUC may require. Any such conditions should be limited in scope, consistent with the provisions of this ALUCP, and described in a manner that allows compliance to be clearly assessed.

3. Find the general plan inconsistent with the ALUCP. In making a finding of inconsistency, the ALUC shall note the specific conflicts or shortcomings upon which its determination of inconsistency is based.

### *CP-9.4 Response Time*

The ALUC must respond to the following within 60 days from the date of submittal:

- A local agency's request for a consistency determination on a general plan or specific plan,

- A local agency's adoption or approval of a zoning ordinance or building regulation within the AIA, and
- An airport operator's request for a consistency determination on modifications to its airport master plan (Pub. Util. Code, § 21676).

However, this response period does not begin until the ALUC staff has determined that all information necessary for accomplishment of the land use action review has been submitted to the ALUC (Handbook at page 6-10). The 60-day review period is specified by statute (see Pub. Util. Code §§ 21675.2(a) and 21676(d)).

The following conditions apply:

1. The 60-day review period may be extended if the submitting local agency agrees in writing or so states at an ALUC public hearing on the action.

2. The date of submittal is deemed to be the date on which all applicable land use action information is received by the ALUC and the ALUC determines that the application for a consistency determination is complete.

3. If the ALUC fails to make a determination within the time required or agreed upon, the proposed action shall be deemed consistent with the ALUCP (Pub. Util. Code, § 21676(d)).

4. Regardless of any action or failure to act on the part of the ALUC, the proposed action still must comply with other applicable local, state, and federal laws and regulations.

5. The submitting local agency shall be notified of the ALUC's determination in writing.

### *CP-9.5 ALUC Response to Notification of Proposed Overruling*

If a local agency proposes to overrule an ALUC, it must provide a copy of the proposed decision and findings to both the ALUC and the Division of Aeronautics at least 45 days prior to taking action. The ALUC and Division of Aeronautics have 30 days in which to provide the local agency with their comments (Pub. Util. Code, § 21676(a)-(b)). The ALUC authorizes the ALUC staff to respond to any notification of proposed overruling. The comments of the Division of Aeronautics and the ALUC are advisory, but must be made part of the record of final decision to overrule the ALUC (Pub. Util. Code, §§ 21676, 21676.5).

## 3.5 General Plan Consistency with ALUCP

This section discusses the requirements that need to be met for a general plan to be considered consistent with this ALUCP. A general plan consistency checklist is provided in **Appendix D**.

### *CP-10.1 Elimination of Conflicts*

No direct conflicts can exist between general plans and the ALUCP.

1. Direct conflicts primarily involve general plan land use designations that do not meet the density (number of dwelling units per acre for residential uses) or intensity (number of people per acre for nonresidential uses) criteria specified in Chapter 4 of this ALUCP. In addition,

conflicts with regard to other policies may exist. This may include height restrictions on buildings, land use specifications, and building standards.

2. A general plan cannot be found inconsistent with the ALUCP because of land use designations that reflect existing land uses even if those designations conflict with the compatibility criteria of this ALUCP. Land use designations that reflect the existing uses are exempt from requirements for general plan consistency with the ALUCP. This exemption derives from state law that proscribes ALUC authority over existing land uses. However, proposed redevelopment or other changes to existing land uses are not exempt from compatibility policies and are subject to ALUC review in accordance with Policy CP-7, *Actions Subject to ALUC Review at the ALUC's Discretion*. General plans must include policies setting limitations on the expansion and reconstruction of nonconforming uses located within the AIA, consistent with Policy CP-5, *Applicability of Policies to Existing Land Uses*, in order to prevent an increase in the number of nonconforming uses.

3. To be consistent with the ALUCP, a general plan also must include provisions ensuring long-term compliance with the compatibility criteria. Therefore, an implementation process must be defined in the general plan. Compatibility planning can be reflected in a general plan in several ways:

    a. Incorporate Policies into Existing General Plan Elements—One approach for achieving the necessary planning consistency is to modify existing general plan elements. For example, airport land use noise policies could be inserted into the noise element, safety policies could be provided in the safety element, and the primary compatibility criteria and associated maps, in addition to the procedural policies, might fit into the land use element. With this approach, direct conflicts would be eliminated and most of the mechanisms and procedures to ensure compliance with, and implementation of, the compatibility criteria could be fully incorporated into the local agency's general plan.

    b. Adopt a General Plan Airport Element—Another approach is to prepare a separate airport element as part of the general plan. Such a format may be advantageous when the local agency's general plan also needs to address on-airport development and operational issues. Modification of other plan elements to provide cross-referencing and eliminate conflicts would still be necessary.

    c. Adopt a Compatibility Plan as Stand-Alone Document—Local agencies could also adopt, as a local policy document, the relevant portions of this ALUCP–specifically, the policies and maps in Chapters 2 and 3. Background information from Chapter 4 could be included as well, if applicable. Changes to the local agency's existing general plan would be minimal. Policy reference to the ALUCP would need to be added and direct land use or other conflicts with compatibility planning criteria would have to be removed. Limited discussion of compatibility planning issues could be included in the general plan, but the substance of most compatibility policies would appear only in the stand-alone document.

    d. Adopt Airport Combining District or Overlay Zoning Ordinance—This approach is similar to the stand-alone document except that the local agency would not explicitly adopt the ALUCP as policy. Instead, the compatibility policies would be restructured as an airport combining district or overlay zoning ordinance. A combining district or overlay-zoning ordinance serves as an overlay to standard community-wide land use zones and modifies or limits the uses permitted by the underlying zone. Flood hazard combining zoning is a common example. An airport combining district or overlay zoning

ordinance can be a convenient means of bringing various airport compatibility criteria into one place. The airport-related height-limit zoning that many local agencies have adopted for protecting airport airspace is a form of combining district zoning. Noise and safety compatibility criteria, together with procedural policies, would need to be added to create a complete airport compatibility-zoning ordinance. Other than where direct conflicts need to be eliminated from the general plan, implementation of the compatibility policies would be accomplished solely through the combining district or overlay-zoning ordinance. To be consistent with the ALUCP, the general plan can simply state it supports the ALUC by implementing its policies through the combining district or overlay-zoning ordinance.

### *CP-10.2 Identification of Mechanisms for Compliance*

Local agencies must define the mechanisms by which applicable compatibility criteria will be tied to an individual development and continue to be enforced. Applicable compatibility criteria may be included in an application, as a checklist, or in some other manner as deemed appropriate.

### *CP-10.3 Response Time*

In responding to land use actions other than planning documents (e.g., Plan Area Statements, Community Plans, Area Plans) submitted for review, the policy of the ALUC is that:

1. Reviews of land use actions forwarded to the ALUC for a consistency determination shall be completed within 60 days of the date of "land use action submittal," as defined in Paragraph 2 below. This response period does not begin until all information necessary for accomplishment of the land use action review has been submitted to the ALUC (Pub. Util. Code, § 21675.2(a) and 21676(d)).

2. The date of "land use action submittal" shall be the date on which all applicable land use action submittal information, as listed in Policy CP-8.2, *Land Use Action Submittal Information*, is received by the ALUC staff and the ALUC staff has determined the application to be complete.

3. If the ALUC fails to make a determination within 60 days after ALUC staff has determined the application to be complete, the proposed land use action shall be deemed consistent with the ALUCP unless the local agency agrees in writing to an extension beyond 60 days or so states at an ALUC public hearing on the action.

4. Regardless of any action or failure to act on the part of the ALUC, the proposed land use action still must comply with other applicable local, State, and federal laws and regulations.

5. The submitting agency shall be notified of the ALUC's determination in writing.

### *CP-10.4 ALUC Response to Notification of Proposed Overruling*

If a local agency proposes to overrule an ALUC decision regarding a land use action for which ALUC review is mandatory under this section, then the local agency must provide a copy of the proposed decision and findings to both the ALUC and the Division of Aeronautics at least 45 days prior to taking action. The ALUC and Division of Aeronautics have 30 days to provide the local agency with their comments (Pub. Util. Code, § 21676(a)-(b)). The ALUC may authorize the ALUC staff to respond to any notification of proposed overruling. The comments of the

Division of Aeronautics and the ALUC are advisory, but must be made part of the record of final decision to overrule the ALUC (Pub. Util. Code, §§ 21676, 21676.5).

### *CP-10.5 Subsequent Review*

Even after a land use action has been found consistent or conditionally consistent with this ALUCP, it may still need to be submitted for review in later stages of the planning process if any of the following are true:

1. At the time of the original ALUC review, the land use action information available was only sufficient to determine consistency with compatibility criteria at a planning level of detail, not at the land use action design level. For example, the proposed land use designation indicated in a general plan may have been found consistent, but information on site layout, maximum density and intensity limits, building heights, and other such factors may not have yet been known that affect the consistency determination for a land use action.

2. The design of the land use action subsequently changes in a manner that affects previously considered compatibility issues and could raise questions as to the validity of the earlier finding of consistency. Proposed changes warranting a new review may include, but are not limited to, the following:

    a. An increase in the density of use (number of dwelling units), intensity of use (more people on the site), or maximum developable area;

    b. An increase in the height of structures or modification of other design features;

    c. Major site design changes (such as incorporation of clustering or modifications to the configuration of open land areas proposed for the site).

    d. The local agency concludes that further review is warranted.

    e. At the time of the original ALUC review, conditions are placed on the land use action that require subsequent ALUC review.

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# CHAPTER 4.
# Compatibility Factors: Maps and Policies

## 4.1 Introduction

This chapter of the ALUCP presents the compatibility factor maps, compatibility criteria, and policies for Lake Tahoe Airport. While the policies presented in Chapter 3 establish the procedures by which the ALUC conducts compatibility reviews for certain proposed land use actions and airport-related actions within the AIA, this chapter presents the policies and compatibility criteria applicable to land use actions and used during the compatibility review process.

As previously discussed, this ALUCP addresses four airport land use compatibility factors: noise, safety, airspace protection, and overflight notification. Each compatibility factor represents a separate "layer" for purposes of assessing the compatibility of proposed land use actions. Review Area 1 consists of the combined area within the noise contours and six safety zones that constitute the noise and safety compatibility factors. Review Area 2 consists of the airspace surfaces and overflight notification area. Under State law, the combination of these factors/layers determines the boundary of the AIA (see Bus. & Prof. Code, § 11010(b)(13)(B)).

## 4.2 Review Area 1

Review Area 1 of the AIA is composed of the noise contours and safety zones for Lake Tahoe Airport. These compatibility factors and their associated policies and compatibility criteria are discussed further in the following sections.

### 4.2.1 Noise

Aircraft noise is one of the primary motivators for land use compatibility planning. Typically, the sound of aircraft operations is the most recognizable issue for people living and working in the vicinity of an airport. Depending on the size of the airport and the types of aircraft it accommodates, aircraft noise can be experienced over large areas.

The aircraft noise analysis prepared for this Draft ALUCP used the FAA-approved Aviation Environmental Design Tool (AEDT), Version 2d. AEDT 2d is the FAA's required tool for modeling noise, fuel burn, and emissions generated by FAA actions. This version of AEDT was released in September 2017 and represents the state of the art in noise modeling for airport and airspace actions. The model is recognized by the State of California as the appropriate tool for aircraft noise assessments.

For purposes of this ALUCP, noise is described using the CNEL metric. CNEL is the standard noise metric used for aircraft noise analyses in the State of California. The metric is used to describe noise exposure cumulatively for an annual-average day of aircraft operations. The annual-average day represents all aircraft operations for every day in a year divided by 365, the number of days in a year. This is intended to represent a typical day of operations within a study year. The CNEL for this annual-average day is calculated by mathematically combining the number of single noise events that occur during this period (24 hours) with how loud the events were and what time of day they occurred. The CNEL metric addresses the fact that noise events occurring after 7:00 p.m. and before 7:00 a.m. are considered more intrusive by adding noise penalties. The penalized time period is further subdivided into evening (7:00 p.m. through 9:59 p.m.) and nighttime (10:00 p.m. to 6:59 a.m.). CNEL treats every evening operation as though it were three operations and every nighttime operations as though it were ten operations. This "weighting" adds a 4.77 dB penalty during the evening hours and a 10 dB penalty during the nighttime hours. Noise contours presented in this ALUCP depict noise exposure in terms of CNEL.

The noise model results are displayed as noise contours. Noise contours representing area exposed to aircraft noise levels of CNEL 50, 55, 60, 65, 70, and 75 dB were calculated and used to prepare the policy map discussed in this section of the ALUCP. Each contour represents areas exposed to equivalent noise within a 5-dB CNEL band (e.g., CNEL 50-55 dB).

**Appendix E** presents a complete discussion regarding noise analysis and the approach used to develop the aircraft noise exposure contours presented in this section.

#### 4.2.1.1 How to Use This Section

There are eight noise compatibility policies provided in Section 4.2.1.4. The noise compatibility policies are to be used in conjunction with the future year noise contour depicted on **Figure 4-1** and the noise/land use compatibility criteria presented in **Table 4-1**. Figure 4-1 can be used to identify the location of a property relative to the noise contours. Once the property location within a contour is identified, the applicable noise policies and compatibility criteria can be identified by referring to Table 4-1. The noise compatibility policies only apply to the areas within the identified noise contours as shown on Figure 4-1. Application of the noise compatibility criteria is shown in flowcharts depicted on **Figures 4-2** and **4-3**.

#### 4.2.1.2 Aircraft Noise Contours for Lake Tahoe Airport

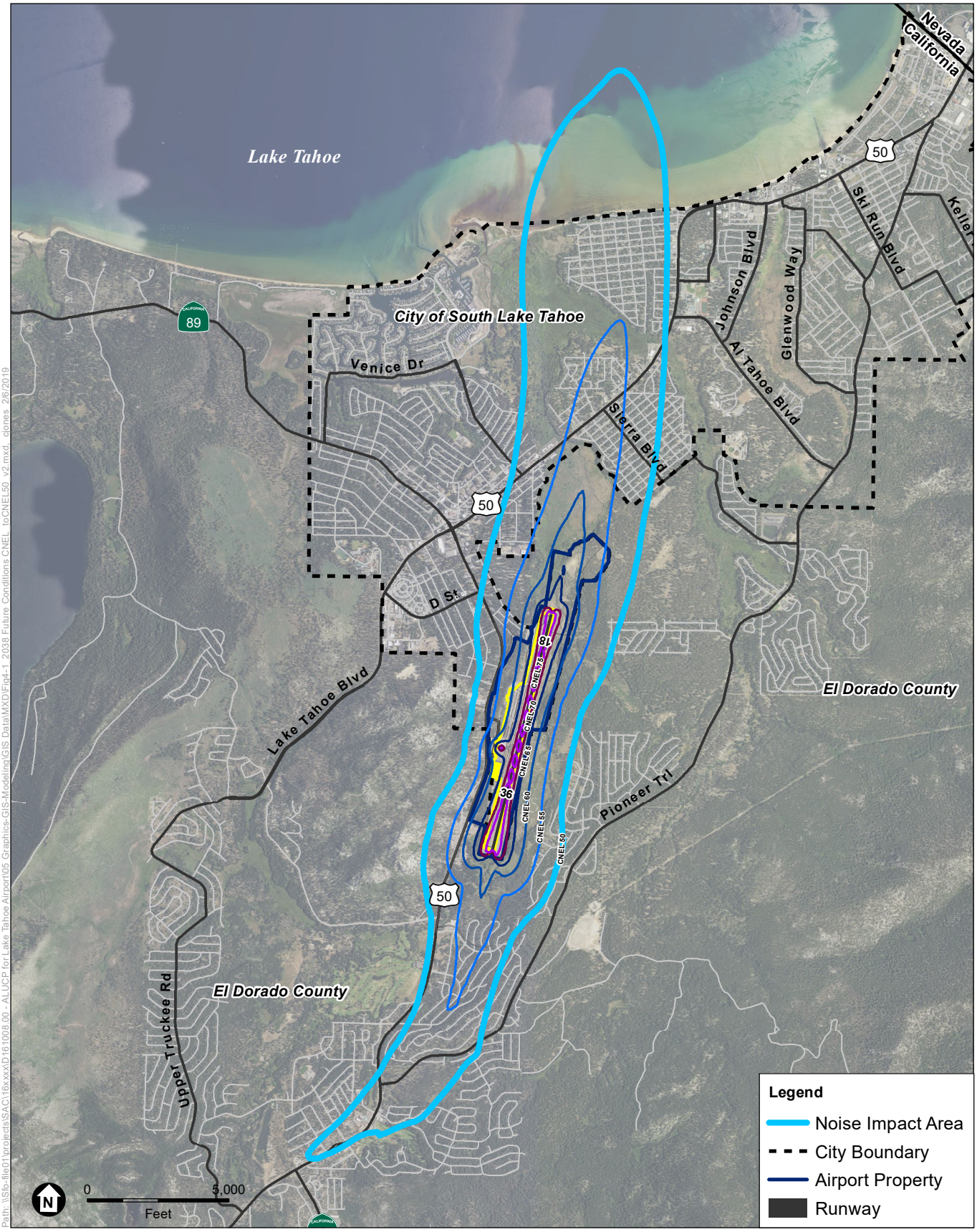
Future year noise contours representing a 20-year planning horizon (2038) are shown in Figure 4-1. Excluding a small area of existing residential use near the Runway 18 end, areas exposed to aircraft noise levels of CNEL 60 and higher are limited to Airport property or undeveloped areas immediately beyond the Airport boundary. The land use compatibility policies identified in Table 4-1 apply to the noise contours depicted on Figure 4-1.

#### 4.2.1.3 Noise Compatibility Criteria

The objective of the aircraft noise policies is to promote the goals of the California Airport Noise Standards (Cal. Code Regs., tit. 21, § 5000 *et seq*.) and the California Noise Insulation Standards

(Cal Code Regs., tit. 24, § 3501 *et seq*.) by avoiding the establishment of noise-sensitive land uses in areas around the Airport that are exposed to significant levels of aircraft noise. Table 4-1 presents the noise compatibility criteria and policies for Lake Tahoe Airport.

The compatibility criteria in Table 4-1 shows the maximum acceptable noise exposure for land uses that may be developed in areas around the Airport. There are five CNEL bands shown in Table 4-1, each represented as a table column: 50-55 dB, 55-60 dB, 60-65 dB, 65-70 dB, 70-75 dB. Each table rows corresponds to a unique land use or a group of land uses that are similar in nature. The noise policies applicable to each group of land uses (see Section 4.1.2.4) are provided by contour band to the left of the land use group label. Each land use row is color coded by column and identified as “Compatible” (green), “Conditionally Compatible” (yellow), and “Incompatible” (red). “Conditionally Compatible” is further divided into two categories: (C)(1) and (C)(2) for conditionally compatible.




SOURCE: AEDT 2d; ESRI, 2017; CoSLT, 2017; TRPA, 1987; USDA (Aerial); ESA, 2017

ALUCP for Lake Tahoe Airport.161008

**Figure 4-1**
Future Conditions (2038) CNEL Contours
Lake Tahoe Airport

ESA

**DRAFT FOR DELIBERATIVE PURPOSES ONLY**

**TABLE 4-1**
**NOISE COMPATIBILITY CRITERIA**

| Land Use Category | Contour Band CNEL (dB) 50-55 | 55-60 | 60-65 | 65-70 | >70 |
|---|---|---|---|---|---|
| **Residential Land Use** | | | | | |
| Single-family dwelling, Secondary Residence, Mobile home dwelling | Y | C(1) | C(2) | N | N |
| Multiple-family dwelling, Multi-person dwelling, Employee housing | Y | Y | C(1) | N | N |
| **Tourist Accommodation** | | | | | |
| Hotel, motel, and other transient dwelling units, Bed and breakfast facilities, Time sharing (hotel/motel design), Time sharing (residential design) | Y | Y | C(1) | N | N |
| **Commercial – Retail – Services – Wholesale/Storage** | | | | | |
| Retail trade establishments, Professional offices, Eating and drinking places, Business and vocational schools, Broadcasting studios | Y | Y | C(1) | C(1) | N |
| Service establishments, Personal services, Animal husbandry services, Wholesale and distribution, Warehousing | Y | Y | Y | C(1) | N |
| **Commercial - Light Industrial** | | | | | |
| Small scale manufacturing, Industrial services, Printing and publishing | Y | Y | Y | C(1) | C(1) |
| **Public Service** | | | | | |
| Schools (kindergarten through secondary, college); Day care centers/pre-schools; Hospitals, Nursing and personal care; Residential care; Cultural facilities (libraries, museums); Threshold related research facilities | Y | C(1) | C(2) | N | N |
| Religious assembly; Local assembly and entertainment (≤ 300 people); Public owned assembly and entertainment (> 300 people); Social service organizations; Public health and safety facilities; Membership organizations; Government offices | Y | Y | C(1) | N | N |
| Cemetery | Y | Y | Y | Y | C(1) |
| Power generating; Collection stations; Recycling and scrap; Public utility centers | Y | Y | Y | Y | Y |
| **Linear Public Facilities** | | | | | |
| Transit stations and terminals; Transportation routes, parking; Pipelines and power transmission; Transmission and receiving facilities | Y | Y | Y | Y | C(1) |
| **Recreation - Outdoor** | | | | | |
| Outdoor amusements; Beach recreation; Boat launching facilities; Marinas; Day use areas; Golf courses; Outdoor recreation; Riding and hiking trails; Ski, snowmobile, and recreational vehicle courses | Y | Y | Y | C(1) | C(1) |
| Participant sports facilities; Rural sports; Outdoor recreation concessions; Recreational vehicle parks; Campgrounds | Y | Y | Y | C(1) | C(2) |

**TABLE 4-1**
**NOISE COMPATIBILITY CRITERIA**

| Land Use Category | Contour Band CNEL (dB) 50-55 | 55-60 | 60-65 | 65-70 | >70 |
|---|---|---|---|---|---|
| **Recreation - Indoor** | | | | | |
| Privately owned assembly and entertainment (>300 people); Sport assembly; Recreation centers; Visitor information centers | Y | Y | C(2) | N | N |
| **Resource Management** | | | | | |
| Forest management; Range; Habitat Management; Open Space; Vegetation protection; Watershed improvements | Y | Y | Y | Y | Y |

| Land Use Acceptability | | Interpretation/Comments |
|---|---|---|
| Y | Compatible | Indoor Uses: Standard construction methods will sufficiently attenuate exterior noise to an acceptable indoor community noise equivalent level (CNEL) or eliminate most noise intrusions upon indoor activities.<br>Outdoor Uses: Noise is a factor to be considered in that outdoor activities associated with the specified land use can be carried out with essentially no to slight interference from aircraft noise exposure. |
| C(1) | Conditionally Compatible | The indicated noise exposure will cause moderate interference with outdoor activities and with indoor activities when windows are open. The land use is acceptable on the condition that outdoor activities are minimal and construction features which provide sufficient noise attenuation (i.e., reduce interior noise levels to 45 dB) are used (e.g., installation of air conditioning so that windows can be kept closed). Under other circumstances, the land use should be discouraged. See Policy NP-6, *Interior Noise Levels*. |
| C(2) | Conditionally Compatible | Noise will create substantial interference with both outdoor and indoor activities. Noise intrusion upon indoor activities can be mitigated by requiring special noise insulation construction that brings interior noise levels to 45 dB. Land uses that have conventionally constructed structures and/or involve outdoor activities that would be disrupted by noise must be avoided. See Policy NP-6, *Interior Noise Levels*. |
| N | Incompatible | Unacceptable noise intrusion upon land use activities will occur. Adequate structural noise insulation is not practical under most circumstances. The indicated land use should be avoided unless strong overriding factors prevail and it should be prohibited if outdoor activities are involved. |
| Notes: | | Policies NP-1, NP-2, NP-6, and NP-7 are applicable to all land uses.<br>Policies NP-3, NP-4, NP-5, and NP-8 are applicable to residential uses only. |

### 4.2.1.4 Aircraft Noise Policies

The following section provides the noise policies for the Lake Tahoe ALUCP.

## NP-1 Noise Impact Area

The threshold for evaluation is the projected CNEL 50 dB contour depicted on Figure 4-1. This contour defines the noise impact area of the Airport. All land uses located outside this contour are considered consistent with the noise compatibility policies of this ALUCP.

## NP-2 Evaluating Acceptable Noise Levels for New Development

1. The noise compatibility policies set forth in this section shall be used in conjunction with the 20-year future noise exposure contours depicted on Figure 4-1 and the noise/land use compatibility criteria presented in Table 4-1. The compatibility criteria in this section indicate the maximum acceptable airport-related noise levels, which are measured in terms of CNEL, for a range of land uses. There are five CNEL bands shown: 50-55, 55-60, 60-65, 65-70, and 70-75.

2. Noise compatibility policies only apply to the areas within the identified noise contours as shown on Figure 4-1. Table 4-1 is color coded and describes each land use type as "Compatible", "Conditionally Compatible", and "Incompatible" within the four CNEL contour bands. "Conditionally Compatible" is further divided into two categories: (C)(1) and (C)(2). These terms are defined in the notes to Table 4-1.

3. Land uses not specifically listed in Table 4-1 shall be evaluated using the criteria for similar listed uses.

## NP-3 New Residential Land Uses

The subdivision of land in the Lake Tahoe basin for the purpose of creating new residential parcels is prohibited under the Tahoe Regional Plan prepared by the Tahoe Regional Planning Agency (see TRPA Regional Plan, Policy LU-2.2; TRPA Code of Ordinances, § 39.1.3). However, should regulations be amended to allow for the creation of new residential parcels or portions thereof, these parcels shall not be allowed within areas around the Airport exposed to CNEL 65 dB or greater as this is not a noise compatible land use. Residential uses within areas around the Airport exposed to CNEL 50 dB to 64.9 dB would be considered compatible or conditionally compatible subject to the criteria presented in Table 4-1, *Noise Compatibility Criteria*.

## NP-4 Infill or Extended Residential Land Use

On existing single-family parcels within areas exposed to CNEL 60 dB or greater, new residential structures, including detached single family dwellings or alterations of more than 200 square feet of existing dwellings, shall require as a condition of the construction permit process acoustical treatment or other such measures as part of the building plans to limit intruding noise such that interior noise levels shall not exceed CNEL 45 dB in any habitable room and the construction permit process for new residential structures as defined in this policy shall also require the attachment of an avigation/noise easement to the title of the parcel.

## NP-5 Residential Mitigation Measures

For any residential development, including single-family dwellings and improvements to existing structures of more than 200 square feet, occurring between the 50 CNEL noise contour and the 60 CNEL noise contour, the City of South Lake Tahoe and El Dorado County shall evaluate the impact of aircraft noise on such development and consider the implementation of appropriate mitigation measures. These measures may include one or more of the following:

1. noise insulation standards to an interior noise level of CNEL 45 dB (mandatory within the 60 CNEL contour),

2. a buyer notification requirement to inform potential buyers of the exterior noise levels projected by the CNEL method at their property (**Appendix F**) (See Policy NP-8, *Buyer Notification and Avigation Easements*),

3. and the attachment of an avigation easement (**Appendix F**) to title of all property sold in the areas affected by aircraft noise (See Policy CP-5.6, *Avigation Easement Dedication* and Policy NP-8, *Buyer Notification and Avigation Easements*).

## NP-6 Interior Noise Levels

Within all identified noise contours, land uses for which interior activities may be easily disrupted by noise shall be required to comply with the following interior noise level criteria (calculations should assume windows are closed):

a. The maximum, aircraft-related, interior noise level which shall be considered acceptable for the following land uses within the Noise Impact Area (See Policy NP-1, *Noise Impact Area*) is CNEL 45 dB in:

    1. Living and sleeping areas of single- or multiple-family dwellings, multi-person dwelling, employee housing, nursing and personal care facilities, residential care facilities, mobile home dwellings;

    2. Schools (kindergarten through 12th Grade and college, both private and public), day care centers/pre-schools, cultural facilities, threshold related research facilities.

b. The maximum, aircraft-related, interior noise level which shall be considered acceptable for the following land uses within the Noise Impact Area is CNEL 50 dB in:

    1. Hotel, motel, and other transient dwelling units, bed and breakfast facilities, time sharing (hotel/motel design), time sharing (residential design);

    2. Religious assembly, local assembly and entertainment (≤ 300 people); public or privately owned assembly and entertainment (>300 people), sports assembly, recreation centers, visitor information centers, social service organizations, public health and safety facilities, membership organizations, government offices;

    3. Retail trade establishments, professional offices, eating and drinking places, business and vocational schools;

    4. Service establishments, personal services.

## NP-7 Application of Noise Contours to Individual Project Sites to Determine Compatibility

Future/projected aircraft noise contours are inherently imprecise because flight paths and other factors that influence noise exposure are variable and activity projections are always uncertain. Given this imprecision, the Lake Tahoe Airport noise contours shall be employed in assessing the compatibility of a proposed use at a specific development site as follows:

a. The highest CNEL range to which a project site is anticipated to be exposed shall be used in evaluating the compatibility of development over the entire site.

b. An exception to this policy is where no part of the building(s) or residential units proposed on the site fall within the higher CNEL range; the criteria for the CNEL range where the buildings are located shall apply.

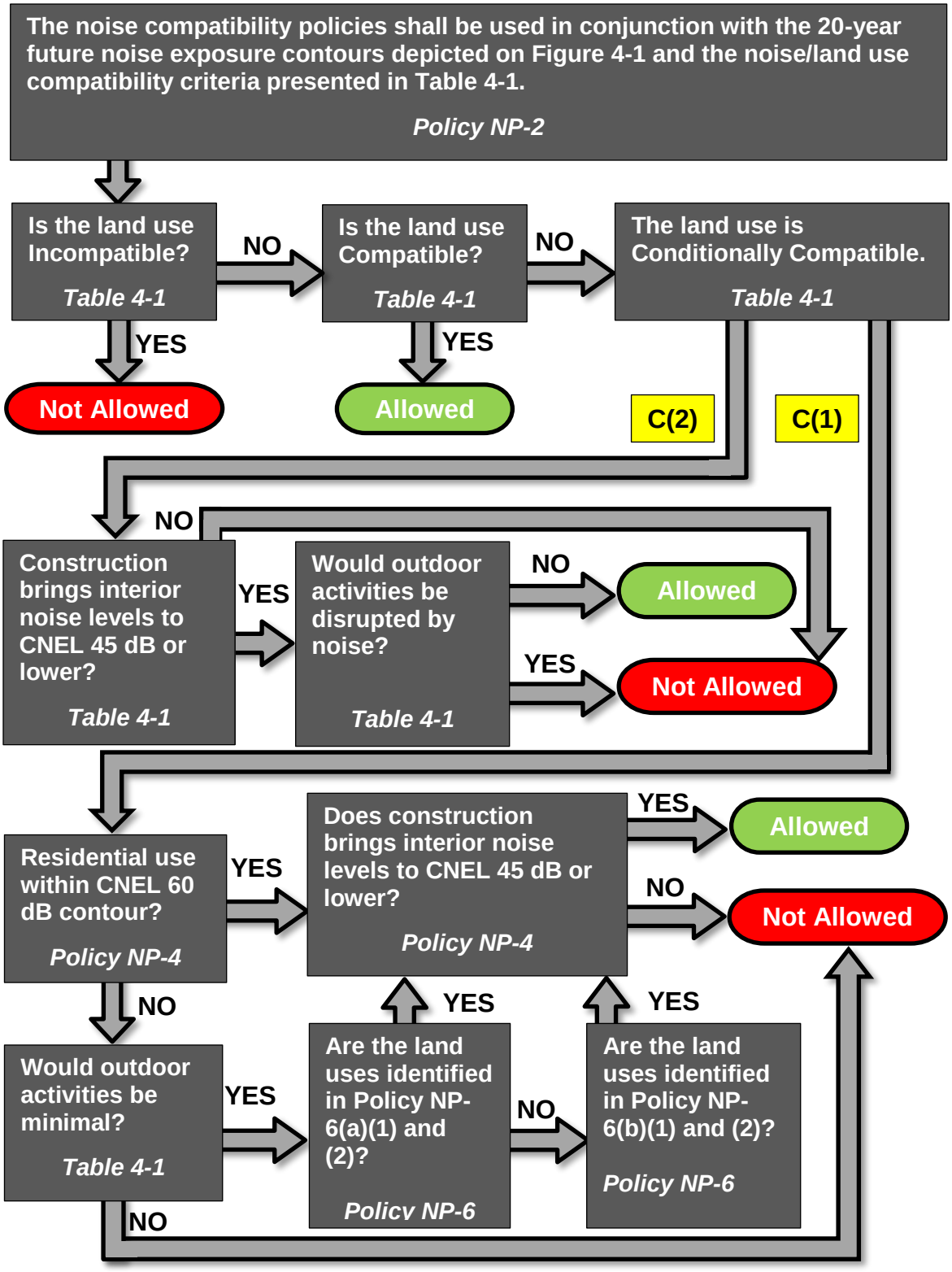
c. In cases where the 65 dB CNEL contour line splits a parcel, that portion of the parcel within the 65 dB CNEL contour is restricted from residential uses. The remaining portion of the parcel may be developed consistent with the policies for the CNEL contour in which it lies.

## NP-8 Buyer Notification and Avigation Easements

For future residential development, if any, allowed by this plan within the 65 CNEL contour, buyer notification programs, and avigation easements shall be implemented.

a. New Construction: The City and County building departments shall assure all provisions of this document are complied with, specifically noise insulation and noise and departure path easements, prior to issuance of any permits.

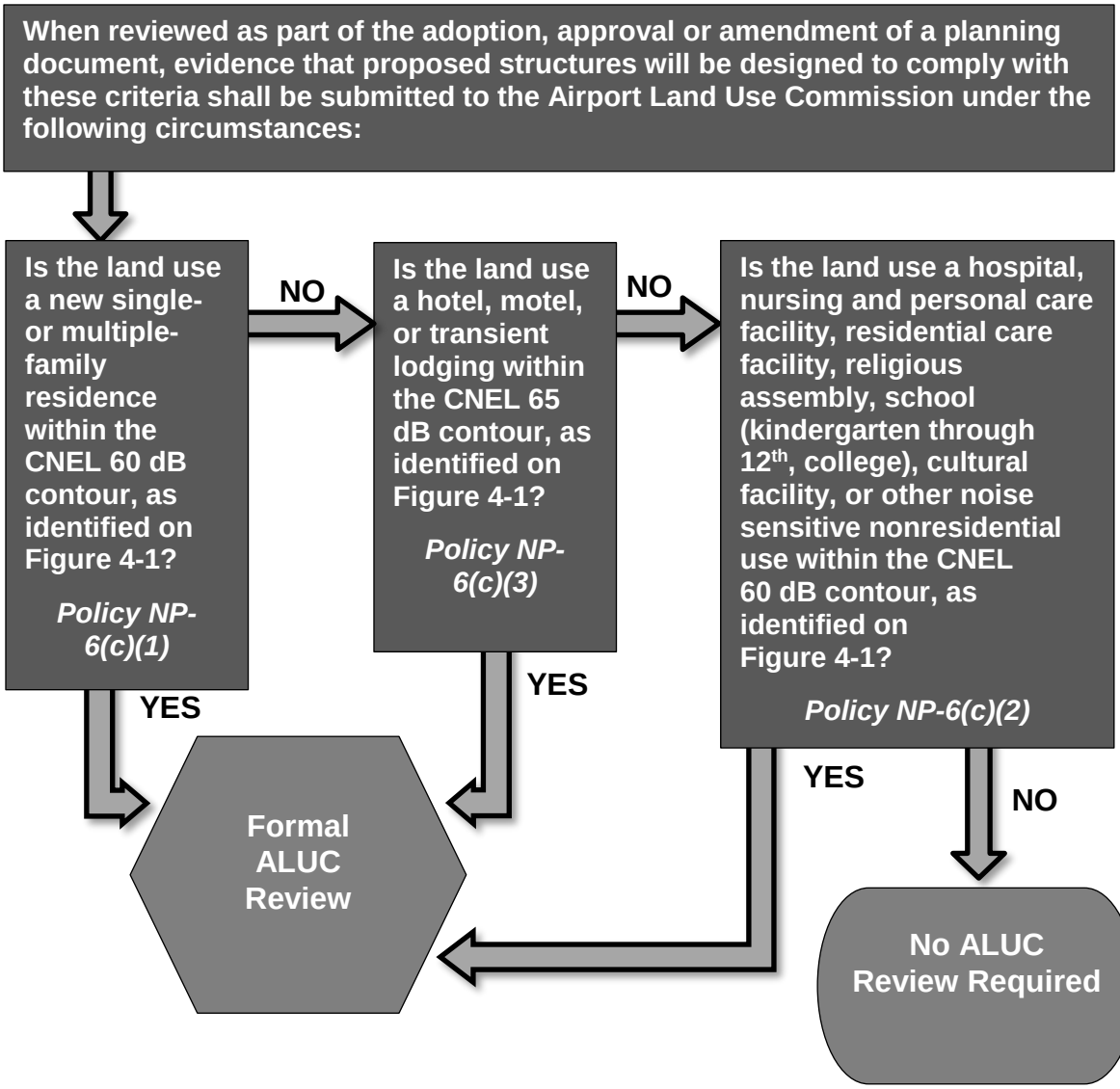
b. Sale/Transfer of Property: The County Clerk of El Dorado County shall assure noise and departure path easements (see **Appendix F**) are attached to and used to inform land transactions within the AIA.




ALUCP for Lake Tahoe Airport. 161008

SOURCE: ESA, 2018

**Figure 4-2**
Noise Compatibility Criteria




ALUCP for Lake Tahoe Airport. 161008

SOURCE: ESA, 2018

**Figure 4-3**
Interior Noise Levels

## 4.2.2 Safety Zones

Compared to noise, safety can be a more difficult concern to address with compatibility policies. While noise policies deal with known, predictable events that occur with every aircraft operation, safety policies address uncertain events that may, or may not, occur with an occasional aircraft operation. Because aircraft accidents happen infrequently and the time, place, and consequences of their occurrence cannot be predicted, the concept of risk is central to the assessment of safety compatibility. From the standpoint of land use planning, two variables determine the degree of risk posed by potential aircraft accidents:

- Accident Frequency: Where and when aircraft accidents occur in the vicinity of an airport; and
- Accident Consequences: Land uses and land use characteristics that affect the severity of an accident when one occurs.

### 4.2.1.1 How to Use This Section

There are seven safety compatibility policies provided in Section 4.2.2.4. The safety compatibility policies are to be used in conjunction with the safety zones depicted on **Figure 4-4** and the safety/land use compatibility criteria presented in **Table 4-2**. Figure 4-4 can be used to identify the location of a property relative to the safety zones. Once the property location within a safety zone is identified, the applicable safety policies and compatibility criteria can be identified by referring to Table 4-2. The safety compatibility policies only apply to the areas within the identified safety zones as shown on Figure 4-4. For information regarding parcels split by compatibility zone boundaries, see Section 4.2.2.2, *Safety Policies for Lake Tahoe Airport*, and Policy SP-3, *Project Sites Lying Partially within a Safety Zone or within Two or More Safety Zones*. Application of the safety compatibility criteria for residential uses and non-residential uses are shown in flowcharts depicted on **Figure 4-5** and **4-6**, respectively. Table 4-2 includes guidance on the maximum non-residential intensity allowed in each safety zone. Methods for calculating non-residential intensities are provided in **Appendix G**.

### 4.2.2.2 Safety Zones for Lake Tahoe Airport

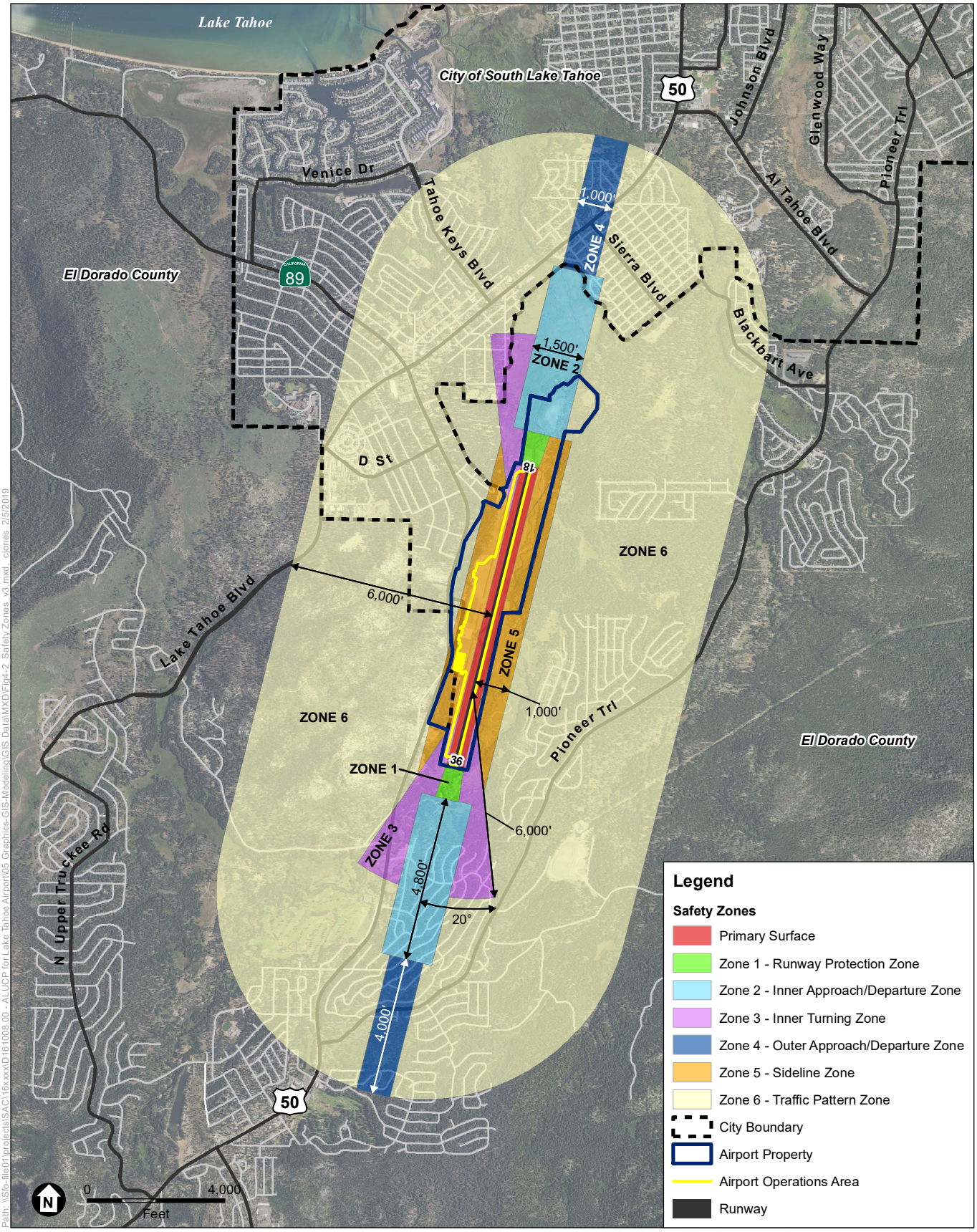
The Caltrans Handbook (the Caltrans Handbook is discussed in Section 1.3.2) provides a series of generic compatibility zones for general aviation airports. While the general dimensions of these zones are largely a function of the size of the corresponding runway, the geometric patterns of the zones were designed to capture areas in the vicinity of an airport where the risk of an aircraft accident are greatest. Where an aircraft accident may occur is driven by aeronautical considerations; that is, the geography of risk is determined by the runway configuration, approach and departure procedures, and other factors that determine where aircraft fly and where accidents occur.

In an attempt to define the geography of risk around an airport, the Handbook includes an analysis of more than 10 years of aircraft accident data; identifying general accident patterns. While precedent is not predictive of future events (i.e., because accidents occur in certain locations does not guarantee that it will happen again in the exact same places), this information provides a reasonable basis for defining broad areas within which a significant number of aircraft

accidents have occurred in the past. Based on this data, the Handbook identifies a series of six safety zones, which are defined as follows:

- Safety Zone 1 (Runway Protection Zone)
- Safety Zone 2 (Inner Approach/Departure Zone)
- Safety Zone 3 (Inner Turning Zone)
- Safety Zone 4 (Outer Approach/Departure Zone)
- Safety Zone 5 (Sideline Zone) and
- Safety Zone 6 (Airport Traffic Pattern Zone)

The safety zones proposed for Lake Tahoe Airport are depicted on Figure 4-4. These Safety Zones are based on dimensions recommended in the Handbook for a long general aviation runway (i.e., 6,000 feet or more in length). The runway at the Airport is 8,541 feet long with displaced landing thresholds on both runway ends; however, the full length of the runway is available for departures. The dimensions of Safety Zone 1 mirror the dimensions of the Runway Protection Zones at the Airport. In addition, analysis of the flight tracks used to model noise for the Airport's Master Plan update indicates there is no activity to the east off the Runway 18 end. Accordingly, Safety Zone 3 on the Runway 18 end has been eliminated. No other adjustments to the safety zone boundaries were made.




SOURCE: USDA (Aerial); ESRI, 2017; ESA, 2017

ALUCP for Lake Tahoe Airport.161008

**Figure 4-4**
Lake Tahoe Airport Safety Zones

ESA

**DRAFT FOR DELIBERATIVE PURPOSES ONLY**

**TABLE 4-2**
**SAFETY COMPATIBILITY CRITERIA**

| | Safety Zone | | | | | | |
|---|---|---|---|---|---|---|---|
| **Land Uses** | **1** | **2** | **3** | **4** | **5** | **6** | |
| **Maximum Non-Residential Intensity (People per Acre) (See Appendix G)** | **0** | **60** | **100** | **150** | **100** | **300** | **Criteria for Conditionally Compatible Uses (Yellow) (in addition to maximum residential densities and maximum non-residential Intensity limits)** |
| **Residential Land Use** | | | | | | | |
| Single-family dwelling | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** Construction of a single-family dwelling, including an authorized secondary unit as defined by state law, on a legal lot of record as of the date of adoption of this ALUCP is allowed in all safety zones except Safety Zones 1 and 5 if such use is permitted by local land use regulations. Summer homes are treated as single-family dwellings. (See Policies CP-5.4, *Development by Right*, and SP-4, *Residential Development Criteria*). |
| Secondary residence (Accessory dwelling unit) | N | C | C | C | N | Y | |
| Summer home | N | C | C | C | N | Y | |
| Multiple-family dwelling | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** Multiple-family dwellings, employee housing, multi-person dwellings, or mobile homes shall be allowed as infill development only subject to Policy SP-6, *Infill Uses*. |
| Employee housing | N | C | C | C | N | Y | |
| Multi-person dwelling | N | C | C | C | N | Y | |
| Mobile home | N | C | C | C | N | Y | |
| Domestic animal raising | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** Use only allowed provided it is secondary to a residential use of a property greater than two acres. |
| Nursing and personal care | N | N | N | N | N | Y | |
| Residential care | N | N | N | N | N | Y | |
| **Tourist Accommodation** | | | | | | | |
| Bed and Breakfast facilities | N | N | N | N | N | Y | |
| Time sharing (hotel/motel design) | N | N | N | N | N | Y | |

**TABLE 4-2**
**SAFETY COMPATIBILITY CRITERIA**

| | Safety Zone | | | | | | |
|---|---|---|---|---|---|---|---|
| **Land Uses** | **1** | **2** | **3** | **4** | **5** | **6** | |
| **Maximum Non-Residential Intensity (People per Acre) (See Appendix G)** | **0** | **60** | **100** | **150** | **100** | **300** | **Criteria for Conditionally Compatible Uses (Yellow) (in addition to maximum residential densities and maximum non-residential Intensity limits)** |
| Hotel, motel, and other transient dwelling units | N | N | N | N | N | Y | |
| Time sharing (residential design) | N | N | N | N | N | Y | |
| **Commercial Land Uses** | | | | | | | |
| **Commercial - Retail** | | | | | | | |
| Auto, mobile home and vehicle dealers | N | C | C | Y | N | Y | **Safety Zones 2, 3:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |
| Building materials and hardware | N | C | C | Y | N | Y | |
| Nursery | N | C | C | Y | N | Y | |
| Outdoor retail sales | N | C | C | Y | N | Y | |
| Furniture, home furnishings and equipment | N | C | C | Y | N | Y | |
| Mail order and vending | N | C | C | Y | N | Y | |
| General merchandise stores | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |
| Food and beverage retail sales | N | C | C | C | N | Y | |
| Eating and drinking places | N | C | C | C | N | Y | |
| Service stations | N | N | N | Y | N | Y | |
| **Commercial Land Uses (cont.)** | | | | | | | |
| **Commercial - Entertainment** | | | | | | | |
| Amusements and recreation services | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |
| Outdoor amusements | N | C | C | C | N | Y | |
| Privately owned assembly and entertainment (capacity > 300 people) | N | N | N | N | N | Y | |

**TABLE 4-2**
**SAFETY COMPATIBILITY CRITERIA**

| | Safety Zone | | | | | | |
|---|---|---|---|---|---|---|---|
| **Land Uses** | **1** | **2** | **3** | **4** | **5** | **6** | |
| **Maximum Non-Residential Intensity (People per Acre) (See Appendix G)** | **0** | **60** | **100** | **150** | **100** | **300** | **Criteria for Conditionally Compatible Uses (Yellow) (in addition to maximum residential densities and maximum non-residential Intensity limits)** |
| **Commercial - Services** | | | | | | | |
| Animal husbandry services | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |
| Personal services | N | C | C | C | N | Y | |
| Professional office | N | C | C | C | N | Y | |
| Broadcasting studios | N | C | C | C | N | Y | |
| Repair services | N | C | C | C | N | Y | |
| Business support services | N | C | C | C | N | Y | |
| Contract construction services | N | C | C | C | N | Y | |
| Financial services | N | C | C | C | N | Y | |
| Secondary storage | N | C | C | C | N | Y | |
| Health care services | N | C | C | C | N | Y | **Safety Zones 2, 3, and 4:** Use compatible if building occupancy is generally restricted to standard business hours (e.g., 8:00 a.m. to 6:00 p.m.)<br><br>**Safety Zones 2, 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |
| Laundries and dry cleaning plant | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |

**TABLE 4-2**
**SAFETY COMPATIBILITY CRITERIA**

| Land Uses | Safety Zone 1 | 2 | 3 | 4 | 5 | 6 | |
|---|---|---|---|---|---|---|---|
| **Maximum Non-Residential Intensity (People per Acre) (See Appendix G)** | **0** | **60** | **100** | **150** | **100** | **300** | **Criteria for Conditionally Compatible Uses (Yellow) (in addition to maximum residential densities and maximum non-residential Intensity limits)** |
| **Commercial Land Uses (cont.)** | | | | | | | |
| **Commercial – Services (cont.)** | | | | | | | |
| Auto repair and service | N | N | N | C | N | Y | **Safety Zone 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |
| Sales lots | N | N | N | C | N | Y | |
| Schools - business and vocational | N | N | N | N | N | Y | |
| **Commercial -Light Industrial** | | | | | | | |
| Fuel and ice dealers | N | N | N | N | N | Y | |
| Batch plants | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |
| Printing and publishing | N | C | C | C | N | Y | |
| Food and kindred products | N | C | C | C | N | Y | |
| Recycling and scrap | N | C | C | C | N | Y | |
| Small scale manufacturing | N | C | C | C | N | Y | |
| Industrial services | N | C | C | C | N | Y | |
| **Commercial Land Uses (cont.)** | | | | | | | |
| **Commercial – Wholesale/Storage** | | | | | | | |
| Warehousing | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |
| Vehicle and freight terminals | N | C | C | C | N | Y | |
| Wholesale and distribution | N | C | C | C | N | Y | |

**TABLE 4-2**
**SAFETY COMPATIBILITY CRITERIA**

| | Safety Zone | | | | | | |
|---|---|---|---|---|---|---|---|
| **Land Uses** | **1** | **2** | **3** | **4** | **5** | **6** | |
| **Maximum Non-Residential Intensity (People per Acre) (See Appendix G)** | **0** | **60** | **100** | **150** | **100** | **300** | **Criteria for Conditionally Compatible Uses (Yellow) (in addition to maximum residential densities and maximum non-residential Intensity limits)** |
| Vehicle storage & parking | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |
| Storage yards | N | C | C | C | N | Y | |
| **Public Service** | | | | | | | |
| **General** | | | | | | | |
| Airfields, landing strips and heliports (new non-emergency sites prohibited) | N | N | N | N | N | Y | |
| Cemeteries | N | Y | Y | Y | Y | Y | |
| Power generating | N | N | N | N | N | Y | |
| Local public health and safety facilities | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |
| Religious assembly | N | C | C | C | C | Y | |
| **Public Service (cont.)** | | | | | | | |
| **General (cont.)** | | | | | | | |
| Local post office | N | C | C | C | C | Y | **Safety Zones 2, 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |
| Government offices | N | C | C | C | C | Y | |
| Cultural Facilities | N | C | C | C | C | Y | |
| Threshold Related Research Facilities | N | C | C | C | C | Y | |
| Membership Organizations | N | C | C | C | C | Y | |
| Regional public health and safety facilities | N | N | C | C | N | Y | **Safety Zones 2, 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |
| Schools - college | N | N | C | C | N | Y | |

**TABLE 4-2**
**SAFETY COMPATIBILITY CRITERIA**

| | Safety Zone | | | | | | |
|---|---|---|---|---|---|---|---|
| **Land Uses** | **1** | **2** | **3** | **4** | **5** | **6** | |
| **Maximum Non-Residential Intensity (People per Acre) (See Appendix G)** | **0** | **60** | **100** | **150** | **100** | **300** | **Criteria for Conditionally Compatible Uses (Yellow) (in addition to maximum residential densities and maximum non-residential Intensity limits)** |
| Social service organizations | N | N | C | C | N | Y | **Safety Zones 2, 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table.<br><br>**Safety Zones 2, 3,4:** Facilities such as homeless shelters may increase average intensity of people during nighttime hours (6:00 p.m. to 6:00 a.m.) up to 100% of the (maximum non-residential intensity |
| Local assembly and entertainment (≤ 300 people) | N | N | C | C | N | Y | **Safety Zones 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |
| Public Utility Centers | N | N | N | N | N | Y | |
| Day care centers/pre-schools | N | N | N | N | N | Y | |
| Hospitals | N | N | N | N | N | Y | |
| Public owned assembly and entertainment (> 300 people) | N | N | N | N | N | Y | |
| Collection Stations | N | Y | Y | Y | N | Y | |
| Schools - kindergarten through secondary | N | N | N | N | N | Y | |
| **Public Service (cont.)** | | | | | | | |
| **Linear Public Facilities** | | | | | | | |
| Transportation routes | N | Y | Y | Y | Y | Y | |
| Pipelines and power transmission | N | C | C | C | C | Y | **Safety Zones 2, 3, 4, 5:** No building, structures, fences, above ground transmission lines or storage of flammable or explosive material above ground, and uses resulting in a gathering of more than one (1) persons per acre at any one time. |
| Transit stations and terminals | N | C | C | C | C | Y | |
| Transmission and receiving facilities | N | C | C | C | C | Y | |

**TABLE 4-2**
**SAFETY COMPATIBILITY CRITERIA**

| | Safety Zone | | | | | | |
|---|---|---|---|---|---|---|---|
| **Land Uses** | **1** | **2** | **3** | **4** | **5** | **6** | |
| **Maximum Non-Residential Intensity (People per Acre) (See Appendix G)** | **0** | **60** | **100** | **150** | **100** | **300** | **Criteria for Conditionally Compatible Uses (Yellow) (in addition to maximum residential densities and maximum non-residential Intensity limits)** |
| **Public Service (cont.)** | | | | | | | |
| **Recreation** | | | | | | | |
| Beach recreation | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table.<br><br>**Safety Zones 2, 3, 4:** No high intensity use of facilities, such as structured playgrounds, ball fields or picnic pavilions. |
| Boat launching facilities | N | C | C | C | N | Y | |
| Marinas | N | C | C | C | N | Y | |
| Outdoor recreation concessions | N | C | C | C | N | Y | |
| Cross country ski courses | N | C | C | C | N | Y | |
| Day use areas | N | C | C | C | N | Y | |
| Riding and hiking trails | N | C | C | C | N | Y | |
| Ski facilities | N | C | C | C | N | Y | |
| Rural sports | N | C | C | C | N | Y | |
| Snowmobile courses | N | C | C | C | N | Y | |
| Off-road vehicle courses | N | C | C | C | N | Y | |
| Visitor information centers | N | C | C | C | N | Y | |
| Participant sports facilities | N | C | C | C | N | Y | |

**TABLE 4-2**
**SAFETY COMPATIBILITY CRITERIA**

| | Safety Zone | | | | | | |
|---|---|---|---|---|---|---|---|
| **Land Uses** | **1** | **2** | **3** | **4** | **5** | **6** | |
| **Maximum Non-Residential Intensity (People per Acre) (See Appendix G)** | **0** | **60** | **100** | **150** | **100** | **300** | **Criteria for Conditionally Compatible Uses (Yellow) (in addition to maximum residential densities and maximum non-residential Intensity limits)** |
| **Public Service (cont.)** | | | | | | | |
| **Recreation (cont.)** | | | | | | | |
| Recreation centers | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** Use compatible only if it does not exceed maximum non-residential intensity limits as provided in this table. |
| Recreational vehicle parks | N | C | C | C | N | Y | |
| Developed campgrounds | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** No high intensity use of facilities, such as structured playgrounds, ball fields or picnic pavilions. |
| Golf courses | N | C | C | C | N | Y | |
| Group facilities | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** No high intensity use of facilities, such as structured playgrounds, ball fields or picnic pavilions. |
| Sport assembly | N | C | C | C | N | Y | |
| Undeveloped campgrounds | N | C | C | C | N | Y | **Safety Zones 2, 3, 4:** Uses compatible only if they do not result in a possibility of creating ground fog type conditions or result in a bird hazard. |
| **Resource Management** | | | | | | | |
| **Timber Management** | | | | | | | |
| Reforestation | N | C | C | C | C | Y | **Safety Zones 2, 3, 4, 5:** Uses compatible only if they do not result in a possibility of creating ground fog type conditions or result in a bird hazard. |
| Tree farms | N | C | C | C | C | Y | |
| Special cut | N | Y | Y | Y | Y | Y | |
| Thinning | N | Y | Y | Y | Y | Y | |
| Sanitation salvage cut | N | Y | Y | Y | Y | Y | |
| Timber stand improvement | N | Y | Y | Y | Y | Y | |

## TABLE 4-2
## SAFETY COMPATIBILITY CRITERIA

| | Safety Zone | | | | | | |
|---|---|---|---|---|---|---|---|
| **Land Uses** | **1** | **2** | **3** | **4** | **5** | **6** | |
| **Maximum Non-Residential Intensity (People per Acre) (See Appendix G)** | **0** | **60** | **100** | **150** | **100** | **300** | **Criteria for Conditionally Compatible Uses (Yellow) (in addition to maximum residential densities and maximum non-residential Intensity limits)** |
| Selection cut | **N** | **Y** | **Y** | **Y** | **Y** | **Y** | |
| Regeneration harvest | **N** | **Y** | **Y** | **Y** | **Y** | **Y** | |
| **Resource Management (cont.)** | | | | | | | |
| **Wildlife and Fishes** | | | | | | | |
| Early successional vegetation management | **N** | **C** | **C** | **C** | **C** | **Y** | **Safety Zones 2, 3, 4, 5:** Uses compatible only if they do not result in a possibility of creating ground fog type conditions or result in a bird hazard. |
| Structural fish habitat management | **N** | **C** | **C** | **C** | **C** | **Y** | |
| Nonstructural fish habitat management | **N** | **C** | **C** | **C** | **C** | **Y** | |
| Structural wildlife habitat management | **N** | **C** | **C** | **C** | **C** | **Y** | |
| Nonstructural wildlife habitat management | **N** | **C** | **C** | **C** | **C** | **Y** | |
| **Range** | | | | | | | |
| Farm/Ranch accessory structures | **N** | **C** | **C** | **C** | **C** | **Y** | **Safety Zones 1, 2, 3, 4, 5:** No building, structures, fences, above ground transmission lines or storage of flammable or explosive material above ground, and uses resulting in a gathering of more than one (1) persons per acre at any one time.<br><br>**Safety Zones 1, 2, 3, 4, 5:** Uses compatible only if they do not result in a possibility of creating ground fog type conditions or result in a bird hazard. |
| Range pasture management | **C** | **C** | **C** | **C** | **C** | **Y** | |
| Grazing | **C** | **C** | **C** | **C** | **C** | **Y** | |
| Range improvement | **C** | **C** | **C** | **C** | **C** | **Y** | |
| **Open Space** | | | | | | | |
| Allowed in all areas of the region | **C** | **C** | **C** | **C** | **C** | **Y** | **Safety Zones 1, 2, 3, 4, 5:** Uses compatible only if they do not result in a possibility of creating ground fog type conditions or result in a bird hazard. |

## TABLE 4-2
## SAFETY COMPATIBILITY CRITERIA

| | Safety Zone | | | | | | |
|---|---|---|---|---|---|---|---|
| **Land Uses** | **1** | **2** | **3** | **4** | **5** | **6** | |
| **Maximum Non-Residential Intensity (People per Acre) (See Appendix G)** | **0** | **60** | **100** | **150** | **100** | **300** | **Criteria for Conditionally Compatible Uses (Yellow) (in addition to maximum residential densities and maximum non-residential Intensity limits)** |
| **Resource Management (cont.)** | | | | | | | |
| **Vegetation Protection** | | | | | | | |
| Fire detection and suppression | N | C | C | C | C | Y | **Safety Zones 1, 2, 3, 4, 5:** No building, structures, fences, above ground transmission lines or storage of flammable or explosive material above ground, and uses resulting in a gathering of more than one (1) persons per acre at any one time.<br>**Safety Zones 1, 2, 3, 4, 5:** Uses compatible only if they do not result in a possibility of creating ground fog type conditions, other impediments to visibility, or result in a bird hazard. |
| Prescribed fire/burning management | C | C | C | C | C | Y | |
| Fuels treatment management | N | C | C | C | C | Y | |
| Sensitive plant management | C | C | C | C | C | Y | |
| Insect and disease suppression | C | C | C | C | C | Y | |
| Uncommon plant community management | C | C | C | C | C | Y | |
| **Watershed Improvements** | | | | | | | |
| Erosion control | C | C | C | C | C | Y | **Safety Zones 1, 2, 3, 4, 5:** Uses compatible only if they do not result in a possibility of creating ground fog type conditions or result in a bird hazard. |
| Stream environment zone restoration | C | C | C | C | C | Y | |
| Runoff control | C | C | C | C | C | Y | |

**NOTES:**

**N – INCOMPATIBLE:** Uses should not be permitted under any circumstances as they may expose persons to airport-related safety hazards.

**C – CONDITIONALLY COMPATIBLE:** Uses or activities that may be compatible with airport operations depending on their location, size, bulk, height, density and intensity of use.

**Y – COMPATIBLE:** Uses or activities are compatible with airport operations and are permitted, however, these activities should be reviewed to ensure that they will not create height hazard obstructions, smoke, glare, electronic, wildlife attractants, or other airspace hazards. Noise, airspace protection, and/or overflight policies may still apply.

1. Policies SP-1, SP-2, SP-3, SP-6, and SP-7 apply to all land uses.
2. Policy SP-4 applies to residential land uses only.
3. Policy SP-5 applies to non-residential land uses only.

*All uses or activities identified in **Table 4-2** are subject to intensity and density limitations as indicated. Particular attention should be given to developments that, when located in combination with other permitted or limited activities, may create cumulative impacts on airport operations. All uses should be reviewed to ensure that they will not create airspace hazards. Noise, airspace protection, and/or overflight policies may still apply.*

Source: ESA Airports, April 2018.

### 4.2.2.3 Safety Compatibility Criteria

The compatibility criteria for the safety zones at Lake Tahoe Airport are presented in Table 4-2. The compatibility criteria identify maximum residential density, non-residential intensity, and allowable land uses for each of the six safety zones.

### 4.2.2.4 Safety Policies for Lake Tahoe Airport

Controls over aircraft operating procedures and hazardous land uses around airports can greatly reduce the likelihood of aircraft accidents around airports. These precautions, however, cannot guarantee absolute safety. Policies can be established to prevent development of land use related hazards to air navigation and to limit casualties on the ground in the event of a crash. The objective of the safety zones at Lake Tahoe Airport is to protect the safety and general welfare of people in the vicinity of the Airport by minimizing the public exposure to airport-related safety hazards. The following are ALUCP safety compatibility criteria and policies for Lake Tahoe Airport.

## SP-1 – Evaluating Safety Compatibility for New Development

The safety compatibility of proposed land uses within areas that fall within the safety zones for Lake Tahoe Airport shall be evaluated in accordance with the policies set forth in this section. The safety zones, annotated with dimensions, are shown on Exhibit 4-4 and the safety compatibility criteria is provided in Table 4-2.

a. The compatibility criteria provided in Table 4-2 indicates whether a particular land use is "compatible", "conditionally compatible", or "incompatible" within each safety zone. The meaning of these terms is defined in the notes to the table.

b. The land uses included in Table 4-2 are consistent with land uses provided in the planning documents (Plan Area Statements, Area Plans, Community Plans, etc.) for the areas around the Airport. Land uses not specifically listed should be evaluated using the criteria for similar uses that are listed in Table 4-2.

c. In the event compatibility cannot be determined through use of the compatibility criteria provided in this ALUCP, the local jurisdiction should submit the project to the ALUC to make a determination.

d. The compatibility criteria presented in Table 4-2 addresses safety concerns only. Other compatibility restrictions associated with noise, airspace protection, or overflight may also apply to specific projects under review.

## SP-2 – Measures of Safety Compatibility

To minimize risks to people and property on the ground and to people on board aircraft, the safety compatibility criteria in Table 4-2 set limits on:

a. The intensity of nonresidential development measured in terms of the number of people concentrated in areas most susceptible to aircraft accidents.

b. The density of residential development, fundamentally measured in terms of dwelling units per acre. The residential density limitations cannot be equated to the usage intensity limitations for nonresidential uses. Consistent with pervasive societal views and as suggested by the California Airport Land Use Planning Handbook guidelines, a greater degree of protection is warranted for residential uses.

c. Development or expansion of certain uses that represent special safety concerns regardless of the number of people present.

## SP-3 – Project Sites Lying Partially within a Safety Zone or within Two or More Safety Zones

For the purposes of evaluating consistency with the compatibility criteria set forth in Table 4-2, any parcel that is split by compatibility zone boundaries may be developed to split uses and densities as long as the individual portions of the parcel are consistent with the land use policies for the safety zone in which they lie. Guidelines regarding the clustering of residential and nonresidential development shall apply. For information on how to use the safety compatibility policies in this section, also see Section 4.2.1.1.

## SP-4 – Residential Development Criteria

The following criteria shall be applied to new residential development:

a. Development of new residential dwelling units of any kind are incompatible in Safety Zones 1 and 5.

b. The ALUCP policies impose no limits on residential development in Safety Zone 6.

c. As indicated in Policy CP-5.4, *Development by Right*, construction of a single-family dwelling, including an authorized second unit as defined by state law, on a legal lot of record as of the date of adoption of this ALUCP is allowed in all safety zones except Safety Zones 1 and 5 if such use is permitted by local land use regulations.

d. "Single-family dwelling" and "secondary residence" includes a manufactured home, but not a "mobile home" (see definitions in Section 1.7). "Summer home" is included in the definition of "single-family dwelling."

e. Secondary residences, as defined by state law, shall be excluded from density calculations. See 7 CCR § 65852.2 for additional information on secondary residences, otherwise referred to as accessory dwelling units (ADUs).

f. TRPA, the City of South Lake Tahoe, and/or El Dorado County may impose more stringent criteria on residential densities in any of the Safety Zones than what is provided for in the ALUCP.

## SP-5 – Non-Residential Development Criteria

In determining compliance with the nonresidential intensity limits in Table 4-2, the following factors shall be considered.

a. For uses identified as "compatible" in Table 4-2, the maximum acceptable intensity of new nonresidential development, including all people (e.g., employees, customers/visitors) who may be at a particular location at any single point in time, both indoors and outdoors, shall be limited to the intensities identified at the top of the table. The nonresidential intensity criteria are based on guidance included in the Handbook for "suburban" settings.

b. Land uses shown as "conditional" in Table 4-2, shall comply with the additional criteria pertaining to intensity as presented in the table.

c. Land uses identified as "incompatible" in Table 4-2 shall not be permitted to be developed within the indicated safety zones.

d. The number of people expected to occupy a nonresidential development may be calculated through any of several methods including relationships to International Building Code occupancy levels, parking space requirements, floor area ratios, or actual counts at other similar facilities. See **Appendix G** for methods for calculating intensity.

e. Local jurisdictions may make exceptions for rare special events (e.g., an air show at an airport that attracts large crowds of spectators) that are temporary in nature, for which a facility is not designed and normally not used, and for which extra safety precautions can be taken as appropriate by issuing Temporary Activity Permits.

## SP-6 – Infill Uses

Where development not in conformance with the safety compatibility policies of this ALUCP already exists, additional infill development of similar land uses may be allowed as specified below. The burden for demonstrating that a proposed development qualifies as infill rests with the project proponent and/or local jurisdiction. In these instances, the development of infill uses must satisfy the following criteria:

a. Residential Uses: In Zones 1 and 5, residential infill is prohibited. In Zones 2, 3, and 4, infill of vacant parcels with new employee housing, multiple-family dwellings, multi-person dwellings, mobile homes, and the residential component of mixed- use projects, shall be permitted if:

   1. The proposed development is consistent with the property's applicable Plan Area Statement, Community Plan, related City or County land use provisions, and the requirements of the TRPA Code of Ordinances.

   2. Residential use is consistent with existing surrounding development (i.e., the built out portions of the surrounding neighborhood).

   3. The proposed project would not extend the perimeter of the area of existing development with incompatible uses.

b. Non-Residential Uses: New construction of incompatible uses shall be limited to proposals where:

   1. The proposed project is consistent with the property's applicable Plan Area Statement, Community Plan, related City or County land use provisions, and the requirements of the TRPA Code of Ordinances.

2. There are other similar uses within the area of existing development (i.e., the built out portions of the surrounding neighborhood) or there is no increase in the intensity of use (see calculation methods in **Appendix G**).

3. The proposed project would not extend the perimeter of the area of existing development with incompatible uses.

## SP-7 - Land Uses of Special Concern

Certain types of land uses represent special safety concerns irrespective of the number of people associated with those uses. Land uses of particular concern and the nature of the concern are listed below. Table 4-2 includes the criteria applicable to these uses. In some cases, these uses are not allowed in portions of the airport environs regardless of the number of occupants associated with the use. In other instances, these uses should be avoided. When allowed, special measures should be taken to minimize hazards to the facility and occupants if the facility were to be struck by an aircraft.

a. Uses Having Vulnerable Occupants: These are uses in which the majority of occupants are children, elderly, and/or disabled—people who have reduced effective mobility or may be unable to respond to emergency situations. The primary uses in this category are:

   1. Schools - kindergarten through secondary.

   2. Day care centers/pre-schools.

   3. Hospitals, health care service, and similar facilities where patients remain overnight.

   4. Nursing and personal care and residential care.

b. Hazardous Materials Storage: Materials that are flammable, explosive, corrosive, or toxic constitute special safety compatibility concerns to the extent that an aircraft accident could cause their release, thereby posing dangers to people and property in the vicinity. Facilities in this category include:

   1. Facilities such as oil refineries and chemical plants that manufacture, process, and/or store bulk quantities of hazardous materials generally for shipment elsewhere.

   2. Facilities associated with otherwise compatible land uses where hazardous materials are stored in smaller quantities primarily for on-site use. For purposes of this policy, this means any facility that does not meet the thresholds for filing a Hazardous Materials Business Plan (HMBP) with Eldorado County. Facilities must prepare HMBPs if they have on-site storage of hazardous materials with a quality equal to or greater than: 55 gallons, 500 pounds, 200 cubic feet at standard temperature and pressure for compressed gas, or an amount of hazardous waste.

c. Critical Community Infrastructure: This category pertains to facilities the damage or destruction of which would cause significant adverse effects to public health and welfare well beyond the immediate vicinity of the facility. Among these facilities are:

   1. Regional public health and safety facilities.

   2. Emergency communications facilities; power plants, and other utilities.

d. Mixed-Use Development: For projects involving a mixture of residential and nonresidential uses, the following policies apply.

   1. Where the residential and nonresidential uses are proposed to be situated on separate parts of a parcel, the project shall be evaluated as if it were two separate developments. The nonresidential intensity will be calculated with respect to the area proposed for nonresidential uses. This provision means that the residential density cannot be averaged over the entire project site when nonresidential uses will occupy some of the area and the same limitation applies in reverse.

   2. Development in which residential uses are proposed to be located in conjunction with nonresidential uses in the same or nearby buildings on the same parcel must meet the nonresidential intensity criteria. The normal occupancy of the residential portion shall be added to that of the nonresidential portion and the total occupancy shall be evaluated with respect to the nonresidential usage intensity criteria cited in Table 4-2.

   3. Mixed-use development shall not be allowed where the residential component would be exposed to noise levels above the limits set in Table 4-1.

e. Open Land: In the event that a small aircraft is forced to land somewhere other than at an airport, the risks to the people on board can best be minimized by providing as much open land area as possible within the airport vicinity. This concept is based upon the fact that the majority of aircraft accidents and incidents occurring away from an airport runway are controlled emergency landings in which the pilot has reasonable opportunity to select the landing site.

   1. To qualify as open land, an area should:

      i) Be free of most structures and other major obstacles such as walls, large trees or poles (greater than 4 inches in diameter, measured four feet above the ground), and overhead wires.

      ii) Have minimum dimensions of approximately 75 feet by 300 feet (0.5 acres).

   2. Open land areas should be oriented with the typical direction of aircraft flight over the location involved.

   3. Roads and automobile parking lots are acceptable as open land areas if they meet the above criteria.

   4. Open land criteria for each safety zone are most appropriately applied with respect to the entire zone. Individual parcels may be too small to accommodate the minimum-size open area requirement. Consequently, the identification of open land areas must initially be accomplished at the general plan or specific plan level or as part of large (10 acres or more) development projects.

   5. Clustering of development, subject to the limitations noted below (see paragraph f.), and providing contiguous landscaped and parking areas is encouraged as a means of increasing the size of open land areas.

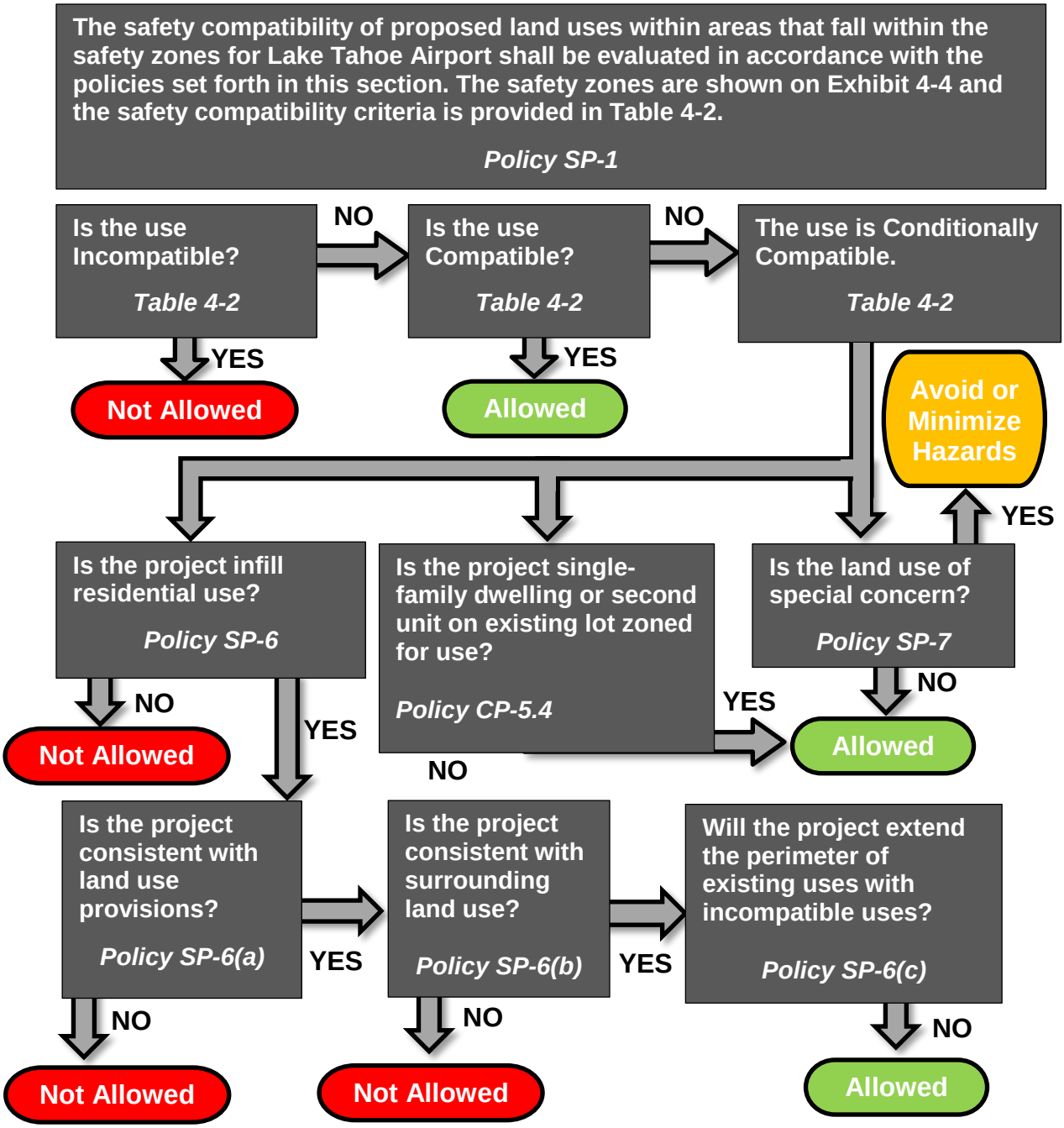
6. Building envelopes and the airport safety zones should be indicated on all development plans and tentative maps for projects located within the AIA. The intention for depicting this information is to ensure that individual development projects provide the open land areas identified in the applicable general plan, specific plan, or other large-scale plan.

f. Limits on Clustering: As used in this ALUCP, "clustering" refers to the concentration of development (measured in terms of people per acre) into a portion of the site, leaving other portions of the site relatively less developed or as open land. To a degree, clustering of development is desirable from an airport land use safety compatibility perspective in that it preserves more places where an aircraft can attempt an emergency landing. However, clustering also poses the risk that an out-of-control aircraft could strike the location where the development is clustered. To guard against this risk, limitations on the maximum concentrations of people in a small area of a large project site are appropriate.

1. For nonresidential land uses, the maximum usage intensity on a single acre is as listed in Table 4-2.

2. For the purposes of the above policies, the one-acre areas to be evaluated shall be rectangular (reasonably close to square, not elongated or irregular) in shape.

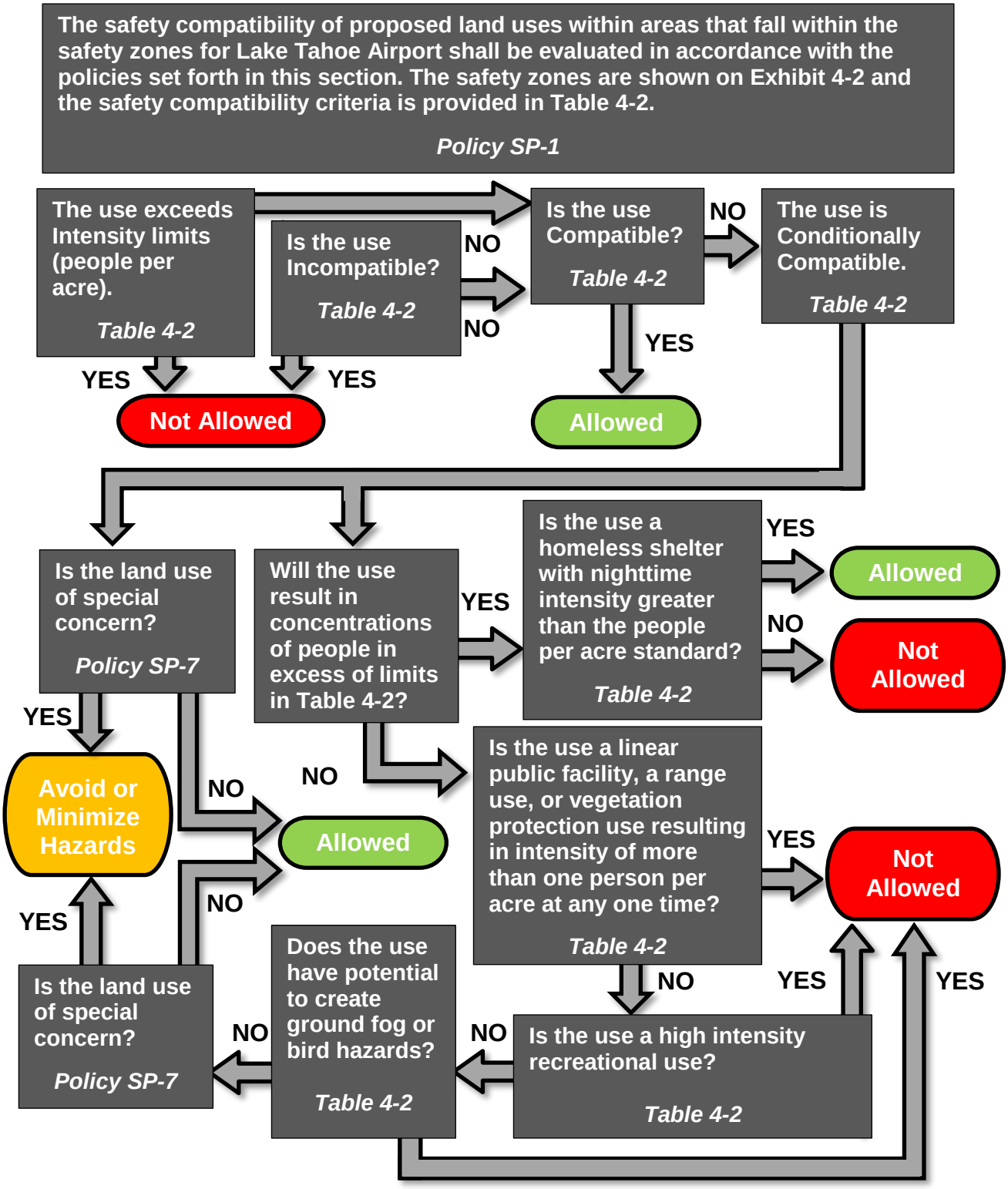
3. In no case shall a proposed development be designed to accommodate more than the total number of people per acre indicated in Table 4-2 times the gross acreage of the project site.




ALUCP for Lake Tahoe Airport. 161008

SOURCE: ESA, 2018

**Figure 4-5**
Safety Policies - Residential




SOURCE: ESA, 2018

ALUCP for Lake Tahoe Airport. 161008

**Figure 4-6**
Safety Policies – Non-Residential

# 4.3 Review Area 2

Review Area 2 of the AIA is composed of airspace protection and the overflight notification areas. These compatibility factors and their associated policies and compatibility criteria are discussed further in the following sections.

## 4.3.1 Airspace Protection

Tall structures, trees, other objects, or high terrain on or near airports, may constitute hazards to aircraft in flight. Federal regulations establish the criteria for evaluating potential obstructions. These regulations require that the FAA be notified of proposals related to the construction of potentially hazardous structures. The FAA conducts "aeronautical studies" of proposed projects to determine whether they would pose risks to aircraft, but it does not have the authority to prevent their creation. The purpose of the ALUCP airspace protection policies, together with regulations established by local land use jurisdictions and the state government, is to avoid the creation of hazards to navigable airspace. In furtherance of this objective, the following airspace protection policies (AP) shall apply to the ALUCP.

### 4.3.3.1 Airspace Protection Surfaces for Lake Tahoe Airport

The standards for determining obstructions to air navigation are established in Subpart C, *Obstruction Standards*, 14 CFR Part 77, *Safe, Efficient Use and Preservation of the Navigable Airspace* (see **Appendix C**). This regulation defines a set of imaginary surfaces with relation to an airport's runway(s). The slope and dimension of each imaginary surface is based on the type of approach available or planned for each runway (e.g., visual, non-precision, precision). In addition, height limitations also apply in the runway end siting surfaces for both runway ends and the approach surface for Runway 18 as defined by the criteria in FAA Order 8260.3B, *United States Standard for Terminal Instrument Procedures (TERPS)*.

The five types of imaginary surfaces for civil airports defined by 14 CFR Part 77 are:

- **Primary Surface**—The primary surface is longitudinally centered on a runway and has the same elevation as the elevation of the nearest point on the runway centerline. When the runway has a prepared hard surface, the primary surface extends 200 feet beyond each end of that runway. The width of the primary surface ranges from 250 to 1,000 feet depending on the existing or planned approach and runway type. The primary surface must be clear of all obstructions except those fixed by their function, such as runway edge lights, navigational aids, or airport signage. The majority of the primary surface is controlled by runway safety area criteria contained in FAA Advisory Circular 150/5300-13, *Airport Design*, and almost always lies within airport-controlled property.

- **Approach Surface**—The approach surface is longitudinally centered on the extended runway centerline and extends outward and upward from the end of the primary surface. The slope of the approach surface is based upon the type of approach available or planned for each runway: 20:1 (visual), 34:1 (non-precision), or 50:1 (precision). The length of the approach surface varies from 5,000 to 50,000 feet depending on the approach type.

- **Transitional Surface**—The transitional surface extends outward and upward at right angles to the runway centerline and extends at a slope of 7 feet horizontally for each one foot vertically (7:1) from the sides of the primary and approach surfaces. The transitional surfaces extend to the point at which they intercept the horizontal surface at a height of 150 feet above the established airport elevation (i.e., highest runway end elevation).

- **Horizontal Surface**—The horizontal surface is a horizontal plane located 150 feet above the established airport elevation and encompasses an area from the transitional surface to the conical surface.

- **Conical Surface**—The conical surface extends upward and outward from the periphery of the horizontal surface at a slope of 20 feet horizontally for every one-foot vertically (20:1) for a horizontal distance of 4,000 feet. Height limits for the surface range from 150 feet above the airport elevation at the inner edge to 350 feet at the outer edge.

Any object that penetrates one of the Part 77 imaginary surfaces, runway end siting surfaces, or TERPS approach surface, is deemed an obstruction to air navigation. However, not all obstructions are necessarily hazards. The determination of whether an object would be a hazard to air navigation is made as part of an aeronautical study conducted by the FAA. Subpart B, *Notice of Construction or Alteration*, of the 14 CFR Part 77 regulations requires that the FAA be notified of any proposed construction or alteration of objects within 20,000 feet of a runway and having a height that would exceed a 100:1 imaginary surface (1 foot upward per 100 feet horizontally) beginning at the nearest point of the runway. Notification is required for any public-use or military airport. Also requiring notification is any proposed structure or object more than 200 feet in height regardless of proximity to an airport. The airspace protection surfaces for Lake Tahoe Airport are depicted on **Figure 4-7**.

#### 4.3.3.2 Airspace Protection Compatibility Criteria and Policies for Lake Tahoe Airport

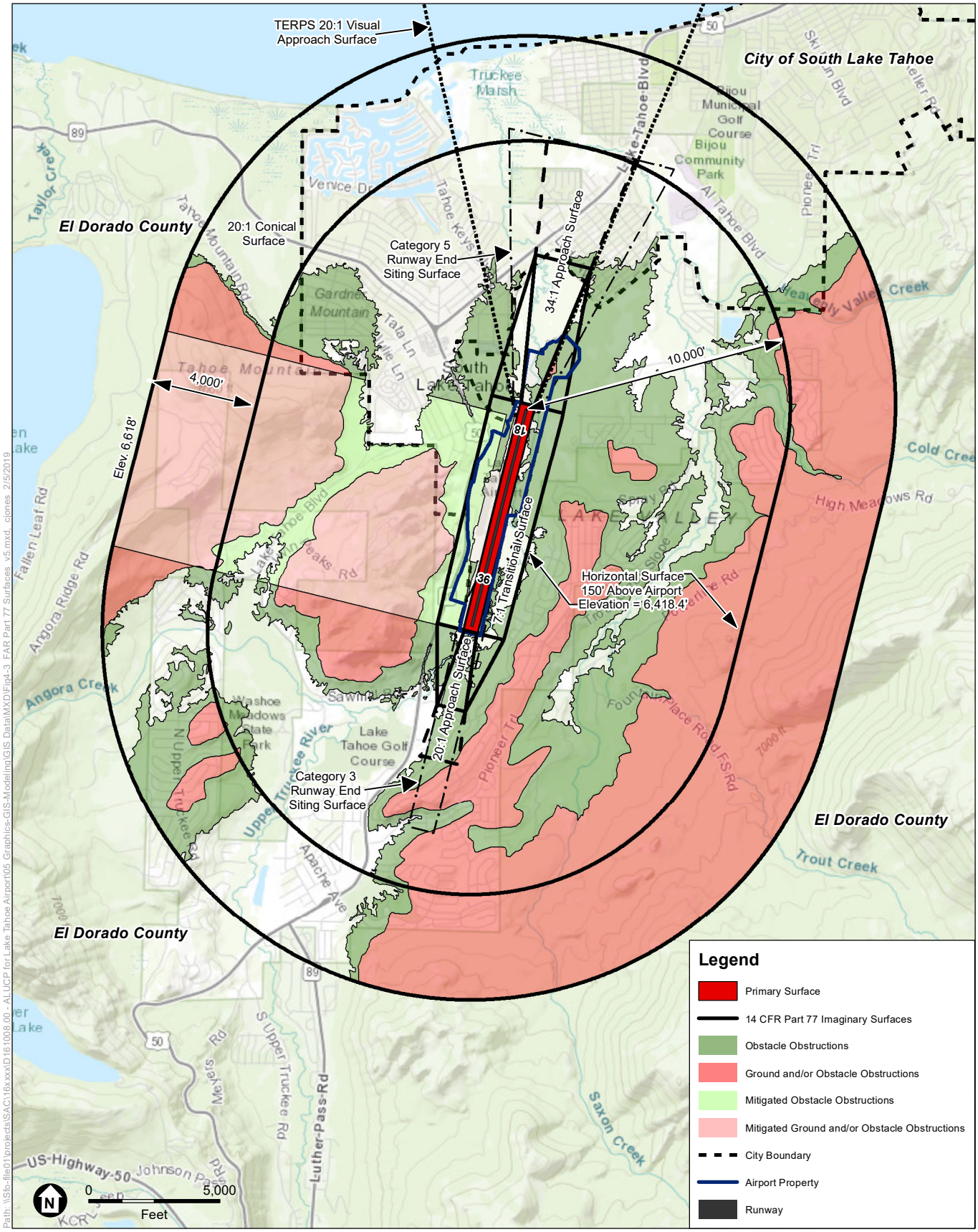
The following are ALUCP airspace protection compatibility criteria and policies for Lake Tahoe Airport. A flowchart depicting application of airspace protection policies is depicted on **Figure 4-8**.

### AP-1 – Evaluating Airspace Protection Compatibility for New Development

The airspace protection compatibility of proposed land uses within the AIA for Lake Tahoe Airport shall be evaluated in accordance with the policies in this section. The policies set forth in this section apply to areas within the airspace protection surfaces for Lake Tahoe Airport, depicted on Figure 4-7.

### AP-2 – Notice to Airport Land Use Commission

In addition to notifying the FAA, the Lake Tahoe Airport Land Use Commission or the County Land Use Commission, as appropriate, should be notified by the project proponent and/or the responsible local jurisdiction of any development proposal that could result in the erection of objects that could penetrate the airport height restrictions contained in this plan.




SOURCE: USDOT. FAA 14 CFR Part 77, Safe, Efficient Use and Preservation of Navigable Airspace, July 21, 2010; Lake Tahoe Airport, 2018; ESRI, 2018; ESA, 2019

ALUCP for Lake Tahoe Airport.161008

**Figure 4-7**
Airspace Surfaces

ESA

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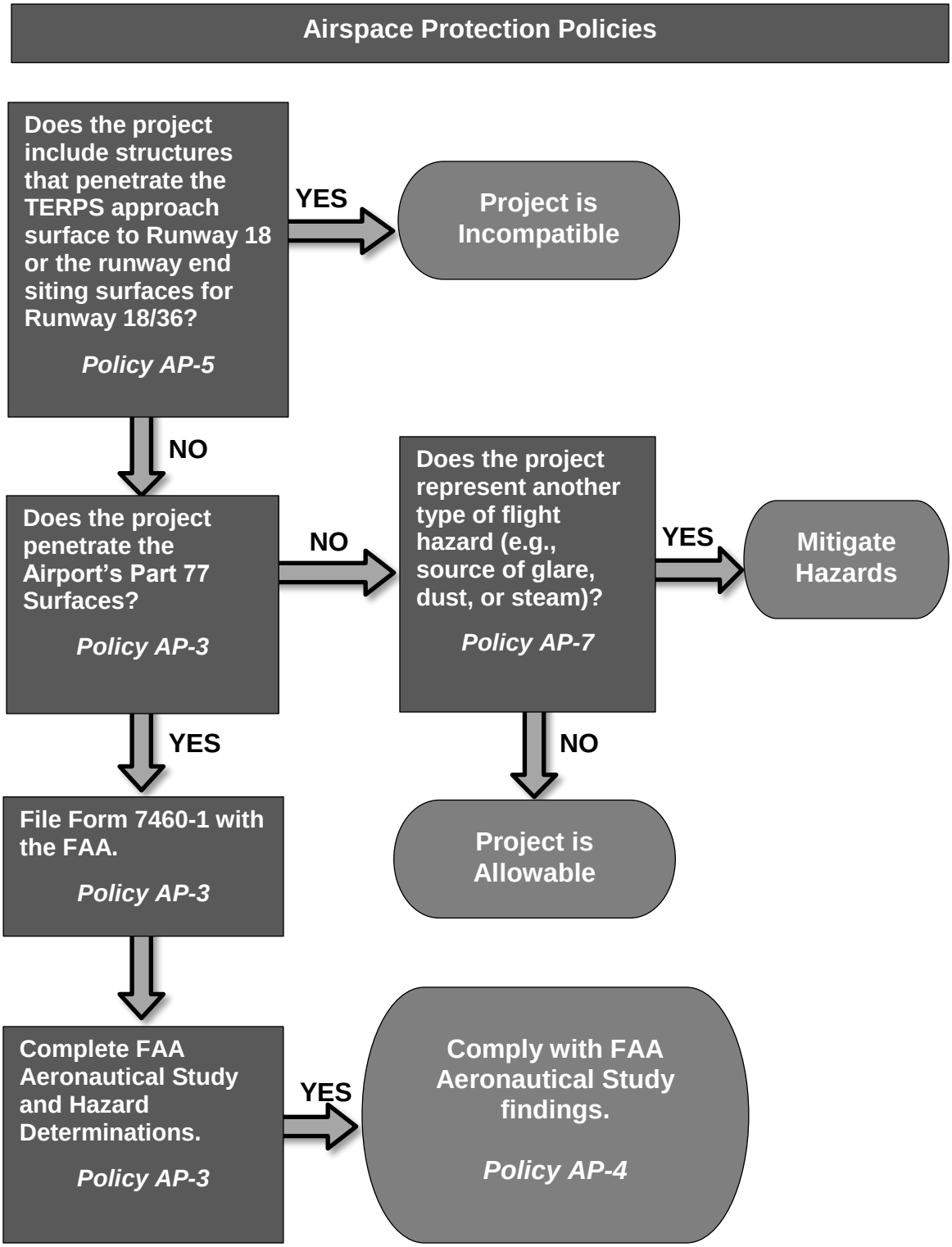



ALUCP for Lake Tahoe Airport. 161008

SOURCE: ESA, 2018

**Figure 4-8**
Airspace Protection Policies

## AP-3 – Requirements for FAA Notification of Proposed Construction

Proponents of projects involving construction of structures or other objects in the vicinity of Lake Tahoe Airport that may exceed the height standards defined in 14 CFR Part 77, Subpart C must submit notification of the proposal to the FAA where required by the provisions of 14 CFR Part 77, Subpart B and by the California Public Utilities Code, sections 21658 and 21659.

a. The City of Lake Tahoe and El Dorado County should notify project proponents/sponsors at the earliest opportunity to file Form 7460-1, *Notice of Proposed Construction or Alteration*, with the FAA for any proposed project that could exceed the FAA notification heights defined in 14 CFR Part 77, Subpart B. However, under federal law, it is the responsibility of the project proponent to comply with all notification and other requirements described in 14 CFR Part 77. This requirement applies independent of this ALUCP.

b. The proponent of a proposed project that would exceed the FAA notification heights shall present to the local government permitting agency with his or her application for a development permit, a copy of the findings of the FAA's aeronautical study, or evidence demonstrating that he or she is exempt from having to file Form 7460-1 with the FAA. It is the responsibility of the local agency to consider the FAA determination study findings as part of its review and decision on the proposed project.

c. The requirement for filing Form 7460-1 with the FAA shall not trigger a consistency review of an individual project by the airport land use commission unless the City of South Lake Tahoe or El Dorado County General Plans have not been deemed consistent with this ALUCP for Lake Tahoe Airport.

## AP-4 – Compliance with Findings of FAA Aeronautical Studies

Project proponents shall be required to comply with the findings of FAA aeronautical studies with respect to any recommended alterations in the building design and height and any recommended marking or lighting of their structures for their proposed projects to be deemed consistent with this ALUCP.

## AP-5 – TERPS Approach and Runway End Siting Surfaces Penetrations

Proposed projects that include structures that penetrate the TERPS Approach surface to Runway 18 or the runway end siting surfaces for Runway 18/36 are incompatible with the airspace protection policies in this ALUCP. In seeking approval for their projects, proponents must demonstrate that proposed structures will not penetrate these surfaces.

## AP-6 – Airspace Obstruction Criteria

The airport land use commission's criteria for determining the acceptability of a project with respect to height shall be based on: the standards set forth in 14 CFR Part 77, Subpart C and applicable airport design standards published by the FAA. Additionally, the airport land use

commission shall, where an FAA aeronautical study or a proposed structure/object has been required, take into account the results of that study.

1. Except as provided in Paragraph 2 of this policy, no structure or object, including a temporary object such as a construction crane, shall have a height that would result in penetration of any of the airspace protection surfaces defined in 14 CFR Part 77, Subpart C and depicted on Figure 4-7. Any object that penetrates one of these surfaces is, by FAA definition, an obstruction.

2. A proposed structure or object having a height that exceeds the airspace protection surfaces for Lake Tahoe Airport is compatible with the airspace protection goals of this ALUCP only if all of the following apply:

    a. As the result of an aeronautical study, the FAA determines the object would not be a hazard to air navigation; and

    b. FAA or other expert analysis conducted under the auspices of the airport land use commission or the airport operator concludes that, despite being an airspace obstruction (not necessarily a hazard), the object would not cause any of the following:

        i. An increase in the ceiling or visibility minimums at Lake Tahoe Airport for an existing or planned instrument procedure;

        ii. A diminution of the established operational efficiency of the airport, such as by causing the usable length of the runway to be reduced;

        iii. Conflict with the visual flight rules (VFR) airspace used for the airport traffic pattern or en route navigation to and from Lake Tahoe Airport.

    c. Marking or lighting of the structure/object will be installed as directed by the FAA aeronautical study or the Division of Aeronautics and in a manner consistent with FAA standards in effect at the time the construction is proposed.

    d. The proposed project complies with all policies contained in this ALUCP.

## AP-7 – Maximum Compatible Building Height

Any proposed structure that would penetrate any of the imaginary surfaces for the Lake Tahoe Airport, as defined in 14 CFR Part 77, is deemed to be an incompatible land use, unless either the FAA has determined that the proposed structure does not constitute a hazard to air navigation or the State Division of Aeronautics has issued a permit allowing construction of the proposed structure. To be deemed consistent with the ALUCP, the maximum height of a new building/structure must be the lower of (1) the height of the controlling airspace protection surface shown on Figure 4-7, or (2) the maximum height determined not to be a "hazard to air navigation" by the FAA in an aeronautical study prepared pursuant to the filing of Form 7460-1. Compliance with height restrictions as established in Chapter 37 of the TRPA Code of Ordinances does not relieve the construction proponent/project proponent of the obligation to file

Form 7460-1, *Notice of Proposed Construction or Alteration*, if required, and to comply with the determinations resulting from the FAA's aeronautical study.

### AP-8 – Other Flight Hazards

Land uses that may cause visual, electronic, or wildlife hazards, particularly bird strike hazards, to aircraft in flight or taking off or landing at the airport shall be allowed within the AIA only if the uses are consistent with FAA rules and regulations.

a. Specific characteristics to be avoided include:

   1. Sources of glare (such as from mirrored or other highly reflective buildings or building features) or bright lights (including search lights and laser light displays);
   2. Distracting lights that could be mistaken for airport lights;
   3. Sources of dust, steam, or smoke that may impair pilots' vision;
   4. Sources of steam or other emissions that cause thermal plumes or other forms of unstable air;
   5. Sources of electrical interference (such as from underlying power transmission lines and electrical substations or broadcast antennas) with aircraft communications or navigation; and
   6. Any proposed use that creates an increased attraction for wildlife and that is inconsistent with FAA rules and regulations including, but not limited to, FAA Order 5200.5A, *Waste Disposal Sites on or Near Airports*, and AC 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports*. Of particular concern are landfills and certain recreational or agricultural uses that attract large flocks of birds, which pose bird strike hazards to aircraft in flight. AC 150/5200-33B provides guidance on maintaining adequate distances between airports and wildlife hazard attractants.

b. To resolve any uncertainties with regard to the significance of the above types of flight hazards, local jurisdictions should consult with FAA officials.

### AP-9 – Use and Operation of Drones

All drones weighing between 0.55 and 55 pounds are required to be registered with FAA per the rules pertaining to registration and marking requirements for small-unmanned aircraft as promulgated at 80 FR 78593 (see **Appendix H**). When flown within 5 miles of an airport, the operator of the drone must provide the airport operator with prior notice of the operation (14 C.F.R. § 101.41)(see **Appendix H**).

## 4.3.2 Overflight

As reaction to noise is a subjective experience, noise-related concerns do not stop at the edge of the Airport's outermost noise contour. Many people are sensitive to the frequent presence of aircraft overhead even at low noise levels. These reactions are typically expressed in the form of annoyance. At many airports, particularly busy general aviation airports, aircraft noise complaints often come from places located well beyond the airport noise contours.

As these types of complaints may be of real concern to a community, the question of importance then becomes what steps can be taken to mitigate the effects. Commonly, communities focus on the modification of flight routes to address noise complaints. However, airport land use commissions have no influence over how an airport operates and have no say in flight route changes or modifications to where, when, and how aircraft are operated. In addition, ALUCP policies do not apply to existing land uses. These limitations notwithstanding, there are steps that airport land use commissions can and should take to help minimize overflight issues.

#### 4.3.2.1 Overflight Notification Areas

The boundaries of the Overflight Notification Area are typically established using a variety of data inputs, including noise contours, flight tracks, and noise complaint locations. Given the geographic extent at which annoyance from aircraft overflights can occur, the boundary within which overflight policies are applicable generally is larger than the noise contours themselves.

**Figure 4-9** shows the overflight notification area for Lake Tahoe Airport. The overflight notification area is based on the flight tracks used to develop the noise contours. These flight tracks represent the Airport's traffic patterns. General corridors centered on the traffic pattern flight tracks were created to account for normal dispersion in aircraft operations.

#### 4.3.2.2 Overflight Policies

The following are ALUCP overflight compatibility criteria and policies for Lake Tahoe Airport. **Figure 4-10** depicts a flowchart showing application of the overflight notification policies.

### OP-1 – Real Estate Transfer Disclosure

Effective January 1, 2004, the State of California mandates all sellers or lessors of real property must disclose information regarding whether their property is situated within an airport influence area (Bus. and Prof. Code, § 11010 and Civ. Code, §§ 1102.6 and 1103.4).

a. These state requirements apply to the sale or lease of subdivided lands and condominium conversions and to the sale of existing residential property.

b. Where disclosure is required, the state statutes dictate that the following statement shall be provided:

> NOTICE OF AIRPORT IN VICINITY
>
> This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.

c. Although not required by state law, the recommendation of this ALUCP is that the airport proximity disclosure should be provided as part of all real estate transactions (residential

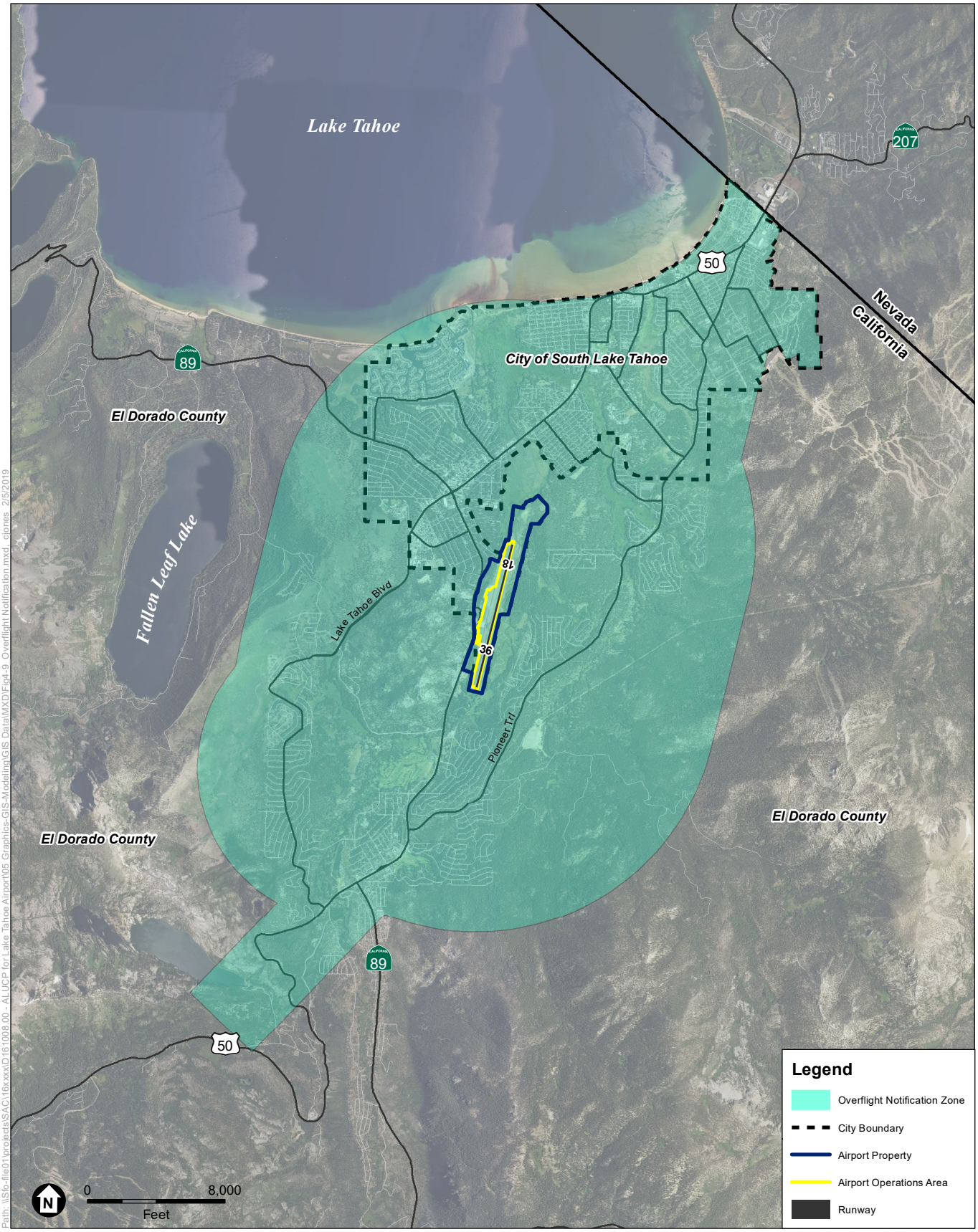
and nonresidential) involving private property (both new and existing) within the airport influence area.

## OP-2 – Overflight Notification

The 2007 CLUP included policies that required implementation of buyer notification programs for existing residential development and future residential development, if any, allowed by this plan within the 65 CNEL contour. This policy is updated as follows:

Overflight Notification: In addition to the preceding real estate disclosure requirements, an overflight notification document shall be recorded for any local agency approval of residential land use development within the overflight notification area.

1. The overflight notification document shall include a statement similar to the one provided in Policy OP-1, *Real Estate Transfer Disclosure*.
2. A separate overflight notification document is not necessary where an avigation easement is required (see Policies CP-5.6, *Avigation Easement Dedication*, and Policy NP-8, *Buyer Notification and Avigation Easements*. Recordation of an overflight notification document is not required for nonresidential development.
3. Nothing in this policy is intended to prevent a local agency from adopting and implementing an expanded form of overflight notification.
4. Examples of overflight notification documents are provided in Appendix F.



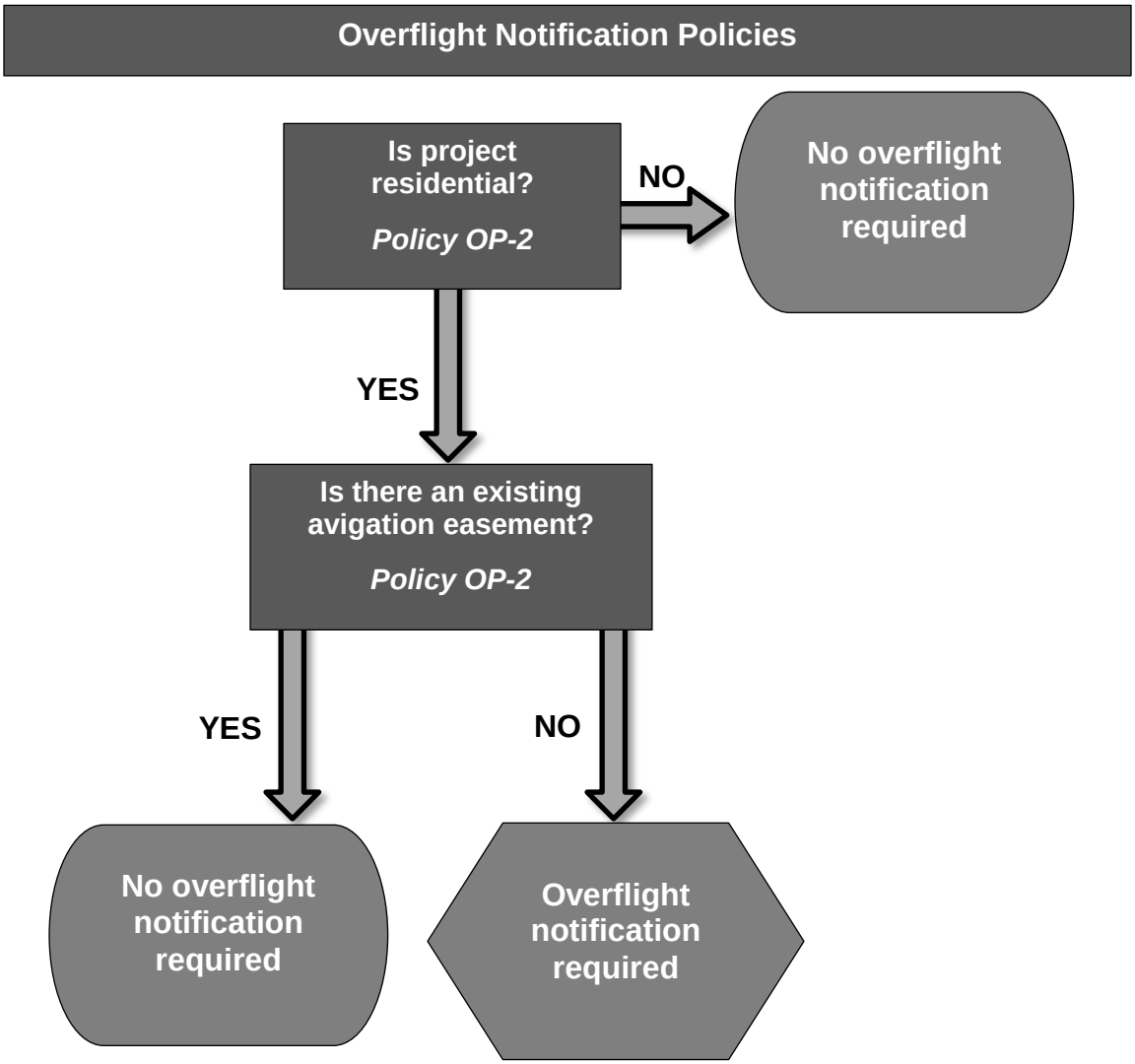

SOURCE: ESRI; ESA, 2017

ALUCP for Lake Tahoe Airport.161008

**Figure 4-9**
Overflight Notification Area

ESA

DRAFT FOR DELIBERATIVE PURPOSES ONLY




ALUCP for Lake Tahoe Airport. 161008

SOURCE: ESA, 2018

**Figure 4-10**
Overflight Notification Policies

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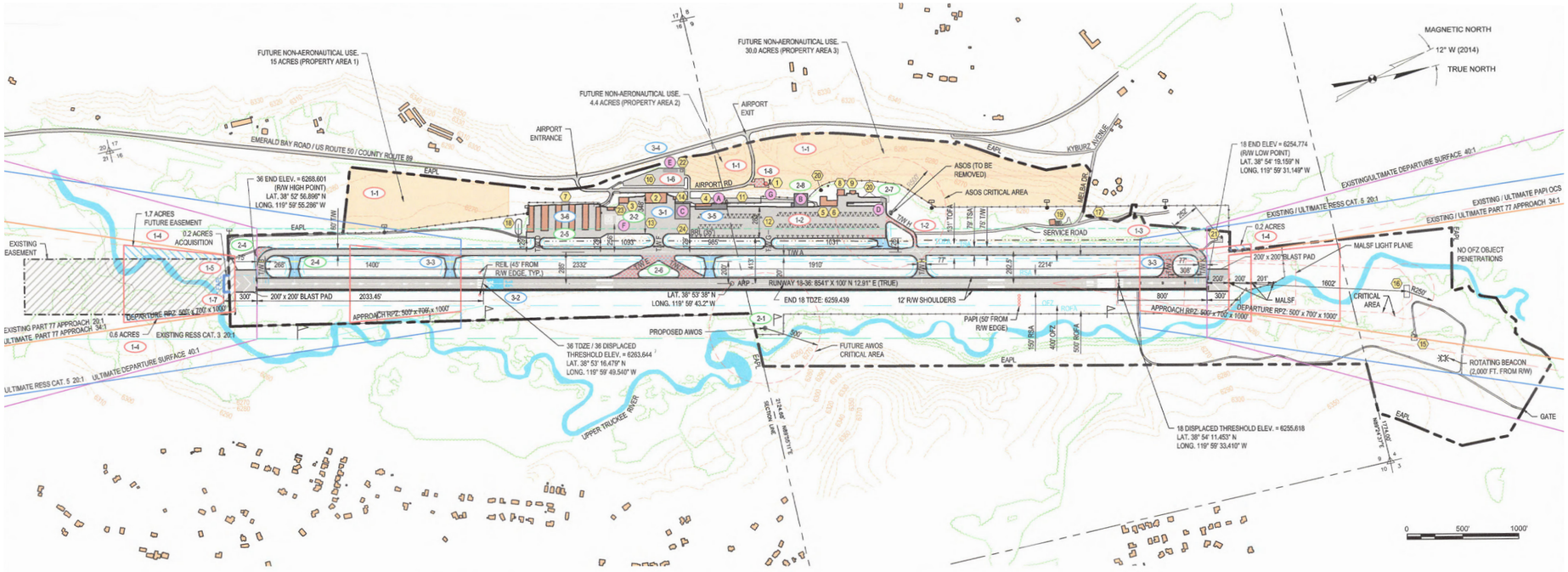
# Appendix A
## Airport Layout Plan




## AIRPORT LAYOUT PLAN LEGEND

| EXISTING | ULTIMATE | DESCRIPTION |
|---|---|---|
| EAPL | EAPL | Airport Property Line |
| | SAME | Other Property Line |
| ARP | SAME | Airport Reference Point |
| RSA | SAME | Runway Safety Area (RSA) |
| ROFA | SAME | Runway Object Free Area (ROFA) |
| OFZ | SAME | Obstacle Free Zone (OFZ) |
| TSA | SAME | Taxiway Safety Area (TSA) |
| TOFA | SAME | Taxiway Object Free Area (TOFA) |
| | SAME | Runway Protection Zone (RPZ) |
| | SAME | NAVAID Critical Area |
| | | Part 77 Approach Surface |
| | SAME | Departure Surface |
| | N/A | Runway End Siting Surface - Cat. 3 |
| | SAME | Runway End Siting Surface - Cat. 5 |
| BRL (35') | SAME | Building Restriction Line (BRL 35') |
| | | Airport Buildings |
| | SAME | Other Buildings |
| | | Pavement |
| N/A | | Building / Pavement To Be Removed |
| | | Perimeter Fence (6 ft.) |
| | SAME | Tree Line |
| | SAME | Wetlands |
| | SAME | Water Bodies, Streams |
| | N/A | Ground Elevation Contours |
| | | Easiment Area |
| N/A | | Future Non-Aeronautical Use |
| | SAME | Wind sock |
| | SAME | Obstruction Light |
| | SAME | Threshold Lights |
| | SAME | Beacon |
| | SAME | Section Corners |
| | SAME | AWOS/ASOS |
| N/A | | FAA Communications Tower |

## EXISTING FACILITIES TABLE

| ID | Facility Description | Top Elevation | Obstruction Marking/ Lighting | Distance from Runway Centerline | Distance from Taxiway Centerline |
|---|---|---|---|---|---|
| 1 | ATCT Building (FAA Owned, Closed) | 6371 | Y | 886' | 601' |
| 2 | Airport Terminal | 6322 | Y | 730' | 445' |
| 3 | ARFF / Maintenance | 6286 | N | 728' | 443' |
| 4 | FBO Building | 6281 | N | 688' | 413' |
| 5 | Private Hangar | 6288 | N | 702' | 417' |
| 6 | Private Hangar | 6288 | N | 701' | 417' |
| 7 | Hangar Complex | 6283 - 6293 | Y | 469' | 184' |
| 8 | Hangar (City Owned) | 6288 | N | 797' | 512' |
| 9 | Civil Air Patrol | 6271 | N | 808' | 523' |
| 10 | Auto Parking / Incl. Rental Cars | N/A | N | 886' | 601' |
| 11 | Long Term Airport Parking | N/A | N | 731' | 441' |
| 12 | General Aviation Tie-Downs | N/A | N | 413' | 129' |
| 13 | Airport Terminal Apron | N/A | N | 450' | 165' |
| 14 | Emergency Generator Building | 6279 | N | 763' | 478' |
| 15 | LDA / DME | 6326 | N | N/A | N/A |
| 16 | Localizer Antenna | 6300 | Y | N/A | N/A |
| 17 | STPUD Wellhouse | 6294 | N | 591' | 299' |
| 18 | Retention Pond | N/A | N | 443' | 158' |
| 19 | Av Gas and Jet A Tanks | 6290 | N | 526' | 233' |
| 20 | Service Pole | N/A | Y | 775'-844' | 487'-559' |
| 21 | MALSF Control Vault | 6259 | N | 425' | 252' |
| 22 | CNG Station | 6290 | N | 1012' | 727' |
| 23 | CalSTAR Building | 6285 | N | 666' | 381' |
| 24 | Aircraft De-icing | N/A | N | 425' | 130' |

## PROPOSED FACILITIES TABLE

| ID | Facility Description | Estimated Top Elevation | Distance from Runway Centerline | Distance from Taxiway Centerline | Phase |
|---|---|---|---|---|---|
| A | Reserve for FBO Facility Expansion | 6281 | 672' | 387' | 3 |
| B | Reserve for Large Aircraft Hangar | 6290 | 704' | 419' | 3 |
| C | Self Serve Fuel Station | 6270 | 588' | 301' | 3 |
| D | Aircraft Wash Rack | N/A | 735' | 450' | 2 |
| E | Electric Charging Stations | 6285 | 1012' | 727' | 3 |
| F | Designated Helicopter Parking | N/A | 541' | 256' | 2 |
| G | FAA Air Traffic Communication Tower | 6360 | 886' | 601' | 1 |

## DEVELOPMENT PROJECT PHASING

| | |
|---|---|
| **Phase 1 - Short Term (1-5 Years)** | |
| 1-1 | Release portions of Property Areas 1, 2 and 3 for non-aeronautical use |
| 1-2 | Reconstruct GA Apron and relocate Taxiway H |
| 1-3 | Reconstruct west drainage ditch outfall |
| 1-4 | Acquire or obtain avigation easements over areas of the RPZs that extend off Airport |
| 1-5 | Acquire land in the RSA on the Runway 36 approach end |
| 1-6 | Rehabilitate automobile parking lot |
| 1-7 | ROFA Obstruction Removal |
| 1-8 | FAA ATCT to be demolished and replaced with communications tower |
| **Phase 2 - Mid-Term (5 – 10 Years)** | |
| 2-1 | New AWOS III (siting analysis required) |
| 2-2 | Helicopter parking marking |
| 2-3 | Reconstruct taxiway system with associated signage and marking updates per standard taxiway nomenclature |
| 2-4 | Remove excess pavement on south end of Taxiway A and construct bypass taxiway near Runway 18 end |
| 2-5 | Rehabilitate taxilane from apron to south T-hangars and hangar taxilane |
| 2-6 | Remove acute angled (high-speed) taxiways and construct right-angled taxiway near mid-field |
| 2-7 | Aircraft Wash Rack |
| 2-8 | Commercial hangar area development |
| **Phase 3 - Long Term (10 – 20 Years)** | |
| 3-1 | Self-service fuel station |
| 3-2 | Instrument approach to Runway 36 and pavement remarking |
| 3-3 | Remove Taxiway J and construct new taxiway connector 6,000 ft. from Runway 18 landing threshold |
| 3-4 | Installation of electric charging stations |
| 3-5 | FBO Improvements |
| 3-6 | Solar installation on T-hangars |

Notes:
1. Existing taxiway nomenclature is shown. Taxiways are to be re-designated to comply with most current FAA guidance/standards.
2. Taxiway Edge Safety Margin (TESM) for the critical aircraft (Dassault Falcon 2000) ranges from 9' to 29'.

APPROVED CONDITIONALLY
FEDERAL AVIATION ADMINISTRATION
AIRPORTS DISTRICT OFFICE
SAN FRANCISCO, CALIFORNIA
By _____ Date 9/19/16
for Manager
Subject to Letter dated 9/19/16

FAA APPROVAL STAMP

The contents of this plan do not necessarily reflect the official views or policy of the FAA. Acceptance of this document by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted herein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws.

FAA's approval of this Airport Layout Plan (ALP) represents acceptance of the general location of future facilities depicted. During the preliminary design phase, the airport owner is required to resubmit for approval the final locations, heights and exterior finish of structures. FAA's concern is obstructions, impact on electronic aids or adverse effects on controller view of aircraft approach and ground movement areas which could adversely affect the safety, efficiency or utility of the airport.

CITY OF SOUTH LAKE TAHOE
Ray Jamin, DIRECTOR OF PUBLIC WORKS SUBMITTED BY:
9/19/16 DATE:

D:\161008.00 - ALUCP for Lake Tahoe Airport\005 Graphics-GIS-Modeling\Illustrator

SOURCE: C&S Companies, August 2016; Adapted by ESA, 2018

ALUCP for Lake Tahoe Airport. 161008

**Figure A-1**
Airport Layout Plan
Lake Tahoe Airport

ESA

# Appendix B

## State Laws Related to Airport Land Use Planning

# State Laws Related to Airport Land Use Planning Table of Contents

(as of March 2019)

**Public Resources Code Sections**



**Business and Professions Code Sections**



**Civil Code Sections**



**Legislative History Summary**

# AERONAUTICS LAW

## PUBLIC UTILITIES CODE
## Division 9 — Aviation
## Part 1 — State Aeronautics Act
## Chapter 4 — Airports and Air Navigation Facilities

## Article 3.5
## AIRPORT LAND USE COMMISSION

(As of April 2015)

### 21670. Creation; Membership; Selection

(a) The Legislature hereby finds and declares that:

(1) It is in the public interest to provide for the orderly development of each public use airport in this state and the area surrounding these airports so as to promote the overall goals and objectives of the California airport noise standards adopted pursuant to Section 21669 and to prevent the creation of new noise and safety problems.

(2) It is the purpose of this article to protect public health, safety, and welfare by ensuring the orderly expansion of airports and the adoption of land use measures that minimize the public's exposure to excessive noise and safety hazards within areas around public airports to the extent that these areas are not already devoted to incompatible uses.

(b) In order to achieve the purposes of this article, every county in which there is located an airport which is served by a scheduled airline shall establish an airport land use commission. Every county, in which there is located an airport which is not served by a scheduled airline, but is operated for the benefit of the general public, shall establish an airport land use commission, except that the board of supervisors of the county may, after consultation with the appropriate airport operators and affected local entities and after a public hearing, adopt a resolution finding that there are no noise, public safety, or land use issues affecting any airport in the county which require the creation of a commission and declaring the county exempt from that requirement. The board shall, in this event, transmit a copy of the resolution to the Director of Transportation. For purposes of this section, "commission" means an airport land use commission. Each commission shall consist of seven members to be selected as follows:

(1) Two representing the cities in the county, appointed by a city selection committee comprised of the mayors of all the cities within that county, except that if there are any cities contiguous or adjacent to the qualifying airport, at least one representative shall be appointed therefrom. If there are no cities within a county, the number of representatives provided for by paragraphs (2) and (3) shall each be increased by one.

(2) Two representing the county, appointed by the board of supervisors.

(3) Two having expertise in aviation, appointed by a selection committee comprised of the managers of all of the public airports within that county.

(4) One representing the general public, appointed by the other six members of the commission.

(c) Public officers, whether elected or appointed, may be appointed and serve as members of the commission during their terms of public office.

(d) Each member shall promptly appoint a single proxy to represent him or her in commission affairs and to vote on all matters when the member is not in attendance. The proxy shall be designated in a signed written instrument which shall be kept on file at the commission offices, and the proxy shall serve at the pleasure of the appointing member. A vacancy in the office of proxy shall be filled promptly by appointment of a new proxy.

(e) A person having an "expertise in aviation" means a person who, by way of education, training, business, experience, vocation, or avocation has acquired and possesses particular knowledge of, and familiarity with, the function, operation, and role of airports, or is an elected official of a local agency which owns or operates an airport.

(f) It is the intent of the Legislature to clarify that, for the purposes of this article, that special districts, school districts, and community college districts are included among the local agencies that are subject to airport land use laws and other requirements of this article.

**21670.1. Action by Designated Body Instead of Commission**

(a) Notwithstanding any other provision of this article, if the board of supervisors and the city selection committee of mayors in the county each makes a determination by a majority vote that proper land use planning can be accomplished through the actions of an appropriately designated body, then the body so designated shall assume the planning responsibilities of an airport land use commission as provided for in this article, and a commission need not be formed in that county.

(b) A body designated pursuant to subdivision (a) that does not include among its membership at least two members having expertise in aviation, as defined in subdivision (e) of Section 21670, shall, when acting in the capacity of an airport land use commission, be augmented so that body, as augmented, will have at least two members having that expertise. The commission shall be constituted pursuant to this section on and after March 1, 1988.

(c) (1) Notwithstanding subdivisions (a) and (b), and subdivision (b) of Section 21670, if the board of supervisors of a county and each affected city in that county each makes a determination that proper land use planning pursuant to this article can be accomplished pursuant to this subdivision, then a commission need not be formed in that county.

(2) If the board of supervisors of a county and each affected city makes a determination that proper land use planning may be accomplished and a commission is not formed pursuant to paragraph (1), that county and the appropriate affected cities having jurisdiction over an airport, subject to the review and approval by the Division of Aeronautics of the department, shall do all of the following:

(A) Adopt processes for the preparation, adoption, and amendment of the airport land use compatibility plan for each airport that is served by a scheduled airline or operated for the benefit of the general public.

(B) Adopt processes for the notification of the general public, landowners, interested groups, and other public agencies regarding the preparation, adoption, and amendment of the airport land use compatibility plans.

(C) Adopt processes for the mediation of disputes arising from the preparation, adoption, and amendment of the airport land use compatibility plans.

(D) Adopt processes for the amendment of general and specific plans to be consistent with the airport land use compatibility plans.

(E) Designate the agency that shall be responsible for the preparation, adoption, and amendment of each airport land use compatibility plan.

(3) The Division of Aeronautics of the department shall review the processes adopted pursuant to paragraph (2), and shall approve the processes if the division determines that the processes are consistent with the procedure required by this article and will do all of the following:

(A) Result in the preparation, adoption, and implementation of plans within a reasonable amount of time.

(B) Rely on the height, use, noise, safety, and density criteria that are compatible with airport operations, as established by this article, and referred to as the Airport Land Use Planning Handbook, published by the division, and any applicable federal aviation regulations, including, but not limited to, Part 77 (commencing with Section 77.1) of Title 14 of the Code of Federal Regulations.

(C) Provide adequate opportunities for notice to, review of, and comment by the general public, landowners, interested groups, and other public agencies.

(4) If the county does not comply with the requirements of paragraph (2) within 120 days, then the airport land use compatibility plan and amendments shall not be considered adopted pursuant to this article and a commission shall be established within 90 days of the determination of noncompliance by the division and an airport land use compatibility plan shall be adopted pursuant to this article within 90 days of the establishment of the commission.

(d) A commission need not be formed in a county that has contracted for the preparation of airport land use compatibility plans with the Division of Aeronautics under the California Aid to Airports Program (Chapter 4 (commencing with Section 4050) of Title 21 of the California Code of Regulations), Project Ker-VAR 90-1, and that submits all of the following information to the Division of Aeronautics for review and comment that the county and the cities affected by the airports within the county, as defined by the airport land use compatibility plans:

(1) Agree to adopt and implement the airport land use compatibility plans that have been developed under contract.

(2) Incorporated the height, use, noise, safety, and density criteria that are compatible with airport operations as established by this article, and referred to as the Airport Land Use Planning Handbook, published by the division, and any applicable federal aviation

regulations, including, but not limited to, Part 77 (commencing with Section 77.1) of Title 14 of the Code of Federal Regulations, as part of the general and specific plans for the county and for each affected city.

(3) If the county does not comply with this subdivision on or before May 1, 1995, then a commission shall be established in accordance with this article.

(e) (1) A commission need not be formed in a county if all of the following conditions are met:

(A) The county has only one public use airport that is owned by a city.

(B) (i) The county and the affected city adopt the elements in paragraph (2) of subdivision (d), as part of their general and specific plans for the county and the affected city.

(ii) The general and specific plans shall be submitted, upon adoption, to the Division of Aeronautics. If the county and the affected city do not submit the elements specified in paragraph (2) of subdivision (d), on or before May 1, 1996, then a commission shall be established in accordance with this article.

**21670.2. Applicability to Counties Having over 4 Million in Population**

(a) Sections 21670 and 21670.1 do not apply to the County of Los Angeles. In that county, the county regional planning commission has the responsibility for coordinating the airport planning of public agencies within the county. In instances where impasses result relative to this planning, an appeal may be made to the county regional planning commission by any public agency involved. The action taken by the county regional planning commission on such an appeal may be overruled by a four-fifths vote of the governing body of a public agency whose planning led to the appeal.

(b) By January 1, 1992, the county regional planning commission shall adopt the airport land use compatibility plans required pursuant to Section 21675.

(c) Sections 21675.1, 21675.2, and 21679.5 do not apply to the County of Los Angeles until January 1, 1992. If the airport land use compatibility plans required pursuant to Section 21675 are not adopted by the county regional planning commission by January 1, 1992, Sections 21675.1 and 21675.2 shall apply to the County of Los Angeles until the airport land use compatibility plans are adopted.

**21670.3. San Diego County**

(a) Sections 21670 and 21670.1 do not apply to the County of San Diego. In that county, the San Diego County Regional Airport Authority, as established pursuant to Section 170002, shall be responsible for the preparation, adoption, and amendment of an airport land use compatibility plan for each airport in San Diego County.

(b) The San Diego County Regional Airport Authority shall engage in a public collaborative planning process when preparing and updating an airport land use compatibility plan.

**21670.4. Intercounty Airports**

(a) As used in this section, "intercounty airport" means any airport bisected by a county line through its runways, runway protection zones, inner safety zones, inner turning zones, outer safety zones, or sideline safety zones, as defined by the department's Airport Land Use Planning Handbook and referenced in the airport land use compatibility plan formulated under Section 21675.

(b) It is the purpose of this section to provide the opportunity to establish a separate airport land use commission so that an intercounty airport may be served by a single airport land use planning agency, rather than having to look separately to the airport land use commissions of the affected counties.

(c) In addition to the airport land use commissions created under Section 21670 or the alternatives established under Section 21670.1, for their respective counties, the boards of supervisors and city selection committees for the affected counties, by independent majority vote of each county's two delegations, for any intercounty airport, may do either of the following:

(1) Establish a single separate airport land use commission for that airport. That commission shall consist of seven members to be selected as follows:

(A) One representing the cities in each of the counties, appointed by that county's city selection committee.

(B) One representing each of the counties, appointed by the board of supervisors of each county.

(C) One from each county having expertise in aviation, appointed by a selection committee comprised of the managers of all the public airports within that county.

(D) One representing the general public, appointed by the other six members of the commission.

(2) In accordance with subdivision (a) or (b) of Section 21670.1, designate an existing appropriate entity as that airport's land use commission.

**21670.6**

Any action brought in the superior court relating to this article may be subject to a mediation proceeding conducted pursuant to Chapter 9.3 (commencing with Section 66030) of Division 1 of Title 7 of the Government Code.

**21671. Airports Owned by a City, District, or County; Appointment of Certain Members by Cities and Counties**

In any county where there is an airport operated for the general public which is owned by a city or district in another county or by another county, one of the representatives provided by paragraph (1) of subdivision (b) of Section 21670 shall be appointed by the city selection

committee of mayors of the cities of the county in which the owner of that airport is located, and one of the representatives provided by paragraph (2) of subdivision (b) of Section 21670 shall be appointed by the board of supervisors of the county in which the owner of that airport is located.

### 21671.5. Term of Office

(a) Except for the terms of office of the members of the first commission, the term of office of each member shall be four years and until the appointment and qualification of his or her successor. The members of the first commission shall classify themselves by lot so that the term of office of one member is one year, of two members is two years, of two members is three years, and of two members is four years. The body that originally appointed a member whose term has expired shall appoint his or her successor for a full term of four years. Any member may be removed at any time and without cause by the body appointing that member. The expiration date of the term of office of each member shall be the first Monday in May in the year in which that member's term is to expire. Any vacancy in the membership of the commission shall be filled for the unexpired term by appointment by the body which originally appointed the member whose office has become vacant. The chairperson of the commission shall be selected by the members thereof.

(b) Compensation, if any, shall be determined by the board of supervisors.

(c) Staff assistance, including the mailing of notices and the keeping of minutes and necessary quarters, equipment, and supplies shall be provided by the county. The usual and necessary operating expenses of the commission shall be a county charge.

(d) Notwithstanding any other provisions of this article, the commission shall not employ any personnel either as employees or independent contractors without the prior approval of the board of supervisors.

(e) The commission shall meet at the call of the commission chairperson or at the request of the majority of the commission members. A majority of the commission members shall constitute a quorum for the transaction of business. No action shall be taken by the commission except by the recorded vote of a majority of the full membership.

(f) The commission may establish a schedule of fees necessary to comply with this article. Those fees shall be charged to the proponents of actions, regulations, or permits, shall not exceed the estimated reasonable cost of providing the service, and shall be imposed pursuant to Section 66016 of the Government Code. Except as provided in subdivision (g), after June 30, 1991, a commission that has not adopted the airport land use compatibility plan required by Section 21675 shall not charge fees pursuant to this subdivision until the commission adopts the plan.

(g) In any county that has undertaken by contract or otherwise completed airport land use compatibility plans for at least one-half of all public use airports in the county, the commission may continue to charge fees necessary to comply with this article until June 30, 1992, and, if the airport land use compatibility plans are complete by that date, may continue charging fees after June 30, 1992. If the airport land use compatibility plans are not complete by June 30, 1992, the commission shall not charge fees pursuant to subdivision (f) until the commission adopts the land use plans.

**21672. Rules and Regulations**

Each commission shall adopt rules and regulations with respect to the temporary disqualification of its members from participating in the review or adoption of a proposal because of conflict of interest and with respect to appointment of substitute members in such cases.

**21673. Initiation of Proceedings for Creation by Owner of Airportz**

In any county not having a commission or a body designated to carry out the responsibilities of a commission, any owner of a public airport may initiate proceedings for the creation of a commission by presenting a request to the board of supervisors that a commission be created and showing the need therefor to the satisfaction of the board of supervisors.

**21674. Powers and Duties**

The commission has the following powers and duties, subject to the limitations upon its jurisdiction set forth in Section 21676:

(a) To assist local agencies in ensuring compatible land uses in the vicinity of all new airports and in the vicinity of existing airports to the extent that the land in the vicinity of those airports is not already devoted to incompatible uses.

(b) To coordinate planning at the state, regional, and local levels so as to provide for the orderly development of air transportation, while at the same time protecting the public health, safety, and welfare.

(c) To prepare and adopt an airport land use compatibility plan pursuant to Section 21675.

(d) To review the plans, regulations, and other actions of local agencies and airport operators pursuant to Section 21676.

(e) The powers of the commission shall in no way be construed to give the commission jurisdiction over the operation of any airport.

(f) In order to carry out its responsibilities, the commission may adopt rules and regulations consistent with this article.

**21674.5. Training of Airport Land Use Commission's Staff**

(a) The Department of Transportation shall develop and implement a program or programs to assist in the training and development of the staff of airport land use commissions, after consulting with airport land use commissions, cities, counties, and other appropriate public entities.

(b) The training and development program or programs are intended to assist the staff of airport land use commissions in addressing high priority needs, and may include, but need not be limited to, the following:

(1) The establishment of a process for the development and adoption of airport land use compatibility plans.

(2) The development of criteria for determining the airport influence area.

(3) The identification of essential elements that should be included in the airport land use compatibility plans.

(4) Appropriate criteria and procedures for reviewing proposed developments and determining whether proposed developments are compatible with the airport use.

(5) Any other organizational, operational, procedural, or technical responsibilities and functions that the department determines to be appropriate to provide to commission staff and for which it determines there is a need for staff training or development.

(c) The department may provide training and development programs for airport land use commission staff pursuant to this section by any means it deems appropriate. Those programs may be presented in any of the following ways:

(1) By offering formal courses or training programs.

(2) By sponsoring or assisting in the organization and sponsorship of conferences, seminars, or other similar events.

(3) By producing and making available written information.

(4) Any other feasible method of providing information and assisting in the training and development of airport land use commission staff.

**21674.7. Airport Land Use Planning Handbook**

(a) An airport land use commission that formulates, adopts, or amends an airport land use compatibility plan shall be guided by information prepared and updated pursuant to Section 21674.5 and referred to as the Airport Land Use Planning Handbook published by the Division of Aeronautics of the Department of Transportation.

(b) It is the intent of the Legislature to discourage incompatible land uses near existing airports. Therefore, prior to granting permits for the renovation or remodeling of an existing building, structure, or facility, and before the construction of a new building, it is the intent of the Legislature that local agencies shall be guided by the height, use, noise, safety, and density criteria that are compatible with airport operations, as established by this article, and referred to as the Airport Land Use Planning Handbook, published by the division, and any applicable federal aviation regulations, including, but not limited to, Part 77 (commencing with Section 77.1) of Title 14 of the Code of Federal Regulations, to the extent that the criteria has been incorporated into the plan prepared by a commission pursuant to Section 21675. This subdivision does not limit the jurisdiction of a commission as established by this article. This subdivision does not limit the authority of local agencies to overrule commission actions or recommendations pursuant to Sections 21676, 21676.5, or 21677.

**21675. Land Use Plan**

(a) Each commission shall formulate an airport land use compatibility plan that will provide for the orderly growth of each public airport and the area surrounding the airport within the jurisdiction of the commission, and will safeguard the general welfare of the inhabitants within the vicinity of the airport and the public in general. The commission's airport land use compatibility plan shall include and shall be based on a long-range master plan or an airport layout plan, as determined by the Division of Aeronautics of the Department of Transportation, that reflects the anticipated growth of the airport during at least the next 20 years. In formulating an airport land use compatibility plan, the commission may develop height restrictions on buildings, specify use of land, and determine building standards, including soundproofing adjacent to airports, within the airport influence area. The airport land use compatibility plan shall be reviewed as often as necessary in order to accomplish its purposes, but shall not be amended more than once in any calendar year.

(b) The commission shall include, within its airport land use compatibility plan formulated pursuant to subdivision (a), the area within the jurisdiction of the commission surrounding any military airport for all of the purposes specified in subdivision (a). The airport land use compatibility plan shall be consistent with the safety and noise standards in the Air Installation Compatible Use Zone prepared for that military airport. This subdivision does not give the commission any jurisdiction or authority over the territory or operations of any military airport.

(c) The airport influence area shall be established by the commission after hearing and consultation with the involved agencies.

(d) The commission shall submit to the Division of Aeronautics of the department one copy of the airport land use compatibility plan and each amendment to the plan.

(e) If an airport land use compatibility plan does not include the matters required to be included pursuant to this article, the Division of Aeronautics of the department shall notify the commission responsible for the plan.

**21675.1. Adoption of Land Use Plan**

(a) By June 30, 1991, each commission shall adopt the airport land use compatibility plan required pursuant to Section 21675, except that any county that has undertaken by contract or otherwise completed airport land use compatibility plans for at least one-half of all public use airports in the county, shall adopt that airport land use compatibility plan on or before June 30, 1992.

(b) Until a commission adopts an airport land use compatibility plan, a city or county shall first submit all actions, regulations, and permits within the vicinity of a public airport to the commission for review and approval. Before the commission approves or disapproves any actions, regulations, or permits, the commission shall give public notice in the same manner as the city or county is required to give for those actions, regulations, or permits. As used in this section, "vicinity" means land that will be included or reasonably could be included within the airport land use compatibility plan. If the commission has not designated an airport influence area for the airport land use compatibility plan, then "vicinity" means land within two miles of the boundary of a public airport.

(c) The commission may approve an action, regulation, or permit if it finds, based on substantial evidence in the record, all of the following:

(1) The commission is making substantial progress toward the completion of the airport land use compatibility plan.

(2) There is a reasonable probability that the action, regulation, or permit will be consistent with the airport land use compatibility plan being prepared by the commission.

(3) There is little or no probability of substantial detriment to or interference with the future adopted airport land use compatibility plan if the action, regulation, or permit is ultimately inconsistent with the airport land use compatibility plan.

(d) If the commission disapproves an action, regulation, or permit, the commission shall notify the city or county. The city or county may overrule the commission, by a two-thirds vote of its governing body, if it makes specific findings that the proposed action, regulation, or permit is consistent with the purposes of this article, as stated in Section 21670.

(e) If a city or county overrules the commission pursuant to subdivision (d), that action shall not relieve the city or county from further compliance with this article after the commission adopts the airport land use compatibility plan.

(f) If a city or county overrules the commission pursuant to subdivision (d) with respect to a publicly owned airport that the city or county does not operate, the operator of the airport is not liable for damages to property or personal injury resulting from the city's or county's decision to proceed with the action, regulation, or permit.

(g) A commission may adopt rules and regulations that exempt any ministerial permit for single-family dwellings from the requirements of subdivision (b) if it makes the findings required pursuant to subdivision (c) for the proposed rules and regulations, except that the rules and regulations may not exempt either of the following:

(1) More than two single-family dwellings by the same applicant within a subdivision prior to June 30, 1991.

(2) Single-family dwellings in a subdivision where 25 percent or more of the parcels are undeveloped.

**21675.2. Approval or Disapproval of Actions, Regulations, or Permits**

(a) If a commission fails to act to approve or disapprove any actions, regulations, or permits within 60 days of receiving the request pursuant to Section 21675.1, the applicant or his or her representative may file an action pursuant to Section 1094.5 of the Code of Civil Procedure to compel the commission to act, and the court shall give the proceedings preference over all other actions or proceedings, except previously filed pending matters of the same character.

(b) The action, regulation, or permit shall be deemed approved only if the public notice required by this subdivision has occurred. If the applicant has provided seven days advance notice to

the commission of the intent to provide public notice pursuant to this subdivision, then, not earlier than the date of the expiration of the time limit established by Section 21675.1, an applicant may provide the required public notice. If the applicant chooses to provide public notice, that notice shall include a description of the proposed action, regulation, or permit substantially similar to the descriptions which are commonly used in public notices by the commission, the location of any proposed development, the application number, the name and address of the commission, and a statement that the action, regulation, or permit shall be deemed approved if the commission has not acted within 60 days. If the applicant has provided the public notice specified in this subdivision, the time limit for action by the commission shall be extended to 60 days after the public notice is provided. If the applicant provides notice pursuant to this section, the commission shall refund to the applicant any fees which were collected for providing notice and which were not used for that purpose.

(c) Failure of an applicant to submit complete or adequate information pursuant to Sections 65943 to 65946, inclusive, of the Government Code, may constitute grounds for disapproval of actions, regulations, or permits.

(d) Nothing in this section diminishes the commission's legal responsibility to provide, where applicable, public notice and hearing before acting on an action, regulation, or permit.

**21676. Review of Local General Plans**

(a) Each local agency whose general plan includes areas covered by an airport land use compatibility plan shall, by July 1, 1983, submit a copy of its plan or specific plans to the airport land use commission. The commission shall determine by August 31, 1983, whether the plan or plans are consistent or inconsistent with the airport land use compatibility plan. If the plan or plans are inconsistent with the airport land use compatibility plan, the local agency shall be notified and that local agency shall have another hearing to reconsider its airport land use compatibility plans. The local agency may propose to overrule the commission after the hearing by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article stated in Section 21670. At least 45 days prior to the decision to overrule the commission, the local agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the local agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the local agency governing body may act without them. The comments by the division or the commission are advisory to the local agency governing body. The local agency governing body shall include comments from the commission and the division in the final record of any final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(b) Prior to the amendment of a general plan or specific plan, or the adoption or approval of a zoning ordinance or building regulation within the planning boundary established by the airport land use commission pursuant to Section 21675, the local agency shall first refer the proposed action to the commission. If the commission determines that the proposed action is inconsistent with the commission's plan, the referring agency shall be notified. The local agency may, after a public hearing, propose to overrule the commission by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article stated in Section 21670. At least 45 days prior to the decision to

overrule the commission, the local agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the local agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the local agency governing body may act without them. The comments by the division or the commission are advisory to the local agency governing body. The local agency governing body shall include comments from the commission and the division in the public record of any final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(c) Each public agency owning any airport within the boundaries of an airport land use compatibility plan shall, prior to modification of its airport master plan, refer any proposed change to the airport land use commission. If the commission determines that the proposed action is inconsistent with the commission's plan, the referring agency shall be notified. The public agency may, after a public hearing, propose to overrule the commission by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article stated in Section 21670. At least 45 days prior to the decision to overrule the commission, the public agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the public agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the public agency governing body may act without them. The comments by the division or the commission are advisory to the public agency governing body. The public agency governing body shall include comments from the commission and the division in the final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(d) Each commission determination pursuant to subdivision (b) or (c) shall be made within 60 days from the date of referral of the proposed action. If a commission fails to make the determination within that period, the proposed action shall be deemed consistent with the airport land use compatibility plan.

**21676.5. Review of Local Plans**

(a) If the commission finds that a local agency has not revised its general plan or specific plan or overruled the commission by a two-thirds vote of its governing body after making specific findings that the proposed action is consistent with the purposes of this article as stated in Section 21670, the commission may require that the local agency submit all subsequent actions, regulations, and permits to the commission for review until its general plan or specific plan is revised or the specific findings are made. If, in the determination of the commission, an action, regulation, or permit of the local agency is inconsistent with the airport land use compatibility plan, the local agency shall be notified and that local agency shall hold a hearing to reconsider its plan. The local agency may propose to overrule the commission after the hearing by a two-thirds vote of its governing body if it makes specific findings that the proposed action is consistent with the purposes of this article as stated in Section 21670. At least 45 days prior to the decision to overrule the commission, the local agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the local agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the local

agency governing body may act without them. The comments by the division or the commission are advisory to the local agency governing body. The local agency governing body shall include comments from the commission and the division in the final decision to overrule the commission, which may only be adopted by a two-thirds vote of the governing body.

(b) Whenever the local agency has revised its general plan or specific plan or has overruled the commission pursuant to subdivision (a), the proposed action of the local agency shall not be subject to further commission review, unless the commission and the local agency agree that individual projects shall be reviewed by the commission.

**21677. Marin County Override Provisions**

Notwithstanding the two-thirds vote required by Section 21676, any public agency in the County of Marin may overrule the Marin County Airport Land Use Commission by a majority vote of its governing body. At least 45 days prior to the decision to overrule the commission, the public agency governing body shall provide the commission and the division a copy of the proposed decision and findings. The commission and the division may provide comments to the public agency governing body within 30 days of receiving the proposed decision and findings. If the commission or the division's comments are not available within this time limit, the public agency governing body may act without them. The comments by the division or the commission are advisory to the public agency governing body. The public agency governing body shall include comments from the commission and the division in the public record of the final decision to overrule the commission, which may be adopted by a majority vote of the governing body.

**21678. Airport Owner's Immunity**

With respect to a publicly owned airport that a public agency does not operate, if the public agency pursuant to Section 21676, 21676.5, or 21677 overrules a commission's action or recommendation, the operator of the airport shall be immune from liability for damages to property or personal injury caused by or resulting directly or indirectly from the public agency's decision to overrule the commission's action or recommendation.

**21679. Court Review**

(a) In any county in which there is no airport land use commission or other body designated to assume the responsibilities of an airport land use commission, or in which the commission or other designated body has not adopted an airport land use compatibility plan, an interested party may initiate proceedings in a court of competent jurisdiction to postpone the effective date of a zoning change, a zoning variance, the issuance of a permit, or the adoption of a regulation by a local agency, that directly affects the use of land within one mile of the boundary of a public airport within the county.

(b) The court may issue an injunction that postpones the effective date of the zoning change, zoning variance, permit, or regulation until the governing body of the local agency that took the action does one of the following:

(1) In the case of an action that is a legislative act, adopts a resolution declaring that the proposed action is consistent with the purposes of this article stated in Section 21670.

(2) In the case of an action that is not a legislative act, adopts a resolution making findings based on substantial evidence in the record that the proposed action is consistent with the purposes of this article stated in Section 21670.

(3) Rescinds the action.

(4) Amends its action to make it consistent with the purposes of this article stated in Section 21670, and complies with either paragraph (1) or (2), whichever is applicable.

(c) The court shall not issue an injunction pursuant to subdivision (b) if the local agency that took the action demonstrates that the general plan and any applicable specific plan of the agency accomplishes the purposes of an airport land use compatibility plan as provided in Section 21675.

(d) An action brought pursuant to subdivision (a) shall be commenced within 30 days of the decision or within the appropriate time periods set by Section 21167 of the Public Resources Code, whichever is longer.

(e) If the governing body of the local agency adopts a resolution pursuant to subdivision (b) with respect to a publicly owned airport that the local agency does not operate, the operator of the airport shall be immune from liability for damages to property or personal injury from the local agency's decision to proceed with the zoning change, zoning variance, permit, or regulation.

(f) As used in this section, "interested party" means any owner of land within two miles of the boundary of the airport or any organization with a demonstrated interest in airport safety and efficiency.

**21679.5. Deferral of Court Review**

(a) Until June 30, 1991, no action pursuant to Section 21679 to postpone the effective date of a zoning change, a zoning variance, the issuance of a permit, or the adoption of a regulation by a local agency, directly affecting the use of land within one mile of the boundary of a public airport, shall be commenced in any county in which the commission or other designated body has not adopted an airport land use compatibility plan, but is making substantial progress toward the completion of the airport land use compatibility plan.

(b) If a commission has been prevented from adopting the airport land use compatibility plan by June 30, 1991, or if the adopted airport land use compatibility plan could not become effective, because of a lawsuit involving the adoption of the airport land use compatibility plan, the June 30, 1991, date in subdivision (a) shall be extended by the period of time during which the lawsuit was pending in a court of competent jurisdiction.

(c) Any action pursuant to Section 21679 commenced prior to January 1, 1990, in a county in which the commission or other designated body has not adopted an airport land use compatibility plan, but is making substantial progress toward the completion of the airport land use compatibility plan, which has not proceeded to final judgment, shall be held in

abeyance until June 30, 1991. If the commission or other designated body adopts an airport land use compatibility plan on or before June 30, 1991, the action shall be dismissed. If the commission or other designated body does not adopt an airport land use compatibility plan on or before June 30, 1991, the plaintiff or plaintiffs may proceed with the action.

(d) An action to postpone the effective date of a zoning change, a zoning variance, the issuance of a permit, or the adoption of a regulation by a local agency, directly affecting the use of land within one mile of the boundary of a public airport for which an airport land use compatibility plan has not been adopted by June 30, 1991, shall be commenced within 30 days of June 30, 1991, or within 30 days of the decision by the local agency, or within the appropriate time periods set by Section 21167 of the Public Resources Code, whichever date is later.

## AERONAUTICS LAW

## PUBLIC UTILITIES CODE
## Division 9, Part 1
## Chapter 3 — Regulation of Aeronautics
## (excerpts)

### 21402. Ownership; Prohibited Use of Airspace

The ownership of the space above the land and waters of this State is vested in the several owners of the surface beneath, subject to the right of flight described in Section 21403. No use shall be made of such airspace which would interfere with such right of flight; provided, that any use of property in conformity with an original zone of approach of an airport shall not be rendered unlawful by reason of a change in such zone of approach.

### 21403. Lawful Flight; Unauthorized and Forced Landings; Damages; Use of Highways; Burden of Proof; Within Airport Approach Zone

(a) Flight in aircraft over the land and waters of this state is lawful, unless at altitudes below those prescribed by federal authority, or unless conducted so as to be imminently dangerous to persons or property lawfully on the land or water beneath. The landing of an aircraft on the land or waters of another, without his or her consent, is unlawful except in the case of a forced landing or pursuant to Section 21662.1. The owner, lessee, or operator of the aircraft is liable, as provided by law, for damages caused by a forced landing.

(b) The landing, takeoff, or taxiing of an aircraft on a public freeway, highway, road, or street is unlawful except in the following cases:

(1) A forced landing.

(2) A landing during a natural disaster or other public emergency if the landing has received prior approval from the public agency having primary jurisdiction over traffic upon the freeway, highway, road, or street.

(3) When the landing, takeoff, or taxiing has received prior approval from the public agency having primary jurisdiction over traffic upon the freeway, highway, road or street.

The prosecution bears the burden of proving that none of the exceptions apply to the act which is alleged to be unlawful.

(c) The right of flight in aircraft includes the right of safe access to public airports, which includes the right of flight within the zone of approach of any public airport without restriction or hazard. The zone of approach of an airport shall conform to the specifications of Part 77 of the Federal Aviation Regulations of the Federal Aviation Administration, Department of Transportation.

## AERONAUTICS LAW

## PUBLIC UTILITIES CODE
## Division 9, Part 1
## Chapter 3 — Regulation of Aeronautics
## (excerpts)

**21417. Definitions for Meteorological Towers**

(a) As used in this section, the following terms have the following meanings.

(1) "Meteorological instrument" means an instrument for measuring and recording the speed of the wind.

(2) "Meteorological tower" means a structure, including all guy wires and accessory facilities, on which a meteorological instrument is mounted for the purposes of documenting whether a site has wind resources sufficient for the operation of a wind turbine generator.

(3) "Prime agricultural land" means land that satisfies the requirements of paragraph (1), (2), or (4) of subdivision (c) of Section 51201 of the Government Code.

(b) A meteorological tower below 200 feet in height and above 50 feet in height that is located on prime agricultural land, or within one mile of prime agricultural land, and erected after January 1, 2013, shall be marked as follows:

(1) The full length of the meteorological tower shall be painted in equal, alternating bands of aviation orange and white, beginning with orange at the top of the tower and ending with orange at the bottom of the marked portion of the tower. The bands shall be between 20 and 30 feet in width.

(2) Two or more high visibility spherical marker balls, also called cable balls, that are aviation orange shall be attached to each outside guy wire that is connected to a meteorological tower.

(3) One or more seven-foot high visibility safety sleeves shall be placed at each anchor point and shall extend from the anchor point along each guy wire attached to the anchor point.

(c) A light may be affixed to the highest point on a meteorological tower as an additional option for the marking of the meteorological tower.

(d)

(1) A local agency may incorporate any requirements of this section into any applicable land use permit that the agency administers.

(2) This section shall not be construed to authorize a local agency to require a new permit that applies to a meteorological tower.

(3) To the extent that the requirements of this section conflict with local permitting requirements, the requirements of this section shall supersede those permitting requirements.

(e) This section shall remain in effect only until January 1, 2018, and as of that date is repealed, unless a later enacted statute, that is enacted before January 1, 2018, deletes or extends that date.

# AERONAUTICS LAW

## PUBLIC UTILITIES CODE
## Division 9, Part 1
## Chapter 4 — Airports and Air Navigation Facilities

## Article 2.7
## REGULATION OF OBSTRUCTIONS
## (excerpts)

### 21655. Proposed Site for Construction of State Building Within Two Miles of Airport; Investigation and Report; Expenditure of State Funds

Notwithstanding any other provision of law, if the proposed site of any state building or other enclosure is within two miles, measured by air line, of that point on an airport runway, or runway proposed by an airport master plan, which is nearest the site, the state agency or office which proposes to construct the building or other enclosure shall, before acquiring title to property for the new state building or other enclosure site or for an addition to a present site, notify the Department of Transportation, in writing, of the proposed acquisition. The department shall investigate the proposed site and, within 30 working days after receipt of the notice, shall submit to the state agency or office which proposes to construct the building or other enclosure a written report of the investigation and its recommendations concerning acquisition of the site.

If the report of the department does not favor acquisition of the site, no state funds shall be expended for the acquisition of the new state building or other enclosure site, or the expansion of the present site, or for the construction of the state building or other enclosure, provided that the provisions of this section shall not affect title to real property once it is acquired.

### 21658. Construction of Utility Pole or Line in Vicinity of Aircraft Landing Area

No public utility shall construct any pole, pole line, distribution or transmission tower, or tower line, or substation structure in the vicinity of the exterior boundary of an aircraft landing area of any airport open to public use, in a location with respect to the airport and at a height so as to constitute an obstruction to air navigation, as an obstruction is defined in accordance with Part 77 of the Federal Aviation Regulations, Federal Aviation Administration, or any corresponding rules or regulations of the Federal Aviation Administration, unless the Federal Aviation Administration has determined that the pole, line, tower, or structure does not constitute a hazard to air navigation. This section shall not apply to existing poles, lines, towers, or structures or to the repair, replacement, or reconstruction thereof if the original height is not materially exceeded and this section shall not apply unless just compensation shall have first been paid to the public utility by the owner of any airport for any property or property rights which would be taken or damaged hereby.

### 21659. Hazards near Airports Prohibited

(a) No person shall construct or alter any structure or permit any natural growth to grow at a height which exceeds the obstruction standards set forth in the regulations of the Federal Aviation Administration relating to objects affecting navigable airspace contained in Title 14

of the Code of Federal Regulations, Part 77, Subpart C, unless a permit allowing the construction, alteration, or growth is issued by the department.

(b) The permit is not required if the Federal Aviation Administration has determined that the construction, alteration, or growth does not constitute a hazard to air navigation or would not create an unsafe condition for air navigation. Subdivision (a) does not apply to a pole, pole line, distribution or transmission tower, or tower line or substation of a public utility.

(c) Section 21658 is applicable to subdivision (b).

# AERONAUTICS LAW

## PUBLIC UTILITIES CODE
## Division 9, Part 1, Chapter 4

## Article 3
## REGULATION OF AIRPORTS
## (excerpts)

### 21661.5. City Council or County Board of Supervisors and ALUC Approvals

(a) No political subdivision, any of its officers or employees, or any person may submit any application for the construction of a new airport to any local, regional, state, or federal agency unless the plan for construction is first approved by the board of supervisors of the county, or the city council of the city, in which the airport is to be located and unless the plan is submitted to the appropriate commission exercising powers pursuant to Article 3.5 (commencing with Section 21670) of Chapter 4 of Part 1 of Division 9, and acted upon by that commission in accordance with the provisions of that article.

(b) A county board of supervisors or a city council may, pursuant to Section 65100 of the Government Code, delegate its responsibility under this section for the approval of a plan for construction of new helicopter landing and takeoff areas, to the county or city planning agency.

### 21664.5. Amended Airport Permits; Airport Expansion Defined

(a) An amended airport permit shall be required for every expansion of an existing airport. An applicant for an amended airport permit shall comply with each requirement of this article pertaining to permits for new airports. The department may by regulation provide for exemptions from the operation of this section pursuant to Section 21661, except that no exemption shall be made limiting the applicability of subdivision (e) of Section 21666, pertaining to environmental considerations, including the requirement for public hearings in connection therewith.

(b) As used in this section, "airport expansion" includes any of the following:

(1) The acquisition of runway protection zones, as defined in Federal Aviation Administration Advisory Circular 150/1500-13, or of any interest in land for the purpose of any other expansion as set forth in this section.

(2) The construction of a new runway.

(3) The extension or realignment of an existing runway.

(4) Any other expansion of the airport's physical facilities for the purpose of accomplishing or which are related to the purpose of paragraph (1), (2), or (3).

(c) This section does not apply to any expansion of an existing airport if the expansion commenced on or prior to the effective date of this section and the expansion met the approval, on or prior to that effective date, of each governmental agency that required the approval by law.

## PLANNING AND ZONING LAW

## GOVERNMENT CODE
## Title 7 — Planning and Land Use
## Division 1 — Planning and Zoning
## Chapter 3 — Local Planning

## Article 5
## AUTHORITY FOR AND SCOPE OF GENERAL PLANS
## (excerpts)

### 65302.3. General and Applicable Specific Plans; Consistency with Airport Land Use Plans; Amendment; Nonconcurrence Findings

(a) The general plan, and any applicable specific plan prepared pursuant to Article 8 (commencing with Section 65450), shall be consistent with the plan adopted or amended pursuant to Section 21675 of the Public Utilities Code.

(b) The general plan, and any applicable specific plan, shall be amended, as necessary, within 180 days of any amendment to the plan required under Section 21675 of the Public Utilities Code.

(c) If the legislative body does not concur with any provision of the plan required under Section 21675 of the Public Utilities Code, it may satisfy the provisions of this section by adopting findings pursuant to Section 21676 of the Public Utilities Code.

(d) In each county where an airport land use commission does not exist, but where there is a military airport, the general plan, and any applicable specific plan prepared pursuant to Article 8 (commencing with Section 65450), shall be consistent with the safety and noise standards in the Air Installation Compatible Use Zone prepared for that military airport.

## PLANNING AND ZONING LAW

## GOVERNMENT CODE
## Title 7, Division 1
## Chapter 4.5 — Review and Approval of Development Projects

### Article 3
### APPLICATION FOR DEVELOPMENT PROJECTS
### (excerpts)

Note: The following government code sections are referenced in Section 21675.2(c) of the ALUC statutes.

**65943. Completeness of Application; Determination; Time; Specification of Parts not Complete and Manner of Completion**

(a) Not later than 30 calendar days after any public agency has received an application for a development project, the agency shall determine in writing whether the application is complete and shall immediately transmit the determination to the applicant for the development project. If the written determination is not made within 30 days after receipt of the application, and the application includes a statement that it is an application for a development permit, the application shall be deemed complete for purposes of this chapter. Upon receipt of any resubmittal of the application, a new 30-day period shall begin, during which the public agency shall determine the completeness of the application. If the application is determined not to be complete, the agency's determination shall specify those parts of the application which are incomplete and shall indicate the manner in which they can be made complete, including a list and thorough description of the specific information needed to complete the application. The applicant shall submit materials to the public agency in response to the list and description.

(b) Not later than 30 calendar days after receipt of the submitted materials, the public agency shall determine in writing whether they are complete and shall immediately transmit that determination to the applicant. If the written determination is not made within that 30-day period, the application together with the submitted materials shall be deemed complete for purposes of this chapter.

(c) If the application together with the submitted materials are determined not to be complete pursuant to subdivision (b), the public agency shall provide a process for the applicant to appeal that decision in writing to the governing body of the agency or, if there is no governing body, to the director of the agency, as provided by that agency. A city or county shall provide that the right of appeal is to the governing body or, at their option, the planning commission, or both.

There shall be a final written determination by the agency on the appeal not later than 60 calendar days after receipt of the applicant's written appeal. The fact that an appeal is permitted to both the planning commission and to the governing body does not extend the 60-day period. Notwithstanding a decision pursuant to subdivision (b) that the application and submitted materials are not complete, if the final written determination on the appeal is not

made within that 60-day period, the application with the submitted materials shall be deemed complete for the purposes of this chapter.

(d) Nothing in this section precludes an applicant and a public agency from mutually agreeing to an extension of any time limit provided by this section.

(e) A public agency may charge applicants a fee not to exceed the amount reasonably necessary to provide the service required by this section. If a fee is charged pursuant to this section, the fee shall be collected as part of the application fee charged for the development permit.

**65943.5.**

(a) Notwithstanding any other provision of this chapter, any appeal pursuant to subdivision (c) of Section 65943 involving a permit application to a board, office, or department within the California Environmental Protection Agency shall be made to the Secretary for Environmental Protection.

(b) Notwithstanding any other provision of this chapter, any appeal pursuant to subdivision (c) of Section 65943 involving an application for the issuance of an environmental permit from an environmental agency shall be made to the Secretary for Environmental Protection under either of the following circumstances:

(1) The environmental agency has not adopted an appeals process pursuant to subdivision (c) of Section 65943.

(2) The environmental agency declines to accept an appeal for a decision pursuant to subdivision (c) of Section 65943.

(c) For purposes of subdivision (b), "environmental permit" has the same meaning as defined in Section 71012 of the Public Resources Code, and "environmental agency" has the same meaning as defined in Section 71011 of the Public Resources Code, except that "environmental agency" does not include the agencies described in subdivisions (c) and (h) of Section 71011 of the Public Resources Code.

**65944. Acceptance of Application as Complete; Requests for Additional Information; Restrictions; Clarification, Amplification, Correction, etc.; Prior to Notice of Necessary Information**

(a) After a public agency accepts an application as complete, the agency shall not subsequently request of an applicant any new or additional information which was not specified in the list prepared pursuant to Section 65940. The agency may, in the course of processing the application, request the applicant to clarify, amplify, correct, or otherwise supplement the information required for the application.

(b) The provisions of subdivision (a) shall not be construed as requiring an applicant to submit with his or her initial application the entirety of the information which a public agency may require in order to take final action on the application. Prior to accepting an application, each public agency shall inform the applicant of any information included in the list prepared

pursuant to Section 65940 which will subsequently be required from the applicant in order to complete final action on the application.

(c) This section shall not be construed as limiting the ability of a public agency to request and obtain information which may be needed in order to comply with the provisions of Division 13 (commencing with Section 21000) of the Public Resources Code.

(d)

(1) After a public agency accepts an application as complete, and if the project applicant has identified that the proposed project is located within 1,000 feet of a military installation or within special use airspace or beneath a low-level flight path in accordance with Section 65940, the public agency shall provide a copy of the complete application to any branch of the United States Armed Forces that has provided the Office of Planning and Research with a single California mailing address within the state for the delivery of a copy of these applications. This subdivision shall apply only to development applications submitted to a public agency 30 days after the Office of Planning and Research has notified cities, counties, and cities and counties of the availability of Department of Defense information on the Internet pursuant to subdivision (d) of Section 65940.

(2) Except for a project within 1,000 feet of a military installation, the public agency is not required to provide a copy of the application if the project is located entirely in an "urbanized area." An urbanized area is any urban location that meets the definition used by the United State Department of Commerce's Bureau of Census for "urban" and includes locations with core census block groups containing at least 1,000 people per square mile and surrounding census block groups containing at least 500 people per square mile.

(e) Upon receipt of a copy of the application as required in subdivision (d), any branch of the United States Armed Forces may request consultation with the public agency and the project applicant to discuss the effects of the proposed project on military installations, low-level flight paths, or special use airspace, and potential alternatives and mitigation measures.

(f)

(1) Subdivisions (d), (e), and (f) as these relate to low-level flight paths, special use airspace, and urbanized areas shall not be operative until the United States Department of Defense provides electronic maps of low-level flight paths, special use airspace, and military installations, at a scale and in an electronic format that is acceptable to the Office of Planning and Research.

(2) Within 30 days of a determination by the Office of Planning and Research that the information provided by the Department of Defense is sufficient and in an acceptable scale and format, the office shall notify cities, counties, and cities and counties of the availability of the information on the Internet. Cities, counties, and cities and counties shall comply with subdivision (d) within 30 days of receiving this notice from the office.

**65945. Notice of Proposal to Adopt or Amend Certain Plans or Ordinances by City or County, Fee; Subscription to Periodically Updated Notice as Alternative, Fee**

(a) At the time of filing an application for a development permit with a city or county, the city or county shall inform the applicant that he or she may make a written request to receive notice

from the city or county of a proposal to adopt or amend any of the following plans or ordinances:

(1) A general plan.

(2) A specific plan.

(3) A zoning ordinance.

(4) An ordinance affecting building permits or grading permits.

The applicant shall specify, in the written request, the types of proposed action for which notice is requested. Prior to taking any of those actions, the city or county shall give notice to any applicant who has requested notice of the type of action proposed and whose development project is pending before the city or county if the city or county determines that the proposal is reasonably related to the applicant's request for the development permit. Notice shall be given only for those types of actions which the applicant specifies in the request for notification.

The city or county may charge the applicant for a development permit, to whom notice is provided pursuant to this subdivision, a reasonable fee not to exceed the actual cost of providing that notice. If a fee is charged pursuant to this subdivision, the fee shall be collected as part of the application fee charged for the development permit.

(b) As an alternative to the notification procedure prescribed by subdivision (a), a city or county may inform the applicant at the time of filing an application for a development permit that he or she may subscribe to a periodically updated notice or set of notices from the city or county which lists pending proposals to adopt or amend any of the plans or ordinances specified in subdivision (a), together with the status of the proposal and the date of any hearings thereon which have been set.

Only those proposals which are general, as opposed to parcel-specific in nature, and which the city or county determines are reasonably related to requests for development permits, need be listed in the notice. No proposal shall be required to be listed until such time as the first public hearing thereon has been set. The notice shall be updated and mailed at least once every six weeks; except that a notice need not be updated and mailed until a change in its contents is required.

The city or county may charge the applicant for a development permit, to whom notice is provided pursuant to this subdivision, a reasonable fee not to exceed the actual cost of providing that notice, including the costs of updating the notice, for the length of time the applicant requests to be sent the notice or notices.

### 65945.3. Notice of Proposal to Adopt or Amend Rules or Regulations Affecting Issuance of Permits by Local Agency other than City or County; Fee

At the time of filing an application for a development permit with a local agency, other than a city or county, the local agency shall inform the applicant that he or she may make a written request to receive notice of any proposal to adopt or amend a rule or regulation affecting the issuance of development permits.

Prior to adopting or amending any such rule or regulation, the local agency shall give notice to any applicant who has requested such notice and whose development project is pending before the agency if the local agency determines that the proposal is reasonably related to the applicant's request for the development permit.

The local agency may charge the applicant for a development permit, to whom notice is provided pursuant to this section, a reasonable fee not to exceed the actual cost of providing that notice. If a fee is charged pursuant to this section, the fee shall be collected as part of the application fee charged for the development permit.

### 65945.5. Notice of Proposal to Adopt or Amend Regulation Affecting Issuance of Permits and Which Implements Statutory Provision by State Agency

At the time of filing an application for a development permit with a state agency, the state agency shall inform the applicant that he or she may make a written request to receive notice of any proposal to adopt or amend a regulation affecting the issuance of development permits and which implements a statutory provision.

Prior to adopting or amending any such regulation, the state agency shall give notice to any applicant who has requested such notice and whose development project is pending before the state agency if the state agency determines that the proposal is reasonably related to the applicant's request for the development permit.

### 65945.7. Actions, Inactions, or Recommendations Regarding Ordinances, Rules or Regulations; Invalidity or Setting Aside Ground of Error Only if Prejudicial

No action, inaction, or recommendation regarding any ordinance, rule, or regulation subject to this Section 65945, 65945.3, or 65945.5 by any legislative body, administrative body, or the officials of any state or local agency shall be held void or invalid or be set aside by any court on the ground of any error, irregularity, informality, neglect or omission (hereinafter called "error") as to any matter pertaining to notices, records, determinations, publications or any matters of procedure whatever, unless after an examination of the entire case, including evidence, the court shall be of the opinion that the error complained of was prejudicial, and that by reason of such error the party complaining or appealing sustained and suffered substantial injury, and that a different result would have been probable if such error had not occurred or existed. There shall be no presumption that error is prejudicial or that injury was done if error is shown.

### 65946. [Replaced by AB2351 Statutes of 1993]

## PLANNING AND ZONING LAW

## GOVERNMENT CODE
## Title 7, Division 1
## Chapter 9.3 — Mediation and Resolution of Land Use Disputes
## (excerpts)

**66030.**

(a) The Legislature finds and declares all of the following:

(1) Current law provides that aggrieved agencies, project proponents, and affected residents may bring suit against the land use decisions of state and local governmental agencies. In practical terms, nearly anyone can sue once a project has been approved.

(2) Contention often arises over projects involving local general plans and zoning, redevelopment plans, the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code), development impact fees, annexations and incorporations, and the Permit Streamlining Act (Chapter 4.5 (commencing with Section 65920)).

(3) When a public agency approves a development project that is not in accordance with the law, or when the prerogative to bring suit is abused, lawsuits can delay development, add uncertainty and cost to the development process, make housing more expensive, and damage California's competitiveness. This litigation begins in the superior court, and often progresses on appeal to the Court of Appeal and the Supreme Court, adding to the workload of the state's already overburdened judicial system.

(b) It is, therefore, the intent of the Legislature to help litigants resolve their differences by establishing formal mediation processes for land use disputes. In establishing these mediation processes, it is not the intent of the Legislature to interfere with the ability of litigants to pursue remedies through the courts.

**66031.**

(a) Notwithstanding any other provision of law, any action brought in the superior court relating to any of the following subjects may be subject to a mediation proceeding conducted pursuant to this chapter:

(1) The approval or denial by a public agency of any development project.

(2) Any act or decision of a public agency made pursuant to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code).

(3) The failure of a public agency to meet the time limits specified in Chapter 4.5 (commencing with Section 65920), commonly known as the Permit Streamlining Act, or in the Subdivision Map Act (Division 2 (commencing with Section 66410)).

(4) Fees determined pursuant to Chapter 6 (commencing with Section 17620) of Division 1 of Part 10.5 of the Education Code or Chapter 4.9 (commencing with Section 65995).

(5) Fees determined pursuant to the Mitigation Fee Act (Chapter 5 (commencing with Section 66000), Chapter 6 (commencing with Section 66010), Chapter 7 (commencing with Section 66012), Chapter 8 (commencing with Section 66016), and Chapter 9 (commencing with Section 66020)).

(6) The adequacy of a general plan or specific plan adopted pursuant to Chapter 3 (commencing with Section 65100).

(7) The validity of any sphere of influence, urban service area, change of organization or reorganization, or any other decision made pursuant to the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Division 3 (commencing with Section 56000) of Title 5).

(8) The adoption or amendment of a redevelopment plan pursuant to the Community Redevelopment Law (Part 1 (commencing with Section 33000) of Division 24 of the Health and Safety Code).

(9) The validity of any zoning decision made pursuant to Chapter 4 (commencing with Section 65800).

(10) The validity of any decision made pursuant to Article 3.5 (commencing with Section 21670) of Chapter 4 of Part 1 of Division 9 of the Public Utilities Code.

(b) Within five days after the deadline for the respondent or defendant to file its reply to an action, the court may invite the parties to consider resolving their dispute by selecting a mutually acceptable person to serve as a mediator, or an organization or agency to provide a mediator.

(c) In selecting a person to serve as a mediator, or an organization or agency to provide a mediator, the parties shall consider the following:

(1) The council of governments having jurisdiction in the county where the dispute arose.

(2) Any subregional or countywide council of governments in the county where the dispute arose.

(3) Any other person with experience or training in mediation including those with experience in land use issues, or any other organization or agency that can provide a person with experience or training in mediation, including those with experience in land use issues.

(d) If the court invites the parties to consider mediation, the parties shall notify the court within 30 days if they have selected a mutually acceptable person to serve as a mediator. If the parties have not selected a mediator within 30 days, the action shall proceed. The court shall not draw any implication, favorable or otherwise, from the refusal by a party to accept the invitation by the court to consider mediation. Nothing in this section shall preclude the parties from using mediation at any other time while the action is pending.

# PLANNING AND ZONING LAW

## GOVERNMENT CODE
## Title 7 — Planning and Land Use
## Division 2 — Subdivisions
## Chapter 3 — Procedure

### Article 3
### REVIEW OF TENTATIVE MAP BY OTHER AGENCIES
### (excerpts)

**66455.9. Potential School Sites; Notice; Investigation**

Whenever there is consideration of an area within a development for a public schoolsite, the advisory agency shall give the affected districts and the State Department of Education written notice of the proposed site. The written notice shall include the identification of any existing or proposed runways within the distance specified in Section 17215 of the Education Code. If the site is within the distance of an existing or proposed airport runway as described in Section 17215 of the Education Code, the department shall notify the State Department of Transportation as required by the section and the site shall be investigated by the State Department of Transportation required by Section 17215.

**EDUCATION CODE**
**Title 1 — General Education Code Provisions**
**Division 1 — General Education Code Provisions**
**Part 10.5 — School Facilities**
**Chapter 1 — School Sites**

## Article 1
## GENERAL PROVISIONS
## (excerpts)

Note: SB 161, Statutes of 1997, replaced Education Code Section 39005 with Section 17215; SB 967, Statutes of 1995, deleted Sections 39006 and 39007.

**17215.**

(a) In order to promote the safety of pupils, comprehensive community planning, and greater educational usefulness of schoolsites, before acquiring title to or leasing property for a new schoolsite, the governing board of each school district, including any district governed by a city board of education, or a charter school, shall give the State Department of Education written notice of the proposed acquisition or lease and shall submit any information required by the State Department of Education if the site is within two miles, measured by air line, of that point on an airport runway or a potential runway included in an airport master plan that is nearest to the site.

(b) Upon receipt of the notice required pursuant to subdivision (a), the State Department of Education shall notify the Department of Transportation in writing of the proposed acquisition or lease. If the Department of Transportation is no longer in operation, the State Department of Education shall, in lieu of notifying the Department of Transportation, notify the United States Department of Transportation or any other appropriate agency, in writing, of the proposed acquisition or lease for the purpose of obtaining from the department or other agency any information or assistance that it may desire to give.

(c) The Department of Transportation shall investigate the site and, within 30 working days after receipt of the notice, shall submit to the State Department of Education a written report of its findings including recommendations concerning acquisition or lease of the site. As part ofthe investigation, the Department of Transportation shall give notice thereof to the owner and operator of the airport who shall be granted the opportunity to comment upon the site. The Department of Transportation shall adopt regulations setting forth the criteria by which a site will be evaluated pursuant to this section.

(d) The State Department of Education shall, within 10 days of receiving the Department of Transportation's report, forward the report to the governing board of the school district or charter school. The governing board or charter school may not acquire title to or lease the property until the report of the Department of Transportation has been received. If the report does not favor the acquisition or lease of the property for a schoolsite or an addition to a present schoolsite, the governing board or charter school may not acquire title to or lease the property. If the report does favor the acquisition or lease of the property for a schoolsite oran addition to a present schoolsite, the governing board or charter school shall hold a public hearing on the matter prior to acquiring or leasing the site.

(e) If the Department of Transportation's recommendation does not favor acquisition or lease of the proposed site, state funds or local funds may not be apportioned or expended for the acquisition or lease of that site, construction of any school building on that site, or for the expansion of any existing site to include that site.

(f) This section does not apply to sites acquired prior to January 1, 1966, nor to any additions or extensions to those sites.

# EDUCATION CODE
## Title 3 — Postsecondary Education
## Division 7 — Community Colleges
## Part 49 — Community Colleges, Education Facilities
## Chapter 1 — School Sites

### Article 2
### SCHOOL SITES
### (excerpts)

**81033. Investigation: Geologic and Soil Engineering Studies; Airport in Proximity**

(c) To promote the safety of students, comprehensive community planning, and greater educational usefulness of community college sites, the governing board of each community college district, if the proposed site is within two miles, measured by air line, of that point on an airport runway, or runway proposed by an airport master plan, which is nearest the site and excluding them if the property is not so located, before acquiring title to property for a new community college site or for an addition to a present site, shall give the board of governors notice in writing of the proposed acquisition and shall submit any information required by the board of governors.

Immediately after receiving notice of the proposed acquisition of property which is within two miles, measured by air line, of that point on an airport runway, or runway proposed by an airport master plan, which is nearest the site, the board of governors shall notify the Division of Aeronautics of the Department of Transportation, in writing, of the proposed acquisition. The Division of Aeronautics shall make an investigation and report to the board of governors within 30 working days after receipt of the notice. If the Division of Aeronautics is no longer in operation, the board of governors, in lieu of notifying the Division of Aeronautics, shall notify the Federal Aviation Administration or any other appropriate agency, in writing, of the proposed acquisition for the purpose of obtaining from the authority or other agency any information or assistance it may desire to give.

The board of governors shall investigate the proposed site and, within 35 working days after receipt of the notice, shall submit to the governing board a written report and its recommendations concerning acquisition of the site. The governing board shall not acquire title to the property until the report of the board of governors has been received. If the report does not favor the acquisition of the property for a community college site or an addition to a present community college site, the governing board shall not acquire title to the property until 30 days after the department's report is received and until the board of governors' report has been read at a public hearing duly called after 10 days' notice published once in a newspaper of general circulation within the community college district, or if there is no such newspaper, then in a newspaper of general circulation within the county in which the property is located.

(d) If, with respect to a proposed site located within two miles of an operative airport runway, the report of the board of governors submitted to a community college district governing board under subdivision (c) does not favor the acquisition of the site on the sole or partial basis of the unfavorable recommendation of the Division of Aeronautics of the Department of Transportation, no state agency or officer shall grant, apportion, or allow to that community college district for expenditure in connection with that site, any state funds otherwise made

available under any state law whatever for community college site acquisition or college building construction, or for expansion of existing sites and buildings, and no funds of the community college district or of the county in which the district lies shall be expended for those purposes. However, this section shall not be applicable to sites acquired prior to January 1, 1966, or to any additions or extensions to those sites.

If the recommendation of the Division of Aeronautics is unfavorable, the recommendation shall not be overruled without the express approval of the board of governors and the State Allocation Board.

(e) No action undertaken by the board of governors or by any other state agency or by any political subdivision pursuant to this chapter, or in compliance with this chapter, shall be construed to affect any rights arising under Section 19 of Article I of the California Constitution.

**PUBLIC RESOURCES CODE**
**California Environmental Quality Act Statutes**
**Division 13 — Environmental Quality**
**Chapter 2.6 — General**
**(excerpts)**

**21096. Airport Planning**

(a) If a lead agency prepares an environmental impact report for a project situated within airport land use compatibility plan boundaries, or, if an airport land use compatibility plan has not been adopted, for a project within two nautical miles of a public airport or public use airport, the Airport Land Use Planning Handbook published by the Division of Aeronautics of the Department of Transportation, in compliance with Section 21674.5 of the Public Utilities Code and other documents, shall be utilized as technical resources to assist in the preparation of the environmental impact report as the report relates to airport-related safety hazards and noise problems.

(b) A lead agency shall not adopt a negative declaration for a project described in subdivision (a) unless the lead agency considers whether the project will result in a safety hazard or noise problem for persons using the airport or for persons residing or working in the project area.

**BUSINESS AND PROFESSIONS CODE**
**Division 4 — Real Estate**
**Part 2 — Regulation of Transactions**
**Chapter 1 — Subdivided Lands**
**Article 2 — Investigation, Regulation and Report**
**(excerpts)**

**11010.**

(a) Except as otherwise provided pursuant to subdivision (c) or elsewhere in this chapter, any person who intends to offer subdivided lands within this state for sale or lease shall file with the Bureau of Real Estate an application for a public report consisting of a notice of intention and a completed questionnaire on a form prepared by the bureau.

(b) The notice of intention shall contain the following information about the subdivided lands and the proposed offering.

[Sub-Sections (1) through (12) omitted]

(13)(A) The location of all existing airports, and of all proposed airports shown on the general plan of any city or county, located within two statute miles of the subdivision. If the property is located within an airport influence area, the following statement shall be included in the notice of intention:

NOTICE OF AIRPORT IN VICINITY

This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.

(B) For purposes of this section, an "airport influence area," also known as an "airport referral area," is the area in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses as determined by an airport land use commission.

**CIVIL CODE**
**Division 2 — Property**
**Part 4 — Acquisition of Property**
**Title 4 — Transfer**
**Chapter 2 — Transfer of Real Property**
**Article 1.7 — Disclosure of Natural and Environmental Hazards, Right-to-Farm, and Other Disclosures Upon Transfer of Residential Property (excerpts)**

**1103.**

(a) For purpose of this article, the definitions in Chapter 1 (commencing with Section 10000) of Part 1 of Division 4 of the Business and Professions Code shall apply.

(b) Except as provided in Section 1103.1, this article applies to a sale, exchange, real property sales contract, as defined in Section 2985, lease with an option to purchase, any other option to purchase, or ground lease coupled with improvements, of any single-family residential real property.

(c) This article shall apply to the transactions described in subdivision (b) only if the seller or his or her agent is required by one or more of the following to disclose the property's location within a hazard zone:

(1) A seller's agent for a seller of real property that is located within a special flood hazard area (any type Zone "A" or "V") designated by the Federal Emergency Management Agency, or the seller if the seller is acting without a seller's agent, shall disclose to any prospective buyer the fact that the property is located within a special flood hazard area if either:

(A) The seller, or the seller's agent, has actual knowledge that the property is within a special flood hazard area.

(B) The local jurisdiction has compiled a list, by parcel, of properties that are within the special flood hazard area and a notice has been posted at the offices of the county recorder, county assessor, and county planning agency that identifies the location of the parcel list.

(2) …is located within an area of potential flooding…shall disclose to any prospective transferee the fact that the property is located within an area of potential flooding…

(3) …is located within a very high fire hazard severity zone, designated pursuant to Section 51178 of the Public Resources Code…shall disclose to any prospective transferee the fact that the property is located within a very high fire hazard severity zone and is subject to the requirements of Section 51182…

(4) …is located within an earthquake fault zone, designated pursuant to Section 2622 of the Public Resources Code…shall disclose to any prospective transferee the fact that the property is located within a delineated earthquake fault zone…
(5) …is located within a seismic hazard zone, designated pursuant to Section 2696 of the Public Resources Code…shall disclose to any prospective transferee the fact that the property is located within a seismic hazard zone…
(6) …is located within a state responsibility area determined by the board, pursuant to Section 4125 of the Public Resources Code, shall disclose to any prospective transferee the fact that the property is located within a wildland area that may contain substantial forest fire risks and hazards and is subject to the requirements of Section 4291…

(d) Any waiver of the requirements of this article is void as against public policy.

**1103.1**

(a) This article does not apply to the following sales:

(1) Sales or transfers pursuant to court order, including, but not limited to, sales ordered by a probate court in administration of an estate, sales pursuant to a writ of execution, sales by any foreclosure sale, sales by a trustee in bankruptcy, sales by eminent domain, and sales resulting from a decree for specific performance.

(2) Sales or transfers to a mortgagee by a mortgagor or successor in interest who is in default, sales to a beneficiary of a deed of trust by a trustor or successor in interest who is in default, transfers by any foreclosure sale after default, any foreclosure sale after default in an obligation secured by a mortgage, sale under a power of sale or any foreclosure sale under a decree of foreclosure after default in an obligation secured by a deed of trust or secured by any other instrument containing a power of sale, or sales by a mortgagee or a beneficiary under a deed of trust who has acquired the real property at a sale conducted pursuant to a power of sale under a mortgage or deed of trust or a sale pursuant to a decree of foreclosure or has acquired the real property by a deed in lieu of foreclosure.

(3) Sales or transfers by a fiduciary in the course of the administration of a trust, guardianship, conservatorship, or decedent's estate. This exemption shall not apply to a sale if the trustee is a natural person who is a trustee of a revocable trust and the seller is a former owner of the property or an occupant in possession of the property within the preceding year.

(4) Sales or transfers from one coowner to one or more other coowners.

(5) Sales or transfers made to a spouse, or to a person or persons in the lineal line of consanguinity of one or more of the sellers.

(6) Transfers between spouses resulting from a judgment of dissolution of marriage or of legal separation of the parties or from a property settlement agreement incidental to that judgment.

(7) Sales or transfers by the Controller in the course of administering Chapter 7 (commencing with Section 1500) of Title 10 of Part 3 of the Code of Civil Procedure.

(8) Sales or transfers under Chapter 7 (commencing with Section 3691) or Chapter 8 (commencing with Section 3771) of Part 6 of Division 1 of the Revenue and Taxation Code.

(9) Sales, transfers, or exchanges to or from any governmental entity.

(b) Sales and transfers not subject to this article may be subject to other disclosure requirements, including those under Sections 8589.3, 8589.4, and 51183.5 of the Government Code and Sections 2621.9, 2694, and 4136 of the Public Resources Code. In sales not subject to this article, agents may make required disclosures in a separate writing.

(c) Notwithstanding the definition of sale in Section 10018.5 of the Business and Professions Code and Section 2079.13, the terms "sale" and "transfer," as they are used in this section, shall have their commonly understood meanings. The changes made to this section by Assembly Bill 1289 of the 2017–18 Legislative Session shall not be interpreted to change the application of the law as it read prior to January 1, 2019.

**1103.2**

(a) The disclosures required by this article are set forth in, and shall be made on a copy of, the following Natural Hazard Disclosure Statement: [content omitted].

(b) If an earthquake fault zone, seismic hazard zone, very high fire hazard severity zone, or wildland fire area map or accompanying information is not of sufficient accuracy or scale that a reasonable person can determine if the subject real property is included in a natural hazard area, the seller or seller's agent shall mark "Yes" on the Natural Hazard Disclosure Statement. The seller's agent may mark "No" on the Natural Hazard Disclosure Statement if the seller attaches a report prepared pursuant to subdivision (c) of Section 1103.4 that verifies the property is not in the hazard zone. Nothing in this subdivision is intended to limit or abridge any existing duty of the seller or the seller's agent to exercise reasonable care in making a determination under this subdivision.

[Sub-Sections (c) through (h) omitted]

[Section 1103.3 omitted]

**1103.4**

(a) Neither the seller nor any seller's agent or buyer's agent shall be liable for any error, inaccuracy, or omission of any information delivered pursuant to this article if the error, inaccuracy, or omission was not within the personal knowledge of the seller or the seller's agent or buyer's agent and was based on information timely provided by public agencies or by other persons providing information as specified in subdivision (c) that is required to be disclosed pursuant to this article, and ordinary care was exercised in obtaining and transmitting the information.

(b) The delivery of any information required to be disclosed by this article to a prospective buyer by a public agency or other person providing information required to be disclosed pursuant to this article shall be deemed to comply with the requirements of this article and shall relieve the seller, seller's agent, and buyer's agent of any further duty under this article with respect to that item of information.

(c) The delivery of a report or opinion prepared by a licensed engineer, land surveyor, geologist, or expert in natural hazard discovery dealing with matters within the scope of the professional's license or expertise shall be sufficient compliance for application of the exemption provided by subdivision (a) if the information is provided to the prospective buyer pursuant to a request therefor, whether written or oral. In responding to that request, an expert may indicate, in writing, an understanding that the information provided will be

used in fulfilling the requirements of Section 1103.2 and, if so, shall indicate the required disclosures, or parts thereof, to which the information being furnished is applicable. Where such a statement is furnished, the expert shall not be responsible for any items of information or parts thereof, other than those expressly set forth in the statement.

(1) In responding to the request, the expert shall determine whether the property is within an airport influence area as defined in subdivision (b) of Section 11010 of the Business and Professions Code. If the property is within an airport influence area, the report shall contain the following statement:

> NOTICE OF AIRPORT IN VICINITY
>
> This property is presently located in the vicinity of an airport, within what is known as an airport influence area. For that reason, the property may be subject to some of the annoyances or inconveniences associated with proximity to airport operations (for example: noise, vibration, or odors). Individual sensitivities to those annoyances can vary from person to person. You may wish to consider what airport annoyances, if any, are associated with the property before you complete your purchase and determine whether they are acceptable to you.

[Remainder of Article 1.7 omitted]

**CIVIL CODE**
**Division 2, Part 4**
**Title 4 — Transfer**
**Chapter 2 — Transfer of Real Property**
**Article 1 — Disclosures Upon Transfer of Residential Property**

**1102.6a.**

(a) On and after July 1, 1990, any city or county may elect to require disclosures on the form set forth in subdivision (b) in addition to those disclosures required by Section 1102.6. However, this section does not affect or limit the authority of a city or county to require disclosures on a different disclosure form in connection with transactions subject to this article pursuant to an ordinance adopted prior to July 1, 1990. An ordinance like this adopted prior to July 1, 1990, may be amended thereafter to revise the disclosure requirements of the ordinance, in the discretion of the city council or county board of supervisors.

(b) Disclosures required pursuant to this section pertaining to the property proposed to be sold, shall be set forth in, and shall be made on a copy of, the following disclosure form:

PRINTER PLEASE NOTE: TIP-IN MATERIAL TO BE INSERTED

(c) This section does not preclude the use of addenda to the form specified in subdivision (b) to facilitate the required disclosures. This section does not preclude a city or county from using the disclosure form specified in subdivision (b) for a purpose other than that specified in this section.

(d) (1) On and after January 1, 2005, if a city or county adopts a different or additional disclosure form pursuant to this section regarding the proximity or effects of an airport, the statement in that form shall contain, at a minimum, the information in the statement "Notice of Airport in Vicinity" found in Section 11010 of the Business and Professions Code, or Section 1103.4 or 4255.

(2) On and after January 1, 2006, if a city or county does not adopt a different or additional disclosure form pursuant to this section, then the provision of an "airport influence area" disclosure pursuant to Section 11010 of the Business and Professions Code, or Section 1103.4 or 4255, or if there is not a current airport influence map, a written disclosure of an airport within two statute miles, shall be deemed to satisfy any city or county requirements for the disclosure of airports in connection with sales of real property.

## LEGISLATIVE HISTORY SUMMARY

## PUBLIC UTILITIES CODE
## Section 21670 et seq.
## Airport Land Use Commission Statutes

1967 Original ALUC statute enacted.
- Establishment of ALUCs required in each county containing a public airport served by a certificated air carrier.
- The purpose of ALUCs is indicated as being to make recommendations regarding height restrictions on buildings and the use of land surrounding airports.

1970 Assembly Bill 1856 (Badham) Chapter 1182, Statutes of 1970 — Adds provisions which:
- Require ALUCs to prepare comprehensive land use plans.
- Require such plans to include a long-range plan and to reflect the airport's forecast growth during the next 20 years.
- Require ALUC review of airport construction plans (Section 21661.5).
- Exempt Los Angeles County from the requirement of establishing an ALUC.

1971 The function of ALUCs is restated as being to require new construction to conform to Department of Aeronautics standards.

1973 ALUCs are permitted to establish compatibility plans for military airports.

1982 Assembly Bill 2920 (Rogers) Chapter 1041, Statutes of 1982 — Adds major changes which:
- More clearly articulate the purpose of ALUCs.
- Eliminate reference to "achieve by zoning."
- Require consistency between local general and specific plans and airport land use commission plans; the requirements define the process for attaining consistency, they do not establish standards for consistency.
- Eliminate the requirement for proposed individual development projects to be referred to an ALUC for review once local general/specific plans are consistent with the ALUC's plan.
- Require that local agencies make findings of fact before overriding an ALUC decision.
- Change the vote required for an override from 4/5 to 2/3.

1984 Assembly Bill 3551 (Mountjoy) Chapter 1117, Statutes of 1984 — Amends the law to:
- Require ALUCs in all counties having an airport which serves the general public unless a county and its cities determine an ALUC is not needed.
- Limit amendments to compatibility plans to once per year.
- Allow individual projects to continue to be referred to the ALUC by agreement.
- Extend immunity to airports if an ALUC action is overridden by a local agency not owning the airport.
- Provide state funding eligibility for preparation of compatibility plans through the Regional Transportation Improvement Program process.

1987 Senate Bill 633 (Rogers) Chapter 1018, Statutes of 1987 — Makes revisions which:

- Require that a designated body serving as an ALUC include two members having "expertise in aviation."
- Allows an interested party to initiate court proceedings to postpone the effective date of a local land use action if a compatibility plan has not been adopted.
- Delete sunset provisions contained in certain clauses of the law.
- Allows reimbursement for ALUC costs in accordance with the Commission on State Mandates.

1989 Senate Bill 255 (Bergeson) Chapter 54, Statutes of 1989 —
- Sets a requirement that comprehensive land use plans be completed by June 1991.
- Establishes a method for compelling ALUCs to act on matters submitted for review.
- Allows ALUCs to charge fees for review of projects.
- Suspends any lawsuits that would stop development until the ALUC adopts its plan or until June 1, 1991.

1989 Senate Bill 235 (Alquist) Chapter 788, Statutes of 1989 — Appropriates $3,672,000 for the payment of claims to counties seeking reimbursement of costs incurred during fiscal years 1985-86 through 1989-90 pursuant to state-mandated requirement (Chapter 1117, Statutes of 1984) for creation of ALUCs in most counties. This statute was repealed in 1993.

1990 Assembly Bill 4164 (Mountjoy) Chapter 1008, Statutes of 1990 — Adds section 21674.5 requiring the Division of Aeronautics to develop and implement a training program for ALUC staffs.

1990 Assembly Bill 4265 (Clute) Chapter 563, Statutes of 1990 — With the concurrence of the Division of Aeronautics, allows ALUCs to use an airport layout plan, rather than a long-range airport master plan, as the basis for preparation of a compatibility plan.

1990 Senate Bill 1288 (Beverly) Chapter 54, Statutes of 1990 — Amends Section 21670.2 to give Los Angeles County additional time to prepare compatibility plans and meet other provisions of the ALUC statutes.

1991 Senate Bill 532 (Bergeson) Chapter 140, Statutes of 1991 —
- Allows counties having half of their compatibility plans completed or under preparation by June 30, 1991, an additional year to complete the remainder.
- Allows ALUCs to continue to charge fees under these circumstances.
- Fees may be charged only until June 30, 1992, if plans are not completed by then.

1993 Senate Bill 443 (Committee on Budget and Fiscal Review) Chapter 59, Statutes of 1993 — Amends Section 21670(b) to make the formation of ALUCs permissive rather than mandatory as of June 30, 1993. (Note: Section 21670.2 which assigns responsibility for coordinating the airport planning of public agencies in Los Angeles County is not affected by this amendment.)

1994 Assembly Bill 2831 (Mountjoy) Chapter 644, Statutes of 1994 — Reinstates the language in Section 21670(b) mandating establishment of ALUCs, but also provides for an alternative airport land use planning process. Lists specific actions which a county and affected cities must take in order for such alternative process to receive Caltrans'

approval. Requires that ALUCs be guided by information in the Caltrans' Airport Land Use Planning Handbook when formulating airport land use plans.

1994 Senate Bill 1453 (Rogers) Chapter 438, Statutes of 1994 — Amends California Environmental Quality Act (CEQA) statutes as applied to preparation of environmental documents affecting projects in the vicinity of airports. Requires lead agencies to use the Airport Land Use Planning Handbook as a technical resource when assessing the airport-related noise and safety impacts of such projects.

1997 Assembly Bill 1130 (Oller) Chapter 81, Statutes of 1997 — Added Section 21670.4 concerning airports whose planning boundary straddles a county line.

2000 Senate Bill 1350 (Rainey) Chapter 506, Statutes of 2000 — Added Section 21670(f) clarifying that special districts are among the local agencies to which airport land use planning laws are intended to apply.

2001 Assembly Bill 93 (Wayne) Chapter 946, Statutes of 2001—Added Section 21670.3 regarding San Diego County Regional Airport Authority's responsibility for airport planning within San Diego County.

2002 Assembly Bill 3026 (Committee on Transportation) Chapter 438, Statutes of 2002—Changes the term "comprehensive land use plan" to "airport land use compatibility plan."

2002 Assembly Bill 2776 (Simitian) Chapter 496, Statutes of 2002—Requires information regarding the location of a property within an airport influence area be disclosed as part of certain real estate transactions effective January 1, 2004.

2002 Senate Bill 1468 (Knight) Chapter 971, Statutes of 2002—Changes ALUC preparation of airport land use compatibility plans for military airports from optional to required. It requires that the plans be consistent with the safety and noise standards in the Air Installation Compatible Use Zone for that airport. Requires that the general plan and any specific plans be consistent with these standards where there is military airport, but an airport land use commission does not exist.

2003 Assembly Bill 332 (Mullin) Chapter 351, Statutes of 2003—Clarifies that school districts and community college districts are subject to compatibility plans. Requires local public agencies to notify ALUC and Division of Aeronautics at least 45 days prior to deciding to overrule the ALUC.

Adds that prior to granting building construction permits, local agencies shall be guided by the criteria established in the Airport Land Use Planning Handbook and any related federal aviation regulations to the extent that the criteria has been incorporated into their airport land use compatibility plan.

2004 Senate Bill 1223 (Committee on Transportation) Chapter 615, Statutes of 2004—Technical revisions eliminating most remaining references to the term "comprehensive land use plan" and replacing it with "airport land use compatibility plan." Also replaces the terms "planning area" and "study area" with "airport influence area."

2005 Assembly Bill 1358 (Mullin) Chapter 29, Statutes of 2005—Requires a school district to notify the Department of Transportation before leasing property for a new school site. Also makes these provisions applicable to charter schools.

2007 Senate Bill 10 (Kehoe) Chapter 287, Statutes of 2007—The San Diego County Regional Airport Authority Reform Act of 2007. Restructures the airport authority established in 2001 by AB 93 (Wayne), with a set of goals related to governance, accountability, planning and operations at San Diego International Airport.

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# Appendix C
## Title 14, Code of Federal Regulations, Part 77

# Title 14, Code of Federal Regulations, Part 77

**Subpart A**
**GENERAL**

**Amdt. 77-13, as of May 24, 2017.**

**77.1 Purpose.**

This part establishes:

(a) The requirements to provide notice to the FAA of certain proposed construction, or the alteration of existing structures;

(b) The standards used to determine obstructions to air navigation, and navigational and communication facilities;

(c) The process for aeronautical studies of obstructions to air navigation or navigational facilities to determine the effect on the safe and efficient use of navigable airspace, air navigation facilities or equipment; and

(d) The process to petition the FAA for discretionary review of determinations, revisions, and extensions of determinations.

**77.3 Definitions.**

For the purpose of this part:

*Non-precision instrument runway* means a runway having an existing instrument approach procedure utilizing air navigation facilities with only horizontal guidance, or area type navigation equipment, for which a straight-in non-precision instrument approach procedure has been approved, or planned, and for which no precision approach facilities are planned, or indicated on an FAA planning document or military service military airport planning document.

*Planned or proposed airport* is an airport that is the subject of at least one of the following documents received by the FAA:

(1) Airport proposals submitted under 14 CFR part 157.

(2) Airport Improvement Program requests for aid.

(3) Notices of existing airports where prior notice of the airport construction or alteration was not provided as required by 14 CFR part 157.

(4) Airport layout plans.

(5) DOD proposals for airports used only by the U.S. Armed Forces.

(6) DOD proposals on joint-use (civil-military) airports.

(7) Completed airport site selection feasibility study.

*Precision instrument runway* means a runway having an existing instrument approach procedure utilizing an Instrument Landing System (ILS), or a Precision Approach Radar (PAR). It also means a runway for which a precision approach system is planned and is so indicated by an FAA-approved airport layout plan; a military service approved military airport layout plan; any other FAA planning document, or military service military airport planning document.

*Public use airport* is an airport available for use by the general public without a requirement for prior approval of the airport owner or operator.

*Seaplane base* is considered to be an airport only if its sea lanes are outlined by visual markers.

*Utility runway* means a runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.

*Visual runway* means a runway intended solely for the operation of aircraft using visual approach procedures, with no straight-in instrument approach procedure and no instrument designation indicated on an FAA-approved airport layout plan, a military service approved military airport layout plan, or by any planning document submitted to the FAA by competent authority.

## Subpart B
## NOTICE REQUIREMENTS

### 77.5 Applicability.

(a) If you propose any construction or alteration described in §77.9, you must provide adequate notice to the FAA of that construction or alteration.

(b) If requested by the FAA, you must also file supplemental notice before the start date and upon completion of certain construction or alterations that are described in §77.9.

(c) Notice received by the FAA under this subpart is used to:

(1) Evaluate the effect of the proposed construction or alteration on safety in air commerce and the efficient use and preservation of the navigable airspace and of airport traffic capacity at public use airports;

(2) Determine whether the effect of proposed construction or alteration is a hazard to air navigation;

(3) Determine appropriate marking and lighting recommendations, using FAA Advisory Circular 70/7460-1, Obstruction Marking and Lighting.

(4) Determine other appropriate measures to be applied for continued safety of air navigation; and

(5) Notify the aviation community of the construction or alteration of objects that affect the navigable airspace, including the revision of charts, when necessary.

### 77.7 Form and Time of Notice.

(a) If you are required to file notice under §77.9, you must submit to the FAA a completed FAA Form 7460-1, Notice of Proposed Construction or Alteration. FAA Form 7460-1 is available at FAA regional offices and on the Internet.

(b) You must submit this form at least 45 days before the start date of the proposed construction or alteration or the date an application for a construction permit is filed, whichever is earliest.

(c) If you propose construction or alteration that is also subject to the licensing requirements of the Federal Communications Commission (FCC), you must submit notice to the FAA on or before the date that the application is filed with the FCC.

(d) If you propose construction or alteration to an existing structure that exceeds 2,000 ft. in height above ground level (AGL), the FAA presumes it to be a hazard to air navigation that results in an inefficient use of airspace. You must include details explaining both why the proposal would not constitute a hazard to air navigation and why it would not cause an inefficient use of airspace.

(e) The 45-day advance notice requirement is waived if immediate construction or alteration is required because of an emergency involving essential public services, public health, or public safety. You may provide notice to the FAA by any available, expeditious means. You must file a completed FAA Form 7460-1 within 5 days of the initial notice to the FAA. Outside normal business hours, the nearest flight service station will accept emergency notices.

**77.9 Construction or Alteration Requiring Notice.**

If requested by the FAA, or if you propose any of the following types of construction or alteration, you must file notice with the FAA of:

(a) Any construction or alteration that is more than 200 ft. AGL at its site.

(b) Any construction or alteration that exceeds an imaginary surface extending outward and upward at any of the following slopes:

(1) 100 to 1 for a horizontal distance of 20,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway more than 3,200 ft. in actual length, excluding heliports.

(2) 50 to 1 for a horizontal distance of 10,000 ft. from the nearest point of the nearest runway of each airport described in paragraph (d) of this section with its longest runway no more than 3,200 ft. in actual length, excluding heliports.

(3) 25 to 1 for a horizontal distance of 5,000 ft. from the nearest point of the nearest landing and takeoff area of each heliport described in paragraph (d) of this section.

(c) Any highway, railroad, or other traverse way for mobile objects, of a height which, if adjusted upward 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance, 15 feet for any other public roadway, 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road, 23 feet for a railroad, and for a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it, would exceed a standard of paragraph (a) or (b) of this section.

(d) Any construction or alteration on any of the following airports and heliports:

(1) A public use airport listed in the Airport/Facility Directory, Alaska Supplement, or Pacific Chart Supplement of the U.S. Government Flight Information Publications.

(2) A military airport under construction, or an airport under construction that will be available for public use.

(3) An airport operated by a Federal agency or the DOD.

(4) An airport or heliport with at least one FAA-approved instrument approach procedure.

(e) You do not need to file notice for construction or alteration of:

(1) Any object that will be shielded by existing structures of a permanent and substantial nature or by natural terrain or topographic features of equal or greater height, and will be located in the congested area of a city, town, or settlement where the shielded structure will not adversely affect safety in air navigation.

(2) Any air navigation facility, airport visual approach or landing aid, aircraft arresting device, or meteorological device meeting FAA-approved siting criteria or an appropriate military service siting criteria on military airports, the location and height of which are fixed by its functional purpose.

(3) Any construction or alteration for which notice is required by any other FAA regulation.

(4) Any antenna structure of 20 feet or less in height, except one that would increase the height of another antenna structure

**77.11 Supplemental Notice Requirements.**

(a) You must file supplemental notice with the FAA when:

(1) The construction or alteration is more than 200 feet in height AGL at its site; or

(2) Requested by the FAA.

(b) You must file supplemental notice on a prescribed FAA form to be received within the time limits specified in the FAA determination. If no time limit has been specified, you must submit supplemental notice of construction to the FAA within 5 days after the structure reaches its greatest height.

(c) If you abandon a construction or alteration proposal that requires supplemental notice, you must submit notice to the FAA within 5 days after the project is abandoned.

(d) If the construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

## Subpart C
## STANDARDS FOR DETERMINING OBSTRUCTIONS TO AIR NAVIGATION OR NAVIGATIONAL AIDS OR FACILITIES

### 77.13 Applicability.

This subpart describes the standards used for determining obstructions to air navigation, navigational aids, or navigational facilities. These standards apply to the following:

(a) Any object of natural growth, terrain, or permanent or temporary construction or alteration, including equipment or materials used and any permanent or temporary apparatus.

(b) The alteration of any permanent or temporary existing structure by a change in its height, including appurtenances, or lateral dimensions, including equipment or material used therein.

### 77.15 Scope.

(a) This subpart describes standards used to determine obstructions to air navigation that may affect the safe and efficient use of navigable airspace and the operation of planned or existing air navigation and communication facilities. Such facilities include air navigation aids, communication equipment, airports, Federal airways, instrument approach or departure procedures, and approved off-airway routes.

(b) Objects that are considered obstructions under the standards described in this subpart are presumed hazards to air navigation unless further aeronautical study concludes that the object is not a hazard. Once further aeronautical study has been initiated, the FAA will use the standards in this subpart, along with FAA policy and guidance material, to determine if the object is a hazard to air navigation.

(c) The FAA will apply these standards with reference to an existing airport facility, and airport proposals received by the FAA, or the appropriate military service, before it issues a final determination.

(d) For airports having defined runways with specially prepared hard surfaces, the primary surface for each runway extends 200 feet beyond each end of the runway. For airports having defined strips or pathways used regularly for aircraft takeoffs and landings, and designated runways, without specially prepared hard surfaces, each end of the primary surface for each such runway shall coincide with the corresponding end of the runway. At airports, excluding seaplane bases, having a defined landing and takeoff area with no defined pathways for aircraft takeoffs and landings, a determination must be made as to which portions of the landing and takeoff area are regularly used as landing and takeoff pathways. Those determined pathways must be considered runways, and an appropriate primary surface as defined in §77.19 will be considered as longitudinally centered on each such runway. Each end of that primary surface must coincide with the corresponding end of that runway.

(e) The standards in this subpart apply to construction or alteration proposals on an airport (including heliports and seaplane bases with marked lanes) if that airport is one of the following before the issuance of the final determination:

(1) Available for public use and is listed in the Airport/Facility Directory, Supplement Alaska, or Supplement Pacific of the U.S. Government Flight Information Publications; or,

(2) A planned or proposed airport or an airport under construction of which the FAA has received actual notice, except DOD airports, where there is a clear indication the airport will be available for public use; or,

(3) An airport operated by a Federal agency or the DOD; or,

(4) An airport that has at least one FAA-approved instrument approach.

**77.17 Obstruction Standards.**

(a) An existing object, including a mobile object, is, and a future object would be an obstruction to air navigation if it is of greater height than any of the following heights or surfaces:

(1) A height of 499 feet AGL at the site of the object.

(2) A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile from the airport up to a maximum of 499 feet.

(3) A height within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area, which would result in the vertical distance between any point on the object and an established minimum instrument flight altitude within that area or segment to be less than the required obstacle clearance.

(4) A height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the minimum obstacle clearance altitude.

(5) The surface of a takeoff and landing area of an airport or any imaginary surface established under §77.19, 77.21, or 77.23. However, no part of the takeoff or landing area itself will be considered an obstruction.

(b) Except for traverse ways on or near an airport with an operative ground traffic control service furnished by an airport traffic control tower or by the airport management and coordinated with the air traffic control service, the standards of paragraph (a) of this section apply to traverse ways used or to be used for the passage of mobile objects only after the heights of these traverse ways are increased by:

(1) 17 feet for an Interstate Highway that is part of the National System of Military and Interstate Highways where overcrossings are designed for a minimum of 17 feet vertical distance.

(2) 15 feet for any other public roadway.

(3) 10 feet or the height of the highest mobile object that would normally traverse the road, whichever is greater, for a private road.

(4) 23 feet for a railroad.

(5) For a waterway or any other traverse way not previously mentioned, an amount equal to the height of the highest mobile object that would normally traverse it.

### 77.19 Civil Airport Imaginary Surfaces

The following civil airport imaginary surfaces are established with relation to the airport and to each runway. The size of each such imaginary surface is based on the category of each runway according to the type of approach available or planned for that runway. The slope and dimensions of the approach surface applied to each end of a runway are determined by the most precise approach procedure existing or planned for that runway end.

(a) *Horizontal surface.* A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of a specified radii from the center of each end of the primary surface of each runway of each airport and connecting the adjacent arcs by lines tangent to those arcs. The radius of each arc is:

(1) 5,000 feet for all runways designated as utility or visual.

(2) 10,000 feet for all other runways. The radius of the arc specified for each end of a runway will have the same arithmetical value. That value will be the highest determined for either end of the runway. When a 5,000-foot arc is encompassed by tangents connecting two adjacent 10,000-foot arcs, the 5,000-foot arc shall be disregarded on the construction of the perimeter of the horizontal surface.

(b) *Conical surface.* A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

(c) *Primary surface.* A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway; but when the runway has no specially prepared hard surface, the primary surface ends at each end of that runway. The elevation of any point on the primary surface is the same as the elevation of the nearest point on the runway centerline. The width of the primary surface is:

(1) 250 feet for utility runways having only visual approaches.

(2) 500 feet for utility runways having non-precision instrument approaches.

(3) For other than utility runways, the width is:

i. 500 feet for visual runways having only visual approaches.

ii. 500 feet for non-precision instrument runways having visibility minimums greater than three-fourths statute mile.
iii. 1,000 feet for a non-precision instrument runway having a non-precision instrument approach with visibility minimums as low as three-fourths of a statute mile, and for precision instrument runways.
iv. The width of the primary surface of a runway will be that width prescribed in this section for the most precise approach existing or planned for either end of that runway.

(d) *Approach surface.* A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface. An approach surface is applied to each end of each runway based upon the type of approach available or planned for that runway end.

(1) The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of:

i. 1,250 feet for that end of a utility runway with only visual approaches;
ii. 1,500 feet for that end of a runway other than a utility runway with only visual approaches;
iii. 2,000 feet for that end of a utility runway with a non-precision instrument approach;
iv. 3,500 feet for that end of a non-precision instrument runway other than utility, having visibility minimums greater that three-fourths of a statute mile;
v. 4,000 feet for that end of a non-precision instrument runway, other than utility, having a non-precision instrument approach with visibility minimums as low as three-fourths statute mile; and
vi. 16,000 feet for precision instrument runways.

(2) The approach surface extends for a horizontal distance of:

i. 5,000 feet at a slope of 20 to 1 for all utility and visual runways;
ii. 10,000 feet at a slope of 34 to 1 for all non-precision instrument runways other than utility; and
iii. 10,000 feet at a slope of 50 to 1 with an additional 40,000 feet at a slope of 40 to 1 for all precision instrument runways.

(3) The outer width of an approach surface to an end of a runway will be that width prescribed in this subsection for the most precise approach existing or planned for that runway end.

(e) *Transitional surface.* These surfaces extend outward and upward at right angles to the runway centerline and the runway centerline extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces. Transitional surfaces for those portions of the precision approach surface which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline.

**77.21 Department of Defense (DOD) Airport Imaginary Surfaces.**

(a) *Related to airport reference points.* These surfaces apply to all military airports. For the purposes of this section, a military airport is any airport operated by the DOD.

(1) *Inner horizontal surface.* A plane that is oval in shape at a height of 150 feet above the established airfield elevation. The plane is constructed by scribing an arc with a radius of 7,500 feet about the centerline at the end of each runway and interconnecting these arcs with tangents.

(2) *Conical surface.* A surface extending from the periphery of the inner horizontal surface outward and upward at a slope of 20 to 1 for a horizontal distance of 7,000 feet to a height of 500 feet above the established airfield elevation.

(3) *Outer horizontal surface.* A plane, located 500 feet above the established airfield elevation, extending outward from the outer periphery of the conical surface for a horizontal distance of 30,000 feet.

(b) *Related to runways.* These surfaces apply to all military airports.

(1) *Primary surface.* A surface located on the ground or water longitudinally centered on each runway with the same length as the runway. The width of the primary surface for runways is 2,000 feet. However, at established bases where substantial construction has taken place in accordance with a previous lateral clearance criteria, the 2,000-foot width may be reduced to the former criteria.

(2) *Clear zone surface.* A surface located on the ground or water at each end of the primary surface, with a length of 1,000 feet and the same width as the primary surface.

(3) *Approach clearance surface.* An inclined plane, symmetrical about the runway centerline extended, beginning 200 feet beyond each end of the primary surface at the centerline elevation of the runway end and extending for 50,000 feet. The slope of the approach clearance surface is 50 to 1 along the runway centerline extended until it reaches an elevation of 500 feet above the established airport elevation. It then continues horizontally at this elevation to a point 50,000 feet from the point of beginning. The width of this surface at the runway end is the same as the primary surface, it flares uniformly, and the width at 50,000 is 16,000 feet.

(4) *Transitional surfaces.* These surfaces connect the primary surfaces, the first 200 feet of the clear zone surfaces, and the approach clearance surfaces to the inner horizontal surface, conical surface, outer horizontal surface or other transitional surfaces. The slope of the transitional surface is 7 to 1 outward and upward at right angles to the runway centerline.

**77.23 Heliport Imaginary Surfaces.**

(a) *Primary surface.* The area of the primary surface coincides in size and shape with the designated take-off and landing area. This surface is a horizontal plane at the elevation of the established heliport elevation.

(b) *Approach surface.* The approach surface begins at each end of the heliport primary surface with the same width as the primary surface, and extends outward and upward for a horizontal distance of 4,000 feet where its width is 500 feet. The slope of the approach surface is 8 to 1 for civil heliports and 10 to 1 for military heliports.

(c) *Transitional surfaces.* These surfaces extend outward and upward from the lateral boundaries of the primary surface and from the approach surfaces at a slope of 2 to 1 for a distance of 250 feet measured horizontally from the centerline of the primary and approach surfaces.

## Subpart D
## AERONAUTICAL STUDIES AND DETERMINATIONS

### 77.25 Applicability.

(a) This subpart applies to any aeronautical study of a proposed construction or alteration for which notice to the FAA is required under §77.9.

(b) The purpose of an aeronautical study is to determine whether the aeronautical effects of the specific proposal and, where appropriate, the cumulative impact resulting from the proposed construction or alteration when combined with the effects of other existing or proposed structures, would constitute a hazard to air navigation.

(c) The obstruction standards in subpart C of this part are supplemented by other manuals and directives used in determining the effect on the navigable airspace of a proposed construction or alteration. When the FAA needs additional information, it may circulate a study to interested parties for comment.

### 77.27 Initiation of Studies.

The FAA will conduct an aeronautical study when:

(a) Requested by the sponsor of any proposed construction or alteration for which a notice is submitted; or

(b) The FAA determines a study is necessary.

### 77.29 Evaluating Aeronautical Effect.

(a) The FAA conducts an aeronautical study to determine the impact of a proposed structure, an existing structure that has not yet been studied by the FAA, or an alteration of an existing structure on aeronautical operations, procedures, and the safety of flight. These studies include evaluating:

(1) The impact on arrival, departure, and en route procedures for aircraft operating under visual flight rules.

(2) The impact on arrival, departure, and en route procedures for aircraft operating under instrument flight rules.

(3) The impact on existing and planned public use airports.

(4) Airport traffic capacity of existing public use airports and public use airport development plans received before the issuance of the final determination.

(5) Minimum obstacle clearance altitudes, minimum instrument flight rules altitudes, approved or planned instrument approach procedures, and departure procedures.

(6) The potential effect on ATC radar, direction finders, ATC tower line-of-sight visibility, and physical or electromagnetic effects on air navigation, communication facilities, and other surveillance systems.

(7) The aeronautical effects resulting from the cumulative impact of a proposed construction or alteration of a structure when combined with the effects of other existing or proposed structures.

(b) If you withdraw the proposed construction or alteration or revise it so that it is no longer identified as an obstruction, or if no further aeronautical study is necessary, the FAA may terminate the study.

**77.31 Determinations.**

(a) The FAA will issue a determination stating whether the proposed construction or alteration would be a hazard to air navigation, and will advise all known interested persons.

(b) The FAA will make determinations based on the aeronautical study findings and will identify the following:

(1) The effects on VFR/IFR aeronautical departure/arrival operations, air traffic procedures, minimum flight altitudes, and existing, planned, or proposed airports listed in §77.15(e) of which the FAA has received actual notice prior to issuance of a final determination.

(2) The extent of the physical and/or electromagnetic effect on the operation of existing or proposed air navigation facilities, communication aids, or surveillance systems.

(c) The FAA will issue a Determination of Hazard to Air Navigation when the aeronautical study concludes that the proposed construction or alteration will exceed an obstruction standard and would have a substantial aeronautical impact.

(d) A Determination of No Hazard to Air Navigation will be issued when the aeronautical study concludes that the proposed construction or alteration will exceed an obstruction standard but would not have a substantial aeronautical impact to air navigation. A Determination of No Hazard to Air Navigation may include the following:

(1) Conditional provisions of a determination.

(2) Limitations necessary to minimize potential problems, such as the use of temporary construction equipment.

(3) Supplemental notice requirements, when required.

(4) Marking and lighting recommendations, as appropriate.

(e) The FAA will issue a Determination of No Hazard to Air Navigation when a proposed structure does not exceed any of the obstruction standards and would not be a hazard to air navigation.

**77.33 Effective Period of Determinations.**

(a) The effective date of a determination not subject to discretionary review under 77.37(b) is the date of issuance. The effective date of all other determinations for a proposed or existing structure is 40 days from the date of issuance, provided a valid petition for review has not been received by the FAA. If a valid petition for review is filed, the determination will not become final, pending disposition of the petition.

(b) Unless extended, revised, or terminated, each Determination of No Hazard to Air Navigation issued under this subpart expires 18 months after the effective date of the determination, or on the date the proposed construction or alteration is abandoned, whichever is earlier.

(c) A Determination of Hazard to Air Navigation has no expiration date.

[Doc. No. FAA-2006-25002, 75 FR 42303, July 21, 2010, as amended by Amdt. 77-13-A, 76 FR 2802, Jan. 18, 2011]

**77.35 Extensions, terminations, revisions and corrections.**

(a) You may petition the FAA official that issued the Determination of No Hazard to Air Navigation to revise or reconsider the determination based on new facts or to extend the effective period of the determination, provided that:

(1) Actual structural work of the proposed construction or alteration, such as the laying of a foundation, but not including excavation, has not been started; and

(2) The petition is submitted at least 15 days before the expiration date of the Determination of No Hazard to Air Navigation.

(b) A Determination of No Hazard to Air Navigation issued for those construction or alteration proposals not requiring an FCC construction permit may be extended by the FAA one time for a period not to exceed 18 months

(c) A Determination of No Hazard to Air Navigation issued for a proposal requiring an FCC construction permit may be granted extensions for up to 18 months, provided that:

(1) You submit evidence that an application for a construction permit/license was filed with the FCC for the associated site within 6 months of issuance of the determination; and.

(2) You submit evidence that additional time is warranted because of FCC requirements; and

(3) Where the FCC issues a construction permit, a final Determination of No Hazard to Air Navigation is effective until the date prescribed by the FCC for completion of the construction. If an extension of the original FCC completion date is needed, an extension of the FAA determination must be requested from the Obstruction Evaluation Service (OES).

(4) If the Commission refuses to issue a construction permit, the final determination expires on the date of its refusal.

## Subpart E
## PETITIONS FOR DISCRETIONARY REVIEW

### 77.37 General.

(a) If you are the sponsor, provided a substantive aeronautical comment on a proposal in an aeronautical study, or have a substantive aeronautical comment on the proposal but were not given an opportunity to state it, you may petition the FAA for a discretionary review of a determination, revision, or extension of a determination issued by the FAA.

(b) You may not file a petition for discretionary review for a Determination of No Hazard that is issued for a temporary structure, marking and lighting recommendation, or when a proposed structure or alteration does not exceed obstruction standards contained in subpart C of this part.

### 77.39 Contents of a Petition.

(a) You must file a petition for discretionary review in writing and it must be received by the FAA within 30 days after the issuance of a determination under §77.31, or a revision or extension of the determination under §77.35.

(b) The petition must contain a full statement of the aeronautical basis on which the petition is made, and must include new information or facts not previously considered or presented during the aeronautical study, including valid aeronautical reasons why the determination, revisions, or extension made by the FAA should be reviewed.

(c) In the event that the last day of the 30-day filing period falls on a weekend or a day the Federal government is closed, the last day of the filing period is the next day that the government is open.

(d) The FAA will inform the petitioner or sponsor (if other than the petitioner) and the FCC (whenever an FCC-related proposal is involved) of the filing of the petition and that the determination is not final pending disposition of the petition.

### 77.41 Discretionary Review Results.

(a) If discretionary review is granted, the FAA will inform the petitioner and the sponsor (if other than the petitioner) of the issues to be studied and reviewed. The review may include a request for comments and a review of all records from the initial aeronautical study.

(b) If discretionary review is denied, the FAA will notify the petitioner and the sponsor (if other than the petitioner), and the FCC, whenever a FCC-related proposal is involved, of the basis for the denial along with a statement that the determination is final.

(c) After concluding the discretionary review process, the FAA will revise, affirm, or reverse the determination.

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# Appendix D
# General Plan Consistency Checklist

# GENERAL PLAN CONSISTENCY CHECKLIST

| For additional guidance see: | COMPATIBILITY CRITERIA |
|---|---|
| This checklist is intended to assist local agencies with modifications necessary to make their local plans and other local policies consistent with the ALUCP. It is also designed to facilitate ALUC reviews of these local plans and policies. | |
| | **General Plan Document**<br>The following items typically appear directly in a general plan document. Amendment of the general plan will be required if there are any conflicts with the ALUCP |
| *Section 4.2.1 Noise;*<br>*Section 4.2.2 Safety Zones* | • **Land Use Map**—No direct conflicts should exist between proposed new land uses indicated on a general plan land use map and the ALUC land use compatibility criteria.<br>– Proposed nonresidential development needs to be assessed with respect to applicable intensity limits.<br>– No new land uses of a type listed as specifically prohibited should be shown within affected areas. |
| *Section 4.2.1.4 Aircraft Noise Policies* | • **Noise Element—**General plan noise elements typically include criteria indicating the maximum noise exposure for which residential development is normally acceptable. This limit must be made consistent with the equivalent ALUCP criteria. Note, however, that a general plan may establish a different limit with respect to aviation-related noise than for noise from other sources (this may be appropriate in that aviation-related noise is sometimes judged to be more objectionable than other types of equally loud noises). |
| | **Zoning or Other Policy Documents**<br>The following items need to be reflected either in the general plan or in a separate policy document such as a combining zone ordinance. If a separate policy document is adopted, modification of the general plan to achieve consistency with the ALUCP may not be required. Modifications would normally be needed only to eliminate any conflicting language which may be present and to make reference to the separate policy document. |
| *Section 4.2.2 Safety Zones* | • **Intensity Limitations on Nonresidential Uses—**The ALUCP establishes limits on the usage intensities of commercial, industrial, and other nonresidential land uses. The ALUC has created a detailed matrix of land uses which are allowable and/or not allowable within each safety zone, along with the acceptable usage intensity. |
| *Section 4.2.1.3 Noise Compatibility Criteria (see Table 4-1 on Page 4-5);*<br>*Section 4.2.2.3 Safety Compatibility Criteria (see Table 4-2 on Page 4-15)* | • **Identification of Prohibited Uses**—The ALUCP prohibits certain land uses within parts of the airport influence area. This includes areas within the CNEL contours and safety zones for the Airport. The ALUCP includes a noise compatibility criteria matrix and a safety compatibility criteria matrix. |
| *Page 4-7, Policy NP-4*<br>*Page 4-27, Policy SP-6* | • **Infill Development**—the ALUCP includes infill policies associated with noise and safety. |
| *Section 4.3.3.2 Airspace Protection Policies for Lake Tahoe Airport* | • **Height Limitations and Other Hazards to Flight**—To protect the airport airspace, limitations must be set on the height of structures and other objects near airports. These limitations are to be based upon FAR Part 77. Restrictions also must be established on other land use characteristics which can cause hazards to flight (specifically, visual or electronic interference with navigation and uses which attract birds). |

## GENERAL PLAN CONSISTENCY CHECKLIST

| For additional guidance see: | COMPATIBILITY CRITERIA |
|---|---|
| *Page 3-5, Policy CP-5.5; Page 4-9 Policy NP-8; Page4-40 - 41 Policies OP-1 and OP-2* | • **Buyer Awareness Measures**—Besides disclosure rules already required by state law, as a condition for approval of development within certain compatibility zones, some ALUCPs require either dedication of an avigation easement to the airport proprietor or placement on deeds of a notice regarding airport impacts. If so, local agency policies must contain similar requirements. |
| *Page 3-3, Policy CP-5.2* | • **Nonconforming Uses and Reconstruction**—Local agency policies regarding nonconforming uses and reconstruction must be equivalent to or more restrictive than those in the ALUCP, if any. |
| | **REVIEW PROCEDURES** |
| | In addition to incorporation of ALUC compatibility criteria, local agency implementing documents must specify the manner in which development proposals will be reviewed for consistency with the compatibility criteria. |
| *Page 3-7, Policy CP-6* | • **Actions Always Required to be Submitted for ALUC Review**—PUC Section 21676 identifies the types of actions that must be submitted for airport land use commission review. Local policies should either list these actions or, at a minimum, note the local agency's intent to comply with the state statute. |
| *Page 3-7, Policy CP-7* | • **Other Land Use Actions Potentially Subject to ALUC Review**—The ALUCP identifies certain major land use actions for which referral to the ALUC is dependent upon agreement between the local agency and ALUC. If the local agency fully complies with all of the items in this general plan consistency check list or has taken the necessary steps to overrule the ALUC, then referral of the additional actions is voluntary. On the other hand, a local agency may elect not to incorporate all of the necessary compatibility criteria and review procedures into its own policies. In this case, referral of major land use actions to the ALUC is mandatory. Local policies should indicate the local agency's intentions in this regard. |
| *Page 3-9 – 3-10, Policies CP-8.1, CP-8.2, and CP-8.3* | • **Process for Compatibility Reviews by Local Agencies**—If a local agency chooses to submit only the mandatory actions for ALUC review, then it must establish a policy indicating the procedures which will be used to assure that airport compatibility criteria are addressed during review of other projects. Possibilities include: a standard review procedure checklist which includes reference to compatibility criteria; use of a geographic information system to identify all parcels within the airport influence area; etc. |
| *See Sections 4.2.1.4 Aircraft Noise Policies; Section 4.2.2.4, Safety Policies for Lake Tahoe Airport; Section 4.3.3.2 Airspace Protection Policies; and Section 4.3.2.2 Overflight Policies* | • **Enforcement**—Policies must be established to assure compliance with compatibility criteria during the lifetime of the development. Enforcement procedures are especially necessary with regard to limitations on usage intensities and the heights of trees. An airport combining district zoning ordinance is one means of implementing enforcement requirements. |

# Appendix E
## Noise Modeling Assumptions

# Noise Modeling Assumptions

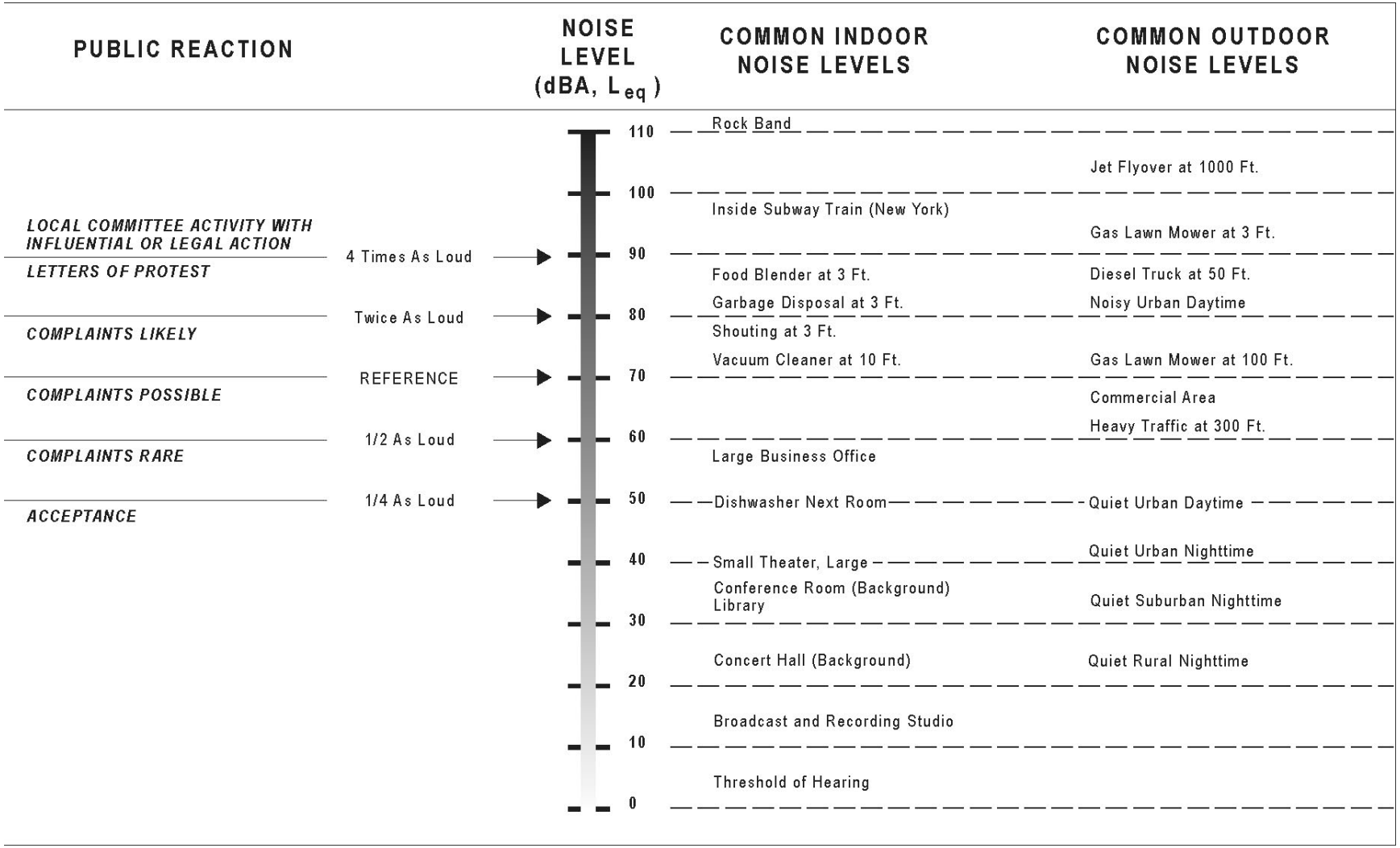
This Appendix describes the assumptions used in the noise modeling analysis conducted in support of the ALUCP update for Lake Tahoe Airport.

## E.1 Environmental Noise Fundamentals

Noise is defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) which is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude (sound power). When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequencies spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to extremely low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency weighting and is typically applied to community noise measurements. Some representative noise sources and their corresponding A-weighted noise levels are shown on **Figure E-1**.




Lake Tahoe Airport ALUCP.161008

SOURCE: OSHA, 2013. Adapted by ESA, 2017.

**Figure E-1**

Effect of Noise on People

## E.2 Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. The noise levels presented on Figure E-1 are representative of measured noise at a given instant in time, however, they rarely persist consistently over a long period of time. Rather, community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable.

The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic and atmospheric conditions. What makes community noise constantly variable throughout a day, besides the slowly changing background noise, is the addition of short duration single event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.

These successive additions of sound to the community noise environment varies the community noise level from instant to instant requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below.

## E.3 Noise Descriptors

Noise levels are measured using a variety of scientific metrics. As a result of extensive research into the characteristics of transportation-related noise and human response to that noise, standard noise descriptors have been developed for use in noise exposure analyses.

The noise descriptor most commonly used to describe aircraft and surface transportation noise is referred to as a "cumulative" noise descriptor. Such descriptors present the amount of noise occurring at a given location over a defined period of time in numerical terms. Depending upon the descriptor used, this period can be as brief as one hour, but is usually calculated for an annualized 24-hour period. Cumulative noise descriptors can be used to present noise exposure from a specific source, such as a roadway or an airport, to describe total noise exposure from all noise sources affecting a specific location.

The noise descriptors used in this analysis are described as follows:

**A-Weighted Sound Pressure Level (dBA)**: The decibel (dB) is a unit used to describe sound pressure level. When expressed in dBA, the sound has been filtered to reduce the effect of very low and very high frequency sounds, much as the human ear filters sound frequencies. Without this filtering, calculated and measured sound levels would include events that the human ear cannot hear (e.g., dog whistles and low frequency sounds, such as the groaning sounds emanating from large buildings with changes in temperature and wind). With A-weighting, calculations and

sound monitoring equipment approximate the sensitivity of the human ear to sounds of different frequencies.

Some common sounds on the dBA scale are listed in **Table E-1**. The relative perceived loudness of a sound doubles for each increase of 10 dBA, although a 10-dBA change in the sound level corresponds to a factor of 10 change in relative sound energy. Generally, individual sounds with differences of 2 dBA or less are not perceived to be noticeably different by most listeners.

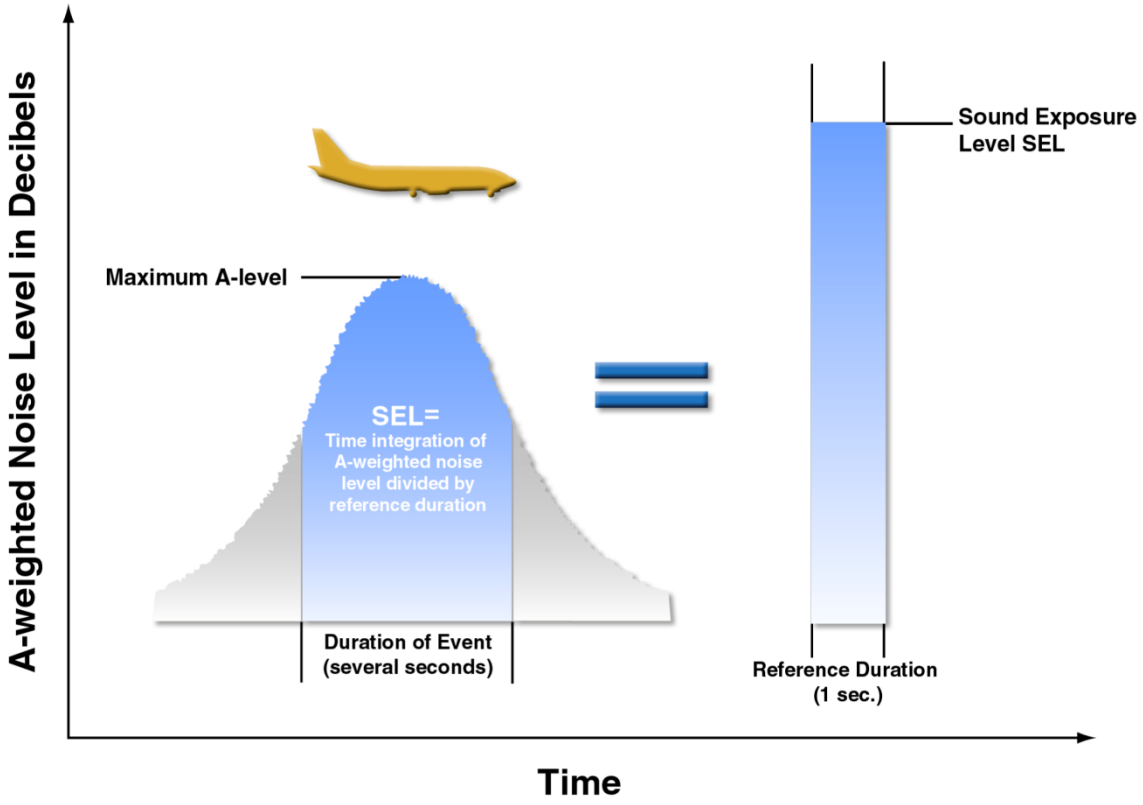
**TABLE E-1**
**COMMON SOUNDS ON THE A-WEIGHTED DECIBEL SCALE**

| Sound | Sound level (dBA) | Relative loudness (approximate) | Relative sound energy |
|---|---|---|---|
| Rock music, with amplifier | 120 | 64 | 1,000,000 |
| Thunder, snowmobile (operator) | 110 | 32 | 100,000 |
| Boiler shop, power mower | 100 | 16 | 10,000 |
| Orchestral crescendo at 25 feet, noisy kitchen | 90 | 8 | 1,000 |
| Busy street | 80 | 4 | 100 |
| Interior of department store | 70 | 2 | 10 |
| Ordinary conversation, 3 feet away | 60 | 1 | 1 |
| Quiet automobiles at low speed | 50 | 1/2 | .1 |
| Average office | 40 | 1/4 | .01 |
| City residence | 30 | 1/8 | .001 |
| Quiet country residence | 20 | 1/16 | .0001 |
| Rustle of leaves | 10 | 1/32 | .00001 |
| Threshold of hearing | 0 | 1/64 | .000001 |

SOURCE: U.S. Department of Housing and Urban Development, Aircraft Noise Impact—Planning Guidelines for Local Agencies, 1972.

**Maximum Noise Level (Lmax)**: Lmax is the maximum or peak sound level during a noise event. The metric only accounts for the instantaneous peak intensity of the sound, and not for the duration of the event. As an aircraft passes by an observer, the sound level increases to a maximum level and then decreases. Some sound level meters measure and record the maximum level or Lmax.

**Sound Exposure Level (SEL)**: SEL, expressed in dBA, is a time integrated measure, expressed in decibels, of the sound energy of a single noise event at a reference duration of one second. The sound level is integrated over the period that the level exceeds a threshold. Therefore, SEL accounts for both the maximum sound level and the duration of the sound. The standardization of discrete noise events into a one-second duration allows calculation of the cumulative noise exposure of a series of noise events that occur over a period of time. Because of this compression of sound energy, the SEL of an aircraft noise event is typically 7 to 12 dBA greater than the Lmax of the event. SELs for aircraft noise events depend on the location of the aircraft relative to the noise receptor, the type of operation (landing, takeoff, or overflight), and the type of aircraft. The SEL concept is depicted on **Figure E-2**.




Lake Tahoe Airport ALUCP.161008

SOURCE: Brown-Buntin Associates, Inc., November 2004.

**Figure E-2**

Sound Exposure Level Concept

**Community Noise Equivalent Level (CNEL):** The cumulative noise descriptor required for aircraft noise analyses in the State of California is the CNEL. CNEL is used to describe cumulative noise exposure for an annual-average day of aircraft operations. The CNEL is calculated by mathematically combining the number of single events that occur during a 24-hour day with how loud the events were and what time of day they occurred.

CNEL includes penalties applied to noise events occurring after 7:00 p.m. and before 7:00 a.m., when noise is considered more intrusive. The penalized time period is further subdivided into evening (7:00 p.m. through 9:59 p.m.) and nighttime (10:00 p.m. to 6:59 a.m.). CNEL treats every evening operation as though it were three and every night as though it were ten. This "weighting" adds a 4.77 dB penalty during the evening hours and a 10 dB penalty during the nighttime hours.

Because of the interrelationship between the weighted number of daily noise events and the noise levels generated by the events, it is possible to have the same CNEL value for an area exposed to a few loud events as for an area exposed to many quieter events.

The CNEL metric used for this aircraft noise analysis is based on an average annual day of aircraft operations, generally derived from data for a calendar year. An annual-average day

(AAD) activity profile is computed by adding all aircraft operations occurring during the course of a year and dividing the result by 365. As such, AAD does not reflect activities on any one specific day, but represents average conditions as they occur during the course of the year. The evening weighting is the only difference between CNEL and DNL. For purposes of aircraft noise analysis in the State of California, the FAA recognizes the use of CNEL, and the metric is used to assess potential significant impacts.

# E.4 Aviation Environmental Design Tool

The Aviation Environmental Design Tool (AEDT) is the FAA's standard model for evaluating aircraft noise at airports. The AEDT Version 2d (which was the latest version of this model when the project was started) was used to model aircraft noise exposure at the Airport for the 2016 existing condition and 2038 future condition. The noise analysis used AEDT standard settings.

The AEDT uses runway and flight track information, operation levels distributed by time of day, aircraft fleet mix, and aircraft profiles as inputs. The AEDT calculates noise exposure levels at a series of "noise grids", and produces noise exposure contours based on the grid results, for a variety of noise metrics including CNEL, DNL, Lmax, Leq, and SEL. As described below, for this ALUCP the AEDT was used to calculate CNEL contours for existing conditions (2016) and future conditions (2038).

# E.5 Existing and Future Conditions Noise Exposure

Noise exposure contours were developed for the Airport using the latest version of the FAA's AEDT. The following sections summarize the data/inputs used to develop the existing (2016) and future (2038) conditions CNEL contours. The 2038 CNEL contours are presented in Chapter 4 of this ALUCP. It should be noted that the 2016 existing conditions are derived from Lake Tahoe Airport Master Plan Update Initial Study / Mitigated Negative Declaration (IS/MND). All of aircraft operational conditions would remain unchanged in the existing (2016) and future (2038) conditions except the number of aircraft operations.

## E.5.1 Aircraft Operations and Fleet Mix

For CNEL aircraft noise exposure calculations, aircraft operations associated with the annual-average day (AAD) are used in the AEDT. The number of annual operations by each AEDT aircraft type is divided by 365 to arrive at the AAD level. This representation of airport activity does not reflect any particular day, but gives an accurate picture of the character of operations throughout the year. Use of AAD is required by the FAA for aircraft noise modeling.

2016 and 2038 AAD operations by aircraft type, operation type (i.e., arrival, departure, touch-and-go), and time of day are summarized in **Table E-4 and E-5** of this Appendix.

## E.5.2 Time of Day

As noted previously, the CNEL metric applies different weighting penalties to aircraft operations during the evening or nighttime hours. Therefore, the average daily numbers of operations by aircraft type during the evening and nighttime periods are required inputs to the AEDT. Due to the CNEL weighting scheme, evening and nighttime operations have a greater potential effect on the shape and size of the noise exposure area than their number might suggest. In the calculation of CNEL, one operation during the evening hours is equivalent to three daytime operations and one operation during the nighttime hours is equivalent to 10 daytime operations.

Based on information contained in the Airport Master Plan IS/MND, it was assumed that approximately 80% of the operations at the Airport in 2016 were performed during daytime hours, 16% of the operations were performed during evening hours, and 4% of the operations were performed during nighttime hours.

## E.5.3 Runway Use

Runway use for departures or arrivals is typically a function of prevailing wind and weather; lengths and widths of the runways; runway instrumentation; and effects of other airports or air traffic facilities in the area. Runway use may also be influenced by the direction of flight of an arriving or departing aircraft; the aircraft parking position; and/or periodic closures of runways and taxiways. Finally, noise abatement procedures may also influence runway use at an airport.

Runway use information for the existing (2016) and future (2038) conditions was derived from the Airport Master Plan IS/MND and is presented in **Table E-2**.

**TABLE E-2**
**EXISTING (2016) AND FUTURE (2038) CONDITIONS RUNWAY USE BY OPERATION TYPE**

| | Aircraft Category | | |
|---|---|---|---|
| **Runway** | **SEP/MEP** | **JET** | **Helicopter** |
| 18 | 50% | 50% | |
| 36 | 50% | 50% | |
| H | | | 100% |

SEP = Single Engine Propeller Aircraft
MEP = Multi Engine Propeller Aircraft
JET = Jet Engine Aircraft

SOURCE: Lake Tahoe Airport Mater Plan IS/MND 2017.

## A.5.4 Flight Tracks and Flight Track Use

Once aircraft leave a runway on departure or while approaching a runway on arrival, their location and altitude over surrounding communities becomes a determining factor in how much noise is experienced on the ground. For this reason, flight track information is an important input to the AEDT.

Flight tracks are defined to represent the typical paths of the large majority of aircraft located throughout the study area. When using AEDT, these flight tracks are specified to capture the complexity of the actual flight patterns by representing the center of a specific flow of traffic.

Arrival and departure flight tracks used to model existing conditions (2016) and future conditions (2038) noise contours for the Airport are presented at the end of this appendix on **Figures E-1 and E-2.** Note that arrival and departure flight tracks would remain unchanged in the future. **Table E-3** presents flight track use data for existing conditions (2016) and future conditions
(2038).

# E.6 Future Conditions Noise Exposure

Noise exposure contours were developed for the Airport using the latest version of the FAA's AEDT. The following sections summarize the data/inputs used to develop the future conditions (2038) CNEL contours presented in Section 4 of this ALUCP.

**TABLE E-3**
**FLIGHT TRACK USE BY RUNWAY AND OPERATION TYPE**

| Flight Track Name | Runway | Operation Type | Track Use % |
|---|---|---|---|
| 1 | 18 | Departure | 100% |
| | | **Subtotal** | **100%** |
| 1 | 36 | Departure | 25% |
| 2 | 36 | Departure | 50% |
| 3 | 36 | Departure | 25% |
| | | **Subtotal** | **100%** |
| 1 | 18 | Arrival | 25% |
| 2 | 18 | Arrival | 50% |
| 3 | 18 | Arrival | 25% |
| | | **Subtotal** | **100%** |
| 1 | 36 | Arrival | 80% |
| 2 | 36 | Arrival | 20% |
| | | **Subtotal** | **100%** |
| 1 | H | Departure | 100% |
| | | **Subtotal** | **100%** |
| 1 | H | Arrival | 100% |
| | | **Subtotal** | **100%** |

SOURCES: ESA, 2017, based on aircraft operation information included in the TVL Airport Master Plan IS/MND 2017.

**TABLE E-4**
**ANNUAL AVERAGE DAY OPERATIONS – 2016 EXISTING CONDITIONS**

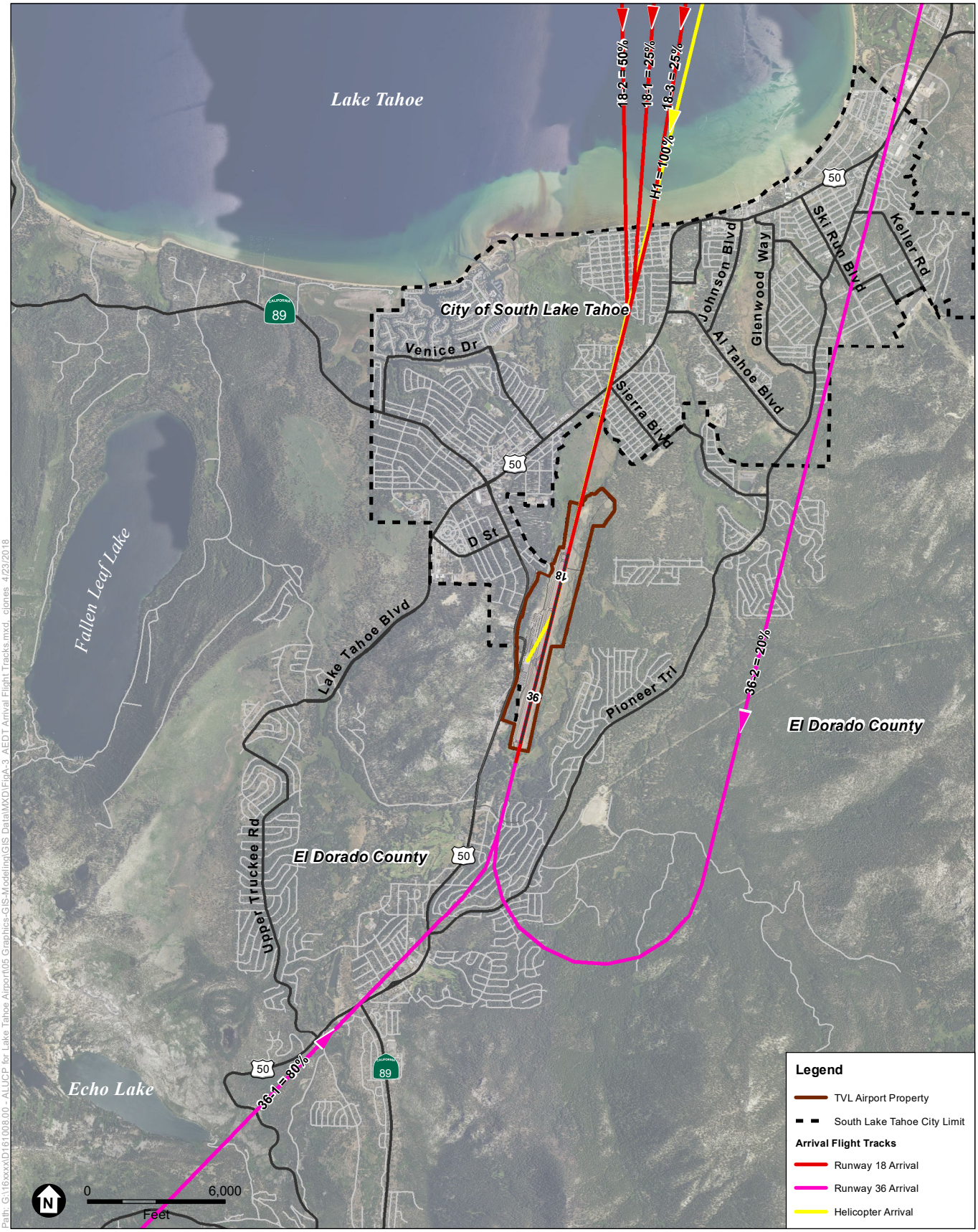
| Aircraft Type | AEDT Type | Arrival | | | Departure | | |
|---|---|---|---|---|---|---|---|
| | | Day | Evening | Night | Day | Evening | Night |
| Jet | CL600 | 2.49 | 0.83 | 0.28 | 2.49 | 0.83 | 0.28 |
| Jet | CNA500 | 0.83 | 0.55 | 0.00 | 0.83 | 0.55 | 0.00 |
| Jet | CNA750 | 1.11 | 0.00 | 0.00 | 1.11 | 0.00 | 0.00 |
| Jet | GII | 0.55 | 0.00 | 0.00 | 0.55 | 0.00 | 0.00 |
| Jet | GIV | 1.11 | 0.00 | 0.00 | 1.11 | 0.00 | 0.00 |
| Jet | GV | 0.55 | 0.17 | 0.11 | 0.55 | 0.17 | 0.11 |
| Jet | LEAR35 | 1.11 | 0.00 | 0.00 | 1.11 | 0.00 | 0.00 |
| Jet | MU3001 | 1.66 | 0.55 | 0.00 | 1.66 | 0.55 | 0.00 |
| Single-engine propeller | CNA172 | 2.21 | 0.83 | 0.28 | 2.21 | 0.83 | 0.28 |
| Single-engine propeller | CNA206 | 1.11 | 0.66 | 0.17 | 1.11 | 0.66 | 0.17 |
| Multi-engine propeller | CNA441 | 0.55 | 0.00 | 0.00 | 0.55 | 0.00 | 0.00 |
| Multi-engine propeller | DHC6 | 6.09 | 1.11 | 0.55 | 6.09 | 1.11 | 0.55 |
| Single-engine propeller | GASEPV | 5.54 | 1.11 | 0.00 | 5.54 | 1.11 | 0.00 |
| Multi-engine propeller | HS748A | 1.11 | 0.28 | 0.28 | 1.11 | 0.28 | 0.28 |
| Helicopter | B206L | 1.66 | 0.00 | 0.00 | 1.66 | 0.00 | 0.00 |
| Helicopter | EC130 | 1.11 | 0.00 | 0.00 | 1.11 | 0.00 | 0.00 |
| Helicopter | R44 | 0.55 | 0.00 | 0.00 | 0.55 | 0.00 | 0.00 |
| | **Total** | **29.34** | **6.09** | **1.66** | **29.34** | **6.09** | **1.66** |

SOURCES: ESA, 2017, based on aircraft operation information included in the TVL Airport Master Plan IS/MND 2017.

**TABLE E-5**
**ANNUAL AVERAGE DAY OPERATIONS – 2038 FUTURE CONDITIONS**

| | | Arrival | | | Departure | | |
|---|---|---|---|---|---|---|---|
| **Aircraft Type** | **AEDT Type** | **Day** | **Evening** | **Night** | **Day** | **Evening** | **Night** |
| Jet | CL600 | 2.87 | 0.96 | 0.32 | 2.87 | 0.96 | 0.32 |
| Jet | CNA500 | 0.96 | 0.64 | 0.00 | 0.96 | 0.64 | 0.00 |
| Jet | CNA750 | 1.27 | 0.00 | 0.00 | 1.27 | 0.00 | 0.00 |
| Jet | GII | 0.64 | 0.00 | 0.00 | 0.64 | 0.00 | 0.00 |
| Jet | GIV | 1.27 | 0.00 | 0.00 | 1.27 | 0.00 | 0.00 |
| Jet | GV | 0.64 | 0.19 | 0.13 | 0.64 | 0.19 | 0.13 |
| Jet | LEAR35 | 1.27 | 0.00 | 0.00 | 1.27 | 0.00 | 0.00 |
| Jet | MU3001 | 1.91 | 0.64 | 0.00 | 1.91 | 0.64 | 0.00 |
| Single-engine propeller | CNA172 | 2.55 | 0.96 | 0.32 | 2.55 | 0.96 | 0.32 |
| Single-engine propeller | CNA206 | 1.27 | 0.76 | 0.19 | 1.27 | 0.76 | 0.19 |
| Multi-engine propeller | CNA441 | 0.64 | 0.00 | 0.00 | 0.64 | 0.00 | 0.00 |
| Multi-engine propeller | DHC6 | 7.01 | 1.27 | 0.64 | 7.01 | 1.27 | 0.64 |
| Single-engine propeller | GASEPV | 6.37 | 1.27 | 0.00 | 6.37 | 1.27 | 0.00 |
| Multi-engine propeller | HS748A | 1.27 | 0.32 | 0.32 | 1.27 | 0.32 | 0.32 |
| Helicopter | B206L | 1.91 | 0.00 | 0.00 | 1.91 | 0.00 | 0.00 |
| Helicopter | EC130 | 1.27 | 0.00 | 0.00 | 1.27 | 0.00 | 0.00 |
| Helicopter | R44 | 0.64 | 0.00 | 0.00 | 0.64 | 0.00 | 0.00 |
| | **Total** | **33.76** | **7.01** | **1.91** | **33.76** | **7.01** | **1.91** |

SOURCES: ESA, 2017, based on aircraft operation information included in the TVL Airport Master Plan IS/MND 2017. C&S Company Inc., 2017.




Path: G:\16xxxx\D161008.00 - ALUCP for Lake Tahoe Airport\05 Graphics-GIS-Modeling\GIS Data\MXD\FigA-3_AEDT Arrival Flight Tracks.mxd_ciones_4/23/2018

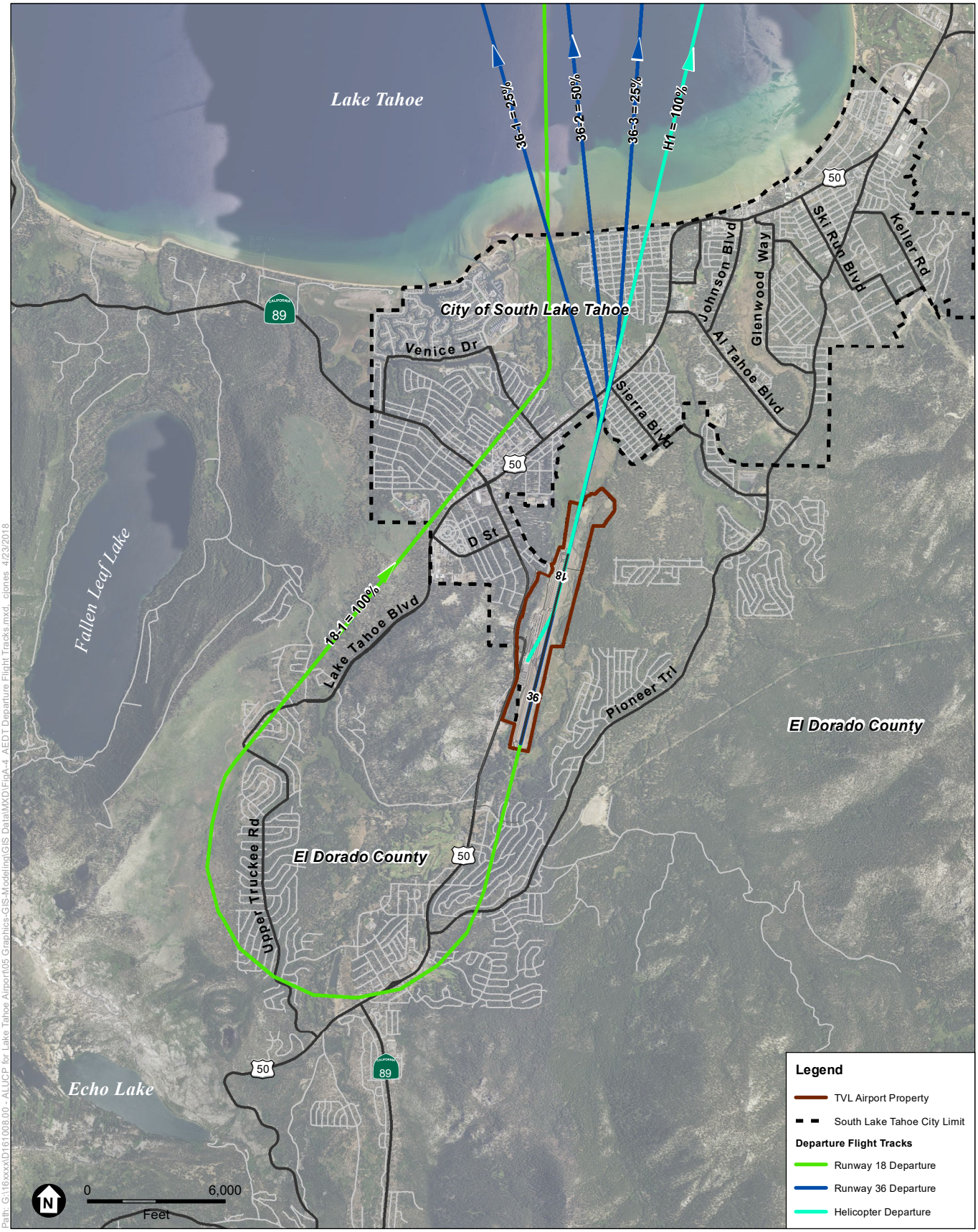
SOURCE: AEDT 2d; ESRI; USDA (Aerial); ESA, 2017

ALUCP for Lake Tahoe Airport.161008

**Figure E-3**
AEDT Arrival Flight Tracks
Lake Tahoe Airport

ESA

**DRAFT FOR DELIBERATIVE PURPOSES ONLY**




Path: G:\16xxxx\D1610008.00 - ALUCP for Lake Tahoe Airport\05 Graphics-GIS-Modeling\GIS Data\MXD\FigA-4 AEDT Departure Flight Tracks.mxd cjones 4/23/2018

SOURCE: AEDT 2d; ESRI; USDA (Aerial); ESA, 2017

ALUCP for Lake Tahoe Airport.161008

**Figure E-4**
AEDT Departure Flight Tracks
Lake Tahoe Airport

ESA

**DRAFT FOR DELIBERATIVE PURPOSES ONLY**

# Appendix F
# Sample Implementation Documents

# Sample Implementation Documents

The responsibility for implementation of the compatibility criteria set forth in the compatibility plan for Lake Tahoe Airport rests largely with the affected local jurisdictions. Modification of general plans and applicable specific plans for consistency with applicable compatibility plans is the major step in this process. However, not all of the detailed policies necessary for achieving full general plan consistency are necessarily included in general plans and specific plans — many can be established through other documents. This appendix contains examples of three types of implementation documents.

- Avigation Easement — Avigation easements transfer certain property rights from the owner of the underlying property to the owner of an airport or, in the case of military airports, to a local government agency on behalf of the federal government. ALUCs may require avigation easement dedication as a condition for approval of development on property subject to high noise levels or a need to restrict heights of structures and trees to less than might ordinarily occur on the property. Also, airports may require avigation easements in conjunction with programs for noise insulation of existing structures in the airport vicinity.

- Recorded Deed Notice — Deed notices are a form of buyer awareness measure whose objective is to ensure that prospective buyers of airport area property, particularly residential property, are informed about the airport's impact on the property. Unlike easements, deed notices do not convey property rights from the property owner to the airport and do not restrict the height of objects. They only document the existence of certain conditions which affect the property — such as the proximity of the airport and common occurrence of aircraft overflights at or below the airport traffic pattern altitude.

- Airport Combining Zone Ordinance — One local option for compatibility criteria implementation is adoption of an airport combining zone ordinance. An airport combining zone ordinance is a way of collecting various airport-related development conditions into one local policy document. Adoption of a combining zone is not required, but is suggested as an option.

**Typical Avigation Easement**

This indenture made this _____ day of _____, 20__, between _____ hereinafter referred to as Grantor, and the [Insert County or City name], a political subdivision in the State of California, hereinafter referred to as Grantee.

The Grantor, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, does hereby grant to the Grantee, its successors and assigns, a perpetual and assignable easement over the following described parcel of land in which the Grantor holds a fee simple estate. [For military airports: Grantee shall hold said easement on behalf of the United States Government.] The property which is subject to this easement is depicted as _____ on "Exhibit A" attached and is more particularly described as follows:

[Insert legal description of real property]

The easement applies to the Airspace above an imaginary plane over the real property. The plane is described as follows:

The imaginary plane above the hereinbefore described real property, as such plane is defined by Part 77 of the Federal Aviation Regulations, and consists of a plane [describe approach, transition, or horizontal surface]; the elevation of said plane being based upon the _____ Airport official runway end elevation of _____ feet Above Mean Sea Level (AMSL), as determined by [Insert name and Date of Survey or Airport Layout Plan that determines the elevation] the approximate dimensions of which said plane are described and shown on Exhibit A attached hereto and incorporated herein by reference.

The aforesaid easement and right-of-way includes, but is not limited to:

(1) For the use and benefit of the public, the easement and continuing right to fly, or cause or permit the flight by any and all persons, or any aircraft, of any and all kinds now or hereafter known, in, through, across, or about any portion of the Airspace hereinabove described; and

(2) The easement and right to cause or create, or permit or allow to be caused or created within all space above the existing surface of the hereinabove described real property and any and all Airspace laterally adjacent to said real property, such noise, vibration, turbulence, currents, odors, vapors, fumes, fuel particle emissions, exhaust, smoke, dust, and other effects of air, illumination, and fuel consumption as may be inherent in, or may arise or occur from or during the operation of aircraft of any and all kinds, now or hereafter known or used, for navigation of or flight in air; and

(3) A continuing right to clear and keep clear from the Airspace any portions of buildings, structures, or improvements of any kinds, and of trees or other objects, including the right to remove or demolish those portions of such buildings, structures, improvements, trees, or other things which extend into or above said Airspace, and the right to cut to the ground level and remove, any trees which extend into or above the Airspace; and

(4) The right to mark and light, or cause or require to be marked or lighted, as obstructions to air navigation, any and all buildings, structures, or other improvements, and trees or other objects, which extend into or above the Airspace; and

(5) The right of ingress to, passage within, and egress from the hereinabove described real property, for the purposes described in subparagraphs (3) and (4) above at reasonable times and after reasonable notice.

(6) The prohibition against creating on the real property electrical and electronic interference, glint, glare, and other conditions that would impair the vision of pilots, high-velocity exhaust plumes, and other interference with radio, radar, microwave, or means of aircraft communication, and uses or features that make it difficult for pilots to distinguish between airfield navigation lights and visual aids and other lights, and other potential hazards to flight.

For and on behalf of itself, its successors and assigns, the Grantor hereby covenants with the [Insert County or City name], for the direct benefit of the real property constituting the _____ Airport hereinafter described, that neither the Grantor, nor its successors in interest or assigns will construct, install, erect, place or grow in or upon the hereinabove described real property, nor will they permit to allow, any building structure, improvement, tree or other object which extends into or above the Airspace, or which constitutes an obstruction to air navigation, or which obstructs or interferes with the use of the easement and rights-of-way herein granted.

The easements and rights-of-way herein granted shall be deemed both appurtenant to and for the direct benefit of that real property which constitutes the _____ Airport, in the [Insert County or City name], State of California; and shall further be deemed in gross, being conveyed to the Grantee for the benefit of the [for public-use airports: Grantee and any and all members of the general public] [for military airports: United States Government] who may use said easement or right-of-way, in landing at, taking off from or operating such aircraft in or about the _____ Airport, or in otherwise flying through said Airspace.

Grantor, together with its successors in interest and assigns, hereby waives its right to legal action against Grantee, its successors, or assigns for monetary damages or other redress due to impacts, as described in Paragraph (2) of the granted rights of easement, associated with aircraft operations in the air or on the ground at the airport, including future increases in the volume or changes in location of said operations. Furthermore, Grantee, its successors, and assigns shall have no duty to avoid or mitigate such damages through physical modification of airport facilities or establishment or modification of aircraft operational procedures or restrictions. However, this waiver shall not apply if the airport role or character of its usage (as identified in an adopted airport master plan, for example) changes in a fundamental manner which could not reasonably have been anticipated at the time of the granting of this easement and which results in a substantial increase in the impacts associated with aircraft operations. Also, this grant of easement shall not operate to deprive the Grantor, its successors or assigns, of any rights which may from time to time have against any air carrier or private operator for negligent or unlawful operation of aircraft.

These covenants and agreements run with the land and are binding upon the heirs, administrators, executors, successors and assigns of the Grantor, and, for the purpose of this instrument, the real property firstly hereinabove described is the servient tenement and said _____ Airport is the dominant tenement.

DATED: _____

STATE OF}
_____
COUNTY OF}
_____

On _____, before me, the undersigned, a Notary Public in and for said County and State, personally appeared _____, and _____ known to me to be the persons whose names are subscribed to the within instrument and acknowledged that they executed the same.

WITNESS my hand and official seal.

_____
Notary Public

**Sample Deed Notice**

A statement similar to the following should be included on the deed for any real property subject to the deed notice requirements set forth in the [Insert ALUC name] Airport Land Use Compatibility Plan. Such notice should be recorded by the county of [Insert County name]. Also, this deed notice should be included on any parcel map, tentative map, or final map for subdivision approval.

For military airports:
The [Insert ALUC name] Airport Land Use Compatibility Plan and [Insert County / City Name] Ordinance (Ordinance No. _____) identify a [Insert Airport name] Airport Influence Area. Properties within this area are routinely subject to overflights by aircraft using this military airport and, as a result, residents may experience inconvenience, annoyance, or discomfort arising from the noise of such operations. State law (Public Utilities Code Section 21670 et seq.) supports the importance of military airports in protection of the public interest of the people of the United States and the state of California. Residents of property near such airports should therefore be prepared to accept the inconvenience, annoyance, or discomfort from normal aircraft operations. Residents also should be aware that the current volume of aircraft activity may increase in the future in response to federal military needs. Any subsequent deed conveying this parcel or subdivisions thereof shall contain a statement in substantially this form.

**Possible Airport Combining Zone Components**

An airport compatibility combining zoning ordinance might include some or all of the following components:

- Airspace Protection — A combining district can establish restrictions on the height of buildings, antennas, trees, and other objects as necessary to protect the airspace needed for operation of the airport. These restrictions should be based upon the current version of Federal Aviation Regulations (FAR) Part 77, Objects Affecting Navigable Airspace, Subpart C. Additions or adjustment to take into account instrument approach (TERPS) surfaces should be made as necessary. Provisions prohibiting smoke, glare, hazardous wildlife attractions, and other hazards to flight should also be included.

- FAA Notification Requirements — Combining districts also can be used to ensure that project developers are informed about the need for compliance with the notification requirements of FAR Part 77. Subpart B of the regulations requires that the proponent of any project which exceeds a specified set of height criteria submit a Notice of Proposed Construction or Alteration (Form 7460-1) to the Federal Aviation Administration prior to commencement of construction. The height criteria associated with this notification requirement are lower than those spelled out in Part 77, Subpart C, which define airspace obstructions. The purpose of the notification is to determine if the proposed construction would constitute a potential hazard or obstruction to flight. Notification is not required for proposed structures that would be shielded by existing structures or by natural terrain of equal or greater height, where it is obvious that the proposal would not adversely affect air safety.

- State Regulation of Obstructions — State law prohibits anyone from constructing or altering a structure or permitting an object of natural growth to exceed the heights established by FAR Part 77, Subpart C, unless the FAA has determined the object would or does not constitute a hazard to air navigation (Public Utilities Code, Section 21659). Additionally, a permit from the Department of Transportation is required for any structure taller than 500 feet above the ground unless the height is reviewed and approved by the Federal Communications Commission or the FAA (Section 21656).

- Designation of High Noise-Impact Areas — California state statutes require that multi-family residential structures in high-noise exposure areas be constructed so as to limit the interior noise to a Community Noise Equivalent Level of no more than 45 dB. A combining district could be used to indicate the locations where special construction techniques may be necessary in order to ensure compliance with this requirement. The combining district also could extend this criterion to single-family dwellings.

- Maximum Densities/Intensities — Airport noise and safety compatibility criteria are frequently expressed in terms of dwelling units per acre for residential uses and people per acre for other land uses. These standards can either be directly included in a combining zone or used to modify the underlying land use designations. For residential land uses, the correlation between the compatibility criteria and land use designations is direct. For other land uses, the method of calculating the intensity limitations needs to be defined. Alternatively, a matrix can be established indicating whether each specific type of land use is compatible with each compatibility zone. To be useful, the land use categories need to be

more detailed than typically provided by general plan or zoning ordinance land use designations.

- Open Areas for Emergency Landing of Aircraft — In most circumstances in which an accident involving a small aircraft occurs near an airport, the aircraft is under control as it descends. When forced to make an off-airport emergency landing, pilots will usually attempt to do so in the most open area readily available. To enhance safety both for people on the ground and the occupants of aircraft, airport compatibility plans often contain criteria requiring a certain amount of open land near airports. These criteria are most effectively carried out by planning at the general or specific plan level, but may also need to be included in a combining district so that they will be applied to development of large parcels. Adequate open areas can often be provided by clustering of development on adjacent land.

- Areas of Special Compatibility Concern — A significant drawback of standard general plan and zoning ordinance land use designations is that they can be changed. Uses that are currently compatible are not assured of staying that way in the future. Designation of areas of special compatibility concern would serve as a reminder that airport impacts should be carefully considered in any decision to change the existing land use designation.

- Real Estate Disclosure Policies — The geographic extent and specific language of recommended real estate disclosure statements can be described in an airport combining zone ordinance.

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# Appendix G
# Methods for Determining Concentrations of People

# Methods for Determining Concentrations of People

One criterion used in many compatibility plans is the maximum number of people per acre that can be present in a given area at any one time. If a proposed use exceeds the maximum density, it is considered inconsistent with compatibility planning policies. This appendix provides some guidance on how the people-per-acre determination can be made.

The most difficult part about making a people-per-acre determination is estimating the number of people likely to use a particular facility. There are several methods which can be utilized, depending upon the nature of the proposed use:

- Parking Ordinance - The number of people present in a given area can be calculated based upon the number of parking spaces provided. Some assumption regarding the number of people per vehicle needs to be developed to calculate the number of people on-site. The number of people per acre can then be calculated by dividing the number of people on-site by the size of the parcel in acres. This approach is appropriate where the use is expected to be dependent upon access by vehicles. Depending upon the specific assumptions utilized, this methodology typically results in a number in the low end of the likely intensity for a given land use.
- Maximum Occupancy -The Uniform or California Building Code (CBC) can be used as a standard for determining the maximum occupancy of certain uses. **Table G-1** indicates the required number of square feet per occupant. The number of people on the site can be calculated by dividing the total floor area of a proposed use by the minimum square feet per occupant requirement listed in the table. The maximum occupancy can then be divided by the size of the parcel in acres to determine the people per acre. Surveys of actual occupancy levels conducted by various agencies have indicated that many retail and office uses are generally occupied at no more than 50 percent of their maximum occupancy levels, even at the busiest times of day. Therefore, the number of people calculated for office and retail uses should usually be adjusted (50 percent) to reflect the actual occupancy levels before making the final people-per-acre determination. Even with this adjustment, the CBC-based methodology typically produces intensities at the high end of the likely range.
- Survey of Similar Uses - Certain uses may require an estimate based upon a survey of similar uses. This approach is more difficult, but is appropriate for uses which, because of the nature of the use, cannot be reasonably estimated based upon parking or square footage.

Appendix G1 shows sample calculations.

**TABLE G-1**
**MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT[1]**

| Function of Space | Occupant Load Factor[2] |
|---|---|
| Accessory storage areas, mechanical equipment room | 300 gross |
| Agricultural building | 300 gross |
| Aircraft hangars | 500 gross |
| Airport terminal | |
| Baggage claim | 20 gross |
| Baggage handling | 300 gross |
| Concourse | 100 gross |
| Waiting areas | 15 gross |
| Assembly | |
| Gaming floors (keno, slots, etc.) | 11 gross |
| Exhibit Gallery and Museum | 30 net |
| Assembly with fixed seats | See Section 1004.4[3] |
| Assembly without fixed seats | |
| Concentrated (chairs only—not fixed) | 7 net |
| Standing space | 5 net |
| Unconcentrated (tables and chairs) | 15 net |
| Business areas | 100 gross |
| Courtrooms | 40 net |
| Day care | 35 net |
| Dormitories | 50 gross |
| Educational | |
| Classroom area | 20 net |
| Shops and other vocational room areas | 50 net |
| Exercise rooms | 50 gross |
| Group H-5 Fabrication and manufacturing areas | 200 gross |
| Industrial areas | 100 gross |
| Institutional Areas | |
| Inpatient treatment areas | 240 gross |
| Outpatient areas | 100 gross |
| Sleeping areas | 100 gross |
| Kitchens, commercial | 200 gross |
| Laboratory | |
| Educational | 50 net |
| Laboratories, non-educational | 100 net |
| Laboratory suite[4] | 200 gross |
| Library | |
| Reading rooms | 50 net |
| Stack area | 100 gross |
| Mall buildings – covered and open | See Section 402.8.2[5] |
| Mercantile | |
| Areas on other floors | 60 gross |
| Basement and grade floor areas | 30 gross |
| Storage, stock, shipping areas | 300 gross |
| Parking garages | 200 gross |
| Residential | 200 gross |
| Skating rinks, swimming pools | |
| Rink and pool | 50 gross |
| Decks | 15 gross |
| Stages and platforms | 15 net |
| Warehouses | 500 gross |

NOTES:

1. For SI: 1 square foot = 0.929 $m^2$

2. Floor area in square feet per occupant.

3. **Section 1004.4 Fixed seating.**

For areas having fixed seats and aisles, the occupant load shall be determined by the number of fixed seats installed therein. The occupant load for areas in which fixed seating is not installed, such as waiting spaces, shall be determined in accordance with Section 1004.1.2 and added to the number of fixed seats.

The occupant load of wheelchair spaces and the associated companion seat shall be based on one occupant for each wheelchair space and one occupant for the associated companion seat provided in accordance with Section 1108.2.3.

For areas having fixed seating without dividing arms, the occupant load shall not be less than the number of seats based on the number of seats based on one person for each 18 inches (457 mm) of seating length.

The occupant load of seating booths shall be based on one person for each 24 inches (610 mm) of booth seat length measured at the backrest of the seating booth.

4. **Section 443.2 Definitions.** The following terms are defined in Chapter 2 [of the CBC]:

Laboratory suite.

[F] Liquid tight floor.

5. **Section 402.8.2 Determination of occupant load.**

The occupant load permitted in any individual tenant space in a covered or open mall building shall be determined by this code. Means of egress requirements for individual tenant spaces shall be based on the occupant load thus determined.

**402.8.2.1 Occupant formula**

In determining required means of egress of the mall, the number of occupants for whom means of egress are to be provided shall be based on gross leasable area of the covered or open mall building (excluding anchor buildings) and the occupant load factor as determined by Equation 4-1.

OLF = (0.00007) (GLA) + 25

**Equation 4-1**

where:

OLF = The occupant load factor (square feet per person)

GLA = The gross leasable area (square feet).

**Exception:** Tenant spaces attached to a covered or open mall building but with a means of egress system that is totally independent of the open mall of an open mall building or of a covered mall building shall not be considered as gross leasable area for determining the required means of egress for the mall building.

**402.8.2.2 OLF range.** The occupant load factor (OLF) is not required to be less than 30 and shall not exceed 50.

**402.8.2.3 Anchor buildings.** The occupant load of anchor buildings opening into the mall shall not be included in computing the total number of occupants for the mall.

**402.8.2.4 Food courts.** The occupant load of a food court shall be determined in accordance with Section 1004. For the purposes of determining the means of egress requirements for the mall, the food court occupant load shall be added to the occupant load of the covered or open mall building as calculated above.

SOURCE: California Building Code (2013), Table 1004.1.2 (p. 372)

**Appendix G1**
**Sample People-Per-Acre Calculations**

**Example 1**

*Proposed Development:* Two office buildings, each two stories and containing 20,000 square feet of floor area per building. Site size is 3.0 net acres. Counting a portion of the adjacent road, the gross area of the site is 3.5± acres.

*A. Calculation Based on Parking Space Requirements*

For office uses, assume that a county or city parking ordinance requires 1 parking space for every 300 square feet of floor area. Data from traffic studies or other sources can be used to estimate the average vehicle occupancy. For the purposes of this example, the number of people on the property is assumed to equal 1.5 times the number of parking spaces.

The average usage intensity would therefore be calculated as follows:

1) 40,000 sq. ft. floor area x 1.0 parking space per 300 sq. ft. = 134 required parking spaces
2) 134 parking spaces x 1.5 people per space = 201 people maximum on site
3) 200 people / 3.5 acres gross site size = 57 people per acre average for the site

Assuming that occupancy of each building is relatively equal throughout, but that there is some separation between the buildings and outdoor uses are minimal, the usage intensity for a single acre would be estimated to be:

1) 20,000 sq. ft. bldg. / 2 stories = 10,000 sq. ft. bldg. footprint
2) 10,000 sq. ft. bldg. footprint / 43,560 sq. ft. per acre= 0.23 acre bldg. footprint
3) Building footprint <1.0 acre; therefore maximum people in 1 acre = bldg. occupancy = 100 people per single acre

*B. Calculation Based on California Building Code*

Using the CBC (Appendix G1) as the basis for estimating building occupancy yields thefollowing results for the above example:

1) 40,000 sq. ft. bldg. / 100 sq. ft./occupant = 400 people max. bldg. occupancy (under UBC)
2) 400 max. bldg. occupancy x 50% adjustment = 200 people maximum on site
3) 200 people / 3.5 acres gross site size = 57 people per acre average tor the site

*Conclusions:* In this instance, both methodologies give the same results. For different uses and/or different assumptions, the two methodologies are likely to produce different numbers. In most such cases, the CBC methodology will indicate a higher intensity.

# Appendix H
## Federal Regulations Pertaining to Unmanned Aerial Vehicles


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Part VI

# Department of Transportation

Federal Aviation Administration

14 CFR Parts 1, 45, 47, et al.

Registration and Marking Requirements for Small Unmanned Aircraft; Final Rule

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Parts 1, 45, 47, 48, 91, and 375**

**[Docket No.: FAA–2015–7396; Amdt. Nos. 1–68, 45–30, 47–30, 48–1, 91–338]**

**RIN 2120–AK82**

# Registration and Marking Requirements for Small Unmanned Aircraft

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation (DOT).

**ACTION:** Interim final rule.

**SUMMARY:** This action provides an alternative, streamlined and simple, web-based aircraft registration process for the registration of small unmanned aircraft, including small unmanned aircraft operated as model aircraft, to facilitate compliance with the statutory requirement that all aircraft register prior to operation. It also provides a simpler method for marking small unmanned aircraft that is more appropriate for these aircraft. This action responds to public comments received regarding the proposed registration process in the Operation and Certification of Small Unmanned Aircraft notice of proposed rulemaking, the request for information regarding unmanned aircraft system registration, and the recommendations from the Unmanned Aircraft System Registration Task Force. The Department encourages persons to participate in this rulemaking by submitting comments on or before the closing date for comments. The Department will consider all comments received before the closing date and make any necessary amendments as appropriate.

**DATES:** This rule is effective December 21, 2015. Comments must be received on or before January 15, 2016.

**ADDRESSES:** Send comments identified by docket number FAA–2015–7396 using any of the following methods:

*Federal eRulemaking Portal:* Go to *http://www.regulations.gov* and follow the online instructions for sending your comments electronically.

*Mail:* Send comments to Docket Operations, M–30; U.S. Department of Transportation (DOT), 1200 New Jersey Avenue SE., Room W12–140, West Building Ground Floor, Washington, DC 20590–0001.

*Hand Delivery or Courier:* Take comments to Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

*Fax:* Fax comments to Docket Operations at 202–493–2251.

*Privacy:* In accordance with 5 U.S.C. 553(c), DOT solicits comments from the public to better inform its rulemaking process. DOT posts these comments, without edit, including any personal information the commenter provides, to *http://www.regulations.gov*, as described in the system of records notice (DOT/ALL–14 FDMS), which can be reviewed at *http://www.dot.gov/privacy*.

*Docket:* Background documents or comments received may be read at *http://www.regulations.gov* at any time. Follow the online instructions for accessing the docket or go to the Docket Operations in Room W12–140 of the West Building Ground Floor at 1200 New Jersey Avenue SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

**FOR FURTHER INFORMATION CONTACT:** Earl Lawrence, Director, FAA UAS Integration Office, 800 Independence Avenue SW., Washington, DC 20591; telephone (202) 267–6556; email *UASRegistration@faa.gov*.

**SUPPLEMENTARY INFORMATION:**

## Table of Contents



## I. Executive Summary

### *A. Purpose of the Regulatory Action*

This interim final rule (IFR) provides an alternative process that small unmanned aircraft owners may use to comply with the statutory requirements for aircraft operations. As provided in the clarification of these statutory requirements and request for further information issued October 19, 2015, 49 U.S.C. 44102 requires aircraft to be registered prior to operation. *See* 80 FR 63912 (October 22, 2015). Currently, the only registration and aircraft identification process available to

comply with the statutory aircraft registration requirement for all aircraft owners, including small unmanned aircraft, is the paper-based system set forth in 14 CFR parts 45 and 47. As the Secretary and the Administrator noted in the clarification issued October 19, 2015 and further analyzed in the regulatory evaluation accompanying this rulemaking, the Department and the FAA have determined that this process is too onerous for small unmanned aircraft owners and the FAA. Thus, after considering public comments and the recommendations from the Unmanned Aircraft System (UAS) Registration Task Force, the Department and the FAA have developed an alternative process, provided by this IFR (14 CFR part 48), for registration and marking available only to small unmanned aircraft owners. Small unmanned aircraft owners may use this process to comply with the statutory requirement to register their aircraft prior to operating in the National Airspace System (NAS).

The estimate for 2015 sales indicates that 1.6 million small unmanned aircraft intended to be used as model aircraft are expected to be sold this year (including approximately 50 percent of that total during the fourth quarter of 2015). With this rapid proliferation of new sUAS will come an unprecedented number of new sUAS owners and operators who are new to aviation and thus have no understanding of the NAS or the safety requirements for operating in the NAS.

The risk of unsafe operation will increase as more small unmanned aircraft enter the NAS. Registration will provide a means by which to quickly identify these small unmanned aircraft in the event of an incident or accident involving the sUAS. Registration of small unmanned aircraft also provides an immediate and direct opportunity for the agency to educate sUAS owners on safety requirements before they begin operating.

All owners of small unmanned aircraft, including small unmanned aircraft operated as a model aircraft in accordance with the statutory requirements for model aircraft operations in section 336 of the FAA Modernization and Reform Act of 2012, Public Law 112–95, may take advantage of the new registration process in part 48. The part 47 paper-based registration process will remain available for owners to register small unmanned aircraft due to financing requirements, ownership arrangements, or intent to operate a sUAS outside of the United States. For more information regarding both the statutory requirements for model aircraft operations and the authorizations that may be needed for operations that do not satisfy the requirements for model aircraft, please consult the materials available on the FAA Web site, including the Know Before You Fly materials, available at *www.faa.gov/uas*.

### *B. Summary of the Major Provisions*

Table 1 provides a brief summary of the major provisions of this IFR.

TABLE 1—SUMMARY OF MAJOR PROVISIONS.

| Issue | Interim final rule requirement |
|---|---|
| Unmanned aircraft covered by the registration requirement. | Unmanned aircraft weighing less than 55 pounds and more than 0.55 pounds (250 grams) on takeoff, including everything that is on board or otherwise attached to the aircraft and operated outdoors in the national airspace system must register.<br>§ 48.15 |
| Timing of registration | Owners of small unmanned aircraft must register their aircraft prior to operation of the sUAS.<br>§ 48.15 |
| Compliance dates | December 21, 2015<br>• Any small unmanned aircraft to be used exclusively as model aircraft that have never been operated.<br>• Small unmanned aircraft to be used in authorized operations as other than model aircraft continue to use part 47 registration process.<br>February 19, 2016<br>• Small unmanned aircraft to be used exclusively as model aircraft and have been operated by their owner prior to December 21, 2015.<br>March 31, 2016<br>• Small unmanned aircraft to be used in authorized operations other than as model aircraft continue to use part 47 registration process or use part 48 process.<br>§ 48.5 |
| Minimum age to register a small unmanned aircraft. | Persons 13 years of age and older are permitted to use the part 48 process to register a small unmanned aircraft. If the owner is less than 13 years of age, then the small unmanned aircraft must be registered by a person who is at least 13 years of age.<br>§ 48.25 |
| Registration platform | Registration will occur through an online web-based system.<br>§ 48.100(c) |
| Registration number | Each small unmanned aircraft intended to be used other than as a model aircraft and owned by individuals or other persons, including corporations, will be issued a Certificate of Aircraft Registration with a unique registration number.<br>§ 48.110(a)<br>A Certificate of Aircraft Registration and registration number issued to an individual intending to use small unmanned aircraft exclusively as model aircraft, constitutes registration for those small unmanned aircraft owned by that individual that are intended to be used exclusively as model aircraft.<br>§ 48.115(a) |
| Registration information | Required information from persons registering small unmanned aircraft intended to be used as other than model aircraft.<br>• Applicant name or name of authorized representative.<br>• Applicant physical address (and mailing address if different than physical address).<br>• Applicant e-mail address or email address of authorized representative.<br>• Aircraft manufacturer and model name, and serial number, if available.<br>• Other information as required by the Administrator.<br>Required information from individuals registering small unmanned aircraft intended to be used exclusively as model aircraft.<br>• Applicant name.<br>• Applicant physical address (and mailing address if different than physical address). |

TABLE 1—SUMMARY OF MAJOR PROVISIONS.—Continued

| Issue | Interim final rule requirement |
|---|---|
| | • Applicant e-mail address.<br>• Other information as required by the Administrator.<br>§ 48.100 |
| Registration fee | Persons intending to use the small unmanned aircraft other than as model aircraft.<br>• $5 to register each aircraft.<br>Individuals intending to use the small unmanned aircraft exclusively as model aircraft.<br>• $5 to register an individual's fleet of small unmanned aircraft.<br>§ 48.30 |
| Delivery of Certificate of Aircraft Registration. | Upon completion of the registration process, the Certificate of Aircraft registration will be delivered to the aircraft owner via the same web-based platform used to register the aircraft.<br>§ 48.100(d) |
| Information contained on the Certificate of Aircraft Registration. | Small unmanned aircraft owner name, issue date and registration number. |
| Registration renewal and fee | A Certificate of Aircraft Registration issued in accordance with part 48 is effective once the registration process is complete and must be renewed every three years.<br>The fee for renewal of a Certificate of Aircraft Registration is $5.<br>§§ 48.110(c), 48.115(c) |
| Marking | All small unmanned aircraft must display a unique identifier.<br>• A unique identifier is the FAA-issued registration number.<br>• The Administrator may authorize the use of the small unmanned aircraft serial number.<br>§ 48.200 |

*C. Summary of Costs and Benefits*

In order to implement the new streamlined, web-based system described in this IFR, the FAA will incur costs to develop, implement, and maintain the system. Small UAS owners will require time to register and mark their aircraft, and that time has a cost. The total of government and registrant resource cost for small unmanned aircraft registration and marking under this new system is $56 million ($46 million present value at 7 percent) through 2020.

In evaluating the impact of this interim final rule, we compare the costs and benefits of the IFR to a baseline consistent with existing practices: for modelers, the exercise of discretion by FAA (not requiring registration) and continued broad public outreach and educational campaign, and for non-modelers, registration via part 47 in the paper-based system. Given the time to register aircraft under the paper-based system and the projected number of sUAS aircraft, the FAA estimates the cost to the government and non-modelers would be about $383 million. The resulting cost savings to society from this IFR equals the cost of this baseline policy ($383 million) minus the cost of this IFR ($56 million), or about $327 million ($259 million in present value at a 7 percent discount rate). These cost savings are the net quantified benefits of this IFR.

## II. Compliance

Any small unmanned aircraft operated exclusively as a model aircraft by its current owner prior to December 21, 2015 must be registered no later than February 19, 2016. The delayed compliance date provides a period of time to bring the existing population of small unmanned aircraft owners into compliance as it is not reasonable to expect that all existing small unmanned aircraft owners will register their aircraft immediately upon the effective date of this rule.

All other small unmanned aircraft intended to be used exclusively as model aircraft (*i.e.,* for hobby and recreational purposes in accordance with the requirements of section 336 of Pub. L. 112–95)—newly purchased or never before used—must be registered prior to the first operation outdoors. Thus, any small unmanned aircraft purchased, received as a gift, or otherwise acquired on or after December 21, 2015, and intended to be used exclusively as a model aircraft must be registered prior to operation.

Currently, small unmanned aircraft operated as other than model aircraft (*i.e.,* for operations for non-hobby or non-recreational purposes or as a public aircraft) must continue to complete the part 47 registration process in accordance with the conditions and limitations of exemptions issued under section 333 of Public Law 112–95. As exemplified by the growing number of petitions for exemption, the agency expects to see a continued high level of demand for registration of aircraft used for purposes other than model aircraft once the Operation and Certification of Small Unmanned Aircraft Systems notice of proposed rulemaking (the ''sUAS Operation and Certification NPRM'') is finalized.[1] The small unmanned aircraft registration system established by this final rule will be able to receive and process applications for Certificates of Aircraft Registration for aircraft operating pursuant to an exemption issued under section 333 of Public Law 112–95 beginning March 31, 2016. Thus, beginning on March 31, 2016, the agency will allow small unmanned aircraft operating pursuant to an exemption to use the new part 48 registration requirements in place of part 47, as well as aircraft used in operations authorized under the sUAS Operation and Certification rulemaking, once the rule is finalized.

## III. Good Cause for Immediate Adoption

Section 553(b)(3)(B) of the Administrative Procedure Act (APA) (5 U.S.C.) authorizes agencies to dispense with notice and comment procedures for rules when the agency for ''good cause'' finds that those procedures are ''impracticable, unnecessary, or contrary to the public interest.'' Under this section, an agency, upon finding good cause, may issue a final rule without seeking comment prior to the rulemaking.

The Secretary and the Administrator recently affirmed that all unmanned aircraft, including model aircraft, are aircraft consistent with congressional direction in Title III, Subtitle B of Public Law 112–95 and the existing definition of aircraft in title 49 of the United States Code. 49 U.S.C. 40102. As such, in accordance with 49 U.S.C 44101(a) and

[1] 80 FR 9544 (Feb. 23, 2015).

as further prescribed in 14 CFR part 47, registration is required prior to operation. *See* 80 FR 63912, 63913 (October 22, 2015). Aircraft registration is necessary to ensure personal accountability among all users of the NAS. *See* id. With the current unprecedented proliferation of new sUAS, registration allows the FAA a direct and immediate opportunity to educate sUAS owners. Aircraft registration also allows the FAA and law enforcement agencies to address non-compliance by providing the means by which to identify an aircraft's owner and operator.

Congress has also directed the FAA to ''develop plans and policy for the use of the navigable airspace and assign by regulation or order the use of the airspace necessary to ensure the safety of aircraft and the efficient use of airspace.'' 49 U.S.C. 40103(b)(1). Congress has further directed the FAA to ''prescribe air traffic regulations on the flight of aircraft (including regulations on safe altitudes)'' for navigating, protecting, and identifying aircraft; protecting individuals and property on the ground; using the navigable airspace efficiently; and preventing collision between aircraft, between aircraft and land or water vehicles, and between aircraft and airborne objects. 49 U.S.C. 40103(b)(2).

The FAA estimates that in calendar year 2014, 200,000 small unmanned aircraft were operated in the NAS in model aircraft operations. During this period, the FAA received 238 reports of potentially unsafe UAS operations. The estimate for 2015 sales indicates that 1.6 million small unmanned aircraft intended to be used as model aircraft are expected to be sold this year (including approximately 50 percent of that total during the fourth quarter of 2015).

For 2016, the FAA estimates sales of more than 600,000 sUAS intended to be used for commercial purposes.[2] Additionally, as evidenced by recent FAA enforcement action against SkyPan International,[3] the Department and the FAA have become aware that there may be commercial operators who may be risking operating without the requisite authority.

Since February 2015, reports of potentially unsafe UAS operations have more than doubled, and many of these reports indicated that the risk to manned aviation or people and property on the ground was immediate. For example, the agency has received reports of unmanned aircraft at high altitudes in congested airspace, unmanned aircraft operations near passenger-carrying aircraft or major airports,[4] and interfering with emergency response operations such as efforts to combat wildfires.[5] As recently as August 2015, the FAA investigated reports by four pilots who spotted an unmanned aircraft flying between eight and thirteen miles from the approach to Newark Liberty International Airport.[6] The FAA also investigated a similar incident at John F. Kennedy International Airport in August.[7] The risk of unsafe operation will increase as more small unmanned aircraft enter the NAS, and are flown by individuals who have little to no knowledge of airspace restrictions or safety implications.

Over the past several months, the reports of unauthorized and potentially unsafe UAS operations have escalated at an increasing rate. There is good reason to believe that the numbers of incidents will continue to rise substantially with the projected rapid rise in UAS sales in the coming months. The following tables show the number of reports received during 2014 and 2015.

TABLE 2—UNMANNED AIRCRAFT REPORTS, 2014

| 2014 | Unmanned aircraft reports | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec | Total |
| Count | 0 | 1 | 2 | 5 | 11 | 16 | 36 | 30 | 41 | 41 | 33 | 22 | 238 |

TABLE 3—UNMANNED AIRCRAFT REPORTS, 2015

| 2015 | Unmanned aircraft reports | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Month | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sept | Oct | Nov | Total |
| Count | 26 | 50 | 85 | 64 | 95 | 132 | 128 | 193 | 127 | 137 | 96 | 1133 |

* As of December 9, 2015.

Specific examples of UAS events include:

• June 17, 2015: Near the surrounding area of Big Bear City, CA, a fire erupted, quickly spreading and causing significant damage. By June 24, 2015, all surrounding affected areas were evacuated, 20,875 acres of land had been destroyed, and the fire was only 26% contained. Although the FAA issued a temporary flight restriction for the area surrounding the fire, unmanned aircraft penetrated the airspace and grounded all airborne firefighting efforts in support of continued fire containment. This event resulted in two reported evasive-action events, and forced the grounding of 4 responding aircraft over a period of two and a half hours before airborne firefighting efforts could resume. Before landing, a DC–10 tanker plane diverted to a separate fire in Nevada to drop its fire retardant, while the remaining smaller planes were forced to dump fire retardant around the immediate area due to landing weight restrictions.[8] Officials

[2] This forecast is based on a largely unconstrained operating environment.

[3] FAA Press Release, ''FAA Proposes $1.9 Million Civil Penalty Against SkyPan International for Allegedly Unauthorized Unmanned Aircraft Operations,'' available at *http://www.faa.gov/news/press_releases/news_story.cfm?newsId=19555*.

[4] *See, e.g.,* Keith Laing, *Feds investigating drone sighting near Newark airport,* The Hill, Aug. 10, 2015, *http://thehill.com/policy/transportation/250731-feds-investigating-drone-sighting-near-newark-airport*; *FAA Investigating Close Calls with Drones Near JFK Airport,* Albany Business Review, Nov. 20, 2014, *available at* 2014 WLNR 32783307.

[5] *See, e.g.,* Associated Press, *Drones Interfering with Emergency Wildfire Responders,* CBSNEWS.com, Aug. 10, 2015, *http://www.cbsnews.com/news/drones-interfering-with-emergency-wildfire-responders* (''The U.S. Forest Service has tallied 13 wildfires in which suspected drones interfered with firefighting aircraft this year . . . up from four fires last year . . . .); Polly Mosendz, *Drones Interfere With Firefighters Battling California Wildfire,* Newsweek, June 26, 2015, *http://www.newsweek.com/drones-interfere-firefighters-battling-california-wildfire-347774*.

[6] *See* Keith Laing, *Feds investigating drone sighting near Newark airport,* The Hill, Aug. 10, 2015, *http://thehill.com/policy/transportation/250731-feds-investigating-drone-sighting-near-newark-airport*.

[7] *See FAA Investigating Close Calls with Drones Near JFK Airport,* Albany Business Review, Nov. 20, 2014, *available at* 2014 WLNR 32783307.

[8] *Lake Fire Grew After Private Drone Flight Disrupted Air Flights,* Los Angeles Times, June 25,

Continued

said the failed mission cost between $10,000 and $15,000. This estimate only reflects operational costs and does not reflect the additional damage caused to property by the delay in being able to combat the fires.

• July 17, 2015: A fire began in California near Interstate 15, a highway that runs between Los Angeles and Las Vegas. Due to hot, 40 mile per hour winds, the fire spread at a rapid pace. The Air Attack Officer, upon arrival, observed small unmanned aircraft activity operating contrary to a temporary flight restriction in the area. This resulted in aircraft being removed from the area for a period of twenty minutes. The delay of 20 minutes in aircraft response was critical in the growth of the fire. With the heavy aviation response on the scene of the fire, Air Attack Officers estimate this fire could have been stopped at less than 100 acres if the small unmanned aircraft had not interfered by penetrating the airspace.[9] A total of eighteen vehicles and two trucks were destroyed by fire.

• September 3, 2015: An unmanned aircraft was flown into Louis Armstrong Stadium, which is located within 5 miles of LaGuardia Airport, during a U.S. Open tennis match. The unmanned aircraft crashed in an empty section of the stands.[10]

• October 26, 2015: An unmanned aircraft flew into primary conductors bringing down one span of power line in West Hollywood, California. The incident report from Southern California Edison indicates that initially 640 customers were impacted.[11]

• January 26, 2015: An unmanned aircraft operator crashed his unmanned aircraft on the grounds of the White House. The flight occurred in the White House prohibited flight zone, P56.[12]

• September 5, 2015: A University of Kentucky student flew an unmanned aircraft directly into the campus' stadium during the school's season-opening football game.[13] No injuries were reported. The unmanned aircraft, which had hovered near parachuting military skydivers, crashed in the suite level of Commonwealth Stadium. The Kentucky campus police chief told a news conference that the same student operated an unmanned aircraft over a soccer match the previous week.

• September 12, 2015: Debris from an unmanned aircraft that had fallen near bystanders cut and bruised an 11-month-old girl in a stroller during an outdoor movie screening in Pasadena, California. The Pasadena Police Department said a 24-year-old man lost control of his small unmanned aircraft, causing it to crash to the ground. The 11-month-old received injuries to her head. She was treated at Huntington Memorial Hospital and then released.[14]

During the last quarter of this calendar year, approximately 800,000 new sUAS are expected to enter the system and begin operating. In 2016, the FAA expects sales of an additional 1.9 million small unmanned aircraft used as model aircraft. The FAA also expects sales of 600,000 aircraft used for other than model purposes, after the Operation and Certification of Small Unmanned Aircraft Systems notice of proposed rulemaking (the ''sUAS Operation and Certification NPRM'') is finalized.[15] Model aircraft sales alone are expected to grow by 23 percent each year for the next 5 years.[16] Sales for sUAS used for commercial applications will rapidly accelerate as well, with different growth rates in different applications. Sales are forecast to grow from very few sUAS employed commercially today, to nearly 11 million units by 2020 (about 40% of total units sold that year).

Many of the owners of these new sUAS may have no prior aviation experience and have little or no understanding of the NAS, let alone knowledge of the safe operating requirements and additional authorizations required to conduct certain operations. Aircraft registration provides an immediate and direct opportunity for the agency to engage and educate these new users prior to operating their unmanned aircraft and to hold them accountable for noncompliance with safe operating requirements, thereby mitigating the risk associated with the influx of operations. In light of the increasing reports and incidents of unsafe incidents, rapid proliferation of both commercial and model aircraft operators, and the resulting increased risk, the Department has determined it is contrary to the public interest to proceed with further notice and comment rulemaking regarding aircraft registration for small unmanned aircraft. To minimize risk to other users of the NAS and people and property on the ground, it is critical that the Department be able to link the expected number of new unmanned aircraft to their owners and educate these new owners prior to commencing operations.

In addition to the safety justifications that support the immediate adoption of this rule, the FAA Aircraft Registration Branch (the Registry) will be unable to quickly process the total volume of expected small unmanned aircraft registration applications for existing unmanned aircraft and the proliferation of newly purchased unmanned aircraft. Thus, the FAA must implement a registration system that allows the agency greater flexibility in accommodating this expected growth.

In addition, the existing registration system requirements are incongruous with the characteristics of many of the small unmanned aircraft, small unmanned aircraft ownership, and small unmanned aircraft operations. For example, small unmanned aircraft are not required to be type certificated, may cost very little, making them widely accessible, and may have operating limitations that could affect the range of their operations. As reflected in greater detail in the regulatory evaluation supporting this rulemaking, the total costs for using the paper-based registry, for both the small unmanned aircraft owners and for the FAA, were projected to exceed $775M over a 5-year period. The Department has determined it would be impracticable to require all small unmanned aircraft owners to use this system and that a stream-lined, web-based alternative is necessary to accommodate this population and ensure operations may commence in a safe and timely manner.

The streamlined registration process provided in this IFR will allow the agency to complete in the near-term the registration of existing and new small unmanned aircraft to be operated exclusively as model aircraft, where the FAA expects the largest growth in the coming months. In the spring of 2016, the FAA will open the streamlined registration process to small unmanned

2015, *available at http://www.latimes.com/local/lanow/la-me-ln-wildfires-southern-california-20150625-story.html.*

[9] SAFECOM (2015, July 18). Incident Report. Retrieved November 13, 2015 from *https://www.safecom.gov/searchone.asp?ID=19694.*

[10] *Drone Crash at U.S. Open, New York City Teacher Arrested,* NPR, September 4, 2015, *available at http://www.npr.org/sections/thetwo-way/2015/09/04/437539727/drone-crash-at-u-s-open-new-york-city-teacher-arrested.*

[11] Incident report from Robert Laffoon-Villegas, media relations, Southern California Edison, provided November 13, 2015.

[12] *A Drone, Too Small for Radar to Detect, Rattles the White House.* New York Times, Jan. 26, 2015, *available at http://www.nytimes.com/2015/01/27/us/white-house-drone.html.*

[13] *Student Charged with Endangerment After Drone Crashes into Stadium,* Ars Technica, September 11, 2015, *available at http://arstechnica.com/tech-policy/2015/09/student-charged-with-endangerment-after-drone-crashes-into-football-stadium/.*

[14] *Fallen Drone Injures 11-mointh old near Pasadena City Hall,* Pasadena Star News, September 15, 2015 *available at http://www.pasadenastarnews.com/general-news/20150915/falling-drone-injures-11-month-old-near-pasadena-city-hall.*

[15] 80 FR 9544 (Feb. 23, 2015).

aircraft used for purposes other than as model aircraft. By first addressing the registration of new small unmanned aircraft to be operated exclusively as model aircraft, the FAA expects to provide relief from the existing registration process to the largest population of new small unmanned aircraft operators while still realizing the fundamental goal of identification of small unmanned aircraft owners responsible for the aircraft operation.

Therefore, the FAA has determined that it is impracticable and contrary to the public interest in ensuring the safety of the NAS and people and property on the ground to proceed with further notice and comment on aircraft registration requirements for small unmanned aircraft before implementing the streamlined registry system established by this rule. As more small unmanned aircraft enter the NAS, the risk of unsafe operations will increase without a means by which to identify these small unmanned aircraft in the event of an incident or accident. Registration will also provide an immediate and direct avenue for educating users regarding safe and responsible use of sUAS. The public interest served by the notice and comment process is outweighed by the significant increase in risk that the public will face with the immediate proliferation of new small unmanned aircraft that will be introduced into the NAS in the weeks ahead.

In developing the IFR, the Department has considered the public comments regarding UAS registration received in response to the Operation and Certification of Small UAS NPRM, the Request for Information published in the **Federal Register** on October 22, 2015, and the recommendations from the UAS Registration Task Force. Although we have considered these comments in developing this IFR, the Department will consider additional comments received following publication of this IFR and make any necessary adjustments in the final rule. At this time however, due to the reasons set forth above, providing another opportunity for notice and comment in advance of this rule going into effect would be contrary to the public interest and impracticable.

Additionally, the APA requires agencies to delay the effective date of regulations for 30 days after publication, unless the agency finds good cause to make the regulations effective sooner. *See* 5 U.S.C. 553(d). Good cause exists for making this regulation effective less than 30 days from the date of publication because it relieves a significant number of owners from the burden of complying with the paper-based, time-consuming part 47 registration process. It also is necessary to address immediate and ongoing safety risk identified in the discussion of above regarding good cause for forgoing notice and comment.

## IV. Comments Invited

Prior to the issuance of this IFR, the Department and the FAA solicited public comment on the aircraft registration process for small unmanned aircraft through the sUAS Operation and Certification NPRM and a request for information issued on October 19, 2015. In developing this IFR, the agency has considered comments received in response to these requests.

In addition, consistent with the Regulatory Policies and Procedures of the Department of Transportation (DOT) (44 FR 11034; Feb. 26, 1979), which provide that to the maximum extent possible, operating administrations for the DOT should provide an opportunity for public comment on regulations issued without prior notice, the Department requests comment on this IFR. The Department encourages persons to participate in this rulemaking by submitting comments containing relevant information, data, or views. The Department will consider comments received on or before the closing date for comments. The Department will consider late filed comments to the extent practicable. This IFR may be amended based on comments received.

## V. Authority for This Rulemaking

The FAA's authority to issue rules on aviation safety is found in Title 49 of the United States Code. Subtitle I, Section 106 describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the agency's authority.

This rulemaking is promulgated under the authority described in 49 U.S.C. 106(f), which establishes the authority of the Administrator to promulgate regulations and rules; and 49 U.S.C. 44701(a)(5), which requires the Administrator to promote safe flight of civil aircraft in air commerce by prescribing regulations and setting minimum standards for other practices, methods, and procedures necessary for safety in air commerce and national security.

This rule is also promulgated pursuant to 49 U.S.C. 44101–44106 and 44110–44113 which require aircraft to be registered as a condition of operation and establish the requirements for registration and registration processes.

Additionally, this rulemaking is promulgated pursuant to the Secretary's authority in 49 U.S.C. 41703 to permit the operation of foreign civil aircraft in the United States.

## VI. Background

### *A. Statutory Requirements Related to Aircraft Registration*

For purposes of the statutory provisions in part A (Air Commerce and Safety) of subtitle VII (Aviation Programs) of title 49 of the United States Code (49 U.S.C.), title 49 defines ''aircraft'' as ''any contrivance invented, used, or designed to navigate or fly in the air.'' 49 U.S.C. 40102(a)(6). Since a small unmanned aircraft is a contrivance that is invented, used, and designed to fly in the air, a small unmanned aircraft is an aircraft under title 49.

In Public Law 112–95, Congress confirmed that unmanned aircraft, including those used for recreation or hobby purposes, are aircraft consistent with the statutory definition set forth in 49 U.S.C. 40102(a)(6). *See* Public Law 112–95 sections 331(8) and 336 (defining an unmanned aircraft as ''an aircraft that is operated without the possibility of direct human intervention from within or on the aircraft'' and a model aircraft as ''an unmanned aircraft that is capable of sustained flight in the atmosphere, flown within visual line of sight of the person operating the aircraft, and flown for hobby or recreational purposes.''); *see also Administrator* v. *Pirker,* NTSB Order No. EA–5730 at 12 (Nov. 17, 2014) (affirming that the statutory definition of aircraft is clear and unambiguous and ''includes any aircraft, manned or unmanned, large or small.'').

Subject to certain exceptions, aircraft must be registered prior to operation. *See* 49 U.S.C. 44101–44103. Upon registration, the Administrator must issue a certificate of registration to the aircraft owner. *See* 49 U.S.C. 44103. Because small UAS, including model aircraft, involve the operation of ''aircraft,'' the Secretary and the Administrator clarified that the statutory and regulatory aircraft registration requirements apply. *See* 80 FR 63912, October 22, 2015.

### *B. Regulatory Requirements Pertaining to Aircraft Registration and Identification*

The regulatory requirements pertaining to aircraft registration serve several purposes. In order to operate in the NAS, the FAA must ensure not only that aircraft operators are aware of the system in which they are operating, but

also that the agency has a means to identify and track an aircraft, including unmanned aircraft, to its operator. One means to accomplish this is through aircraft registration and marking.

Aircraft registration and marking are essential elements in the regulatory structure that provides for safe and orderly aircraft activity within the NAS because registration ensures accountability among its users. The registration number provides a link to information about the aircraft and the owner responsible for its operations.

Aircraft registration information often has a direct and immediate impact on safety-related issues. For example, aircraft registration provides the FAA and law enforcement agencies an invaluable tool during inspections and investigations of inappropriate or prohibited behavior, during emergency situations and for purposes of sharing safety information. The Registry also serves as a valuable tool in enabling further research and analysis.

Additionally, the aircraft registration requirements in part 47 together with the requirements pertaining to the recording of aircraft title and security documents in part 49 coalesce to establish a filing and recording system for the collection of ownership and financial interests in aircraft. This system supports the aviation industry by providing public notice of interests in aircraft in a reviewable format, generally to support the confidence or willingness of banks and others to provide financing for the development of the U.S. aviation industry and to promote commerce.

*Part 47:* Part 47 of 14 CFR implements the statutory requirements for aircraft registration by providing a registration process applicable to aircraft that are not registered under the laws of a foreign country and that meet one of the following ownership criteria:

- The aircraft is owned by a citizen of the United States;
- The aircraft is owned by a permanent resident of the United States;
- The aircraft is owned by a corporation that is not a citizen of the United States, but that is organized and doing business under U.S. Federal or State law and the aircraft is based and primarily used in the United States; or
- The aircraft is owned by the United States government or a state or local governmental entity.

This process is entirely paper-based and begins when a person who wishes to register an aircraft in the United States submits an Aircraft Registration Application (AC Form 8050–1) to the Registry. At a minimum, under part 47, applicants for a Certificate of Aircraft Registration must provide evidence of ownership, an application for registration, which includes certification as to eligibility for registration, and a registration fee. Evidence of ownership may include, but is not limited to, a traditional bill of sale, a contract of conditional sale, a lease with purchase option, or an heir-at-law affidavit. Many applicants are required to provide additional documentation for aircraft imported from a foreign country, built from a kit, or that qualify as amateur built aircraft. Additional documentation may include a certification from the builder as to the type of aircraft and a complete description, to include information such as make, model, serial number, engine manufacturer, type of engine, number of engines, maximum takeoff weight, and number of seats. An applicant who applies as a limited liability corporation, a trustee, a non-citizen corporation, or submits documentation signed by ''authorized signers,'' must submit additional documentation to support registration. For amateur built aircraft, the owner or builder designates the aircraft model name and serial number. An applicant pertaining to an imported aircraft must provide evidence showing the aircraft has been removed from a foreign registry.

Once registered, the Registry issues a Certificate of Aircraft Registration (AC Form 8050–3) to the aircraft owner and mails it to the address on record. The Registry experiences a range in the amount of time required to issue a Certificate. While it typically takes 12–15 business days for the registry to issue a Certificate after an owner submits an application, due to an increase in registration applications, it currently takes approximately 22 business days for the registry to issue the certificate. The aircraft owner will typically receive a Certificate approximately 4 days after it is issued as a result of the time required for printing and mailing the certificate. The estimated times are extended if the application is rejected for document correction.

The certificate of registration must be carried in the aircraft and must be made available for inspection upon request. Upon registration, an aircraft is also eligible to apply for an airworthiness certificate for operational purposes. When applying for registration of an aircraft that is already on the U.S. civil registry, and has a valid airworthiness certificate, an owner may use the second (carbon) copy of the application as temporary operating authority for up to 90 days pending receipt of the ''hard card'' certificate. For aircraft not already on the U.S. civil registry, there is no temporary operating authority.

An aircraft registration must be renewed every three years by either submitting a renewal application or using an online renewal process, and paying the renewal fee. The certificate of registration is generally valid until the owner's address changes, the aircraft is sold or destroyed, it has expired under the three-year renewal period, the owner's eligibility status changes, or the owner registers the aircraft in a foreign country.

Placing an aircraft on the U.S. civil aircraft registry in accordance with the part 47 process affords the aircraft the opportunity to operate within the United States and in most foreign countries.

*Part 45:* Under part 45 of Title 14 CFR, aircraft must display the unique registration number that corresponds with the number on the registration certificate. Part 45 prescribes the requirements for identification of U.S. registered aircraft and the display of the registration number. The number must generally be: (1) Painted on the aircraft or affixed to the aircraft by some other permanent means; (2) have no ornamentation; (3) contrast in color with the background; and (4) be legible. *See* 14 CFR 45.21(c).

Currently, small unmanned aircraft authorized to operate in the NAS under an exemption issued pursuant to the authority in section 333 of the FAA Modernization and Reform Act of 2012 must register in accordance with the paper-based process in 14 CFR part 47. Owners of unmanned aircraft with special airworthiness certificates and unmanned aircraft used by governmental entities in public aircraft operations also register via the part 47 registration process.

*C. Related FAA and DOT Actions*

In the FAA Modernization and Reform Act of 2012 (Pub. L. 112–95), Congress mandated that the DOT, in consultation with other government partners and industry stakeholders, develop a comprehensive plan to safely accelerate the integration of civil UAS in the NAS. Since 2012, the Department and the Federal Aviation Administration have made progress in enabling UAS operations, by issuing exemptions per part 11 in conjunction with the authority of section 333 of Public Law 112–95 to permit commercial operations; creating a UAS test site program to encourage further research and testing of UAS operations in real-world environments; and developing a Pathfinder program to encourage research and innovation that

will enable advanced UAS operations. The Department requires UAS operators authorized under each of these integration programs to register their unmanned aircraft through the existing FAA paper-based registration process under 14 CFR part 47.

The Department and the FAA have taken several other related actions as provided in the preamble discussions that follow.

1. Operation and Certification of Small Unmanned Aircraft Systems Notice of Proposed Rulemaking

The Secretary and the Administrator issued an NPRM, ''Operation and Certification of Small Unmanned Aircraft Systems'' (80 FR 9544 (Feb. 23, 2015)) (sUAS Operation and Certification NPRM),[17] that proposed a framework for integrating small UAS operations in the NAS. Specifically, the proposal would address the operation of small UAS, certification of small UAS operators, small UAS registration, and display of registration markings. The agency also proposed to exclude small UAS operations from the requirements for airworthiness certification under the authority of section 333 of the Act because the safety concerns related to airworthiness of small UAS would be mitigated by the other provisions of that proposed rule.

In the sUAS Operation and Certification NPRM, the Secretary and the Administrator asserted that small unmanned aircraft satisfy the statutory definition of ''aircraft'' and thus must be registered prior to operation. For this reason, the NPRM proposed to clarify the applicability of the part 47 aircraft registration requirements to sUAS expected to be operated under proposed part 107. *See* 80 FR at 9574. The NPRM also clarified that small unmanned aircraft must display a registration number in accordance with part 45. The agency proposed, however, to exclude small unmanned aircraft from the requirements in part 45, subpart B for fireproof marking. *See* 80 FR at 9574–9575.

The comment period for the sUAS Operation and Certification NPRM closed April 24, 2015. The FAA received more than 4,500 comments on this proposal; of those, approximately 125 commenters addressed the issue of small unmanned aircraft registration and the registration process, and approximately 110 addressed marking requirements. This IFR addresses the comments received regarding the registration, identification, and marking requirements as well as certain definitions relevant to the registration process and proposed in the NPRM.

2. Clarification of the Applicability of Aircraft Registration Requirements for Unmanned Aircraft Systems (UAS) and Request for Information Regarding Electronic Registration for UAS

On October 19, 2015, the Secretary and the Administrator issued a notice clarifying the applicability of the statutory requirements for aircraft registration to small unmanned aircraft (the ''Clarification/Request for Information'') (80 FR 63912, October 22, 2015). In addition, the Clarification/Request for Information announced the formation of a UAS Registration Task Force (Task Force) to explore and develop recommendations to streamline the registration process for small unmanned aircraft to ease the burden associated with the existing aircraft registration process. To facilitate the work of the Task Force, the Secretary and the Administrator sought information and data from the public through a number of questions identified in the **Federal Register** notice. Specifically, the Secretary and the Administrator sought information on the following questions:

1. What methods are available for identifying individual products? Does every UAS sold have an individual serial number? Is there another method for identifying individual products sold without serial numbers or those built from kits?

2. At what point should registration occur (*e.g.* point-of-sale or prior to operation)? How should transfers of ownership be addressed in registration?

3. If registration occurs at point-of sale, who should be responsible for submission of the data? What burdens would be placed on vendors of UAS if DOT required registration to occur at point-of-sale? What are the advantages of a point-of-sale approach relative to a prior-to-operation approach?

4. Consistent with past practice of discretion, should certain UAS be excluded from registration based on performance capabilities or other characteristics that could be associated with safety risk, such as weight, speed, altitude operating limitations, duration of flight? If so, please submit information or data to help support the suggestions, and whether any other criteria should be considered.

5. How should a registration process be designed to minimize burdens and best protect innovation and encourage growth in the UAS industry?

6. Should the registration be electronic or web-based? Are there existing tools that could support an electronic registration process?

7. What type of information should be collected during the registration process to positively identify the aircraft owner and aircraft?

8. How should the registration data be stored? Who should have access to the registration data? How should the data be used?

9. Should a registration fee be collected and if so, how will the registration fee be collected if registration occurs at point-of-sale? Are there payment services that can be leveraged to assist (*e.g.* PayPal)?

10. Are there additional means beyond aircraft registration to encourage accountability and responsible use of UAS?

*See* 80 FR at 63914. The comment period on the Clarification/Request for Information closed November 6, 2015. As of November 6, 2015, the FAA received over 4,500 comments on the Clarification/Request for Information. In the Clarification/Request for Information, the DOT stated, ''[T]he docket will remain open after this time and the Department will consider all comments received in developing a registration process.'' The FAA considered more than 175 additional comments submitted after the close of the comment period. The FAA has considered the Clarification/Request for Information comments in the development of this IFR.

3. Registration Task Force (Task Force)

The Administrator chartered the Unmanned Aircraft Systems (UAS) Registration Task Force (Task Force) Aviation Rulemaking Committee (ARC) on October 20, 2015. The Administrator selected Task Force members based on their familiarity with UAS, aircraft registration policies and procedures, retail inventory control and tracking, and electronic data capture. The membership was comprised of a diverse group of representatives from trade groups representing manned and unmanned aviation, UAS manufacturers and retailers, and law enforcement.

The Task Force was tasked with the following three objectives:

1. Develop and recommend minimum requirements for UAS that would need to be registered.

2. Develop and recommend registration processes.

3. Develop and recommend methods for proving registration and marking.

On November 21, 2015, the Task Force provided a final report with

[17] RIN 2120–AJ60.

recommendations pertaining to these three objectives.[18]

The following table, taken from the Task Force report, describes the Task Force's recommendations.

TABLE 4—SMALL UAS REGISTRATION TASK FORCE AVIATION RULEMAKING COMMITTEE RECOMMENDATIONS SUMMARY

| Issue | Task force recommendation |
|---|---|
| What category of UAS is covered by the registration requirement? | UAS that weigh under 55 pounds and above 250 grams maximum takeoff weight, and are operated outdoors in the NAS. |
| Do owners need to register each individual UAS they own? | No. The registration system is owner-based, so each registrant will have a single registration number that covers any and all UAS that the registrant owns. |
| Is registration required at point-of-sale? | No. Registration is mandatory prior to operation of a UAS in the NAS. |
| What information is required for the registration process? | Name and street address of the registrant are required.<br>Mailing address, email address, telephone number, and serial number of the aircraft are optional. |
| Is there a citizenship requirement? | No. |
| Is there a minimum age requirement? | Yes. Persons must be 13 years of age to register. |
| Is there a registration fee? | No. |
| Is the registration system electronic or web-based? | The system for entry of information into the database is web-based and also allows for multiple entry points, powered by an API [application programming interface] that will enable custom apps [applications] to provide registry information to the database and receive registration numbers and certificates back from the database. Registrants can also modify their information through the web or apps. |
| How does a UAS owner prove registration? | A certificate of registration will be sent to the registrant at the time of registration. The certificate will be sent electronically, unless a paper copy is requested, or unless the traditional aircraft registration process is utilized. The registration certificate will contain the registrant's name, FAA-issued registration number, and the FAA registration website that can be used by authorized users to confirm registration information. For registrants who elect to provide the serial number(s) of their aircraft to the FAA, the certificate will also contain those serial number(s). Any time a registered UAS is in operation, the operator of that UAS should be prepared to produce the certificate of registration for inspection. |
| Does the registration number have to be affixed to the aircraft? | Yes, unless the registrant chooses to provide the FAA with the aircraft's serial number. Whether the owner chooses to rely on the serial number or affix the FAA-issued registration number to the aircraft, the marking must be readily accessible and maintained in a condition that is readable and legible upon close visual inspection. Markings enclosed in a compartment, such as a battery compartment, will be considered ''readily accessible'' if they can be accessed without the use of tools. |

In its report, the Task Force stated, ''[T]he general consensus view of the Task Force is that the recommendations on the three objectives are to be presented together as a unified recommendation, with each of the individual recommendations dependent upon elements in the others. Compromises in positions were made whenever possible to obtain a general consensus, and changes to any of the components could further dilute support among the Task Force members and their constituencies for the final recommendations.''

The agency has assessed the recommendations within statutory limitations provided for aircraft registration and with this final rule, will move forward with the elements of the Task Force report that support the best public policy for registering small unmanned aircraft.

## VII. Discussion of the Interim Final Rule

This IFR adds part 48 to title 14 to allow for a web-based registration process and marking appropriate for small unmanned aircraft. For these aircraft, part 48 may be used in place of the paper-based, registration process in part 47 and the marking requirements in part 45 that would otherwise be required.

Unlike manned aircraft, small unmanned aircraft cost significantly less than manned aircraft and are available through a variety of different markets for purchase by individuals who may not be familiar with the federal safety requirements for operating in the NAS. As a consequence, small unmanned aircraft may become more common than manned aircraft, resulting in a significant volume of new aircraft registrations. This rule provides for a streamlined and simple registration process that is commensurate to the nature of small unmanned aircraft, can accommodate an expected high volume of registrations, and will facilitate compliance by using a web-based platform and limiting the information to that which can identify the aircraft and its owner. Upon registration under new part 48, the FAA will assign a unique registration number and provide a registration certificate that can be stored electronically or printed by the aircraft owner.

The FAA recognizes that some small unmanned aircraft owners may choose to continue to register small unmanned aircraft under part 47. For example, some small unmanned aircraft owners may choose to register their small unmanned aircraft under part 47 due to financing requirements or if they wish to operate internationally, displaying registration marks in accordance with part 45. While this final rule does not require small unmanned aircraft owners to use the part 48 registration process in place of part 47, the agency strongly encourages small unmanned aircraft owners to take advantage of the more efficient part 48 method of aircraft registration. The FAA also notes that a new part 48 registration does not limit an owner's ability to later move to a traditional part 47 registration should its operational or financial interests change. Conversely, a traditional part 47 registration of small unmanned aircraft can be moved to a new part 48

[18] The Task Force final report can be found in the docket for this rulemaking and at *https://www.faa.gov/uas/publications/media/RTFARCFinalReport_11-21-15.pdf.*

registration at the discretion of the owner if they wish to pursue that venue.

*A. Applicability*

1. Small Unmanned Aircraft

The registration requirements in part 48 apply to small unmanned aircraft that are part of a small unmanned aircraft system and that satisfy the requirements to register in § 48.15 and the eligibility requirements in § 48.20. Although a small unmanned aircraft itself is one component of an sUAS, part 48 requires the registration of the aircraft only.[19] The registration requirement is limited to the small unmanned aircraft for two reasons. First, the small unmanned aircraft is the only part of the UAS that satisfies the definition of ''aircraft'' for purposes of the registration requirements in 49 U.S.C. 44101–44103, and second, components that control the unmanned aircraft can be used to control multiple aircraft. As discussed in this document, the FAA would continue to exercise enforcement discretion for aircraft that weigh less than 0.55 pounds, such as paper airplanes that are not linked to a system.

Registration does not provide authorization to operate any aircraft—and the same is true for small unmanned aircraft. Currently, operations using small unmanned aircraft other than as model aircraft must obtain authorization to operate in accordance with section 333 of Public Law 112–95, or through issuance of a special airworthiness certificate. Small unmanned aircraft operated exclusively as model aircraft may only be operated in accordance with requirements of section 336 of Public Law 112–95 (Feb. 14, 2012). See also Interpretation of the Special Rule for Model Aircraft, 79 FR 36171 (June 25, 2014). Any operation that does not follow the 336 framework needs authorization from the FAA. Once the sUAS Operation and Certification NPRM is finalized, operations intending to use small unmanned aircraft as other than model aircraft, and those operators who choose not to operate in accordance with the requirements of section 336 of Public Law 112–95, will need to operate in accordance with the sUAS Operation and Certification rule's requirements.

[19] Sec. 331(9) of Public Law 112–95. Public Law 112–95 defines an ''unmanned aircraft system'' as ''an unmanned aircraft and associated elements (including communication links and the components that control the unmanned aircraft) that are required for the pilot in command to operate safely and efficiently in the national airspace system.''

2. Operations in U.S. Airspace

The registration process for small unmanned aircraft provided in part 48 may be used only if the aircraft is intended for use within the United States during the period of registration because this registration process is not intended to be consistent with International Civil Aviation Organization (ICAO) standards addressing registration and marking. The FAA notes that under Presidential Proclamation 5928, the territorial sea of the United States, and consequently its territorial airspace, extends to 12 nautical miles from the baselines of the United States determined in accordance with international law.

ICAO has stated that ''[u]nmanned aircraft . . . are, indeed aircraft; therefore existing [ICAO standards and recommended practices] SARPs apply to a very great extent. The complete integration of UAS at aerodromes and in the various airspace classes will, however, necessitate the development of UAS-specific SARPs to supplement those already existing.'' [20] ICAO has begun to issue and amend SARPs to specifically address UAS operations and registration. Regarding registration, ICAO standards in Annex 7 (Aircraft Nationality and Registration Marks) to the Convention require remotely piloted aircraft to ''carry an identification plate inscribed with at least its nationality or common mark and registration mark'' and be ''made of fireproof metal or other fireproof material of suitable physical properties.'' For remotely piloted aircraft, this identification plate must be ''secured in a prominent position near the main entrance or compartment or affixed conspicuously to the exterior of the aircraft if there is no main entrance or compartment.''

The FAA agrees with ICAO that unmanned aircraft are indeed aircraft and as such, must be registered and identified. However, the agency has determined that it is possible to register and identify small unmanned aircraft using in a less restrictive manner and with more flexibility than current ICAO standards allow. Additionally, the FAA has determined that it can achieve the highest level of compliance with a registration requirement and thus identify more small unmanned aircraft to their owners by using the streamlined, web-based process in this final rule.

The FAA emphasizes that utilization of the registration process implemented by this final rule does not prohibit small UAS operators from operating in international airspace or in other countries; however, the rule also does not provide authorization for such operations.

UAS operations that do not take place entirely within the United States will need to obtain the necessary authorizations from the FAA and the relevant foreign aviation authority.

[20] ICAO Circular 328 (Unmanned Aircraft Systems (UAS)) (2011).

3. Public Aircraft Operations

*Clarification/Request for Information:* Several commenters addressed the applicability of registration requirements to small unmanned aircraft used in public aircraft operations. The Department of Defense Policy Board on Federal Aviation recommended the FAA ''[c]learly state that all public aircraft operators with self-certification authority, by statute, are exempt from this registration.'' Aviation Management Associates also said the FAA should exempt all public aircraft from the registration requirement. Another commenter said that any UAS that are owned or operated by the FAA Small UAS Center of Excellence, any of the six FAA UAS Test Sites or any other government agency or department, or are operated under a Certificate of Waiver or Authorization (COA) should be exempt from the registration requirement. In contrast, a few individuals specifically recommended that UAS operated by government should be required to register.

*IFR Requirement:* Under 49 U.S.C. 44101, only certain foreign aircraft and aircraft of the national defense forces of the United States are eligible to operate unregistered aircraft in the United States, and any such unregistered aircraft must be identified in a way satisfactory to the Administrator. Section 44102(a)(2)(A) and (B) describe those aircraft that may be registered as those of the United States Government and various state and local governments. This definition parallels the language used in 49 U.S.C. 40102(a)(41) and 40125 to describe public aircraft eligibility and operations. Accordingly, consistent with existing statutory requirements for registration, the IFR will not apply to small unmanned aircraft of the armed forces of the United States. 49 U.S.C. 44101(b)(2). Small unmanned aircraft used in non-military public aircraft operations are subject to the registration requirements of 49 U.S.C. 44101 and as such, must complete the registration process provided in part 47. These aircraft may also be registered in accordance with the part 48 process that will be available for aircraft used for

other than model aircraft operations in the spring of 2016.

4. Trusts and Voting Trusts

The FAA requires that a person holding legal title to an aircraft in trust must, when applying to register that aircraft in the United States, submit a ''copy of each document legally affecting a relationship under the trust . . .'' 14 CFR 47.7(c)(2)(i). The purpose of this requirement is to ensure the FAA has access to all documents relevant to the trust relationship when determining whether a trust provides an adequate basis for registering an aircraft in accordance with FAA regulations. A fundamental part of the registration process for aircraft held in trust is determining whether the underlying agreements meet and are not in conflict with the applicable requirements and therefore are sufficient to establish the trustee's eligibility to register the aircraft. The analysis of voting trusts is similarly intricate.

Use of trusts and voting trusts involve complex relationships that have been used to obscure the identity of the beneficial owners of an aircraft. For this reason, part 47 applies a higher level of scrutiny when trusts and voting trusts seek to register aircraft. This higher level of scrutiny is inconsistent with the streamlined registration process established under part 48. Accordingly, trusts and voting trusts must continue to register small unmanned aircraft under part 47 so that the FAA can identify and evaluate the applicants.

*B. Definitions*

The new part created by this final rule includes definitions of several terms that are relevant to the registration of small unmanned aircraft. The definitions of ''U.S. Citizen,'' ''resident alien,'' and ''Registry'' have the same meaning as provided in the aircraft registration process provided by part 47. *See* § 47.2. The definition of ''model aircraft'' is identical to the definition provided in section 336(c) of Public Law 112–95.

Additionally, the agency finds it necessary to codify the statutory definitions of ''small unmanned aircraft,'' ''unmanned aircraft,'' and ''small unmanned aircraft system'' given the limited applicability of the new subpart to small unmanned aircraft that are an associated element of a small UAS. The agency proposed definitions of these three terms in the Operation and Certification NPRM. This rulemaking finalizes these proposed definitions because they are applicable to the small unmanned aircraft registration process provided by this final rule. The definitions will be added to § 1.1 General definitions, because the agency expects them to be applicable to several parts throughout title 14.

1. Unmanned Aircraft

In the sUAS Operation and Certification NPRM, the FAA proposed to define ''unmanned aircraft'' as ''an aircraft operated without the possibility of direct human intervention from within or on the aircraft.'' [21] This proposed definition would codify the statutory definition of ''unmanned aircraft'' specified in Public Law 112–95.[22]

The Management Association for Private Photogrammetric Surveyors (MAPPS) stated that the definition of ''unmanned aircraft'' needs to be clarified because the current definition leaves open the possibility that paper airplanes, model airplanes, model rockets, and toys could be considered unmanned aircraft. The Aviators Model Code of Conduct Initiative stated that this definition and the definition of small unmanned aircraft may permit infant passengers and asked the FAA to amend the definition to categorically prohibit the carriage of passengers on an unmanned aircraft.

Lastly, an individual said that because 14 CFR 1.1 defines aircraft as ''a device that is used or intended to be used for flight in the air,'' only a ''whole'' or ''complete'' aircraft can meet this definition for registration purposes.

The definition of unmanned aircraft as ''an aircraft operated without the possibility of direct human intervention from within or on the aircraft'' is a statutory definition, and as such, this rule will finalize that definition as proposed.[23]

2. Small Unmanned Aircraft

In the sUAS Operation and Certification NPRM, the FAA proposed to define ''small unmanned aircraft'' as ''an unmanned aircraft weighing less than 55 pounds including everything that is on board the aircraft.'' [24] The NPRM noted that Public Law 112–95 defines a small unmanned aircraft as ''an unmanned aircraft weighing less than 55 pounds.'' [25] However, the NPRM pointed out that this statutory definition does not specify whether the 55-pound weight limit refers to the total weight of the aircraft at the time of takeoff (which would encompass the weight of the aircraft and any payload on board) or simply the weight of an empty aircraft.[26] The NPRM proposed to define small unmanned aircraft using total takeoff weight because: (1) Heavier aircraft generally pose greater amounts of public risk in the event of an accident as they can do more damage to people and property on the ground; and (2) this approach would be similar to the approach that the FAA has taken with other aircraft, such as large aircraft, light-sport aircraft, and small aircraft.[27]

Commenters including the Aircraft Owners and Pilots Association (AOPA), Air Line Pilots Association (ALPA), Helicopter Association International (HAI), the Small UAV Coalition, the News Media Coalition, and the Professional Photographers of America, expressed support for the proposed definition. The New England Chapter of the Association of Unmanned Vehicles International supported the weight limitation as a reasonable starting point, but pointed out that there are commercial applications being developed that will need to exceed 55 pounds. Event 38 Unmanned Systems, Inc. stated that, rather than segregate small unmanned aircraft by total weight, FAA should use a ''kinetic energy split'' that combines weight and speed.

Several commenters asked that the 55-pound weight limit be lowered. Event 38 Unmanned Systems recommended an initial weight restriction of 10 pounds, with adjustments based on subsequent research. Prioria Robotics stated that the weight limitation for small unmanned aircraft should be less than 25 pounds, and that the definition should include a requirement that the aircraft be ''hand-launchable.'' An individual commenter asked for the weight limit to be reduced to 33 pounds.

Green Vegans stated that FAA must provide test data on the collision impact of a 55 pound UAS, traveling at various speeds, on both humans and birds. The advocacy group argued that the public cannot make informed comments on the proposed weight limitation without such data. The commenter also noted that such data would be provided by a National Environmental Protection Act Environmental Impact Statement, which the group stated FAA must do. Crew Systems similarly opposed the maximum weight limitation, arguing that FAA provided no justification for it. The company asserted that a 55 pound limit is large enough to be hazardous when operating in an urban environment, even if care is taken. Although it did not expressly object to

[21] 80 FR at 9586.

[22] 80 FR at 9556 (citing Pub. L. 112–95, section 331(8)).

[23] Pub. L. 112–95, section 331(8).

[24] 80 FR at 9586.

[25] 80 FR at 9556 (citing Pub. L. 112–95, section 331(6)).

[26] 80 FR at 9556.

[27] 80 FR at 9556.

the weight limitation, the United States Ultralight Association (UASA) also expressed concern about the significant damage that a 50-plus pound unmanned aircraft could do to light, open cockpit aircraft.

Other commenters asked the FAA to increase the 55-pound weight limit. Consumers Energy Company objected to the definition's proposed weight limitation as too light, arguing that a 55-pound weight restriction will negatively impact small UAS flight times and the usage of alternative fuel sources. The company urged FAA to consider fuel loads and to increase the weight restriction to 120 pounds. The company noted that, if FAA has concerns about safety, it could create subcategories under which maximum weight restriction is imposed on the fuel load, rather than adopt a blanket weight restriction. Several individual commenters also suggested higher weight limits, including: 80 pounds; a range of 30–100 pounds; and 150 pounds. Another individual commenter called the weight restriction ''arbitrary,'' and noted that other countries have defined small UAS up to 150 kg.

An individual commenter suggested that the FAA amend the definition of small unmanned aircraft to include aircraft weighing exactly 55 pounds. Another individual commenter stated that the definition of ''small unmanned aircraft'' must be clarified to account for different types of UAS (*e.g.,* fixed-wing, rotor-wing, small, medium, large).

The definition of ''small unmanned aircraft'' is a statutory definition. Specifically, Public Law 112–95 defines a small unmanned aircraft as ''an unmanned aircraft weighing less than 55 pounds.'' [28] Accordingly, this rule will retain the statutory definition, which includes 55 pounds as the weight limit for a small unmanned aircraft.

However, as the FAA pointed out in the sUAS Operation and Certification NPRM, the statutory definition contains an ambiguity with regard to how the 55-pound weight limit should be calculated. The Small UAV Coalition and Federal Airways & Airspace supported the inclusion of payload in the 55-pound weight limit. Conversely, DJI, the Associated General Contractors of America, and an individual commenter questioned whether the 55-pound weight limitation should include payload that is carried by the small unmanned aircraft. DJI argued that the FAA does not consider the weight of payload in its regulations governing the operation of ultralights. Kapture Digital Media stated that the total weight limit of a small UAS should not include the weight of the battery.

As noted in the sUAS Operation and Certification NPRM, the FAA uses total takeoff weight for multiple different types of aircraft, including large aircraft, light-sport aircraft, and small aircraft.[29] One of the reasons that the FAA uses total takeoff weight in all of these regulations is because, in the event of a crash, a heavier aircraft can do more damage to people and property on the ground than a lighter aircraft. In evaluating this type of risk for a small UAS, it is the total mass of the small unmanned aircraft that is important; the manner in which that mass is achieved is irrelevant. In other words, a 50-pound unmanned aircraft carrying 30 pounds of payload does not pose a smaller risk than an 80-pound unmanned aircraft that is not carrying any payload. As such, this rule will retain the proposed inclusion of everything onboard the aircraft in the 55-pound weight limit of a small unmanned aircraft.

The General Aviation Manufacturers Association (GAMA) pointed out that, although FAA typically points to Maximum Takeoff Weight when identifying an aircraft's weight and associated mass, the proposed definition of the small UAS does not include the term ''takeoff.'' As such, the commenter recommended FAA modify the definition to reference the point of takeoff as follows: ''Small unmanned aircraft means an unmanned aircraft weighing less than 55 pounds including everything that is on board the aircraft on takeoff.'' An individual commenter stated that the choice of ''on board'' in the definition of ''small unmanned aircraft'' will create confusion, because these aircraft routinely have ''attached'' external payloads because there is little room for internal ''on board'' payloads.

The FAA agrees with these comments and has modified the proposed definition to refer to the total aircraft weight at takeoff and to include possible external attachments to the aircraft in the calculation of small unmanned aircraft weight. Accordingly, as provided in § 1.1, small unmanned aircraft means an unmanned aircraft weighing less than 55 pounds on takeoff, including everything that is on board or otherwise attached to the aircraft. If the unmanned aircraft is tethered by the cable in such a way that the cable, securely attached to an immoveable object, prevents the unmanned aircraft from flying away in the event of loss of positive control, only the portion of the cable which may be lift aloft by the small unmanned aircraft must be added to the weight of the unmanned aircraft when determining total weight.

3. Small Unmanned Aircraft System (Small UAS)

Finally, the sUAS Operation and Certification NPRM proposed a definition of ''small unmanned aircraft system (small UAS)'' as ''a small unmanned aircraft and its associated elements (including communication links and the components that control the small unmanned aircraft) that are required for the safe and efficient operation of the small unmanned aircraft in the national airspace system.'' [30] The NPRM explained that, with one exception, this proposed definition would be similar to the statutory definition of UAS specified in Public Law 112–95.[31] The difference between the two definitions is that the proposed definition of small UAS did not refer to a ''pilot in command,'' as that position did not exist under the NPRM.[32]

AirShip Technologies supported the proposed definition. Conversely, Transport Canada asked the FAA to consider whether it would be better to use the ICAO terminology of remotely-piloted aircraft system (RPAS) instead of small UAS. Foxtrot Consulting stated that the inclusion of the phrase ''associated elements (including communications links and the components that control the small unmanned aircraft)'' in the definition of small UAS creates a ''regulatory nightmare,'' because it means cellular network providers and their infrastructure are considered part of a small UAS. The commenter pointed out that small UAS can be controlled via Wi-Fi and cellular networks, which opens enormous capabilities to small UAS operations. The commenter went on, however, to question whether, as a result of the proposed definition, a cellular provider is liable if a UAS being controlled through their network causes damage to property, serious injury, or death.

The proposed definition of small UAS is derived from the statutory definition of ''unmanned aircraft system'' in Public Law 112–95.[33] As such, this rule will codify the proposed definition.

Because Congress has selected the term ''unmanned aircraft system'' to

[28] Pub. L. 112–95, section 331(6).

[29] *See* 14 CFR 1.1 (referring to ''takeoff weight'' for large, light-sport, and small aircraft in the definitions for those aircraft).

[30] 80 FR at 9586.

[31] 80 FR at 9556 (citing Pub. L. 112–95, section 331(9)).

[32] 80 FR at 9556.

[33] Pub. L. 112–95, section 331(9).

describe this type of a system, the FAA may not use a different term, such as RPAS, in this rule. In response to Foxtrot Consulting, the FAA notes that the requirements of this rule apply only to the sUAS operator, the owner of the small UAS, and people who may be involved in the operation of the small UAS. As such, a cellular provider would not be in violation of proposed part 107 when their involvement in a small UAS operation is limited to the operator's use of the provider's infrastructure. Additionally, the FAA does not opine on liability issues that are beyond the scope of this rule such as whether the provider may be liable to the sUAS operator or third parties under tort or contract law.

The NextGen Air Transportation Program at North Carolina State University and one individual commenter recommended FAA specifically state that tethered powered small UAS are considered small UAS under proposed part 107. In response to these comments, the FAA notes that the definition of small UAS in this rule includes tethered powered small UAS.

4. Model Aircraft

This rulemaking includes the definition of the term ''model aircraft'' as it appears in section 336 of Public Law 112–95. Thus, in this IFR, ''model aircraft'' means an unmanned aircraft that is (1) capable of sustained flight in the atmosphere; (2) flown within visual line of sight of the person operating the aircraft; and (3) flown for hobby or recreational purposes.

*C. Exclusion From the Requirement to Register*

*Clarification/Request for Information:* The DOT and the FAA posed the following question in the October 22, 2015 Clarification/Request for Information document (80 FR at 63914):

> Consistent with past practice of discretion, should certain UAS be excluded from registration based on performance capabilities or other characteristics that could be associated with safety risk, such as weight, speed, altitude operating limitations, duration of flight? If so, please submit information or data to help support the suggestions, and whether any other criteria should be considered.

The agency received many comments responding to this inquiry. A few commenters said this question is premature because there is insufficient data available to determine what, if any, safety risk is posed by various categories of UAS. One individual commenter said this question should not be asked until after there are ''thorough, independent studies available showing the effects of different hobby aircraft on the national airspace and potential interference with full scale aviation.'' The commenter further stated that once the results of that research are available, the public should have an opportunity to comment on them. Another individual said the FAA cannot make a determination about exclusions from the registration requirement until testing is conducted to see what the actual damage would be to buildings, cars, people, and manned aircraft from UAS of different sizes.

*No unmanned aircraft should be excluded from the requirement of registration:* Some commenters said that all unmanned aircraft should be registered. One individual commenter, for example, asserted that if the intent of registration is to have the ability to identify the operator of a UAS, then there is no logical reason to base the requirement to register on factors such as the speed, performance, capability, or size of a UAS. Another individual commenter said all unmanned aircraft should be registered because unmanned aircraft of any size or weight could pose a safety threat to manned aircraft (including, for example, helicopters on emergency or rescue missions that operate at all altitudes and from areas other than certificated airports). Chronicled, Inc. said that if the registration procedure is ''efficient and seamless'' then it should include all unmanned aircraft.

The National Association of Broadcasters asserted that UAS registration is a reasonable step to mitigate the dangers posed by a small minority of hobbyist UAS operators that are flying in a careless and reckless manner that endangers the public. The City of Arlington (Texas) Police Department stated that ''the increasing popularity of the recreational use of UAS by model aircraft operators has presented significant public safety and regulatory challenges in Arlington and our nation's cities,'' and strongly urged the FAA to require the registration of all UAS systems. The Air Medical Operators Association stated that all UAS capable of entering the NAS and conflicting with manned aircraft in flight should be considered aircraft and be subject to the registration requirement.

The Colorado Agricultural Aviation Association (CoAAA) supported its position that all UAS need to be registered by pointing out that low altitude airspace is already being shared by manned and unmanned flight operations ''without any definitive safety protocols beyond operate in a safe manner and yield to manned aircraft.'' As the number of unmanned aircraft using the airspace increases, the commenter continued, so does the potential for a mid-air collision which could lead to loss of the aircraft, injuries, or death. CoAAA and the National Agricultural Aviation Association (NAAA) further supported their positions that there should be no exemption for light-weight UAS by pointing to bird-strike data from a joint report by the FAA and the USDA. Comparing the dangers associated with collisions between wildlife and civil aircraft to the dangers associated with collisions between light-weight UAS and civil aircraft, the commenters asserted that it does not take a very large bird to do significant damage to an airplane. By way of example, CoAAA noted that mallard ducks (which weigh between 1.6 and 3.5 pounds) and turkey vultures (which weigh between 1.8 to 5.1 pounds) can break through the windshield of aircraft used for agricultural purposes.

The Electronic Privacy Information Center (EPIC) also opposed an exemption from the registration requirement for any UAS that operates in the NAS. EPIC stated that the size of a UAS is not strictly indicative of the privacy risks it poses and, in fact, that smaller UAS can more easily conduct ''surreptitious surveillance on unsuspecting individuals.''

Modovolate Aviation, LLC and a number of individual commenters recommended a limited exemption for unmanned aircraft that are operated exclusively indoors.

*All model aircraft should be excluded from the requirement of registration:* A large number of commenters recommended an exemption from the registration requirement for model aircraft. These commenters included many individual members of the Academy of Model Aeronautics (AMA), as well as other members of the recreational/hobby community. Among the reasons given by commenters for this position were the facts that traditional model aircraft have a long history of safe operations and that the FAA is not authorized to regulate model aircraft. The Aerospace Industries Association said the exemption of ''hobby platforms'' from registration would enhance the viability of the registration process by allowing the focus of the registry to remain on ''commercial use platforms.''

With respect to which aircraft would qualify as ''model aircraft'' for the purposes of an exemption from the registration requirement, some commenters said that any model aircraft flown recreationally should be exempt. One individual commenter asserted that

other countries, such as Australia, Canada and the United Kingdom have made this distinction between recreational and commercial use and not required registration of recreational use aircraft. The Minnesota Department of Transportation also stated that it has not required UAS operated solely for recreational use to register. Many other commenters specifically stated that any model aircraft operated within the safety programming of the AMA should be considered ''model aircraft'' and not ''UAS'' and therefore exempt from the registration requirement. A large number of those commenters asserted that the AMA has ''an impeccable 80-year track record of operating safely,'' and that requiring AMA members to register their aircraft will have no impact on that safety record. Several commenters recommended that the FAA require model aircraft operators to become AMA members. Some other commenters said that any model aircraft that meets the definition of model aircraft contained in the FAA Modernization and Reform Act of 2012 should be exempt from the registration requirement.

A number of individual commenters highlighted the distinction between traditional model aircraft that are home built or assembled from kits (which they characterized as separate from UAS) and Ready to Fly (RTF) aircraft that do not require assembly (which they characterized as UAS). These commenters claimed that traditional model aircraft do not pose a safety risk to the NAS because they are flown strictly within the operator's visual line of sight, have no autonomous control, and have fairly limited ranges. Some commenters also pointed out that model aircraft that are operated within the auspices of the AMA can only be flown at AMA-sanctioned fields and must already display the owner's AMA member ID. Commenters contrasted these models with ready-to-fly aircraft, which are easy to operate, capable of vertical take-off, payload carrying and flying autonomously and beyond visual line of sight, and are often equipped with other enhanced capabilities, such as cameras, GPS systems, and remote viewing electronics. Commenters asserted that the problems that have prompted the FAA to require registration are due to the proliferation of these ready-to-fly aircraft that can be flown beyond visual line of sight. One commenter said ''their ease of use, intuitive controls, and overall availability have created a perfect storm, wherein inexperienced flyers are flying in inappropriate and/or dangerous places.''

Some commenters recommended a blanket exemption for home-built model aircraft. One commenter explained that home-built models should be exempt from registration because individuals who build their own model aircraft ''have the time, experience, personal investment and motivation to be aware of and observe safe modeling practices.'' Another commenter asserted that exempting home- or scratch-built model aircraft ''will allow experimenters, programmers, developers and beta testers to exercise their creativity without complicating or impeding the creative process with unnecessary restrictions.'' Other commenters did not request a blanket exemption for home-built model aircraft but instead recommended exemptions based on performance capabilities, which would necessarily exclude traditional model aircraft. Those recommendations are discussed below.

*Unmanned aircraft under a certain weight should be excluded from the requirement of registration:* Many commenters recommended that the FAA create an exemption from the registration requirement for UAS that fall below a minimum weight threshold. One individual commenter said the FAA needs to collect some real data to determine the weight below which unmanned aircraft no longer pose a threat to people or manned aircraft. Another individual commenter stated any weight threshold chosen for exemption needs to be determined based on kinetic energy and lethality studies. Other commenters made both general and specific recommendations for a minimum weight threshold.

Some individuals based their recommendations on a comparison between the risks to manned aircraft from bird strikes and the risks from collisions with unmanned aircraft. One commenter said that any aircraft over the weight of a mallard duck should be registered. Another commenter recommended an exemption for UAS ''which present a risk equivalent or less than an acceptable bird strike.'' Another commenter recommended an exemption for UAS that weigh less than 1.5 times the heaviest flying bird's weight. Another commenter noted that the FAA has regulations that define the requirements for aircraft to withstand impact from birds (14 CFR 25.631) and engine ingestion from birds (14 CFR 33.76), and recommended the FAA exempt any unmanned aircraft that would have equal or less impact than a bird with the characteristics described in those existing regulations. Another individual commenter said a threshold weight of 2 pounds is ''entirely reasonable'' because crows weigh between 0.7 and 2.6 pounds. Another commenter stated that a weight threshold of 1 kilogram (or 2.2 pounds) is appropriate because it represents a small risk factor based on an FAA wildlife strike report that says ''species with body masses < 1 kilogram (2.2 lbs) are excluded from database.'' [34] Another individual commenter asserted that a weight threshold of 5 pounds is appropriate because damage is likely to be minimal in an emergency event and because manned aircraft already must have the ability to withstand a similar bird strike.

Some commenters based their recommendations on the weight threshold proposed by the FAA in the sUAS Operation and Certification NPRM for a possible micro UAS classification.[35] The News Media Coalition said that if the FAA adopts special rules for micro UAS, then those micro UAS should be exempt from the registration requirement. Aviation Management Associates, Inc. similarly stated that the weight threshold for registration should be 4.4 pounds—the weight proposed in the sUAS Operation and Certification NPRM—''or lesser weight if it is determined vehicles of less than 4.4 pounds create an unacceptable safety risk.'' Aviation Management qualified its recommendation, however, by asserting that no UAS that weighs less than 1.5 pounds should be required to register. A few individual commenters also stated that the weight threshold for registration should be in line with the weight threshold chosen for a micro UAS classification.

The Agricultural Technology Alliance (ATA) asserted that if the FAA issues a blanket exemption from the registration requirement for all micro UAS registration, it can better focus its efforts on higher-risk UAS without compromising safety. ATA also noted that Canada has a similar exemption for micro UAS.

A number of commenters, including Aviation Management Associates, Inc., the National Retail Federation and numerous individuals, asserted that the FAA should exempt UAS that fit into the ''toy'' category. Many of those

[34] Wildlife Strikes to Civil Aircraft in the United States 1990–2014 (July 2015), *available at http://www.faa.gov/airports/airport_safety/wildlife/media/Wildlife-Strike-Report-1990-2014.pdf.*

[35] The sUAS Operation and Certification NPRM considered the creation of a micro UAS classification for UAS weighing no more than 4.4 pounds (2 kilograms) for purposes of operation and certification requirements. 80 FR at 9556–9558.

commenters did not suggest a minimum weight threshold for a toy category. Several individual commenters suggested the FAA use the AMA's guidelines for the Park Flyer Program (*i.e.,* aircraft weighing 2 pounds or less) to define what qualifies as a ''toy'' for purposes of this exclusion.

The Toy Industry Association said that for purposes of defining products that should be exempt from the registration requirement, it is not necessary to create an independent ''toy UAS'' category that is separate from the category of unmanned aircraft that should be exempt from registration requirements ''due to their lower risk.'' Specifically, the association discouraged the FAA from creating a ''toy'' category based on factors unrelated to operational safety, such as cost of the UAS, how it is marketed, or where it is sold, and encouraged the agency to ''instead look at targeted UAS performance indicators that directly speak to the operational risk of the product and exempt all UAS that fit in that category.'' The Toy Industry Association highlighted the weight of the UAS as ''the most risk-related and measurable variable.'' The commenter noted that most of its members manufacture UAS that are below 1 kilogram, but that certain UAS that weigh more than 1 kilogram should also be considered for exemption (*i.e.,* products intended to be flown indoors, products than can only fly relatively low, and products that are equipped with technology that makes the product safer, such as crash avoidance technology or technology that limits the height the UAS can fly).

Prox Dynamics stated that smaller and lighter air vehicles generally display less risk than larger ones. The company asserted, for example, that ''a fly-sized low energy drone has negligible risk, even if a direct impact is considered.'' The company further asserted that a class of ''inherently safe'' aircraft exists that should be exempt from the registration requirement. Specifically, the company recommended an exemption for aircraft with a maximum weight of less than 60 grams. A few individual commenters suggested 3.3 pounds because that weight is used as a threshold for regulating model rockets. Horizon Hobby recommended that products with a gross weight of less than 2 kilograms be exempt from the registration requirement, which the commenter asserted is in line with current FAA-approved exemption for hobby uses. An individual commenter stated that rules already exists for other unmanned objects operating in the NAS, including kites, balloons and rockets (14 CFR part 101), and that the FAA should follow the precedent set by those rules and only regulate UAS heavier than 4 to 6 pounds. Other commenters also recommended specific weight thresholds for exemption from the registration requirement ranging from 60 grams on the low end to 100–150 pounds on the high end.

A few individual commenters framed their proposals in terms of payload weight. One commenter recommended an exemption for unmanned aircraft that are not capable of carrying a payload of more than 1 or 2 pounds. Another commenter recommended that registration be required for unmanned aircraft that are capable of carrying more than 10 pounds of payload. Another commenter said registration be required for any unmanned aircraft that weighs more than 8 or 10 pounds and can carry a load of its weight or higher. An individual commenter asserted that even small, relatively light-weight models have dangerous rotors and can carry a risk of doing damage if they collide with, or are ingested into the engine of, a full-scale aircraft. This commenter further asserted that technology is advancing to enable a single control station to operate multiple UAS in a coordinate way, and a ''swarm'' of otherwise light-weight UAS would be dangerous if flown into the path of a full-scale aircraft.

Some commenters recommended minimum weight thresholds for specific types of UAS. A number of commenters, for example, said model aircraft that do not operate within existing AMA rules should be above 5 pounds to trigger the registration requirement. Another individual commenter said that only model aircraft that are one-half scale or larger should be subject to registration. One individual commenter recommended a 1 kilogram (2.2 pound) threshold for multicopters. The commenter noted that this threshold is commonly used in Europe and the United Kingdom. Another individual commenter recommended a weight threshold of 25 pounds for fixed-wing UAS and 10 pounds for non-fixed-wing UAS. One individual commenter recommended an exemption for quadcopters under 1,500 grams, while another individual commenter recommended an exemption for quadcopters under 20 pounds. One individual commenter recommended an exemption for ''toy'' unmanned aircraft that are 1 pound or less and registration only if used above 300 feet for ''mini'' UAS weighing between 1 and 7 pounds. A few commenters recommended an exemption for small unmanned aircraft that are made out of foam, although the individual did not specify a weight threshold for these aircraft.

*Unmanned aircraft with certain performance capabilities should be excluded from the requirement of registration:* A large number of individual commenters recommended that the registration requirement apply only to UAS that possess certain performance capabilities or aircraft specifications. Many of those commenters, including individuals who submitted comments as part of an AMA form letter campaign, said the registration requirement should apply only to unmanned aircraft that have the ability to operate beyond the operator's visual line of sight. Other commenters, including Aviation Management Associates, Inc. and numerous individuals, also said that unmanned aircraft that are capable of beyond visual line of sight operations should be registered, but those commenters did not say that such unmanned aircraft are the only small unmanned aircraft that should be registered.

In addition to the ability to operate beyond visual line of sight, commenters recommended that the registration requirement apply only to unmanned aircraft that have one or more of the following performance capabilities:

Have the ability to fly autonomously.
Have automated control functions such as ''return-to-home.''
Have RNAV capabilities (either through satellite base navigation or through inertial navigation).
Have first person view capabilities.
Have an onboard navigational system.
Are equipped with GPS.
Take off vertically.
Are capable of hovering.
Are capable of hovering during normal operation and are equipped with onboard photo or video recording equipment.
Are capable of automated or remote-controlled pickup or drop-off of a payload.
Are equipped with an onboard camera or audio recording equipment.
Can transmit a video signal at more than ¼ mile.
Are capable of flight for longer than a specified minimum period of time.
Have a range that exceeds a specified minimum distance. One commenter characterized this as ''electronic line of site.''
Have the ability to fly above a specified minimum altitude.
Are capable of entering controlled or restricted airspace.

Some commenters suggested some minimum weight threshold in combination with one or more of the above-listed capabilities.

A group of academics recommended the FAA adopt a progressive approach that requires registration for only the most problematic technologies—which

they asserted to be long-range first person view and GPS waypoint navigation—and then ''transparently assess'' the results of this registration. These commenters noted that if the FAA determines that conventional model aircraft are still creating an undue hazard for aviation, then additional measures (such as a requirement for low-cost pressure altimeters that limit model aircraft below 400 feet) could be implemented.

The Aerospace Industries Association said that only aircraft capable of sustained, untethered flight should be registered. A few individual commenters similarly recommended exemptions for aircraft that are control-line operated (*i.e.*, tethered flight), that are hand-thrown or rubber-band powered (*i.e.*, ''free flight'' aircraft), and that are unpowered (*e.g.*, gliders).

Several members of the ''free flight'' community specifically recommended that the FAA create an exemption for light-weight, free flight model aircraft that weigh 10 ounces or less and have no means of externally controlling their aircraft while in flight.

Another individual similarly asserted that speed, altitude, and flight duration will depend on battery, motor, and propeller size, and that weight should therefore be used to determine which UAS should be exempt from the registration requirement. The commenter noted that consideration of factors such as speed, altitude, and flight duration raises the question of what defines the actual UAS (*e.g.*, the fuselage for a plane, the frame of a quadcopter). The commenter further noted that the same fuselage can have dramatically different performance characteristics if the battery, motor, or propeller is changed. The commenter asserted that registering each combination ''would be absurd,'' and any change in propeller, motor, or battery size would raise questions of when an owner needs to re-register the aircraft.

There were commenters, however, who disagreed with a requirement to register UAS that possess some of the above-listed capabilities. An individual commenter, for example, said that enhanced capabilities such as first person view or flight controls capable of autonomous flight should not be a reason for requiring registration. The commenter claimed that an aircraft that does not exceed safe mass/speed/altitude/duration thresholds is not automatically a threat to manned aircraft simply by virtue of being equipped with enhanced capabilities. Another individual commenter said that small UAS equipped with GPS should not automatically be required to register because some small UAS flown by beginners use GPS to stabilize the aircraft, which increases their safety level. The commenter noted that these UAS have controls that will not let the aircraft fly above a certain altitude. Several commenters said that any requirement to register all UAS that have the ability to fly above a certain altitude or to enter controlled airspace should exclude UAS that are programmed with geofencing or ''Safe Fly'' technology, which limits altitude and restricts flight into controlled airspace. The Toy Industry Association cautioned against using altitude as a threshold for registration. The commenter noted that not all companies use technology that limits the height a UAS can fly and that it would be premature to spell out specific technological requirement to ensure that UAS fly below a certain altitude when other technology advancements may develop that achieve the same purpose. The Toy Industry Association also asserted that the issue of whether a UAS is equipped with a camera is not relevant to registration. The association stated that, while there are legitimate privacy concerns to consider, ''this conversation should not take place in the context of the aviation industry safety at this time.''

The National Retail Federation said that unmanned aircraft ''that are designated as 'toys' with limited performance capabilities'' should be exempt from the registration process. The commenter did not, however, specify what qualifies as ''toys,'' or what performance capabilities would remove an unmanned aircraft from the ''toy'' category. Rather, the commenter said the FAA should require registration based on potential safety and security risks associated with performance capabilities or material specifications of the unmanned aircraft, or the age of the operator.

Some commenters stated more generally that aircraft capabilities should not be a consideration for exemption from registration. One individual said speed, altitude, and flight duration should not be criteria for registration because they can vary depending on a wide-variety of ''user-selectable UAS components'' such as props choice, battery size, and flight mode, among others. Another individual said that because unmanned aircraft are constantly changing and evolving, it would be a poor choice to develop limitations based on performance. Several other individuals stated that registration should only be required if the operator intends to operate in the same airspace as manned aircraft. A few other individuals said all UAS flown in public spaces should be registered, regardless of aircraft capabilities. Another individual said capabilities of the aircraft have nothing to do with whether it is a safety risk or not; rather, it is the practices of the pilot that determine the safety risk.

*Unmanned aircraft should be excluded based on operations conducted:* Some commenters said that unmanned aircraft should be excluded from the registration requirement based on operations, rather than weight or aircraft specifications and capabilities. Modovolate Aviation, LLC and a number of individual commenters recommended a limited exemption for UAS that are operated exclusively indoors. As noted above, many commenters said that small UAS that are operated within the operator's visual line of sight, or below a minimum altitude, or below a certain speed, should be exempt from the registration requirement. Also noted above, some individual commenters recommended an exemption from the registration requirement for UAS that are flown under AMA safety guidelines on AMA-sanctioned flying fields. A few other individual commenters recommended an exemption for UAS that are operated, with permission, over private property. Another individual commenter recommended an exemption for UAS engaged in semi-commercial/agricultural operations that are conducted under 500 feet above ground level and over sparely populated areas. Another individual commenter recommended an exemption for UAS flying over ''largely unpopulated areas.'' Several individual commenters said the registration requirement should not apply to UAS that are used at schools and institutions for educational purposes. Another individual commenter recommended an exemption for UAS used for non-profit purposes.

The US Drone Racing Association said that drones used for racing—which generally stay under 100 feet and within visual line of sight—should not be required to register, unless their operations exceed some minimum operational thresholds such as beyond visual line of sight, range over half mile, or above 400 feet.

An individual commenter noted that, due to radio restrictions for video transmissions, first person view pilots are required by law to have a Federal Communications Commission (FCC) license for any transmitter over 25mW. Because those pilots are already required to register and place identifying markings on the transmitter,

the commenter recommended an exemption from the FAA registration requirement for a first person view pilot with an FCC license.

Other commenters phrased their recommendations in terms of UAS operations that should be included in the registration requirement. A number of commenters, including Aviation Management Associates, Inc. and many individuals, said any UAS used for commercial purposes should be registered. Several individual commenters said UAS operated in controlled airspace should be required to register. Another individual commenter said registration should be required for UAS that operate over private property, at altitudes over 400 feet, over populated areas, and within 5 miles of an airport.

*Other comments on whether certain UAS should be excluded from the registration requirement:* Some commenters recommended registration requirements based on aircraft type. Several individuals said that all fixed-wing UAS should be exempt from registration. A few other individuals said that only multirotor UAS should be required to register (because they are easy to fly and can take off from anywhere). Other categories of UAS that commenters said should be included in the registration requirements were high-volume production aircraft (*i.e.*, models produced in volumes greater than a specified value, such as 5,000 or 10,000 units per year) and UAS powered by gas/oil mixes. Some commenters suggested that UAS be excluded from the registration requirement based on frame size or prop size.

A number of commenters recommended a combination of factors to consider when determining what, if any, category of UAS should be excluded from the registration requirement.

Aviation Management Associates, Inc., said the FAA should exempt ''any small UAS regardless of weight that is limited by manufacturing firmware or other acceptable means to operating below 500 feet above ground level, will not exceed a ½ range mile from the operator and the associated ground control station, as well as provides geo-fencing and altitude limitations that meets FAA exclusionary airspace.''

The Property Drone Consortium stated that micro-drones of some maximum weight, speed, and altitude should be exempt from registration. The commenter suggested the following possible thresholds: Weight under 1 pound, 15–20 mph maximum flight speed, and an altitude of under 100 feet. The commenter also stated that an assessment could be made based on joules of imparted energy. The commenter further stated that region of operation should also be a point of consideration for a possible exemption from the registration requirement.

The Retail Industry Leaders Association said the FAA should adopt a risk-based approach and only require registration of UAS that present the greatest safety risks, based on consideration of factors including: Product weight and overall size, operating range, maximum speed, maximum altitude, fragility, and GPS and other navigation capability. Travelers Insurance Company similarly asserted that any unmanned aircraft that the FAA determines poses a risk to the national airspace or causes serious bodily injury or property damage should be registered. The commenter went on to say that the FAA should exercise discretion with respect to unmanned aircraft ''that are so light in weight and lacking in capabilities so as to pose no meaningful threat to persons, property or the national airspace.'' The commenter did not, however, specify what weight or what limited capabilities should be used as a threshold for registration.

Latitude Engineering, LLC asserted that ''there exists a threshold of mass and speed under which the risk associated with the flight of an unregistered commercial UAS is more than offset by the value returned to the public.'' The company stated that it reached this conclusion after evaluating the kinetic energy of various UAS airframe configurations from first principals and drawing from studies such as ''UAS Safety Analysis'' by Exponent (Dec. 16, 2014). The company's specific recommendation was to exempt UAS that are near the following values: Mass of an upper limit of 1 pound, speed limited to 50 knots, and altitude limited to 200 feet above ground level or 100 feet from the highest obstacle within 200 lateral feet. The company also asserted that no unregulated flights should be allowed within 5 miles of an airport.

Delair-Tech asserted that it would make sense for a category of unmanned aircraft associated with a low risk of accidental damage to be exempt from registration. The company defined this category as unmanned aircraft that weigh less than 1 kilogram and have a flight performance that is limited to 50 meters in height. The company based its recommendation on the ''toys and mini-drones'' category defined by the European Aviation Safety Agency in Ref 5, Proposal 14.

ATA stated that the FAA should exempt from the registration requirement any UAS that is to be used solely in rural areas, which the commenter said should be defined as a certain distance from an airport or a major population center. ATA noted that Canada also has an exemption for operations in low-risk rural areas.

EPIC noted that the registration scheme, as currently envisioned, does little to solve the problem of identifying a UAS or UAS operator because the only UAS that will be identifiable are those that are recovered after a crash. EPIC also noted that the current registration plan does nothing to inform the public of surveillance capabilities of the drone, which is necessary to make UAS operators accountable to the public.

Another individual said the important criteria for a registration determination are wingspan dimensions, propeller diameter and type, energy source, and weight. Another individual stated that exemptions should be based on weight, speed, and operating height. This commenter suggested the FAA use a formula to calculate a UAS's impact energy, where ''E'' is the impact energy, ''m'' is the mass, ''v'' is the maximum flight speed, ''g'' is gravitational acceleration (constant), and ''h'' is the height. This commenter stated that FAA could conduct a comprehensive study to determine the critical value of impact energy, and users could calculate the impact energy of their UAS, simply by filling the mass, maximum flights speed, and maximum height into an online formula available on the FAA Web site. Another individual said most ''hobby class UAS'' should be excluded from registration based on the empty weight of the aircraft and the potential kinetic energy of the unit. This commenter asserted that there is precedent for this method and that it has worked reasonably well with part 103 ultralight vehicles and light sport aircraft. This commenter claimed that a 55-pound model aircraft flown at 60 mph has around 12% of the kinetic energy of a part 103 vehicle traveling at the same speed, even with a payload of 40% of the empty weight. This commenter further claimed that a typical motorcycle driven at 40 mph would have nearly 4 times the kinetic energy of a 55-pound UAS flying at 60 mph. This commenter asserted that society accepts this level of risk for pedestrians, and questioned why one-quarter of that level of risk posed by an out-of-control UAS would also not be acceptable.

*Task Force Recommendation:* The Task Force accepted as a baseline that the registration requirement will only apply to small unmanned aircraft (*i.e.*,

aircraft weighing less than 55 pounds) that are operated outdoors in the NAS. Beyond that baseline, however, the FAA asked the Task Force for recommendations regarding additional minimum requirements for small unmanned aircraft that would need to be registered. In particular, the agency asked the Task Force to consider factors including, but not limited to, technical capabilities and operational capabilities such as size, weight, speed, payload, equipage, and other factors such as the age of the operator.

The safety of the non-flying public and of other users of the NAS was central to the Task Force's determination of what category of small unmanned aircraft to recommend for exemption from the registration requirement. With considerations of safety in mind, the Task Force addressed the possibility of recommending an exclusion based on various factors, including: Weight (alone and in combination with altitude or kinetic energy), mass, speed, kinetic energy, payload, equipage (*e.g.*, camera, GPS), and operational capabilities, such as the ability to navigate the airspace, the ability to operate above a certain altitude above ground level, the ability to operate beyond the visual line of sight of the operator, the ability to operate autonomously, and flight duration.

The Task Force ultimately agreed to use a mass-based approach to determine an appropriate category of small unmanned aircraft to recommend for exclusion from the registration requirement. This was based upon the probability of a catastrophic event occurring (*i.e.*, death or serious injury) due to a collision between a small unmanned aircraft and a person on the ground. The Task Force further stated that because of the lack of data on unmanned aircraft-aircraft collisions, engine ingestion, and propeller impacts by unmanned aircraft, the probability of a catastrophic event occurring due to those events was not part of its consideration. Rather, the task force noted that research in this area continues and as it becomes available, this threshold should be evaluated and adjusted accordingly. This approach best satisfied the Task Force's concerns about safety and provided a minimum weight threshold for registration that is easy to understand and apply and would therefore encourage compliance.

The formula considered by the task force is a standard aviation risk assessment formula used in consideration of manned aircraft safety. For ease of administration and small unmanned aircraft owner understanding, the Task Force strongly advised a mass-based approach for determining the generally safe threshold below which a small unmanned aircraft system would not need to be registered.

The Task Force recommended that the FAA should exempt from the registration requirement any small unmanned aircraft weighing 250 grams (g) or less. The 250 grams or less exclusion was based on a maximum weight. The Task Force assumed maximum weight was defined as the maximum weight possible including the aircraft, payload, and any other associated weight.

The Task Force proposed this mass by considering: The maximum free-fall kinetic energy of a small unmanned aircraft from 500 feet (ft) above ground level; research papers assessing the lethality of inert debris based on kinetic energy; and a determination of the probability that a small unmanned aircraft with potentially lethal kinetic energy would strike a person on the ground. The Task Force's recommendation assumed population density for a densely packed urban environment, as well as a conservative estimate of the percentage of people in that crowded environment who may be unprotected and susceptible to injury from a falling small unmanned aircraft. To determine the probability of an accident, the Task Force provided an estimate of the mean time between failure (MTBF) for small unmanned aircraft. Mathematically, the Task Force predicts that the likelihood of a fatal accident involving a small unmanned aircraft weighing 250g or less is $4.7 \times 10^{-8}$, or less than 1 ground fatality for every 20 million flight hours of small unmanned aircraft 250g or less. The Task Force noted that the acceptable risk level for commercial air transportation is on the order of $1 \times 10^{-9}$, and general aviation risk levels are on the order of $5 \times 0^{-0}$.

The Task Force emphasized that this recommendation is conditioned on the premise that this and the Task Force's other recommendations will be accepted, without alteration. Certain members of the Task Force asked that it be noted that this is a nascent industry with very little experiential data to inform the assumptions and that periodic review of the data may be warranted. Certain Task Force members noted that the FAA's 25 years of bird strike data show that fatal aircraft accidents caused by small and medium birds (weighing four pounds on average) are extremely rare despite the presence of billions of birds within the low altitudes where small UAS typically fly, and urged the FAA to select a weight that posed a similar safety risk. Task Force members representing manned aircraft organizations expressed specific concerns that data on UAS-aircraft collisions, engine ingestion, propeller, and rotor impacts by UAS was not available when determining the weight threshold. All members urged the FAA to expedite its work currently underway in this area. The Task Force also emphasized that 250-gram weight threshold was agreed to for registration purposes only and was not a validation of the underlying assumptions for any purpose other than the registration requirement. All Task Force members agreed that the threshold should not be used by the FAA as an index for operational restrictions or categories in any future rulemaking unless safety concerns require the FAA to take appropriate action.

*IFR Requirement:* The FAA has considered the comments received to the Clarification/Request for Information and the Task Force recommendations. As noted above, the formula considered by the Task Force is a risk assessment approach that results in a method to determine which small unmanned aircraft are required to be registered. In recognition of the potential risks posed by small unmanned aircraft highlighted by the Task Force's work, the FAA agrees with the Task Force recommendation and generally agrees with its approach for purposes of aircraft registration only. The Task Force recommendation results in a simple, straight forward method to determine which aircraft should be registered. Accordingly, this rulemaking adopts the Task Force recommendation to exclude small unmanned aircraft weighing an equivalent of 250 grams or less. (FAA is using the pound equivalent of 250 grams–0.55 pounds.) The agency emphasizes, however, that the Task Force approach may be different from the approach that will be used in the sUAS Operation and Certification rulemaking to develop operating requirements.

The FAA recognizes that the Task Force recommendation strikes a balance between many stakeholders, including modelers, unmanned aircraft manufacturers, operators, retailers, and the manned aviation community. As this aviation sector continues to develop, operating experience and new technologies may compel the agency to reconsider the appropriate weight threshold for unmanned aircraft registration. Additionally, new research may necessitate a change from the weight-based approach recommended by the Task Force. Since the Task Force's methodology only assessed the

risk to individuals on the ground, the agency recognizes that additional research is necessary to evaluate the risk of collisions between small unmanned aircraft and manned aircraft. The FAA has several tests, both in-progress and planned, in collaboration with our UAS Test Sites and UAS Center of Excellence.

The FAA considered comments that advocated for the use of weight in combination with other factors and determined that these scenarios would be more difficult to implement and could cause confusion. The FAA also considered comments that recommended exclusions from the registration requirement based on operational limitations, *e.g.*, altitude, speed, visual line of sight operations only. However, at this time, the FAA is concerned that these approaches could stifle innovation in the ongoing and rapid development of sUAS technology. Thus, the FAA determined that these were not viable methods to create exclusions.

Regarding commenters who recommended that the FAA exclude certain aircraft from the requirement of registration based on the locations at which those aircraft would be operated (*e.g.*, private property), such an approach would defeat the purpose of registration, which is to identify aircraft throughout the NAS and the owners of such aircraft. Registration based on intended location would not address that intent because the NAS extends over private property. In response to the comments urging the exclusion of some or all model aircraft from the registration requirement, the FAA has determined that doing so would be contrary to the policy adopted in the October 22, 2015 Clarification/Request for Information.

In response to the comments urging the exclusion of some or all model aircraft from the registration requirement, as stated in the Clarification/Request for Information, model aircraft are indeed aircraft and thus they are subject to the statutory requirement of aircraft registration. 80 FR at 63913–63914.

In response to the commenters who advocated for a limited exemption for unmanned aircraft operated exclusively indoors, the FAA reiterates that the requirement of registration pertains to aircraft operated in the NAS, thus outdoors. An exception is not required to stipulate that small unmanned aircraft operated exclusively indoors are not required to register with the FAA.

Regarding comments received to the Clarification/Request for Information pertaining to the micro UAS proposal contained in the sUAS Operation and Certification NPRM, the FAA notes that issues pertaining to weight classifications for purposes of sUAS operation and certification purposes are outside of the scope of this rulemaking.

Regarding comments pertaining to privacy and operational concerns, the agency clarifies that this rulemaking is intended only to provide relief from the existing part 47 registration requirements. Pursuant to the Presidential Memorandum issued on February 15, 2015, Promoting Economic Competitiveness While Safeguarding Privacy, Civil Rights, and Civil Liberties in Domestic Use of UAS, the National Telecommunications and Information Administration (NTIA) is leading a multi-stakeholder engagement process to develop and communicate best practices for privacy, accountability, and transparency issues regarding commercial and private use of UAS in the NAS, and will address these issues through that process.

*D. Eligibility To Register*

1. Citizenship

This final rule includes the statutory eligibility requirements for aircraft registration as required by 49 U.S.C. 44102. An aircraft may be registered under 49 U.S.C. 44103 only when the aircraft is not registered under the laws of a foreign country and is owned by (1) a citizen of the United States; (2) an individual citizen of a foreign country lawfully admitted for permanent residence in the United States; or (3) a corporation not a citizen of the United States when the corporation is organized and doing business under the laws of the United States or a State, and the aircraft is based and primarily used in the United States. The FAA may also register aircraft owned by the United States government or a State or local governmental entity. *See* 49 U.S.C. 44102. Part 47 includes these statutory eligibility requirements.

*sUAS Operation and Certification NPRM:* The sUAS Operation and Certification NPRM addressed the applicability of the statutory aircraft-registration requirement by proposing to require all small unmanned aircraft subject to the proposal to be registered pursuant to the existing registration process of part 47. *See* 80 FR 9574. The NPRM did not address issues pertaining to the eligibility to register (including citizenship).

Although the sUAS Operation and Certification NPRM did not address the issue of aircraft owner citizenship as it relates to small unmanned aircraft in part 47, one commenter to the NPRM raised the issue. DJI acknowledged the constraints the statutory aircraft registration requirements place on the FAA, but believed that those restrictions prevent most foreign citizens from operating a small UAS commercially in the United States. DJI presumed that tourists operating small UAS as model aircraft would be allowed to do so. DJI urged the FAA to consider asking Congress either to drop the aircraft registration requirement for all small UAS altogether or to withdraw the citizenship requirement (including its limited exceptions).

*Clarification/Request for Information:* Rotor Sport recommended against requiring U.S. citizenship for registration of small UAS because it would be ''severely detrimental'' to the rotor sport industry. In particular, Rotor Sport stated that requiring citizenship for small UAS that are already governed by the Amateur Competitive Sport regulations of the AMA ''would severely and financially impact international drone racing events, including the 2016 World Drone Racing Championship being held in Hawaii.''

*Task Force:* As part of its discussions regarding who should register a small unmanned aircraft, the Task Force addressed the issue of citizenship status of applicants for registration. Considering the goals of encouraging the growth of the UAS industry and compliance with the registration requirement, the Task Force recommended there be no U.S. citizenship or residency requirement for registration eligibility. If, however, the FAA does include a U.S. citizenship requirement, the Task Force recommended that the agency use its discretion to permit non-citizen owners to operate in the U.S. by applying for a waiver from the registration requirement for a specified period of time (consistent with 49 U.S.C. 41703(a)(4)). The Task Force believed that eliminating the citizenship requirement would help achieve the goal that small unmanned aircraft owners are known to the FAA for safety purposes.

*IFR Requirement:* While the FAA can make certain changes to the registration system regarding the types of information to be collected, and how that information is collected, the statutory requirements pertaining to citizenship in 49 U.S.C. 44102 are clear. The statutory citizenship criteria must be satisfied in order to obtain a certificate of U.S. registration.

As noted above, registration is just one requirement that must be satisfied in order to operate an aircraft in the U.S. With respect to the operation of unmanned aircraft, Article 8 of the

Convention on International Civil Aviation, signed at Chicago on 7 December 1944 and amended by the ICAO Assembly (Doc 7300) addresses 'pilotless aircraft' and states that:

> No aircraft capable of being flown without a pilot shall be flown without a pilot over the territory of a contracting State without special authorization by that State and in accordance with the terms of such authorization. Each contracting State undertakes to insure that the flight of such aircraft without a pilot in regions open to civil aircraft shall be so controlled as to obviate danger to civil aircraft.

For those that do not satisfy the citizenship requirements for U.S. registration, consistent with the authority in 49 U.S.C. 41703, the Secretary may authorize certain foreign civil aircraft to be navigated in the U.S. only (1) if the country of registry grants a similar privilege to aircraft of the U.S.; (2) by an airman holding a certificate or license issued or made valid by the U.S. government or the country of registry; (3) if the Secretary authorizes the navigation; and (4) if the navigation is consistent with the terms the Secretary may prescribe. *See also* 14 CFR part 375, Navigation of Foreign Civil Aircraft in the United States.

In this instance, with respect to those individuals who do not satisfy the citizenship requirements and yet wish to conduct model aircraft operations in the U.S., the Secretary has determined, consistent with Article 8, and the authority under 49 U.S.C. 41703, as implemented in 14 CFR part 375, that it is appropriate to allow these operations to occur provided that individuals complete the process set forth in 14 CFR part 48 and comply with the statutory requirements for conducting model aircraft operations in Public Law 112–95, section 336 (Feb. 14, 2012). For these individuals, recognizing that most ICAO member states have not imposed a registration or airworthiness requirement for these small unmanned aircraft, we will recognize these aircraft as ''other foreign civil aircraft'' as defined in 14 CFR 375.11. Consistent with the Secretary's authority in section 333 of Public Law 112–95, provided the aircraft are operated exclusively as model aircraft in accordance with section 336 of Public Law 112–95, an airworthiness certificate will not be required. Section 375.38 will require individuals to comply with § 48.30 and pay a $5 fee, complete the application and the registration process in §§ 48.100(b) and (c), 48.105, and 48.115; mark the aircraft in accordance with the provisions in §§ 48.200 and 48.205, and comply with the statutory model aircraft requirements in section 336 of Public Law 112–95. The agency will consider the certificate that is issued to be a recognition of ownership rather than a certificate of U.S. aircraft registration. These conditions are consistent with and impose no greater burden than the requirements imposed on U.S. citizens conducting model aircraft operations in the U.S.

2. Commercial Activity Conducted by Non-U.S. Citizens

A corporation that is not a citizen of the United States may register an aircraft in the United States when the corporation is organized and doing business under the laws of the United States or a State, and the aircraft is based and primarily used in the United States. 49 U.S.C. 40102(a)(1)(C). This statutory limitation exists in order to prevent the United States registry from ''becoming an international registry'' and ''United States aircraft registration from becoming a so-called 'flag of convenience.' '' *See* 44 FR 61937, 61937–61938 (October 29, 1979).

Part 47 implements the requirement to define ''based and primarily used in the United States.'' Under part 47, aircraft are deemed to be ''based and primarily used in the United States'' if one of the following conditions is satisfied: (1) The aircraft is used exclusively in the United States during the period of registration; or (2) the aircraft flight hours accumulated within the United States amount to at least 60 percent of the total flight hours of the aircraft, measured over six month intervals. § 47.9. Because operations by small unmanned aircraft registered in accordance with part 48 are limited to operations within the United States, it is not necessary to further define ''based and primarily used in the United States'' as provided in part 47.

With respect to foreign-owned or controlled entities or individuals who want to conduct non-recreational UAS operations but who do not satisfy the definition above and thus cannot register their aircraft in the United States under either 14 CFR part 47 or part 48, the Department and the FAA may consider allowing these operations to occur with additional authorization under the authority of 49 U.S.C. 41703, the provisions of 14 CFR part 375, and other safety authorizations as deemed necessary by the FAA. Comments are requested on what factors the FAA or the Department should consider in determining whether and when to grant such authorizations. The Department will address these authorizations in more detail in the sUAS Operation and Certification final rule, the final rule on sUAS registration, or other rulemaking as appropriate. For more information and guidance regarding authorities for non-U.S. citizens, please contact the Department's Foreign Air Carrier Licensing Division.

3. Minimum Age To Register

*Clarification/Request for Information:* In the Clarification/Request for Information document, the agency sought comments on whether there should be a minimum age at which a person would be permitted to register a small unmanned aircraft. An individual commenter opposed a minimum age requirement, noting that a 10 year old can be safer than a 30 year old. A few other individual commenters did, however, recommend a minimum age requirement to register and operate a UAS—one commenter recommended 21 years old (to purchase and operate a UAS), two commenters recommended 18 years old (to register a UAS), and one commenter recommended 16 years old (to register a UAS). Another individual commenter said there should be an age requirement to purchase UAS weighing more than 4 pounds. That commenter did not, however, suggest an age at which this requirement should be set. One commenter pointed to the existence of child protection laws and questioned how the FAA will protect privacy interests in the registration process.

*Task Force:* Due to the anticipated use of a Web-based application process for part 48, the Task Force considered age-related limitations applicable to Web-based information collection. Consistent with the Children's Online Privacy Protection Act (COPPA), 15 U.S.C. 6501–6505, the Task Force recommended a requirement that individuals be 13 years or older to register a UAS.

*IFR Requirement:* In response to the comments from the Clarification/Request for Information, the agency notes that the comments did not provide justification for an age restriction for purposes of registration given that there is no minimum age for the operation of some sUAS and the agency proposed a minimum age of 17 for operation of sUAS used for commercial (non-hobby or non-recreational) purposes. Although one commenter proposed that the registration age should be linked to the weight of the aircraft, given that the registration process provided by this final rule is exclusively Web-based, protections for minor registrants must control. The FAA agrees with the Task Force recommendation to limit Web-based small unmanned aircraft registration to persons age 13 and older and has included this requirement in this IFR.

As a matter of policy (OMB Guidance for Implementing the Privacy Provisions of the E-Government Act of 2002), all Web sites and online services operated by the federal government and contractors operating on behalf of federal agencies must comply with the standards set forth in the Children's Online Privacy Protection Rule (16 CFR part 312). COPPA applies to Web site operators (including mobile apps) directed to children under 13 that collect, use, or disclose personal information from children. It also applies to operators of general audience Web sites or online services with actual knowledge that they are collecting, using, or disclosing personal information from children under 13. COPPA also applies to Web sites or online services that have actual knowledge that they are collecting personal information directly from users of another Web site or online service directed to children. Operators who are covered by COPPA must:

1. Post a clear and comprehensive online privacy policy describing their information practices for personal information collected online from children;

2. Provide direct notice to parents and obtain verifiable parental consent, with limited exceptions, before collecting personal information online from children;

3. Give parents the choice of consenting to the operator's collection and internal use of a child's information, but prohibiting the operator from disclosing that information to third parties (unless disclosure is integral to the site or service, in which case, this must be made clear to parents);

4. Provide parents access to their child's personal information to review and/or have the information deleted;

5. Give parents the opportunity to prevent further use or online collection of a child's personal information;

6. Maintain the confidentiality, security, and integrity of information they collect from children, including by taking reasonable steps to release such information only to parties capable of maintaining its confidentiality and security; and

7. Retain personal information collected online from a child for only as long as is necessary to fulfill the purpose for which it was collected and delete the information using reasonable measures to protect against its unauthorized access or use.

The Registry, through the small unmanned aircraft registration Web site, is expected to gather personal information as defined by COPPA, such as first and last name, a physical or mailing address and online contact information. In light of these requirements, the registration Web site will require a responsible person age 13 or over to complete the registration application, providing their name in place of the child's name when the aircraft owner is a child under 13, as required by § 48.15.

All aircraft owners who are age 13 and older will be required to register in their name as the aircraft owner. The agency does not expect a person who turns 13 after the date on which the Certificate of Aircraft Registration is issued but before renewal is required, to reregister their small unmanned aircraft in their own name. The agency expects this change to take place at the time of registration renewal. Until such time, the responsible person can continue to meet the obligations of the owner for purposes of device identification.

We recognize that in order to register in the system, the payment of the fee requires the use of a credit, debit, gift, or prepaid card using the Visa, MasterCard, American Express, JCB, Discover, or Diners Club network. For owners who are age 13 and older who do not have access to one of these payment methods, a parent, guardian, or responsible person could submit payment on their behalf using one of these options.

*E. Registration Required Prior to Operation*

1. Registration Prior to Operation

*Clarification/Request for Information:* The FAA requested comments on the point at which registration should occur (*e.g.*, point-of-sale or prior to operation). Several trade associations whose members use UAS (News Media Coalition, Air Medical Operators Association, Aerospace Industries Association (AIA), and Property Drone Consortium), Modovolate Aviation, LLC, and Morris P. Hebert, Inc. supported point-of-sale registration. A number of individuals stated that registration at point of sale was the only approach that would ensure that registration would occur at least for ready-to-fly UASs. These commenters stated that many operators would not register later. Some of these commenters, however, questioned whether point-of-sale registration could be applied to home-built or traded UASs. A few commenters compared the registration process to that which occurs for car and gun sales. Some commenters stated that an unlock process should be included so that the UAS could not be used until registration was complete. Another suggested registering the beacon, not the UAS. Commenters stated that point-of-sale registration, with the seller handling the information, would reduce the burden on buyers. Some individuals stated that purchasers should have to demonstrate that they were familiar with the rules for operation.

Chronicled, Inc. stated that a registration system should be designed to integrate all POS systems that currently exist; this commenter assumed that each buyer would have an email address and government ID number that could be used to set up a registration account by downloading a mobile app. This company also assumed that the product would include a public key infrastructure (PKI) chip. The Real Time Technology Group stated that vendors could easily verify IDs presented by checking public records, and government watch lists.

The National Agricultural Aviation Association (NAAA), the Colorado Agricultural Aviation Association, and an individual stated that the burden on vendors would be no greater than submitting credit card charges. NAAA recommended that initial registration occur at the manufacturers, with all subsequent sales involving a transfer of ownership. A law firm and individual commenters generally supported having the vendor submit the information because, they argued, this would ensure that the registration occurred. One suggested that the vendor submit a temporary registration with the purchaser required to submit a final version.

Most commenters that addressed this issue expressed either opposition to the approach or concerns about the viability of point-of-sale registration for some sales. AT&T Services, Inc. questioned the FAA's legal authority to impose a registration requirement at the point-of-sale, given that the statutory authority underlying the UAS registration requirement, as well as its implementing regulation, applies to persons who ''operate'' aircraft. In this case, AT&T asserted, it is the owner of the UAS who ''operates'' it, and should therefore be responsible for registering it.

The Retail Industry Leaders Association (RILA) stated that point-of-sale registration would require the FAA to build new information technology systems to collect the information and retail outlets would have to build and test systems to link to the FAA. RILA stated that this was unlikely to happen in the short timeframe the FAA is proposing. RILA further stated that the practical realities of implementing a

point-of-sale registration system in time for this holiday season would impose heavy and costly administrative burdens on the FAA and retailers while at the same time raising serious consumer privacy concerns.

The National Retail Federation (NRF) stated that many retail point-of-sale systems are not configured to capture individual product identifying information. From a product's UPC code, many point-of-sale systems will identify the type of item, but cannot be configured to automatically capture information identifying each unique instance of an item type, such as a serial number. NRF stated that point-of-sale registration would require retailers to build a manual intervention process into their point-of-sale systems; cashiers would have to manually capture the serial number of the UAS and other required registration information. The commenter said this process would require training sales personnel, which imposes labor costs.

RILA and NRF stated that collecting personal information in a checkout line was problematic and presented data safety issues. RILA stated that it would cause significant delays in checking out for both UAS buyers and other customers. For both store and online sales, RILA stated that the retailer would have to explain the requirements to the customers because many would not be aware of the FAA rule. RILA also stated that point-of-sale registration would not capture the needed information for those UAS that are bought as gifts. Finally, RILA stated that a point-of-sale requirement would regulate sales rather than operations and questioned whether the FAA has the authority to regulate sales.

A number of individual commenters stated the point of sale would not work for people who build their own models from purchased parts or 3D-generated parts, for many online sales, and for purchases from foreign Web sites. One commenter stated that he bought parts without necessarily knowing exactly what kind of model he will build. Another commenter stated that some kits are sold by individuals operating small businesses from their homes. Several individuals suggested that the FAA provide identification numbers to purchasers so that the seller would only need to record the numbers. Other commenters recommended that AMA membership or proof of registration with the FAA be required at point of sale.

RILA, Horizon Hobby, and many individual commenters supported registration prior to operation. They stated that this approach would make it possible to capture the many UAS that are purchased as gifts, from foreign Web sites, or sold privately and those that are constructed by the operator. A number of commenters suggested that this would allow the operator to affix the registration number on the UAS. Other commenters stated that they own multiple aircraft and asked that the operator, rather than the aircraft, be registered. A few individuals stated that the registration process could be handled when the owner filed the warranty card. One commenter stated that a prior to operation placement of name and contact information in the aircraft would be a more efficient means of ensuring the identity of the person piloting the aircraft is tied to the aircraft. Another individual stated that in some cases models are started by one person, passed on to others, and perhaps never finished or flown; including such models would serve no purpose.

The NRF stated UAS should be manufactured so that they can only be turned on and operated after the consumer registers the UAS and receives and applies an activation code. A manufacturer, Drone House Joint Stock Company, stated that this approach is its model for registration.

Another individual questioned how the FAA has authority to require registration of UAS that are ''on the ground, not being flown, with the drone being turned off, in a box, and inside a building.'' This commenter asserted that, consistent with 14 CFR parts 1, 47, and 91 and 49 U.S.C. 44101(a), the FAA only has jurisdiction over a UAS that is in operation.

*Task Force:* The Task Force approached its discussions of the registration process with two goals in mind—to ensure accountability by creating a traceable link between aircraft and owner, and to encourage the maximum levels of regulatory compliance by making the registration process as simple as possible. To achieve the twin goals of accountability and compliance, the Task Force recommended the FAA institute a simple, owner-based registration system in which the FAA issues a single registration number to each registrant which covers all unmanned aircraft owned by that registrant.

The Task Force also addressed the question of registration process design. Because 49 U.S.C. 44101(a) stipulates that a person may only *operate* an aircraft when it is registered with the FAA, the majority of Task Force members believed the FAA cannot require registration of unmanned aircraft at the point-of-sale. Some members of the Task Force expressed the opinion that maximum compliance can best be achieved with point-of-sale registration and those members therefore encouraged the FAA to include it as one of several options for registration. Several other members of the Task Force pointed out that, because the FAA's authority extends only to *operation* of aircraft, point-of-sale registration cannot be mandated.

*IFR Requirement:* The FAA agrees with the Task Force recommendation and comments stating that registration should be required prior to operation of the small unmanned aircraft, as opposed to at the point of sale. As referenced by the Task Force report, 49 U.S.C. 44101(a) stipulates that a person may only operate an aircraft once it is registered with the FAA.

Registration prior to operation as opposed to point-of-sale registration also avoids a number of logistical considerations associated with consumer product purchases identified by commenters, such as distinguishing the purchaser from the ultimate owner, and the burden placed on retailers when such a transaction occurs at a cash register in a store.

The agency emphasizes, however, that conformance to the statutory requirement to register prior to operation does not foreclose the opportunity for the development of a point-of-sale web-based application for registration that relieves the associated burdens identified by commenters. The agency encourages innovation in point-of-sale registration as it may provide the agency with a means by which to receive information regarding small unmanned aircraft in a seamless fashion, and hopes to work with retailers and manufacturers in the future to make the process as simple as possible.

In response to commenters' concern about whether a small unmanned aircraft that is not used in the NAS (*i.e.* indoors) would be inadvertently registered via point-of-sale registration, the agency confirms that only those small unmanned aircraft that are operated outdoors must register. Further, there is no obligation to register a small unmanned aircraft that will not be operated outdoors.

2. Registration of Each Aircraft

*Clarification/Request for Information:* Most commenters favored a requirement to register the owner [36] of the UAS

[36] Some commenters said the registration requirement should apply to the ''owner'' while other commenters said it should apply to the

Continued

instead of a requirement to register the UAS itself. Under this registration scheme, each owner would receive a single, unique registration number that would cover every UAS that person owns. Many commenters pointed out that this is how the AMA handles registration. Commenters asserted that a requirement to register each individual UAS is impractical and overly burdensome, particularly in light of the fact that most recreational users own multiple (often many) UAS. Commenters also pointed out that many UAS owners, especially those who build their own aircraft, regularly replace parts, as well as trade and sell their aircraft with other UAS owners. Those commenters asserted that a requirement to register the owner instead of the aircraft would alleviate the burdens associated with re-registering an aircraft each time such an event occurs. Commenters also claimed that registration of the owner of a UAS is all that is necessary to satisfy the DOT and FAA goals of traceability and accountability.

EPIC stated that a UAS registration requirement is an ''absolutely essential'' requirement to establish accountability for use of ''autonomous surveillance devices'' in the United States. EPIC further stated, however, that to ensure that the registry fosters accountability and responsibility among UAS operators, the registry must include provisions addressing privacy issues ''to ensure a comprehensive baseline set of protections that facilitate the safe integration of drones.''

Union Pacific Railroad similarly stated support for ''reasonable measures by the FAA to encourage accountability and responsibility among all UAS operators, including recreational users of sUAS.''

A number of commenters recommended that the FAA implement a licensing system like the FCC uses to register amateur radio operators. Commenters drew comparisons between amateur radio operators, most of whom own many different pieces of radio equipment, and hobby aircraft modelers, many of whom own many different model aircraft. Commenters explained that under the FCC licensing system the operator, not the equipment, is licensed for non-commercial operations after passing a safety test. Commenters asserted that registration alone does not guarantee a model aircraft operator understands the rules of safety for operating in the NAS, so a licensing system with a testing component may be the best way to ensure safe operations in the NAS. One commenter acknowledged that licensing model aircraft operators would require a change in the law, but stated his belief that there is wide support for this in both Congress and the modeling community.

One commenter recommended that individuals be required to pass a background check before getting a license for UAS operations. Other commenters said the registration system should be more like the systems to obtain a license to hunt or to operate a boat, and less like firearm registration.

In contrast to those commenters who advocated for an owner-based registration system, Delair-Tech stated that each entry in the registration database ''should be attached to exactly one UAV.'' Aviation Management said the FAA should consider independent registration for a UAS operator in addition to registration of the unmanned aircraft and all of its support systems, including the ground control station.

The National Air Transportation Association expressed its support of the registration requirement, but acknowledged the ability to track an unsafe or noncompliant UAS back to the operator is limited to incidents in which the UAS is disabled, but not too damaged to obtain registration information. Several commenters, including the Competitive Enterprise Institute, questioned the usefulness of a registration number for identification purposes asserting a registration number would be impossible to read during flight, would only be useful after an incident has occurred and only if the UAS is recovered. Some commenters said affixing the name and contact information of the owner to or in the aircraft will serve the same purpose with much less expense. Other commenters said because it will be very easy for an individual to ignore the registration requirement, the small benefit of registration will be greatly outweighed by the burden placed on the model aircraft industry and the cost of implementing and maintaining the system.

NAAA and CoAA said registration will help track down who is responsible after an accident, but noted that FAA will not be able to enforce illegal and unsafe operations without requiring UAS to be equipped with an ADS–B like system through which to trace them.

*Task Force:* The Task Force recommended an owner-based registration system to achieve the goals of accountability and compliance. Under the Task Force scheme, the FAA would issue a single registration number to each registrant that would be used to identify all unmanned aircraft owned and operated by that registrant.

*IFR Requirement:* The FAA sought to integrate the Task Force recommendation and comments regarding an owner registration approach while also considering the best public policy with respect to small unmanned aircraft registration. As addressed in the preamble discussion ''Registration Process,'' the registration system will differentiate between small unmanned aircraft intended to be used exclusively as model aircraft and small unmanned aircraft intended to be used as other than model aircraft in that different information will be collected for each population.

Small unmanned aircraft intended to be used exclusively as model aircraft will be registered with a single Certificate of Aircraft Registration issued to the aircraft owner. As with all other small unmanned aircraft, registration must be completed prior to operation of a small unmanned aircraft exclusively as a model aircraft. Owners of small unmanned aircraft intended to be used as model aircraft must complete the registration application process by submitting basic contact information, such as name, address, and email address. The owner will receive a Certificate of Aircraft Registration with a single registration number that constitutes the registration for each of this particular owner's aircraft. There would be no limit to the number of small unmanned aircraft registered under the owner's registration. This approach serves the purpose of the statutory aircraft registration requirement because each small unmanned aircraft must bear the owner's registration number, thus allowing for the aircraft and its owner to be identified.

The agency notes that, once an aircraft is no longer exclusively used as a model aircraft, then the owner must complete a new registration application in accordance with the requirements for aircraft used as other than model aircraft.

The owner of a small unmanned aircraft intended to be used as other than a model aircraft must complete the registration application by providing aircraft-specific information in addition to basic contact information. The owner will receive a Certificate of Aircraft Registration with a registration number for each individual aircraft registered.

The agency determined that this registration approach is necessary for entities intending to use small

''pilot'' or ''operator.'' Because these commenters were largely members of the model aircraft community, and therefore both the owners and operators of their aircraft, this seems to be a distinction without a difference.

unmanned aircraft as other than model aircraft because, based on the agency's experience with exemptions issued under section 333 of Public Law 112–95, these entities are expected to conduct a higher volume of operations, utilize multiple aircraft and at times conduct multiple simultaneous operations across the country, which introduces more risk into the NAS. In contrast, a small unmanned aircraft owner who operates small unmanned aircraft exclusively as a model aircraft is expected to use only one of his or her aircraft at a time and to do so on a less frequent basis than a person conducting operations with small unmanned aircraft intended to be used as other than as a model aircraft.

Components of the owner registration approach will still be available for small unmanned aircraft used as other than model aircraft in that the agency will utilize an owner profile for the registration Web site under which multiple aircraft can be registered. Owners will have a single profile that contains all of their aircraft, and although they may register multiple aircraft under that profile, each aircraft must have a unique number that exists under that profile. The FAA notes that persons using small unmanned aircraft other than as model aircraft will not be able to use the part 48 registration system until March 31, 2016.

The FAA notes that commenters comparing the registration requirement to licensure misconstrue the purpose of registration. While registration allows the agency an opportunity to educate sUAS operators, the primary purpose of registration is to identify the aircraft owner.

*F. Registration Process*

1. Design of Registration System

*sUAS Operation and Certification NPRM:* The sUAS Operation and Certification NPRM requested comments on the registration process. Both supporters and opponents of the proposed registration provision said FAA should take steps to ease the registration process. The Property Drone Consortium stated that a streamlined registration process was necessary to ensure growth in the UAS industry. Amazon, Association of Unmanned Vehicle Systems International, the American Farm Bureau Federation, and several others urged FAA to allow online registration of aircraft. Similarly, Small UAV Coalition and AUVSI, among other commenters, urged FAA to establish an electronic UAS registration database.

*Clarification/Request for Information:* In the Clarification/Request for Information, the Administrator and the Secretary requested information related to the logistics of the small unmanned aircraft registration process. Specifically, the FAA and DOT requested comments on how the registration process should be designed to minimize burdens and best protect innovation and encourage growth in the UAS industry. The FAA and DOT also requested comments on whether registration should be electronic or web-based, and whether there were existing tools that could support an electronic registration process.

In response to issues raised in the October 22, 2015 Clarification/Request for Information, commenters provided numerous suggestions for designing the registration process to minimize burdens and best protect innovation and encourage growth in the UAS industry. Suggestions included: Registering operators instead of individual aircraft; providing a variety of ways to register, including online, via telephone, through a mobile application, or at various locations, such as post offices or retail outlets; implementing a licensure procedure similar to that required by FCC for ham radio operators; allowing aircraft that already comply with AMA or FCC labeling practices to meet the labeling requirements to avoid conflicting requirements; and permitting operation of UAS upon submission of registration information rather than instituting a waiting period. Some commenters recommend that small unmanned aircraft manufacturers provide information to the FAA or assist owners in providing information to the FAA.

A law firm recommended the agency use the same registration system it uses for registering manned aircraft. The commenter noted the current registration system requires the following information: A notarized statement by the builder, manufacturer, or applicant for registration describing the UAS in detail, evidence of ownership, and an Aircraft Registration Application (FAA AC Form 8050–1), which identifies UAS and the owner. This commenter suggested manufacturers provide the information regarding the UAS and its capabilities, which would reduce burdens on retailers and consumers and result in a high degree of compliance.

Comments submitted as part of the AMA form letter campaign stated that the registration process should be as automated as possible and minimally intrusive. Those commenters stated that the system of aircraft identification used by AMA members (*i.e.,* where members place their names and addresses or AMA numbers on their model aircraft) should be acceptable for AMA members as an alternative means of complying with the registration requirement. The Experimental Aircraft Association agreed that the identification used by AMA members could be allowed to meet the UAS registration requirements, which would alleviate some of the burden on the FAA while maintaining the accountability that DOT seeks through registration. However, EAA expressed doubts about the practicality of requiring registration of millions of UAS and model aircraft currently in use in the United States and feared the magnitude of the system would overshadow other safety measures.

An individual stated the main problem registration is intended to solve is the unsafe use of UAS by inexperienced or uninformed operators; therefore, the commenter recommended registrants be required to pass a test as part of the registration process.

The National Agricultural Aviation Association and the Colorado Agricultural Aviation Association stated FAA should focus on its aviation safety mission, including focusing on the safety of manned aircraft even if that resulted in requiring registration and more safety equipment for unmanned aircraft. These commenters said requiring items, such as indestructible data plate, ADS–B, and visible strobes, in addition to registration would encourage growth of the industry through accident prevention. In contrast, several individual commenters contended any registration requirement will stifle innovation and discourage growth.

Several individual commenters questioned whether the agency can handle the registration of millions of recreational UAS. One commenter noted that the registration database could become overloaded and unmanageable if every person registers every model aircraft they purchase or receive—many of which will not last past a single flight—but then fail to notify the FAA when a model is lost, destroyed, or sold. Also pointing to the short life span of most small UAS, another commenter similarly said the registration system will become overwhelmed if recreational users are required to register and re-register each model aircraft they obtain. Another commenter said that requiring UAS owners to renew their registration will ''complicate everything'' and lead to people involuntarily breaking the law when they forget to re-register their UAS.

*Task Force:* The Task Force broadly agreed that in order to promote greater acceptance of the registration requirement, the registration process should be as quick and easy as possible. The Task Force encouraged the FAA to consider implementing additional methods and strategies to maximize compliance with the registration requirement but without adding cumbersome steps into the process.

*IFR Requirement:* As has been noted previously, the FAA has developed and, by this rule, is creating an alternative, web-based registration system to register small unmanned aircraft prior to their operation. This web-based registration system is responsive to comments seeking an automated approach that is capable of managing the expected volume of registration. The agency expects that the web-based registration system will facilitate compliance with the aircraft registration requirement because of its accessibility and ease of use. Additionally, an electronic registration system complies fully with the Government Paperwork Elimination Act, Public Law 105–277, which requires that when practicable, federal agencies use electronic forms, filing, and signatures to conduct official business with the public.

As has been noted, the agency considered a point-of-sale registration approach, but ultimately determined that it would be not be feasible for manufacturers, retailers, and the agency to implement at this time. As discussed earlier in this preamble, the agency is evaluating how to address the burdens associated with point-of-sale registration identified by commenters.

2. Web-Based Registration Application

The FAA received many comments regarding whether or not the agency should create an online registration system to register UAS or their operators. The vast majority of commenters were supportive of the use of an electronic or web-based registration system to collect registration information. However, commenters articulated significant differences in how they preferred the system be established, implemented, and enforced. Several commenters said that web-based registration would be the least intrusive and burdensome method of registration. These commenters also suggested that an online system may be the cheapest way to register individuals, reducing paperwork and processing time.

*Clarification/Request for Information:* In responding to the Clarification/Request for Information, multiple commenters, including Horizon Hobby LLC, recommended that FAA create a registration platform that would be accessible from anywhere and any web-based device, including mobile devices. As stated by commenters, this platform could then be accessed repeatedly by individuals, allowing them to update registration information as their device specifications change. Commenters said that this type of online system would allow individuals to add new small unmanned aircraft to the registry easily and in a minimally burdensome fashion.

ATA stated that an electronic registration system would dramatically shorten the registration process and make it more manageable for the FAA. ATA also noted that any cost associated with updating the FAA's system is likely to be fairly minimal and could be offset by charging a small registration fee.

Other commenters suggested that web-based registrations be integrated into online points of sale to ensure that those devices purchased from kits are registered without placing an outside burden on operators. Commenters said that this registration would be a part of the retailer's sale process and would be a requirement of purchase; however, registration and approval would be instantaneous. These commenters, including Aviation Management Associates, indicated that this type of online registration could also include educational material and a quiz that must be passed as a condition of registration. According to the commenters, the educational material and quiz could serve as a mechanism to ensure that operators understand basic aviation laws and safety guidelines.

While most commenters were supportive of electronic or web-based registrations, some expressed concern with an entirely electronic system. Many commenters expressed concern for the registration needs of those without consistent internet access. They instead recommended a paper alternative, in conjunction with online registration, be implemented to ease the registration burden of some operators.

Multiple commenters suggested that outside of new technologies, the agency could use existing electronic registration systems as a template from which to craft a specific FAA registration program. For example, a few commenters recommended using existing e-commerce registration templates as a model. One commenter suggested that FAA work with commercial retailers like DJI to use their current registration platforms as a basis for point of sale registration. Other commenters suggested that FAA implement the registration procedures of the AMA for all operators, or use the AMA system as a template upon which the FAA can develop an equivalent system.

NetMoby and other commenters suggested that FAA leverage existing FAA and other Federal agencies' electronic registration systems to build a registration system unique to UASs. Examples provided by these commenters included creating a registration system similar to the one currently in place for FAA tail numbers, or developing a registration Web site with similar functionality to radio licensing sites. Skyward Inc, for example, recommended that FAA leverage its current FAA IT systems that it uses for other programs for use with UAS.

Several commenters remarked that there are multiple available technologies that FAA could use to aid an electronic registration process. Some of these included QR codes and RFID technologies. Commenters stated that both could be used to register and track the flight paths of UAS in the NAS. They said an RFID can be placed on aircraft that can then be read by interested parties from long distances. However, these same commenters indicated that there are potential security concerns with using RFID technology as well. Along with these technologies, commenters asserted that there are several private software development companies in operation that could produce a sufficient web-based registration product for FAA to use and implement. Two individuals noted the cost to design, implement, and maintain a centralized registration system will be significant, without an increase the safety of the NAS. Another individual said the cost of the registration program will hurt small businesses by adding an external expense to their operations.

*Task Force:* The Task Force also addressed the question of whether registration should be electronic or web-based, and what tools exist to support an electronic registration process. The Task Force believed the registration process should be web-based, and that the FAA should create an online registration system that allows for multiple entry points through an application programming interface (API). This would allow, for example, a sUAS manufacturer or trade organization to develop an application that communicates through an API by which it can register its customers or members by submitting registration information directly to the FAA database on their behalf. The registration information required and the certificate of registration received

would be the same regardless of what point of entry is used into the registration system. The online registration system should provide for an option for owners to edit and delete their registration information, as well as to view and print physical copies of their registration certificates through access to a password-protected web-based portal.

*IFR Requirement:* In § 48.30, the FAA sets out a process for streamlined registration of small unmanned aircraft. This streamlined process is exclusively web-based. The FAA agrees with commenters and the Task Force that a web-based system is much more functional than a paper system would be, and also agrees that registration compliance rates will increase dramatically when registration can be accomplished through a simple, web-based system. Additionally, the current FAA Registry would be unable to quickly process the dramatic increase in paper volume that the FAA would receive from small unmanned aircraft registration. With the implementation of the small unmanned aircraft registration process, small unmanned aircraft registration will be fully automated, allowing for the registration of small unmanned aircraft without delay. Therefore, a web-based system benefits both applicants and the FAA. The paper-based part 47 process will remain available for those applicants who are unable to avail themselves of the part 48 process.

The web-based registration system itself will be simple, easy to use, and mobile friendly. To complete the registration process, the owner of a small unmanned aircraft will enter the information identified in § 48.100 (identified within the registration system as data fields) and pay a fee through the web-based registration system. A Certificate of Aircraft Registration will be available to print within the registration system or sent to the registrant via email following the initial registration and subsequent renewals. The applicant will have 24 hours to correct registration information after the initial payment without having to pay a second time.

Once registered, owners will be able to access the registration Web site to update the information provided to register the aircraft as well as cancel registration as circumstances require (*e.g.,* aircraft destruction, transfer, sale, change in owner eligibility to register). Aircraft owners may also view and print physical copies of their registration certificate through access to this password-protected web-based portal, but must only pay a fee for the initial registration and renewals. There is no fee for updating personal information or accessing the registration certificate. For the initial release the user can add an alternate email address which can be used to reset the account password and all functionality of the system could still be utilized if the user lost access to their primary email address. For future releases we will have the ability to change the primary email address on file and revalidate the new one.

Canceling a registration would change the state of the registration in the database to ''cancelled'' or another state that is not associated with an active registration. Aircraft registration records are permanent records and would not be deleted or destroyed. Please refer to the NARA schedule for additional details

With respect to Task Force and **Federal Register** comments regarding different technical aspects the database should contain, the agency expects to continuously evaluate the database and the web-based registration process and look for opportunities to further develop the technical functionality of both. The FAA's goal in utilizing the least burdensome approach is to encourage prompt compliance by removing barriers. As with other aspects of sUAS integration into the NAS, our approach to registration will be incremental. The Administrator may authorize expanded technical capabilities going forward, but the initial goal is to make this process as minimally burdensome as possible to encourage compliance with the registration requirement, and provide the FAA and law enforcement the ability to quickly connect individuals to their aircraft with the least amount of steps possible.

With regard to comments addressing the use of RFI technology or use of small unmanned aircraft beacons to assist with registration and identification, the FAA believes that RFI and other technology could be cost prohibitive, and could add weight to smaller aircraft. The FAA believes that the same goal—identification of small unmanned aircraft and their owners—can be achieved through an online registration process with less expense and less technological investment.

3. Information Required

*sUAS Operation and Certification NPRM:* The sUAS Operation and Certification NPRM requested comments on what information should be required for registration. A few commenters provided feedback as to whether small UAS owners should be required to provide additional information during the registration process so that UAS could be categorized. Amazon, American Farm Bureau Federation and an individual stated that small UAS owners should not be required to provide any additional information beyond what is currently required of manned aircraft. The University of North Dakota's John D. Odegard School of Aerospace Sciences recommended that FAA adopt a simplified information-gathering process to include the following data: Manufacturer identification (if applicable); known performance and limitations; physical size, weight, and characteristics; and, if self-built, a list of major components similar to that provided by commercial manufacturers. The commenter stated that this minimal information would allow for future safety-related research by establishing base categories from which comparisons could be made. NOAA and Schertz Aerial Services, Inc. suggested that FAA impose similar requirements as those imposed on amateur-built aircraft. According to NOAA, UAS owners should be required, at a minimum, to describe the aircraft by class (UAS), size, color, number of motors/props/wings, serial number, make, and model. Predesa, LLC recommended that digital photos or video recordings of the aircraft, as well as written records of manufacturers' part numbers of supporting equipment used by the operator, can satisfy the need for additional information to accurately describe a non-standardized small UAS.

*Clarification/Request for Information:* A majority of commenters stated that only basic information should be collected during the registration process because of commenters' concerns about data security. Several commenters suggested that commercial UAS operators should provide more in-depth information than recreational operators. The vast majority of commenters, including individuals and organizational stakeholders, stated that owner/business name, address, telephone number, email address, and description of the UAS should be collected during the registration process. Some commenters further broke down the UAS's description to include make, model, manufacturer's serial number, weight, range, performance capability, flight controller serial number and whether the UAS was purchased or home-built. Many commenters also suggested that registrants should upload a picture of the UAS. Several commenters suggested that date of sale/purchase, point of sale, date of operation, intended use and geographic location of primary use would also be helpful information.

AMA members also stated that their AMA member numbers should be collected.

To provide further information about the aircraft owner, many commenters suggested that the operator's date of birth, driver's license, Social Security Number, and number of aircraft owned should be provided during the registration process. Other commenters specifically objected to providing their Social Security Numbers because of concerns about data security. A few individuals who identified as hobbyists stated that insurance information and professional license numbers should also be collected during registration. A small number of commenters suggested registrants should provide their passport numbers, credit card numbers, nationality, and proof of citizenship.

EPIC stated that the FAA should limit the collection of registrant information to what is necessary to maintain the aircraft registry and UAS safety. In particular, EPIC stated that the FAA should not collect ''highly restricted personal information,'' including ''an individual's photograph or image, social security number, medical or disability information.'' [37]

EPIC also recommended that the FAA require disclosure of each UAS's technical and surveillance capabilities, including data collection and storage. EPIC asserted that UAS are ''surveillance platforms'' that are able to carry a multitude of different data-collection technologies, including high-definition cameras, geolocation devices, cellular radios and disruption equipment, sensitive microphones, thermal imaging devices, and LIDAR. EPIC further asserted that UAS owners should be required to make clear at registration the specific capabilities of any video or audio surveillance technologies the UAS is carrying. EPIC stated that the public should not be left to wonder what surveillance devices are enabled on a UAS flying above their heads. EPIC further stated that the registration framework the FAA is considering does not go far enough, and should include a requirement that a UAS broadcast its capabilities and its registration number during operation, to allow members of the public and law enforcement officials to easily identify the operator and responsible party.

EPIC also suggested that the FAA consider collecting aggregate data to assist research into UAS flights and usage. EPIC clarified, however, that such research data should not include personal information.

*Task Force:* To ensure accountability, the Task Force recommended the FAA require all registrants to provide their name and street address, with the option to provide an email address or telephone number. While the Task Force recognized that a registrant's email address and telephone number may be useful for the FAA to disseminate safety-related information to UAS owners, the Task Force nevertheless believed disclosure of such information should be optional.

Because the Task Force recommended the FAA institute an owner-based registration system, it believed registrants should not be required to provide any vehicle information, such as serial number or make and model of the UAS, during the registration process. Registrants should, however, have the option to provide the aircraft's manufacturer serial number, so that the serial number can then be used to satisfy the marking requirement. Additionally, to ensure the broadest possible participation, this registration system should make no distinction for, or impose additional requirements upon, sUAS manufactured or purchased outside the United States.

*IFR Requirement:* For small unmanned aircraft used exclusively as model aircraft, the FAA adopts the Task Force recommendation to provide only basic contact information (name, address, and email address) for the small unmanned aircraft owner. This basic contact information is appropriate for registration of small unmanned aircraft intended to be used exclusively as model aircraft because owners typically only operate one aircraft at a time, which limits the variables in terms of owner identification. Accordingly, the FAA is requiring an applicant's name, physical address, mailing address if the applicant does not receive mail at their physical address, and email address. An accurate mailing address is necessary because the FAA often relies on regular mail via the United States Postal Service to provide notice of administrative actions, serve enforcement documents and provide other information. Although email will reduce the agency's reliance on regular mail for certain purposes such as the provision of educational material, a mailing address is still required to support the agency's compliance and enforcement actions.

At this time, the FAA will not be accepting manufacturer name, model name, and serial number from individuals registering small unmanned aircraft intended to be used exclusively as model aircraft. However, as discussed in the preamble discussion on registration marking, the Administrator will continue to evaluate whether serial number can serve the purpose of aircraft identification and in the future, may require use of serial number for aircraft marking purposes in place of an FAA-issued registration number. In that case, this information would be acquired at point of sale by a manufacturer.

The agency considered comments pertaining to the use of a membership number issued by an aeromodeling club such as the AMA as the registration number for an individual. After considering the design of the web-based information system, which will automatically assign a registration number to each individual applying for registration, the FAA determined that use of an aeromodeling club registration number would add unnecessary complexity.

For persons expecting to operate small unmanned aircraft as other than model aircraft, in addition to the same basic contact information required for model aircraft, registrants must provide aircraft-specific information. A manufacturer and model name, and serial number must be provided for each aircraft being registered. As previously noted, based on the agency's experience with exemptions issued under section 333 of Public Law 112–95, persons seeking to operate small unmanned aircraft other than as model aircraft are expected to conduct a higher volume of operations, utilize multiple aircraft and at times conduct multiple simultaneous operations across the country, which thereby introduces more risk into the NAS. Moreover, these entities may operate multiple identical small unmanned aircraft at one time in different locations, with different persons operating the owner's aircraft. Accordingly, the FAA has determined that aircraft data is necessary to identify aircraft used as other than model aircraft due to the range of variables with respect to the operations they conduct. The aircraft-specific data will also allow the agency to assess the demand of these small unmanned aircraft on the NAS and whether additional safety-related actions are necessary as the FAA works to integrate sUAS into the NAS.

With respect to the Task Force's recommendation that the provision of an email address should be optional, the FAA generally agrees that personal information that is not necessary for law enforcement and FAA to identify an owner should not be a mandatory entry. However, in this instance, an email

[37] To support its position, EPIC cited to and quoted from 18 U.S.C. 2725(4). Title 18 of the United States Code covers *Crimes and Criminal Procedure.* Section 2725 covers the definitions used in Chapter 123—*Prohibition on Release and Use of Certain Personal Information from State Motor Vehicle Records.*

address is necessary to create an account for a web-based registration system that includes email delivery of the Certificate of Aircraft Registration. Additionally, email allows for targeted delivery of educational other safety-related materials directly to small unmanned aircraft owners. Thus, the FAA has determined that an email address will be required for registration under part 48. However, individual's email addresses would not be released to the general public. For more information regarding the privacy protections afforded to this system and intended use of the data, please review the privacy impact assessment for this rulemaking, as well as the accompanying System of Records Notice (SORN), available for review in Docket No. DOT–OST–2015–0235.

Regarding other suggested information, such as date of birth, Social Security number, driver's license number, or specific information about components or capabilities of small unmanned aircraft being registered, the FAA believes the data identified in new part 48 is sufficient for the purposes of this registry and is the minimum that would be necessary for connecting an individual to their aircraft.

4. Fee for Registration

Currently, the FAA assesses a fee of $5 for a Certificate of Registration for each aircraft. *See* 14 CFR 47.17(a). The FAA has not updated this fee since it was initially established in 1966. *See* 31 FR 4495 (Mar. 17, 1966).

*sUAS Operation and Certification NPRM:* The sUAS Operation and Certification NPRM did not differentiate the process of registering a small unmanned aircraft from that of a manned aircraft and thus did not directly address fees. Under that proposed rule, an applicant registering a small unmanned aircraft would pay the same $5 fee as an applicant seeking a Certificate of Registration for a manned aircraft.

Three commenters responded to the issues related to fees for aircraft registration. One individual recommended FAA require all ''amateur enthusiasts'' to pay a fee to use the NAS. Another individual argued that the fees associated with any licensing, required yearly maintenance, and registry should be kept affordable for the small business operator.

*Clarification/Request for Information:* Commenters also responded to the issue of a registration fee and how the fee should be collected based on questions posed in the Clarification/Request for Information. Of the commenters that supported a registration fee, the majority stated that the fee should be nominal and suggested between $1 and $40. Other commenters suggested fees as high as $250 for hobbyists and $1,000 for commercial users. Several commenters stated that the amount of registration fee should be based upon the value of the UAS *e.g.,* a more expensive UAS would necessitate a higher registration fee. The Minnesota Department of Transportation stated that its department charges registration fees commensurate with the base price of the aircraft. This commenter explained that it charges $100 for registration for UASs valued less than $500,000. Other commenters proposed that only commercial operators should pay a registration fee. Several AMA members stated that registration should be free for AMA members. Many commenters stressed that the fee should only be used for maintenance of the Web site, education, and enforcement actions.

Many commenters said registration should be free. A number of commenters participating in a form letter campaign stated that a registration fee ''would place an unfair burden on those who may barely be able to afford to purchase model aircraft in the first place and may place barriers to continued education and technological advancement.''

A large number of commenters were concerned that registration fees for each individual UAS would be unduly burdensome because many hobbyists own several UASs and the cumulative cost of registration would be prohibitively expensive. As an alternative, many commenters suggested that the FAA should charge one registration fee per operator and allow the operator to register multiple UASs.

The vast majority of commenters objected to the imposition of any registration fee. Many commenters expressed concern that imposition of a fee would only serve to increase the size of the Federal Government and not contribute in any way to the safe operation of UASs. Commenters stated that a fee will deter registration and place an unnecessary financial burden on hobbyists. Several commenters suggested that instead of charging a registration fee, the FAA should collect fines from operators who fail to register.

The majority of commenters suggested that if registration occurs at point of sale, the cost of registration should be collected in the same manner as a sales tax. Other commenters suggested that registration fees should be collected by the retailer or built in to the purchase price. Retail Industry Leaders Association and National Retail Federation expressed opposition to point of sale registration and collection of registration fees by retailers. They cited concern about collecting personal information from customers in a checkout line and the complexity of refunding the registration fee if the UAS is returned by the customer. Commenters also expressed concerns that foreign vendors would not comply with registration requirements and consumers would be adversely impacted.

Many commenters commented generally on the collection of a registration fee and expressed that UAS operators should be able to pay the registration fee online. Commenters specifically identified support for online payments via PayPal, Amazon payments, and Bitcoin. Commenters also stated that mailing in checks or money orders should also be supported.

Skyward, Inc. and individual commenters said the system must have safeguards against false registrations, unauthorized ownership transfers, and other malicious activity.

*Task Force:* The Task Force believed the FAA should not impose a registration fee so as to encourage the highest level of compliance with the registration requirement. In the event that the FAA must charge a fee, the Task Force suggested a fee of 1/10th of one cent ($0.001).

*IFR Requirement and Responses to Comments/Recommendations:* Although the Task Force and some commenters recommended no fee for small unmanned aircraft registration for varying reasons, the FAA is required by statute to charge a fee for registration services. Section 45305 of title 49 U.S.C. directs the FAA to establish and collect fees for aircraft registration and airman certification activities to recover the cost of providing those services. Accordingly, the revenue stream generated by the fees collected under this IFR support the development, maintenance and operation of the Registry. The agency notes that section 45305 also directs the FAA to adjust these fees when the Administrator determines that the cost of the service has changed.

Given that the registration process established under part 48 differentiates between registration of small unmanned aircraft used exclusively as model aircraft and registration of small unmanned aircraft used as other than model aircraft, registration fees also differ between the two populations.

An individual owner registering small unmanned aircraft operated exclusively as model aircraft must pay a single fee of $5 for the issuance of a Certificate of

Aircraft Registration and registration number and an additional $5 fee every three years for renewal of the registration. As previously noted, for owners of small unmanned aircraft used exclusively as model aircraft, this registration constitutes registration for all small unmanned aircraft of a single owner, provided those aircraft are all used exclusively as model aircraft. Thus, for this population, part 48 provides cost reduction as compared to part 47, which requires aircraft owners to submit a separate application and $5 fee for each aircraft the owner would like to register.

The FAA will require persons owning small unmanned aircraft used as other than model aircraft (*e.g.,* for a commercial purpose) to pay a fee of $5 to register each aircraft in accordance with part 48, and a $5 fee every three years for renewal of each aircraft registration. The fees for small unmanned aircraft registration and renewal for this population is the same as that currently required by part 47.

This fee structure is in line with the recommendations from commenters who believed that the FAA should charge one fee for individuals who own small unmanned aircraft for hobby or recreational purposes. As sought by commenters, the registration requirement and fee structure for small unmanned aircraft used exclusively as model aircraft alleviates the need for these owners to complete frequent, multiple registration applications and submit a new fee each time they build or rebuild an aircraft or change out parts.

The fee for small unmanned aircraft registration must be submitted through the web-based registration application process. The registration system will permit the use of any credit, debit, gift or prepaid card using the Visa, MasterCard, American Express, JCB, Discover, or Diners Club network. If none of these methods of payment are available to the small unmanned aircraft owner, that owner may register the aircraft using the existing paper-based system under 14 CFR part 47, which allows payment by check or money order. Credit card payment is one of the attributes of the part 48 registration process that streamlines the registration process. Consistent with the requirements of 49 U.S.C. 45305, the fees are based on the estimated costs to develop and maintain the registry under 14 CFR part 48. The FAA will adjust these fees based on the actual costs of the system.

Regarding the Minnesota Department of Transportation's recommendation for a fee structure based on the value of the small unmanned aircraft, FAA's statutory authority for charging a fee for the registration of a small unmanned aircraft relates to the amount it costs for the FAA to maintain the registry, and not the value of an unmanned aircraft.

In response to comments stating that, in place of the registration fee, the FAA should collect fines for failure to comply with registration requirements, the FAA clarifies that such a fine would constitute a civil penalty. Civil penalties for failure to register are discussed in the Enforcement section of this preamble. In addition to civil penalties, however, the law requires the FAA to collect a fee for registration of aircraft. 49 U.S.C. 45305. Congress requires this fee assessment in order for the agency to offset the cost of registration. The agency does not have authority to use civil penalties to offset its costs.

5. Transfer of Ownership

*Clarification/Request for Information:* Commenters to the Clarification/Request for Information responded to the FAA's request for input on transfer of small unmanned aircraft.

The Aerospace Industries Association stated that transfer of ownership would require that the new end-user registers his or her identification and the platform registration. This would allow a re-check of intended use, changes/modifications to the platform, and the indication that the new user is aware of the rules of use. Delair-Tech stated that the seller should surrender ownership by deactivating the ground control software; the new owner would then register to reactivate it.

A law firm stated that the existing FAA Aircraft Bill of Sale and Aircraft Registration Application would be equally applicable to UAS. The firm also said that the current regulatory framework contains an aircraft registration renewal requirement that would be beneficial for updating records regarding ownership of UAS. The firm went on to say that the regulatory obligation to collect and submit the registration information should be placed on the seller who would have an incentive to properly transfer the registration, or otherwise risk facing certain penalties or fines related to the illegal operation of the UAS by a future owner.

Individual commenters stated that if the registration database is available online, the seller could easily record transfers of registration. A few commenters stated that the FAA should impose a fee for transfers. Individuals differed on whether the seller or buyer should be responsible for registering the transfer. A few commenters stated that the seller could remove the identification markings before sale. One suggested that the seller remove the beacon before sale. Another stated that the only registration should be the name and contact information placed on the UAS.

Modovolate Aviation stated that recording transfers would be burdensome and unenforceable. An individual stated that UASs are often altered after purchase so that transferring a registration for the original UAS may not accurately reflect the UAS that is being resold. The commenter also stated that there is no way for the seller to ensure that the buyer will register.

*Task Force:* Because the Task Force recommended an owner-based registration system, it believed that questions concerning how to deal with transfers of ownership are easily addressed by the registrants' marking methods.

*IFR Requirement:* The registration requirements in part 48 do not differentiate between methods of aircraft transfer. The registration requirements are the same whether a person or other entity acquires an aircraft by gift, purchase or other method.

The FAA agrees in part with the commenters who state that the seller should register or take other action upon a transfer and in part with the commenters who state that the buyer must register. Different actions will be necessary upon transfer or sale of a small unmanned aircraft, because the registration system differentiates between aircraft used exclusively as model aircraft and aircraft used other than as model aircraft and thus collects different information for each population.

As discussed elsewhere in the preamble, individual owners of small unmanned aircraft used exclusively as model aircraft are not required to submit aircraft-specific information. Thus, there is no need to update the registration system upon a transfer or sale. The owner, however, should remove his or her unique identifier from the aircraft before transfer or sale. The buyer or recipient of a transfer must create a new registration prior to operation only if that buyer does not already have an owner registration number. A buyer or recipient of a transfer of a small unmanned aircraft who wishes to use the aircraft as other than a model aircraft must register that aircraft and obtain a registration number specific to that aircraft. The only time a fee would be required is if the buyer or recipient must create a new registration.

Part 48 requires owners of small unmanned aircraft used other than as model aircraft to update the registration system upon transfer of ownership, destruction or export of a registered small unmanned aircraft. Thus, once a transfer of ownership has taken place, the aircraft owner must access their profile on the registration system and update the aircraft information to indicate that the aircraft has been transferred. By indicating that the aircraft has been transferred, the registration of that aircraft will be cancelled in its entirety.

Any new owner, who acquires a small unmanned aircraft by any means, and intends to use the aircraft other than as a model aircraft must register that aircraft prior to operation and mark the device with the appropriate information as discussed in the preamble discussion entitled, ''Marking.'' Consistent with the comment on the payment of a fee for a transfer, a new owner intending to use a small unmanned aircraft other than as a model aircraft must register the aircraft and thus pay the same registration fee as any other person who acquires such a device and wishes to operate it in the NAS.

In response to commenters' concerns about the identification of a transferred aircraft, owners may determine the best approach for ensuring that once they transfer an aircraft, that they are no longer identified as the owner. One commenter noted that the seller may want to remove the registration information from the aircraft. The agency supports this as a best practice but it is not required.

The agency considered comments suggesting other methods to approach the registration of transferred small unmanned aircraft (*e.g.,* deactivation of ground control software), but has determined that this approach will ensure complete and current registration information for each aircraft in the least burdensome manner.

*G. Certificate of Aircraft Registration*

*sUAS Operation and Certification NPRM:* The agency received comment on issues pertaining to certificates of registration from commenters to the sUAS Operation and Certification NPRM. In the sUAS Operation and Certification NPRM, the agency proposed to extend the part 47 registration process to sUAS but did not propose any changes to the delivery, content, or duration of registration. In the NPRM preamble, however, the agency specifically addressed its intent to retain the existing requirement for registration renewal every three years for small unmanned aircraft registration because it would increase the likelihood that the FAA's registration database contains the latest information on small unmanned aircraft and aircraft owners.

An individual recommended that aircraft registration for small UAS expire after a period of 12 to 24 months, reasoning that an annual or bi-annual renewal of registration will ensure the registration system does not become bogged down with UAS's that are no longer in operation. Furthermore, the commenter argued that the renewal process would give FAA a secondary means of verifying that operators are current and/or maintaining their licensing requirements to operate. The Kansas Farm Bureau suggested lengthening the time before a registration would expire to 6 years to assist in managing program costs from both the FAA and the small UAS operator standpoint. The News Media Coalition encouraged FAA to consider requiring re-registration only upon the sale of a UAS.

Another individual commenter suggested that UAS operators be required to store their ''official registration document'' on the card reader contained in the UAS's camera. That commenter also recommended that the ''official registration document'' contain the registrant's name, registration number, date of registration, and type of operator license (*i.e.,* commercial or hobby).

*Clarification/Request for Information:* Commenters to the Clarification/Request for Information also provided comments related to the Certificate of Aircraft Registration. One individual commenter recommended that UAS operators should be issued a registration card that contains basic safety information and UAS rules and regulations. Another individual suggested that UAS operators be required to store their ''official registration document'' on the card reader contained in the UAS's camera. This commenter also recommended that the ''official registration document'' contain the registrant's name, registration number, date of registration, and type of operator license (*i.e.,* commercial or hobby).

*Task Force:* The Task Force developed and recommended methods for proving registration and marking of small unmanned aircraft. In doing so, it addressed the issue of how Certificates of Aircraft Registration would be issued. The Task Force recommended that the FAA issue a certificate of registration to each registrant at the time of registration and that the certificate should be issued electronically (perhaps in PDF form), unless the registrant specifically requests a paper copy.

The Task Force also provided recommendations regarding the content of the certificate. The certificate should contain the registrant's name, the registrant's FAA-issued registration number, and the address of the FAA registration Web site that is accessible by law enforcement or other authorities for the purposes of confirming registration status. For registrants who elect to provide the serial number(s) of their aircraft, the certificate should also contain those serial number(s). The Task Force encouraged the FAA to include safety and regulatory information with the certificate of registration. Any time a registered sUAS is in operation, the operator of that sUAS should be prepared to produce a legible copy of the certificate of registration for inspection, in either electronic or printed form.

*IFR Requirement:* The agency agrees with Task Force recommendations and comments recommending delivery and availability of the Certificate of Aircraft Registration. Since the part 48 registration process is exclusively web-based, the FAA can immediately issue an electronic Certificate of Aircraft Registration, an efficiency not available under part 47.

Recognizing the prevalence of handheld electronic devices, once the registrant completes the part 48 registration process, the Certificate will be available for download. Owners may also print a hard copy of the Certificate if they wish. The applicant will also receive a copy of the Certificate via email, with accompanying educational information. Although some commenters addressed certificate storage options, the final rule does not restrict how the Certificate is stored as long as the certificate is readily available to the owner or operator, as applicable. *See* §§ 91.9(b) and 91.203(a)(2); *see also* Legal Interpretation from Mark W. Bury to John Duncan, August 8, 2014. Persons operating a small unmanned aircraft are required under 49 U.S.C. 44103(d) to present the certificate of registration when requested by a United States Government, State, or local law enforcement officer.

The Certificate of Aircraft Registration will include information that will allow the FAA and law enforcement agencies to identify the owner of each small unmanned aircraft registered under part 48. As a result, although the FAA received comments suggesting varying information that should appear on the Certificate, the FAA has determined that the Certificate will include the small unmanned aircraft owner name and FAA-issued registration number. At this

time, these two pieces of information suffice to identify the small unmanned aircraft and its owner. The agency does not agree with the comment suggesting that the Certificate include information pertaining to the ''type of operator license'' because this information is not relevant to the identification of the aircraft's owner and notes that at the time of this rulemaking, there is no ''license'' required for sUAS operations. Additionally, the FAA emphasizes that the Certificate does not imply authorization to operate.

Certificates of Aircraft Registration issued to owners who are using their small unmanned aircraft exclusively as model aircraft constitute valid registration for all of the small unmanned aircraft owned by the individual specified on the application, regardless of how many small unmanned aircraft the owner owns, though all being operated are required to be marked with the registration number. Certificates of Aircraft Registration issued to owners who are not using their aircraft exclusively as model aircraft constitute valid registration only for the specific aircraft identified on the Certificate of Aircraft Registration.

A Certificate of Aircraft Registration issued in accordance with part 48 will be effective once the registration process is complete and must be renewed every three years to provide for regular validation of aircraft registration and owner contact information. To facilitate the identification of a valid Certificate of Aircraft Registration, each Certificate will contain the issue date.

The agency agrees with comments suggesting that aircraft registrations should be renewed but does not agree with the purpose of the renewal and the time frame for renewal provided by commenters. The registration process does not collect information on airman qualifications so it may not be used to validate any related requirements. A Certificate of Aircraft Registration issued to a person using their small unmanned aircraft as a model aircraft must simply be renewed by the owner every three years, regardless of when aircraft are added to the owner's registration. Certificates of Aircraft Registration issued for aircraft used for other than model aircraft purposes must be renewed for the specific aircraft designated on the Certificate every three years.

Further, the agency has determined that three years is the appropriate duration of a certificate. This period of time is consistent with the aircraft registration renewal requirement in part 47. It also balances the cost concerns raised by the Kansas Farm Bureau with the individual's comments suggesting renewal on 12–24 month intervals.

The renewal process consists of a simple verification of existing registration information. The renewal must be completed through the web-based registration system at any time within 6 months prior to the expiration date. The system will send out a reminder at 6 months prior to certification expiration. Once completed, the Certificate will be extended for three years from the expiration date. The agency expects renewal to be efficient, particularly if the aircraft owner has ensured that the information provided to the Registry in accordance with the final rule registration process remains current during the term of the registration. If the information provided to register the aircraft changes during the period of registration, the aircraft owner must update the Registry through the web-based registration system within 14 days of the change. No fee is charged for updating information during the period of registration.

The agency agrees with the intent of the recommendation from the Task Force and the commenter to the Clarification/Request for Information regarding owner and operator education. One of the purposes of small unmanned aircraft registration is to educate sUAS owners regarding safe operations within the NAS as well as other safety information relevant to UAS operations and equipment. As discussed later in this preamble, the agency expects to accomplish its sUAS education goals by providing information to the aircraft owner during the registration process and through follow-up email communication.

Although the News Media Coalition suggested reregistration only upon a sale, there are other circumstances that would result in a need to re-register an aircraft (*e.g.,* expiration of registration due to failure to renew) and have been captured in the final rule.

*H. Registration Marking*

The purpose of aircraft registration marking is to provide a means for connecting an aircraft to its owner. The agency received comments on the information that should be used to identify that the aircraft is registered as well as the methods by which to display the identifying information.

*sUAS Operation and Certification NPRM:* The sUAS Operation and Certification NPRM proposed a requirement for small unmanned aircraft to be marked in accordance with part 45, subpart C. Subpart C provides requirements for size, spacing, and location of nationality and registration marks.

Many commenters, including the Small UAV Coalition, Aircraft Owners and Pilots Association, California Agricultural Aircraft Association, Aerospace Industries Association, Modovolate Aviation, LLC, Professional Photographers of America, Airlines for America, National Association of Mutual Insurance Companies, National Association of Realtors, DJI, and Google, generally supported the marking requirement as proposed in the NPRM.

*Information that may be used for aircraft identification:* Other commenters suggested alternatives to the marking requirement proposed in the NPRM. Commenters including the Association of Unmanned Vehicle Systems International, Associated General Contractors of America, the University of North Carolina System, Property Drone Consortium and Cherokee Nation Technologies suggested the FAA require registration based only on the manufacturer's serial numbers, instead of requiring an ''N'' registration number. Several individuals proposed the use of cell phone numbers in lieu of, or to augment, the registration number. The Virginia Department of Aviation supported the use of a bar code system, while Schertz Aerial Services, Inc., favored a parts-tracking requirement to facilitate a more efficient and accurate assessment of responsibility in the event of an accident. An individual commenter recommended a labeling requirement for all UAS, similar to the labeling the FCC requires for all transmitters that can be purchased at electronic outlets. Another individual commenter said that instead of requiring small unmanned aircraft to be registered with ''N'' numbers, the aircraft should be identified with an exterior label with the owner/operator's name, address, and phone number, as well as an operator certificate number where appropriate. Several other individual commenters suggested that affixing operator name and phone number to a small unmanned aircraft is a more efficient way to identify the aircraft in the event of an incident.

The New Jersey Institute of Technology and the Kansas State University UAS Program recommended the FAA add a unique designator to the ''N'' registration number (*e.g.,* ''NX'') to clearly identify the aircraft as a UAS. ASTM pointed out that it is in the process of developing consensus practice standards for the registration and marking of unmanned aircraft systems, which an individual

commenter recommended the FAA follow.

*Methods to display aircraft identification:* Another individual commenter said the marking requirement should be consistent with recent certificates of waiver or authorization provided to persons issued exemptions under section 333 of the FAA Modernization and Reform Act, which allow for ''appropriate'' sized markings, or as large as practicable for the particular aircraft. Other commenters, including a joint submission from the State of Nevada, the Nevada Institute for Autonomous Systems and the Nevada FAA-designated UAS Test Site, similarly said small unmanned aircraft should be required to display registration numbers in the largest size that is appropriate. An individual commenter questioned whether the markings should be on the underside of the small unmanned aircraft to increase visibility from the ground. The University of North Dakota's John D. Odegard School of Aerospace Sciences urged the FAA to require small UAS manufacturers to provide at least one additional manner of identifying a device other than the registration number. The commenter suggested a VIN-type system or simply etching the manufacturer's serial number on a substantial component of the small UAS.

Several commenters proposed various electronic means to aid in small unmanned aircraft identification. Washington State Department of Transportation, Aviation Division and Drone Labs proposed having the registration numbers transmitted as part of the transponder signal or other means. The Center for Democracy and Technology advocated for an unmanned aircraft to emit a signal, such as a radio signal, to aid in identification. SkyView Strategies, Inc., recommended a microchip on each unmanned aircraft programmed with the registration number so that a device, such as a smart phone app, could read the microchip and display the aircraft's registration number. SkyView recognized this requirement could not go into effect until it is technologically feasible.

Several commenters opposed the requirement that small unmanned aircraft display their registration numbers because it would be impractical due to the small size of the aircraft. Some of those commenters, including the Association for Unmanned Vehicle Systems International, noted that many small unmanned aircraft have limited surface area available and often have no adequate fuselage for placement of registration markings. Those commenters said the FAA should develop alternative means of displaying a registration number more conducive to small unmanned aircraft. An individual commenter pointed out that for small unmanned aircraft with no ''hull'' or fuselage, the only place available for markings is on the booms, which are not permanently attached to the hub plate. Thus, the commenter noted, the marking would not be permanent, but, rather, on an ''easily removed and easily replaced'' component. Associated General Contractors of America said the requirement ''would serve little or no useful purpose'' because even when displayed in the ''largest practicable manner'' such numbers would be invisible from anything more than a few feet away.

Kansas State University UAS Program said the final rule should describe acceptable means for locating registration markings for nontraditional aircraft (or reference an industry consensus standard that does so) that cannot meet current subpart C in part 45 requirements. Prioria Robotics, Inc. also expressed concern about the applicability of the markings requirement to certain small unmanned aircraft airframes, and questioned whether, if a vehicle undergoes repair and a fuselage is changed, the operator will need to re-register the aircraft.

Several commenters recommended the sUAS operator make the aircraft's registration number visible to others on the ground. Trimble Navigation Limited and Federal Airways & Airspace favored having the sUAS operator display an ID badge with the registration number of the aircraft on their person. Trimble Navigation clarified that a badge display would be helpful if the FAA intends to use registration of an aircraft to identify the operator, but that visual or electronic identification of the aircraft is appropriate if the intent is to assist in the investigation of accidents. Federal Airways & Airspace clarified that this may be useful for very small unmanned aircraft but may not be necessary if the unmanned aircraft is large enough to display markings to the standard size. Predesa, LLC stated that the sUAS operator should be required to post aircraft registration information in their vicinity on the ground.

Regarding whether the rule should require small unmanned aircraft to have a fireproof identification plate, as required by part 45 subpart B, the Small UAV Coalition, Aviation Management Associates, Predessa, LLC, and the University of North Dakota's John D. Odegard School of Aerospace Sciences agreed with the FAA that a requirement for small UAS manufacturers to install a fireproof identification plate would not be cost-effective. The National Business Aviation Association, DJI, Modovolate Aviation, LLC, and several individual commenters also agreed that fireproof plating should not be required.

Crew Systems, on the other hand, said small unmanned aircraft should have a data plate installed, as required by 14 CFR 45.11. Aerospace Industries Association also said UAS manufacturers should install fireproof identification information on every unmanned aircraft, ''[p]erhaps through an electronic device (*i.e.,* imbedded chip) or other easy-to-read and damage-resistant means of identification.''

Other commenters addressed the need for ''indestructible'' identification plates, although they did not comment specifically on whether small UAS manufacturers should be required to attach fireproof identification plates in compliance with subpart B of part 45. The Air Line Pilots Association said a fire proof plate should be attached to the small UAS ''as a permanent identification of the registration of the sUAS.'' The Civil Aviation Authority of the Czech Republic said a fireproof identification plate should be required and enforced according to ICAO Annex 7, which requires the nationality, registration mark, and operator name and phone number. The National Agricultural Aviation Association, Colorado Agricultural Aviation Association, and CropLife America said small UAS should have a registered N-number on ''an indestructible and unmovable plate'' attached to the UAS for identification in case of an accident or incident. Reabe Spraying, Inc. said each UAS should have an ''indestructible and non-removable data tag with a unique ID code.'' Texas A&M University Corpus Christi/LSUASC said that if the registration number is not easily displayed on the aircraft, then an ''identifying tag'' should be permanently attached to the small UAS. The Aircraft Owners and Pilots Association said the FAA should implement ''additional requirements'' to ensure that a UAS can be identified in the event of an accident, incident, or violation, but the commenter did not specify what those additional requirements should be.

The Motion Picture Association of America, Inc., the National Association of Broadcasters, National Cable & Telecommunications Association, and Radio Television digital News Association, and the International Association of Amusement Parks and Attractions favored not having registration marks on small unmanned

aircraft that will be seen in theatrical and television productions.

*Clarification/Request for Information:* In addition to the comments on identification and marking provided in response to the sUAS Operation and Certification NPRM, the agency also received comments on aircraft identification and marking in response to the clarification/Request for Information. The Clarification/Request for Information sought specific information pertaining to aircraft identification and marking. Specifically, the document asked for information regarding methods currently available for identifying unmanned aircraft, whether every unmanned aircraft sold has an individual serial number, and methods to identify unmanned aircraft sold without serial numbers or those built from kits.

*Information that may be used for aircraft identification:* Commenters said that no standard method of aircraft identification exists for UAS and they recommended ways to identify UAS for registration purposes. Chronicled, Inc., wrote that it explored several options for including unique identifiers in consumer products, including serial number, radio frequency identification (RFID), near field communication (NFC), Bluetooth low energy (BLE), QR code, and DNA marker. This commenter determined that serial number or encrypted (PKI) microchips are the best options currently available and recommended the agency initially require the use of serial numbers for registration and then over a two year period, require PKI microchips to be included in all UAS. Aerospace Industries Association said various methods to identify platforms exist, but recommended that FAA seek to collect as much information as possible. According to this commenter, high value commercial platforms have a serial number to manage warranty claims while other commercial platforms, at a minimum, have a stock keeping unit (SKU) that can be used to identify the product model number. Morphism, LLC recommended using identifiers that encode information regarding the type of airframe, operating limitations and operators' contact information. Researchers at the University of California, Berkeley said UAS should receive and display an identification code to enable people and other aircraft to identify them. These researchers developed an identification system based on LEDs and unique color sequences. NetMoby, Inc. recommended that FAA adopt the Federal Communications Commission's registration process and tailor it to meet FAA's needs.

Several commenters noted that many UAS are assembled by consumers using parts from a range of sources, which presents a challenge for identifying individual products. Additionally, UAS components are frequently modified, replaced or upgraded. Some commenters recommended that the registration system require use of either a serial number for UAS that have serial numbers, or an FAA-generated identification number that can be applied to the UAS for those without serial numbers. Other commenters recommended that FAA issue a single registration number to the UAS operator rather than to each aircraft because hobbyists often have dozens of aircraft and it would be too burdensome to register every aircraft they buy or build. Several AMA members suggested the agency allow AMA members to place their names and addresses or AMA numbers on their aircraft as an alternative means of complying with the registration requirement.

Another individual suggested identifying consumer grade UAS by serial number and hobby built UAS by radio transmitter and receiver. A number of commenters participating in a form letter campaign stated that ''there is fundamentally no way to define any major component on a model aircraft that could reasonably be registered.''

Commenters addressing whether each unmanned aircraft sold has a unique serial number generally stated that every unmanned aircraft sold does not have individual serial numbers, though some UAS do. The University of Illinois at Urbana-Champaign said serial numbers are not required on UAS and they are not required to be distinct across manufacturers, so the agency could not rely on them for identifying UAS. Modovolate Aviation, LLC said most UAS have serial numbers and asserted it would impose a relatively small burden on manufacturers to imprint a serial number as part of the manufacturing process. A law firm suggested the agency require manufacturers assign a serial number to all UAS operated in the United States. This commenter also said that products manufactured before this requirement and other UAS without serial numbers could be assigned a registration number by FAA and the number would be affixed to the UAS. Delair-Tech suggested if no serial number is available for the UAS, the serial number of the autopilot module should be used. The Retail Industry Leaders Association said most UAS models on the market today do not contain product-specific unique identification numbers that consumers can use when registering UAS. This commenter noted manufacturers will need time to implement process changes to incorporate identification numbers and urged the agency to take the time to work with manufacturers with respect to this requirement. The commenter cautioned that if FAA adopts the registration requirement without waiting for manufacturers to make the necessary process changes, the only information consumers will be able to provide during registration is the model or inventory number of the UAS, which will not be helpful to identify a UAS owner involved in an incident.

Commenters suggested various methods for identifying UAS sold without serial numbers or those built with kits. The Wireless Registry suggested including a UAS' wireless signal identifier as part of the information collected as part of the registration process. The commenter explained the UAS' MAC address, a wireless identifier that cannot be altered, tied to a specific device would enable FAA to match the UAS to other information in the registry, including operator information. An individual stated the FCC already requires that all model aircraft operate on a very narrow frequency band and UAS manufacturers adhere to those rules. This commenter suggested FAA and FCC work together to establish a method of encoding each radio system with an identifier that would enable the FAA to monitor airspace in which UAS are not allowed. The Air Medical Operators Association said any UAS with the potential to conflict with a manned aircraft in flight must possess a unique identification that can allow for registration. This commenter also recommended that product packaging should clearly inform the consumer of his or responsibilities as operator. Other commenters suggested the following methods for identifying UAS sold without serial numbers or those build from kits:

Digital photo.
Detailed description of aircraft (*e.g.,* black quadcopter, white hexcopter).
QR code with 8-digit unique alphanumeric identifier that can be affixed to aircraft.
RFID tags or transponders.
FAA-issued registration number.
Name and address or AMA number affixed to the inside or outside of the airframe.

*Methods to display aircraft identification:* Several people commented on how operators should

display markings of their registration number on the UAS. Commenters' recommendations included: registration numbers should be prominently displayed on the exterior of the unmanned aircraft and be sized based on the largest single dimension of the unmanned aircraft; the markings should be visible from the ground; registration numbers should be displayed using a placard of some sort, or bar code, placed on the aircraft; and registration markings should be replaceable because UAS operators change parts on a regular basis. A number of commenters suggested using a sticker similar to automobile registration tags, which would provide visual confirmation of compliance and allow for consistency of data. Other commenters expressed concern about required markings adding weight to their unmanned aircraft or ruining the appearance of their scale models of real aircraft.

One commenter recommended a registration system in which individuals can request from the FAA a reasonable number of stickers that are pre-printed with successive serial numbers, and the FAA will then record to whom those stickers were sent in a publicly accessible database. The individuals can then apply those serial-numbered stickers to any model aircraft they own. The commenter contemplated that the stickers will self-destruct if the owner attempts to remove them to reuse them on a different aircraft. The commenter also suggested that if an aircraft is destroyed or sold, the original owner can log onto the FAA database to update the information associated with that aircraft's serial number.

Several other commenters noted that a marking system is problematic because many aircraft do not have a large enough area on which to place an identifier that would be visible from a distance. Some of these commenters stated the only reason for a unmanned aircraft to carry a registration number is to identify the owner after a crash. These commenters asserted that it would make more sense to require UAS operators to affix a label with their contact information inside their aircraft than to develop and implement a registration system. Noting markings will not be visible on most unmanned aircraft during flight, Delair-Tech recommended using a position reporting mechanism to enable authorities to access information on in-flight devices. This commenter said following an accident, a marking of the manufacturer name, serial number and type designator, designed to withstand a certain degree of damage, would enable authorities to find the UAS owner through the registration system.

*Comments on the use of the N-numbering system to register UAS:* A few commenters recommended that the registration system for UAS be separate from the current N-numbering system used for manned aircraft. To ensure that the FAA does not run out of N-numbers, one individual suggested moving to a 6- or 7-digit number for UAS, while another individual suggested the FAA open up the first 3 spaces to allow the use of letters, which the commenter asserted will increase the availability of the numbers by 44,279,424 spaces. Another individual said the registration number should be ''sufficiently long/random'' to prevent people from creating registration numbers without actually registering.

One individual commenter suggested that the registration numbering system delineate between commercial users (for which the N-numbering system could be used) and private users. Another individual said the N-number given to small UAS intended for commercial use should be followed by a ''- C'' designation to clearly show that this aircraft is going to be used commercially. Several other individuals recommended the FAA use alternate prefixes for the registration number (*e.g.,* ''U,'' ''UX,'' ''UAS,'' ''UAV,'' ''NQ,'' or ''M'' for model aircraft).

The Property Drone Consortium pointed out that an N-number on a UAS will not be visible to observers while the UAS is in flight, and will therefore only be used to identify the owner of a UAS that has been involved in an incident and recovered. This commenter also questioned whether it will be sufficient to self-register based on a serial number, requiring an FAA assigned N-number only when a serial number is not available or easily accessible. An individual commenter said the manufacturer serial number should be sufficient for identification purposes, instead of a separate N-number. Another individual also supported the use of a manufacturer serial number, but said an ''N'' should still be placed in front of the serial number to show that it is registered.

One individual commenter stated that because some UAS are too small to effectively display an N-number, an electronic version of an N-number should be used. This commenter asserted that the electronic serial number (ESN) can be encoded into the receiver/transmitter used to control the UAS, and then broadcast whenever the transmitter commands the aircraft. The commenter suggested that authorities could then identify the UAS in question, and that that interception would be legal as the ESN is broadcast over the 2.4 GHZ publicly shared frequencies.

One individual commenter recommended a separate category of N-numbers for historic airplanes, similar to what has been done for full-scale historic cars and aircraft.

A few individual commenters supported the use of the current N-numbering system for UAS, with one commenter asserting that it is already working well for commercial UAS operations.

*Task Force:* The FAA asked the Task Force to develop and recommend methods for proving registration and marking. Factors to consider included, but were not limited to, how a small unmanned aircraft will be able to be identified with the registered owner (*i.e.,* a marking requirement).

*Information that may be used for aircraft identification:* Because the main goal of registration is to create a connection between the aircraft and its owner, the Task Force recognized that it is necessary to mark each registered small unmanned aircraft with a unique identifier that is readily traceable back to its owner. The Task Force recommended two options for complying with this marking requirement. Specifically, registrants can either affix a single FAA-issued registration number to all the aircraft they own or they can rely on a manufacturer's serial number that is already permanently affixed to the aircraft. A small unmanned aircraft owner may only rely on the manufacturer's serial number, however, if the owner provided that serial number to the FAA during registration and if it appears on the owner's certificate of registration.

*Methods to display aircraft identification:* The Task Force further recommended a requirement that the owner and operator ensure that all markings are readily accessible and maintained in a condition that is readable and legible upon close visual inspection prior to any operation. The Task Force believed that markings enclosed in a compartment, such as a battery compartment, should be considered ''readily accessible'' if they can be easily accessed without the use of tools.

*IFR Requirement: Information that may be used to identify an aircraft.* The IFR requires all small unmanned aircraft to display a unique identifier. As discussed throughout this preamble, individuals registering aircraft that will be used exclusively as model aircraft will receive a Certificate of Registration

with a single registration number that constitutes registration of all of the individual's small unmanned aircraft. This number must be displayed on each small unmanned aircraft owned by this individual and used exclusively as model aircraft as proof of registration and to connect the small unmanned aircraft with an owner.

Each aircraft used as other than a model aircraft will receive a Certificate of Aircraft Registration with a unique registration number that must be displayed on the aircraft.

The FAA received a variety of recommendations pertaining to the information that should be affixed to the small unmanned aircraft for purposes of identification (*e.g.,* phone numbers, bar codes, QR codes, operator contact information and AMA number). In some cases, commenters recommended information in addition to a registration number. The agency considered these recommendations but determined that once an aircraft is registered, the registration number provides sufficient information to locate the aircraft's owner in the FAA's registration database. Therefore, requiring the owner to display additional contact information on the aircraft would create an unnecessary burden.

Regarding the comment seeking to display an AMA number in particular, the Civil Aircraft Registry and the registration system implemented in this IFR are premised on the ability to uniquely identify and owner and their aircraft. The FAA does not govern the membership structures of section 336 organizations and cannot be assured of the uniqueness of those organizations' identification systems. Therefore, the FAA has no assurance that such a member number will provide the requisite unique identifier. Thus, the FAA will maintain an FAA-issued registration number for the marking scheme for small unmanned aircraft used as model aircraft.

With regard to ASTM consensus and marking standards, the FAA notes that, as of this writing, those standards are still in development, and thus, they cannot be used for this rulemaking.

Finally, a number of commenters assumed that an FAA registration number would include the ''N'' prefix that is used for identification of U.S. registered aircraft. The agency clarifies that the registration numbers issued to small unmanned aircraft under the IFR are not intended to be used for nationality identification and thus will not include the ''N'' prefix because the part 48 registration process is available only to small unmanned aircraft operating within the United States.

*Methods to display aircraft identification:* To ensure that the small unmanned aircraft can be identified, the FAA will require that the unique identifier must be maintained in a condition that is legible. The unique identifier must be affixed to the small unmanned aircraft by any means necessary to ensure that it will remain affixed to the aircraft during routine handling and all operating conditions.

For small unmanned aircraft registered under this part, the FAA does not specify a particular surface upon which the unique identifier must be placed. Rather, recognizing commenters' concern about the small size of many of the small unmanned aircraft that must be registered, the FAA simply requires that the unique identifier must be readily accessible and visible upon inspection of the small unmanned aircraft.

In accordance with Task Force recommendations, a unique identifier is deemed readily accessible if it can be accessed without the use of any tools (*e.g.,* battery compartment). This flexibility is expected to resolve the concerns of the television and motion picture industry and preserve the authenticity of a replica if so desired, given that the unique identifier need not be displayed on the exterior of the small unmanned aircraft.

Additionally, the flexibility with respect to the location of the unique identifier will facilitate the use of a small unmanned aircraft serial number as the unique identifier at such time as the Administrator determines that serial numbers can be effectively used to identify aircraft owners within the small unmanned aircraft registration system. The FAA notes that, currently, serial numbers may be repeated since there is no mechanism in place for manufacturers to ensure that a given serial number is unique to a specific aircraft. However, the FAA supports any efforts by sUAS manufacturers to collectively standardize aircraft serial numbers, such that each small unmanned aircraft will receive a unique serial number in production.

With regard to comments on the visibility of the markings, the FAA cannot require all small unmanned aircraft to display a registration number visible to people on the ground because some small unmanned aircraft may be too small to satisfy this requirement. The agency notes, however, that during operation of the sUAS, a Certificate of Aircraft Registration must be readily available to the person operating the sUAS, so that they may provide it to federal, state, or local law enforcement when requested. *See* 49 U.S.C. 44103(d); 14 CFR 91.9(b) and 91.203(a); *see also* Legal Interpretation from Mark W. Bury to John Duncan, August 8, 2014. The Certificate of Registration can be a legible paper copy (or photocopy), or it may be provided by showing it in a legible electronic form, such as on a smartphone. Thus, while the agency considered comments suggesting additional documentation requirements such as an ID badge or placard on or near the sUAS operator, the FAA has determined that such requirements would not serve a valid purpose.

Additionally, commenters' recommendations pertaining to a requirement to identify a small unmanned aircraft using certain equipment are beyond the scope of this rule. Neither the sUAS Operation and Certification NPRM nor this rule contain minimum equipage requirements for small UAS, such as a transponder. Thus, small unmanned aircraft may not have the equipage necessary to electronically transmit a registration number.

Regarding comments related to the installation of fireproof plates, Executive Order 12,866 prohibits an executive agency from adopting a regulation unless the agency determines ''that the benefits of its intended regulation justify its costs.'' [38] In the sUAS Operation and Certification NPRM, the FAA explained its belief that requiring the installation of identification plates would not be cost-justified. None of the commenters advocating for the use of fireproof identification plating or other forms of fireproof marking submitted data that would allow the FAA to find that adopting this requirement would result in benefits sufficient to justify the costs of this requirement. Additionally, the FAA notes that for some of the smaller and lighter weight unmanned aircraft that operate under this rule, an identification plate would add additional weight, which could result in reduced flight performance and/or endurance. Accordingly, the FAA has decided against including a requirement for a fireproof identification plate in this rule.

*I. Education*

*sUAS Operation and Certification NPRM:* Availability of education materials was addressed in the sUAS Operation and Certification NPRM. The National Association of REALTORS, SkyView Strategies, Inc., and others recommended that FAA initiate a campaign to educate the general public on UAS due to the abundance of misinformation currently available. The Air Line Pilots Association urged FAA to take advantage of internet-based

communication of safety material, training resources, databases of airport locations and airspace restrictions, best practices, in-service irregularity reports and the like, because this is possibly the only practical means of reaching the small UAS pilot population.

*Clarification/Request for Information:* Many commenters, including the National Air Transportation Association (NATA) and the National Retail Federation, stated that a public education campaign and the development of guidance materials and handbooks to ensure users know the rules for flying UAS is essential to promote responsible use of UAS. Other commenters said that requiring manufacturers to include a pamphlet with each aircraft that describes these rules would also be effective. Another commenter suggested that online retailers require purchasers to navigate to a page describing UAS safety requirements before completing the purchase. Many commenters, including the Experimental Aircraft Association, lauded FAA's existing Know Before You Fly program and recommended continuing to expand it. Some commenters suggested creating a GPS-enabled app that would identify safe and unsafe areas for flying, while others said FAA should further develop its existing B4UFly app for all mobile platforms. A commenter said that off-limit areas should be marked or advertised as such. Some commenters said that operators should be required to pass a training course, a practical exam, or obtain an operator certificate before flying a UAS.

*Task Force:* Recognizing how important it is that all users of the NAS receive information on safety in the NAS, the Task Force recommended the registration process contain some sort of education component and acknowledgment, with controls in place such that the registration process would be incomplete until the registrant has acknowledged receipt of this information. The information provided could be similar to the existing content in the *Know Before You Fly* program.

*IFR Requirement:* The FAA establishes regulatory standards to ensure safe operations in the NAS. The FAA's safety system is largely based on, and dependent upon, voluntary compliance with these regulatory standards. An essential element of this strategy is FAA's effort to encourage a safety culture, and, to that end, ensure comprehensive educational material is readily available to every user of the NAS. The FAA agrees with commenters and the Task Force with respect to the importance of educational information in the registration process.

The small unmanned aircraft registration platform described in this rule will require the registrant to review a summary of sUAS operational guidelines before completing small unmanned aircraft registration. The FAA believes this is an invaluable access point to deliver sUAS operational safety information. The information will also direct registrants to additional sources of safety information generated by the FAA and other stakeholders, such as *faasafety.gov* and *knowbeforeyoufly.org.*

To reach registrants after they complete the registration process, the FAA will develop a process to use the small unmanned aircraft registry information (such as email and mailing address) to offer safety-related information. Delivering post-registration safety information to registrants on a continuing basis will help to remind the registrant of their safety-of-flight obligations and help reduce sUAS risks in the NAS. The FAA will develop, maintain, and deliver easily-accessible safety information directed specifically to sUAS owners and operators. To maximize usage of the information by the recipient, the FAA will carefully meter its delivery of information via these access points to maximize effective consumption.

*J. Compliance Philosophy and Enforcement*

*Clarification/Request for Information:* The FAA received several comments about enforcement. Modovolate Aviation, LLC expressed support of FAA's proposed registration requirement of UAS stating it will improve the ability for law enforcement officials ''to investigate unsafe and reckless practices and to take enforcement action when appropriate.''

The Minnesota Department of Transportation's (MnDOT) Office of Aeronautics, the Arlington Police Department (APD) and several individual commenters raised concerns about enforcing a registration requirement. MnDOT Office of Aeronautics noted one challenge associated with enforcement of the current program is a general lack of awareness of the State's role in regulating UAS and aviation, as well as a lack of awareness among operators, airports, law enforcement and the general public of the aircraft registration requirements and commercial operators licensing requirements. This commenter noted that registration could be used as a vehicle for providing information to the public about program requirements and the States in regulating UAS and aviation

APD said it and other local law enforcement agencies across the country do not have the capacity or the authority to enforce FAA's UAS rules and regulations. While APD will assist the FAA as witnesses or reporting entities for UAS rules violations, the commenter said the FAA must retain the responsibility for enforcement.

A number of individual commenters raised general concerns about the enforceability of a registration requirement. Several commenters asserted extending registration requirements to recreational users will be difficult to enforce and will not be worth the expense required to develop and implement the program, including the cost to train local law enforcement officials. Others noted no Federal, State or local law enforcement agency has the budget or work force to enforce a registration requirement for all aircraft, including model aircraft. One commenter compared this registration requirement to the Federal Communications Commission's effort to require Citizen Band radio users to apply for a license to operate, which, according to the commenter, ultimately was too costly to enforce. Other commenters questioned whether the FAA has sufficient manpower to enforce the registration requirement and how enforcement responsibilities will be shared with local law enforcement.

Some individuals provided general comments about penalties for failing to register a UAS. One commenter recommended a one-time allowance for anyone caught violating the registration requirement and a large fine for subsequent violations, while other commenters suggested a large fine for all offenses.

Several commenters addressed the issue of penalties. One commenter remarked that registration will be worthless unless there are negative consequences (*e.g.,* fines or revocation of registration certificate) for operators who fail to register or mark their aircraft. Another commenter suggested that a penalty similar to the penalty for driving an unlicensed car be imposed for operating a UAS without the proper registration.

*Task Force:* The Task Force recommended that the FAA establish a clear and proportionate penalty framework for violations. It cited the FAA's current registration-related penalties and stated they were established in order to deter suspected drug traffickers and tax evaders who failed to register aircraft as part of larger nefarious schemes. The Task Force

recommended a separate FAA policy driving a proportionate response for inadvertent sUAS registration violations, without which operators could find themselves exposed to aggressive enforcement.

*FAA Response:* The FAA Administrator has the authority to prescribe, revise, and enforce standards in accordance with Title 49 of the United States Code, Subtitle VII, Chapter 447, Safety Regulation. This authority is used to protect the public's safety and the agency's enforcement authority is exercised to obtain compliance with applicable aviation safety and security requirements.

Earlier this year, the FAA announced a new compliance philosophy that uses a strategic approach to safety oversight.[39] The FAA believes that its compliance philosophy, supported by an established safety culture, is instrumental in ensuring both compliance with regulations and the identification of hazards and management of risk. If an individual or entity is found to have not registered the aircraft prior to its operation, the FAA's compliance philosophy will be applied appropriately.

To mitigate risks in the NAS and ensure compliance FAA has used and will continue to use outreach and education to encourage compliance with regulatory requirements that pertain to the registration of unmanned aircraft. The FAA may also use administrative action or legal enforcement action to gain compliance. Failure to register an aircraft can result in civil penalties up to $27,500. Criminal penalties for failure to register can include fines of up to $250,000 under 18 U.S.C. 3571 and/or imprisonment up to 3 years. 49 U.S.C. 46306.

*K. Privacy*

*sUAS Operation and Certification NPRM:* In the NPRM for the sUAS Operation and Certification rule, one commenter addressed database accessibility. Event 38 Unmanned Systems suggested that FAA create a database of registered operators, but limit accessibility to FAA and law enforcement.

*Clarification/Request for Information:* The Clarification/Request for Information requested information about the storage of registration data.

*Registration Data Storage Method:* Many commenters expressed concern about the security of personal identifying information in light of recent breaches, and recommended that data be stored in some sort of secure database (*e.g.,* encrypted database, secured server, database under the control of FAA, central database with 256 bit AES digital encryption, protected with HIPAA-type controls) in compliance with government requirements. Several commenters noted the data should be stored in a nationally accessible database so that it can be shared with local law enforcement agencies responsible for enforcing the rules. Other commenters recommended the FAA store registration data the same way the FCC stores amateur (HAM) radio licenses. Another commenter suggested registration data for model aircraft should be maintained by the AMA. Some commenters said there should not be a central registry due to data security concerns, while others recommended storing the registration information on paper to reduce the possibility of personal information being hacked or stolen.

EPIC stated that recreational UAS operators have an expectation of privacy, so the FAA should adopt safeguards to protect those registrants' information from improper release and use by both the public and other government agencies.

Multiple commenters, including South Florida UAV Consortium and Morris P. Hebert, Inc., expressed concern with the security of online registration systems. Some commenters indicated that they would be supportive of electronic or Web-based registration if the agency could guarantee that the registration site would be secure. A commenter also suggested to ensure that an electronic signature be included in the registration process to increase security. Along with adding security measures to any online site, an individual expressed concern with the authentication process of online registrations. A few commenters suggested that it would be difficult for the agency to create and implement an authentication program sufficient to verify the identity of those registering prior to the proposed December 2015 deadline.

The Air Medical Operators Association and the Colorado Agricultural Aviation Association said the data should be stored and maintained by the FAA and easily accessible to the agency and law enforcement agencies for enforcement purposes. The National Retail Federation asserted retailers should not be required to store any kind of UAS registration information; the system should be maintained by the FAA for use by the FAA and local law enforcement agencies. Similarly, the Toy Industry Association said manufacturers should not be required to maintain UAS registration information.

Chronicled, Inc. suggested using a distributed blockchain based system in which the FAA would not own the data, but would have complete access to the data. In a blockchain-based system, the registrants would own their registration data and the UAS product history would pass on to any subsequent owners of the UAS. Travelers Insurance Company recommended the data be stored in a searchable database that would allow for data mining with respect to all the registration information, including manufacturer, type, serial number, vendor and purchaser with protections for personally identifiable information.

*Registration Data Accessibility:* In the Clarification/Request for Information, DOT and FAA asked who should have access to the registration data. Many commenters, including Modovolate Aviation, LLC, and NetMoby, said that the UAS registration data should be available to the public via the same search methods as the current manned aircraft registration data. Many commenters noted the data must be available to the public in order for the public to identify the owner of a UAS involved in an incident and to notify the appropriate government authority. NetMoby also said State laws require the exchange of information for automobile accidents and asserted the same should be required for UAS incidents.

Aerospace Industries Association, Property Drone Consortium, Real Time Technology Group and individual commenters suggested all stakeholders require access to the data, but different stakeholders have different information needs. These commenters said the type of information each stakeholder should have access to should be controlled on a need to know basis. Aerospace Industries Association also cited FAA's Federal Records Center (FRC) as an example of how the data could be managed. The commenter explained licensees are registered and have access to their detailed information, while third parties have access to a limited amount of the information necessary to conduct business, but not to all of the detailed information. A law firm noted concerns about confidential proprietary information could be addressed by allowing for redaction of certain confidential financial information, as is currently done with the FAA Civil Aircraft Registry.

Several commenters said only the registrant and authorized government

[39] See FAA Order 8000.373 available at *http://www.faa.gov/documentLibrary/media/Order/FAA_Order_8000.373.pdf.*

agencies, including DOT, FAA, the National Transportation Safety Board, and Federal Bureau of Investigation, and local law enforcement officials should have access to the registration data because of privacy concerns. One commenter said the data should only be available to law enforcement and FAA personnel via the existing National Crime Information Computer datalinks. Some commenters said law enforcement officials should have access to this data only when there is an active investigation into a particular registration and registrants should be informed when their data is accessed. Many commenters said the data should be treated as confidential information and a few suggested DOT or FAA personnel should have the ability to access the data only with a court order, warrant or FOIA request. A few commenters expressed concern that if the registration data were publically available, owners of expensive UAS would be targets of robbery.

EPIC stated that there must be strict restrictions against the general disclosure of registrants' personal information to government agencies and private entities, except as necessary to promote the FAA's mission of establishing safety and privacy in UAS operations. Noting that privacy concerns are greater for hobbyists (who are more likely to register with private home addresses) than for commercial operators, EPIC recommended that the registration database of commercial operators be publicly accessible, but the database of recreational operators only be accessible for limited purposes related to protecting the safety and privacy of the public. EPIC claimed that, given the fast-growing market for UAS, a publicly accessible database of operators would implicate privacy and safety concerns comparable to those that inspired the Driver's Privacy Protection Act, which generally prohibits the release and use of registered drivers' personal information except for limited purposes. As such, EPIC asserted that UAS registration information should be treated the same as the driver records collected by state departments of motor vehicles.

The Arlington, Texas, Police Department said that local law enforcement agencies should be given real-time access to the database to enable them to seek information about a specific UAS registration and to provide notification about unregistered UAS.

*Usage of Registration Data:* Many of the commenters who responded to this question, including the National Retail Federation and individuals, said the data should only be used for law enforcement purposes. Other commenters suggested additional uses of the data. For example, Travelers insurance company recommended the data be available for use for underwriting, risk assessment, and for establishing loss history. AIA said regulators could use the metadata to determine market size, concentration and type and volume of operations. Aerospace Industries Association also said registration should not prompt additional State tax collection processes as it does with manned aircraft purchases. Real Time Technology suggested the data could be used at FAA's discretion for a number of purposes, including: To maintain an accurate association of UAS with multiple users over time; to compile accurate records of corporate UAS assets; to assure compliance with registration requirements for UAS operations; to authenticate registration for operational integrity in the field; to track incidents associated with UAS or owners; and to collect operational flight data from participating facilities. An individual said FAA could use the data to generate aggregate statistical data on commercial UAS activities to gauge commercial UAS impact on the NAS. A few commenters noted registration data could be used to recover stolen or lost property, alert owners of recalls, or to disseminate safety information, including Notices to Airmen, to registrants. Some commenters expressed concern that registration data could be used to abuse or harass UAS owners. Others expressed concern that in asking how the data should be used, the agency does not seem to know why it is seeking to collect the data.

EPIC stated its position that recreational operators have a legitimate privacy interest in avoiding the disclosure of their names, addresses, and telephone numbers, and that it would serve no legitimate purpose to make such personal information available beyond the scope of a particular privacy or security threat.[40] As such, EPIC stated the FAA should adopt a general prohibition against the disclosure of personal information, including the name, address, and number of the registration. EPIC further stated that permitted uses of the registry should be limited to serve the FAA's stated purposes of allowing ''individuals and title search companies to determine the legal ownership of an aircraft'' and to ''provide aircraft owners and operators information about potential mechanical defects or unsafe conditions of their aircraft in the form of airworthiness directives.'' To that end, EPIC suggested that appropriate uses of registration data by the FAA would include providing information to identify the operator of a UAS that has caused injury, or in connection with a legal proceeding, and providing UAS owners and operators information on any relevant mechanical defects or unsafe aircraft conditions.

*Other General Comments:* Commenters raised additional concerns regarding a UAS registration system. Skyward, Inc. said in 2013 the DOT's Office of the Inspector General found that the aircraft registration system had experienced significant data quality and security issues. The commenter noted data quality and security issues are exacerbated when data are hard to update or there is little incentive for individuals to provide updated information. Skyward, Inc. was ''concerned (1) that the Department's focus on enforcement may alienate potential registrants, (2) about questions related to managing registration of aircraft owned by individuals who are not US citizens or are not permanent residents, and (3) about how such a registration system may manage [s]UAS that are passing through the US by visitors who bring drones into the US temporarily.''

Skyward, Inc. also expressed concern about unintended consequences that could result from ''hasty implementation'' of the registration system. Similarly, an individual stated that based on the questions posed in the Clarification/Request for Information, it appears ''the FAA has not done the necessary preparation to stand-up a registration system to handle the necessary volume of registrants.''

*Task Force:* The Task Force recommended that the FAA collect only name and street address of applicants for registration. While the Task Force recognized that a registrant's email address and telephone number may be useful for the FAA to disseminate safety-related information to UAS owners, the Task Force nevertheless believed disclosure of such information be optional. With the exception of information released to law

[40] EPIC cited legal precedent to support the propositions that individuals have a legitimate privacy interest in avoiding disclosure of their names, addresses, and telephone numbers (*see Dep't of Defense* v. *Fed. Labor Relations Auth.,* 510 U.S. 487, 500 (1994)) and that this privacy interest remains intact even when the information is properly disclosed to the public under certain circumstances (*see U.S. Dept. of Justice* v. *Reporters Comm. for Freedom of the Press,* 489 U.S. 749, 767, 770 (1989)). EPIC further stated that limiting the use and disclosure of personal information submitted by registrants is consistent with their expectations of privacy.

enforcement, the Task Force urged the FAA to prevent the release of any personal information that the agency is not specifically required by law to disclose. Because this new requirement will impact unmanned aircraft owners who do not have the means to protect their identities and addresses behind corporate structures (as some manned aircraft owners currently do), the Task Force believed that it is important for the FAA to take all possible steps to shield the information of privately owned aircraft from unauthorized disclosure, including issuing an advance statement that the information collected will be considered to be exempt from disclosure under the Freedom of Information Act.

*IFR Requirement:* This rule provides a Web-based process for registration of small unmanned aircraft and issuance of Certificates of Aircraft Registration. The privacy impacts have been analyzed by the FAA in the Privacy Impact Assessment (PIA) for the Civil Aviation Registry Applications (AVS Registry) and the Privacy Act System of Records Notice (SORN) DOT/FAA 801 Aircraft Registration System has been updated accordingly.

The FAA conducted a PIA of this rule as required by section 522(a)(5) of division H of the FY 2005 Omnibus Appropriations Act, Public Law 108–447, 118 Stat. 3268 (Dec. 8, 2004) and section 208 of the E-Government Act of 2002, Public Law 107–347, 116 Stat. 2889 (Dec. 17, 2002). The assessment considers any impacts of the rule on the privacy of information in an identifiable form. The FAA has determined that this rule would impact the FAA's handling of personally identifiable information (PII). As part of the PIA that the FAA conducted as part of this rulemaking, the FAA analyzed the effect this impact might have on collecting, storing, and disseminating PII and examined and evaluated protections and alternative information handling processes in developing the rule in order to mitigate potential privacy risks. The PIA has been included in the docket for this rulemaking.

The FAA agrees with the Task Force that accessibility of this information to law enforcement and the FAA is the utmost priority in establishing this registry. As such, the security, simplicity, and accessibility of the system to those groups were the foremost goals in the FAA's determinations of system design. Routine uses are described in the SORN.[41]

Commenters were mainly concerned with two issues: information security and access to the registry information. First, regarding the security of the registry information, the FAA developed this Web-based registration system in compliance with all federal information technology requirements and guidelines regarding security and protection of information including the Federal Information Security Management Act of 2002 as amended by the Federal Information Security Modernization Act of 2014 and OMB and National Institute of Standards and Technology guidelines. Access to the system depends on a validated email address and a password created by the user. The system is identified by a digital certificate so that the public has confidence that they are interacting with the authentic registration site. The system encrypts all of the information provided by the users while they use the system as well as user information stored within the system. The system has also been designed to protect information based on the potential for serious impact from a security compromise. In addition, the system protects credit card information in accordance with PCI Data Security Standards.

Second, regarding the accessibility of the system data, the Privacy Act System of Records Notice DOT/FAA 801 Aircraft Registration System, provides notice to the public of the agency's privacy practices regarding the collection, use, sharing, safeguarding, maintenance, and disposal of information that affects individuals and their personally identifiable information (PII). The SORN identifies the routine uses for the PII collected for small unmanned aircraft registration. The SORN has been published in the **Federal Register** and addresses the disclosure of the small unmanned aircraft owner's name and address.

The FAA disagrees with commenters who say that the Registry should reside with the AMA or any other organization. By statute, the FAA is charged with establishing such a registry.

As provided in the SORN, all information in the database will be available to law enforcement in order to achieve one of the FAA's primary priorities in creating this system, which is to ensure a safe and secure NAS. Accomplishing this goal involves prioritizing the ability of law enforcement to help us identify the owner of a sUAS that has violated an operating rule or has been used to either accidentally or intentionally endanger other NAS users or people on the ground.

Additionally, as provided in the SORN, the general public will be able to search the part 48 registry database by the unique identifier. The name and address associated with that unique identifier will populate in accordance with that search.

*L. Other Methods To Encourage Accountability and Responsible Use of the National Airspace System*

*Clarification/Request for Information:* The FAA received comments from many organizations and individuals on additional means beyond aircraft registration to encourage accountability and responsible use of UAS.

The agency received comments affirming the registration requirement as a method to encourage accountability and responsible use of UAS. The Air and Surface Transport Nurses Association said that a registration requirement would be a ''step in the right direction in terms of safety.'' EAA stated that while registration will create a system of accountability, safety is dependent on the knowledge and decisions made by UAS users. An individual commenter noted registration would help recreational operators to take UAS use seriously. Another individual stated requiring all operators to register their UAS and to obtain a pilot license are both necessary to document the aircraft are airworthy and the operators are properly trained in safe operation. Rotor Sport and other commenters recommended the FAA look to the AMA for guidance and counsel so that the agency can create policies that foster acceptable use and safety for the public while at the same time are intelligent and flexible to meet the needs of all model aviation stakeholders.

Most of the commenters addressing this issue asserted that a registration requirement would not encourage accountability and responsible use of UAS. Two of the main reasons given for this assertion were that registration would only be useful in rare cases when a registered UAS is recovered after an incident, and ''bad actors'' will simply not register. Several commenters, including the Competitive Enterprise Institute, noted registration numbers on a UAS would be invisible to those observing a reckless or malicious UAS operation, thereby limiting the enforcement benefits. These

[41] Persons wishing to access or comment on the System of Records Notice should consult docket No. DOT–OST–2015–0235.

commenters said FAA has not provided any evidence to demonstrate that registration of these aircraft will improve safety of the NAS or people on the ground. They believe the safety rules are important, but a registration requirement would have no effect on safety. One commenter noted registration of UAS will enable FAA to identify the operator in case of an accident, but it does not address the actual problem: untrained pilots operating in the NAS. This commenter stressed the importance of a type certificate stating, ''It certifies that the UAS is airworthy, and also requires a trained pilot to operate in the NAS.''

A few commenters asserted FAA has not been able to accurately track many of the 357,000 aircraft registered under the current registration program, and questioned the agency's ability to manage the registration of hundreds of thousands of UAS. A number of commenters participating in a form letter campaign stated that registration of model aircraft, in particular, ''would have had little to no effect on the few rogue pilots that have caused concern with the FAA and DOT and would only serve to prevent law abiding citizens from enjoying the freedom and liberty set forth by the US Constitution.'' Many commenters said instead of encouraging accountability and responsible use, a registration requirement would increase burdens on responsible operators, waste tax payer dollars, and punish those who follow the rules.

Several individual commenters asserted that the proposed registration requirement is unnecessary as the registration issue is already being addressed in the current section 333 exemption process and proposed part 107 (the sUAS Operation and Certification NPRM).

A few commenters proposing other methods to encourage accountability and responsible UAS use said that manufacturers should be required to install geo-fencing software in their models to prevent UAS from flying in restricted areas. Other commenters said they should be required to install transponders that would transmit the registration number.

Modovolate Aviation said the following would encourage accountability and responsible use of UAS: ''(1) Prompt promulgation of a general rule for sUAS, following the FAA's 25 February 2015 proposal; (2) streamlining and acceleration of the section 333 exemption process; and (3) eventual replacement of this system of regulation with one requiring vendor self-certification of specific technological safety features as a condition of sale.''

Delair-Tech recommended various options that would require the manufacturer to install software that would trigger the need to register before the UAS would be operational. The South Florida UAV Consortium recommended that UASs be restricted to a limited operation until the operator completes a training course and receives a code to unlock the software to allow it to fly its full range. An individual commenter said there should be an identification process that requires a name and address to be registered to a serial number before electronic operating software can be downloaded to the UAS.

Skyward, Inc. said the Task Force should examine approaches that promote safety ''by providing opt-in conduits for registrants to receive educational material, safety/recall information from manufacturers, insurance discounts, and other benefits.'' In addition, Skyward suggested that the proposed registration system serve as a facilitator for subsequent services such as automated delivery of temporary flight restrictions. Other commenters similarly recommended the registration system contain some sort of educational or training component. Aviation Management Associates said the FAA should encourage registration of all UAS (including those that are not required to register) by providing information and services of value, such as enabling operators to receive discounted insurance rates by virtue of meeting educational requirements that qualify for registration.

EPIC recommended that any UAS operating the NAS include a mandatory GPS tracking feature that would broadcast the location, course, speed over ground, and owner identifying and contact information, similar to the Automated Identification System (AIS) for commercial vessels. EPIC noted that, unlike with aircraft that are equipped with ADS–B, aircraft information about aircraft equipped with AIS is available to the public through freely available apps.

Union Pacific Railroad stated that it supports other reasonable measures to encourage accountability and responsibility in small UAS operations, including restrictions on any unauthorized commercial or recreational operations over certain safety-sensitive locations, such as railroad facilities.

*Task Force:* While the Task Force did not make a specific recommendation on encouraging accountability and responsible use of UAS outside the registration process, it asserted within its report that operator accountability and responsible use were its principal goals of registration. The NPRM did not request comment on this issue.

*IFR Requirement:* Accountability and responsible sUAS operation along with identification of the aircraft owner are the desired outcomes for this rule. While commenters provided a number of recommendations for further action toward these goals that are outside of the scope of this rulemaking, the FAA found that one predominant recurring theme addressed education regarding safe sUAS operations. As described in the preamble discussion pertaining to education, the FAA agrees that education is a key component for reaching the agency's aircraft registration goals and is an overarching tenet in ensuring the safety of the NAS. The FAA will continue to evaluate these additional methods recommended by the commenters for encouraging safe and responsible use among sUAS operators for future guidance material and rulemaking.

*M. Legal Implications of the Registration Requirement*

A number of comments were received to the Clarification/Request for Information regarding the legal implications of the registration requirement.

1. Comments addressing Section 336 of the FAA Modernization and Reform Act of 2012

Many commenters stated that the FAA's decision to require registration of model aircraft is in violation of section 336 of the FAA Modernization and Reform Act of 2012, Public Law 112–95, which stipulates that the FAA ''may not promulgate any rule or regulation regarding a model aircraft'' that meets certain criteria. Commenters pointed out that one such criterion is that the model aircraft be operated ''in accordance with a community-based set of Safety Guidelines and within the programming of a nationwide community-based organization.'' Commenters stated that the AMA is one such organization, and that the FAA must therefore exempt AMA members from the registration requirement. Other commenters stated more generally that FAA must identify all nationwide community-based organizations and exempt their members from any rule or regulation (including registration) when the aircraft is operated in accordance with a community-based set of safety guidelines.

The Competitive Enterprise Institute asserted that the FAA conceded in its interpretation of section 336 that ''a model aircraft operated pursuant to the terms of section 336 would potentially be excepted from a UAS aircraft rule,'' an interpretation that the commenter said ''would logically lend itself to a UAS aircraft registration rule as well.'' This commenter accused the FAA of ignoring both the plain language of the statute and its own interpretation of it, and asked the FAA to explain how it has the jurisdiction to regulate small UAS operated by hobbyists.

Several commenters found fault with the FAA's justification for requiring registration of model aircraft—*i.e.,* that it is applying existing law that applies to all ''aircraft'' and not promulgating new regulations regarding model aircraft. The Mercatus Center at George Mason University asserted that the current proceeding ''relied quite directly on laws that by statute may not be used as justification for an expansion of the regulatory obligations of model aircraft operators;'' namely, its UAS integration mandate under the FAA Modernization and Reform Act. This commenter further asserted that if the FAA does not restart the process without references to that mandate there is a possibility that registration of non-commercial UAS will be overturned if challenged in court. An individual commenter stated that if, as the FAA asserts, the definition of model aircraft as ''aircraft'' means that all existing federal aviation regulations retroactively apply to model aircraft, the congressional prohibition on regulating them would be pointless. This commenter further stated that the clear intent of Congress was to prohibit the FAA from regulating model aircraft at all, and that if Congress meant instead to apply the full array of existing aviation regulations to model aircraft, it would have said so. This commenter also asserted that, even if the FAA is correct that all existing aviation regulations apply to model aircraft, it is not acting consistently with that principle because it is picking only one of the many regulations that apply to manned aircraft and arbitrarily applying it to model aircraft. This commenter further asserted that this ''is the very epitome of arbitrary and capricious, and clearly shows that the FAA is being disingenuous when it claims it is merely applying existing regulations.'' This commenter went on to say that ''[t]he fact that the FAA finds it necessary to request public comments in a sort of expedited unofficial NPRM, followed by assembling a special Task Force (somewhat like an Advisory Rulemaking Committee (ARC) to determine what steps are necessary to implement the registration process, clearly reveals the FAA's proposal to be in fact a new regulation regarding model aircraft in direct contravention of [FAA Modernization and Reform Act] Sec. 336.''

Another individual stated that the FAA is not being forthright in averring that its decision not to register model aircraft until now was ''discretionary.'' This commenter expressed doubt that a regulatory document exists in which the agency explicitly stated that ''model aircraft need not be registered, as a discretionary exclusion from 49 U.S.C. 44101,'' and that if such a document does exist it should have been referenced in the Clarification/Request for Information. This commenter further asserted that the absence of such a document destroys the premise of the ''clarification'' the FAA has now put forth.

Two individual commenters challenged the agency's reliance on the NTSB ruling in *Administrator* v. *Pirker* (NTSB Order No. EA–5739), noting that the ruling only held that model aircraft qualify as ''aircraft'' as the term is used in 14 CFR 91.13(a), which prohibits careless and reckless operation.[42]

Two individual commenters stated that the FAA's authority to pursue enforcement action against persons who endanger the safety of the NAS (under section 336(b) of Public Law 112–95) cannot reasonably be interpreted to mean the agency has the blanket authority to mandate registration of model aircraft.

The FAA disagrees with the comments asserting that the registration of model aircraft is prohibited by section 336 of Public Law 112–95. While section 336 bars the FAA from promulgating new rules or regulations that apply only to model aircraft, the prohibition against future rulemaking is not a complete bar on rulemaking and does not exempt model aircraft from complying with existing statutory and regulatory requirements. As previously addressed, Public Law 112–95 identifies model aircraft as aircraft and as such, the existing statutory aircraft registration requirements implemented by part 47 apply.

This action simply provides a burden-relieving alternative that sUAS owners may use for aircraft registration. Model aircraft operated under section 336 as well as other small unmanned aircraft are not required to use the provisions of part 48. Owners of such aircraft have the option to comply with the existing requirements in part 47 that govern aircraft registration or may opt to use the new streamlined, web-based system in part 48.

2. Comments Addressing Requirements Under the Administrative Procedure Act

A number of commenters questioned the FAA's approach to rulemaking pertaining to small unmanned aircraft registration. Several commenters said the FAA does not have good cause to issue a rule without notice and comment. The Competitive Enterprise Institute (CEI) stated that under section 553(b)(3)(B) of the APA, agency rulemakings are required to include a notice and comment period of at least 30 days unless ''the agency for good cause finds (and incorporates the finding and a brief statement of reasons therefor in the rules issued) that notice and public procedure thereon are impracticable, unnecessary, or contrary to public interest.'' Citing to a legal treatise on administration law, CEI asserted that the good cause exception ''is not an escape clause,'' and ''should be narrowly construed and only reluctantly countenanced,'' with ''the agency bear[ing] the burden of demonstrating the ground for good cause.'' CEI further asserted that notice and comment in this case is not ''impractical,'' because ''[i]mpracticality exists when the agency cannot both follow the notice-and-comment procedure and execute its statutory duty.'' CEI stated that in this case the FAA is arguably proceeding with a UAS registration mandate in direct contradiction of its statutory duty ''not [to] promulgate any rule or regulation regarding a model aircraft.'' CEI also stated that the notice and comment process cannot be said to be ''unnecessary,'' because a rule that mandates hobbyists register their model aircraft creates a substantial new burden on the public. Finally, CEI stated that notice and comment is not ''contrary to public interest.'' CEI claimed that, although the FAA will presumably argue that providing notice and comment would result in significant harm to the public interest by failing to immediately mitigate UAS safety risks that only mandatory registration can address, ''there is little evidence that registration will, on its own, do much of anything to mitigate UAS safety risk, which itself is likely very low relative to other aircraft safety risks, such as birds.''

The Mercatus Center at George Mason University stated that ''agency inaction leading to perceived deadline pressure

[42] The commenter cited to *Administrator* v. *Pirker,* NTSB Order No. EA–5739 at 12 (Nov. 17, 2014).

does not constitute good cause to dispense with public notice and comment.'' [43] The Mercatus Center asserted that a public notice-and-comment period is necessary and in the public interest because any requirement to register UASs potentially adversely affects numerous non-commercial operators. The Mercatus Center further asserted that the issuance of a final rule without notice and comment opens up the registration requirement to reversal if challenged in court.

A number of individual commenters similarly asserted that the FAA has not presented any data to substantiate the need to proceed with this rulemaking on an emergency or expedited basis. Like CEI, these commenters pointed to a lack of data showing either that there is an increased safety risk that needs to be addressed or that registration will, on its own, adequately address that risk. Some commenters specifically found fault with FAA's reliance on increased number of UAS ''incidents'' reported to the FAA by manned aircraft pilots. Several commenters noted that the AMA analyzed those reported ''incidents'' and found that out of the 764 reported records, only 27 (or 3.5%) were identified as a near mid-air collision, with nearly all of those involving government-authorized military drones.[44] The commenters noted that most of the ''incidents'' have merely been sightings of UAS. One individual pointed out that the FAA has published no analysis of its own ''sightings'' data; nor has it disputed the AMA's analysis of that data. This individual also asserted that a doubling in the rate of UAS ''sightings'' in 2015 is consistent with the rate of growth of consumer small UAS, and is not cause for overreaction.

Another individual claimed that FAA statistics show that birds are far more of a threat to air traffic than toy helicopters, and that not one single incident of a toy model causing an accident has been reported, while bird strikes number over 7,000 a year. Several other commenters noted that there has only been one recorded collision between a manned aircraft and a model aircraft. One such individual stated that it was a well-known incident in which a biplane struck a large model airplane that was hovering over a runway at an air show. This individual further stated that even though that model airplane was larger than the vast majority of models most hobbyists fly, the biplane received only a minor dent to its wing. Another individual questioned whether the FAA has examined empirical evidence from the millions of model flight operations to determine if lack of compliance with the labeling requirement had any correlation to the frequency or severity of mishaps. Another individual pointed to a recent NTSB interpretation (NTSB–AS–2015–0001) that clarifies that ''model aircraft'' do not fall within the definition of unmanned aircraft for accident notification/investigation purposes. Quoting that interpretation, this commenter stated that the NTSB ''has historically not investigated the rare occasions in which a model aircraft has cause serious injury or fatality,'' and clearly does not believe unregistered small UAS to be a significant threat to the NAS.

A number of commenters characterized the registration requirement as a ''knee jerk'' reaction to a perceived problem based solely on anecdotal evidence, which will punish the many for the acts of a few. Other commenters said that any UAS-related incidents can easily be remedied by stricter enforcement of existing laws.

In contrast to those commenters who claimed that the FAA does not have good cause to issue a rule without going through notice and comment rulemaking, Modovolate Aviation, LLC that the FAA does have good cause to issue a rule without notice and comment, and should therefore set up a simple database and registration interface immediately and issue an emergency rule requiring compliance. This commenter asserted that such authority comes from both the APA (5 U.S.C. 553(b)(3)(B)) and the FAA's own rules (14 CFR 11.29(a)), and that the FAA's statements that the growing number of pilot reports of UAS sightings reveals an imminent problem and serves as an appropriate basis for such an ''emergency rule.'' This commenter also asserted that the FAA will not achieve its goals by engaging in another protracted rulemaking process that takes two years.

In the preamble discussion of the agency's good cause for proceeding with an IFR, the agency explains its rationale for forgoing notice and comment prior to the effective date of this rulemaking and issuing this immediately effective IFR. The agency also notes that it is seeking comment on this rulemaking and may modify the rule based on comments received.

3. Comments Addressing Other Legal Issues With the Proposed Registration Requirement

The Mercatus Center at George Mason University stated that under Executive Order 12866, a rule on non-commercial UAS registration may be economically significant and therefore require a cost-benefit analysis. The Mercatus Center claimed that past experience with national registry systems suggests that there will be dramatic implementation and compliance costs that the DOT may be systematically underestimating. The Mercatus Center further claimed that these costs will be exacerbated by factors such as fast UAS depreciation and replacement rates, difficulty of enforcing retroactive compliance, and the sheer volume and speed at which UASs are being produced, among other factors.

Several other commenters also stated that the FAA needs to conduct cost-benefit analysis before proceeding with this rulemaking. For example, one individual stated that a cost benefit analysis ''based on a scientific collection of unbiased safety data'' should be conducted before any new registration program is put in place. This individual asserted that the FAA has not provided a convincing case that small UAS pose a safety risk to the NAS, or that that a registration program will be any more successful than an approach, such as the AMA's Safety Code, that requires owners to put their name and address on the aircraft. A few other individuals said the FAA needs to consider that a registration requirement may expose UAS owners to additional state-imposed taxes and fees. Another individual pointed to the potential economic impact a registration requirement may have on small businesses. This individual asserted that the requirement may impact small hobby shops, as well as major distributors like Horizon Hobby and Hobbico, because people will not want to register their aircraft with the FAA and will therefore choose to participate in other consumer hobbies that do not require registration with the government. The News Media Coalition stated that any registration process established by the FAA ''must avoid placing undue burden on the First Amendment right to gather and disseminate news.''

Several individual commenters stated that a registration requirement is an invasion of privacy. EPIC discussed its concerns about the privacy and civil liberty risks posed by the use of UAS in

[43] The commenter cited *Air Transport Association of America* v. *Department of Transportation,* 900 F.2d 369 (D.C. Cir. 1990 (''Insofar as the FAA's own failure to act materially contributed to its perceived deadline pressure, the agency cannot now invoke the need for expeditious action as 'good cause' to avoid the obligations of section 553(b)).

[44] A few commenters provided a link to the AMA report. *http://www.modelaircraft.org/gov/docs/AMAAnalysis-Closer-Look-at-FAA-Drone-Data_091415.pdf.*

the United States, and asserted that the enhanced surveillance capabilities of UAS raise significant Fourth Amendment implications.[45]

Consistent with comments regarding Executive Order 12866, the FAA has completed an economic analysis of this rulemaking. The economic analysis for this rulemaking can be found in the docket with the IFR.

Regarding comments pertaining to free speech and privacy, the agency clarifies that this IFR does not provide operating restrictions. Rather, this rulemaking is intended only to establish a streamlined approach for small unmanned aircraft registration.

*N. Alternatives to Registration*

The FAA received a number of comments recommending alternatives to a requirement of registration.

*Clarification/Request for Information:* Several commenters suggested a requirement for small UAS operators to become members of a community-based organization, instead of a registration requirement. One commenter recommended that an organization similar to the USPA (United States Parachute Association) be formed to manage UAS training, licensing, and registration. Another commenter said it would make more sense for the DOT and FAA to mandate that small UAS pilots join any community-based organization that follows a set of standardized rules. Several commenters recommended that the FAA specifically require model aircraft operators to become AMA members. One commenter suggested that AMA be put in charge of the registration of small UAS users, with the registration database maintained by the AMA independently, or with a subsidy from the DOT/FAA. Several other commenters, however, opposed the idea of requiring AMA membership or allowing the AMA to be any part of the official registration requirement. One individual stated that registration is an inherently governmental function that should not be ceded to any dues collecting organization. This commenter pointed out that neither the Experimental Aircraft Association nor the Aircraft Owners and Pilots Association register manned aircraft. Another individual said the AMA should not be part of the registration process because it is ''a privately run optional insurance consortium for hosting a common airfield,'' not an authority regarding model aircraft design, standards, and practices. The Drone User Group Network said that the AMA ''while a venerable association, does not have the interests of responsible and dedicated UAS operators at the core of its mission.'' Another individual listed a number of concerns about the AMA's safety programming (*e.g.,* failure to enforce their own requirement to have AMA number and/or address in their member's aircraft) and said that he is not comfortable with the AMA being permitted to manage the inherently governmental function of registration.

Several commenters who opposed a registration requirement said the FAA should review the FCC's experience with the explosive growth of mobile Citizen Band radios some years ago, which ultimately resulted in abandoning the licensing requirement for those radios. One commenter recommended that driver's licenses be used for registration, instead of creating a new registry system. Another commenter said recreational operators could be required to carry a current driver's license and a safety card, which would be issued after the operator watched an FAA video on proper flying procedures.

A number of commenters said the FAA needs to clarify what it will consider to be a UAS for purposes of the registration requirement. Some commenters asserted that relying on the FAA's definition of ''aircraft'' is problematic because that definition can be construed to mean any device which takes to air, including, for example, a Frisbee, a paper airplane, a foam airplane, or a balsa wood rubber-band powered airplane. As discussed above, many commenters urged the agency to exclude traditional model aircraft from the definition of UAS for purposes of the registration requirement. Some of those commenters questioned why model aircraft would be included in a registration requirement while other types of ''aircraft,'' such as ultralights, model rockets and kites, would not. Several commenters pointed out that ultralights can weigh up to 249 pounds, carry up to 5 gallons of flammable fuel, carry an unlicensed pilot, be unregistered, and still operate in the NAS (in many, but not all areas).

Several individual commenters questioned whether the agency can handle the registration of millions of recreational UAS. One commenter noted that the registration database could become overloaded and unmanageable if every person registers every model aircraft they purchase or receive—many of which will not last past a single flight—but then fail to notify the FAA when a model is lost, destroyed, or sold. Also pointing to the short life span of most small UAS, another commenter similarly said the registration system will become overwhelmed if recreational users are required to register and re-register each model aircraft they obtain. Another commenter said that requiring UAS owners to renew their registration will ''complicate everything'' and lead to people involuntarily breaking the law when they forget to re-register their UAS. Several commenters wondered how the registration process will be funded.

Several commenters addressed the effect of a registration requirement on innovation and growth. The National Association of Mutual Insurance Companies (NAMIC) encouraged the FAA and the Task Force to consider how the registration system will be integrated into or used in conjunction with the commercial development of UAS. Specifically, NAMIC said the FAA and Task Force should consider how industries that are critical to UAS development will depend on or require UAS registration. NAMIC asserted that ''streamlining requirements for UAS registration would certainly be in the interest of avoiding duplication, minimizing burdens, and best protecting innovation and encouraging growth in the UAS industry. Similarly, TIA said the FAA must implement UAS regulations that do not inhibit advancement but rather spur growth and inspire future innovators. The University of Illinois at Urbana-Champaign urged the FAA and DOT to consider alternatives to a registration (which is said is likely to prove both burdensome and ineffective) because ''onerous regulations applied to UAS research will stifle innovation and put the United States at a competitive disadvantage.'' An individual commenter similarly said that regulation ''will increase costs, drive people from the activity, and retard innovation.'' One individual commenter argued that model aircraft ''represent a huge employment, technological, and economic opportunity for our country (and world), and we cannot afford to squash this potential with more laws.'' A group of academics noted that traditional model aircraft have inspired generations of our scientists, engineers, and inventors. A number of other commenters also expressed concern that a registration requirement will

[45] EPIC made reference to its 2012 petition to the FAA to undertake a rulemaking to establish privacy regulations prior to the deployment of commercial drones in the national airspace, and its lawsuit against the FAA for denying that petition. EPIC also made reference to its testimony before Congress regarding the need to adopt comprehensive legislation to limit drone surveillance in the United States.

discourage young people from becoming involved in model aviation which, in turn, will discourage them from entering careers in STEM-related fields.

A commenter who had been issued an exemption under section 333 of Public Law 112–95 questioned whether he or she would have to re-register their UAS, and what the time-frame for that would be. Another commenter questioned how the registration requirement would apply to UAS that are flown infrequently or not at all. Another individual commenter questioned what the process would be for removing non-functional UAS from the registration system. Another commenter working overseas wondered whether he would have to register his UAS to be permitted to operate it during visits to the United States.

Delair-Tech recommended the following registration process for manufactured UAS: (1) Each UAS produced is assigned an aircraft type designator (assigned by ICAO) and a unique serial number (assigned by the manufacturer); (2) the user manual for each UAS instructs its owner to turn on the UAS and its ground control station/software within internet connectivity coverage; (3) the ground control software detects an unregistered UAS and opens a registration window, which prompts the owner to enter their contact information (including phone number); (4) the registration information is transmitted to the national registration system, which sends a verification code to the owner via text message; (5) the owner enters the code through the ground control software and then the registration system verifies the code and sends a registration number to the ground control station; (6) the ground control software programs the registration number into the UAS, which enables the owner to fly the UAS. As an alternative to using the ground control software to connect directly to the national registration system, Delair-Tech suggested the owner be given the URL of the registration system, through which the owner would input contact information and receive a verification code. The owner would also receive the registration number through the web application, which they would then input into the UAS through the ground control software.

An individual commenter suggested that as an alternative to issuing an expedited registration rule the agency issue a temporary, immediately effective rule mandating point-of-sale distribution of agency materials summarizing the operational restrictions for model aircraft. This commenter stated that acting promptly to require retailers to communicate the core regulatory message would more directly address the fear of improperly operated UAS becoming a safety risk as more are sold to hobbyists. The commenter also stated that such materials largely already exist and the requirement for distributing the information could be satisfied, particularly by online retailers, by a check-box acknowledgment or an emailed link to existing FAA educational Web sites. The commenter cited legal authority that would support an exercise of authority to compel commercial speech when it is in the service of a significant public interest.

RILA urged the establishment of a preemptive federal standard for UAS to allow for uniformity, consistency, and alleviate potential burdens on both retailers and consumers if states are left to legislate potentially inconsistent UAS safety.

Some commenters said an education program, geo-fencing, and strict enforcement of the safety rules would be more effective than requiring registration of these aircraft.

A few commenters advocated for a tiered licensing process, allowing operators who have qualified for higher tiers (*e.g.,* through additional training or testing) to operate UAS with advanced capabilities. Several commenters said that FAA should regulate UAS operators in the same way the FCC licenses amateur (ham) radio operators, and one commenter also said that retailers of certain UAS should require proof of FCC licensing before purchase.

The Mercatus Center at George Mason University stated that the DOT and FAA should define a threshold ''that liberalize most small UASs, requiring registrations for only the largest and highest-powered UASs, while continuing to focus on integrating all nongovernmental UASs within a framework based on the principles of permissionless innovation.'' This commenter went on to say that, instead of an ''impractical'' registration scheme, the FAA should adopt Transport Canada's model and require simple online notification for commercial operations within a middle weight class. Other commenters said that operators should have to abide by the AMA safety code.

The South Florida UAV Consortium recommended that UASs be restricted to a limited operation until the operator completes a training course and receives a code to unlock the software to allow it to fly its full range.

One commenter recommended two categories of licenses—one for commercial products that can be purchased off the shelf (with limitations on the degree to which they can be modified) and one for home-built or substantially modified aircraft. The commenter asserted that this second category of licenses ''would address the impossibility of implementing a per-device registration scheme in a world of imported electronics and homebrew experimentation.'' Within the two categories of licenses, the commenter recommended different classes based on the available power carried on the aircraft.

*IFR Requirement:* The FAA disagrees with commenters who stated that all small unmanned aircraft should be registered with the AMA and that AMA should be exclusively responsible for the registry. The FAA is specifically directed by statute to develop and maintain an aircraft registry. Accordingly, the FAA cannot abdicate its responsibility to AMA or any other organization outside the FAA.

Some commenters on this topic addressed the need for a clear definition of which aircraft require registration and which do not; the FAA has addressed that definition in an earlier section. In response to the comments about capacity issues and streamlining registration, the web-based registration system established by this rule will allow the Registry to better accommodate the aircraft registration required for owners of small unmanned aircraft.

*O. Comments Beyond the Scope*

The nature of the FAA's request for comment in the Clarification/Request for Information resulted in some commenters providing information that did not fall within the twelve comment areas. The FAA is summarizing those comments that were outside the scope of the twelve questions in this section.

A few commenters remarked on the make-up of the Task Force. One individual stated that the presence of Amazon, Walmart and Best Buy, among other major corporations, ''gives the impression, as face value, of being politically driven by major corporations to restrict tax paying citizens in this country from using their airspace and the enjoyment of flying their model aircraft in favor of a major corporation.'' This individual asserted that these corporations would prefer to eliminate model aviation in order to have open skies to operate their delivery service. Two other commenters similarly said that the UAS industry representatives on the Task Force ''have a penchant for regulations and may actually benefit from such regulation given that they have the resources to cover the cost required by such regulation and that

inevitably such regulation will limit free enterprise.'' These commenters questioned why the FAA did not invite grass-roots small UAS organizations, such as the Small UAV Coalition.

A commenter suggested reducing risk to aviation by permitting local authorities to utilize a transmitter to electronically disable UAS that are being flown illegally. The commenter also suggested developing a means to report illegal UAS operation. Another commenter said that law enforcement should be able to confiscate UAS that are flown illegally. The National Association of Mutual Insurance Companies, Minnesota Department of Transportation, and other commenters suggested requiring UAS operators to purchase liability insurance. Additionally, NetMoby and other commenters remarked that FAA should impose significant fines and other civil or criminal penalties on operators who fail to register or fly in a dangerous or illegal manner.

The Toy Industry Association urged FAA to implement an IFR instead of a final rule at this point. The commenter said that an interim rule would permit the agency and UAS Task Force to create a pilot registration system that would include only UAS that have ''high risk'' capabilities, and study this system before implementing a final rule. Other commenters, including the News Media Coalition, encouraged FAA to finalize the small UAS rule proposed for commercial users to provide an example of clear guidelines for all users.

Skyward, Inc. recommended that FAA develop a more comprehensive approach to UAS management, including technical standards for a UAS system for the NAS, and said that FAA should review NASA's UAS Traffic Management program and the Department of Homeland Security's STIX and TAXII standards as examples of technical standards development. Skyward said that, for example, a comprehensive UAS system could include ''detection capabilities that are able to detect and localize non-participating or malfunctioning aircraft as part of expanded airspace radar and surveillance systems.''

Many commenters expressed concern about the expedited timeframe in which the DOT and the FAA plan to implement the registration system. UAVUS said the plan to create a registration system this holiday season is ''overly ambitious, and could add to the confusion created by the absence of the FAA's final rulemaking for the commercial use of small UASs.'' RILA stated its appreciation for the agency's goal of increasing safe and responsible UAS use, but asserted that the logistical challenges in implementing such a system within the current expedited timeframe ''make doing so responsibly and coherently impossible.'' Given the expedited timeframe, RILA, NRF, and TIA encouraged the FAA to consider the use of an interim final rule instead of a direct final rule. NRF alternatively suggested a pilot program to evaluate the operational needs of a registration system.

The National Agricultural Aviation Association (NAAA), Colorado Agricultural Aviation Association, and Alaska Legislative Task Force on Unmanned Aircraft Systems recommended that UAS should be required to be more visible to manned aircraft to avoid collision by requiring UAS to be equipped with strobe lights and painted conspicuous colors.

Two commenters suggested that as an alternative to registering individual UAS, that owners be required to register their transmitters. One of those commenters asserted that the transmitter registration would provide an easy way to identify operators without having to physically locate them or their UAS because transmitters broadcast a radio signal that can be picked up by anyone in the vicinity. This commenter further asserted that relying on markings on the aircraft will do nothing to identify a problem unless the UAS crashes, but, as technology advances, transmitters can transmit a personal ID that can be read with receiver equipment. A few other individual commenters recommended a requirement to register the flight controller instead of the aircraft.

*P. Miscellaneous*

The FAA has updated § 91.203(a)(2) to allow the Certificate of Aircraft Registration issued under part 48 to satisfy the requirements of that paragraph.

The FAA has also made the following technical amendments to part 47: The Department of Homeland Security currently exercises the oversight responsibilities of the former Immigration and Naturalization Service. Part 47 has been updated to reflect this change.

The agency has also clarified that the reference to ''armed forces'' includes only those armed forces of the United States.

## VIII. Section-by-Section Discussion of the Interim Final Rule

In part 1, definitions and abbreviations, definitions for ''model aircraft,'' ''small unmanned aircraft,'' ''small unmanned aircraft system,'' and ''unmanned aircraft'' are added.

In part 45, identification and registration marking, § 45.1 is revised to add a specific cross-reference to 14 CFR part 47 to indicate that the marking requirements of part 45 only relate to aircraft registered under part 47.

In part 47, aircraft registration, in § 47.2 the definition of ''resident alien'' is revised to remove the reference to the Immigration and Naturalization Service and replace it with a reference to the Department of Homeland Security. The term ''U.S. citizen'' is revised to read ''Citizen of the United States or U.S. citizen'' to conform to other uses of this term.

Section 47.3 is revised to make clear that, when stating that no person may operate an aircraft that is eligible for registration under 49 U.S.C. 44101–44104, Armed Forces refers to Armed Forces of the United States.

Section 47.7 is revised to remove the reference to the Immigration and Naturalization Service and replace it with a reference to the Department of Homeland Security.

The FAA is adding new 14 CFR part 48, registration and markings for small unmanned aircraft.

Section 48.1 provides the applicability for the part. It states that small unmanned aircraft eligible for registration in the United States must be registered and identified in accordance with either the registration and identification requirements in part 48, or the registration requirements in part 47 and the identification and registration marking requirements in subparts A and C of part 45. Section 48.1 also explains that small unmanned aircraft intended to be operated outside of the territorial airspace of the United States, or registered through a trust or voting trust, must be registered in accordance with part 47 and satisfy the identification and registration marking requirements of subparts A and C of part 45.

Section 48.5 provides the compliance dates for small unmanned aircraft used exclusively as model aircraft, and the compliance dates for small unmanned aircraft used as other than model aircraft.

Section 48.10 provides definitions of ''Citizen of the United States or U.S. citizen,'' ''Registry,'' and ''resident alien.'' These are the same definitions found in part 47.

Section 48.15 provides that no person may operate a small unmanned aircraft that is eligible for registration under 49 U.S.C. 44101–44103 unless the owner has registered and marked the aircraft in accordance with the requirements of

part 48; the aircraft weighs 0.55 pounds or less on takeoff, including everything that is on board or otherwise attached to the aircraft; or the aircraft is an aircraft of the Armed Forces of the United States.

Section 48.20 provides the criteria for eligibility of the small unmanned aircraft for registration.

Section 48.25 describes the requirements for applicants wishing to register a small unmanned aircraft using part 48. Applicants must provide the required information, and must meet other ownership requirements listed in the section.

Section 48.30 provides the fees for small unmanned aircraft registration.

Section 48.100 describes information applicants must submit when registering a small unmanned aircraft intended to be used as other than a model aircraft, and the information applicants must submit when registering a small unmanned aircraft intended to be used exclusively as a model aircraft.

Section 48.105 requires small unmanned aircraft owners to maintain current information in the registration system.

Section 48.110 provides the Certificate of Aircraft Registration information for small unmanned aircraft intended to be used other than as model aircraft. It provides the effective date of the Certificate, information regarding registration renewal, and describes events affecting the effectiveness of the Certificate of Aircraft Registration.

Section 48.115 provides the Certificate of Aircraft Registration information for small unmanned aircraft intended to be used exclusively as model aircraft. It provides the effective date of the Certificate, information regarding registration renewal, and describes events affecting the effectiveness of the Certificate of Aircraft Registration.

Section 48.120 discusses circumstances in which a small unmanned aircraft registration is invalid. Circumstances include when the aircraft is registered in a foreign country; the applicant is not the owner, except when the applicant registers on behalf of an owner who is under 13 years of age; the applicant is not eligible to submit an application under part 48; or the interest of the applicant in the aircraft was created by a transaction that was not entered into in good faith, but rather was made to avoid (with or without the owner's knowledge) compliance with 49 U.S.C. 44101–44103.

Section 48.125 explains that for those persons who do not meet the citizenship requirements for U.S. registration, the certificate issued under part 48 constitutes a recognition of ownership.

Section 48.200 contains general provisions for small unmanned aircraft marking.

Section 48.205 provides the requirements for the display and location of the unique identifier.

In part 91, general operating and flight rules, § 91.203 is revised to reference Certificates of Aircraft Registration provided in part 48.

In part 375, navigation of foreign civil aircraft within the United States, § 375.11 is clarified to note that this includes a small unmanned aircraft.

Section 375.38 authorizes owners of foreign civil aircraft that are small unmanned aircraft used exclusively as model aircraft to operate within the U.S. and requires owners of aircraft engaged in such operations to complete the part 48 registration process prior to operation.

## IX. Regulatory Notices and Analyses

### *A. Regulatory Evaluation*

Changes to Federal regulations must undergo several economic analyses. First, Executive Order 12866 and Executive Order 13563 direct that each Federal agency shall propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify its costs. Second, the Regulatory Flexibility Act of 1980 (Pub. L. 96–354) requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act (Pub. L. 96–39 as amended) prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, the Trade Agreements Act requires agencies to consider international standards and, where appropriate, that they be the basis of U.S. standards. Fourth, the Unfunded Mandates Reform Act of 1995 (Pub. L. 104–4) requires agencies to prepare a written assessment of the costs, benefits, and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local, or tribal governments, in the aggregate, or by the private sector, of $100 million or more annually (adjusted for inflation with base year of 1995). This portion of the preamble summarizes the FAA's analysis of the economic impacts of this IFR. We suggest readers seeking greater detail read the full regulatory evaluation, a copy of which we have placed in the docket for this rulemaking.

In conducting these analyses, FAA has determined this IFR has benefits that justify its costs, and is a ''significant regulatory action'' as defined in section 3(f) of Executive Order 12866 because it raises novel policy issues contemplated under that executive order. The rule is also ''significant'' as defined in DOT's Regulatory Policies and Procedures. The IFR will have a positive economic impact on a substantial number of small entities, will not create unnecessary obstacles to international trade, and will not impose an unfunded mandate on state, local, or tribal governments, or on the private sector. These analyses are summarized below.

#### Total Benefits and Costs

There are problems arising from the rapid proliferation of small unmanned aircraft and these problems are occurring more frequently. Sales projections show the number of small unmanned aircraft continuing to increase dramatically, and thus addressing the problem is urgent. Registration provides an immediate and direct opportunity to educate new users of unmanned aircraft who may have no knowledge of the system in which they are operating, and thus, no knowledge of how to operate safely within it. Registration and marking of small unmanned aircraft will provide owners education regarding operating in the NAS and will promote accountability in those operations, at a minimal cost to operators and the government.

Currently aircraft registration is a paper-based process defined in part 47. Under current statutory and regulatory policy, the FAA could require UAS model aircraft owners,[46] at a significant cost, to register their small unmanned aircraft under part 47 using the legacy paper-based system. Commercial owners [47] that have been granted exemptions or certificates of authorization to operate small unmanned aircraft in the NAS have been required to register their aircraft under part 47. Also, the sUAS Operation and Certification NPRM would require non-model aircraft owners (*e.g.,* commercial and public owners of sUAS) to register their aircraft under part 47 as outlined in the NPRM. The agency expects to finalize that rulemaking in 2016.

[46] for purposes of the economic analysis of this IFR, the term ''modeler'' means the owner of a small unmanned aircraft that satisfies the definition of ''model aircraft'' added to 14 CFR 1.1

[47] For purposes of the economic analysis of this IFR, the term ''commercial owners'' or ''non-modeler'' means the owner of a small unmanned aircraft used for non-model purposes.

The FAA has used agency discretion in the past by not requiring owners of small unmanned aircraft intended to be used as model aircraft in accordance with section 336 of Public Law 112–95 to register their aircraft although as noted commercial operators of small unmanned aircraft have been required to register their aircraft. Due to the rapid increase in sUAS for hobby use (and soon at much greater volumes for commercial purposes), the FAA is creating an alternative simple, web-based registration process to significantly reduce the time to register small unmanned aircraft. In addition, to ease the burden to modelers this regulation will allow those owners to register once and use the same identification number for all their aircraft, instead of registering each of their small unmanned aircraft separately.

In order to implement the new streamlined, web-based system described in this IFR, the FAA will incur costs to develop, implement, and maintain the system. Small UAS operators will require time to register and mark their aircraft, and that time has a cost. The total of government and registrant resource cost for small unmanned aircraft registration and marking under this new system is $56 million ($46 million present value at 7 percent) through 2020.

In evaluating the impact of this rule, we compare the costs and benefits of the IFR to a baseline consistent with existing practices: for modelers, the exercise of discretion by FAA (not requiring registration), and for non-modelers, registration via part 47 in the paper-based system. We also calculate the costs of the rejected alternative: requiring modelers and non-modelers alike to register aircraft via the paper-based system.

In order to compare the costs of this rule to this baseline, the FAA estimated the costs of registering sUAS aircraft under the web-based registration system resulting from this part 48 rulemaking (the IFR). The two populations, modelers and non-modelers, have slightly different processes as noted in this evaluation. In all of these scenarios, sUAS weighing 0.55 pounds or less are excluded from registration. In these analyses, we estimate the private-sector compliance costs and government costs for each scenario.

TABLE 5—SUMMARY OF QUANTIFIED COSTS AND BENEFITS ($M)

| Year | Calendar year | Total cost | | Difference | 7% P.V. |
|---|---|---|---|---|---|
| | | Baseline | IFR | | |
| 0 | 2015 | $ 0.0 | $ 5.5 | −$ 5.5 | −$ 5.47 |
| 1 | 2016 | 21.3 | 6.3 | 15.0 | 14.00 |
| 2 | 2017 | 86.5 | 8.3 | 78.1 | 68.25 |
| 3 | 2018 | 89.0 | 12.1 | 76.9 | 62.77 |
| 4 | 2019 | 91.6 | 11.6 | 80.0 | 61.03 |
| 5 | 2020 | 94.2 | 11.8 | 82.5 | 58.79 |
| Total | | 382.5 | 55.6 | 327.0 | 259.4 |

Note: numbers may not add due to rounding.

**Who is potentially affected by this rule?**

All owners of small unmanned aircraft which weigh more than 0.55 pounds and less than 55 pounds on takeoff.

**Assumptions and Data**

The benefit and cost analysis for the regulatory evaluation is based on the following factors/assumptions. Technology, markets, and uses for small unmanned aircraft are evolving rapidly and there is a high degree of uncertainty how the future will unfold and so the FAA requests comments (supported with data) on these assumptions.

- The period of the regulatory impact analysis begins in 2015 (denoted Year 0) and ends in 2020 (denoted Year 5).
- This analysis considers the benefits and costs of requiring the registrations of sUAS weighing less than 55 pounds and more than 0.55 pounds on takeoff.

We use a seven percent discount rate for the benefits as prescribed by OMB in Circular A–4.

**Population and Forecast**

- Most of these assumptions, unless otherwise noted, were based on interviews with manufacturers, retailers, and other industry experts.
- Estimates of small unmanned aircraft registrations are based on projections of sUAS sales for the period of analysis. A sales forecast was developed based on use cases and likely adoption rates by commercial application and consumer electronic s-curve analysis for non-commercial applications. This forecast was then adjusted to obtain the number of modelers and the number of non-modeler sUAS units.
- Two basic populations are estimated: (1) Model aircraft owners and their sUAS units and (2) the number of commercial/public owners and their sUAS units. In this document, the term ''modeler'' means the owner of a small unmanned aircraft that satisfies the statutory definition of ''model aircraft'' now codified in 14 CFR 1.1. The term ''commercial owner'' or ''non-modeler'' means the owner of a small unmanned aircraft used for non-model aircraft purposes.
- For non-modelers, we assume that on average, all sUAS fail within a year and are replaced in the next year. For modelers we use the assumption that an average of ten percent of the modelers' sUAS survive into a second year, because they are used less intensively. These assumptions are based on manufacturers' information.
- Unmanned aircraft weighing 0.55 pounds or less are excluded from the registrations forecast. We assume 20 percent of the sales forecast will be unmanned aircraft weighing 0.55 pounds or less. This analysis is based on an examination of the current unit size distribution. While there may be some incentive for manufacturers to increase the number of aircraft produced below the registration size cut-off, the FAA believes the inherent limitations of the weight and available technology will not drive large shifts during analysis period. SUAS flown exclusively indoors need not be registered. FAA assumes most sUAS over 0.55 pounds will be flown outdoors and must be registered.
- The entire existing fleet of model aircraft and 2015 fourth quarter sales are assumed to be registered in Period 0 or 2015.
- Most non-modelers will register their aircraft after the FAA has finalized the sUAS Operation and Certification

NPRM, anticipated to go into effect in June 2016.

- On average, model aircraft owners are assumed to own an average fleet size of 1.5 sUAS.
- 80 percent of model aircraft owners replace each aircraft as it is destroyed. (In other words, 20 percent of modelers drop out of the hobby each year).
- On average, non-model sUAS owners are assumed to own 2 aircraft at a time. Every year all of the non-model sUAS owners go through the registration system replacing their two aircraft.

**Time**

- The estimated time to register an aircraft via the part 47 (paper-based system) system is 30 minutes.[48]
- The estimated time for a model aircraft owner to establish an online account and register an aircraft, under this rulemaking, is estimated to take 5 minutes; a registration renewal for these owners is also estimated to take 5 minutes. The bulk of this time includes reading and acknowledging basic safety information presented during the registration process.
- The estimated time for a non-modeler registrant to establish an online account and register two small unmanned aircraft is 7 minutes; 5 minutes to establish an account plus 1 minute per small unmanned aircraft.
- The estimated time for a non-modeler registrant to de-register each aircraft is three minutes.
- The time for an owner to mark an aircraft with its registration number is de minimis.
- The analysis assumes that all sUAS owners will comply with the registration processes considered in the regulatory analysis (part 47 baseline system and the web-based systems resulting from this part 48 rulemaking).

**Costs**

- The FAA assigns an hourly value of $19.13 per hour for the value of time for model aircraft registrants and $24.89 per hour for the value of time for non-modeler registrants in 2015. These hourly values are in 2013 dollars adjusted to reflect the growth of real changes in median household income over the analysis interval. [49]
- FAA estimates that its costs are $22 for the registration of an aircraft in the current paper-based system. This estimate is based on an internal cost model developed by FAA's Civil Aviation Registry for managerial purposes.
- FAA cost information for the streamlined, web-based registrations was developed based on cost models and FAA data. Costs for the web-based system include startup costs, costs to provide interfaces for retailers and manufacturers, the cost of providing for public search function based on the unique identifier, the cost of providing for law enforcement access, and maintenance costs, whether incurred by FAA personnel or FAA's contractors. We do not include costs for manufacturers or retailers to provide information to the registration system or to change packaging as those are voluntary actions. FAA expects that retailers will make point-of-sale interfaces available in the future.
- As is standard practice, FAA does not include costs of enforcement of this rule.

**Safety**

- We assume this regulation does not affect the levels of FAA manpower or resources expended on UAS safety education and outreach but it will allow the FAA to target those efforts, making those on-going efforts more effective.
- We do not attempt to quantify any safety benefit from this regulation. (See ''Qualitative Benefits'' section in the Regulatory Evaluation for further discussion).

**Fees**

- The fee to register an aircraft under part 48, as well as in the current paper-based system in part 47, is $5. This fee is required by statute and is based on an estimate of the costs of the system and services associated with aircraft registration. If actual costs for the web-based system are known before a final rule is issued, we will adjust the fee accordingly in the final rule. If not, we will continue to monitor and determine the actual costs and adjust the fee in a subsequent rulemaking. FAA notes that under part 47, the registration fee using the paper-based system is $5 per aircraft. FAA has begun a rulemaking to update this fee based on current costs. (Aircraft Registration and Airmen Certification Fees, RIN 2120–AK37).
- We have estimated the registration fee for the new web-based system to be $5, based on the projected costs to build and maintain the system and provide the registration service. Model aircraft owners will pay $5 to register and will be assigned a unique identifier that can be marked on the owner's entire fleet of model aircraft. Model aircraft owners will be required to renew their registration every 3 years and pay a $5 fee. There would be no charge for de-registration. Fees will be adjusted based on actual costs.
- Non-modeler aircraft owners will also pay a $5 fee to establish an online account and register an initial aircraft in the new web-based system. They will also pay a $5 fee to add each additional sUAS to their existing account. Aircraft must be re-registered after three years, but as noted above, FAA expects very few, if any, sUAS to last that long. Non-modeler aircraft owners will not pay a fee to de-register a sUAS.
- Government fees and taxes are considered transfers and, by Office of Management and Budget guidance, transfers are not considered a societal cost. These transfers are estimated separately from the costs and benefits of this IFR. The FAA acknowledges fees and transfers can create incentives for behavior change.

**Costs of This Rule**

TABLE 6—COST SUMMARY

[$M]

| Year | Calendar year | Total cost | | | Total costs 7% P.V. | | |
|---|---|---|---|---|---|---|---|
| | | Baseline | Interim final rule | Rejected alternative | Baseline | Interim final rule | Rejected alternative |
| 0 | 2015 | $ 0.0 | $ 5.5 | $ 44.2 | $ 0.0 | $ 5.5 | $ 44.2 |
| 1 | 2016 | 21.3 | 6.3 | 65.1 | 19.9 | 5.9 | 60.9 |

[48] See Supporting Statement, OMB 2120–0042 Aircraft Registration Including Assignment and Cancellation of U.S. Identification Marks

[49] The hourly opportunity cost for modelers is based on the mid-point estimate of the range values as specified in Section 1.2.3 of FAA's Treatment of Time: Economic Values for Evaluation of FAA Investment and Regulatory Decisions (*http://www.faa.gov/regulations_policies/policy_guidance/benefit_cost/*). The hourly opportunity cost for non-modelers is estimated as the median gross compensation which is the sum of median hourly wage and an estimate of hourly benefits. This estimate is reported in DOT guidance titled Revised Departmental Guidance on Valuation of Travel Time in Economic Analysis (Washington DC, 2015).

TABLE 6—COST SUMMARY—Continued

[$M]

| Year | Calendar year | Total cost | | | Total costs 7% P.V. | | |
|---|---|---|---|---|---|---|---|
| | | Baseline | Interim final rule | Rejected alternative | Baseline | Interim final rule | Rejected alternative |
| 2 | 2017 | 86.5 | 8.3 | 140.6 | 75.5 | 7.3 | 122.8 |
| 3 | 2018 | 89.0 | 12.1 | 155.7 | 72.6 | 9.9 | 127.1 |
| 4 | 2019 | 91.6 | 11.6 | 173.9 | 69.9 | 8.8 | 132.7 |
| 5 | 2020 | 94.2 | 11.8 | 195.9 | 67.2 | 8.4 | 139.6 |
| Total | | 382.5 | 55.6 | 775.4 | 305.1 | 45.7 | 627.3 |

Totals may not add due to rounding.

**Benefits of This Rule**

In this section, we discuss beneficial impacts to the non-modeler from the cost savings of this rule over registering sUAS aircraft using the baseline system. The cost savings offsets, by an order of magnitude, the new costs associated with modelers and non-modelers registering aircraft in the streamlined Web-based system.

The baseline column in Table 7 shows the total costs for non-modelers to register their aircraft using the paper-based system, while modelers do not register their aircraft. The IFR column shows the total costs to FAA and registrants (modelers and non-modelers) of the new web-based system. Table 7 shows the significant cost savings of subtracting the costs of registration between the baseline system from the registration costs imposed by this rulemaking.

TABLE 7—COST SAVINGS OF THE BASELINE VERSUS THE PART 48 RULEMAKING

[$M]

| Year | Calendar year | Total Cost | | Difference | 7% P.V. |
|---|---|---|---|---|---|
| | | Baseline | IFR | | |
| 0 | 2015 | $ 0.0 | $ 5.5 | −$ 5.5 | −$ 5.5 |
| 1 | 2016 | 21.3 | 6.3 | 15.0 | 14.0 |
| 2 | 2017 | 86.5 | 8.3 | 78.1 | 68.3 |
| 3 | 2018 | 89.0 | 12.1 | 77.9 | 62.8 |
| 4 | 2019 | 91.6 | 11.6 | 80.0 | 61.0 |
| 5 | 2020 | 94.2 | 11.8 | 82.5 | 58.8 |
| Total | | 382.5 | 55.6 | 327.0 | 259.4 |

Note: numbers may not add due to rounding.

This IFR also brings qualitative benefits. Registrants will be required to read and acknowledge some basic safety information during the registration process. The email and mailing addresses provided during the registration process provides further opportunity for future targeted safety education and information.

This rulemaking will improve the education of recreational sUAS owners and operators by making them aware of the regulatory and safety requirements affecting their activities. At the same time, it will provide essential educational tools to the legions of new and current flyers that are taking to the skies, so that they can use their unmanned aircraft safely.

The requirement to mark the aircraft with the registration number links the owner to the aircraft; providing accountability should an accident, incident, or regulatory violation occur. This IFR also has the potential to benefit sUAS owners. In the event of a mistake where the aircraft flies away from the owner, the registration marking provides a means for the aircraft to be returned to its owner.

Requiring aircraft registration and display of marking information often has a direct and immediate impact on safety-related issues. For example, aircraft registration and marking provides the FAA and law enforcement agencies an invaluable tool during inspections and investigations of inappropriate or prohibited behavior, as well as during emergency situations. One of the FAA's goals is to provide the FAA and local law enforcement agencies the immediate ability to quickly connect individuals to their aircraft with the fewest number of steps possible.

*B. Regulatory Flexibility Determination*

The Regulatory Flexibility Act of 1980 (Public Law 96–354) (RFA) establishes ''as a principle of regulatory issuance that agencies shall endeavor, consistent with the objectives of the rule and of applicable statutes, to fit regulatory and informational requirements to the scale of the businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their actions to assure that such proposals are given serious consideration.'' The RFA covers a wide-range of small entities, including small businesses, not-for-profit organizations, and small governmental jurisdictions.

The Regulatory Flexibility Act analysis requirements are limited to rulemakings for which the agency ''is required by section 553 . . . or any other law, to publish a general notice of proposed rulemaking for any proposed rule.'' 5 U.S.C. 603(a).In this instance, the agency has determined under section 553(b)(3)(B) of the APA that there is good cause for forgoing notice and comment for this rulemaking. Thus,

compliance with the RFA is not required in this instance.

Nonetheless, the FAA believes that this IFR will have a positive economic impact on a substantial number of entities for the following reasons. Individuals using small unmanned aircraft exclusively as model aircraft are not small business entities. For owners of aircraft used for commercial or non-model purposes, the $5 registration fee per small unmanned aircraft under this IFR is the same as what was proposed under the sUAS Operation and Certification NPRM. However this IFR reduces the burden for these small entities to register their small unmanned aircraft as compared to the current paper-based FAA registration system. Thus, due to the relieving nature of this IFR, there will be a positive economic impact on a substantial number of small entities.

*C. International Trade Impact Assessment*

The Trade Agreements Act of 1979 (Public Law 96–39), as amended by the Uruguay Round Agreements Act (Public Law 103–465), prohibits Federal agencies from establishing standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. Pursuant to these Acts, the establishment of standards is not considered an unnecessary obstacle to the foreign commerce of the United States, so long as the standard has a legitimate domestic objective, such as the protection of safety, and does not operate in a manner that excludes imports that meet this objective. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards. The FAA has assessed the potential effect of this IFR and determined that it has a legitimate domestic objective—the protection of safety—and does not operate in a manner that excludes imports that meet this objective. Further, it is not an unnecessary obstacle because currently, there is no foreign registry that the FAA can recognize and the other requirements (compliance with provisions of part 48) impose no greater burden than that which is imposed on U.S. citizens.

*D. Unfunded Mandates Assessment*

Title II of the Unfunded Mandates Reform Act of 1995 (Public Law 104–4) requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in an expenditure of $100 million or more (in 1995 dollars) in any one year by State, local, and tribal governments, in the aggregate, or by the private sector; such a mandate is deemed to be a ''significant regulatory action.'' The FAA currently uses an inflation-adjusted value of $155.0 million in lieu of $100 million. This IFR does not contain such a mandate; therefore, the requirements of Title II of the Act do not apply.

*E. Paperwork Reduction Act*

The Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)) requires that the FAA consider the impact of paperwork and other information collection burdens imposed on the public. According to the 1995 amendments to the Paperwork Reduction Act (5 CFR 1320.8(b)(2)(vi)), an agency may not collect or sponsor the collection of information, nor may it impose an information collection requirement unless it displays a currently valid Office of Management and Budget (OMB) control number.

This action contains the following new information collection. As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)), the FAA has submitted this information collection to OMB for its review.

*Summary:* Persons owning small unmanned aircraft, whether intended to be used as model aircraft or as other than model aircraft, are required to register those aircraft with the FAA pursuant to 49 U.S.C. 44101–44103. Persons may register small unmanned aircraft pursuant to the requirements of 14 CFR part 48 as an alternative to the registration requirements of 14 CFR part 47. Aircraft registration is necessary to ensure personal accountability among all users of the national airspace system. Aircraft registration also allows the FAA and law enforcement agencies to address non-compliance by providing the means by which to identify an aircraft's owner and operator.

*Use:* Information will be used to identify small unmanned aircraft owners and to provide educational information regarding use of small unmanned aircraft in the national airspace system.

*Respondents (including number of):* See Table 8.

*Frequency:* As needed. Persons will register small unmanned aircraft prior to operation and, if they continue to own the aircraft, will renew registration every three years thereafter.

*Annual Burden Estimate:* For the modelers and non-modelers, the following table shows the total number of modelers, their time, and their costs to fill out the on-line system and register plus the time to re-register and for the non-modelers, the number of total respondents (small unmanned aircraft), their time to fill out the online system and register, the time to register each of their small unmanned aircraft, and their time de-register their aircraft after they retire their aircraft. There are no costs associated with this information collection aside from the time spent to complete registration.

TABLE 8—AVERAGE ANNUAL BURDEN ESTIMATES

[Years 0–5 (6 Years)]

| Category | Number of responses (M) | Minutes per response | Frequency | Hours (000) |
|---|---|---|---|---|
| Modeler | | | | |
| Owner Registration | 0.57 | 5 | 1 time | 47.8 |
| Owner Re-Registration | 0.16 | 5 | Every 3 years | 12.9 |
| Non-Modeler | | | | |
| Small Unmanned Aircraft Registration | 1.82 | 3.5 | 1 Time | 121.9 |
| Small Unmanned Aircraft De-Registration | 1.66 | 3 | 1 Time | 69.0 |

Rows may not sum due to rounding.

The agency is soliciting comments to—

(1) Evaluate whether the proposed information requirement is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(2) Evaluate the accuracy of the agency's estimate of the burden;

(3) Enhance the quality, utility, and clarity of the information to be collected; and

(4) Minimize the burden of collecting information on those who are to respond, including by using appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

Individuals and organizations may send comments on the information collection requirement to the address listed in the **ADDRESSES** section at the beginning of this preamble by January 15, 2016. Comments also should be submitted to the Office of Management and Budget, Office of Information and Regulatory Affairs, Attention: Desk Officer for FAA, New Executive Office Building, Room 10202, 725 17th Street NW., Washington, DC 20503.

*F. International Compatibility and Cooperation*

In keeping with U.S. obligations under the Convention on International Civil Aviation, it is FAA policy to conform to International Civil Aviation Organization (ICAO) Standards and Recommended Practices to the maximum extent practicable. In the instance of this rulemaking, the FAA does not intend to comply with international standards. The registration and marking requirements in this IFR apply only to operations within the United States. The agency will file differences as is appropriate.

*G. Environmental Analysis*

FAA Order 1050.1F identifies FAA actions that are categorically excluded from preparation of an environmental assessment or environmental impact statement under the National Environmental Policy Act in the absence of extraordinary circumstances. The FAA has determined this rulemaking action qualifies for the categorical exclusion identified in paragraph 5–6.6f and involves no extraordinary circumstances.

**X. Executive Order Determinations**

*A. Executive Order 13132, Federalism*

The FAA has analyzed this immediately adopted final rule under the principles and criteria of Executive Order 13132, Federalism. The agency determined that this action will not have a substantial direct effect on the States, or the relationship between the Federal Government and the States, or on the distribution of power and responsibilities among the various levels of government, and, therefore, does not have Federalism implications.

*B. Executive Order 13211, Regulations That Significantly Affect Energy Supply, Distribution, or Use*

The FAA analyzed this immediately adopted final rule under Executive Order 13211, Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use (May 18, 2001). The agency has determined that it is not a ''significant energy action'' under the executive order and it is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

*C. Executive Order 13609, Promoting International Regulatory Cooperation*

Executive Order 13609, Promoting International Regulatory Cooperation, (77 FR 26413, May 4, 2012) promotes international regulatory cooperation to meet shared challenges involving health, safety, labor, security, environmental, and other issues and reduce, eliminate, or prevent unnecessary differences in regulatory requirements. The FAA has analyzed this action under the policy and agency responsibilities of Executive Order 13609, Promoting International Regulatory Cooperation. The FAA has analyzed this action under the policies and agency responsibilities of Executive Order 13609, and has determined that this action would have no effect on international regulatory cooperation.

**XI. How To Obtain Additional Information**

*A. Rulemaking Documents*

An electronic copy of a rulemaking document may be obtained via the Internet by—

Searching the Federal eRulemaking Portal (*http://www.regulations.gov*);

Visiting the FAA's Regulations and Policies Web page at *http://www.faa.gov/regulations_policies/* or

Access the Government Publishing Office's Web page at: *http://www.gpo.gov/fdsys/*.

Copies may also be obtained by sending a request (identified by notice, amendment, or docket number of this rulemaking) to the Federal Aviation Administration, Office of Rulemaking, ARM–1, 800 Independence Avenue SW., Washington, DC 20591, or by calling (202) 267–9677.

*B. Comments Submitted to the Docket*

Comments received may be viewed by going to *http://www.regulations.gov* and following the online instructions to search the docket number for this action. Anyone is able to search the electronic form of all comments received into any of the FAA's dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.).

*C. Small Business Regulatory Enforcement Fairness Act*

The Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 requires FAA to comply with small entity requests for information or advice about compliance with statutes and regulations within its jurisdiction. A small entity with questions regarding this document, may contact its local FAA official, or the person listed under the **FOR FURTHER INFORMATION CONTACT** heading at the beginning of the preamble. To find out more about SBREFA on the Internet, visit *http://www.faa.gov/regulations_policies/rulemaking/sbre_act/*.

**List of Subjects**

*14 CFR Part 1*

Air transportation.

*14 CFR Part 45*

Aircraft, Signs and symbols.

*14 CFR Part 47*

Aircraft, Reporting and recordkeeping requirements.

*14 CFR Part 48*

Aircraft, Reporting and recordkeeping requirements, Signs and symbols, Small unmanned aircraft, Unmanned aircraft.

*14 CFR Part 91*

Air traffic control, Aircraft, Airmen, Airports, Aviation safety, Reporting and recordkeeping requirements.

*14 CFR Part 375*

Administrative practice and procedure, Aircraft, Foreign relations, Reporting and recordkeeping requirements.

**The Amendment**

In consideration of the foregoing, the Federal Aviation Administration amends Chapter I of Title 14, Code of Federal Regulations, as follows:

## PART 1—DEFINITIONS AND ABBREVIATIONS

■ 1. The authority citation for part 1 is revised to read as follows:

**Authority:** 49 U.S.C. 106(f), 106(g), 40113, 44701.

■ 2. In § 1.1, add the definitions of ''Model aircraft'', ''Small unmanned aircraft'', ''Small unmanned aircraft

system'', and ''Unmanned aircraft'' in alphabetical order to read as follows:

**§ 1.1 General definitions.**

* * * * *

*Model aircraft* means an unmanned aircraft that is:

(1) Capable of sustained flight in the atmosphere;

(2) Flown within visual line of sight of the person operating the aircraft; and

(3) Flown for hobby or recreational purposes.

* * * * *

*Small unmanned aircraft* means an unmanned aircraft weighing less than 55 pounds on takeoff, including everything that is on board or otherwise attached to the aircraft.

*Small unmanned aircraft system (small UAS)* means a small unmanned aircraft and its associated elements (including communication links and the components that control the small unmanned aircraft) that are required for the safe and efficient operation of the small unmanned aircraft in the national airspace system.

* * * * *

*Unmanned aircraft* means an aircraft operated without the possibility of direct human intervention from within or on the aircraft.

* * * * *

## PART 45—IDENTIFICATION AND REGISTRATION MARKING

■ 3. The authority citation for part 45 is revised to read as follows:

**Authority:** 49 U.S.C. 106(f), 106(g), 40103, 40113–40114, 44101–44105, 44107–44111, 44504, 44701, 44708–44709, 44711–44713, 44725, 45302–45303, 46104, 46304, 46306, 47122.

■ 4. In § 45.1, revise paragraph (b) to read as follows:

**§ 45.1 Applicability.**

* * * * *

(b) Nationality and registration marking of aircraft registered in the United States in accordance with part 47.

## PART 47—AIRCRAFT REGISTRATION

■ 5. The authority citation for part 47 is revised to read as follows:

**Authority:** 4 U.S.T. 1830; Public Law 108–297, 118 Stat. 1095 (49 U.S.C. 40101 note, 49 U.S.C. 44101 note); 49 U.S.C. 106(f), 106(g), 40113–40114, 44101–44108, 44110–44113, 44703–44704, 44713, 45302, 45305, 46104, 46301.

■ 6. Revise § 47.2 to read as follows:

**§ 47.2 Definitions.**

The following are definitions of terms used in this part:

*Citizen of the United States or U.S. citizen* means one of the following:

(1) An individual who is a citizen of the United States or one of its possessions.

(2) A partnership each of whose partners is an individual who is a citizen of the United States.

(3) A corporation or association organized under the laws of the United States or a State, the District of Columbia, or a territory or possession of the United States, of which the president and at least two-thirds of the board of directors and other managing officers are citizens of the United States, which is under the actual control of citizens of the United States, and in which at least 75 percent of the voting interest is owned or controlled by persons that are citizens of the United States.

*Registry* means the FAA, Civil Aviation Registry, Aircraft Registration Branch.

*Resident alien* means an individual citizen of a foreign country lawfully admitted for permanent residence in the United States as an immigrant in conformity with the regulations of the Department of Homeland Security (8 CFR Chapter 1).

■ 7. In § 47.3, revise paragraph (b)(3) to read as follows:

**§ 47.3 Registration required.**

* * * * *

(b) * * *

(3) Is an aircraft of the Armed Forces of the United States.

* * * * *

■ 8. In § 47.7, Revise paragraph (b) to read as follows:

**§ 47.7 United States citizens and resident aliens.**

* * * * *

(b) *Resident aliens.* An applicant for aircraft registration under 49 U.S.C. 44102 who is a resident alien must furnish a representation of permanent residence and the applicant's alien registration number issued by the Department of Homeland Security.

* * * * *

■ 9. Add part 48 to read as follows:

## PART 48—REGISTRATION AND MARKING REQUIREMENTS FOR SMALL UNMANNED AIRCRAFT

### Subpart A—General



### Subpart B—Certificates of Aircraft Registration for Small Unmanned Aircraft



### Subpart C—Aircraft Marking



**Authority:** 49 U.S.C. 106(f), 106(g), 40101, 40103, 40113–40114, 41703, 44101–44103, 44105–44106, 44110–44113, 45302, 45305, 46104, 46301, 46306.

### Subpart A—General

**§ 48.1 Applicability.**

(a) This part provides registration and identification requirements for small unmanned aircraft that are part of a small unmanned aircraft system as defined in § 1.1 of this chapter.

(b) Small unmanned aircraft eligible for registration in the United States must be registered and identified in accordance with either:

(1) The registration and identification requirements in this part; or

(2) The registration requirements in part 47 and the identification and registration marking requirements in subparts A and C of part 45.

(c) Small unmanned aircraft intended to be operated outside of the territorial airspace of the United States, or registered through a trust or voting trust, must be registered in accordance with subparts A and B of part 47 and satisfy the identification and registration marking requirements of subparts A and C of part 45.

**§ 48.5 Compliance dates.**

(a) *Small unmanned aircraft used exclusively as model aircraft.* For small unmanned aircraft operated by the current owner prior to December 21, 2015, compliance with the requirements of this part or part 47 is required no later than February 19, 2016. For all other small unmanned aircraft, compliance with this part is required prior to operation of the small unmanned aircraft.

(b) *Small unmanned aircraft used as other than model aircraft.* Small unmanned aircraft owners authorized to conduct operations other than model aircraft operations must register the small unmanned aircraft in accordance

with part 47 of this chapter. Beginning March 31, 2016, small unmanned aircraft operated as other than model aircraft may complete aircraft registration in accordance with this part.

**§ 48.10 Definitions.**

For purposes of this part, the following definitions apply:

*Citizen of the United States or U.S. citizen* means one of the following:

(1) An individual who is a citizen of the United States or one of its possessions.

(2) A partnership each of whose partners is an individual who is a citizen of the United States.

(3) A corporation or association organized under the laws of the United States or a State, the District of Columbia, or a territory or possession of the United States, of which the president and at least two-thirds of the board of directors and other managing officers are citizens of the United States, which is under the actual control of citizens of the United States, and in which at least 75 percent of the voting interest is owned or controlled by persons that are citizens of the United States.

*Registry* means the FAA, Civil Aviation Registry, Aircraft Registration Branch.

*Resident alien* means an individual citizen of a foreign country lawfully admitted for permanent residence in the United States as an immigrant in conformity with the regulations of the Department of Homeland Security (8 CFR Chapter 1).

**§ 48.15 Requirement to register.**

No person may operate a small unmanned aircraft that is eligible for registration under 49 U.S.C. 44101–44103 unless one of the following criteria has been satisfied:

(a) The owner has registered and marked the aircraft in accordance with this part;

(b) The aircraft weighs 0.55 pounds or less on takeoff, including everything that is on board or otherwise attached to the aircraft; or

(c) The aircraft is an aircraft of the Armed Forces of the United States.

**§ 48.20 Eligibility for registration.**

A small unmanned aircraft may be registered under 49 U.S.C. 44103 and under this part only when the aircraft is not registered under the laws of a foreign country and is—

(a) Owned by a U.S. citizen;

(b) Owned by an individual citizen of a foreign country lawfully admitted for permanent residence in the United States;

(c) Owned by a corporation not a citizen of the United States when the corporation is organized and doing business under the laws of the United States or a State within the United States, and the aircraft is based and primarily used in the United States; or

(d) An aircraft of—

(1) The United States Government; or

(2) A State, the District of Columbia, a territory or possession of the United States, or a political subdivision of a State, territory, or possession.

**§ 48.25 Applicants.**

(a) To register a small unmanned aircraft in the United States under this part, a person must provide the information required by § 48.100 to the Registry in the form and manner prescribed by the Administrator. Upon submission of this information, the FAA issues a Certificate of Aircraft Registration to that person.

(b) A small unmanned aircraft must be registered by its owner using the legal name of its owner, unless the owner is less than 13 years of age. If the owner is less than 13 years of age, then the small unmanned aircraft must be registered by a person who is at least 13 years of age.

(c) In accordance with 49 U.S.C. 44103(c), registration is not evidence of aircraft ownership in any proceeding in which ownership of an unmanned aircraft by a particular person is in issue.

(d) In this part, ''owner'' includes a buyer in possession, a bailee, a lessee of a small unmanned aircraft under a contract of conditional sale, and the assignee of that person.

**§ 48.30 Fees.**

(a) The fee for issuing or renewing a Certificate of Aircraft Registration for aircraft registered in accordance with § 48.100(a) is $5.00 per aircraft.

(b) The fee for issuing or renewing a Certificate of Aircraft Registration for aircraft registered in accordance with § 48.100(b) is $5.00 per certificate.

(c) Each application for and renewal of a Certificate of Aircraft Registration must be accompanied by the fee described in paragraphs (a) and (b), as applicable, paid to the Federal Aviation Administration through the web-based aircraft registration system, or in another manner if prescribed by the Administrator.

## Subpart B—Certificates of Aircraft Registration for Small Unmanned Aircraft

**§ 48.100 Application.**

(a) *Required information: Persons intending to use the small unmanned aircraft as other than a model aircraft.* Each applicant for a Certificate of Aircraft Registration issued under this part must submit all of the following information to the Registry:

(1) Applicant name and, for an applicant other than an individual, the name of the authorized representative applying for a Certificate of Aircraft Registration.

(2) Applicant's physical address and, for an applicant other than an individual, the physical address for the authorized representative. If the applicant or authorized representative does not receive mail at their physical address, a mailing address must also be provided.

(3) Applicant's email address or, for applicants other than individuals, the email address of the authorized representative.

(4) The aircraft manufacturer and model name.

(5) The aircraft serial number, if available.

(6) Other information as required by the Administrator.

(b) *Required information: Individuals intending to use the small unmanned aircraft exclusively as a model aircraft.* Each applicant for a Certificate of Aircraft Registration issued under this part must submit all of the following information to the Registry:

(1) Applicant name.

(2) Applicant's physical address and if the applicant does not receive mail at their physical address, a mailing address must also be provided.

(3) Applicant's email address.

(4) Other information as required by the Administrator.

(c) *Provision of information.* The information identified in paragraphs (a) and (b) of this section must be submitted to the Registry through the Web-based small unmanned aircraft registration system in a form and manner prescribed by the Administrator.

(d) *Issuance of Certificate of Aircraft registration.* The FAA will issue a Certificate of Aircraft Registration upon completion of the application requirements provided in paragraph (a) or (b) of this section as applicable.

**§ 48.105 Requirement to maintain current information.**

(a) The holder of a Certificate of Aircraft Registration must ensure that the information provided under § 48.100 remains accurate.

(b) The holder of a Certificate of Aircraft Registration must update the information using the web-based small unmanned aircraft registration system within 14 calendar days of the following:

(1) A change in the information provided under § 48.100.

(2) When aircraft registration requires cancellation for any reason including sale or transfer, destruction, or export.

**§ 48.110 Registration: Persons intending to use small unmanned aircraft for purposes other than as model aircraft.**

(a) *Certificate of Aircraft Registration.* A Certificate of Aircraft Registration issued in accordance with § 48.100 for aircraft used for purposes other than as model aircraft constitutes registration only for the small unmanned aircraft identified on the application.

(b) *Effective date of registration.* An aircraft is registered when the applicant receives a Certificate of Aircraft Registration for the specific aircraft. The effective date of registration is shown by the date of issue on the Certificate of Aircraft Registration issued for the aircraft.

(c) *Registration renewal.* A Certificate of Aircraft registration issued under this part expires 3 years after the date of issue unless it is renewed.

(1) The holder of a Certificate of Aircraft Registration must renew the Certificate by verifying, in a form and manner prescribed by the Administrator, that the information provided in accordance with § 48.100 of this subpart is accurate and if it is not, provide updated information. The verification may take place at any time within the six months preceding the month in which the Certificate of Aircraft registration expires.

(2) A certificate issued under this paragraph expires three years from the expiration date of the previous certificate.

(d) *Other events affecting effectiveness of Certificate.* Each Certificate of Aircraft Registration issued by the FAA under this subpart is effective, unless registration has ended by reason of having been revoked, canceled, expired, or the ownership is transferred, until the date upon which one of the following events occurs:

(1) Subject to the Convention on the International Recognition of Rights in Aircraft when applicable, the aircraft is registered under the laws of a foreign country.

(2) The small unmanned aircraft is totally destroyed or scrapped.

(3) The holder of the Certificate of Aircraft Registration loses U.S. citizenship.

(4) Thirty days have elapsed since the death of the holder of the Certificate of Aircraft Registration.

(5) The owner, if an individual who is not a citizen of the United States, loses status as a resident alien, unless that person becomes a citizen of the United States at the same time.

(6) The owner is a corporation other than a corporation which is a citizen of the United States and one of the following events occurs:

(i) The corporation ceases to be lawfully organized and doing business under the laws of the United States or any State thereof; or

(ii) The aircraft was not operated exclusively within the United States during the period of registration under this part.

**§ 48.115 Registration: Individuals intending to use small unmanned aircraft exclusively as a model aircraft.**

(a) *Certificate of Aircraft Registration:* A Certificate of Aircraft Registration issued in accordance with § 48.100 for small unmanned aircraft used exclusively as model aircraft constitutes registration for all small unmanned aircraft used exclusively as model aircraft owned by the individual identified on the application.

(b) *Effective date of registration.* An aircraft is registered when the applicant receives a Certificate of Aircraft Registration. The effective date of registration is shown by the date of issue on the Certificate of Aircraft Registration issued under this part.

(c) *Registration renewal.* A Certificate of Aircraft registration issued under this part expires 3 years after the date of issue unless it is renewed.

(1) The holder of a Certificate of Aircraft Registration must renew the Certificate by verifying, in a form and manner prescribed by the Administrator, that the information provided in accordance with § 48.100(b) and (c) of this part is accurate and if it is not, provide updated information. The verification may take place at any time within the six months preceding the month in which the Certificate of Aircraft registration expires.

(2) A certificate issued under this paragraph expires three years from the expiration date of the previous certificate.

(d) *Other events affecting effectiveness of Certificate.* Each Certificate of Aircraft Registration issued by the FAA under this part is effective, unless registration has ended by reason of having been revoked, canceled or expired, or until the date upon which one of the following events occurs:

(1) The holder of the Certificate of Aircraft Registration loses U.S. citizenship.

(2) Thirty days have elapsed since the death of the holder of the Certificate of Aircraft Registration.

(3) The owner, if an individual who is not a citizen of the United States, loses status as a resident alien, unless that person becomes a citizen of the United States at the same time.

**§ 48.120 Invalid registration.**

The registration of a small unmanned aircraft is invalid if, at the time it is made—

(a) The aircraft is registered in a foreign country;

(b) The applicant is not the owner, except when the applicant registers on behalf of an owner who is under 13 years of age;

(c) The applicant is not eligible to submit an application under this part; or

(d) The interest of the applicant in the aircraft was created by a transaction that was not entered into in good faith, but rather was made to avoid (with or without the owner's knowledge) compliance with 49 U.S.C. 44101–44103.

**§ 48.125 Foreign civil aircraft.**

Except for corporations eligible to register under § 48.20(c), the FAA will issue a recognition of ownership to persons required to comply with the provisions of this part pursuant to an authorization to operate issued under part 375 of this title. The recognition of ownership does not have the effect of U.S. aircraft registration.

## Subpart C—Aircraft Marking

**§ 48.200 General.**

(a) No person may operate a small unmanned aircraft registered in accordance with this part unless the aircraft displays a unique identifier in accordance with the requirements of § 48.205 of this subpart.

(b) A unique identifier is one of the following:

(1) The registration number issued to an individual or the registration number issued to the aircraft by the Registry upon completion of the registration process provided by this part; or

(2) If authorized by the Administrator and provided with the application for Certificate of Aircraft Registration under § 48.100 of this part, the small unmanned aircraft serial number.

**§ 48.205 Display and location of unique identifier.**

(a) The unique identifier must be maintained in a condition that is legible.

(b) The unique identifier must be affixed to the small unmanned aircraft by any means necessary to ensure that it will remain affixed for the duration of each operation.

(c) The unique identifier must be readily accessible and visible upon

inspection of the small unmanned aircraft. A unique identifier enclosed in a compartment is readily accessible if it can be accessed without the use of any tool.

## PART 91—GENERAL OPERATING AND FLIGHT RULES

■ 10. The authority citation for part 91 continues to read as follows:

**Authority:** 49 U.S.C. 106(f), 106(g), 1155, 40101, 40103, 40105, 40113, 40120, 44101, 44111, 44701, 44704, 44709, 44711, 44712, 44715, 44716, 44717, 44722, 46306, 46315, 46316, 46504, 46506–46507, 47122, 47508, 47528–47531, 47534, articles 12 and 29 of the Convention on International Civil Aviation (61 Stat. 1180), (126 Stat. 11).

■ 11. In § 91.203, revise paragraph (a)(2) to read as follows:

### § 91.203 Civil aircraft: Certifications required.

(a) * * *

(2) An effective U.S. registration certificate issued to its owner or, for operation within the United States, the second copy of the Aircraft registration Application as provided for in § 47.31(c), a Certificate of Aircraft registration as provided in part 48, or a registration certification issued under the laws of a foreign country.

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## PART 375—NAVIGATION OF FOREIGN CIVIL AIRCRAFT WITHIN THE UNITED STATES

■ 12. The authority citation for part 375 continues to read as follows:

**Authority:** 49 U.S.C. 40102, 40103, and 41703.

■ 13. Revise § 375.11 to read as follows:

### § 375.11 Other Foreign Civil Aircraft.

A foreign civil aircraft, including unmanned aircraft as defined in § 1.1 of this title, other than those referred to in § 375.10 may be navigated in the United States only when:

(a) The operation is authorized by the Department under the provisions of this part, and

(b) The aircraft complies with any applicable airworthiness standards of the Federal Aviation Administration for its operation.

■ 14. Add § 375.38 to subpart D to read as follows:

### § 375.38 Other foreign civil aircraft: Small unmanned aircraft operated exclusively as model aircraft.

Foreign civil aircraft that are small unmanned aircraft used exclusively as model aircraft may be operated in the United States only when the individual:

(a) Completes the registration process in accordance with §§ 48.30, 48.100(b) and (c), 48.105, and 48.115 of this title;

(b) Identifies the aircraft in accordance with the aircraft marking requirements in §§ 48.200 and 48.205 of this title; and

(c) Complies with the requirements of Sec. 336 of Pub. L. 112–95 (Feb. 14, 2012).

Issued under the authority of 49 U.S.C. 106(f), 41703, 44101–44103, in Washington, DC on December 14, 2015.

**Anthony R. Foxx,**

*Secretary of Transportation.*

**Michael P. Huerta,**

*Administrator.*

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(2) Forward any balloon position reports requested by ATC.

(b) One hour before beginning descent, each person operating an unmanned free balloon shall forward to the nearest FAA ATC facility the following information regarding the balloon:

(1) The current geographical position.

(2) The altitude.

(3) The forecast time of penetration of 60,000 feet standard pressure altitude (if applicable).

(4) The forecast trajectory for the balance of the flight.

(5) The forecast time and location of impact with the surface of the earth.

(c) If a balloon position report is not recorded for any two-hour period of flight, the person operating an unmanned free balloon shall immediately notify the nearest FAA ATC facility. The notice shall include the last recorded position and any revision of the forecast trajectory. The nearest FAA ATC facility shall be notified immediately when tracking of the balloon is re-established.

(d) Each person operating an unmanned free balloon shall notify the nearest FAA ATC facility when the operation is ended.

## Subpart E—Special Rule for Model Aircraft

SOURCE: Docket FAA–2015–0150, Amdt. 101–9, 81 FR 42208, June 28, 2016, unless otherwise noted.

### § 101.41 Applicability.

This subpart prescribes rules governing the operation of a model aircraft (or an aircraft being developed as a model aircraft) that meets all of the following conditions as set forth in section 336 of Public Law 112–95:

(a) The aircraft is flown strictly for hobby or recreational use;

(b) The aircraft is operated in accordance with a community-based set of safety guidelines and within the programming of a nationwide community-based organization;

(c) The aircraft is limited to not more than 55 pounds unless otherwise certified through a design, construction, inspection, flight test, and operational safety program administered by a community-based organization;

(d) The aircraft is operated in a manner that does not interfere with and gives way to any manned aircraft; and

(e) When flown within 5 miles of an airport, the operator of the aircraft provides the airport operator and the airport air traffic control tower (when an air traffic facility is located at the airport) with prior notice of the operation.

### § 101.43 Endangering the safety of the National Airspace System.

No person may operate model aircraft so as to endanger the safety of the national airspace system.

# PART 103—ULTRALIGHT VEHICLES

### Subpart A—General



### Subpart B—Operating Rules



AUTHORITY: 49 U.S.C. 106(g), 40103–40104, 40113, 44701.

SOURCE: Docket No. 21631, 47 FR 38776, Sept. 2, 1982, unless otherwise noted.

## Subpart A—General

### § 103.1 Applicability.

This part prescribes rules governing the operation of ultralight vehicles in the United States. For the purposes of this part, an ultralight vehicle is a vehicle that:

(a) Is used or intended to be used for manned operation in the air by a single occupant;