

3.11 SAFETY

3.11.1 Background and Methodology

As with other forms of transportation, there is risk associated with aviation activities. This section focuses on risk to those on the ground near airports. Aircraft accidents are rare. In 2009 (the most recent year for which complete data is available); the National Transportation Safety Board (NTSB) reported that there were 1.7 accidents per million hours flown by airlines and 72 accidents per million hours flown by general aviation aircraft.¹ The airline statistic includes both scheduled and on-demand operations. General aviation includes both personal and corporate aircraft operations.

The *California Airport Land Use Planning Handbook (Handbook)* contains an in-depth analysis of general aviation aircraft accidents and their proximity to airports and runway ends.² Data from NTSB's national database of aircraft accident records was used to plot accident locations relative to the runway associated with each accident. The resulting database was used to define accident distribution contours. These accident contours provide a graphical representation of the areas surrounding runways that are subject to various levels of risk. **Figures 3.11-1** and **3.12-2** show the accident contours for general aviation accidents associated with aircraft arrivals and departures, respectively. These figures are for accidents occurring on airports throughout the United States. As can be seen in these graphics, general aviation accidents tend to cluster near the runway ends. Due to data limitations, similar contours for airline-related accident locations were not developed. However, the available data shows that off-airport accident sites for airline aircraft tend to concentrate along the extended runway centerline.

An assessment of wildlife hazards on and near the Airport is currently being prepared following FAA guidelines. The results of this assessment will be used to determine whether a formal wildlife hazard management plan will be required by the FAA. No determination or recommendations have been made as yet. If a wildlife hazard management plan is prepared, the Airport will implement its recommendations.

3.11.1.1 Regulatory Context

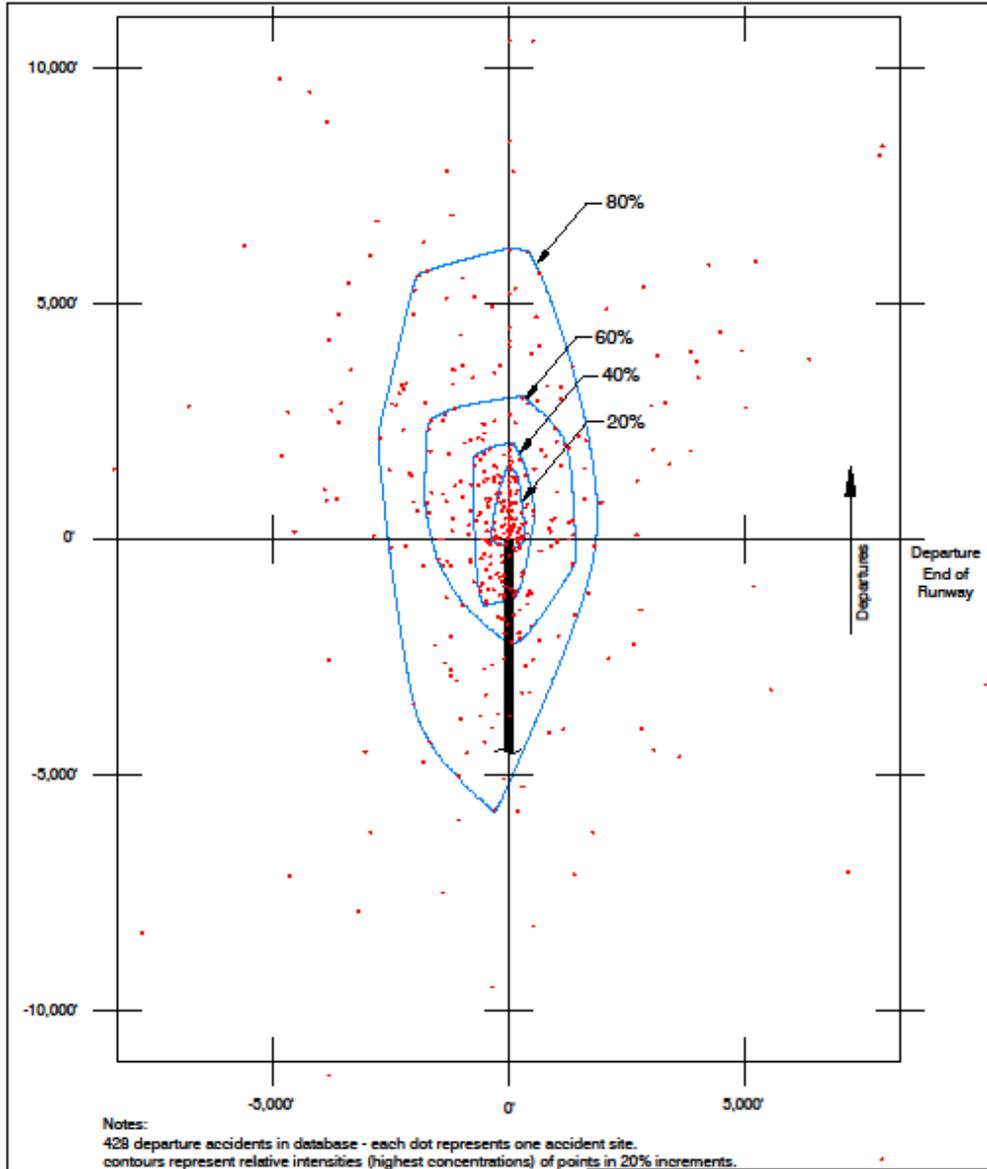
The Federal Aviation Administration has developed guidance for providing a Runway Protection Zone (RPZ) for the area immediately beyond each runway end.³ The dimensions of an RPZ vary depending upon the weight of aircraft using the runway and whether there are instrument approaches for the particular runway end. RPZs encompass the locations where between 20 percent and 40 percent of general aviation accidents can be expected to occur (see **Figures 3.11-1** and **3.11-2**). Available data suggests that a comparable segment of airline accidents would occur within RPZs. The *Airport Design* Advisory Circular specifies that “the RPZ's function is to enhance the protection of people and property on the ground. This is achieved through owner control over RPZs. Such control includes clearing RPZ areas (and maintaining them clear) of incompatible objects and activities. Control is preferably exercised through the acquisition of sufficient property interest in the RPZ.”

¹ United States National Transportation Safety Board, *Table 10, Accidents, Fatalities, and Rates, 1990 through 2009, U.S. General Aviation*, available at: <http://www.nts.gov/aviation/Table10.htm>. Accessed May 4, 2011.

² State of California, Division of Aeronautics, *California Airport Land Use Planning Handbook*, January 2002. available at: <http://www.dot.ca.gov/hq/planning/aeronaut/documents/ALUPHComplete-7-02rev.pdf>. Accessed May 4, 2011.

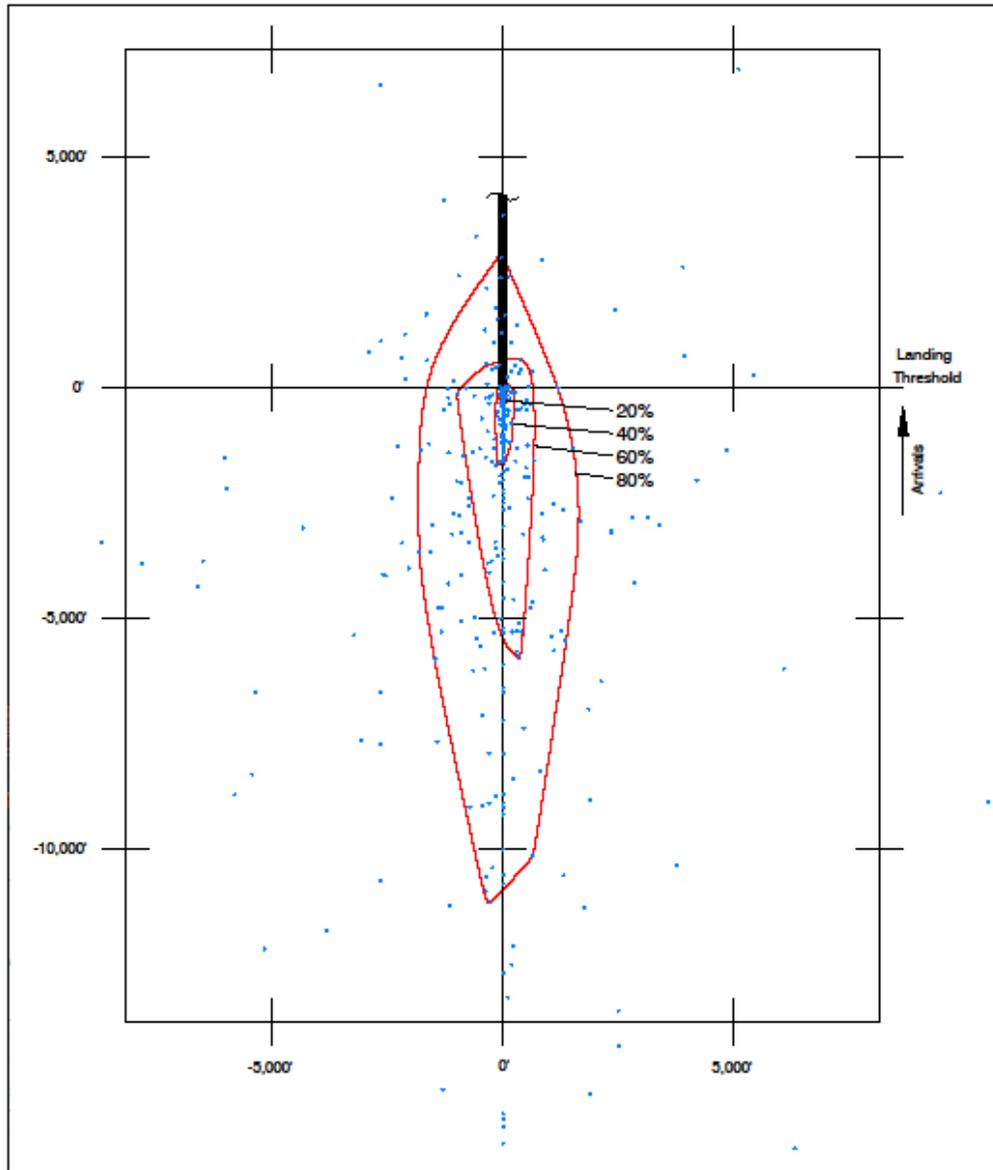
³ Federal Aviation Administration, Advisory Circular 150/5300-13, *Airport Design*, current edition.

Figure 3.11-1
GENERAL AVIATION ACCIDENT CONTOURS: DEPARTURES



SOURCE: Shutt Moen Associates, 2002
PREPARED BY: RS&H, 2011

Figure 3.11-2
GENERAL AVIATION ACCIDENT CONTOURS: ARRIVALS



SOURCE: Shutt Moen Associates, 2002
PREPARED BY: RS&H, 2011

The Advisory Circular goes on to describe what land uses are and are not permitted within the RPZ:

- while it is desirable to clear all objects from the RPZ, some uses are permitted, provided they do not attract wildlife, are outside of the Runway Object Free Area (OFA) and do not interfere with navigational aids. Automobile parking facilities, although discouraged, may be permitted, provided the parking facilities and any associated appurtenances, in addition to meeting all of the preceding conditions, are located outside of the central portion of the RPZ. Fuel storage facilities may not be located in the RPZ; and
- land uses prohibited from the RPZ are residences and places of public assembly. (Churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons typical of places of public assembly.) Fuel storage facilities may not be located in the RPZ.

The *Handbook* contains recommendations for land uses within RPZs that reflect the guidance provided by the *Airport Design Advisory Circular*.⁴ The Sonoma County Airport Land Use Commission (ALUC) has adopted a Comprehensive Airport Land Use Plan (CALUP) that complies with the recommendations outlined in the *Handbook*.⁵

3.11.1.2 Thresholds of Significance

Available data suggests that about one-third of all aircraft accidents will occur within RPZs. The pattern of accidents becomes more widely disbursed, and accident probabilities reduced, further from runway ends. No statutorily-defined threshold of significance exists for safety near airports. However, policy guidance from both the FAA and California Division of Aeronautics indicate that safety concerns are greatest within RPZs. Both agencies also offer guidance on what uses would be incompatible with an RPZ. Therefore, the creation of an inconsistency with existing CALUP safety zones or the addition of new incompatible uses within an existing or future RPZ would be a significant impact.

3.11.1.3 Methodologies

Existing and proposed RPZs and existing Airport property and planned Airport property acquisition were documented based upon the most recently approved version of the Airport Layout Plan (ALP) (see **Appendix D**). Existing land uses within existing and proposed RPZs were documented using aerial photographs and ground verification visits. This information was compared to the compatibility standards defined in the *Airport Design Advisory Circular*.

The existing CALUP safety zones were mapped and compared to changes in the CALUP safety zones that would be required as a result of the implementation of the Proposed Project.

3.11.2 Existing Conditions

Since 1962, there have been 35 aircraft accidents associated with the Airport. Of this total, 26 accidents occurred at the Airport and nine were off Airport property. It is important to realize that some of these off-Airport accidents did not involve aircraft taking off from the Airport, nor were they intending to land there. They were enroute to another airport and the Airport just happened to be the airport nearest the accident site. This reflects NTSB's standard procedure for reporting accidents. Of those five off-Airport accidents for which location data is available, four occurred

⁴ State of California Department of Transportation, *California Airport Land Use Planning Handbook*, available at: <http://www.dot.ca.gov/hq/planning/aeronaut/documents/ALUPHComplete-7-02rev.pdf>, Accessed May 5, 2011.

⁵ County of Sonoma, *Comprehensive Airport Land Use Plan*, October 2001.

south of the Airport. Their locations varied from 0.5 miles to 15 miles south of the Airport. The fourth accident occurred 2.6 miles west of the Airport. There were no ground injuries in any of these accidents.⁶

Each of the four runways at the Airport has an approach end. **Figure 3.11-3** shows the four runway approach ends and the applicable RPZ overlaid on a recent aerial photograph.

The status of each RPZ is set forth below:

- Runway 14 — most of the existing RPZ lies on Airport property. Current uses within the existing RPZ include undeveloped rural land, two rural residences with stock ponds, portions of Sanders and Windsor Roads and Airport Creek. The residences are not a compatible use and the stock pond and Airport Creek may constitute wildlife attractants.
- Runway 32 — Approximately one-third of the RPZ is on Airport. Most of the balance is subject to an avigation easement that limits the height of objects on the property. Current uses include vineyards, undeveloped rural land, an irrigation pond, Laughlin Road and Mark West Creek. The irrigation pond may constitute a wildlife attractant.
- Runway 19 — Approximately half of the existing RPZ is on Airport. Current uses within the existing RPZ are a wastewater treatment pond, undeveloped portions of a rural residential parcel (the residence is not within the RPZ) that includes a stock pond, and Airport and Redwood Creeks. The uses are compatible, except the wastewater treatment pond, the stock pond and Airport and Redwood Creeks, which may constitute wildlife attractants.
- Runway 1 — Approximately two-thirds of the existing RPZ is on Airport property. The balance overlies the right-of-way of Laughlin Road and the adjacent vineyard. No residences, places of public assembly or other incompatible uses exist within the RPZ, except for a portion of a pond that may constitute a wildlife attractant.

The existing CALUP safety zones are presented as **Figure 3.9-2** in **Section 3.9**, Land Use and Planning. Land uses allowed for each safety zone are presented in **Section 3.9**.

3.11.3 Environmental Impacts and Mitigation Measures

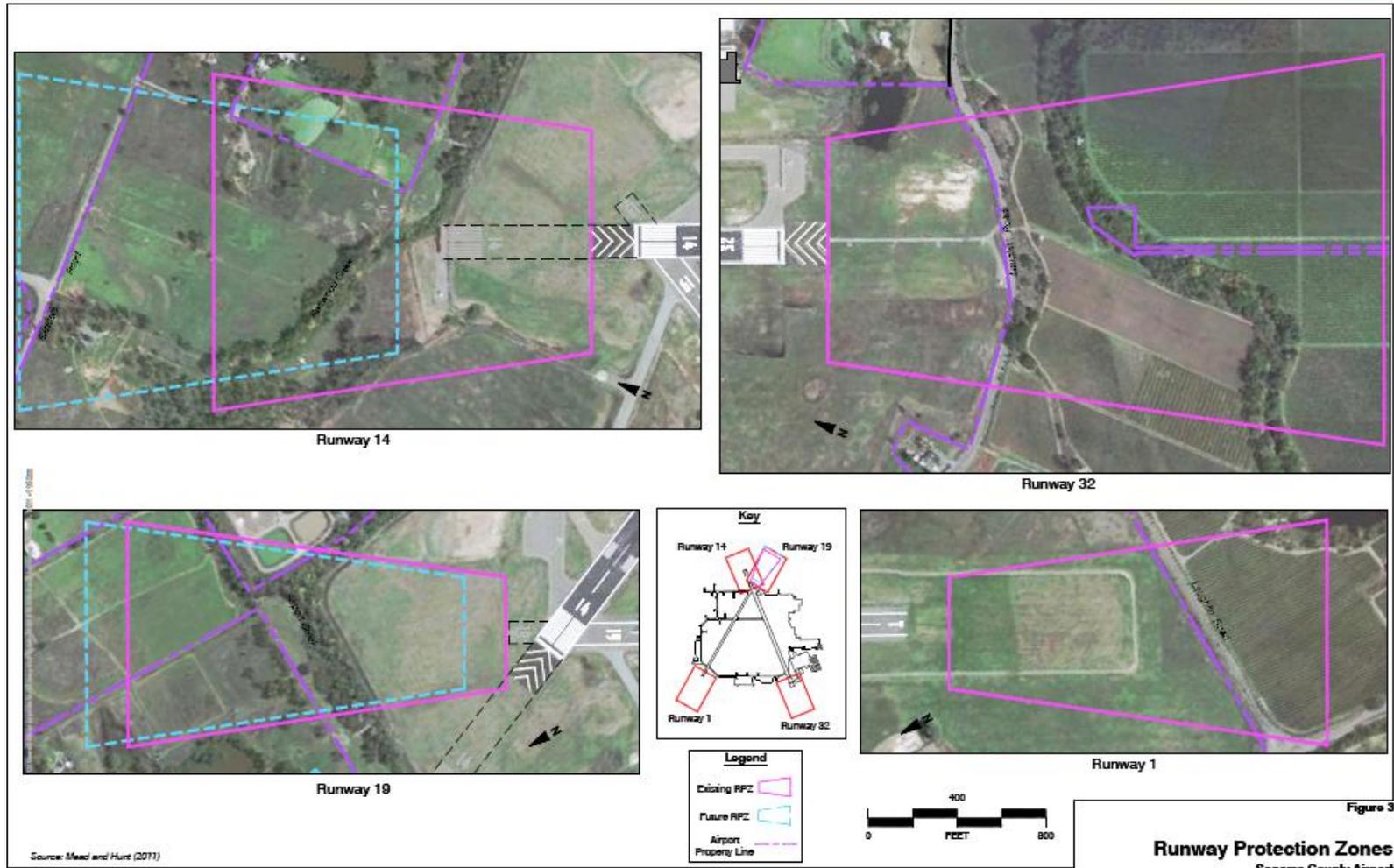
Impact 3.11.1: Changes to the RPZ and Land Acquisition as a Result of Short-Term Project Elements

The RPZs for Runway 1 and Runway 32 would not be changed as a part of the Proposed Project. The RPZs for Runway 14 and Runway 19 would change if the Proposed Project is implemented.

For Runway 14, the RPZ would be extended north of Sanders Road and would include property that is not owned by the Airport. However, the existing land uses on the properties north of Sanders Road that would be included in the future RPZ are agricultural and are considered to be compatible. Therefore, this change in the RPZ for Runway 14 would not result in the inclusion of any incompatible land uses in an RPZ and this is considered to be a less-than-significant impact.

⁶ United States National Transportation Safety Board, *Table 5, Accidents, Fatalities, and Rates, 1990 through 2009, for U.S. Air Carriers Operating Under 14 CFR 121, Scheduled and Nonscheduled Service (Airlines)*, available at <http://www.nts.gov/aviation/Table5.htm>. Accessed May 4, 2011.

Figure 3.11-3
RUNWAY PROTECTION ZONES



SOURCE: Mead & Hunt, 2010
 PREPARED BY: Mead & Hunt, 2010

For Runway 19, the Proposed Project would result in acquisition of 22.7 acres of property south of Sanders Road. This would allow the RPZ for Runway 19 to be located entirely within Airport property. Although existing residences are not within the future RPZ, the residences would be removed as part of the Proposed Project. In addition, the Proposed Project would remove the existing stock pond and modify Airport and Redwood Creeks within the RPZ. This would reduce the potential for wildlife hazard attractants within the Runway 19 RPZ. Therefore, this change in the RPZ for Runway 19 would not result in the inclusion of any incompatible land uses in an RPZ and this is considered to be a less-than-significant impact.

Mitigation Measure 3.11.1

No mitigation is warranted.

Impact 3.11.2: Changes to the CALUP Safety Zones as a Result of Short-Term Project Elements

The Proposed Project would result in changes to the existing CALUP safety zones (see **Figure 3.9-3** in **Section 3.9 – Land Use**). As stated in Impact 3.9-1, the Proposed Project would warrant the ALUC to make the following possible changes to the CALUP:

- maintain and apply the CALUP zones to the proposed runway configuration, shifting the zones northward; or
- use the generic safety zones from the *Handbook*.

This impact is considered to be significant.

Mitigation Measure 3.11.2

Implementation of Mitigation Measure 3.9-1 would reduce this impact to a less-than-significant level.

Impact 3.11.3: Land Acquisition Associated with the Long-Term Project Elements

No changes to any RPZ would occur as a result of the long-term project elements. However, the Proposed Project does include the acquisition of a variety of parcels in the Airport vicinity to result in having the RPZ on Airport property. Prior to acquisition, all land uses in the Airport vicinity must be compliant with CALUP compatibility policies. These proposed property acquisitions ensure that incompatible land uses are not introduced within the RPZs. All property within future RPZs would be acquired in fee simple, except road right-of-ways and 5.5 acres in the Runway 32 RPZ. An aviation easement would be acquired over the 5.5 acres in the Runway 32 RPZ. No new incompatible land uses would be introduced. Existing residences within the RPZs would be removed. Two stock ponds and one irrigation pond that are potential wildlife attractants would be removed. Therefore, the long-term project elements of the Proposed Project would not have any safety impacts.

Mitigation Measure 3.11.3

No mitigation is warranted.

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