

Chapter 3

Airport Land Use Compatibility



Airport Land Use Compatibility

INTRODUCTION

The previous two chapters examined the basic foundations of airport land use compatibility planning and the aeronautical features and usage of March Air Reserve Base/Inland Port Airport (ARB/IPA). This chapter looks at the land uses around the airport and the relationship of these land uses to the impact created by aircraft operations. A set of compatibility zones and associated criteria are provided for use in long-range land use planning in the airport's environs.

COMPATIBILITY PLANNING

Basic Approach

There are four types of compatibility concerns that must be taken into account in developing airport land use compatibility criteria. These aeronautical factors include: noise, overflight, safety, and airspace protection. The location of the airport-related impact is mostly determined by the location of runways, flight routes, and other aviation-related factors. The traditional method of addressing these concerns is to have a separate set of criteria and an associated map for each of the four factors. This is the approach utilized in the *Air Installation Compatible Use Zones (AICUZ) Study* for March ARB. In this way, each of the factors can be examined individually and thus the land use restriction can be more specific.

An alternative method involves the creation of a composite set of criteria and zones that address the compatibility concerns in a combined manner. This approach is one adopted by many airport land use commissions (ALUCs) in California, including the Riverside County ALUC. Advantages to this technique include greater flexibility in delineating the compatibility zones and greater ease in implementation. For instance, although zone boundaries must be based upon noise contours, flight paths, and areas of high risk, they can be drawn to follow roads and other geographic features. Implementation is facilitated because, for the most part, parcels are not split by the compatibility zones and reference need only be made to a single map and set of criteria for determination of compatibility.

Although there are tradeoffs between the two methods, the composite-factors approach is utilized for the purposes of long-range compatibility planning around March ARB/IPA. In this manner, county-wide policies established by the Riverside County ALUC can be utilized to the extent that they are applicable. Also, because Riverside County and the city of Riverside both have other airports within

their jurisdictions, maintaining the same approach used elsewhere simplifies their compatibility planning efforts.

Although the combined-factor approach to compatibility planning differs from the method used in the *March ARB AICUZ Study*, the results achieve similar ends. As indicated in Chapter 1, the function of the *JLUS* is to help local government agencies understand and incorporate the AICUZ technical data into local planning programs. Additionally, the compatibility plan component of the *JLUS* which would be adopted by the Riverside County ALUC and ultimately implemented by the affected jurisdictions is required by California state law (Public Utilities Code Section 21675(b)) to be consistent with the relevant AICUZ study. Thus, consideration is given to the *AICUZ Study* recommendations as to what types of land uses are or are not compatible within various portions of the airport environs. The intent of this *JLUS* is to provide compatibility measures that are comparable to or slightly more stringent than those indicated in the *AICUZ Study*.

Compatibility Factors

Compatibility between the airport and its environs is evaluated in terms of four aeronautical factors: noise, overflight, safety, and airspace protection. The character and magnitude of the impact generated by aircraft activity at March ARB/IPA is unique from that experienced at other airports in Riverside County. This difference needs to be reflected both in the compatibility zone delineation and in the compatibility criteria to be applied within each zone.

The primary inputs to the compatibility mapping process are discussed below. Exhibit 3–1, *Compatibility Factors* map, depicts the geographic extent of each of the four compatibility factors in a combined manner. This same information is illustrated on individual maps in the background data chapter (Chapter 2) of this *JLUS* document and is specifically referenced below.

Noise

Noise is one of the most basic airport land use compatibility concerns as it receives the majority of the attention. Noise generated by the operation of aircraft to, from, and around an airport is primarily measured in terms of the cumulative noise levels of all aircraft operations. The Community Noise Equivalent Level (CNEL) is the noise metric used in California. This metric provides a single measure of the average sound level in decibels (dB) to which any point near an airport is exposed. The CNEL metric averages the noise events of all aircraft operations over a 24-hour period, but weights nighttime (10:00 p.m. to 7:00 a.m.) and evening (7:00 to 10:00 p.m.) operations to account for the lower tolerance of people to noise during these periods. Each nighttime operation is counted the same as 10 daytime (7:00 a.m. to 7:00 p.m.) operations. This weighting is mathematically equal to adding 10 dB to each noise event. Similarly, evening operations are counted the same as 3 daytime operations, or the equivalent of a 4.77 dB weighting on each event.

Cumulative noise levels are usually illustrated on airport area maps as contour lines connecting points of equal noise exposure. Mapped noise contours primarily show areas of significant noise exposures—ones affected by high concentrations of aircraft takeoffs and landings. Important to note, though, is that the peak sound level (Lmax) of individual aircraft noise events measure significantly above the CNEL value at any given location. Thus, locations exposed to a CNEL of 65 dB may experience individual noise events that briefly reach a maximum of 75 to 80 dBA and, for some aircraft, nearly 90 dBA. At the outer ends of the 60 dB CNEL contour—roughly 4 miles from the runway end to the north and 8 miles from the south end of the runway—maximum single-event noise levels are still mostly in the 65-to-80 dBA range, with some aircraft being even louder. Whether arrival or departure noise

is loudest at any given point depends upon the aircraft type and the distance from the runway. Most aircraft are louder on takeoff than on arrival because the power settings are higher, but this sound level diminishes as the aircraft climb out. Thus, farther from the runway, arriving aircraft, especially older models or high-performance aircraft (such as fighters), will be the loudest because of the relatively low altitude at which they overfly the affected locations.

The noise contours used for compatibility planning purposes around March ARB/IPA are the CNEL contours depicted in the 2005 *AICUZ Study* and reproduced in Chapter 2 of this report (Exhibit 2–9).

Overflight

At many airports, including March ARB/IPA, complaints often come from locations beyond any of the defined noise contours. Some individuals are sensitive to the frequent presence of aircraft overhead even at low noise levels. Overflight impacts are a combination of single-event noise impacts (e.g., speech interference or sleep disturbance) and the subjective experience of annoyance. The basis for noise complaints may be a desire and expectation that outside noise sources not be intrusive—or, in some circumstances, even distinctly audible—above ambient (background) noise levels.

The areas of overflight concern for March ARB/IPA are considered to be locations where aircraft commonly fly at less than approximately 3,000 feet above the airport elevation (1,535 feet above mean sea level), while approaching or departing the airport or conducting closed circuit flight training there. The flight track data from the 2005 *AICUZ Study* (Exhibit 2–4) and the radar images recorded by the Federal Aviation Administration air traffic control facilities (Exhibits 2–5 and 2–6) which provide altitude information is used to define the traffic pattern envelop. Exhibit 3–1 depicts the general approach/departure courses in blue and the closed-circuit traffic pattern envelope in yellow. These areas indicate where approximately 80% of all aircraft operations occur.

Safety

Although rare, the potential exists that aircraft accidents will occur. Thus, protecting against these events is essential to airport land use safety compatibility. Based upon aircraft accident data collected over a nearly 30-year period, the Air Force has defined a set of accident potential zones (APZs) for use in AICUZ studies for individual air bases. The three zones—Clear Zone, APZ I, and APZ II—extend a total of 15,000 feet beyond the runway end at a width of 3,000 feet. According to Air Force data, over 70% of near-airport military aircraft accidents (within 10 nautical miles, but not on the runway) take place within these zones.

As noted in Exhibit 2–14, Air Force facilities normally depict the APZs aligned with the extended runway centerline. Conversely, the Navy modifies the APZs to follow primary flight routes which may result in a curved APZ. At March ARB/IPA, to the north, essentially all aircraft make a left turn after takeoff, generally at a distance of about 7,000 to 10,000 feet beyond the north end of the runway. Thus, for safety compatibility, consideration is given to the potential safety impacts to the areas underlying the curving departure route to the north. The APZs depicted in Exhibit 3–1 reflect those shown in the 2005 *AICUZ Study*.

Airspace Protection

Airspace protection requirements for airports are defined by Part 77 of the Federal Aviation Regulations (FAR). As discussed in Chapter 2 (Exhibit 2–15), the Part 77 surfaces for military installations differ from those for civilian facilities. Exhibit 2–15 combines both sets of airspace surfaces to reflect

the controlling (more restrictive) surface in the different areas around March ARB/IPA. The controlling airspace surface establishes the limits on the allowable heights of nearby structures. The outer limits of the military and civilian airspace surfaces are shown in Exhibit 3–1.

Compatibility Zone Delineation

The compatibility map for March ARB/IPA is comprised of nine compatibility zones. The aeronautical factors used to establish the compatibility zone boundaries are described below and summarized in Exhibit 3–2, *Compatibility Zone Factors*. The *Compatibility Map* (Exhibit 3–3) depicts the compatibility zones for March ARB/IPA.

Note that these compatibility zones and the factors upon which they are based are similar in concept to the compatibility zones adopted by the Riverside County ALUC for other airports in the county. However, the different character of aircraft activity at March ARB/IPA compared to the primarily general aviation activity at the other airports in the county results in the zones being based upon somewhat different factors. Table 3A in the *Riverside County Airport Land Use Compatibility Plan* (ALUCP) is not applicable to March ARB/IPA.

- ▶ **Zone M** includes all lands owned by the U.S. Air Force. By law, neither local governments nor the ALUC have jurisdiction over federal lands.
- ▶ **Zone A** contains lands within the Clear Zone (CZ) at each end of the runway, but not on the base property. As defined by the AICUZ, the clear zones are 3,000 feet wide and 3,000 feet long beginning at the runway ends. Zone A at the north end of the runway encompasses a detention basin on March JPA property. The detention basin is required to drain within 6 hours after a rainfall. Zone A at the south end of the runway includes privately owned land. The Air Force has acquired restrictive use easements preventing the development of this property.
- ▶ **Zone B1** encompasses areas of high noise and high risk within the inner portion of the runway approach and departure corridors. The zone is defined by the boundaries of APZs I and II, adjusted on the north to take into account the turning departure flight tracks. The majority of the zone also is exposed to projected noise levels in excess of 65 dB CNEL.
- ▶ **Zone B2** is similar to Zone B1 in terms of noise impact, but is subject to less risk. The projected 65 dB CNEL contour forms the basis for the zone boundary. The actual boundary follows roads, parcel lines or other geographic features that lie generally just beyond the contour line. Lands within the APZs are excluded from Zone B2. Most of the zone lies adjacent to the runway. To the north, portions extend along the sides of Zone B1. To the south, a small area borders the sides of Zones A and B1 and a larger area extends 2 miles beyond the south end of Zone B1.
- ▶ **Zone C1** encompasses most of the projected 60 dB CNEL contour plus immediately adjoining areas. The zone boundary follows geographic features. Risks are moderate in that aircraft fly at low altitudes over or near the zone. To the south, an area beginning just beyond Nuevo Road—approximately 5 miles from the runway end—is excluded from the zone. Even though exposed to projected noise above 60 dB CNEL, the risks at this distance from the runway are reduced by the altitude at which aircraft fly over the area. On instrument approaches to Runway 14, aircraft are typically at about 2,000 feet above the runway on descent and departing aircraft are generally 3,000 feet or higher above the runway elevation. Single-event noise levels are nevertheless potentially disruptive in this zone.

- ▶ **Zone C2** contains the remainder of the lands within the 60 dB CNEL contour to the south. Although aircraft overflying this area are at 2,000 feet or more above the runway on descent and generally 3,000 feet or more on takeoff, single-event noises levels combined with the frequency of overflights, including at night, make noise a moderate compatibility concern. A larger portion of Zone C2 is situated to the west of the airport and includes locations above which most of the military closed-circuit flight training aircraft activity takes place. Aircraft overfly this area at about the same or somewhat lower altitudes as in the south portion of Zone C2, but high terrain in some locations makes the flight altitude above ground level comparatively lower. Single-event noise levels in this area are high enough to be intrusive. However, at present, nearly all of the flight training activity takes place on weekdays during daylight hours, thus reducing the significance of the noise impact on residential land uses. Risk levels in both portions of Zone C2 are judged to be moderate to low with the low altitudes and flight training aspect of the aircraft activity being the primary concerns.
- ▶ **Zone D** is intended to encompass other places where aircraft fly below about 3,000 feet above the airport elevation either on arrival or departure. Additionally, it includes locations near the primary flight paths where aircraft noise may regularly be loud enough to be disruptive. Direct overflights of these areas may occur occasionally. Risk levels in this zone are low.
- ▶ **Zone E** contains the remainder of the airport influence area. Airspace protection is the major concern in that aircraft sometimes pass over these areas while flying to, from, or around the airport.
- ▶ The **High Terrain Zone** serves a more focused purpose than the preceding eight zones. It is intended to identify locations where even relatively short objects may be hazards to the airport airspace and require careful review. Within the zone are areas where the ground penetrates or lies within 35 feet beneath the airport's FAR Part 77 surfaces.

The outer limits of *Zone E* and the areas within the *High Terrain Zone* define the proposed **airport influence area** for March ARB/IPA. As can be seen in Exhibit 3–3, compatibility zones east of the airport are not as extensive as those in other areas around the airport. This is primarily due to high terrain to the north and east which generally restricts overflights of this area and, thus, airport land use compatibility is less of a concern.

Note also that the compatibility zone boundaries are very similar to the ALUC zone boundaries (see Exhibit 2–16). Slight adjustments are made in various locations to better reflect the noise contours and current flight track data. For the most part, the boundaries have been moved inward.

Compatibility Criteria

Development Standards

The *Basic Compatibility Criteria* table (Exhibit 3–4) provides a concise set of criteria by which compatibility assessments of land use classifications or individual development proposals can be made. The table establishes land use conditions and development standards for each compatibility zone for March ARB/IPA.

As with the compatibility zones, the criteria in Exhibit 3–4 are comparable to ones adopted by the Riverside County ALUC for the other airports in the county. However, the criteria have been modified to fit the operational and environs conditions at March ARB/IPA. Tables 2A, “Basic Compatibility Criteria,” and 2B, “Supporting Compatibility Criteria: Noise,” in the *Riverside County ALUCP* are not applicable to March ARB/IPA. Certain of the countywide compatibility policies set forth in Chapter 2

of the *ALUCP* are also not applicable to March ARB/IPA. Policy changes specific to March ARB/IPA are listed in Appendix A of this *JLUS*. Appendix B contains excerpts of the countywide *ALUCP* policies, most of which would apply to March ARB/IPA.

Several key points regarding the compatibility criteria proposed for March ARB/IPA are worth noting.

- ▶ **Zone A**—All development not required for aeronautical use is prohibited within Zone A. As noted previously, the Air Force and March JPA control all property within this zone either through fee title ownership or with restrictive use easements. The compatibility criteria thus have essentially no added effect.
- ▶ **Zone B1**
 - › *Residential Development*: Residential development is deemed incompatible with the cumulative noise exposure above 65 dB CNEL experienced throughout this zone. This standard is consistent with FAA, AICUZ, and California Division of Aeronautics guidelines for airports like March ARB/IPA. *ALUC* policy for other airports allows exceptions to this restriction only for a single-family residence on an existing legal lot of record where local zoning allows residential uses. Application of the same policy to the March ARB/IPA environs is proposed.
 - › *Non-Residential Development*: The 2005 March ARB *AICUZ Study* recommends limiting non-residential uses within APZs I and II, which together comprise Compatibility Zone B1, to low-intensity activities. Neither the *AICUZ Study* nor other Air Force guidance defines “low-intensity.” However, the U.S. Navy establishes intensity limits 25 people per acre in APZ I and 50 per acre in APZ II. Usage intensity calculations include all people (employees, customers, visitors, etc.) who may be on the property at a single point in time, whether indoors or outdoors. This *JLUS* recommends these intensity restrictions for Zone B1.

As additional means of risk reduction, the *AICUZ Study* indicates that “for most nonresidential usage, buildings [in APZ II] should be limited to one story and the lot coverage should not exceed 20 percent.” The 20 percent lot coverage limit in particular makes impractical the development of low-intensity uses such as warehouses that the *AICUZ* notes as being reasonable not just in APZ II, but APZ I as well. When this issue was discussed with Department of Defense and Air Force personnel, they acknowledged that the criteria contained in the March *AICUZ* are not absolute criteria. Rather, the *AICUZ* contains built-in flexibility regarding the recommended limitations on nonresidential development in APZII. The Air Force has willingly invoked that flexibility for this *JLUS* and concurs with the relaxing the lot coverage provisions as proposed in the *JLUS* provided that the standards of 25 people per acre in APZ I and 50 people per acre in APZ II are maintained. Accordingly, the *JLUS* criteria for Zone B1 allow up to 50 percent lot coverage. Within the APZ I portion of the zone, however, site designs should to the extent possible avoid placement of buildings within 100 feet of the extended runway centerline. Also, any proposed development in the APZ I area that exceeds 20 percent lot coverage must not provide on-site services to the public. Zoned fire sprinklers are required. Furthermore, new buildings in the APZ I area are to be limited to a single story and, in the APZ II area, to a maximum of two stories above ground.

- ▶ **Zone B2**
 - › *Residential Development*: Same criteria as Zone B1.
 - › *Non-Residential Development*: Lying just beyond the Air Force defined APZs, the areas within this zone and Zone C1 are subject to sufficient risk to warrant restrictions on the intensity of non-residential development. The risk levels are judged to be relatively similar and thus the same in-

tensity limits are proposed for both zones. Specifically, nonresidential uses would be limited to maximums of 100 people per acre average over a site and 250 people in any single acre. These limits are designed to preclude intensive uses such as major shopping centers and large restaurants. Light industrial uses and office buildings up to three stories are typically consistent with the criteria.

► Zone C1

- *Residential Development:* Lands within this zone are exposed to noise levels of approximately 60 to 65 dB CNEL as well as to a moderate degree of risk. For both reasons, limiting residential development to a density of no more than 3.0 dwelling units per acre is proposed. Individual aircraft flights over and near this zone are loud enough to cause disruption of outdoor activities as well as indoor activities when windows are open. A density limit will minimize the number of homes affected. A low-density is also appropriate with regard to risk in the event that an aircraft accident should occur in this area. Although even a higher residential density would not result in as many people being exposed to accident risk as would be present with the 100 people per acre allowed for nonresidential uses, society generally affords a higher degree of protection for homes—as well as schools and hospitals—than for most other land uses. The preferred land usage of Zone C1 is nonresidential. Limiting the residential density will encourage more compatible uses.
- *Nonresidential Development:* Same criteria as Zone B2.

► Zone C2

- *Residential Development:* The noise and risks associated with the flight training activity over the Zone C2 area west of the airport and in outer portion of the approach zone to the south both warrant limitations on residential development, but not a high degree of restrictiveness. Residential densities up to 6.0 dwelling units per gross acre are deemed acceptable provided that an aviation easement is dedicated to the March JPA. Although the cumulative noise level to which lands in this zone are exposed is below 60 dB CNEL and thus added sound attenuation is not necessary to meet the 45 dB CNEL standard (see below), an extra 5 dB of noise level reduction above normal construction is nevertheless required for new residential and other noise-sensitive development. The extra noise level reduction to CNEL 40 dB will help reduce the intrusiveness of individual loud noise events common to these areas.
- *Non-Residential Development:* As with residential uses, the noise and risk conditions in Zone C2 warrant only moderate limitations on most types of non-residential development. For most uses, risk is the greater concern. Very-high intensity uses such as regional shopping centers and large sports stadiums are not recommended, but typical office, industrial park, and neighborhood commercial uses are acceptable. Avoiding placement of schools in Zone C2 is desirable for both noise and safety reasons. However, to the extent that residential development is permitted, a total ban on schools is recognized as impractical. High schools with their sports stadiums should not be located in this zone if any other suitable alternatives are available. The Air Force should be consulted with regard to proposed school sites to assess whether some locations are comparatively less subject to aircraft overflight.

- **Zones D and E Residential and Non-Residential Development**—Lands within Zones D and E are subject to noise and risks associated with aircraft operations at March ARB/IPA, but the impacts are sufficiently minimal that land use restrictions are generally unnecessary. Highly noise-sensitive uses such as an outdoor amphitheater should be avoided or carefully sited in locations where aircraft overflights are relatively infrequent. Residential development is compatible; however, the loudness of individual overflights may be annoying to some people. A deed notice, as described below, is

therefore appropriate for new development. Also, in Zone D, very-high intensity outdoor stadiums are best avoided because of the risk, however small.

- ▶ **Residential Development, Summary**—A geographic depiction of where the various the residential development criteria described above apply is presented in Exhibit 3–5.
- ▶ **Open Land Requirement**—This compatibility criterion, which is included for other airports in the *Riverside County Airport Land Use Compatibility Plan*, requires that portions of the land in the airport environs be kept open to facilitate emergency aircraft landings. However, open land is useful only for small general aviation aircraft, not the large planes operated at March ARB/IPA. This provision is therefore omitted from the recommended compatibility criteria. In its place is a requirement that structures in Zone B1 occupy no more than 50% of the development site. Within the APZ I portion of this zone, site designs should to the extent possible avoid placement of buildings within 100 feet of the extended runway centerline.
- ▶ **Infill**—Where development not in conformance with the criteria set forth in this *JLUS* already exists, additional infill development of similar land uses is acceptable even if its prohibition is recommended elsewhere in the zone. This exception does not apply within Compatibility Zones A or B1. The *Riverside County Airport Land Use Compatibility Plan* provides criteria defining what land qualifies as infill development. Among these criteria is one that requires infill sites to be at least 65% bounded by existing uses similar to or more intensive than those proposed. For the purposes of the *JLUS*, the bounding requirement for infill residential development is reduced to 50%. (See Appendix A for excerpts of the Riverside County ALUC policies. The entire *Riverside Compatibility Plan* is available on the ALUC’s website at www.rcaluc.org).
- ▶ **Avigation Easement and Deed Notice Requirements**—Avigation easements transfer certain property rights from the owner of the property to the owner of an airport. With respect to military installations, the federal government does not accept avigation easement dedications, but they can purchase them. It would be appropriate, however, for the March JPA or the local government agency to hold the easement on behalf of the federal government. The *JLUS* recommends that dedication of an avigation easement be made a condition for approval of development in Zones B1 and B2, as well as the High Terrain Zone. The deed notice requirement is a way to ensure that prospective buyers of airport area property, particularly residential property, that the property is located within the airport influence area and subject to impact of airport operations. Unlike easements, deed notices are not encumbrances on the land and do not transfer property rights from the property owner to the easement holder. Deed notices should be required for new residential development in Zones C1, C2, and D. Exhibit 3–6 maps the locations where each of these buyer awareness measures apply.
- ▶ **Noise Level Reduction**—State law requires that multi-family residences, lodging, and other similar uses proposed to be located where the exterior noise level exceeds 60 dB CNEL be designed to incorporate noise level reduction (NLR) sufficient to reduce the exterior noise to no more than 45 dB CNEL indoors. Most local governments extend this requirement to single-family residential development. The ALUC includes this criterion in the compatibility plans for other airports. Even at a 45 dB CNEL, though, individual noise events will be intrusive. Nighttime events may be particularly so. In recognition of this fact, the *JLUS* recommends that new structures housing residential and other noise-sensitive uses be sound attenuated to 40 dB CNEL in locations subject to frequent aircraft overflights. Specifically, this requirement applies within Zones B1, B2, and C1.

Specific Land Uses

Exhibit 3–7, *Compatibility Determinations for Specific Land Uses*, is intended to facilitate implementation of the compatibility criteria in Exhibit 3–4 by making determinations as to the appropriate types of land use permitted within each compatibility zone. This list is similar to the list of permitted land uses provided in the *AICUZ Study*. The advantage of the detailed listing approach is that it minimizes the need for interpretation of the compatibility standards. Each use is denoted as either *incompatible*, *conditionally compatible*, or *compatible* within the respective compatibility zones. For uses listed as conditionally compatible, the conditions that must be met to make the use acceptable are cited. In some cases, the conditions refer back to the intensity criteria in Exhibit 3–4, but various other conditions associated with the specific use and the noise, safety, or airspace protection concerns it poses are noted as well.

For the most part, the land use compatibility determinations listed in Exhibit 3–5 should be consistent with the basic criteria in Exhibit 3–4 for any given land use development proposal. However, instances will arise where an unusual project could be found consistent with the specific determinations and conflict with the basic criteria or vice versa. For example, a type of development that is generally compatible with the airport could contain features that would result in the overall intensity being in excess of the basic criteria for that zone or would create some other form of compatibility conflict. Conversely, a land use listed as incompatible in Exhibit 3–5 might be designed with special features or mitigation measures that would make it a compatible land use.

The March JPA, and the four general land use jurisdictions with the March ARB/IPA influence area, as well as the Riverside County ALUC for those consistency determinations in which it will be involved, will need to decide whether the basic criteria or the specific determinations take precedence in the event of conflicting outcomes. The recommendation of this *JLUS* is that the specific determinations in Exhibit 3–5 be relied upon for initial review of all projects. For those projects that are straightforward and contain no unusual features—presumed to be the great majority—the initial evaluation should be sufficient. Large projects, such as those that ALUC policies list as major land use actions, as well as any project for which the determination is *conditionally compatible*, should additionally be reviewed with respect to the basic criteria in Exhibit 3–4.

Site-Specific Exceptions

Four development projects near March ARB have received or are expected to receive entitlements in the form of Development Agreements or Disposition and Development Agreements from the respective jurisdictions prior to adoption of the *JLUS* by the Riverside County ALUC and the jurisdictions. As such, the exceptions to the compatibility criteria outlined in the preceding subsections are granted for these projects provided that they meet the conditions indicated below. (The locations of these exceptions are shown on Exhibit 4-3 in Chapter 4 and the numbers below correspond to the numbering on that map.)

These exceptions are valid only as long as the indicated specific plans and associated development agreements remain in effect. Any changes to the specific plans must be reviewed by the ALUC to ensure that increases in intensity of the proposed development would not result from the changes. Further, if the development agreements should expire, the criteria applicable to the property for which these exceptions apply shall revert to the underlying compatibility criteria indicated in this *JLUS*.

► (1) March Business Center Specific Plan (SP-1), March Joint Powers Authority

- › Situated in Compatibility Zones B1, B2, C1, and C2.

- › A 1,032-acre, non-residential business park located at the southwest corner of Alessandro Boulevard and I-215 freeway within the March Joint Powers Authority, approved with specific airport compatibility provisions, subject to March JPA Resolution JPA 08-01 limiting development within the Accident Potential Zones and vested through a development agreement recorded on June 7, 2004.
 - › Agreement expires on December 27, 2016. After that, the agreement provides for two more 5-year automatic extensions. The developer must request the Development Agreement extension and the Authority must make findings that the development is still in substantial conformance.
- ▶ **(2) Harvest Landing Specific Plan, City of Perris**
- › Situated in Compatibility Zone C2.
 - › A 341-acre mixed-use Specific Plan located south of Placentia Avenue and west of Interstate 215 within the City of Perris and authorizing 1,860 residential units and 1,306,582 square feet of business/commercial uses which is scheduled for final Council approval of the Specific Plan and Development Agreement in January 2011.
 - › Agreement will expire 15 years from the approval date plus extensions in 5-year increments subject to City Council approval.
- ▶ **(3) Park West Specific Plan, City of Perris**
- › Situated in Compatibility Zones C1 and C2.
 - › A 534.3-acre residential Specific Plan located south of Nuevo Rd and east of the Perris Valley Storm Channel within the City of Perris and authorized for a maximum of 2,027 residential units as identified in the Specific Plan and Development Agreement approved by Council on January 30, 2007.
 - › Agreement for Phase I expires 10 years from the approval date. Phases II and III extend the agreement to 2027 or 10 years after the developer submits an application for approval of a tentative tract map for any portion of these phases.
- ▶ **(4) Day/Alessandro Affordable Housing Site, City of Moreno Valley**
- › Situated in Compatibility Zone C1.
 - › A planned 8.43-acre multifamily site located at the northeast corner of Day Street and Alessandro Boulevard within the City of Moreno Valley approved as a maximum 225 unit multifamily development through an existing Disposition and Development Agreement approved on May 26, 2009.
 - › The city owns the site, thus an expiration date is not applicable.

Conclusion

Together, the *Compatibility Map* (Exhibit 3–3), *Basic Compatibility Criteria* (Exhibit 3–4), *Compatibility Determinations for Specific Land Uses* (Exhibit 3–5), *Airspace Map* (Exhibit 2–15) and the *2005 AICUZ Study Noise Contours* (Exhibit 2–9) address the compatibility concerns associated with operations at March ARB/IPA. The *Compatibility Map* depicts the extent of the airport influence area in which certain land use restrictions are necessary to protect the health, safety, and welfare of individuals that live and work within the vicinity of March ARB/IPA. The *Basic Compatibility Criteria* table and the list of *Specific Land Uses* will serve to set basic compatibility parameters by which the affected jurisdictions will use to make assessments of land use classifications or individual development proposals. These exhibits make up

the airport land use compatibility tools recommended for adoption by the March JPA and affected jurisdictions. For the Riverside County ALUC, this information is provided in Appendix A in a format consistent with the ALUC's *Airport Land Use Compatibility Plan*. Chapter 4 reviews the land use plans of the affected jurisdictions to determine the extent to which they are consistent or conflict with the land use compatibility criteria contained in this *JLUS*. A comparison between the proposed criteria and those currently in use by the ALUC is included as well.

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LEGEND

Compatibility Zones

- Airport Influence Area Boundary
- Zone A
- Zone B1
- Zone B2
- Zone C1
- Zone C2
- Zone D
- Zone E
- Zone M

Noise and Overflight Compatibility Factors

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

2005 AICUZ
Future Mission

Safety and Airspace Compatibility Factors

- Accident Potential Zones
- FAR Part 77 Surface Limits
- Military Outer Horizontal Surface
- Civilian Conical Surface
- Terrain Penetration of FAR Part 77 Surfaces
- Military
- Civilian

Boundary Lines

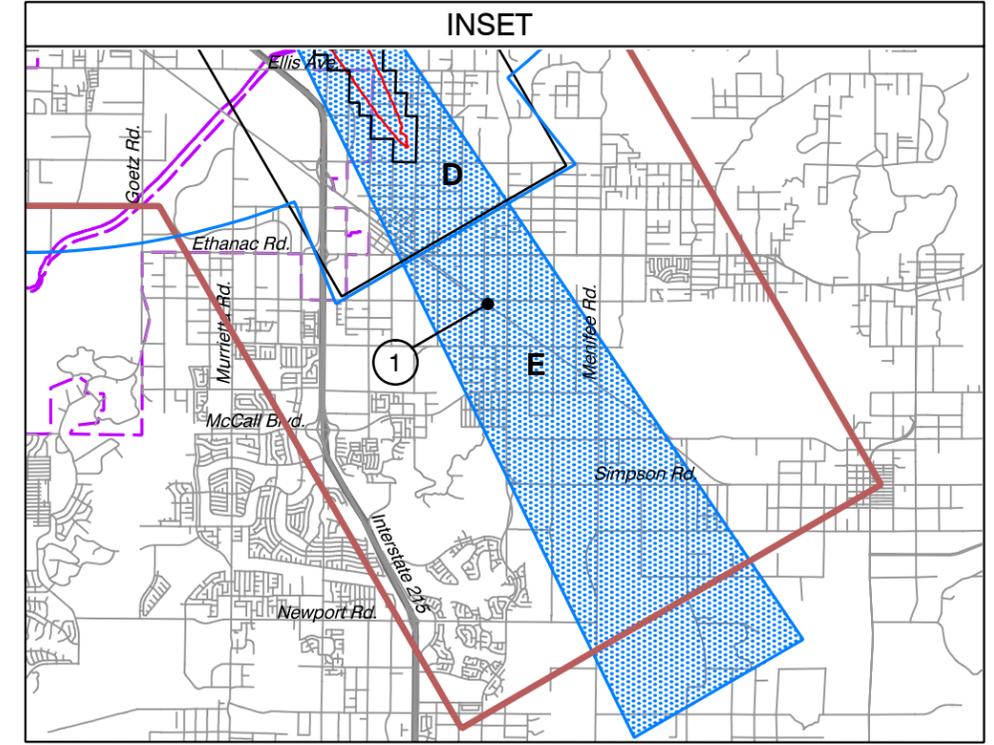
- March Air Reserve Base / Inland Port Airport
- March Joint Powers Authority Property Line
- City Limits

Other Factors

- General Approach/Departure Traffic Pattern Envelope (approximately 80% of aircraft overflights estimated to occur within these limits)
- Closed Circuit Traffic Pattern Envelope (approximately 80% of large aircraft overflights estimated to occur within these limits)

Notes:

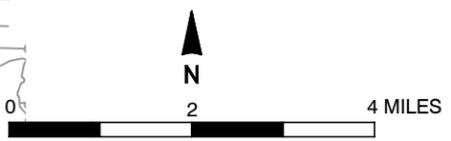
- Point at which aircraft on Runway 32 ILS approach descend below 3,000 feet above runway end. Airport Elevation is 1,535 feet MSL.
- Point at which departing aircraft typically reach 3,000 feet above runway end.



**March Air Reserve Base / Inland Port Airport
Joint Land Use Study
(December 2010)**

Exhibit 3-1

**Compatibility Factors Map
March Air Reserve Base / Inland Port Airport**



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Prepared by Mead & Hunt, Inc. (December 2010)

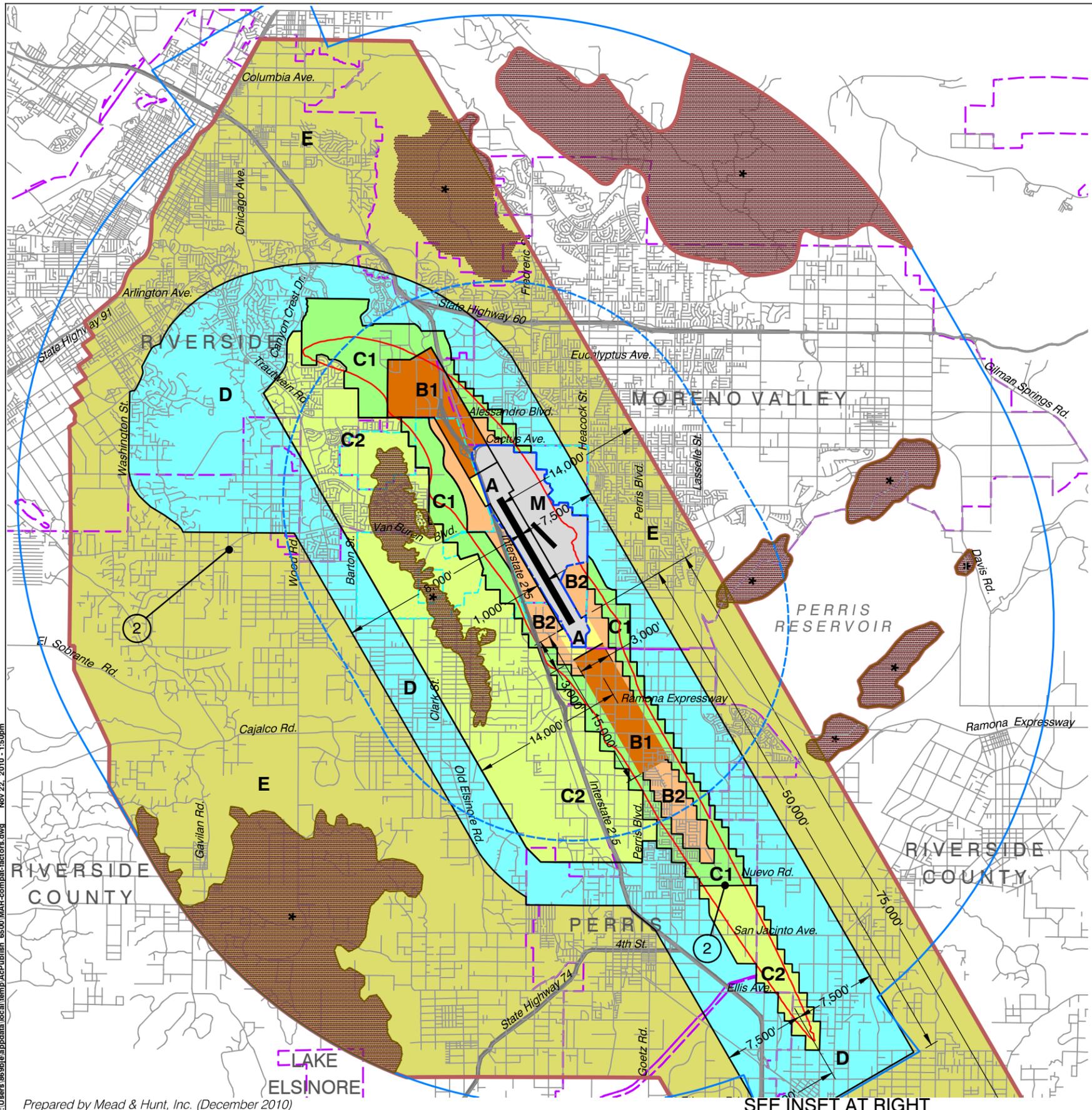
SEE INSET AT RIGHT

Zone	Noise and Overflight Factors	Safety and Airspace Protection Factors
M <i>(Military)</i>	<i>Federal Lands</i> ▶ No ALUC authority	<i>Federal Lands</i> ▶ No ALUC authority
A <i>Clear Zone (if not on base)</i>	<i>Noise Impact: Very High</i> ▶ High CNEL and single-event noise levels	<i>Risk Level: Very High</i> ▶ Dimensions set to include Clear Zone as indicated in Air Installation Compatible Use Zone (AICUZ) study for airport ▶ Generally on air base property or controlled by easements
B1 <i>Inner Approach/Departure Zone</i>	<i>Noise Impact: High</i> ▶ Within or near 65-CNEL contour ▶ Single-event noise sufficient to disrupt many land use activities including indoors if windows open	<i>Risk Level: High</i> ▶ Within Accident Potential Zone I or II ▶ Zone boundary to north reflects turning flight tracks
B2 <i>High Noise Zone</i>	<i>Noise Impact: High</i> ▶ Within or near 65-CNEL contour ▶ Single-event noise sufficient to disrupt many land use activities including indoors if windows open	<i>Risk Level: Moderate</i> ▶ Beneath or adjacent to final approach and initial departure flight corridors or adjacent to runway ▶ Not within Accident Potential Zones
C1 <i>Primary Approach/Departure Zone</i>	<i>Noise Impact: Moderate to High</i> ▶ Within or near 60-CNEL contour ▶ Single-event noise may be disruptive to noise-sensitive land use activities; aircraft <2,000 feet above runway elevation on arrival and generally <3,000 feet above runway elevation on departure	<i>Risk Level: Moderate</i> ▶ Beneath or adjacent to low altitude overflight corridors
C2 <i>Flight Corridor Zone</i>	<i>Noise Impact: Moderate</i> ▶ Within 60 CNEL contour, but more than 5 miles from runway end; or ▶ Outside 60-CNEL contour, but regularly overflowed in mostly daytime flight training ▶ Single-event noise may be disruptive to noise-sensitive land use activities; aircraft <3,000 feet above runway elevation on arrival	<i>Risk Level: Moderate to Low</i> ▶ Distant (beyond 5 miles) portion of instrument arrival corridor; or ▶ Closed-circuit flight training activity corridors
D <i>Flight Corridor Buffer</i>	<i>Noise Impact: Moderate to Low</i> ▶ Mostly within 55-CNEL contour ▶ More concern with respect to individual loud events than with cumulative noise contours	<i>Risk Level: Low</i> ▶ On periphery of flight corridors ▶ Risk concern primarily with uses for which potential consequences are severe (e.g. very-high-intensity activities in a confined area)
E <i>Other Airport Environs</i>	<i>Noise Impact: Low</i> ▶ Beyond 55-CNEL contour ▶ Occasional overflights intrusive to some outdoor activities	<i>Risk Level: Low</i> ▶ Within outer or occasionally used portions of flight corridors
 <i>High Terrain Zone</i>	<i>Noise Impact: Low</i> ▶ Individual noise events slightly louder because high terrain reduces altitude of overflights	<i>Risk Level: Moderate</i> ▶ Moderate risk because high terrain constitutes air-space obstruction ▶ Concern is tall single objects (e.g., antennas)

Exhibit 3-2

Compatibility Zone Factors

March Air Reserve Base / Inland Port Airport



LEGEND

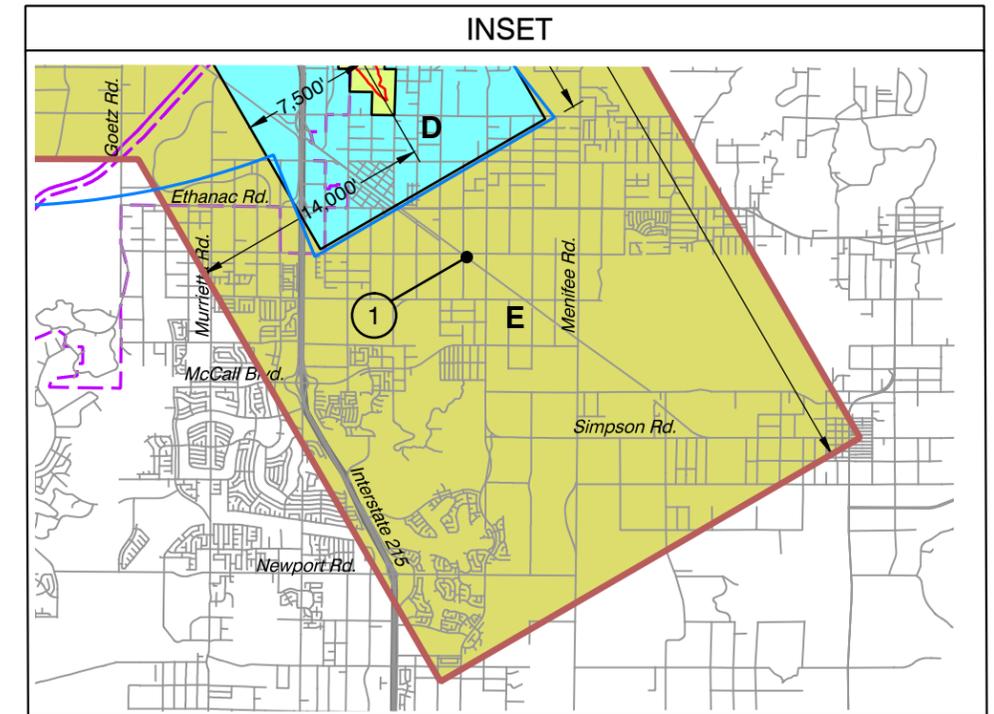
Compatibility Zones

- Airport Influence Area Boundary
- Zone A
- Zone B1
- Zone B2
- Zone C1
- Zone C2
- Zone D
- Zone E
- Zone M
- High Terrain Zone
- FAR Part 77 Military Outer Horizontal Surface Limits
- FAR Part 77 Notification Area

Boundary Lines

- March Air Reserve Base / Inland Port Airport
 - March Joint Powers Authority Property Line
 - City Limits
- ① Point at which aircraft on Runway 32 ILS approach descend below 3,000 feet above runway end. Airport Elevation is 1,535 feet MSL.
- ② Point at which departing aircraft typically reach 3,000 feet above runway end.

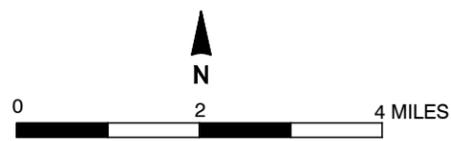
Note:
All dimensions are measured from runway ends and centerlines.



March Air Reserve Base / Inland Port Airport Joint Land Use Study
(December 2010)

Exhibit 3-3

Compatibility Map
March Air Reserve Base / Inland Port Airport



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SEE INSET AT RIGHT

Zone	Locations	Density / Intensity Standards			Req'd Open Land	Additional Criteria		
		Residential (d.u./ac) ¹	Other Uses (people/ac) ²			Prohibited Uses ³	Other Development Conditions ⁴	
		Average ⁵	Single Acre ⁶					
M	Military						› No ALUC authority	
A	Clear Zone ⁷	No new dwellings allowed	0	0	Remain-ing		› All non-aeronautical structures › Assemblages of people › Objects exceeding FAR Part 77 height limits › All storage of hazardous materials › Hazards to flight ⁸	› Electromagnetic radiation notification ⁹ › Avigation easement dedication and disclosure ⁴
B1	Inner Approach/Departure Zone	No new dwellings allowed ¹⁰	25 or 50 ¹¹	100	Max. 50% lot coverage ¹²		› Children's schools, day care centers, libraries › Hospitals, congregate care facilities, hotels/motels, restaurants, places of assembly › Bldgs with >1 aboveground habitable floor in APZ I or > 2 floors in APZ II ¹³ › Manufacture/storage of hazardous materials ¹⁴ › Noise sensitive outdoor nonresidential uses ¹⁵ › Critical community infrastructure facilities ¹⁶ › Hazards to flight ⁸	› Locate structures maximum distance from extended runway centerline › Sound attenuation as necessary to meet interior noise level criteria ¹⁷ › Zoned fire sprinkler systems required › Airspace review req'd for objects >35 ft. tall ¹⁸ › Electromagnetic radiation notification ⁹ › Avigation easement dedication and disclosure ⁴
B2	High Noise Zone	No new dwellings allowed ¹⁰	100	250	No Req't		› Children's schools, day care centers, libraries › Hospitals, congregate care facilities, hotels/motels, places of assembly › Bldgs with >3 aboveground habitable floors › Noise-sensitive outdoor nonresidential uses ¹⁵ › Critical community infrastructure facilities ¹⁶ › Hazards to flight ⁸	› Locate structures maximum distance from runway › Sound attenuation as necessary to meet interior noise level criteria ¹⁷ › Aboveground bulk storage of hazardous materials discouraged ¹⁴ › Airspace review req'd for objects >35 ft. tall ¹⁸ › Electromagnetic radiation notification ⁹ › Avigation easement dedication and disclosure ⁴
C1	Primary Approach/Departure Zone	≤3.0	100	250	No Req't		› Children's schools, day care centers, libraries › Hospitals, congregate care facilities, places of assembly › Noise-sensitive outdoor nonresidential uses ¹⁵ › Hazards to flight ⁸	› Critical community infrastructure facilities discouraged ^{16,19} › Aboveground bulk storage of hazardous materials discouraged ^{14, 19} › Sound attenuation as necessary to meet interior noise level criteria ¹⁷ › Airspace review req'd for objects >70 ft. tall ²⁰ › Electromagnetic radiation notification ⁹ › Deed notice and disclosure ⁴
C2	Flight Corridor Zone	≤ 6.0	200	500	No Req't		› Highly noise-sensitive outdoor nonresidential uses ¹⁵ › Hazards to flight ⁸	› Children's schools discouraged › Airspace review req'd for objects >70 ft. tall ²⁰ › Electromagnetic radiation notification › Deed notice and disclosure ⁴
D	Flight Corridor Buffer	No Limit	No restriction ²¹		No Req't		› Hazards to flight ⁸	› Major spectator-oriented sports stadium, amphitheatres, concert halls discouraged ²¹ › Electromagnetic radiation notification › Deed notice and disclosure ⁴
E	Other Airport Environs	No Limit	No Restriction ²¹		No Req't		› Hazards to flight ⁸	› Disclosure only ⁴
	High Terrain	Same as Underlying Compatibility Zone			Not Applicable		› Hazards to flight ⁸ › Other uses restricted in accordance with criteria for underlying zone	› Airspace review req'd for objects >35 ft. tall ¹⁸ › Avigation easement dedication and disclosure ⁴

Exhibit 3-4

Basic Compatibility Criteria
March Air Reserve Base / Inland Port Airport

NOTES:

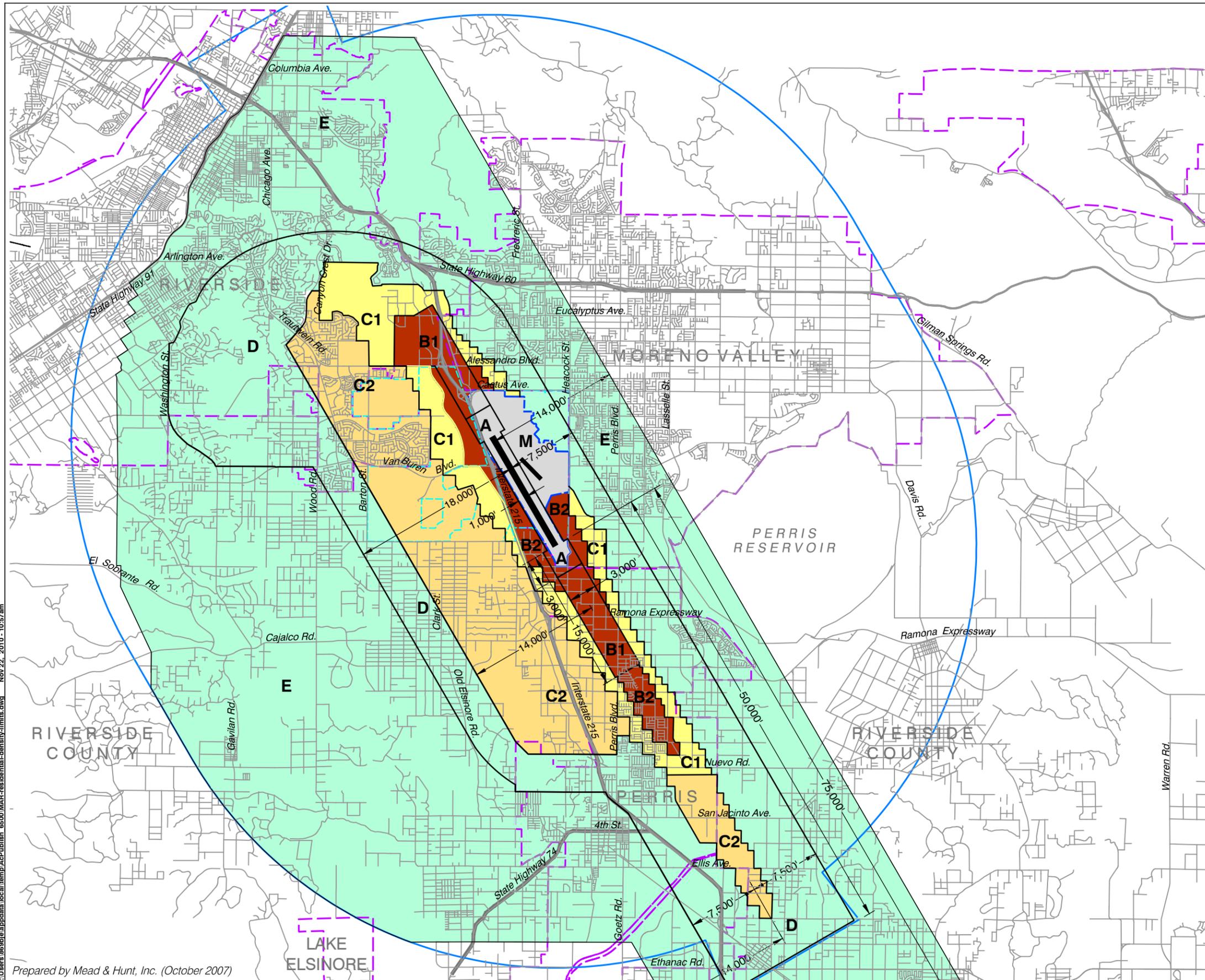
Policies referenced here are from the *Riverside County Airport Land Use Compatibility Plan* (adopted by Riverside County ALUC for other airports beginning October 2004) and are reproduced in Appendix B of this JLUS document. A complete copy of the *Compatibility Plan* is available on the Riverside County Airport Land Use Commission website at www.rcaluc.org.

- ¹ Residential development must not contain more than the indicated number of dwelling units (excluding secondary units) per gross acre. Clustering of units is encouraged provided that the density is limited to no more than 4.0 times the allowable average density for the zone in which the development is proposed. Gross acreage includes the property at issue plus a share of adjacent roads and any adjacent, permanently dedicated, open lands. Mixed-use development in which residential uses are proposed to be located in conjunction with nonresidential uses in the same or adjoining buildings on the same site shall be treated as nonresidential development for the purposes of usage intensity calculations; that is, the occupants of the residential component must be included in calculating the overall number of occupants on the site. A residential component shall not be permitted as part of a mixed use development in zones where residential uses are indicated as incompatible. See ALUC Policy 3.1.3(d). All existing residential development, regardless of densities, is not subject to ALUC authority.
- ² Usage intensity calculations shall include all people (e.g., employees, customers/visitors, etc.) who may be on the property at a single point in time, whether indoors or outside.
- ³ The uses listed here are ones that are explicitly prohibited regardless of whether they meet the intensity criteria. In addition to these explicitly prohibited uses, other uses will normally not be permitted in the respective compatibility zones because they do not meet the usage intensity criteria. See Exhibit 3-7 for a full list of compatibility designations for specific land uses.
- ⁴ As part of certain real estate transactions involving residential property within any compatibility zone (that is, anywhere within an airport influence area), information regarding airport proximity and the existence of aircraft overflights must be disclosed. This requirement is set by state law. See ALUC Policy 4.4.2 for details. Easement dedication and deed notice requirements indicated for specific compatibility zones apply only to new development and to reuse if discretionary approval is required. Avigation easements are to be dedicated to the March JPA; the federal government is precluded from receiving easement dedications. See sample language in JLUS Appendix B.
- ⁵ The total number of people permitted on a project site at any time, except rare special events, must not exceed the indicated usage intensity times the gross acreage of the site. Rare special events are ones (such as an air show at the airport) for which a facility is not designed and normally not used and for which extra safety precautions can be taken as appropriate.
- ⁶ Clustering of nonresidential development is permitted. However, no single acre of a project site shall exceed the indicated number of people per acre. See ALUC Policy 4.2.5 for details.
- ⁷ Clear zone (equivalent to runway protection zone at civilian airports) limits that delineate Zone A are derived from locations indicated in the March Air Reserve Base AICUZ study. Zone A is on Air Base property or otherwise under military control.
- ⁸ Hazards to flight include physical (e.g., tall objects), visual, and electronic forms of interference with the safety of aircraft operations. Land use development that may cause the attraction of birds to increase is also prohibited. Man-made features must be designed to avoid heightened attraction of birds. In Zones A, B1, and B2, flood control facilities should be designed to hold water for no more than 48 hours following a storm and be completely dry between storms (see FAA Advisory Circular 150/5200-33B). Additionally, certain farm crops and farming practices that tend to attract birds are strongly discouraged. These include: certain crops (e.g., rice, barley, oats, wheat – particularly durum – corn, sunflower, clover, berries, cherries, grapes, and apples); farming activities (e.g., tilling and harvesting); confined livestock operations (i.e., feedlots, dairy operations, hog or chicken production facilities, or egg-laying operations); and various farming practices (e.g., livestock feed, water, and manure). Fish production (i.e., catfish, trout) conducted outside of fully enclosed buildings may require mitigation measures (e.g., netting of outdoor ponds, providing covered structures) to prevent bird attraction. Also see ALUC Policy 4.3.7.
- ⁹ March ARB must be notified of any land use having an electromagnetic radiation component to assess whether a potential conflict with Air Base radio communications could result. Sources of electromagnetic radiation include microwave transmission in conjunction with a cellular tower, radio wave transmission in conjunction with remote equipment inclusive of irrigation controllers and other similar EMR emissions.
- ¹⁰ Other than in Zone A, construction of a single-family home, including a second unit as defined by state law, on a legal lot of record is exempted from this restriction where such use is permitted by local land use regulations. Interior noise level standards and avigation easement requirements for the compatibility zone in which the dwelling is to be located are to be applied.
- ¹¹ Non-residential uses are limited to 25 people per gross acre in Accident Potential Zone (APZ) I and 50 people per acre elsewhere in Zone B1.
- ¹² In APZ I, any proposed development having more than 20% lot coverage must not provide on-site services to the public. Zoned fire sprinklers are required. Also, in APZ I, site design of proposed development should to the extent possible avoid placement of buildings within 100 feet of the extended runway centerline; this center strip should be devoted to parking, landscaping, and outdoor storage.
- ¹³ Within APZ II, two-story buildings are allowed.
- ¹⁴ Storage of aviation fuel and other aviation-related flammable materials on the airport is exempted from this criterion. In APZ I, manufacture or bulk storage of hazardous materials (toxic, explosive, corrosive) is prohibited unless storage is underground; small quantities of materials may be stored for use on site. In APZ II, aboveground storage of more than 6,000 gallons of nonaviation flammable materials per tank is prohibited.

Exhibit 3–4, continued

- ¹⁵ Examples of noise-sensitive outdoor nonresidential uses that should be prohibited include major spectator-oriented sports stadiums, amphitheatres, concert halls and drive-in theaters. Caution should be exercised with respect to uses such as poultry farms and nature preserves.
- ¹⁶ Critical community facilities include power plants, electrical substations, and public communications facilities. See ALUC Policy 4.2.3(d).
- ¹⁷ All new residences, schools, libraries, museums, hotels and motels, hospitals and nursing homes, places of worship, and other noise-sensitive uses must have sound attenuation features incorporated into the structures sufficient to reduce interior noise levels from exterior aviation-related sources to no more than CNEL 40 dB. This requirement is intended to reduce the disruptiveness of loud individual aircraft noise events upon uses in this zone and represents a higher standard than the CNEL 45 dB standard set by state, local, and ALUC regulations. Office space must have sound attenuation features sufficient to reduce the exterior aviation-related noise level to no more than CNEL 45 dB. To ensure compliance with these criteria, an acoustical study shall be required to be completed for any development proposed to be situated where the aviation-related noise exposure is more than 20 dB above the interior standard (e.g., within the CNEL 60 dB contour where the interior standard is CNEL 40 dB). Standard building construction is presumed to provide adequate sound attenuation where the difference between the exterior noise exposure and the interior standard is 20 dB or less.
- ¹⁸ Objects up to 35 feet in height are permitted. However, the Federal Aviation Administration may require marking and lighting of certain objects. See ALUC Policy 4.3.6 for details.
- ¹⁹ Discouraged uses should generally not be permitted unless no feasible alternative is available.
- ²⁰ This height criterion is for general guidance. Shorter objects normally will not be airspace obstructions unless situated at a ground elevation well above that of the airport. Taller objects may be acceptable if determined not to be obstructions. See ALUC Policies 4.3.3 and 4.3.4.
- ²¹ Although no explicit upper limit on usage intensity is defined for *Zone D and E*, land uses of the types listed—uses that attract very high concentrations of people in confined areas—are discouraged in locations below or near the principal arrival and departure flight tracks.

Exhibit 3-4, continued

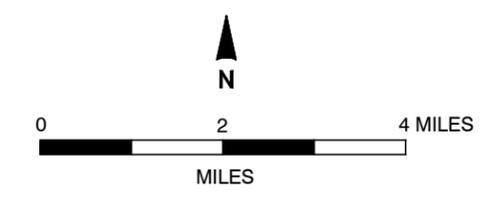


LEGEND

- Boundary Lines**
- Inland Port Airport
 - March Joint Powers Authority Property Line
 - City Limits
 - FAR Part 77 Military Outer Horizontal Surface Limits

Residential Density Limits

- No New Dwellings Allowed
- ≤ 3.0 d.u./acre
- ≤ 6.0 d.u./acre
- No Restrictions

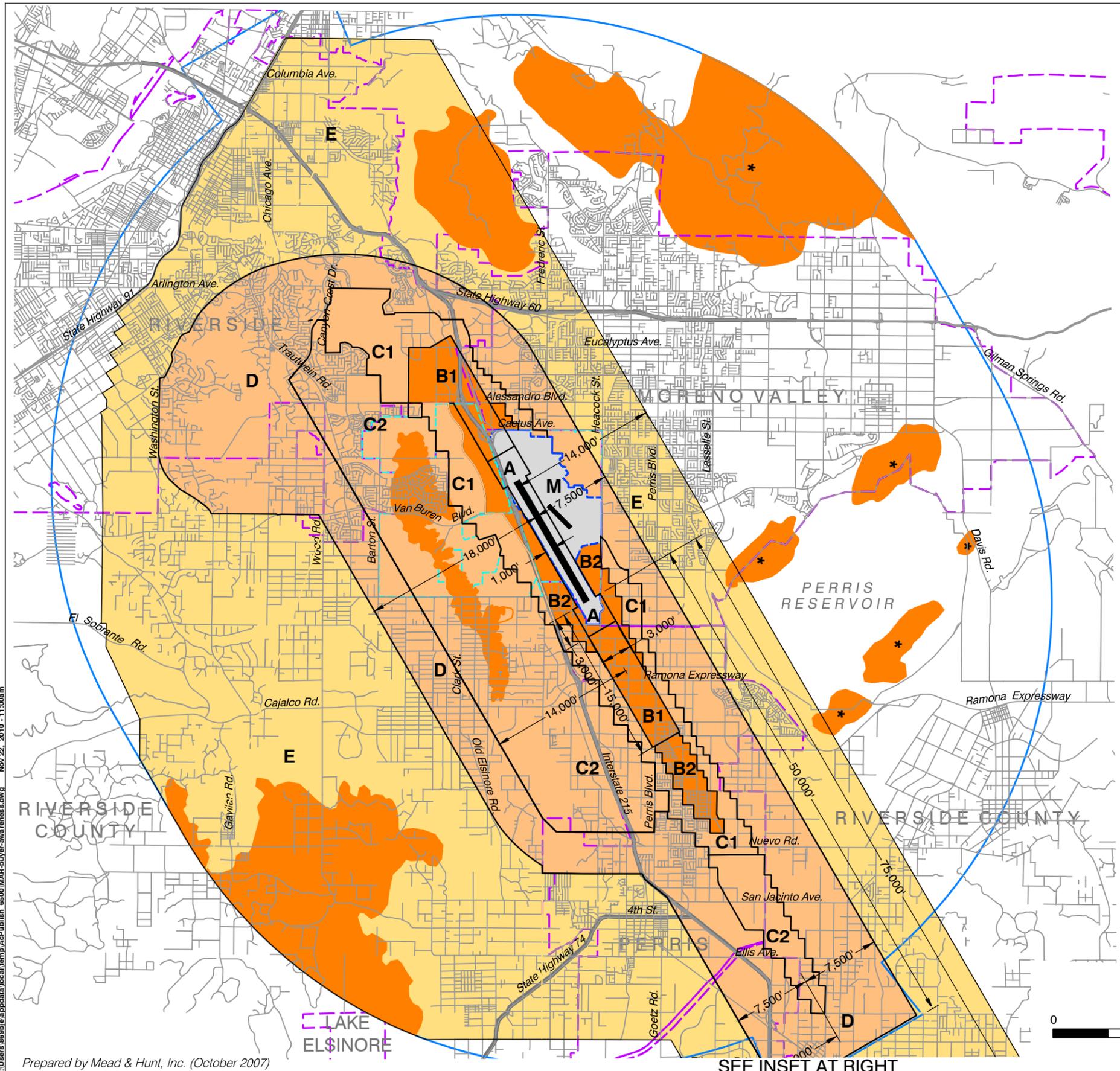


**March Air Reserve Base / Inland Port Airport
Joint Land Use Study**
(December 2010)

Exhibit 3-5

Residential Density Limits
March Air Reserve Base / Inland Port Airport

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Prepared by Mead & Hunt, Inc. (October 2007)

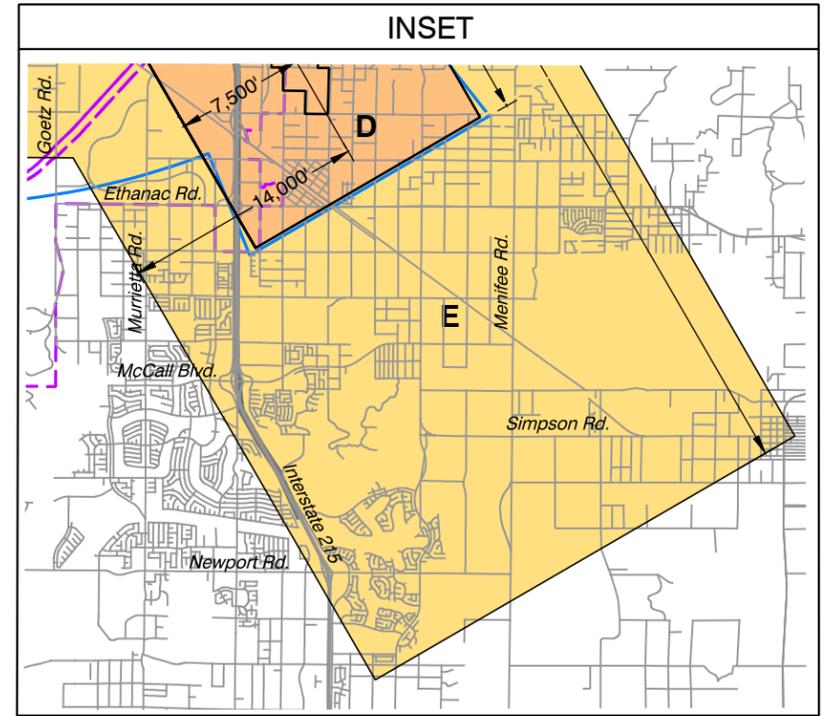


LEGEND

- Boundary Lines**
- — — — Inland Port Airport
 - - - - - March Joint Powers Authority Property Line
 - - - - - City Limits
 - — — — FAR Part 77 Military Outer Horizontal Surface Limits

Buyer Awareness

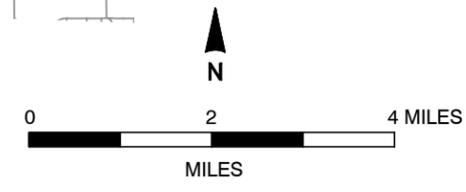
- Avigation Easement & Disclosure
- Deed Notice & Disclosure
- Disclosure Only



**March Air Reserve Base / Inland Port Airport
Joint Land Use Study
(December 2010)**

Exhibit 3-6

**Buyer Awareness
March Air Reserve Base / Inland Port Airport**



SEE INSET AT RIGHT

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Prepared by Mead & Hunt, Inc. (October 2007)

The compatibility determinations listed below for specific types of land uses are based on and consistent with the compatibility criteria listed in Exhibit 3-4. Determinations reflect a combination of noise, safety, and airspace protection concerns. Multiple land use categories and compatibility criteria may apply to a development project. Up to 10% of floor space in a building may be devoted to a use ancillary to the primary use, including an ancillary use that is more intensive than the primary use, provided that the ancillary use is not an assembly room having more than 750 square feet of floor area or a risk-sensitive use (such as a school or day care center) that is incompatible in the zone where the primary use is to be located.

Land Use	Compatibility Zones							Note #
	A	B1	B2	C1	C2	D	E	
Natural Uses								
Wooded Areas	-	0	0	+	+	+	+	1
Open Space, Areas of Low Vegetation (no uses that attract birds)	0	0	0	+	+	+	+	1
Fish and Game Preserves	-	-	-	0	0	+	+	2
Waterways (e.g., rivers, creeks, canals, wetlands, bays, lakes)	-	-	-	0	0	+	+	2
Reservoirs	-	-	-	0	+	+	+	2
Flood Control Areas	0	0	0	0	+	+	+	2
Agricultural Uses (excluding residential dwellings)								
Pasture, Rangeland, and Fallow Lands	+	+	+	+	+	+	+	
Field & Grain Crops, Dry Farm (excluding crops that attract birds)	+	+	+	+	+	+	+	3
Other Crops (crops that attract birds)	-	-	-	-	0	0	+	3
Orchards, Tree Farms	-	0	0	0	0	+	+	1
Vineyard Crops (no buildings)	-	0	0	0	0	0	+	3
Nurseries, Greenhouses, Wineries (no retail uses)	-	0	+	+	+	+	+	1
Feed Lots, Stockyards, Dairies, Barns	-	-	0	0	+	+	+	4
Poultry Farms	-	-	0	0	0	0	+	4
Fish Farms	-	-	0	0	0	0	+	5
Recreational Uses								
Golf Courses (no clubhouse)	-	+	+	+	+	+	+	
Golf Course Clubhouses (capacity <300 people)	-	-	0	+	+	+	+	6,7,8
Parks: low intensity (no group activities)	-	+	+	+	+	+	+	
Playgrounds, Picnic Areas	-	-	+	+	+	+	+	
Tennis Courts, Community Swimming Pools	-	-	-	+	+	+	+	
Athletic Fields (seating capacity <50 people)	-	-	+	+	+	+	+	
Athletic Fields (seating capacity 50-299 people)	-	-	0	0	+	+	+	9
Recreational Athletic Field (seating capacity ≥ 300 people)	-	-	-	-	0	+	+	9
Spectator-Oriented Sports Facilities (for professional, semi-pro, college, or high school sports; seating capacity ≥300 people)	-	-	-	-	-	0	+	9
Riding Stables	-	-	-	+	+	+	+	
Marinas, Water Recreation	-	-	+	+	+	+	+	
Health Clubs, Spas	-	-	-	0	+	+	+	8

Exhibit 3-7

Compatibility Determinations for Specific Land Uses

March Air Reserve Base / Inland Port Airport

Land Use	Compatibility Zones							Note #
	A	B1	B2	C1	C2	D	E	
Recreational Uses, continued								
Specialty Schools (e.g., dance, karate studios)	-	-	-	0	+	+	+	8
Fairgrounds, Race Tracks	-	-	-	-	-	0	+	9
Resorts, Group Camps	-	-	-	-	0	+	+	6,7,8
Shooting Ranges	-	-	-	+	+	+	+	
Residential Uses								
Residential: ≤1.0 du/acre	-	-	-	+	+	+	+	7,10
Residential: >1.0, ≤3.0 d.u. / acre	-	-	-	+	+	+	+	7,10
Residential: >3.0, ≤6.0 d.u. / acre	-	-	-	-	+	+	+	7,10
Residential: >6.0 d.u. / acre	-	-	-	-	-	+	+	7,10
Mobile Home Parks	-	-	-	-	-	+	+	7,10
Educational, and Institutional, and Assembly Uses								
Family Day Care Homes (≤14 children)	-	-	-	0	+	+	+	11
Day Care Centers (> 14 children)	-	-	-	-	0	+	+	6,7,12
Children Schools: K – 12	-	-	-	-	0	+	+	6,7,12
Colleges, Universities: main campus	-	-	-	-	-	0	+	9
Colleges, Universities: satellite campus	-	-	0	0	0	+	+	6,7,8
Congregate Care Facilities (>5 clients)	-	-	-	0	0	+	+	8
Hospitals, In-Patient Health Facilities	-	-	-	-	0	+	+	7,9
Out-Patient Health Facilities (no overnight stays)	-	-	-	0	0	+	+	7,9
Memorial Parks / Cemeteries (no places of assembly)	-	+	+	+	+	+	+	
Indoor Small Assembly (capacity <300 people) (e.g., libraries, conference centers, fraternal organizations, places of worship)	-	-	-	0	0	+	+	6,7,8
Indoor Large Assembly (capacity ≥300 people) (e.g., assembly halls, theaters, auditoriums, places of worship)	-	-	-	-	0	+	+	8
Outdoor Theaters	-	-	-	-	-	0	+	7
Critical Community Infrastructure Facilities	-	-	-	0	+	+	+	13
Commercial, Office, Service, and Lodging Uses								
Small Eating/Drinking Establishment (free-standing building; capacity <50 people)	-	-	0	+	+	+	+	8
Mid-Size, Large Eating/Drinking Establishments (capacity 50-299 people)	-	-	0	0	+	+	+	8
Low-Intensity or Outdoor-Oriented Retail (e.g., furniture, building materials, autos, heavy equipment)	-	0	+	+	+	+	+	8,14
Retail Shopping Centers (mixture of uses; ≤3 floors)	-	-	0	+	+	+	+	8
Wholesale Trade, Mini-Storage	-	0	+	+	+	+	+	8,14
Office Buildings: professional, financial, government (≤3 floors)	-	-	0	0	+	+	+	8
Office Buildings (>3 floors)	-	-	-	0	0	+	+	6,8
Auto, Aircraft, Marine, Misc. Repair Services	-	0	+	+	+	+	+	8,14
Gas Stations	-	-	+	+	+	+	+	

Exhibit 3-7, continued

Land Use	Compatibility Zones							Note #
	A	B1	B2	C1	C2	D	E	
Commercial, Office, Service, and Lodging Uses, continued								
Hotels, Motels (no conference facilities; ≤3 floors)	-	-	0	+	+	+	+	7,8
Hotels (with conference facilities or >3 floors)	-	-	-	0	0	+	+	6,8
Bed & Breakfast Establishments	-	-	0	0	0	+	+	7
Industrial Uses								
Oil Refineries, Chemical Plants (process/store > 10,000 gal. hazardous materials)	-	-	-	-	-	0	+	9,15
Research & Development, Manufacturing (≤10,000 gal. hazardous materials storage)	-	-	0	0	+	+	+	6,8
Light Industries (≤1,000 gal. hazardous materials storage)	-	0	0	+	+	+	+	6,8,14
Warehouses, Distribution Facilities	-	0	+	+	+	+	+	8,14
Industrial Outdoor Storage (≤1,000 gal. hazardous materials storage)	-	+	+	+	+	+	+	
Transportation, Communications, and Utilities								
Airport Terminals, Aircraft Museums	-	-	+	+	+	+	+	
Aircraft Storage	-	+	+	+	+	+	+	
Major Transportation Terminals (rail, bus)	-	0	+	+	+	+	+	8
Small Transportation Hubs (e.g., bus stops)	-	+	+	+	+	+	+	
Automobile Parking Structures	-	0	+	+	+	+	+	8
Automobile Parking Surface Lots	-	+	+	+	+	+	+	
Truck Terminals	-	-	+	+	+	+	+	
Highway and Street Right-of-Ways (without structures)	0	+	+	+	+	+	+	1
Railroad and Public Transit Lines	-	+	+	+	+	+	+	
Primary Power Plants	-	-	-	-	-	+	+	
Peaking Power Plants, Wind Turbines	-	-	-	0	+	+	+	1, 16
Electrical Substations	-	-	-	0	+	+	+	16
Solar Thermal Power Plants	-	-	-	-	-	0	+	17
Solar Photovoltaic Arrays	-	0	+	+	+	+	+	1, 17
Power Lines (>70 feet tall)	-	-	-	-	0	+	+	1
Emergency Communications Call Centers	-	-	-	-	-	+	+	
Emergency Communications Antennas	-	-	-	-	+	+	+	
Cell Phone Towers	-	-	0	0	+	+	+	1
Wastewater Treatment Facilities	-	-	-	-	0	0	0	2
Sanitary Landfills	-	-	-	-	-	0	0	2
Legend								
-	Incompatible							
0	Conditionally compatible: Use is acceptable only if it meets conditions noted and local conditions of approval							
+	Normally compatible							
See Exhibit 3-4 for basic compatibility criteria used in these compatibility determinations								

Exhibit 3-7, continued

Notes Applicable to All Development

The following criteria apply to all proposed development of the general type indicated (residential or nonresidential) regardless of whether the specific use is listed in this table as Normally Compatible or Conditionally Compatible.

- a. Residential development must not contain more than the indicated number of dwelling units (excluding secondary units) per gross acre. Clustering of units is encouraged. See Policy 4.2.5 for limitations. Gross acreage includes the property at issue plus a share of adjacent roads and any adjacent, permanently dedicated, open lands.
- b. As part of certain real estate transactions involving residential property within any compatibility zone (that is, anywhere within an airport influence area), information regarding airport proximity and the existence of aircraft overflights must be disclosed. This requirement is set by state law. See ALUC Policy 4.4.2 for details. Easement dedication and deed notice requirements indicated for specific compatibility zones apply only to new development and to reuse if discretionary approval is required. Avigation easements are to be dedicated to the March JPA; the federal government is precluded from receiving easement dedications. See sample language in JLUS Appendix B.
- c. For nonresidential uses, the total number of people permitted on a project site at any time, except rare special events, must not exceed the usage intensity indicated in Exhibit 3-4 for the Compatibility Zone in which the use is to be located times the gross acreage of the site. Land uses listed as normally compatible are presumed to meet these limits in most circumstances, but unusual examples of a particular use may require further evaluation to ensure compliance with the usage intensity criteria. Rare special events are ones (such as an air show at the airport) for which a facility is not designed and normally not used and for which extra safety precautions can be taken as appropriate. Usage intensity calculations shall include all people (e.g., employees, customers/visitors, etc.) who may be on the property at a single point in time, whether indoors or outside.
- d. Each component of a mixed use development must be normally compatible or satisfy the criteria for conditional compatibility. Mixed-use development in which residential uses are proposed to be located in conjunction with non-residential uses in the same or adjoining buildings on the same site shall be treated as nonresidential development for the purposes of usage intensity calculations; that is, the occupants of the residential component must be included in calculating the overall number of occupants on the site. A residential component shall not be permitted as part of a mixed use development in zones where residential uses are indicated as incompatible. Also see ALUC Policy 3.1.3(d).
- e. Clustering of nonresidential development is permitted. However, no single acre of a project site shall exceed the indicated number of people per acre. See ALUC Policy 4.2.5 for details.
- f. The height of structures, antennas, trees, and other objects associated with any development must not exceed the allowable heights established by the airspace protection surfaces shown in Exhibit 2-15 except that no object shall be restricted to a height of less than 35 feet. Marking and lighting of certain objects may be required in accordance with Federal Aviation Administration standards.
- g. March ARB must be notified of any land use having an electromagnetic radiation component to assess whether a potential conflict with Air Base radio communications could result. Sources of electromagnetic radiation include microwave transmission in conjunction with a cellular tower, radio wave transmission in conjunction with remote equipment inclusive of irrigation controllers and other similar EMR emissions.

Notes Applicable to Conditionally Compatible Uses:

Conditionally compatible uses are acceptable only if they meet the applicable conditions listed below.

- 1 Use is acceptable provided that no penetrations of FAR Part 77 surfaces result.
- 2 Man-made features must be designed to avoid heightened attraction of birds. Uses, including wastewater treatment facilities and sanitary landfills, that attract birds are not permitted within 10,000 feet of the runway. Bird-attracting uses should be avoided as much as 5 miles from the runway if they would tend to cause birds to fly through the runway approach or departure airspace. In Zones A, B1, and B2, flood control facilities should be designed to hold water for no more than 48 hours following a storm and be completely dry between storms. For more detailed guidance, see FAA Advisory Circular 150/5200-33B.

Exhibit 3-7, continued

Notes Applicable to Conditionally Compatible Uses, continued:

- 3 Certain crops (e.g., rice, barley, oats, wheat – particularly durum – corn, sunflower, clover, berries, cherries, grapes, and apples) and farming activities (e.g., tilling and harvesting) attract birds, thus potentially causing bird strike hazards for aircraft in flight. Crops less likely to attract birds are preferable in areas near where aircraft fly at low altitudes (e.g., rye, buckwheat, flax, canola, timothy, alfalfa, and vegetables – except potatoes). If farming practices become a hazard, plowing and cultivating activities should be relegated to hours of darkness or periods when the problem species are less active.
- 4 Confined livestock operations (i.e., feedlots, dairy operations, hog or chicken production facilities, or egg-laying operations) can attract flocking birds, such as starlings, that pose a hazard to aviation. Various practices, including livestock feed, water, and manure may attract birds. Mitigation measures may be necessary to reduce the attractiveness of the site (e.g., use of feed storage buildings, tarps to cover manure piles). Also, loud aircraft noise may agitate some livestock, particularly birds—caution should be exercised with regard to location of these uses.
- 5 Fish production (i.e., catfish, trout) conducted outside of fully enclosed buildings is attractive to many types of birds. Mitigation requirements may be necessary (e.g., netting of outdoor ponds, providing covered structures).
- 6 Assembly facilities, indoor or outdoor, seating 300 or more people are not allowed.
- 7 All new residences, schools, libraries, museums, hotels and motels, hospitals and nursing homes, places of worship, and other noise-sensitive uses must have sound attenuation features incorporated into the structures sufficient to reduce interior noise levels from exterior aviation-related sources to no more than CNEL 40 dB. This requirement is intended to reduce the disruptiveness of loud individual aircraft noise events upon uses in this zone and represents a higher standard than the CNEL 45 dB standard set by state, local, and ALUC regulations. Office space must have sound attenuation features sufficient to reduce the exterior aviation-related noise level to no more than CNEL 45 dB. To ensure compliance with these criteria, an acoustical study shall be required to be completed for any development proposed to be situated where the aviation-related noise exposure is more than 20 dB above the interior standard (e.g., within the CNEL 60 dB contour where the interior standard is CNEL 40 dB). Standard building construction is presumed to provide adequate sound attenuation where the difference between the exterior noise exposure and the interior standard is 20 dB or less.
- 8 Intensity criteria specified in Exhibit 3-4 must be met.
- 9 Use is allowed only if a site outside the zone would not serve the intended function.
- 10 Construction of a dwelling, including a secondary unit where permitted in accordance with state law and local zoning, is allowed on any existing legal lot of record including within zones where residential uses are considered incompatible. See ALUC Policy 3.3.4. Dedication of an avigation easement to the JPA is required for any new residential development in Zones B1, B2, C1, and C2 and the High Terrain Zone. A deed notice is required for any new residential development in Zone D.
- 11 Use is acceptable only in existing residential neighborhoods.
- 12 New schools and day care centers should not be located in Zone C2 unless alternatives outside the zone are not available or would not serve the intended function. Building replacement or expansion of existing facilities is allowed.
- 13 Critical community facilities (e.g., power plants, electrical substations, and public communications facilities) are incompatible in Zones A, B1, and B2 and should not be constructed in Zone C1 unless no other feasible alternative site exists and the facility is designed in a manner that minimizes its susceptibility to damage from an aircraft accident. See ALUC Policy 4.2.3(d).
- 14 Buildings must have no more than one habitable, aboveground floor in APZ I and no more than two floors in APZ II. Maximum lot coverage can be no more than 50% for the APZ I portion of the zone. Uses in APZ I must not provide on-site service to the public. Zoned fire sprinkler systems are required. To the extent possible, site design should avoid placement of APZ I buildings within 100 feet of the extended runway centerline; this strip should be devoted to parking, landscaping, and outdoor storage.
- 15 Storage of aviation fuel and other aviation-related flammable materials on the airport is exempted in all zones. In APZ I, manufacture or bulk storage of hazardous materials (toxic, explosive, corrosive) is prohibited unless storage is underground; small quantities of materials may be stored for use on site. In APZ II, aboveground storage of up to 6,000 gallons of nonaviation flammable materials per tank is also exempted. See ALUC Policy 4.2.3(c) for details.
- 16 Transmission lines must be underground.
- 17 All new facilities must be designed so as not to create physical, visual, or electronic hazards for aircraft in flight.

Exhibit 3-7, continued