SAN DIEGO COUNTY
AIRPORT LAND USE COMMISSION

Rural Airport ALUCPs

Technical Appendices

Draft, February 2022

SAN DIEGO COUNTY REGIONAL AIRPORT AUTHORITY

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PREPARED FOR:

San Diego County Regional Airport Authority

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February 2022
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PREPARED BY:

Ricondo & Associates, Inc.

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Appendix A
LAND USE CLASSIFICATIONS

This matrix is intended as a general guide rather than an exhaustive list of every possible land use. Uses are listed by broad categories in the first column. More specific uses, which are subsets of the broad categories, are listed in the second column. In some cases, examples are provided to help differentiate the defining characteristics of similar land uses, particularly for uses which may not be specifically listed.

This matrix includes uses provided for in the County of San Diego (County) Zoning Ordinance for ease of comparative assessment and implementation. Because of differing attributes related to safety and noise compatibility, uses may be treated differently in the Airport Land Use Compatibility Plans (ALUCPs) than under County zoning. For example, certain agriculture services establishments involving buildings may be treated the same as cultivated croplands under County zoning because they are both agricultural uses. For the ALUCPs, however, enclosed buildings and open fields are land uses with distinct implications for safety compatibility and should be treated differently with respect to applying safety compatibility standards.

LAND USE CATEGORY	SPECIFIC LAND USES	EXAMPLES
Residential Uses		
Single- or Multiple-Unit Dwelling with Individual Unit Kitchen	Single-/Multiple-Family Dwelling Unit (including mobile homes)	
	Bed and Breakfast, Agricultural Homestay (≤ 5 bedrooms)	
Group Quarters (not under care; common kitchen)	Single-Room Occupancy, Boarding/Rooming House	
	Convent/Monastery	
	Halfway/Settlement House, Transitional Living Facility	
	Addiction Treatment, Rehabilitation Facility	
	Dormitory, Fraternity/Sorority House	
	Farm Labor Camp (≥5 employees)	
Nonresidential Uses		
Assembly		
Indoor or Outdoor Noise-Sensitive Spectator Assembly (spectator seating ≥500 people)	Amphitheater, Music Shell	
Other Indoor or Outdoor Spectator Assembly (≥500 people)	Stadium, Racetrack	
	Sports/Rodeo Arena	
Outdoor Noise-Sensitive Assembly (spectator seating <500 people)	Wedding Ceremony/Reception Pavilion, Amphitheater, Bandstand	
Other Outdoor Assembly (spectator seating <500 people)	Community Swimming Pool	
	Multi-Field Sports Complex	Baseball, Softball, Tee Ball, Tennis, Pickleball, Soccer, Kickball

LAND USE CATEGORY	SPECIFIC LAND USES	EXAMPLES
Assembly (continued)		
Low Intensity Outdoor Open Space (no spectator seating)	Golf Course (no clubhouse), Driving Range	
	Tennis Court (≤ 2 courts)	
	Passive Park (no playground equipment or skating ramps), Nature/Wildlife Reserve	
	Arboretum, Botanical Garden, Zoo, Wildlife Sanctuary	
	Riding Course, Track	Horse, Go-Cart, Motorcycle, Off-Road Vehicle
	Cemetery/Graveyard (no chapel)	
	Commercial Vehicle Driving School Course	
High Intensity Outdoor Noise-Sensitive Recreation (no spectator seating)	Drive-In Theatre	
	Campground, Recreational Vehicle Parks	
Other High Intensity Outdoor Recreation (no spectator seating)	Active Park (with playground equipment), Miniature Golf Course, Amusement Park	
	Outdoor Archery, Firearm Shooting Range	
Indoor Noise-Sensitive Assembly (<500 people)	Religious/Ceremonial Assembly	Church, Mosque, Synagogue, Temple
	Lodge, Meeting/Banquet Hall, Clubhouse	Country/Golf/Motorcycle Club, Labor Union/Fraternal/Veteran Organization
	Funeral Parlor, Mortuary Service	
Other Indoor Assembly (<500 people)	Auditorium, Theatre, Concert Hall, Broadcast Studio (with audience)	
	Bowling Alley, Skating Rink, Billiard/Pool Hall, Table Tennis Hall	
	Firearm Shooting Range	
	Conference/Convention Center, Exhibition Hall	
	Athletic Club, Gym, Sport/Fitness Facility, Dance/Yoga Studio, Public Bath House	
	Movie Cinema, Video Arcade	

LAND USE CATEGORY	SPECIFIC LAND USES	EXAMPLES
Office, Commercial, Service and Lodging		
Eating/Drinking Establishments (includes kitchen, food storage, waiting area, indoor/outdoor seating)	Bar, Tavern, Nightclub	
	Restaurant, Coffee/Pastry Shop	
Retail Stores	Convenience Market (pedestrian-oriented or gas station component; no seating for on-premises consumption)	Beverage/Snack Sundries, Dry and Canned Goods, Egg and Dairy Products, Tobacco Products, Toiletries, Non-Prescription Drugs, Newspapers/Magazines, Novelties/Gifts/Souvenirs, Minor Automobile Fluids
	Food/Beverage Sales (takeaway, no seating for on-premises consumption)	Bakery/Donut Shop, Butcher Shop, Candy/Confectionery Shop, Cheese Shop, Delicatessen, Fish/Seafood Market, Fruit/Vegetable Market, Ice Cream/Yogurt Stand, Liquor Shop
	Discount/Department Store	
	Drug/Variety Store, Pharmacy	
	Grocery Store, Supermarket	
	Antique/Pawn Shop, Thrift/Secondhand/Surplus Shop	
	Bait and Tackle, Hay, Feed and Seed, Fertilizer/Pesticide/Herbicide, Pet Food/Supplies Store (no services)	
	Specialty Sales of Finished Consumer Products/Merchandise	Apparel, Footwear, Headwear, Appliances, Artwork, Automotive Parts, Bicycles, Books/Magazines, Cameras, Photographic Equipment, Candles, Cellphones and Equipment, China/Glassware, Clocks, Computer and Software, Cosmetics, Costumes/Uniforms, Curtain/Draperies, Electronics, Fixtures, Flooring, Flowers/Plants, Furniture, Fur, Gifts/Novelties/Souvenirs, Hardware/Tools, Hobby Supplies, Household Goods, Jewelry, Lawn and Garden Supplies, Linens, Luggage and Leather Goods, Music and Instruments, Sports Equipment, Office Equipment, Optical Goods, Stationery, Tobacco Products, Toys
Low Intensity Outdoor Oriented Retail/Wholesale Trade	Vehicle Sales and Rental Dealers	Automobile, Motorcycle, Boat, Recreational Vehicle, Mobile Home, Heavy/Farm Equipment, Tow Trailers
	Nursery/Greenhouse, Turf/Sod Sales	
	Lumber Yard	

LAND USE CATEGORY	SPECIFIC LAND USES	EXAMPLES
Office, Commercial, Service and Lodging (continued)		
Office Buildings	Medical/Dental Office/Clinic (outpatient conscious), Blood Bank, X-Ray Laboratory	Acupuncture, Chiropractic, Diet/Nutrition or Marriage/Family Counseling, Optometry, Physical Therapy, Psychiatry, Psychology, Psychotherapy
	Financial, Insurance, Real Estate Institution	Bank/Credit Union, Insurance/Real Estate Office, Bail Bonds
	Administrative Business and Civic Buildings	Post Office, Government/Welfare Office, Employment Agency, Contractor (no on-premises material storage), Custodial/Housekeeping, Interior Design/Decorating, Political Campaign Office, Travel Agency
	Professional Services	Accounting, Tax Preparation, Attorney, Architect/Engineer/Surveyor, Consulting and Research, Professional Organization
	Broadcasting/Recording Studio (no audience)	Radio, Television, Music
Service Uses	Personal Services	Salon, Spa, Massage Parlor, Barber Shop, Tattoo/Piercing Parlor
	Vehicle Repair and Restoration Services	Automobile, Motorcycle, or Bicycle Detailing/Restoration/Repair
	Pet Services	Kennel, Pet Bathing and Grooming, Veterinary Clinic, Guard or Guide Dog Training
	Business Services	Print/Outdoor Advertising Props/Signage, Blueprints/Drafting, Graphic Design, Reprography, Parcel Shipping/Bulk Mailing Services, Moving Services, Tool and Equipment Rental, Locksmith, Knife / Lawnmower Blade / Saw / Tool Sharpening
	Wholesale Equipment Supply and Repair Services	Barber/Beautician Aids, Office Equipment Service, Medical/Dental/Laboratory, Drafting/Surveying, Janitorial/Hotel/Restaurant Equipment and Supplies
	Self-Service Laundry (personal use, coin-operated), Laundry/Dry Cleaning and Dyeing (drop-off/pick-up site only; work done off-premises)	
	Car Wash (full service with customer waiting area)	
	Consumer Product Repair	Apparel/Footwear, Appliance, Clock, Furniture, Jewelry, Musical Instrument
	Photography Studio	
Car Wash (self-service or stand-alone automatic)		
Fuel Sales	Gasoline Station	
	Propane Fuel Tank Sales/Rental	
Hotels, Motels, Resorts (stays <30 consecutive days)	Hotel/Motel, Resort, Tourist Cabins, Dude Ranch	

LAND USE CATEGORY	SPECIFIC LAND USES	EXAMPLES
Industrial, Manufacturing, and Warehouse Uses		
Processing, Bulk Storage (>10,000 gallons) or Use of Hazardous Materials	Explosives Storage/Manufacture, Radioactive Material Compounding	
	Petroleum Refining	
Manufacturing, Industrial Processing, Research and Development	Mail/Parcel Processing Facility	
	Catering, Wholesale Food Preparation, Bakery, Dairy/Creamery, Confectionery, Cannery, Grain Mill, Icemaking, Winery/Brewery/Distillery, Beverage Bottling	
	Carpet-Commercial Linen Laundry, Dry Cleaning and Dyeing	
	Recyclables/Construction and Demolition Debris/Wood and Green Waste Processing Facility (no food waste), Solid Waste Transfer Station (no food waste or compost; entirely enclosed)	Brush/Yard Waste, Woodchips/Sawdust, Concrete Salvage, Glass/Paper/Plastic Recycling
	Baling/Packaging/Crating Operations	Cardboard, Iron, Scrap Metal, Rubber, Wood Pallets
	Research/Experimental Laboratory, Assaying, Metallurgy	
	Making of Prepared Products	Art/Crafts, Adhesives, Apparel/Silk Screening, Textiles, Cabinets/Furniture/Woodworks, Barrels/Casks, Candles/Soap, Ceramics/Pottery, Concrete, Electronics, Engines/Industrial Equipment, Glass Blowing/Staining, Ironworks, Jewelry/Watches, Medical Devices, Metalworks, Pharmaceuticals, Plaster, Precision Instruments, Scientific Equipment, Sculpture
	Printing/Publishing, Engraving	
	Crematorium	
Industrial Outdoor Storage (except hazardous materials)	Public Works Yard	
	Auto Wrecking, Salvage/Junk Yard (non-operating vehicles)	
	Recyclables Collection Facility; glass, paper, plastics only; drop-off only, no processing(no food waste or compost)	
	Contractor Construction Storage Yard	Carpentry, Concrete, Drywall, Fencing, Fixtures, Flooring, Glazing/Windows, Heating/Air Conditioning, Landscaping and Irrigation, Masonry, Painting, Roofing, Sheet Metal, Swimming Pool, Water Well Drilling
	Boat/Recreational Vehicle Storage	
Storage, Warehouses, Distribution Facilities (no employee workstations inside)	Cold Storage, Freight, Grain Elevators, Silos, Customs Warehouse	
	Self-Storage Rental Unit Facilities	

LAND USE CATEGORY	SPECIFIC LAND USES	EXAMPLES
Educational and Institutional Uses		
Adult Schools	College/University	
	Vocational/Trade School	Driver Training, Cosmetology/Barbering, Dancing, Modeling
Children Schools (kindergarten through 12th grade)	Public, Private/Charter	
Commercial Day Care Centers (≥14 children)	Nursery, Cultural/Religious Heritage School, After-School Day Care, Youth Recreation Center	
Cultural Facilities	Library, Museum, Gallery, Aquarium, Planetarium	
Medical Facilities (patient unconscious)	Hospitals, In-/Out-Patient Surgery Centers, Psychiatric Care Facility	
Congregate Care Facilities (under care, ≥7 people)	Nursing/Convalescent/Hospice Facility	
	Elderly Day or Residential Care Facility, Assisted Living Facility	
	Orphanage, Foster Child Care Facility	
	Mental Institution	
Emergency Service Facilities	Police Station	
	Fire/Emergency Medical Station	
Inmate Facilities	Jails, Prisons, Detention Facilities	
Transportation, Communications, and Utilities		
Passenger Transportation Terminals	Transit Center	
	Rail Station	
	Bus Depot	
Truck Terminals (no passengers)		
Automobile Parking Structures		
Automobile Parking Surface Lots, Fleet Storage, Impound Lot	Bus and Truck Fleets	Beverage, Garbage Collection, Parcel Delivery, Tow Trucks, Charter Bus, Taxicab Fleets
Street/Highway Rights-of-Way, Railroads. Public Transit Lines		
Waste Disposal Facilities	Refuse Disposal Facility, Sanitary Landfill, Dump, Incineration Plant, Composting Operation	
	Animal/Food Waste Processing and Transfer Stations	
Small Renewable Energy Facilities	Small Solar/Photovoltaic Array (<1 MW)	
	Small Wind Turbine (<100 kW)	
Minor Impact Utilities	Gas/Electrical Substation, Transmission/Distribution Line Towers	
	Cell Phone Tower, Radio/Television Transmission Antennas	
	Emergency Communications Facility	911 Emergency Center, Disaster Response Center

LAND USE CATEGORY	SPECIFIC LAND USES	EXAMPLES
Transportation, Communications, and Utilities (continued)		
Major Impact Utilities	Power Generating Plant	Fossil Fuel, Nuclear, Concentrated Solar Power Plants
	Large Wind Turbine Facility (≥100 kW),	
	Photovoltaic Solar Power Facility (≥1MW)	
	Battery Energy Storage System associated with a public energy production and distribution system (not including residential battery storage systems)	
	Water/Wastewater Treatment Plant, Pump Station, Municipal/Public Water System Storage Tank/Reservoir	
Resource Production and Extraction		
Agriculture, Horticulture, Floriculture, Forestry	Tree, Field and Row Crops	Fruit, Nuts, Berries, Cotton, Grain, Herbs/Spices, Hay/Alfalfa, Melons, Tobacco, Vegetables, Vines
	Beekeeping, Dairying, Poultry/Livestock Raising, Breeding, Keeping and Shearing: Pasture/Range, Stable/Corral, Stockyards, Coop/Aviary	Cattle, Horses, Goats, Llamas, Pigs, Sheep
	Barn (animal, farm product/implement storage), Greenhouse, Feed Lot	
Aquaculture/Hydroponics (enclosed structures only)	Fish/Shellfish Stock Tanks	
Mining	Sand, Gravel, Clay, Mineral/Ore, Oil/Gas, Groundwater Extraction	
	Quarry, Rock Crushing	
	Asphalt Paving or Concrete Batch Plants	

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Appendix B
IMPLEMENTATION TOOLS AND DOCUMENTS

This appendix provides information helpful to the implementation of the Airport Land Use Compatibility Plans (ALUCP). This information is current as of the publication date of the ALUCPs. Users are advised to check for updated documentation for these tools.

- Local Agency ALUCP Implementation Guide
- Review Procedures
- FAA Form 7460-1, Notice of Proposed Construction or Alteration
- Project Sponsor Hazards to Flight Certification
- Tool for Analyzing Glint and Glare
- Tool for Analyzing Thermal Exhaust Plumes

B.1 Local Agency ALUCP Implementation Guide

This guide is provided to help affected local agencies when modifying their general plans and other local regulations to be consistent with the ALUCPs and to facilitate Airport Land Use Commission (ALUC) review of those local agency plans and regulations.

General Plan — A general plan, and any specific, community, or other land use plan may be more restrictive than the ALUCPs. However, these plans may not be more permissive than the ALUCPs. General plan amendments will be required if there are any conflicts with the ALUCPs (unless those conflicts represent existing conditions).

Land Use Element — General plan land use designations may not be more permissive than ALUCP safety and noise compatibility standards or allow new land uses which are incompatible to be located within safety zones or noise contours. Designations reflecting existing conditions already more permissive than ALUCP safety or noise standards do not render a general plan inconsistent with the ALUCPs. However, new development of vacant property, redevelopment, or a change of use within an existing structure must comply with ALUCP safety and noise standards.

Noise Element — Maximum noise exposure limits for planned/proposed land uses established in a general plan may not be more permissive than the limits established by the ALUCPs. However, a general plan may establish more restrictive limits with respect to aviation-related noise than for noise from other sources, in consideration that aviation-related noise is often judged to be more objectionable than other types of noise.

Zoning Ordinance — If a local agency chooses to implement the ALUCPs through its zoning ordinance, modification of a general plan to achieve consistency with the ALUCPs may not be necessary, but references acknowledging that ALUCP consistency is accomplished by the zoning ordinance may be helpful. Modifications should eliminate any language conflicting with the ALUCPs and revise official land use planning designation maps if necessary.

Intensity Limitations on Nonresidential Uses — While zoning ordinances are typically not based on people per acre intensities for nonresidential land uses, such policies can be established by other performance-oriented criteria that correspond to the ALUCPs. These include limits on building area, floor area ratios, parking spaces, or other design parameters equivalent to the usage intensity criteria.

Prevention of Incompatible Uses — Provision must be made to prohibit land uses that are not compatible within the safety zones or noise contours and are not existing at the time of ALUCP adoption.

Height Limitations and Other Hazards to Flight — To protect airspace, limitations must be set on the height of new structures and other objects equivalent to the maximum heights established by 14 CFR Part 77 and reflected in the ALUCPs. Restrictions must also be established on other land use characteristics that can cause hazards to flight, such as visual or electronic interference with navigation and uses that attract wildlife.

Sound Performance Requirements — The ALUCPs requires reduced sound performance levels of structures for certain noise-sensitive uses within high noise-impact areas in order to reduce aircraft-related noise to an acceptable level indoors. Local regulations must include equivalent criteria.

Avigation Easements — As a condition of approval for new development within certain noise contours or involving airspace penetrations, the ALUCPs require dedication of an avigation easement to the airport operator. Local regulations must address these requirements for new development.

Expansion and Reconstruction — Local agency regulations regarding the expansion and reconstruction of uses must be equivalent to or more restrictive than those in the ALUCPs. Local agency regulations must ensure that existing uses which are incompatible with noise or safety policies of the ALUCPs are subject to the limitations imposed by the ALUCPs.

B.2 Review Procedures

In addition to incorporation of ALUCP compatibility policies and standards, local agency implementing documents must specify the manner in which land use plans, regulations, and projects will be reviewed for consistency with the compatibility standards.

Actions Always Requiring ALUC Review — All local agency legislative actions require ALUC review regardless of whether or not the agency has an ALUCP implementation plan that has been approved by the ALUC and adopted by the local agency's governing body, or if the local agency has overruled the ALUCPs. These legislative actions include the adoption of or amendments to a general plan or any specific, community, or other land use plans. Also included are amendments to a zoning ordinance (such as rezones) or building code which would impact matters regulated by the ALUCPs.

Process for Compatibility Reviews by Local Agencies — Local agencies must establish project processing procedures that will be used to ensure that ALUCP compatibility policies and standards are addressed during project reviews, whether discretionary or ministerial. This can be accomplished by a standard review procedure checklist that includes reference to ALUCP compatibility standards and use of a GIS-based program to identify all parcels within the airport influence area.

Variances and Deviations — Local agency procedures for granting variances and deviations to a zoning ordinance must include provisions to ensure that they do not result in a conflict with ALUCP compatibility standards. Any variance or deviation that involves issues of noise, safety, or airspace protection compatibility, as addressed in the ALUCPs, may need to be referred to the ALUC for review.

Condition Satisfaction and Enforcement — Policies must be established to ensure compliance with ALUCP compatibility standards during both the permitting process and the lifetime of the development. Enforcement procedures are especially necessary with regard to adhering to limitations on safety zone densities and intensities.

B.3 FAA Form 7460-1, Notice of Proposed Construction or Alteration

Sponsors of proposed projects meeting certain criteria described in 14 CFR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace* (Section 77.9), are required to notify the Federal Aviation Administration (FAA) of the proposed construction, including proposed alterations to existing structures. Project sponsors can use the FAA's on-line notice criteria tool to determine if FAA review is required.[1]

Sponsors of projects requiring FAA review must file FAA Form 7460-1, Notice of Proposed Construction or Alteration, with the FAA. Project sponsors are advised to thoroughly describe the proposed project, including whether it is a permanent or temporary object (such as a construction crane or drilling derrick). Item 21 of the form allows for an explanation of other pertinent details of the proposed project. Among the information requested is a description of proposed construction materials for buildings. Important details include the exterior cladding of the building, especially if the material is highly reflective or otherwise bright in sunlight, creating the potential for glare. Any special exterior lighting, such as large video screens or flashing lights, should also be described.

If FAA review is required, a copy of the FAA notice of determination letter must be included with any ALUC application for determination of consistency.

B.4 Project Sponsor Hazards to Flight Certification

As outlined in Policy A.6 Standards for the Protection of Flight Safety, the project sponsor must certify that certain potentially hazardous project characteristics are avoided or, if present with the project, are mitigated below the threshold of a hazard to flight safety to the written concurrence of the airport operator. The certification statement included in this appendix must be signed by the project sponsor.

B.5 Tool for Analyzing Glint and Glare

Solar technologies have been employed in a variety of settings in California and across the country. The FAA has taken an interest in these developments as they may interfere with the safe operation of aircraft in the immediate environs of airports. Under certain circumstances, glint and glare from mirrors in solar

1 https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm (accessed September 16, 2021.

arrays, photovoltaic cells, and other highly reflective surfaces can interfere with the vision of pilots and air traffic controllers.

In coordination with the U.S. Department of Energy, the FAA supported Sandia Laboratories in the development of a tool for evaluating the potential for solar installations to cause problematic glint and glare along the approach paths to airport runways. The tool, known as the Solar Glare Hazard Analysis Tool (SGHAT) is now available only for internal Sandia use. However, Sandia has made the technology supporting SGHAT (the source code and algorithms) available for licensing.[2]

ForgeSolar, a Sandia licensee, has developed a refined version of SGHAT known as GlareGauge, which is publicly available subject to a licensing agreement and fee.[3] GlareGauge supports the analysis of various sources of glare including buildings with glass facades and billboards, in addition to various solar arrays. The analyses produce assessments of the potential for interference with vision, including visual after-image and permanent eye damage, attributable to glare at different times of the day throughout the year.[4]

Analysis of solar glare from installations proposed on airport property should be conducted in accordance with Interim Policy, FAA Review of Solar Energy System Projects on Federally Obligated Airports, outlined in Federal Register, Volume 78, No. 205.[5] The FAA has published guidance for the construction and evaluation of solar installations on airports.[6] This information is also relevant for the consideration of solar installations off airport property.

B.6 Tool for Analyzing Thermal Exhaust Plumes

As outlined in a FAA memorandum, "Technical Guidance and Assessment Tool for Evaluation of Thermal Exhaust Plume Impact on Airport Operations," dated September 24, 2015, airport operators have requested information regarding the appropriate separation distance between the sources of exhaust plumes and airports.[7] In response, FAA initiated a study to evaluate potential hazards to the operation of aircraft from exhaust plumes. Following the study, a tool, titled Exhaust Plume Analyzer, was made available with a no-fee license from the MITRE Corporation's Technology Transfer Office.

Documentation for the Exhaust Plume Analyzer states that exhaust plumes emanating from smokestacks at power plants or other industrial facilities can have adverse impacts on local aviation during periods of calm winds. Adverse impacts can be exacerbated if the temperature is low or the atmosphere is unstable. The turbulence generated from the upward motion of the plume is the main potential hazard to light,

2 https://share-ng.sandia.gov/glare-tools/ (accessed September 15, 2021).
3 https://www.forgesolar.com/ (accessed September 15, 2021).
4 https://www.forgesolar.com/tools/glaregauge/ (accessed September 15, 2021).
5 https://www.gpo.gov/fdsys/pkg/FR-2013-10-23/pdf/2013-24729.pdf
6 https://www.faa.gov/airports/environmental/policy_guidance/media/FAA-Airport-Solar-Guide-2018.pdf (accessed September 15, 2021).
7 Directors, Office of Airport Planning and Programming, (APP-1) and Office of Airport Safety and Standards (AAS-1), "Technical Guidance and Assessment Tool for Evaluation of Thermal Exhaust Plume Impact on Airport Operations," memorandum to Regional Division Managers, et al., September 24, 2015. Available at https://www.faa.gov/airports/environmental/land_use/media/Technical-Guidance-Assessment-Tool-Thermal-Exhaust-Plume-Impact.pdf (accessed September 14, 2021).

fixed-wing aircraft at low altitudes. In addition, low oxygen concentrations and elevated temperatures inside the plume can be detrimental to slow-flying or hovering helicopters.[8]

FAA recommends that the Exhaust Plume Analyzer be used to inform land use planning decisions; however, no thresholds for determining an impact are defined at this time. For information regarding the Exhaust Plume Analyzer and the licensing process, refer to MITRE Corporation's website at:

https://www.mitre.org/research/technology-transfer/technology-licensing/exhaust-plume-analyzer.

8 https://www.mitre.org/research/technology-transfer/technology-licensing/exhaust-plume-analyzer, accessed September 14, 2021.

PROJECT SPONSOR CERTIFICATION STATEMENT
AVOIDANCE OF HAZARDS TO FLIGHT - To be Filed Per Section B.4

I,_____, certify that I am a duly designated representative of the sponsor of the proposed project described on the attached page. I further certify that the proposed project does not involve any of the characteristics listed below to such a degree as to constitute potential hazards to flight.

- *Sources of Glare/Glint* – Highly reflective materials that may cause visual after-images orflash blindness in pilot or controller vision. (See Policy A.6.1)
- *Lighting* – Lighting systems that mimic airport identification lighting, runway end identification lighting, or runway approach lighting, systems that may be confused with airport lighting systems (searchlights, laser lights, sequenced flashing lights, stroboscopiclights). Additionally, outdoor lighting, such as parking lot lights, which are not shielded or directed downward. (See Policy A.6.2)
- *Sources of Dust, Water Vapor, and Smoke* – Generate columns of dust, steam, water vapor, or smoke dense enough to impair pilot or controller vision and compromise flightsafety. (See Policy A.6.3)
- *Electromagnetic Interference* – Generate electromagnetic interference with pilot and controller communications, aircraft instrumentation, ground-based radar, or navigational aids. (See Policy A.6.4)
- *Sources of Thermal Exhaust Plumes* – Generate thermal exhaust plumes that interfere with the safe control of aircraft. (See Policy A.6.5)
- Wildlife Attractants – Create habitat, water resources, and food resources that attract wildlife that are hazardous to aircraft operations. (See Policy A.6.6)

I further warrant that I will mitigate or correct any hazards to flight, described above, that may arise from or be attributable to the construction and operation of the proposed project to the satisfaction of the operator of _____ Airport.

_____ _____
Project Sponsor (Print Name) Company Name

_____ _____
Project Sponsor (Signature) Date

Appendix C
AIRPORT FACILITIES AND ACTIVITY FORECASTS

California Public Utilities Code Section 21675(a) declares that ALUCPs "shall include and shall be based on a long-range master plan or an airport layout plan [ALP], 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."

Airport master plans were adopted for Borrego Valley Airport in 1996 and for Fallbrook Community Airpark in 2008, each of which include long-range aviation demand forecasts to support analyses of airport facility requirements and plans for facility improvements. Those master plan forecasts were determined to be unsuitable for the ALUCPs due to their age and inconsistency with existing activity. The airport layout plan (ALP) from the Fallbrook Community Airpark master plan remains valid. The ALP for Borrego Valley Airport was updated in 2011 and is used for the ALUCP. No other airports have adopted master plans, although Ramona Airport has an adopted ALP that is used for the ALUCP.

Caltrans "will accept a signed ALP drawing in lieu of an FAA-approved ALP as the basis of an ALUCP update, provided the drawing is prepared consistent with the California Code of Regulations, Title 21, Section 3534." Compliant airport diagrams have been prepared for Agua Caliente Springs Airport, Jacumba Airport, and Ocotillo Airport. Correspondence documenting Caltrans' review and acceptance of the ALPs and airport diagrams used in the ALUCPs is included at the end of this appendix.

C.1 AIRPORT FACILITIES

The exhibits listed below depict the ALPs or airport diagrams used in the ALUCPs.

Exhibit C-1	Agua Caliente Springs Airport
Exhibit C-2	Borrego Valley Airport
Exhibit C-3	Fallbrook Community Airpark
Exhibit C-4	Jacumba Airport
Exhibit C-5	Ocotillo Airport
Exhibit C-6	Ramona Airport

The tables listed below summarize airport facilities.

Table C-1	Agua Caliente Springs Airport
Table C-2	Borrego Valley Airport
Table C-3	Fallbrook Community Airpark
Table C-4	Jacumba Airport
Table C-5	Ocotillo Airport
Table C-6	Ramona Airport

TABLE C-1
Agua Caliente Springs Airport Summary

General Information

Airport Ownership: Airport lies within Anza-Borrego Desert State Park on land leased from the State to the County of San Diego
Property Size: 55 acres
Airport Elevation: 1,220 ft. MSL
Airport Master Plan: None
FAA Airport Classification: Non-NPIAS General Aviation
Air Traffic Control Tower: None; CTAF use required
Operating Hours: Open sunrise to sunset
FAA Class of Airspace: E

Airport Activity

Based Aircraft[1]		Annual Operations		
Single-Engine	0		Existing (2018)[1]	20-Year Forecast[2]
Multi-Engine	0	GA Local	0	0
Turboprop	0	GA Itinerant	4,400	4,600
Jet	0	Military Local	0	0
Helicopter	0	Military Itinerant	55	55
Other	0	Total	4,455	4,655
Total	0			

Airport Design – Runway 11-29

FAA Airport Reference Code: A-I
Critical Aircraft: Single-Engine, Propeller (Aircraft Design Group A-I)
Dimensions: 2,500 ft. x 60 ft.
Pavement Strength: 12,500 lbs. (single wheel)
Average Gradient: 1%
Runway Lighting: None
Primary Taxiways: None
Existing Runway Protection Zones
- **Runway 11**: 1,000 ft., portion off property traversed by County Road S2
- **Runway 29**: 1,000 ft., nearly all on airport property

Traffic Patterns and Approach Procedures

Approach Procedures: No instrument, all VFR
Traffic Patterns: Runway 11 – Left traffic | Runway 29 – Right traffic
- Wind permitting, aircraft typically use Runway 29 for landings and Runway 11 for departures due to 460-foot-high hill
- located ½ mile west of airport

Typical Pattern Altitude: 2,020 ft. MSL (800 ft. AGL)
Visual Approach Aids: Wind indicator and segmented circle
Approach Obstacles
Runway 11
- Flood control channel located 75 feet lateral to runway
- High terrain to the south and west
- Aircraft tiedown apron and berm located within primary surface

Building Area

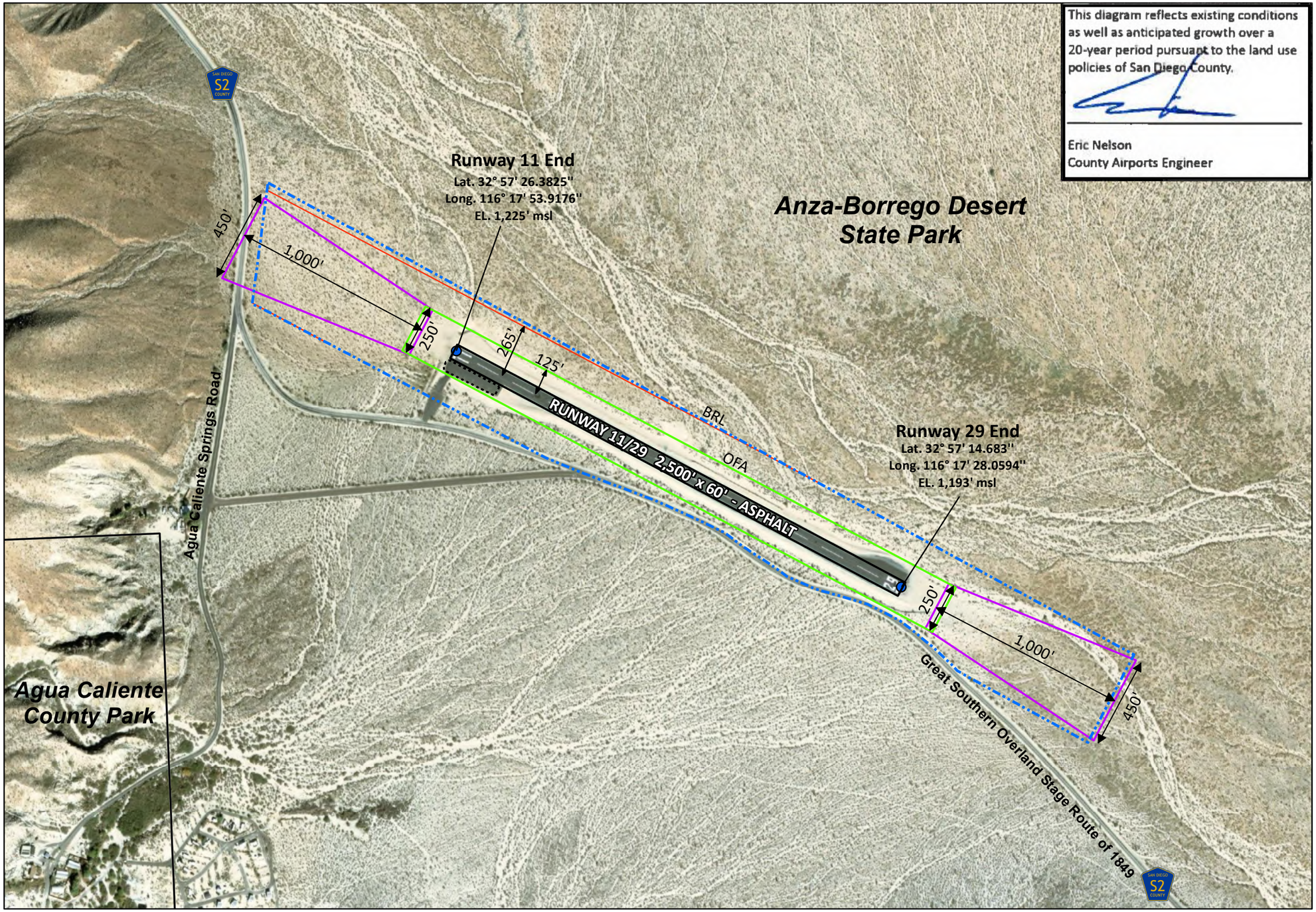
Aircraft Parking Location/Capacity: Tiedown apron south of Runway 11; 6 tiedowns (no hangar spaces)
Other Facilities and Services: None

Planned Facility Improvements

None

Key:
NPIAS – National Plan of Integrated Airport Systems
CTAF – Common Traffic Advisory Frequency
MSL – Mean Sea Level
VFR – Visual Flight Rules
AGL – Above Ground Level
GA – General Aviation

Sources:
[1] FAA Form 5010, *Airport Master Record*
[2] Coffman Associates analysis, 2018



This diagram reflects existing conditions as well as anticipated growth over a 20-year period pursuant to the land use policies of San Diego County.

Eric Nelson
County Airports Engineer

LEGEND

- Runway End Points
- Runway Boundary
- Aircraft Parking
- Building Restriction Line (BRL)[1]
- Object Free Area (OFA)[1]
- Runway Protection Zone (RPZ)[1]
- Airport Property
- Parcels

[1]BRL, OFA, RPZ dimensions established in FAA Advisory Circular 150/5300-13a Airport Design.

Data Source: ESRI Basemap Imagery (2014), San Diego County GIS (SanGIS): Parcels (2016), Major Roads (2015).

Notes:
-Airport is on land leased from the State of California Dept. of Parks and Recreation (Anza-Borrego Desert State Park).

-BRL established to provide 7:1 clearance over a 20' building. BRL does not extend beyond the property line.Refer to section 213 of FAA Advisory Circular 150/5300-13a Airport Design.

N

0 250 500 1,000

1 inch = 500 feet

Agua Caliente Springs Airport

Airport Diagram

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TABLE C-2
Borrego Valley Airport Summary

General Information

Airport Ownership: County of San Diego
Property Size: 346.5 acres
Airport Elevation: 1,220 ft. MSL
Airport Master Plan: Adopted January 23, 1996
FAA Airport Classification: NPIAS General Aviation
Air Traffic Control Tower: None; CTAF use required
Operating Hours: 24/7
FAA Class of Airspace: E

Airport Activity

Based Aircraft[1]		Annual Operations		
			Existing (2018)[2]	**20-Year Forecast[3]**
Single-Engine	10			
Multi-Engine	1	GA Local	1,050	1,100
Turboprop	0	GA Itinerant	17,200	18,600
Jet	0	Military Local	0	0
Helicopter	0	Military Itinerant	4,000	4,000
Other	0	**Total**	**22,250**	**23,700**
Total	**11**	Note: 1996 Master Plan forecasts were determined to be unreliable due to age. Updated forecasts were prepared based on current information.		

Airport Design – Runway 8-26

FAA Airport Reference Code: B-II
Critical Aircraft: Twin-Engine, Business Jet (Aircraft Design Group B-II)
Dimensions: 5,000 ft. x 75 ft.
Pavement Strength: 30,000 lbs. (single wheel); 54,000 lbs. (double wheel); 90,000 lbs. (double tandem)
Average Gradient: 0.1%
Runway Lighting: Medium Intensity Runway edge only
Primary Taxiways: Alpha, no lighting
Existing Runway Protection Zones
- **Runway 08**: 1,000 ft., all on Airport property
- **Runway 26**: 1,700 ft., nearly all on Airport property

Future Runway Protection Zones
- **Runway 08**: 1,700 ft., 700 ft. to be acquired (fee simple) between non-contiguous portions of Airport property
- **Runway 26**: 1,700 ft., easement to be acquired for small portion off Airport property

Traffic Patterns and Approach Procedures

Approach Procedures: Non-precision on both runway ends
Traffic Patterns: Runway 08 – Right traffic | Runway 26 – Left traffic
Typical Pattern Altitude: 1,520 ft. MSL (1,000 ft. AGL)
Visual Approach Aids: Wind indicator and segmented circle, 2-light PAPI on left of Runway 8-26
Approach Obstacles
- **Runway 08**: 140 ft. Tower 1,600 ft. N of runway
- **Runway 26:** None

Operational Notes/Noise Abatement Procedures
- Frequent changes in wind direction
- Noise-sensitive area west of Airport, including elementary school
- Aerobatic activity on north side of airport during daylight hours from surface to 5,000 ft. AGL

Building Area

Aircraft Parking Location/Capacity: South of Runway 8; 30 hangar spaces and 30 tiedowns
Other Facilities and Services: 2 FBOs, administrative building, fuel available

Planned Facility Improvements

- Extend Runway 26 1,000 ft. east for a total length of 6,000 ft.
- Construct T-hangars and expand aircraft parking apron
- Acquire 63.38 acres for Runway 26 RPZ
- Extend parallel taxiway and holding apron to new Runway 26 end

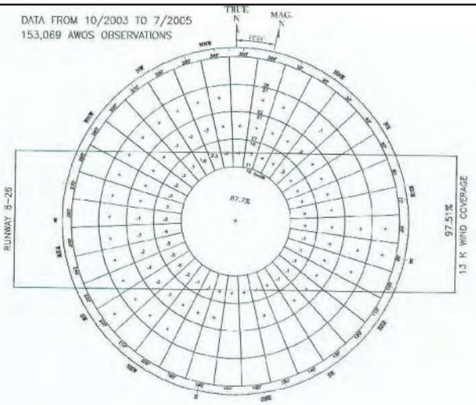
Key:
NPIAS – National Plan of Integrated Airport Systems
CTAF – Common Traffic Advisory Frequency
MSL – Mean Sea Level
AGL – Above Ground Level
FBO – Fixed Based Operator
RPZ – Runway Protection Zone
GA – General Aviation

Sources:
[1] County of San Diego Airports 2018
[2] FAA Form 5010, *Airport Master Record*
[3] Coffman Associates analysis, 2018

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.

NOTES:

1. Existing ALP base prepared by County of San Diego Department of Public Works. Bearings and coordinates are based on the California Coordinate System, Zone 6, NAD 83.
2. All elevations are in feet above mean sea level (MSL) with NAVD 88 datum.
3. South side BRL will permit a building height of only 12.5 feet at the BRL. Future buildings (non-hangars) 25 feet high should be 425 feet from runway centerline and should comply with ultimate FAR Part 77 surfaces.
4. Runway length calculated from State Coordinates.
5. Existing Runway Protection Zones owned in fee.
6. Base Map, coordinates, elevations and clear slopes furnished by County of San Diego (August 2006).
7. Survey Monuments – Not Applicable.
8. The east RPZ exceeds FAA minimum standards by County preference to enhance approach protection.



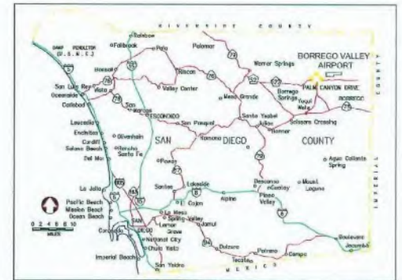
ABBREVIATIONS:

ARP	Airport Reference Point
AWOS	Automated Weather Observation System
BRL	Building Restriction Line
FBO	Fixed Base Operator
GPS	Global Positioning System
MIRL	Medium Intensity Runway Edge Lights
PAPI	Precision Approach Path Indicator
REIL	Runway End Identifier Lights
ROFA	Runway Object Free Area
RPZ	Runway Protection Zone
RSA	Runway Safety Area
R/W	Runway
T/W	Taxiway
ULT	Ultimate

GRAPHIC SCALE

300 0 300 600 900

SCALE (1 Inch = 300 Feet)



LOCATION MAP

FAA APPROVAL STAMP

Approved conditionally FEB 16 2011

Subject to comments contained in our letter dated FEB 16 2011

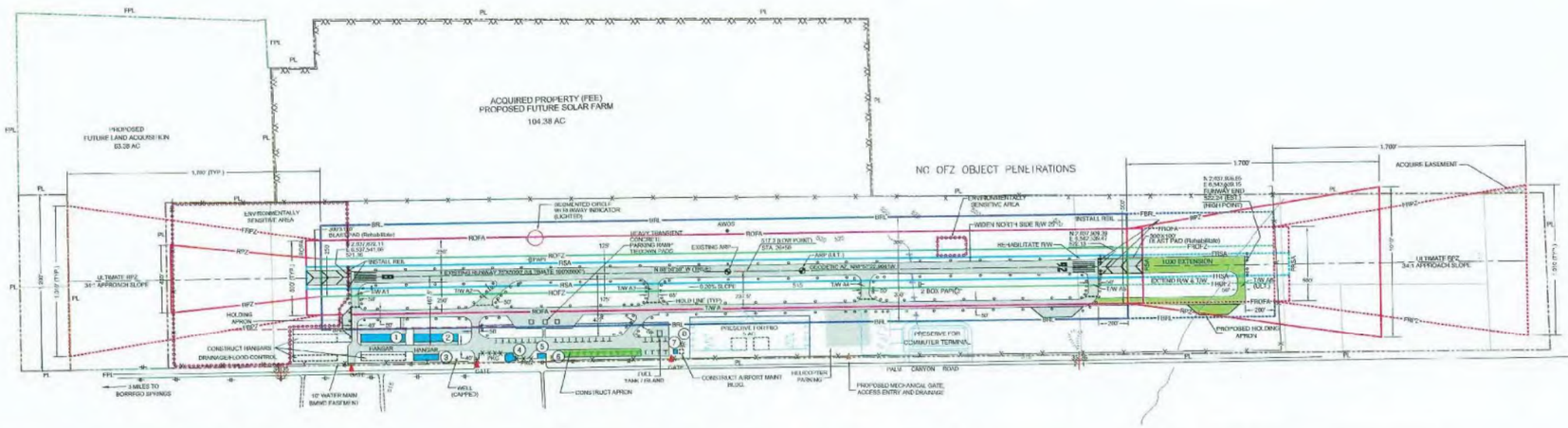
Revalidated

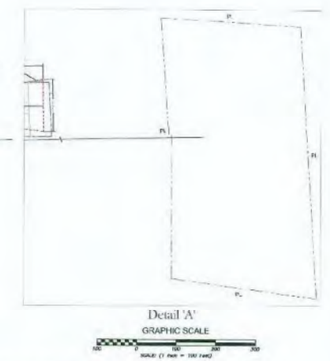
FEDERAL AVIATION ADMINISTRATION

Western-Pacific Region

By

Manager - LAX/AD3





RUNWAY DATA

	RUNWAY 8-26 EXISTING	RUNWAY 8-26 FUTURE				RUNWAY 8-26 EXISTING	RUNWAY 8-26 FUTURE
AIRPORT REFERENCE CODE	B-II	No Change	APPROACH TYPE	Approach End	8	Visual	Non-Precision
CRITICAL AIRCRAFT	Citation V	No Change	(FAR Part 77 Category)	of Runway	26	Non-Precision	No Change
WING SPAN	52.2ft	No Change	APPROACH VISIBILITY	Approach End	8	Visual	1 Mile
APPROACH SPEED	<121 Knots	No Change	(Minimums)	of Runway	26	1 Mile	No Change
MAXIMUM TAKEOFF WEIGHT	15,900 lbs.	No Change	APPROACH SLOPE	Approach End	8	20:1/86:1	34:1/86:1
WIND COVERAGE	97.51%	No Change	(Required/Clear)	of Runway	26	34:1/100+:1	34:1/100+:1
PHYSICAL LENGTH AND WIDTH	5,000'x75'	6,000'x100'	APPROACH AND	Approach End	8	None	GPS
MAXIMUM ELEVATION (Above Mean Sea Level)	521.24	522.24	LANDING AIDS	of Runway	26	GPS	No Change
EFFECTIVE / MAXIMUM GRADIENT (in %)	0.12 / 0.20	No Change	RUNWAY END	Approach End	Latitude	33° 15' 32" N	No Change
RUNWAY/TAXIWAY SURFACE TYPE	Asphalt	No Change	COORDINATES	of Runway 8	Longitude	116° 18' 45" W	No Change
PAVEMENT STRENGTH (1,000#) - S/D/DT	30 / 54 / 90	No Change	(NAD83)	Approach End	Latitude	33° 15' 33" N	No Change
RUNWAY SAFETY AREA (Width)	150'	No Change		of Runway 26	Longitude	116° 18' 46" W	No Change
OBJECT FREE AREA (Width)	500'	No Change	RUNWAY END	Approach End	8	521.36	No Change
OBSTACLE FREE ZONE (Width)	250'	No Change	ELEVATIONS (NAVD88)	of Runway	26	522.13	522.24 (E)
RUNWAY SAFETY AREA (Length Beyond Runway End)	Approach End 8 / of Runway 26	300' / 300'	RUNWAY MARKING			Non-Prec/Non Prec	No Change
OBJECT FREE AREA (Length Beyond Runway End)	Approach End 8 / of Runway 26	300' / 300'	RUNWAY LIGHTING			MIRL, PAPI	+REIL
OBSTACLE FREE ZONE (Length Beyond Runway End)	Approach End 8 / of Runway 26	200' / 200'	TAXIWAY LIGHTING			Yes	No Change
			HOLD BARS & SIGNS			200'	No Change
			(Distance from Rwy Centerline)				

DRAWING LEGEND

	EXISTING	FUTURE
ACTIVE AIRFIELD PAVEMENT		
OTHER PAVEMENT IN USE		No Change
PAVEMENT TO BE REMOVED		
AIRPORT PROPERTY LINE	PL	PPL
OTHER PROPERTY LINES		Same
EASEMENT		
INTERNAL BOUNDARY (lease, R.O.W., etc.)		Same
RUNWAY PROTECTION ZONE	RPZ	FRPZ
RUNWAY SAFETY AREA	RSA	FRSA
RUNWAY OBJECT FREE AREA	ROFA	FROFA
RUNWAY OBSTACLE FREE ZONE	ROFZ	FROFZ
BUILDING RESTRICTION LINE	BRL	No Change
BUILDING		
FENCE	-X-X-X-	-XX-XX-XX-
VEHICLE GATE		
WIND CONE		
UTILITY POLE / POWER LINE		No Change
TOPOGRAPHIC CONTOURS	XXX	No Change
WATERWAY / CULVERT		Same
AIRPORT REFERENCE POINT		
THRESHOLD SITING SURFACE OBJECT PENETRATIONS		Same
ENVIRONMENTALLY SENSITIVE AREA		Same
SECTION CORNER		No Change

AIRPORT DATA

		EXISTING	ULTIMATE
AIRPORT ELEVATION		524.24' MSL	NO CHANGE
AIRPORT REFERENCE POINT	LATITUDE	33°15'32"N	33°15'32"N
(ARP) COORDINATES (NAD 83)	LONGITUDE	116°19'15"W	116°19'9"W
MEAN MAX. TEMP. HOTTEST MONTH (JULY)		102.8°F	NO CHANGE
AIRPORT AND TERMINAL NAVAIDS		GPS	NO CHANGE
AIRPORT REFERENCE CODE		B-II	NO CHANGE
AIRPORT WIND COVERAGE % (13 KNOTS)		97.51%	NO CHANGE
AIRPORT NAVAIDS		BEACON	NO CHANGE
VISUAL AIDS		PAPI 8-26	+REIL 8-26

RUNWAY END DATA

RUNWAY		EXISTING	ULTIMATE	EXIST. ELEV.	ULT. ELEV.
8	LATITUDE	33°15'32"N	NO CHANGE	521.36	NO CHANGE
	LONGITUDE	116°19'45"W	NO CHANGE		
26	LATITUDE	33°15'33"N	NO CHANGE	522.13	522.24 (Est.)
	LONGITUDE	116°18'46"W	116°18'34"W		

DEVIATIONS FROM FAA DESIGN STANDARDS

DESIGN STANDARD	STANDARD	EXISTING	DISPOSITION
RUNWAY - TAXIWAY SEPARATION	240' SEPARATION	237.5' SEPARATION	NEGLIGIBLE

EXISTING BUILDINGS / FACILITIES

NO.	DESCRIPTION	AGL.	EST. MSL
1	T-HANGAR	24'	538.24'
2	T-HANGAR	20'	537.24'
3	T-HANGAR	17'	534.24'
4	RESTAURANT	21'	538.24'
5	ADMINISTRATION BUILDING	15'	532.24'
6	GARAGE	12'	529.24'
7	LIGHTING VAULT	12'	529.24'
8	ROTATING BEACON	60'	577.24'

NOTE: ESTIMATES BY SPONSOR (NAVD 88 DATUM)

JUNE 15, 2007

MADELL ENGINEERING CORPORATION

COUNTY OF SAN DIEGO
DEPARTMENT OF PUBLIC WORKS

5555 OVERLAND AVENUE, SAN DIEGO, CA 92123-1295

RECOMMENDED BY: VINI DOLE, AIRPORT MANAGER — DATE 11-4-2010

ERIC NELSON, AIRPORT ENGINEER — DATE 11-9-10

APPROVED BY: PETER DRINKWATER, AIRPORTS DIRECTOR — DATE 11-9-10

	REVISIONS	BY	APPROVED	DATE
4	ADDITION OF "04.38 ACRES LAND PURCHASE	JP		10-25-2010
3	COMPLETION OF RUNWAY AND "TAXIWAY REHAB	WEC		6-15-2007
2	INTERNAL UPDATE – NO FAA APPROVAL RECEIVED	WEC		4-13-2005
1	ALP UPDATE	CSD		4-22-1996

BORREGO VALLEY AIRPORT
BORREGO SPRINGS, CALIFORNIA
AIRPORT LAYOUT PLAN

FILE NO.

SHEET 1 OF 3

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TABLE C-3
Fallbrook Community Airpark Summary

General Information

Airport Ownership: County of San Diego
Property Size: 290 acres
Airport Elevation: 708 ft. MSL
Airport Master Plan: Adopted September 24, 2008
FAA Airport Classification: NPIAS General Aviation
Air Traffic Control Tower: None; CTAF use required
Operating Hours: 24/7
FAA Class of Airspace: E

Airport Activity

Based Aircraft[1]		Annual Operations		
Single-Engine	83		**Existing (2018)[2]**	**20-Year Forecast[3]**
Multi-Engine	4	GA Local	11,756	12,800
Turboprop	0	GA Itinerant	7,838	8,500
Jet	0	Military Local	0	0
Helicopter	1	Military Itinerant	0	0
Other	0	**Total**	**19,594**	**21,300**
Total	**88**	Note: 2008 Master Plan forecasts were determined to be unreliable due to age. Updated forecasts were prepared based on current information.		

Airport Design – Runway 18-36

FAA Airport Reference Code: A-I
Critical Aircraft: Multi-Engine, Propeller (Aircraft Design Group B-II)
Dimensions: 2,160 ft. x 60 ft.
Pavement Strength: 12,000 lbs. (single wheel)
Average Gradient: Runway 18 – 0.5% | Runway 36 – 0.4%
Runway Lighting: Medium Intensity Runway Lighting edge only
Primary Taxiways: Alpha – CTAF activated taxiway lights
Helipad: H1**,** 45 ft. x 45 ft., unlit
Existing Runway Protection Zones

- **Runway 18**: 1,000 ft., nearly all off Airport property, existing residences within RPZ and traversed by Mission Road; area within existing ground protection easement
- **Runway 36**: 1,000 ft., all on Airport property

Future Runway Protection Zones

- **Runway 18**: 1,000 ft., mostly off Airport property, no residences in RPZ, traversed by Mission Road; acquire additional ground protection easement for 0.7-acre
- **Runway 36**: 1,000 ft., all on Airport property

Traffic Patterns and Approach Procedures

Approach Procedures: Instrument, basic markings for Runway 18 only
Traffic Patterns: Runway 18 – Left traffic | Runway 36 – Right traffic
Typical Pattern Altitude: 1,708 ft. MSL (1,000 ft. AGL)
Visual Approach Aids: Wind indicator and segmented circle, PVASI on Runway 18 set for touchdown 500 feet from runway threshold
Approach Obstacles

- **Runway 18**: None
- **Runway 36:** None

Operational Notes/Noise Abatement Procedures

- Major Use Permit allows for a maximum of 300 based aircraft
- Traffic climb straight ahead to 1,200 ft. MSL
- Avoid overflight of military airspace over USMC Camp Pendleton immediately W of Airport
- Runway 18 turn crosswind at abeam water tank (1.1 miles east southeast of runway)
- Runway 18 extend downwind leg to allow 1/3-mile final approach
- Fly downwind to east of high school

Building Area

Aircraft Parking Location/Capacity: West of Runway 18; 131 hangar spaces and 12 tiedowns
Other Facilities and Services: Administration/terminal building, fuel available

Planned Facility Improvements

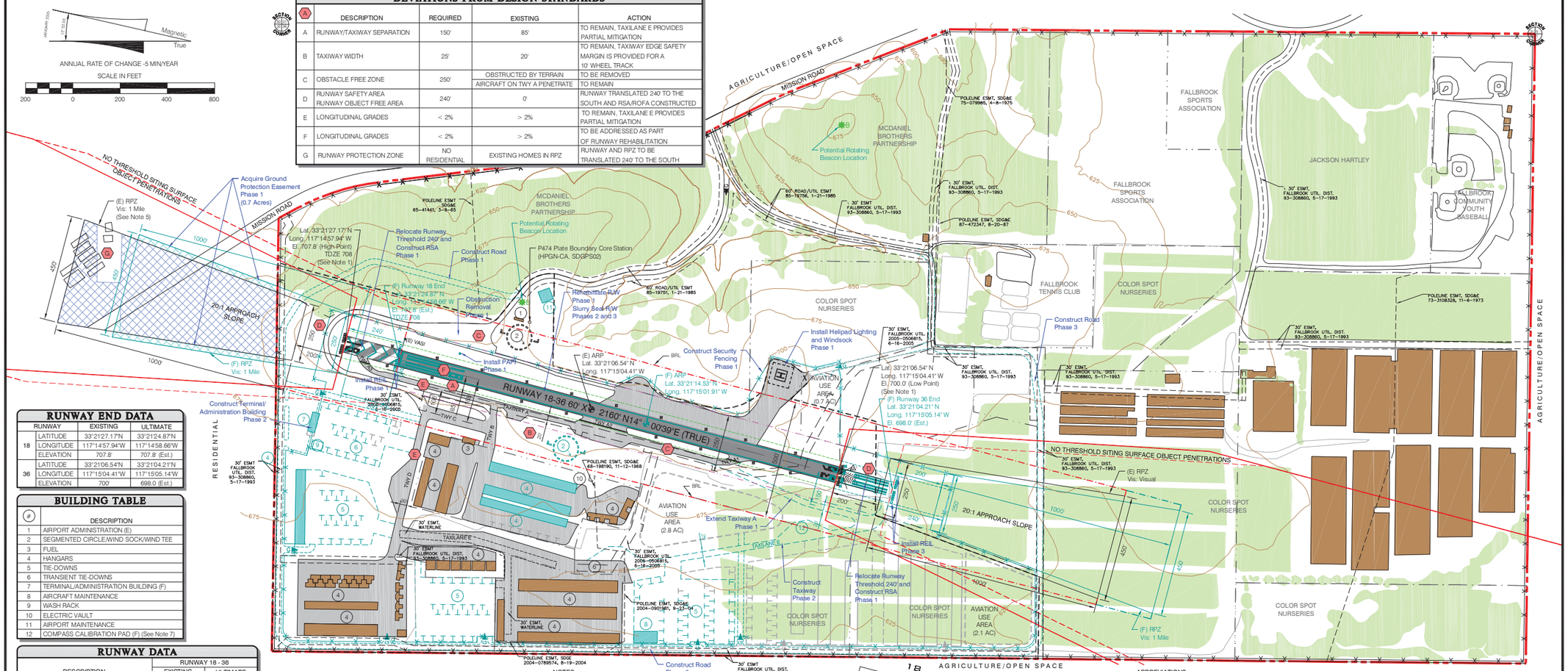
- Provide non-precision approach capability to Runway 36 and upgrade runway markings from basic (visual) to non-precision.
- Shift runway 240 ft. south; remove same amount of existing pavement at north end; construct RSA/OFA at south end of runway.
- Expand aircraft parking apron and hangar area and construct new administration/terminal building

Key:
NPIAS – National Plan of Integrated Airport Systems
CTAF – Common Traffic Advisory Frequency
MSL – Mean Sea Level
AGL – Above Ground Level
PVASI – Pulsating Visual Approach Slope Indicator
RSA – Runway Safety Area
OFA – Object Free Area
GA – General Aviation

Sources:
[1] County of San Diego Airports 2018
[2] FAA Form 5010, *Airport Master Record*
[3] Coffman Associates analysis, 2018

DEVIATIONS FROM DESIGN STANDARDS

	DESCRIPTION	REQUIRED	EXISTING	ACTION
A	RUNWAY/TAXIWAY SEPARATION	150'	85'	TO REMAIN, TAXILANE E PROVIDES PARTIAL MITIGATION
B	TAXIWAY WIDTH	25'	20'	TO REMAIN, TAXIWAY EDGE SAFETY MARGIN IS PROVIDED FOR A 10' WHEEL TRACK
C	OBSTACLE FREE ZONE	250'	OBSTRUCTED BY TERRAIN	TO BE REMOVED
			AIRCRAFT ON TWY A PENETRATE	TO REMAIN
D	RUNWAY SAFETY AREA RUNWAY OBJECT FREE AREA	240'	0'	RUNWAY TRANSLATED 240' TO THE SOUTH AND RSA/ROFA CONSTRUCTED
E	LONGITUDINAL GRADES	< 2%	> 2%	TO REMAIN, TAXILANE E PROVIDES PARTIAL MITIGATION
F	LONGITUDINAL GRADES	< 2%	> 2%	TO BE ADDRESSED AS PART OF RUNWAY REHABILITATION
G	RUNWAY PROTECTION ZONE	NO RESIDENTIAL	EXISTING HOMES IN RPZ	RUNWAY AND RPZ TO BE TRANSLATED 240' TO THE SOUTH



RUNWAY END DATA

RUNWAY		EXISTING	ULTIMATE
18	LATITUDE	33°2127.17'N	33°2124.87'N
	LONGITUDE	117°14'57.94'W	117°14'58.66'W
	ELEVATION	707.8'	707.8' (Est.)
36	LATITUDE	33°2106.54'N	33°2104.21'N
	LONGITUDE	117°15'04.41'W	117°15'05.14'W
	ELEVATION	700'	698.0 (Est.)

BUILDING TABLE

#	DESCRIPTION
1	AIRPORT ADMINISTRATION (E)
2	SEGMENTED CIRCLE/WIND SOCK/WIND TEE
3	FUEL
4	HANGARS
5	TIE-DOWNS
6	TRANSIENT TIE-DOWNS
7	TERMINAL/ADMINISTRATION BUILDING (F)
8	AIRCRAFT MAINTENANCE
9	WASH RACK
10	ELECTRIC VAULT
11	AIRPORT MAINTENANCE
12	COMPASS CALIBRATION PAD (F) (See Note 7)

RUNWAY DATA

DESCRIPTION			RUNWAY 18 - 36 EXISTING	RUNWAY 18 - 36 ULTIMATE
EFFECTIVE GRADIENT (IN %)			.36	.45 (Est.)
MAXIMUM GRADIENT (IN %)			2.12 (Est.)	.77 (Est.)
WIND COVERAGE % (10.5 KNOTS)			98.96	SAME
APPROACH VISIBILITY MINIMUMS			1 MI (18)/V (36)	1 MILE
DESIGN AIRCRAFT	MAKE AND MODEL		SINGLE ENGINE	SAME
	WINGSPAN (Feet)		<49	SAME
	APPROACH SPEED (Kts.)		<91	SAME
	MAX. TAKEOFF WEIGHT (LBS)		<8,000	SAME
RUNWAY MARKING			VISUAL	NON-PREC
APPROACH CATEGORY (FAR PART 77)			NON-PREC(18) VISUAL(36)	NON-PREC
RUNWAY ELEVATIONS	TOUCHDOWN ZONE (TDZ)		708'	708' (Est.)
	HIGH POINT		707.8	707.8' (Est.)
	LOW POINT		700'	698.0' (Est.)
LINE OF SIGHT REQUIREMENT MET			YES	SAME
RUNWAY LENGTH			2,160'	SAME
RUNWAY WIDTH			60'	SAME
RUNWAY/TAXIWAY PAVEMENT MATERIAL			ASPHALT	SAME
APPROACH SLOPE			20:1	SAME
PAVEMENT STRENGTH (S/D) (000 LBS)			5.9/8.4	SAME
RUNWAY LIGHTING			MIRL	SAME
NAVIGATIONAL AIDS			BEACON	SAME
VISUAL AIDS			VASI (18)	SAME
RUNWAY SAFETY AREA		LENGTH[1]	240'	SAME
		WIDTH	120'	SAME
RUNWAY OBJECT FREE AREA		LENGTH[1]	240'	SAME
		WIDTH	250'	SAME
OBSTACLE FREE ZONE		LENGTH[1]	200'	SAME
		WIDTH	250'	SAME
RUNWAY CENTERLINE TO HOLDLINE			57'	SAME

[1] LENGTH BEYOND STOP END OF THE RUNWAY

AIRPORT DATA

DESCRIPTION		EXISTING	ULTIMATE
AIRPORT ELEVATION (MSL)		708'	SAME
AIRPORT REFERENCE POINT (ARP) COORDINATES	LATITUDE	33°2106.54'N	33°2114.53'N
	LONGITUDE	117°15'04.41'W	117°15'01.91'W
NAVAIDS (ILS, BEACON, ALS)		BEACON	SAME
MEAN MAX. TEMP. OF HOTTEST MONTH		83.7° AUGUST	SAME
AIRPORT REFERENCE CODE		A-I (SMALL)	SAME
GPS AT AIRPORT		YES	SAME

LEGEND

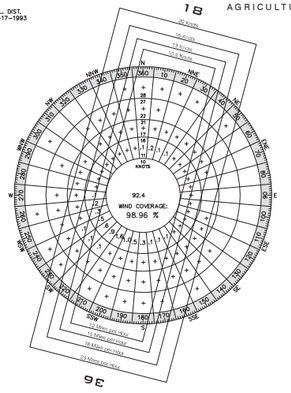
DESCRIPTION	EXISTING	ULTIMATE
SECTION CORNER		SAME
AIRPORT BOUNDARY		SAME
AIRFIELD PAVEMENT		
BUILDING RESTRICTION LINE (BRL)		
RUNWAY OBJECT FREE AREA (ROFA) / OBSTACLE FREE ZONE (OFZ)		
RUNWAY SAFETY AREA (RSA)		
BUILDINGS (See Note 6)		
FENCE	X X	X X
GROUND CONTOURS	995'	SAME
AIRPORT REFERENCE POINT (ARP)		
RUNWAY PROTECTION ZONE EASEMENT		
THRESHOLD SITING SURFACE		
RUNWAY LIGHTS		
SURVEY MONUMENT	△[1]	△[1]
AVIATION USE BOUNDARY LINE		
AGRICULTURAL AREA		SAME

FAA APPROVAL

Approved _____
FEDERAL AVIATION ADMINISTRATION
Western-Pacific Region
By _____
Supervisor, Standards Section

NOTES:

1. Existing runway coordinates are based on information obtained from the San Diego County GIS.
2. All coordinates are in California Coordinate System Zone 6 NAD 83.
3. All elevations are in North American Vertical Datum 1988.
4. Monument 1 is protected by asphalt.
5. Existing residences located within the Runway 18 RPZ will not be within the future RPZ (after the runway is translated 240 feet to the south).
6. Ultimate facilities needed to accommodate the maximum number of based aircraft specified in the Major Use Permit are depicted in gray.
7. Final location of the Compass Calibration Pad should be located at least 300 feet from power and communication cables and other aircraft, and at least 600 feet from large magnetic objects, such as buildings. A thorough magnetic survey of the proposed site should be performed prior to construction. For more information refer to AC 150/5300-13, Appendix 4.



ALL WEATHER WIND ROSE

CROSSWIND COVERAGE

RUNWAY	10.5	13	16	20
18	75.95%	76.49%	76.77%	76.83%
36	55.58%	55.64%	55.68%	55.70%
18-36	98.96%	99.56%	99.89%	99.97%

Based on 81,456 observations between 1990 through 1999 taken at Camp Pendleton.

ABBREVIATIONS:

ARP	Airport Reference Point
BRL	Building Restriction Line
(E)	Existing
El.	Elevation
Est.	Estimate
(F)	Future
Kts.	Knots
Lat.	Latitude
Long.	Longitude
MSL	Mean Sea Level
MIRL	Medium Intensity Runway Edge Lights
OFZ	Obstacle Free Zone
PAPI	Precision Approach Path Indicator
REIL	Runway End Identifier Lights
ROFA	Runway Object Free Area
RPZ	Runway Protection Zone
RSA	Runway Safety Area
TWY	Taxiway
TDZE	Touch Down Zone Elevation
Vis.	Visibility
VASI	Visual Approach Slope Indicator

RECOMMENDED BY: _____ DATE 1/18/06
WILLIE GESSNER, AIRPORT MANAGER
_____ DATE 1/18/06
EDDY GRISSOM, AIRPORT ENGINEER

APPROVED BY: _____ DATE 1/19/06
PETER DRINKWATER, AIRPORTS DIRECTOR

The preparation of this plan was financed in part through a planning grant from the Federal Aviation Administration as provided under Section 505 of the Airport and Airway Improvement Act of 1982, as amended. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this plan by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws.

NO.	DATE	REVISION	BY	APP.
3	10/2005	AIRPORT MASTER PLAN	DPS	PD
2	1/19/1999	VALIDATE CONDITIONS AND UPDATE TO 1997 CHECKLIST		
1	7/10/1990	VALIDATE AIRPORT CONDITIONS		

AIRPORT LAYOUT PLAN

FALLBROOK COMMUNITY AIRPARK
FALLBROOK, CALIFORNIA

COUNTY OF SAN DIEGO
DEPARTMENT OF PUBLIC WORKS

P&D Aviation
A Division of P&D Consultants, Inc.
999 Town & Country Rd., 4th Floor
Orange, CA 92868

DESIGNED: AWS	CHECKED: DPS	SHEET 2 OF 6
DRAWN: AWS	DATE: December, 2005	

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TABLE C-4
Jacumba Airport Summary

General Information

Airport Ownership: County of San Diego
Property Size: 124 acres
Airport Elevation: 2,844 ft. MSL
Airport Master Plan: None
FAA Airport Classification: Non-NPIAS General Aviation
Air Traffic Control Tower: None; CTAF use required
Operating Hours: Open sunrise to sunset
FAA Class of Airspace: E

Airport Activity

Based Aircraft[1]		Annual Operations		
			Existing (2018)[1]	**20-Year Forecast[2]**
Single-Engine	0			
Multi-Engine	0	GA Local	535	600
Turboprop	0	GA Itinerant	835	900
Jet	0	Military Local	0	0
Helicopter	1	Military Itinerant	0	0
Other	0	**Total**	**1,370**	**1,500**
Total	**1**			

Airport Design – Runway 7-25

Airport Reference Code: A-I
Critical Aircraft: Single-Engine, Propeller (Aircraft Design Group A-I)
Dimensions: 2,562 ft. x 60 ft.
Pavement Strength: 12,500 lbs. (single wheel)
Average Gradient: 1%
Runway Lighting: None
Primary Taxiways: None
Existing Runway Protection Zones

- **Runway 07**: 1,000 ft., portion off Airport property
- **Runway 25**: 1,000 ft., all on Airport property

Traffic Patterns and Approach Procedures

Approach Procedures: No instrument, all VFR
Airplane Traffic Patterns: Runway 07 – Left traffic | Runway 25 – Right traffic
Typical Pattern Altitude: 3,844 ft. MSL (1,000 ft. AGL)
Visual Approach Aids: Wind indicator and segmented circle
Approach Obstacles

- **Runway 07**: None
- **Runway 25**: 480 ft. hill 5,000 ft. from runway, 10:1 slope to clear

Operational Notes/Noise Abatement Procedures

- Avoid overflight without authorization of Mexican border 615 ft. to south of runway
- Rapidly rising terrain in all quadrants
- Avoid overflight of residential community ½-mile to W
- Recommend landing on Runway 7 and departing from Runway 25, wind permitting
- Frequent glider activity on weekends

Building Area

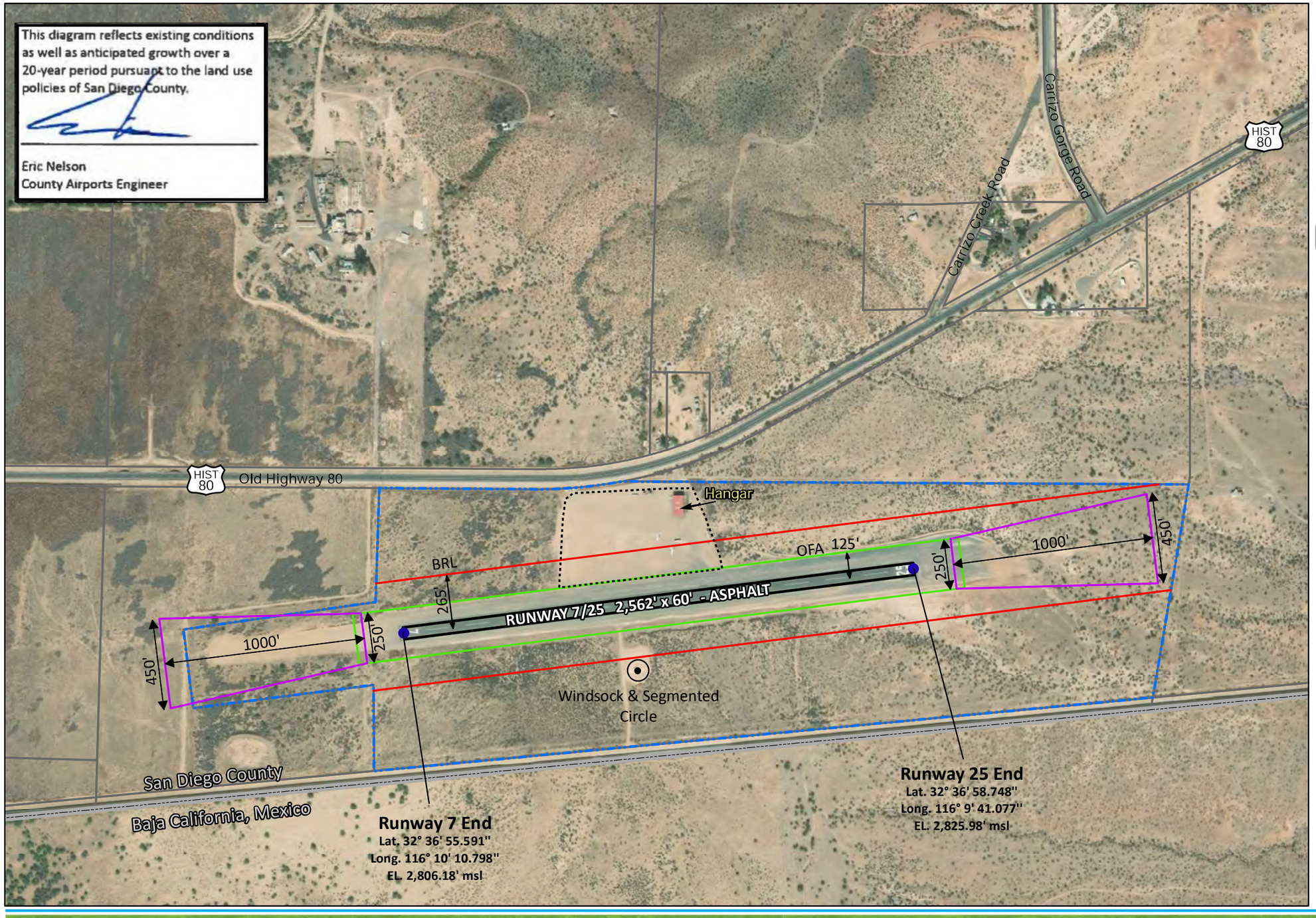
Aircraft Parking Location/Capacity: Gravel tiedown apron located midfield on north side of airfield; three hangar spaces, no tiedowns
Other Facilities and Services: Launch winch for gliders

Planned Facility Improvements

None

Key:
NPIAS – National Plan of Integrated Airport Systems
CTAF – Common Traffic Advisory Frequency
VFR – Visual Flight Rules
AGL – Above Ground Level
MSL – Mean Sea Level
GA – General Aviation

Sources:
[1] FAA Form 5010, *Airport Master Record*
[2] Coffman Associates analysis, 2018



LEGEND

- Runway End Points
- Runway Boundary
- Building Restriction Line (BRL)[1]
- Object Free Area (OFA)[1]
- Runway Protection Zone (RPZ)[1]
- Airport Property
- Parcels
- County/International Boundary
- Aircraft Apron

[1]BRL, OFA, RPZ dimensions established in FAA Advisory Circular 150/5300-13a Airport Design.

Data Source: ESRI Basemap Imagery (2014), San Diego County GIS (SanGIS): Parcels (2016), County Boundary (2015).

Notes:
- Asphalt runway paved in 2016, basic markings.

-BRL established to provide 7:1 clearance over a 20' building. BRL does not extend beyond the property line. Refer to section 213 of FAA Advisory Circular 150/5300-13a Airport Design.

N

0 250 500 1,000

1 inch = 500 feet

Jacumba Airport

Airport Diagram

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TABLE C-5
Ocotillo Airport Summary

General Information

Airport Ownership: County of San Diego
Property Size: 353 acres
Airport Elevation: 160 ft. MSL
Airport Master Plan: None
FAA Airport Classification: Non-NPIAS General Aviation
Air Traffic Control Tower: None; CTAF use required
Operating Hours: Open sunrise to sunset
FAA Class of Airspace: E

Airport Activity

Based Aircraft[1]		Annual Operations		
Single-Engine	0		Existing (2018)[1]	20-Year Forecast[2]
Multi-Engine	0	GA Local	0	0
Turboprop	0	GA Itinerant	600	630
Jet	0	Military Local	0	0
Helicopter	0	Military Itinerant	1,200	1,200
Other	0	**Total**	**1,800**	**1,830**
Total	**0**			

Airport Design – Runway 13-31

FAA Airport Reference Code: A-I
Critical Aircraft: Single-Engine, Propeller (ADG A-I)
Dimensions: 4,210 ft. x 150 ft.
Pavement Strength: N/A (dirt)
Average Gradient: 0%
Runway Lighting: None
Primary Taxiways: None
Existing Runway Protection Zones
- **Runway 13**: 1,000 ft., mostly off Airport property
- **Runway 31**: 1,000 ft., mostly off Airport property, traversed by State Highway 78

Runway 09-27

FAA Airport Reference Code: A-I
Critical Aircraft: Single-Engine, Propeller (ADG A-I)
Dimensions: 2,475 ft. x 150 ft.
Pavement Strength: N/A (dirt)
Average Gradient: 0%
Runway Lighting: None
Primary Taxiways: None
Existing Runway Protection Zones
- **Runway 09**: 1,000 ft., partially off airport property
- **Runway 27**: 1,000 ft., approximately half off airport property

Traffic Patterns and Approach Procedures

Approach Procedures: No instrument, all VFR
Traffic Patterns: Runway 13 – Left traffic | Runway 31 – Right traffic; Runway 09 – Right traffic | Runway 27 – Left traffic
Typical Pattern Altitude: 960 ft. MSL (800 ft. AGL)
Visual Approach Aids: Wind indicator and segmented circle
Approach Obstacles
- **Runway 13**: 60 ft. hill, 2,000 ft. from runway, 33:1 slope to clear
- **Runway 31**: 19 ft. road, 420 ft. from runway, 22:1 slope to clear
- **Runway 09**: 50 ft. hill, 800 ft. from runway, 16:1 slope to clear
- **Runway 27**: 77 ft. hill, 3,000 ft. from runway, 38:1 slope to clear

Operational Notes/Noise Abatement Procedures
- Field unusable when wet
- Surrounded by Ocotillo Wells State Vehicular Recreation Area and off-road vehicles intrude on unenclosed Airport property
- Runway ends and intersection marked by white paving blocks
- Military and ultralight activity on and in the vicinity of Airport from surface to 4,000 ft. MSL

Building Area

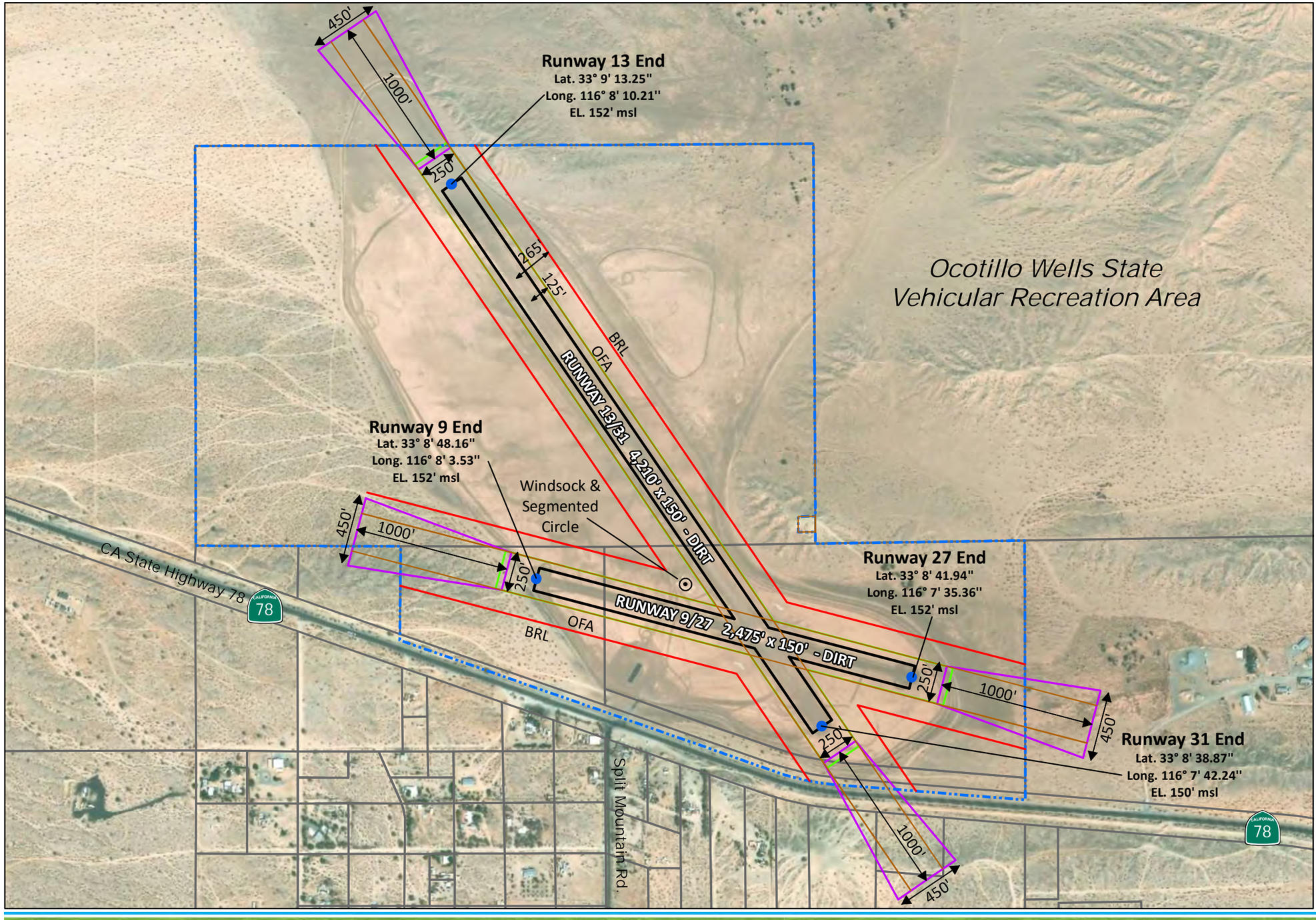
Aircraft Parking Location/Capacity: None
Other Facilities and Services: None

Planned Facility Improvements

None

Key:
NPIAS – National Plan of Integrated Airport Systems
CTAF – Common Traffic Advisory Frequency
MSL – Mean Sea Level
ADG – Aircraft Design Group
AGL – Above Ground Level
VFR – Visual Flight Rules
GA – General Aviation

Sources:
[1] FAA Form 5010, *Airport Master Record*
[2] Coffman Associates analysis, 2018



LEGEND

- Runway Endpoints
- Runway Boundary
- Airport Property
- Building Restriction Line (BRL)[1]
- Object Free Area (OFA)[1]
- Runway Protection Zone (RPZ)[1]
- Parcels

[1]BRL, OFA, RPZ dimensions established in FAA Advisory Circular 150/5300-13a Airport Design.

Data Source: ESRI Basemap Imagery (2014), San Diego County GIS (SanGIS): Parcels (2016).

Notes:
- Dirt Runways; thresholds and runway intersectors marked by white paved concrete blocks.

-BRL established to provide 7:1 clearance over a 20' building. BRL does not extend beyond the property line.Refer to section 213 of FAA Advisory Circular 150/5300-13a Airport Design.

N

0 325 650 1,300

1 inch = 650 feet

Ocotillo Airport

Airport Diagram

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TABLE C-6
Ramona Airport Summary

General Information

Airport Ownership: County of San Diego
Property Size: 342 acres
Airport Elevation: 1,395 ft. MSL
Airport Master Plan: Prepared August 1994, never adopted
FAA Airport Classification : NPIAS Reliever
Air Traffic Control Tower: 8 am-8pm; CTAF after-hours
Operating Hours: 24/7
FAA Class of Airspace: D

Airport Activity

Based Aircraft[1]			**Annual Operations**	
Single-Engine	123		**Existing (2018)**[5]	**20-Year Forecast**[3]
Multi-Engine	6	GA Local	69,806	83,080
Turboprop	0	GA Itinerant	32,212	39,680
Jet	0	Military Local	300	0
Helicopter	0	Military Itinerant	220	160
Other	0	Air Carrier/Air Taxi	177	200
Total	**129**	**Total**	**102,715**	**123,120**

Airport Design – Runway 9-27

FAA Airport Reference Code: B-II
Critical Aircraft: Twin-Engine, Business Jet (Aircraft Design Group B-II)
Dimensions: 5,000 ft. x 150 ft.
Pavement Strength: 75,000 lbs. (single wheel); 95,000 lbs. (double wheel); 170,000 lbs. (double tandem)
Average Gradient: 0.25%
Runway Lighting: REIL Runway 27; MIRL edge only Runway 9-27
Primary Taxiways: Alpha– CTAF activated taxiway lights
Helipad: H1**,** 340 ft. x 66 ft., unlit
Existing Runway Protection Zones

- **Runway 09**: 1,000 ft., all on Airport property
- **Runway 27:** 1,000 ft., all on Airport property

Traffic Patterns and Approach Procedures

Approach Procedures: Instrument, non-precision, on both runway ends
Airplane Traffic Patterns: Runway 9 – Left traffic | Runway 27 – Left traffic
Typical Pattern Altitude: Single-Engine - 2,395 ft. MSL (1,000 ft. AGL); Multi-Engine - 2,895 ft. MSL (1,500 ft. AGL)
Visual Approach Aids: VOR/DME-A, 2-light PAPI on left Runway 9-27, wind indicator, segmented circle, and rotating beacon
Approach Obstacles

- **Runway 09**: None
- **Runway 27:** None

Operational Notes/Noise Abatement Procedures

- On takeoff, climb to 1,900 ft. MSL prior to turns
- Voluntary jet curfew from 10:00 p.m. to 7:00 a.m.
- Noise-sensitive area NE-SE of Airport
- Helipad use restricted
- Ultralights not authorized
- Air tankers in airport vicinity May through November; frequently fly non-standard entry patterns

Building Area

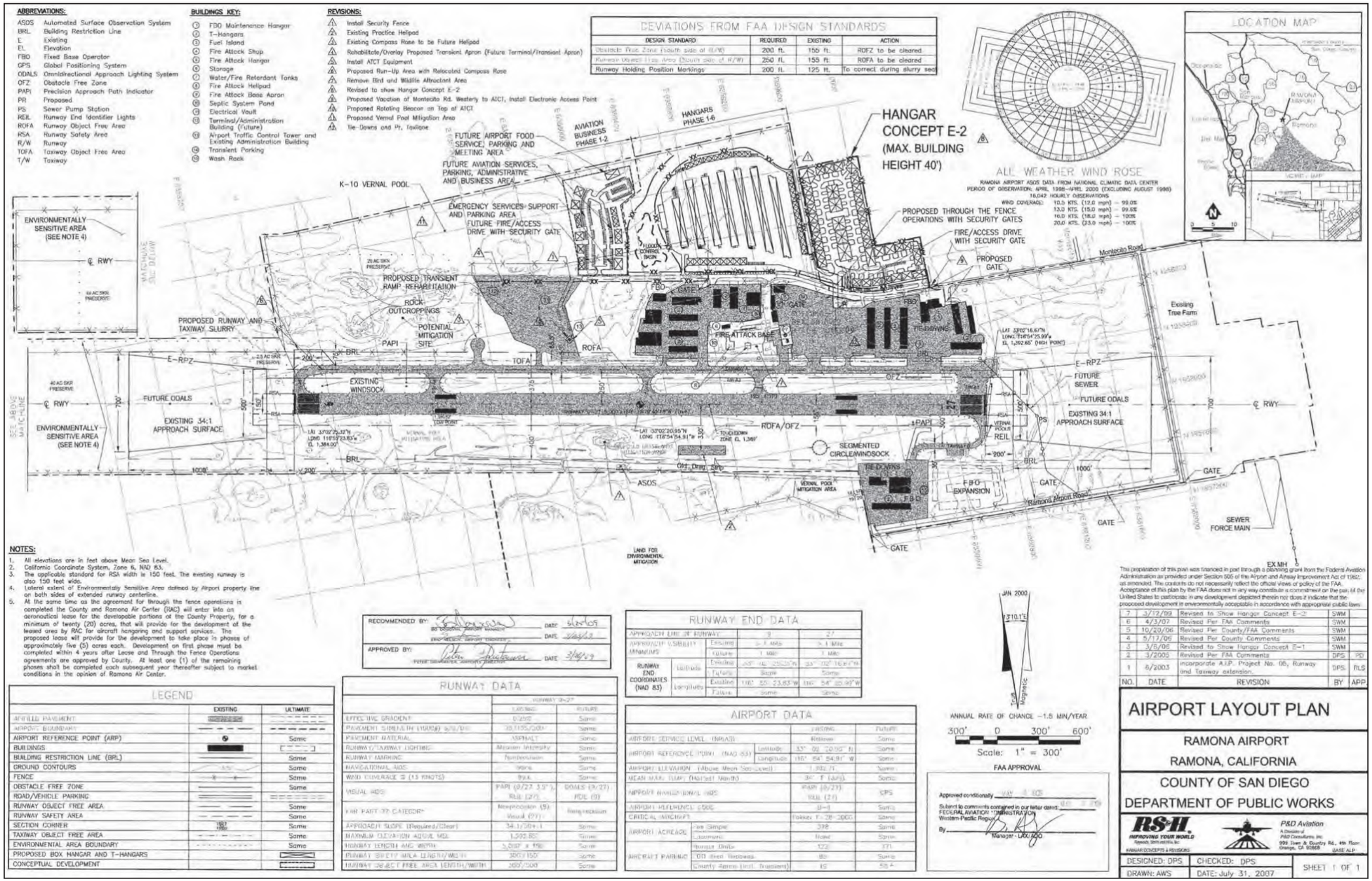
Aircraft Parking Location/Capacity: End of Runway 27, north and south; 110 hangar spaces and 97 tiedowns
Other Facilities and Services: Three FBOs, fuel available

Planned Facility Improvements

None

Key:
NPIAS – National Plan of Integrated Airport Systems
CTAF – Common Traffic Advisory Frequency
MSL – Mean Sea Level
AGL – Above Ground Level
FBO – Fixed-Based Operator
VOR/DME – Very high frequency Omnidirectional Range and Distance Measuring Equipment
PAPI – Precision Approach Path Indicator
REIL – Runway End Identifier Lights
MIRL – Medium Intensity Runway Lights
ATCT – Air Traffic Control Tower
GA – General Aviation

Sources:
[1] County of San Diego Airports 2018
[2] 2017 Calendar Year ATCT Count
[3] Coffman Associates analysis, 2018-2019


ABBREVIATIONS:
ASOS Automated Surface Observation System
BRL Building Restriction Line
E Existing
EL Elevation
FBO Fixed Base Operator
GPS Global Positioning System
ODALS Omnidirectional Approach Lighting System
OFZ Obstacle Free Zone
PAPI Precision Approach Path Indicator
PR Proposed
PS Sewer Pump Station
REIL Runway End Identifier Lights
ROFA Runway Object Free Area
RSA Runway Safety Area
R/W Runway
TOFA Taxiway Object Free Area
T/W Taxiway
BUILDINGS KEY:
1 FBO Maintenance Hangar
2 T-Hangars
3 Fuel Island
4 Fire Attack Shop
5 Fire Attack Hangar
6 Storage
7 Water/Fire Retardant Tanks
8 Fire Attack Helipad
9 Fire Attack Base Apron
10 Septic System Pond
11 Electrical Vault
12 Terminal/Administration Building (Future)
13 Airport Traffic Control Tower and Existing Administration Building
14 Transient Parking
15 Wash Rack
REVISIONS:
1 Install Security Fence
2 Existing Practice Helipad
3 Existing Compass Rose to be Future Helipad
4 Rehabilitate/Overlay Proposed Transient Apron (Future Terminal/Transient Apron)
5 Install ATCT Equipment
6 Proposed Run-Up Area with Relocated Compass Rose
7 Remove Bird and Wildlife Attractant Area
8 Revised to show Hangar Concept E-2
9 Proposed Vacation of Montecito Rd. Westerly to ATCT, Install Electronic Access Point
10 Proposed Rotating Beacon on Top of ATCT
11 Proposed Vernal Pool Mitigation Area
12 Tie-Downs and Pt. Taxilane
DEVIATIONS FROM FAA DESIGN STANDARDS
DESIGN STANDARD | REQUIRED | EXISTING | ACTION
Obstacle Free Zone (South side of R/W) | 200 ft. | 155 ft. | ROFZ to be cleared
Runway Object Free Area (South side of R/W) | 250 ft. | 155 ft. | ROFA to be cleared
Runway Holding Position Markings | 200 ft. | 125 ft. | To correct during slurry seal
HANGAR CONCEPT E-2 (MAX. BUILDING HEIGHT 40')
ALL WEATHER WIND ROSE
RAMONA AIRPORT ASOS DATA FROM NATIONAL CLIMATIC DATA CENTER
PERIOD OF OBSERVATION: APRIL 1998–APRIL 2000 (EXCLUDING AUGUST 1998)
16,042 HOURLY OBSERVATIONS
WIND COVERAGE: 10.5 KTS. (12.0 mph) — 99.0%
13.0 KTS. (15.0 mph) — 99.6%
16.0 KTS. (18.0 mph) — 100%
20.0 KTS. (23.0 mph) — 100%
LOCATION MAP
Ramona
VICINITY MAP
AVIATION BUSINESS PHASE 1-2
HANGARS PHASE 1-6
FUTURE AIRPORT FOOD SERVICE, PARKING AND MEETING AREA
FUTURE AVIATION SERVICES, PARKING, ADMINISTRATIVE AND BUSINESS AREA
K-10 VERNAL POOL
EMERGENCY SERVICES SUPPORT AND PARKING AREA
FUTURE FIRE/ACCESS DRIVE WITH SECURITY GATE
PROPOSED THROUGH THE FENCE OPERATIONS WITH SECURITY GATES
FIRE/ACCESS DRIVE WITH SECURITY GATE
PROPOSED GATE
Montecito Road
ENVIRONMENTALLY SENSITIVE AREA (SEE NOTE 4)
PROPOSED TRANSIENT RAMP REHABILITATION
ROCK OUTCROPPINGS
POTENTIAL MITIGATION SITE
PROPOSED RUNWAY AND TAXIWAY SLURRY
EXISTING WINDSOCK
FUTURE ODALS
EXISTING 34:1 APPROACH SURFACE
ENVIRONMENTALLY SENSITIVE AREA (SEE NOTE 4)
SEGMENTED CIRCLE/WINDSOCK
TIE-DOWNS
F B O EXPANSION
Ramona Airport Road
Existing Tree Farm
FUTURE SEWER
SEWER FORCE MAIN
EX MH
LAND FOR ENVIRONMENTAL MITIGATION
ASOS
GATE
NOTES:
1. All elevations are in feet above Mean Sea Level.
2. California Coordinate System, Zone 6, NAD 83.
3. The applicable standard for RSA width is 150 feet. The existing runway is also 150 feet wide.
4. Lateral extent of Environmentally Sensitive Area defined by Airport property line on both sides of extended runway centerline.
5. At the same time as the agreement for through the fence operations is completed the County and Ramona Air Center (RAC) will enter into an aeronautical lease for the developable portions of the County Property, for a minimum of twenty (20) acres, that will provide for the development of the leased area by RAC for aircraft hangaring and support services. The proposed lease will provide for the development to take place in phases of approximately five (5) acres each. Development on first phase must be completed within 4 years after Lease and Through the Fence Operations agreements are approved by County. At least one (1) of the remaining phases shall be completed each subsequent year thereafter subject to market conditions in the opinion of Ramona Air Center.
RECOMMENDED BY: DATE 6/26/09
APPROVED BY: DATE 7/28/09
RUNWAY END DATA
APPROACH END OF RUNWAY: 9 | 27
APPROACH VISIBILITY MINIMUMS: Existing 1 Mile | 1 Mile; Future 1 Mile | 1 Mile
RUNWAY END COORDINATES (NAD 83): Latitude Existing 33° 02' 16.67"N | 33° 02' 20.95"N; Future Same | Same
Longitude Existing 116° 55' 23.83"W | 116° 54' 25.99"W; Future Same | Same
RUNWAY DATA
RUNWAY 9-27: EXISTING | FUTURE
EFFECTIVE GRADIENT: 0.26% | Same
PAVEMENT STRENGTH (1000#) S75/D2 | 20,195/300 | Same
PAVEMENT MATERIAL: ASPHALT | Same
RUNWAY/TAXIWAY LIGHTING: Medium Intensity | Same
RUNWAY MARKING: Nonprecision | Same
NAVIGATIONAL AIDS: None | Same
WIND COVERAGE @ 13 KNOTS: 95% | Same
VISUAL AIDS: PAPI (9/27 3.5°), REIL (27) | ODALS (9/27), PDE (9)
FAR PART 77 CATEGORY: Nonprecision (9), Visual (27) | Nonprecision
APPROACH SLOPE (Required/Clear): 34:1/50:1 | Same
MAXIMUM ELEVATION AMSL MSL: 1,395 ft. | Same
RUNWAY LENGTH AND WIDTH: 5,397' x 150' | Same
RUNWAY SAFETY AREA LENGTH/WIDTH: 300'/150' | Same
RUNWAY OBJECT FREE AREA LENGTH/WIDTH: 300'/500' | Same
AIRPORT DATA
AIRPORT SERVICE LEVEL (NPIAS): Regional | Same
AIRPORT REFERENCE POINT (NAD 83): Latitude 33° 02' 20.95" N | Same; Longitude 116° 54' 54.91" W | Same
AIRPORT ELEVATION (Above Mean Sea Level): 1,332 ft. | Same
MEAN MAX. TEMP. (Hottest Month): 96° F (July) | Same
AIRPORT NAVIGATIONAL AIDS: PAPI (9/27), REIL (27) | GPS
AIRPORT REFERENCE CODE: B-II | Same
CRITICAL AIRCRAFT: Rockwell Commander 690 | Same
AIRPORT ACREAGE: Fee Simple 328 | Same; Easements None | Same; Runway Data 122 | 122
AIRCRAFT PARKING: 100 Feet Runways 80 | Same; County Ramp (incl. Transient) 45 | 53 A
JAN 2000
13°10.1'E
True
Magnetic
ANNUAL RATE OF CHANGE –1.5 MIN/YEAR
300' 0 300' 600'
Scale: 1" = 300'
FAA APPROVAL
Approved conditionally MAY 8 2008
Subject to comments contained in our letter dated: 4/8 3 '08
FEDERAL AVIATION ADMINISTRATION
Western-Pacific Region
By
Manager - LAX/ADO
LEGEND
EXISTING | ULTIMATE
ASPHALT PAVEMENT
AIRPORT BOUNDARY
AIRPORT REFERENCE POINT (ARP) | Same
BUILDINGS | Same
BUILDING RESTRICTION LINE (BRL) | Same
GROUND CONTOURS | Same
FENCE | Same
OBSTACLE FREE ZONE | Same
ROAD/VEHICLE PARKING | Same
RUNWAY OBJECT FREE AREA | Same
RUNWAY SAFETY AREA | Same
SECTION CORNER | Same
TAXIWAY OBJECT FREE AREA | Same
ENVIRONMENTAL AREA BOUNDARY | Same
PROPOSED BOX HANGAR AND T-HANGARS
CONCEPTUAL DEVELOPMENT
This preparation of this plan was financed in part through a planning grant from the Federal Aviation Administration as provided under Section 505 of the Airport and Airway Improvement Act of 1982, as amended. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this plan by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws.
NO. | DATE | REVISION | BY | APP
7 | 3/12/09 | Revised to Show Hangar Concept E-2 | SWM
6 | 4/3/07 | Revised Per FAA Comments | SWM
5 | 10/20/06 | Revised Per County/FAA Comments | SWM
4 | 5/17/06 | Revised Per County Comments | SWM
3 | 3/5/05 | Revised to Show Hangar Concept E-1 | SWM
2 | 3/2005 | Revised Per FAA Comments | DPS | PD
1 | 8/2003 | Incorporate A.I.P. Project No. 05, Runway and Taxiway extension. | DPS | RLS
AIRPORT LAYOUT PLAN
RAMONA AIRPORT
RAMONA, CALIFORNIA
COUNTY OF SAN DIEGO
DEPARTMENT OF PUBLIC WORKS
RS-H IMPROVING YOUR WORLD
P&D Aviation
DESIGNED: DPS | CHECKED: DPS
DRAWN: AWS | DATE: July 31, 2007
SHEET 1 OF 1

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C.2 AIRPORT ACTIVITY FORECASTS

C.2.1 BASED AIRCRAFT FORECAST

The current number of based aircraft at each airport is the starting point to generate operational forecasts. The following sources of based aircraft information were consulted:

- the FAA's based aircraft registry;
- the Airport's FAA Form 5010, *Airport Master Record*;
- the FAA's 2018 *Terminal Area Forecast* (TAF)[1];
- the previous Airport Land Use Compatibility Plans (ALUCPs); and
- estimates provided by County of San Diego Airports staff in 2018.

The FAA's based aircraft registry and the TAF only provide information for airports included within the National Plan of Integrated Airports System (NPIAS). Agua Caliente Springs Airport, Jacumba Airport, and Ocotillo Airport are not part of the NPIAS; therefore, the based aircraft registry and the TAF are not available for these airports. Data from each of those sources for each airport is summarized in **Table C-7**.

For this section, all tables abbreviate airports as follows:

Agua Caliente Springs Airport	AGU
Borrego Valley Airport	BOR
Fallbrook Community Airpark	FAL
Jacumba Airport	JAC
Ocotillo Airport	OCO
Ramona Airport	RAM

TABLE C-7
Based Aircraft Summary - Existing

	AGU	BOR	FAL	JAC	OCO	RAM
County of San Diego Airports -2018	0	11	88	1	0	129
Previous ALUCPs	1	23	112	0	0	213
FAA Based Aircraft Registry	N/A	4[a]	100[b]	N/A	N/A	133[c]
FAA Form 5010, *Airport Master Record*[1]	0	14	93	1	0	138
FAA *Terminal Area Forecast* (TAF)[2]	N/A	14	100	N/A	N/A	142

[1] Effective Date: May 24, 2018
[2] Issued: January 2018
[a] Validated count but no reported edit or confirmation date.
[b] Validated count and confirmed on January 23, 2018
[c] Validated count and confirmed on January 22, 2018.
N/A – Not Available
Dark, gray-shaded cell indicates selected baseline.
Source: Coffman Associates analysis, 2018

1 Federal Aviation Administration, *Terminal Area Forecast*, January 2018.

For these ALUCPs, the most current data for each airport is used as the baseline. For Agua Caliente Springs Airport, Jacumba Airport, and Ocotillo Airport, the most current data is from the FAA Form 5010. For Borrego Valley Airport, Fallbrook Community Airpark, and Ramona Airport, the County of San Diego Airports count, which was taken in July 2018, is used.

Forecasts for based aircraft have been prepared examining each airport's market share of based aircraft in California and market share of aircraft in the U.S. active general aviation (GA) fleet. Data on based aircraft in California were retrieved from the FAA's TAF, and the source of data on the U.S. active GA fleet is from the FAA's *Aerospace Forecasts 2018-2038*.[2] **Table C-8** summarizes the based aircraft forecasts for each airport. Shaded cells represent the selected forecast for each airport.

TABLE C-8
Based Aircraft Forecasts

	AGU	BOR	FAL	JAC	OCO	RAM
Existing Based Aircraft	0	11	88	1	0	129
Long Range (20-Year) Forecast						
Constant Market Share of California Based Aircraft	0	13	102	1	0	150
Constant Market Share of U.S. Active Fleet	0	11	88	1	0	129
FAA TAF	N/A	14	100	N/A	N/A	223

N/A – Not Available
Dark, gray-shaded cell indicate selected forecast
Source: Coffman Associates analysis, 2018

According to the 2018 FAA TAF, there are currently 20,913 aircraft based at airports in California. This count is projected to grow to 24,317 by 2038. For each airport, a current market share was calculated based on the statewide figure, and a forecast was prepared by maintaining that current market share constant for the 2038 projection. Borrego Valley Airport's current market share is 0.053 percent, which when applied to the forecast year of 2038, resulted in growth of two based aircraft for a total of 13. For Fallbrook Community Airpark, which has a current state market share of 0.421 percent, this forecast resulted in 102 based aircraft by 2038. For Ramona Airport, which has a current state market share of 0.617 percent, this forecast resulted in 150 based aircraft by 2038. Due to low based aircraft levels, no growth in based aircraft at the remaining three airports was projected under this forecast scenario.

In 2018, the FAA estimated 213,905 active GA aircraft in the United States. The fleet is anticipated to grow to 214,090 by 2038. A market share analysis, based on each airport's share of the nationwide GA fleet, was prepared for each airport by maintaining the current market share constant through 2038. This forecast resulted in no based aircraft growth for any of the six airports.

The FAA TAF was also examined for those airports included in the TAF forecasts (Borrego Valley Airport, Fallbrook Community Airpark, and Ramona Airport). The TAF projections for Borrego Valley and

2 Federal Aviation Administration, *FAA Aerospace Forecasts: Fiscal Years 2018-2038*, https://www.faa.gov/data_research/aviation/aerospace_forecasts/media/FAA_Aerospace_Forecasts_FY_2018-2038.pdf (accessed January 21, 2022).

Fallbrook are flat-lined at 14 and 100, respectively, for the duration of the next 20 years. The TAF for Ramona Airport does project a growth scenario going from 142 based aircraft in 2018 to 223 by 2038.

The selected based aircraft forecast for each airport is identified in shaded cells on **Table C-8**. The forecast source with the highest long-range based aircraft level was selected to be carried forward. The numbers of based aircraft are forecast to increase to 14 at Borrego Valley Airport, 102 at Fallbrook Community Airpark, and 223 at Ramona Airport. No increases in based aircraft are projected in the next 20 years at Agua Caliente Springs, Jacumba, or Ocotillo airports.

C.2.2 OPERATIONS

Ramona Airport has an airport traffic control tower (ATCT), so actual operational (takeoff and landing) counts are available for the period the ATCT is open (8:00 a.m. to 8:00 p.m.). Actual operational counts are not available for the remaining five airports. Therefore, for these five non-towered airports, current operational estimates reported in the previous ALUCPs adopted in 2006, which had a base year of 2005; FAA Form 5010, *Airport Master Record*; and estimates prepared by County of San Diego Airports staff in 2016 have been evaluated for projection purposes. A summary of current operations counts/estimates is provided in **Table C-9**. For the ALUCPs, the most current estimates, from FAA Form 5010, are utilized as the baseline for each of the non-towered airports. The ATCT counts for calendar year 2017 are utilized as the baseline for Ramona Airport.

TABLE C-9
Total Operations Summary – Existing*

	AGU	BOR	FAL	JAC	OCO	RAM
County Airports Estimate 2016	4,400	18,857	20,236	1,000	2,510	118,086
FAA Form 5010, *Airport Master Record*	4,455[a]	22,250[b]	19,594[c]	1,370[a]	1,800[b]	100,336[c]
2017 CY ATCT Count	N/A	N/A	N/A	N/A	N/A	102,715
2006 ALUCP[1]	3,300	26,454	36,124	2,500	2,200	141,036

* Includes all aircraft operations (air carrier, air taxi, general aviation, and military)
[1] Based upon 2005 base year estimates.
[a] 12 months ending 12/31/17; data accessed 06/14/18
[b] 12 months ending 05/31/17; data accessed 06/14/18
[c] 12 months ending 12/31/16; data accessed 06/14/18
ALUCP – Airport Land Use Compatibility Plan
ATCT – Airport Traffic Control Tower
CY – Calendar Year
N/A – Not Available
Dark, gray-shaded cells indicate selected baseline.
Source: Coffman Associates analysis, 2018

The 12-month operational counts provided in the FAA Form 5010, *Airport Master Record*, consist primarily of GA operations, but in some cases include military operations. For example, of the 22,250 operations reported at Borrego Valley Airport, 4,000 were reported as military operations and of the 1,800 operations reported at Ocotillo Airport, 1,200 were reported as military. Ramona Airport had 518 military operations and 177 air carrier/air taxi operations. Air carrier operations are those conducted commercially by aircraft having a seating capacity of 60 or more and/or a maximum payload capacity of 18,000 pounds. Air taxi operations can include small commercial service aircraft operations, as well as

GA type aircraft for the "on-demand" commercial transport of persons and property as defined by 14 Code of Federal Regulations (CFR) Part 135 and Subchapter K of 14 CFR Part 91. Operations at all other airports included in this study have only GA operations.

Changes in military activity are difficult to forecast due to the unpredictability of authorized funding levels, mission and deployment changes, and international relations. Accordingly, military operations are projected to remain near current levels through the long-range planning period.

Air carrier/air taxi activity account for only a small number of operations at Ramona Airport and are anticipated to remain near 200 annual operations through the long-range planning period.

Forecasts of GA operations were prepared for each airport for the 20-year time horizon. GA operations are classified as either local or itinerant. A local operation is a takeoff or landing performed by an aircraft that operates within sight of the airport, or which executes simulated approaches or touch-and-go operations at the airport. Itinerant operations are those performed by aircraft with a specific origin or destination away from the airport. Typically, itinerant operations increase with business and commercial service use, since business aircraft are not typically used for large scale training activities.

C.2.2.1 Itinerant General Aviation Operations

The FAA's Aerospace Forecast projects itinerant GA operations at all towered airports in the country and can be utilized to establish a market share for each airport. A forecast was prepared by maintaining each airport's current market share through the 20-year time horizon forecast. The results are included in **Table C-10**.

A second projection utilizes the current ratio of GA itinerant operations per based aircraft. Maintaining these ratios constant through 2038 results in a forecast for each airport with based aircraft as summarized in **Table C-10**. (As neither Agua Caliente Springs Airport nor Ocotillo Airport have any based aircraft, this forecasting method was not applied to them.)

TABLE C-10
General Aviation Itinerant Operations Forecasts*

	AGU	BOR	FAL	JAC	OCO	RAM
Existing GA Itinerant Operations	4,400	17,200	7,838	835	600	32,214
Long Range (20-Year) Forecasts						
Constant Market Share of U.S. ATCT GA Itinerant Operations	4,628	18,093	8,245	878	631	33,886
Constant Operations Per Based Aircraft	N/A	21,891	9,114	903	N/A	55,688
FAA TAF California State Growth Rate	4,554	17,804	8,113	864	621	33,345
FAA TAF – Airport Specific	N/A	16,820	16,189	N/A	N/A	31,059
Selected GA Itinerant Operations Forecast	4,655	22,600	8,500	900	1,830	39,840
Compound Annual Growth Rate 2018-2038	0.22%	0.39%	0.41%	0.38%	0.24%	0.84%

* Table does not include air carrier, air taxi, or military operations.
N/A – Not Applicable
Source: Coffman Associates analysis, 2018

The 2018 FAA TAF for California was also used to generate operational projections. The state's TAF shows itinerant GA operations growing at a compound annual growth rate (CAGR) of 0.173 percent through the 20-year time horizon forecast. Applying that growth rate to itinerant GA operations at each airport results in the forecast summarized in **Table C-10**.

The forecasts prepared result in high and low ranges for operational growth. For planning purposes, the selected forecast for each airport is close to an average of each projection. Fallbrook Community Airpark's TAF projection was substantially higher than the other projections, so it was excluded from the projection average.

C.2.2.2 Local General Aviation Operations

Similar projection methods were used for local GA operations at each airport. These projections maintain the current market share of local GA operations at towered airports in the U.S., the current ratio of local operations per based aircraft, and apply the FAA TAF growth rate for local operations in California (0.205 percent CAGR).

For each airport, a figure near the average of each projection is used as the selected forecast. Fallbrook Community Airpark's TAF projection was significantly lower than the other projections so it was excluded from the projection average. The selected forecast for each airport is included in **Table C-11**.

TABLE C-11
General Aviation Local Operations Forecasts*

	AGU	BOR	FAL	JAC	OCO	RAM
Existing GA Local Operations	0	1,050	11,756	535	0	69,806
Long Range (20-Year) Forecasts						
Constant Market Share of U.S. ATCT GA Local Operations	0	1,123	12,568	572	0	74,626
Constant Operations Per Based Aircraft	N/A	1,336	13,670	579	N/A	120,672
FAA TAF California State Growth Rate	0	1,094	12,248	557	0	72,726
FAA TAF – Airport Specific	N/A	1,052	4,047	N/A	N/A	72,804
Selected GA Local Operations Forecast	0	1,100	12,800	600	0	83,080
Compound Annual Growth Rate 2018-2038	0.00%	0.23%	0.43%	0.57%	0.00%	0.95%

* Table does not include air carrier, air taxi, or military operations.
N/A – Not Applicable
Source: Coffman Associates analysis, 2018-2019

C.2.3 OPERATIONAL FLEET MIX

An airport's operational fleet mix is important to establish as it factors heavily into noise models and gives a better understanding of the types of aircraft using the airport. The FAA's Traffic Flow Management System Counts (TFMSC) contains data derived from the Air Traffic Airspace Lab's Traffic Flow Management System. Available data varies by airport as larger, towered airports have larger sample sizes than smaller, non-towered airports. In the case of the ALUCPs, the TFMSC data accounted for approximately 1.0 percent of annual operations at the various airports. There was very limited data available in the TFMSC for Agua Caliente Springs Airport, Ocotillo Airport, and Jacumba Airport. While the TFMSC data does not provide a full accounting of operations, it does provide a sampling that can be extrapolated to establish a generalized operational fleet mix. As a supplement to the TFMSC, County of San Diego Airports staff prepared estimates on fleet mix operational activity at each airport.

Jacumba Airport is used primarily for glider operations, which are launched utilizing winches. County Airports staff estimates that approximately 66 percent of annual operations at Jacumba are conducted by gliders, with the remainder conducted by single-engine piston aircraft.

Table C-12 summarizes the estimated operational fleet mix for 2018 based upon the data available from TFMSC and estimates prepared by County Airports staff. The fleet mix includes all operations by GA, air carrier, air taxi, and military aircraft. The aircraft types listed are groupings or families of similar aircraft. For example, the single engine piston (SEP) category includes all small airplanes with a single piston engine, such as the Cessna 172 and the Beechcraft Bonanza; the Citation 560 category includes all mid-sized business jets, including most of the Cessna Citation business jet family of aircraft.

TABLE C-12
Existing Operational Fleet Mix*

	Aircraft Type	Operations					
		AGU	BOR	FAL	JAC	OCO	RAM
Itinerant Operations	Glider	0	0	0	551	0	0
	SEP	4,400	9,608	6,842	284	600	20,530
	MEP	0	834	736	0	0	3,046
	SETP – Beech T-34C (military)	0	0	0	0	0	55
	METP – King Air 200	0	6,008	0	0	0	2,424
	METP – Beech 50	0	0	164	0	0	0
	JET – Citation 560	0	375	0	0	0	5,404
	JET – Falcon 900	0	375	0	0	0	300
	JET – Bae 146	0	0	0	0	0	300
	HELO – Eurocopter 135	0	0	0	0	0	385
	HELO – Bell 204	0	0	96	0	0	0
	HELO – Bell 204 (military)	18	4,000	0	0	0	55
	HELO – Bell AH-1 (military)	18	0	0	0	0	55
	HELO – Osprey (military)	0	0	0	0	1,200	0
	HELO – Sikorsky SH-60 (military)	19	0	0	0	0	55
	Total Itinerant	***4,455***	***21,200***	***7,838***	***835***	***1,800***	***32,609***
Local Operations	Glider	0	0	0	353	0	0
	SEP	0	945	11,380	182	0	66,316
	MEP	0	105	376	0	0	3,490
	HELO – Sikorsky SH-60 (military)	0	0	0	0	0	300
	Total Local	***0***	***1,050***	***11,756***	***535***	***0***	***70,106***
Total Operations		**4,455**	**22,250**	**19,594**	**1,370**	**1,800**	**102,715**

* Includes all operations (air carrier, air taxi, general aviation, and military).
SEP – Single-Engine Piston
MEP – Multi-Engine Piston
SETP – Single-Engine Turboprop
METP – Multi-Engine Turboprop
HELO – Helicopter and tiltrotor
Source: Coffman Associates analysis, 2018-2019

A long-range operational fleet mix that includes all operations (air carrier, air taxi, GA, and military) has also been established for each airport and is summarized in **Table C-13**. The projected fleet mix is extrapolated from the current fleet mix based on forecasted operational levels.

TABLE C-13
Long Range (20-Year) Operational Fleet Mix*

	Aircraft Type	Operations					
		AGU	BOR	FAL	JAC	OCO	RAM
Itinerant Operations	Glider	0	0	0	594	0	0
	SEP	4,600	10,504	7,416	306	630	26,424
	MEP	0	902	755	0	0	1,801
	SETP	0	0	0	0	0	55
	METP – DHC-6-200, King Air 200	0	6,394	0	0	0	2,101
	METP – Beech 50	0	0	177	0	0	0
	METP- C-130	0	0	0	0	0	484
	METP – S-2T	0	0	0	0	0	768
	METP – OV-10	0	0	0	0	0	384
	JET – Citation 560	0	400	42	0	0	6,035
	JET – Citation 750	0	0	0	0	0	355
	JET – Falcon 900	0	400	0	0	0	0
	HELO - Eurocopter 135	0	0	0	0	0	455
	HELO --Bell 204	0	0	110	0	0	0
	HELO --Bell 204 (military)	18	4,000	0	0	0	0
	HELO -- Bell AH-1 (military)	18	0	0	0	0	110
	HELO -- Osprey (military)	0	0	0	0	1,200	0
	HELO – Sikorsky SH-60						1,018
	HELO – Sikorsky SH-60 (military)	19	0	0	0	0	50
	Total Itinerant	*4,655*	*22,600*	*8,500*	*900*	*1,830*	*40,040*
Local Operations	Glider	0	0	0	396	0	0
	SEP	0	990	12,401	204	0	78,865
	MEP	0	110	399	0	0	4,215
	Total Local	*0*	*1,100*	*12,800*	*600*	*0*	*83,080*
Total Operations		4,655	23,700	21,300	1,500	1,830	123,120

* Includes all operations (air carrier, air taxi, general aviation, and military).
SEP – Single-Engine Piston
MEP – Multi-Engine Piston
SETP – Single-Engine Turboprop
METP – Multi-Engine Turboprop
HELO – Helicopter and tiltrotor
Source: Coffman Associates analysis, 2018-2019; Ricondo analysis, 2021

CORRESPONDENCE
CALIFORNIA DEPARTMENT OF TRANSPORTATION
DIVISION OF AERONAUTICS

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SAN DIEGO COUNTY REGIONAL AIRPORT AUTHORITY

DRAFT

August 27, 2018

Mr. Ron Bolyard
Chief, Office of Aviation Planning
California Department of Transportation
Division of Aeronautics
MS 40
P. O. Box 942874
Sacramento, CA 94274-0001

RE: San Diego County Rural Airports - Airport Land Use Compatibility Plan

Dear Mr. Bolyard:

California Public Utilities Code Section 21675(a) requires an airport land use compatibility plan (ALUCP) to be based upon a long-range airport master plan or an airport layout plan (ALP), with the approval of the California Department of Transportation, Division of Aeronautics. By this letter, and consistent with the requirements of Section 21675(a), the San Diego County Regional Airport Authority (SDCRAA), acting in its capacity as the Airport Land Use Commission (ALUC) for San Diego County, is seeking written acceptance by the California Division of Aeronautics of the enclosed ALPs, airport diagrams, and related airport forecasts for use by the ALUC in connection with its compatibility planning and preparation of the ALUCP for rural airports located within San Diego County.

For airports in which the airport sponsor (County of San Diego) has not prepared an ALP, airport diagrams were prepared by the ALUC based on published airport facility information and Federal Aviation Administration (FAA) design guidelines. The airport diagrams were provided to the County of San Diego for concurrence. A signature has been provided at the bottom of each airport diagram that notes the County's validation that the diagrams are accurate.

Enclosed is information that will facilitate your review and provide you with information necessary to approve the use of the enclosed information as the basis for the preparation of the ALUCP. Please address your written response to the following.

Ralph Redman
Manager, Airport Planning
San Diego County Regional Airport Authority
P.O. Box 82776
San Diego, CA 92138-2776

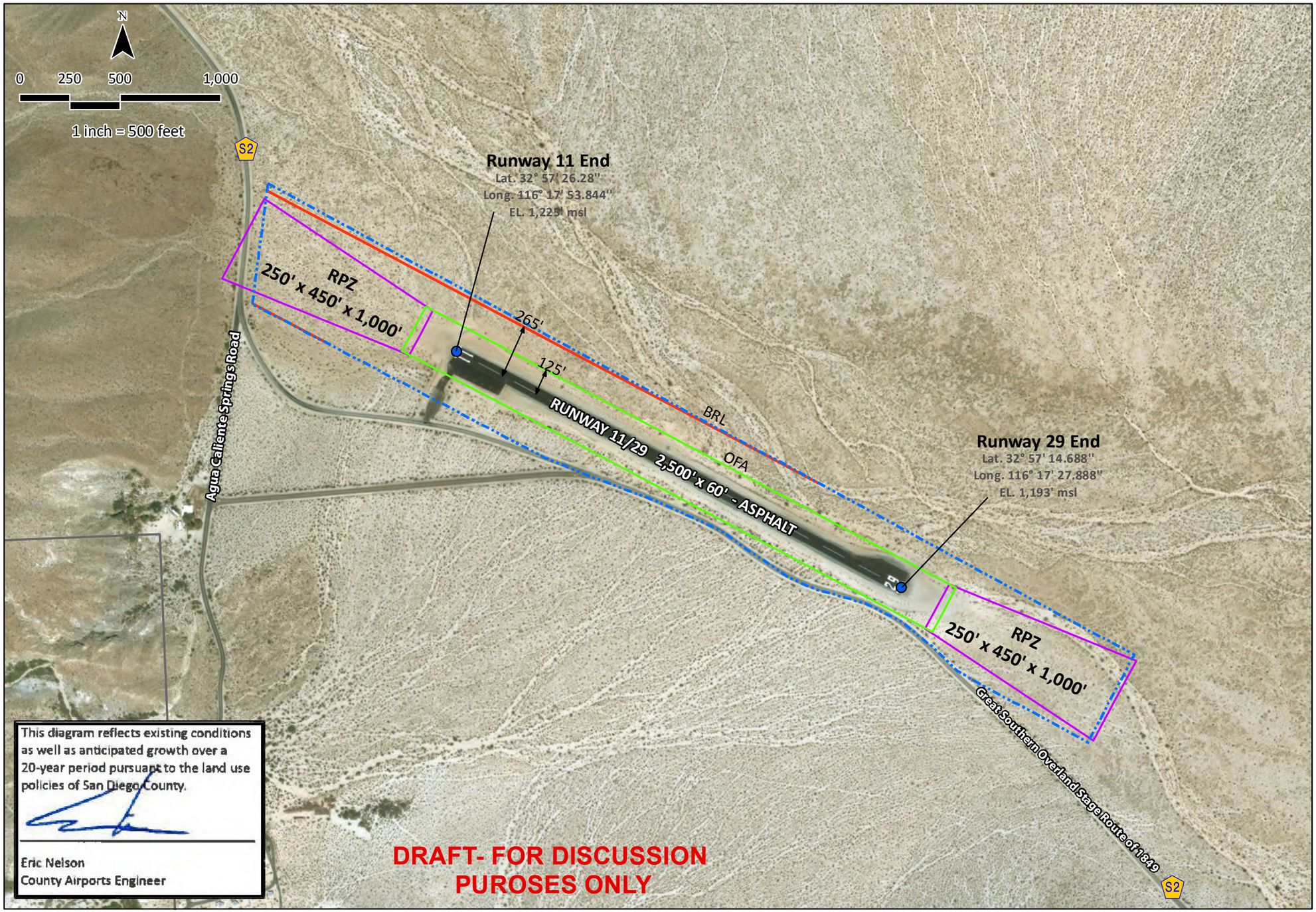
If you have any questions regarding the enclosed information or would like to discuss any of the materials further, please call me at (619) 400-2464. Thank you for your assistance.

Sincerely,

Ralph Redman
Manager, Airport Planning

Enclosures:
Attachment A: Airport Background Data Summary
Attachment B: Airport Activity Data Summary

cc: Brendan Reed, Director of Planning and Environmental Affairs
Amy Gonzalez, General Counsel



LEGEND

- Runway End Points
- Building Restriction Line (BRL)[1]
- Object Free Area (OFA)[1]
- Runway Protection Zone (RPZ)[1]
- Airport Property
- Parcels

[1]BRL, OFA, RPZ dimensions established in FAA Advisory Circular 150/5300-13a Airport Design.

Data Source: ESRI Basemap Imagery (2014), San Diego County GIS (SanGIS): Parcels (2016), Major Roads (2015).

Notes:
-Airport is on land leased from the State of California Dept. of Parks and Recreation (Anza-Borrego Desert State Park).

-BRL established to provide 7:1 clearance over a 20' building. BRL does not extend beyond the property line.Refer to section 213 of FAA Advisory Circular 150/5300-13a Airport Design.

This diagram reflects existing conditions as well as anticipated growth over a 20-year period pursuant to the land use policies of San Diego County.

Eric Nelson
County Airports Engineer

DRAFT- FOR DISCUSSION PUROSES ONLY

Exhibit C-1

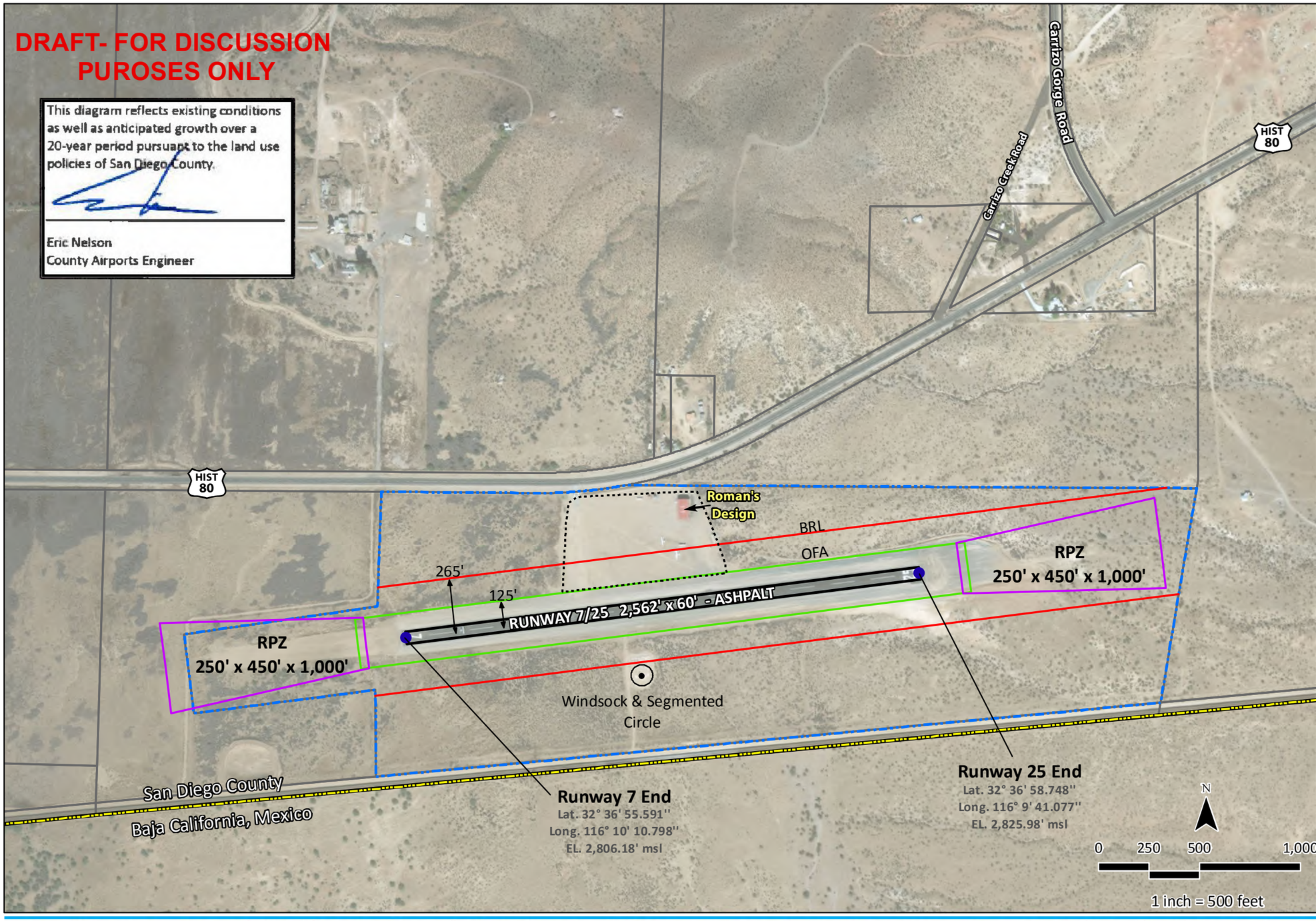
AIRPORT DIAGRAM

Agua Caliente Springs Airport

DRAFT- FOR DISCUSSION PUROSES ONLY

This diagram reflects existing conditions as well as anticipated growth over a 20-year period pursuant to the land use policies of San Diego County.

Eric Nelson
County Airports Engineer



LEGEND

- Runway End Points
- Building Restriction Line (BRL)[1]
- Object Free Area (OFA)[1]
- Runway Protection Zone (RPZ)[1]
- Airport Property
- Parcels
- County/International Boundary
- Aircraft Apron

[1]BRL, OFA, RPZ dimensions established in FAA Advisory Circular 150/5300-13a Airport Design.

Data Source: ESRI Basemap Imagery (2014), San Diego County GIS (SanGIS): Parcels (2016), County Boundary (2015).

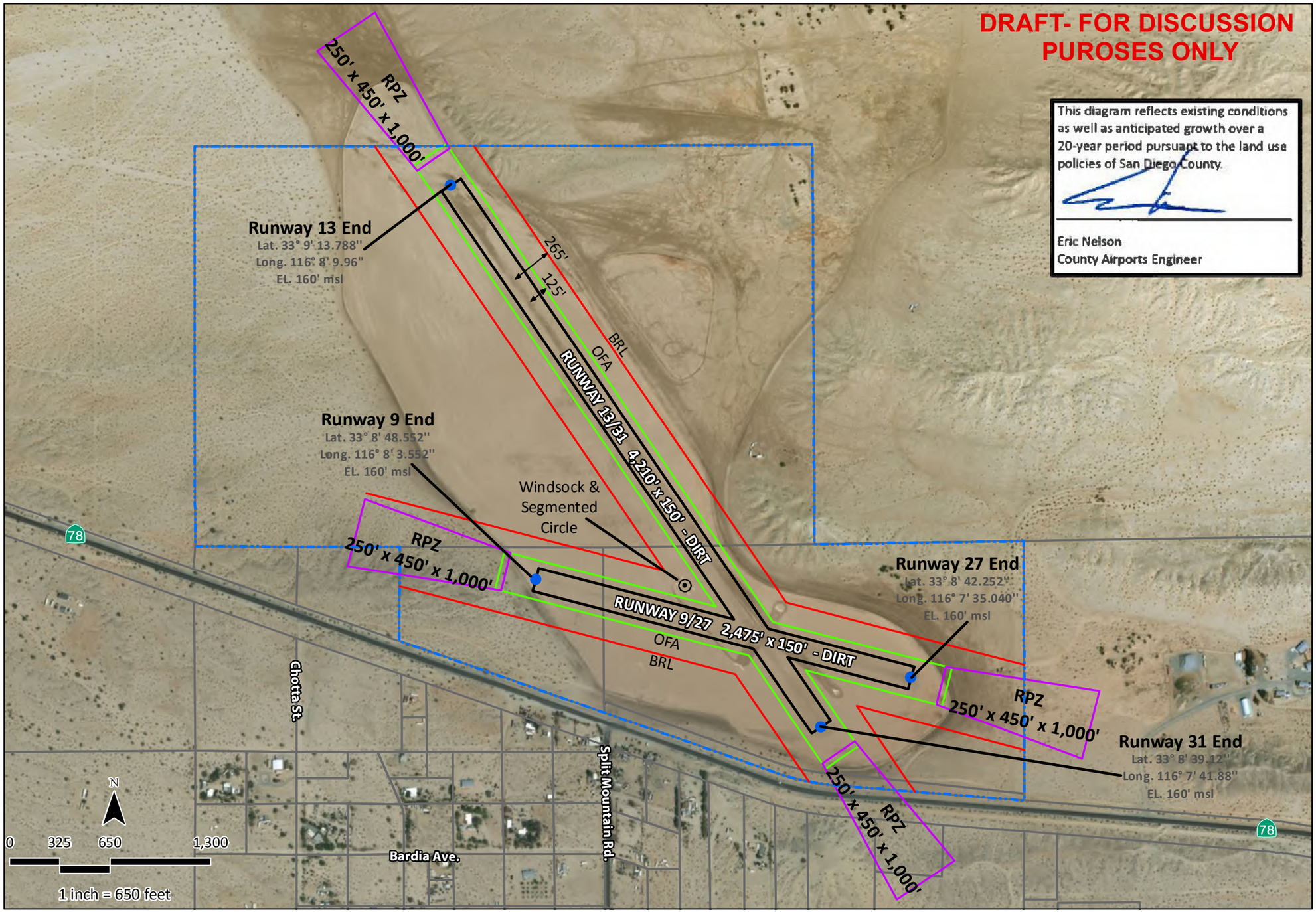
Notes:
- Asphalt runway paved in 2016, basic markings.

-BRL established to provide 7:1 clearance over a 20' building. BRL does not extend beyond the property line. Refer to section 213 of FAA Advisory Circular 150/5300-13a Airport Design.

Exhibit C-4

AIRPORT DIAGRAM

Jacumba Airport



LEGEND

- Runway Endpoints
- Building Restriction Line (BRL)[1]
- Object Free Area (OFA)[1]
- Runway Protection Zone (RPZ)[1]
- Airport Property
- Parcels
- Runway Boundary

[1]BRL, OFA, RPZ dimensions established in FAA Advisory Circular 150/5300-13a Airport Design.

Data Source: ESRI Basemap Imagery (2014), San Diego County GIS (SanGIS): Parcels (2016).

Notes:
- Dirt Runways; thresholds and runway intersectors marked by white paved concrete blocks.

-BRL established to provide 7:1 clearance over a 20' building. BRL does not extend beyond the property line.Refer to section 213 of FAA Advisory Circular 150/5300-13a Airport Design.

Exhibit C-5

AIRPORT DIAGRAM

Ocotillo Airport

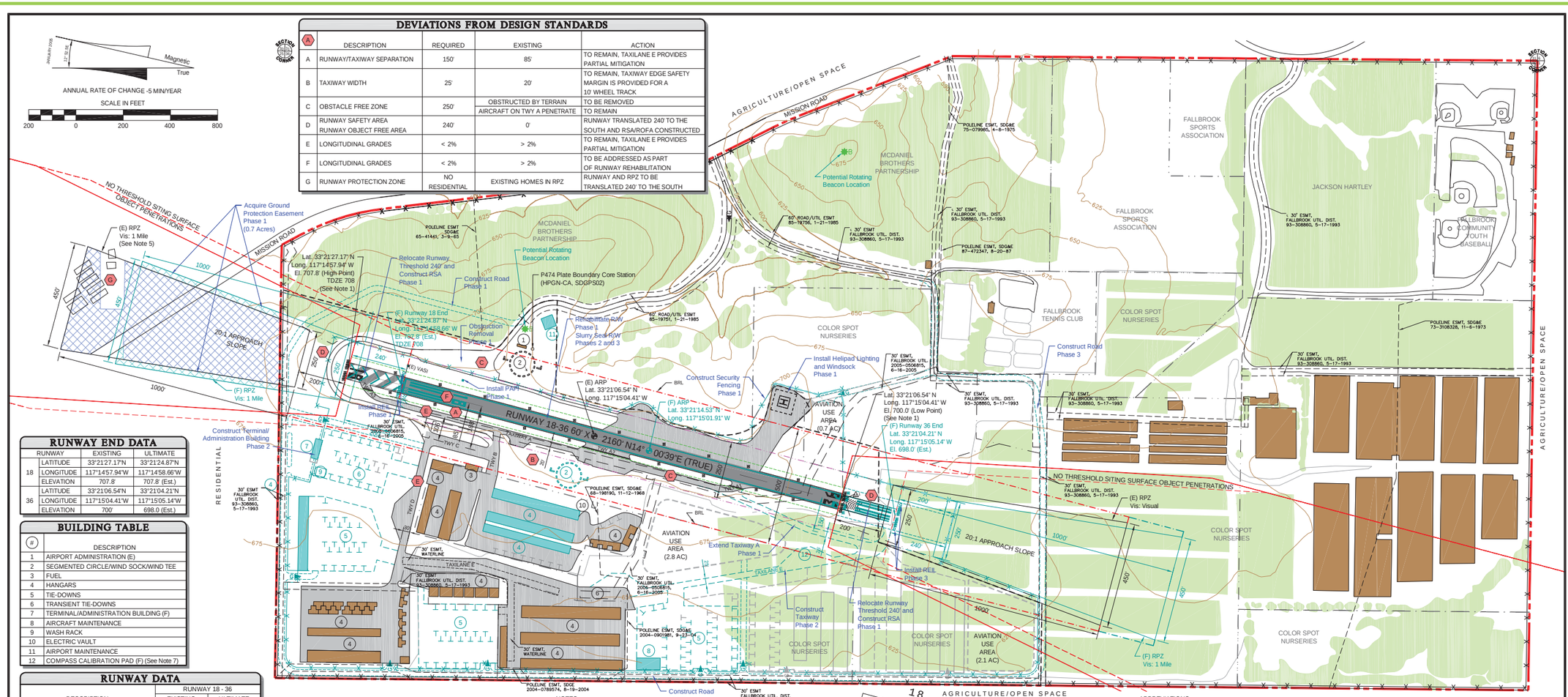
DEVIATIONS FROM DESIGN STANDARDS

	DESCRIPTION	REQUIRED	EXISTING	ACTION
A	RUNWAY/TAXIWAY SEPARATION	150'	85'	TO REMAIN, TAXILANE E PROVIDES PARTIAL MITIGATION
B	TAXIWAY WIDTH	25'	20'	TO REMAIN, TAXIWAY EDGE SAFETY MARGIN IS PROVIDED FOR A 10' WHEEL TRACK
C	OBSTACLE FREE ZONE	250'	OBSTRUCTED BY TERRAIN	TO BE REMOVED
			AIRCRAFT ON TWY A PENETRATE	TO REMAIN
D	RUNWAY SAFETY AREA RUNWAY OBJECT FREE AREA	240'	0'	RUNWAY TRANSLATED 240' TO THE SOUTH AND RSA/ROFA CONSTRUCTED
E	LONGITUDINAL GRADES	< 2%	> 2%	TO REMAIN, TAXILANE E PROVIDES PARTIAL MITIGATION
F	LONGITUDINAL GRADES	< 2%	> 2%	TO BE ADDRESSED AS PART OF RUNWAY REHABILITATION
G	RUNWAY PROTECTION ZONE	NO RESIDENTIAL	EXISTING HOMES IN RPZ	RUNWAY AND RPZ TO BE TRANSLATED 240' TO THE SOUTH

ANNUAL RATE OF CHANGE -5 MIN/YEAR

SCALE IN FEET

200 0 200 400 800



RUNWAY END DATA

RUNWAY		EXISTING	ULTIMATE
18	LATITUDE	33°21'27.17"N	33°21'24.87"N
	LONGITUDE	117°14'57.94"W	117°14'58.66"W
	ELEVATION	707.8'	707.8' (Est.)
36	LATITUDE	33°21'06.54"N	33°21'04.21"N
	LONGITUDE	117°15'04.41"W	117°15'05.14"W
	ELEVATION	700'	698.0 (Est.)

BUILDING TABLE

#	DESCRIPTION
1	AIRPORT ADMINISTRATION (E)
2	SEGMENTED CIRCLE/WIND SOCK/WIND TEE
3	FUEL
4	HANGARS
5	TIE-DOWNS
6	TRANSIENT TIE-DOWNS
7	TERMINAL/ADMINISTRATION BUILDING (F)
8	AIRCRAFT MAINTENANCE
9	WASH RACK
10	ELECTRIC VAULT
11	AIRPORT MAINTENANCE
12	COMPASS CALIBRATION PAD (F) (See Note 7)

RUNWAY DATA

DESCRIPTION			RUNWAY 18 - 36 EXISTING	RUNWAY 18 - 36 ULTIMATE
EFFECTIVE GRADIENT (IN %)			.36	.45 (Est.)
MAXIMUM GRADIENT (IN %)			2.12 (Est.)	.77 (Est.)
WIND COVERAGE % (10.5 KNOTS)			98.96	SAME
APPROACH VISIBILITY MINIMUMS			1 MI (18)/V (36)	1 MILE
DESIGN AIRCRAFT	MAKE AND MODEL		SINGLE ENGINE	SAME
	WINGSPAN (Feet)		<49	SAME
	APPROACH SPEED (Kts.)		<91	SAME
	MAX. TAKEOFF WEIGHT (LBS)		8,000	SAME
RUNWAY MARKING			VISUAL	NON-PREC
APPROACH CATEGORY (FAR PART 77)			NON-PREC(18) VISUAL(36)	NON-PREC
RUNWAY ELEVATIONS	TOUCHDOWN ZONE (TDZ)		708'	708' (Est.)
	HIGH POINT		707.8'	707.8' (Est.)
	LOW POINT		700'	698.0' (Est.)
LINE OF SIGHT REQUIREMENT MET			YES	SAME
RUNWAY LENGTH			2,160'	SAME
RUNWAY WIDTH			60'	SAME
RUNWAY/TAXIWAY PAVEMENT MATERIAL			ASPHALT	SAME
APPROACH SLOPE			20:1	SAME
PAVEMENT STRENGTH (S/D) (000 LBS)			5.9/8.4	SAME
RUNWAY LIGHTING			MIRL	SAME
NAVIGATIONAL AIDS			BEACON	SAME
VISUAL AIDS			VASI (18)	SAME
RUNWAY SAFETY AREA		LENGTH[1]	240'	SAME
		WIDTH	120'	SAME
RUNWAY OBJECT FREE AREA		LENGTH[1]	240'	SAME
		WIDTH	250'	SAME
OBSTACLE FREE ZONE		LENGTH[1]	200'	SAME
		WIDTH	250'	SAME
RUNWAY CENTERLINE TO HOLDLINE			57'	SAME

[1] LENGTH BEYOND STOP END OF THE RUNWAY

AIRPORT DATA

DESCRIPTION		EXISTING	ULTIMATE
AIRPORT ELEVATION (MSL)		708'	SAME
AIRPORT REFERENCE POINT (ARP) COORDINATES	LATITUDE	33°21'06.54"N	33°21'14.53"N
	LONGITUDE	117°15'04.41"W	117°15'01.91"W
NAVAIDS (ILS, BEACON, ALS)		BEACON	SAME
MEAN MAX. TEMP. OF HOTTEST MONTH		83.7° AUGUST	SAME
AIRPORT REFERENCE CODE		A-I (SMALL)	SAME
GPS AT AIRPORT		YES	SAME

LEGEND

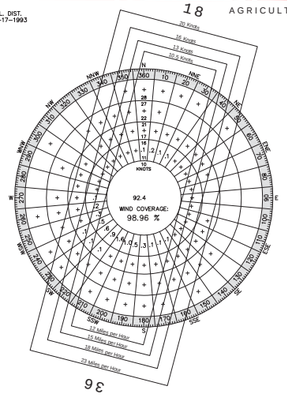
DESCRIPTION	EXISTING	ULTIMATE
SECTION CORNER		SAME
AIRPORT BOUNDARY		SAME
AIRFIELD PAVEMENT		
BUILDING RESTRICTION LINE (BRL)		
RUNWAY OBJECT FREE AREA (ROFA) / OBSTACLE FREE ZONE (OFZ)		
RUNWAY SAFETY AREA (RSA)		
BUILDINGS (See Note 6)		
FENCE		
GROUND CONTOURS	995'	SAME
AIRPORT REFERENCE POINT (ARP)		
RUNWAY PROTECTION ZONE EASEMENT		
THRESHOLD SITING SURFACE		
RUNWAY LIGHTS		
SURVEY MONUMENT	△1	△1
AVIATION USE BOUNDARY LINE		
AGRICULTURAL AREA		SAME

FAA APPROVAL

Approved _____
FEDERAL AVIATION ADMINISTRATION
Western-Pacific Region
By _____
Supervisor, Standards Section

NOTES:

1. Existing runway coordinates are based on information obtained from the San Diego County GIS.
2. All coordinates are in California Coordinate System Zone 6 NAD 83.
3. All elevations are in North American Vertical Datum 1988.
4. Monument 1 is protected by asphalt.
5. Existing residences located within the Runway 18 RPZ will not be within the future RPZ (after the runway is translated 240 feet to the south).
6. Ultimate facilities needed to accommodate the maximum number of based aircraft specified in the Major Use Permit are depicted in gray.
7. Final location of the Compass Calibration Pad should be located at least 300 feet from power and communication cables and other aircraft, and at least 600 feet from large magnetic objects, such as buildings. A thorough magnetic survey of the proposed site should be performed prior to construction. For more information refer to AC 150/5300-13, Appendix 4.



ALL WEATHER WIND ROSE

ABBREVIATIONS:

ARP	Airport Reference Point
BRL	Building Restriction Line
(E)	Existing
El.	Elevation
Est.	Estimate
(F)	Future
Kts.	Knots
Lat.	Latitude
Long.	Longitude
MSL	Mean Sea Level
MIRL	Medium Intensity Runway Edge Lights
OFZ	Obstacle Free Zone
PAPI	Precision Approach Path Indicator
REIL	Runway End Identifier Lights
ROFA	Runway Object Free Area
RPZ	Runway Protection Zone
RSA	Runway Safety Area
TWY	Taxiway
TDZE	Touch Down Zone Elevation
Vis.	Visibility
VASI	Visual Approach Slope Indicator

CROSSWIND COVERAGE

RUNWAY	10.5	13	16	20
18	75.95%	76.49%	76.77%	76.83%
36	55.58%	55.64%	55.68%	55.70%
18-36	98.96%	99.56%	99.89%	99.97%

Based on 81,456 observations between 1990 through 1999 taken at Camp Pendleton.

RECOMMENDED BY: _____ DATE 1/18/06
WELLS, MANAGER, AIRPORT MANAGER
_____ DATE 1/18/06
KIM NELSON, AIRPORT ENGINEER

APPROVED BY: _____ DATE 1/19/06
PETER DRINKWATER, AIRPORTS DIRECTOR

The preparation of this plan was financed in part through a planning grant from the Federal Aviation Administration as provided under Section 505 of the Airport and Airway Improvement Act of 1982, as amended. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this plan by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws.

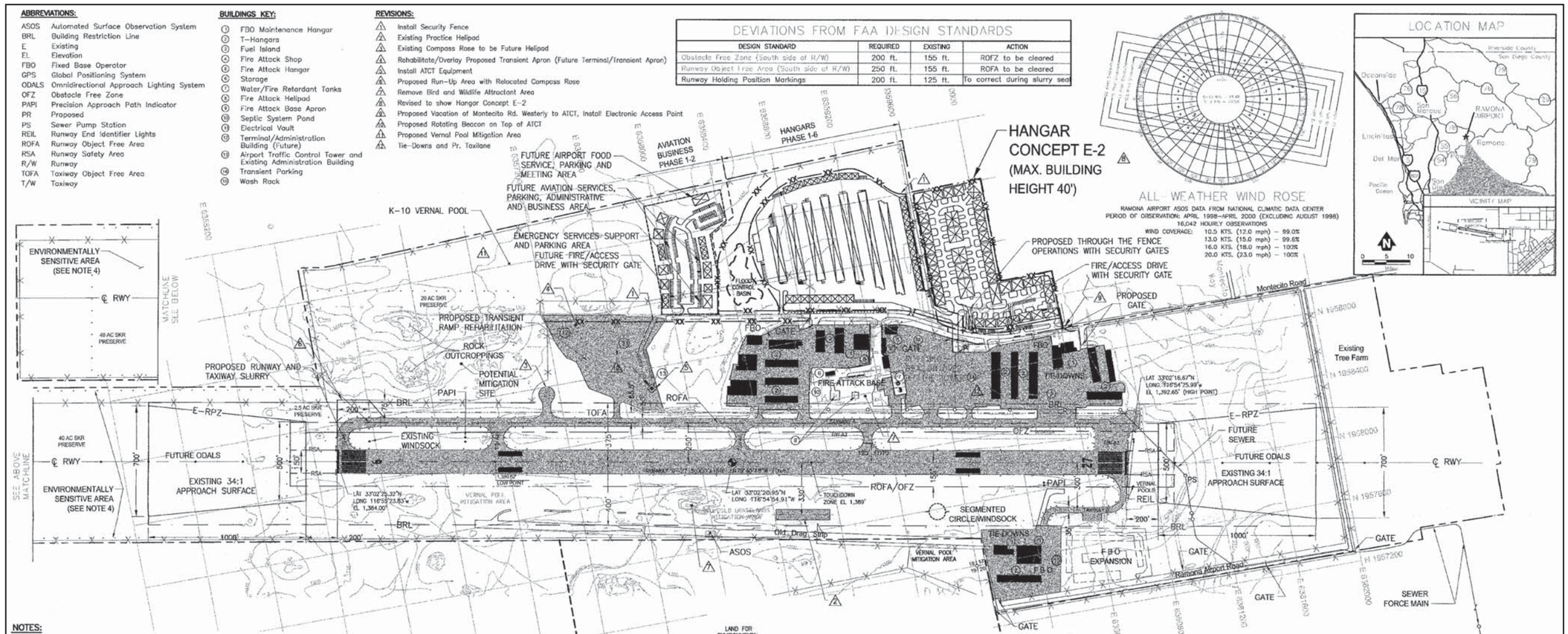
NO.	DATE	REVISION	BY	APP.
3	10/2005	AIRPORT MASTER PLAN	DPS	PD
2	1/19/1999	VALIDATE CONDITIONS AND UPDATE TO 1997 CHECKLIST		
1	7/10/1990	VALIDATE AIRPORT CONDITIONS		

AIRPORT LAYOUT PLAN

FALLBROOK COMMUNITY AIRPARK
FALLBROOK, CALIFORNIA
COUNTY OF SAN DIEGO
DEPARTMENT OF PUBLIC WORKS

P&D Aviation
A Division of P&D Consultants, Inc.
999 Town & Country Rd., 4th Floor
Orange, CA 92868

DESIGNED: AWS	CHECKED: DPS	SHEET 2 OF 6
DRAWN: AWS	DATE: December, 2005	



NOTES:

1. All elevations are in feet above Mean Sea Level.
2. California Coordinate System, Zone 6, NAD 83.
3. The applicable standard for RSA width is 150 feet. The existing runway is also 150 feet wide.
4. Lateral extent of Environmentally Sensitive Area defined by Airport property line on both sides of extended runway centerline.
5. At the same time as the agreement for through the fence operations is completed the County and Ramona Air Center (RAC) will enter into an aeronautical lease for the developable portions of the County Property, for a minimum of twenty (20) acres, that will provide for the development of the leased area by RAC for aircraft hangaring and support services. The proposed lease will provide for the development to take place in phases of approximately five (5) acres each. Development on first phase must be completed within 4 years after Lease and Through the Fence Operations agreements are approved by County. At least one (1) of the remaining phases shall be completed each subsequent year thereafter subject to market conditions in the opinion of Ramona Air Center.

RECOMMENDED BY: BOB DOSSEN, AIRPORT MANAGER — DATE 6/27/09
ERIK NELSON, AIRPORT ENGINEER — DATE 7/24/09
APPROVED BY: PETER DRINKWATER, AIRPORTS DIRECTOR — DATE 7/24/09

LEGEND

	EXISTING	ULTIMATE
AIRFIELD PAVEMENT		
AIRPORT BOUNDARY		
AIRPORT REFERENCE POINT (ARP)		Same
BUILDINGS		
BUILDING RESTRICTION LINE (BRL)		Same
GROUND CONTOURS	1375	Same
FENCE		Same
OBSTACLE FREE ZONE		Same
ROAD/VEHICLE PARKING		
RUNWAY OBJECT FREE AREA		Same
RUNWAY SAFETY AREA		Same
SECTION CORNER	1957 1920	Same
TAXIWAY OBJECT FREE AREA		Same
ENVIRONMENTAL AREA BOUNDARY		Same
PROPOSED BOX HANGAR AND T-HANGARS		
CONCEPTUAL DEVELOPMENT		

RUNWAY DATA

	RUNWAY 9-27	
	EXISTING	FUTURE
EFFECTIVE GRADIENT	0.25%	Same
PAVEMENT STRENGTH (1000#) S/D/DT	75/155/200	Same
PAVEMENT MATERIAL	ASPHALT	Same
RUNWAY/TAXIWAY LIGHTING	Medium Intensity	Same
RUNWAY MARKING	Nonprecision	Same
NAVIGATIONAL AIDS	None	Same
WIND COVERAGE % (13 KNOTS)	99.6	Same
VISUAL AIDS	PAPI (9/27 3.5°), REIL (27)	ODALS (9/27) REIL (9)
FAR PART 77 CATEGORY	Nonprecision (9) Visual (27)	Nonprecision
APPROACH SLOPE (Required/Clear)	34:1/50:1	Same
MAXIMUM ELEVATION ABOVE MSL	1,392.65'	Same
RUNWAY LENGTH AND WIDTH	5,000' X 150'	Same
RUNWAY SAFETY AREA LENGTH/WIDTH	300'/150'	Same
RUNWAY OBJECT FREE AREA LENGTH/WIDTH	500'/500'	Same

RUNWAY END DATA

			9	27
APPROACH END OF RUNWAY:				
APPROACH VISIBILITY MINIMUMS:		Existing	> 1 Mile	> 1 Mile
		Future	1 Mile	1 Mile
RUNWAY END COORDINATES (NAD 83)	Latitude	Existing	33° 02' 25.23"N	33° 02' 16.67"N
		Future	Same	Same
	Longitude	Existing	116° 55' 23.83"W	116° 54' 25.99"W
		Future	Same	Same

AIRPORT DATA

		EXISTING	FUTURE
AIRPORT SERVICE LEVEL (NPIAS)		Reliever	Same
AIRPORT REFERENCE POINT (NAD 83)	Latitude	33° 02' 20.95" N	Same
	Longitude	116° 54' 54.91" W	Same
AIRPORT ELEVATION (Above Mean Sea Level)		1,392.7'	Same
MEAN MAX. TEMP. (Hottest Month)		94° F (July)	Same
AIRPORT NAVIGATIONAL AIDS		PAPI (9/27), REIL (27)	GPS
AIRPORT REFERENCE CODE		B-II	Same
CRITICAL AIRCRAFT		Fokker F-28-2000	Same
AIRPORT ACREAGE	Fee Simple	378	Same
	Easement	None	Same
AIRCRAFT PARKING	Hangar Units	123	171
	FBO Area Tiedowns	85	Same
	County Apron (Incl. Transient)	18	50+

ANNUAL RATE OF CHANGE –1.5 MIN/YEAR

300' 0 300' 600'

Scale: 1" = 300'

FAA APPROVAL

Approved conditionally MAY 4 2009

Subject to comments contained in our letter dated: MAY 4 2009

FEDERAL AVIATION ADMINISTRATION Western-Pacific Region

By _____ Manager - LAX/ADO

The preparation of this plan was financed in part through a planning grant from the Federal Aviation Administration as provided under Section 505 of the Airport and Airway Improvement Act of 1982, as amended. The contents do not necessarily reflect the official views or policy of the FAA. Acceptance of this plan by the FAA does not in any way constitute a commitment on the part of the United States to participate in any development depicted therein nor does it indicate that the proposed development is environmentally acceptable in accordance with appropriate public laws.

NO.	DATE	REVISION	BY	APP.
7	3/12/09	Revised to Show Hangar Concept E-2	SWM	
6	4/3/07	Revised Per FAA Comments	SWM	
5	10/20/06	Revised Per County/FAA Comments	SWM	
4	5/17/06	Revised Per County Comments	SWM	
3	3/8/06	Revised to Show Hangar Concept E-1	SWM	
2	3/2005	Revised Per FAA Comments	DPS	PD
1	6/2003	Incorporate A.I.P. Project No. 05, Runway and Taxiway extension.	DPS	RLS

AIRPORT LAYOUT PLAN

RAMONA AIRPORT

RAMONA, CALIFORNIA

COUNTY OF SAN DIEGO

DEPARTMENT OF PUBLIC WORKS

RS&H IMPROVING YOUR WORLD Reynolds, Smith and Hills, Inc.

P&D Aviation A Division of P&D Consultants, Inc. 999 Town & Country Rd., 4th Floor Orange, CA 92868

HANGAR CONCEPTS & REVISIONS — BASE ALP

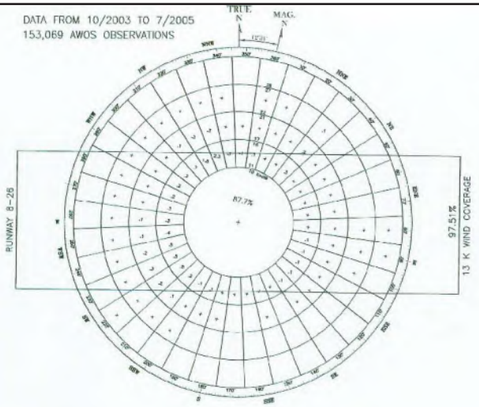
DESIGNED: DPS | CHECKED: DPS | SHEET 1 OF 1

DRAWN: AWS | DATE: July 31, 2007

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.

NOTES:

1. Existing ALP base prepared by County of San Diego Department of Public Works. Bearings and coordinates are based on the California Coordinate System, Zone 6, NAD 83.
2. All elevations are in feet above mean sea level (MSL) with NAVD 88 datum.
3. South side BRL will permit a building height of only 12.5 feet at the BRL. Future buildings (non-hangars) 25 feet high should be 425 feet from runway centerline and should comply with ultimate FAR Part 77 surfaces.
4. Runway length calculated from State Coordinates.
5. Existing Runway Protection Zones owned in fee.
6. Base Map, coordinates, elevations and clear slopes furnished by County of San Diego (August 2006).
7. Survey Monuments – Not Applicable.
8. The east RPZ exceeds FAA minimum standards by County preference to enhance approach protection.



ABBREVIATIONS:

ARP	Airport Reference Point
AWOS	Automated Weather Observation System
BRL	Building Restriction Line
FBO	Fixed Base Operator
GPS	Global Positioning System
MIRL	Medium Intensity Runway Edge Lights
PAPI	Precision Approach Path Indicator
REIL	Runway End Identifier Lights
ROFA	Runway Object Free Area
RPZ	Runway Protection Zone
RSA	Runway Safety Area
R/W	Runway
T/W	Taxiway
ULT	Ultimate

GRAPHIC SCALE

SCALE: (1 Inch = 300 Feet)

LOCATION MAP

FAA APPROVAL STAMP

Approved conditionally FEB 16 2011

Subject to comments contained in our letter dated: FEB 16 2011

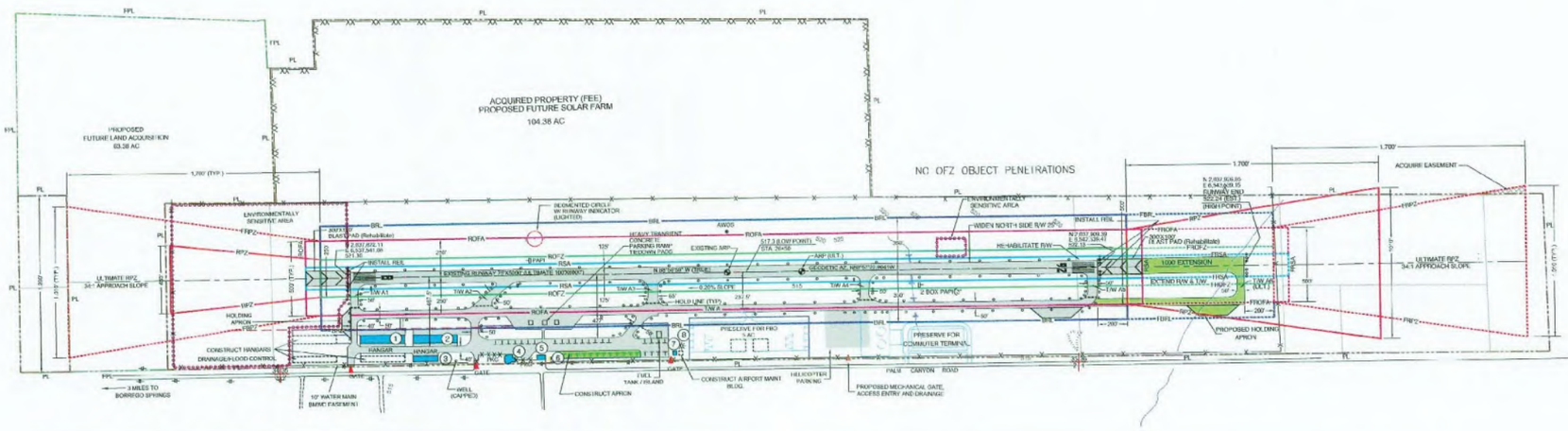
Revalidated

FEDERAL AVIATION ADMINISTRATION

Western-Pacific Region

By

Manager - LAX/ADO



Detail 'A'

GRAPHIC SCALE

SCALE: (1 Inch = 100 Feet)

RUNWAY DATA

	RUNWAY 8-26 EXISTING	RUNWAY 8-26 FUTURE				RUNWAY 8-26 EXISTING	RUNWAY 8-26 FUTURE
AIRPORT REFERENCE CODE	D-II	No Change	APPROACH TYPE	Approach End	8	Visual	Non-Precision
CRITICAL AIRCRAFT	Citation V	No Change	(FAR Part 77 Category)	of Runway	26	Non-Precision	No Change
WING SPAN	52.25'	No Change	APPROACH VISIBILITY	Approach End	8	Visual	1 Mile
APPROACH SPEED	<121 Knots	No Change	(Minimums)	of Runway	26	1 Mile	No Change
MAXIMUM TAKEOFF WEIGHT	15,900 lbs.	No Change	APPROACH SLOPE	Approach End	8	20:1/86:1	34:1/86:1
WIND COVERAGE	97.51%	No Change	(Required/Clear)	of Runway	26	34:1/100+:1	34:1/100+:1
PHYSICAL LENGTH AND WIDTH	5,000'x75'	6,000'x100'	APPROACH AND	Approach End	8	None	GPS
MAXIMUM ELEVATION (Above Mean Sea Level)	521.24	522.24	LANDING AIDS	of Runway	26	GPS	No Change
EFFECTIVE / MAXIMUM GRADIENT (in %)	0.12 / 0.20	No Change	RUNWAY END COORDINATES (NAD83)	Approach End	Latitude	33° 15' 32" N	No Change
RUNWAY/TAXIWAY SURFACE TYPE	Asphalt	No Change		of Runway 8	Longitude	116° 19' 45" W	No Change
PAVEMENT STRENGTH (1,000#) - S/D/DT	30 / 54 / 90	No Change		Approach End	Latitude	33° 15' 33" N	No Change
RUNWAY SAFETY AREA (Width)	150'	No Change		of Runway 26	Longitude	116° 18' 46" W	116° 18' 34" W
OBJECT FREE AREA (Width)	500'	No Change	RUNWAY END	Approach End	8	521.36	No Change
OBSTACLE FREE ZONE (Width)	250'	No Change	ELEVATIONS (NAVD88)	of Runway	26	522.13	522.24 (E)
RUNWAY SAFETY AREA (Length Beyond Runway End)	Approach End of Runway 8	300'	No Change	RUNWAY MARKING			Non-Prec/Non-Prec	No Change
	Approach End of Runway 26	300'	No Change	RUNWAY LIGHTING			MIRL, PAPI	+REIL
OBJECT FREE AREA (Length Beyond Runway End)	Approach End of Runway 8	300'	No Change	TAXIWAY LIGHTING			Yes	No Change
	Approach End of Runway 26	300'	No Change	HOLD BARS & SIGNS (Distance from Rwy Centerline)			200'	No Change
OBSTACLE FREE ZONE (Length Beyond Runway End)	Approach End of Runway 8	200'	No Change					
	Approach End of Runway 26	200'	No Change					

DRAWING LEGEND

	EXISTING	FUTURE
ACTIVE AIRFIELD PAVEMENT		
OTHER PAVEMENT IN USE		No Change
PAVEMENT TO BE REMOVED		
AIRPORT PROPERTY LINE	PL	FPL
OTHER PROPERTY LINES		Same
EASEMENT		
INTERNAL BOUNDARY (lease, R.O.W., etc.)		Same
RUNWAY PROTECTION ZONE	RPZ	FRPZ
RUNWAY SAFETY AREA	RSA	FRSA
RUNWAY OBJECT FREE AREA	ROFA	FROFA
RUNWAY OBSTACLE FREE ZONE	ROFZ	FROFZ
BUILDING RESTRICTION LINE	BRL	No Change
BUILDING		
FENCE	-X-X-X-	-XX-XX-XX-
VEHICLE GATE		
WIND CONE		
UTILITY POLE / POWER LINE		No Change
TOPOGRAPHIC CONTOURS	XXX	No Change
WATERWAY / CULVERT		Same
AIRPORT REFERENCE POINT		
THRESHOLD SITING SURFACE OBJECT PENETRATIONS		Same
ENVIRONMENTALLY SENSITIVE AREA	OOOO	Same
SECTION CORNER		No Change

AIRPORT DATA

		EXISTING	ULTIMATE
AIRPORT ELEVATION		524.24' MSL	NO CHANGE
AIRPORT REFERENCE POINT (ARP) COORDINATES (NAD 83)	LATITUDE	33°15'32"N	33°15'32"N
	LONGITUDE	116°19'15"W	116°19'9"W
MEAN MAX. TEMP. HOTTEST MONTH (JULY)		107.8°F	NO CHANGE
AIRPORT AND TERMINAL NAVAIDS		GPS	NO CHANGE
AIRPORT REFERENCE CODE		B-II	NO CHANGE
AIRPORT WIND COVERAGE % (13 KNOTS)		97.51%	NO CHANGE
AIRPORT NAVAIDS		BEACON	NO CHANGE
VISUAL AIDS		PAPI 8-26	+REIL 8-26

RUNWAY END DATA

RUNWAY		EXISTING	ULTIMATE	EXIST. ELEV.	ULT. ELEV.
8	LATITUDE	33°15'32"N	NO CHANGE	521.36	NO CHANGE
	LONGITUDE	116°19'45"W	NO CHANGE		
26	LATITUDE	33°15'33"N	NO CHANGE	522.13	522.24 (Est.)
	LONGITUDE	116°18'46"W	116°18'34"W		

DEVIATIONS FROM FAA DESIGN STANDARDS

DESIGN STANDARD	STANDARD	EXISTING	DISPOSITION
RUNWAY - TAXIWAY SEPARATION	240' SEPARATION	237.5' SEPARATION	NEGLIGIBLE

EXISTING BUILDINGS / FACILITIES

NO.	DESCRIPTION	AGL.	EST. MSL
1	T-HANGAR	21'	536.24'
2	T-HANGAR	20'	537.24'
3	T-HANGAR	17'	534.24'
4	RESTAURANT	21'	536.24'
5	ADMINISTRATION BUILDING	15'	532.24'
6	GARAGE	12'	529.24'
7	LIGHTING VAULT	12'	529.24'
8	ROTATING BEACON	60'	577.24'

NOTE: ESTIMATES BY SPONSOR (NAVD 88 DATUM)

JUNE 15, 2007

WADELL ENGINEERING CORPORATE

WWW.WADELL.COM

30 YEARS OF EXCELLENCE BY DESIGN

COUNTY OF SAN DIEGO
DEPARTMENT OF PUBLIC WORKS

5555 OVERLAND AVENUE, SAN DIEGO, CA 92123-1295

RECOMMENDED BY: VIRGIL COLE, AIRPORTS MANAGER — DATE 11-4-2010

APPROVED BY: ERIC NELSON, AIRPORT ENGINEER — DATE 11-9-10

PETER DRINKWATER, AIRPORTS DIRECTOR — DATE 11-9-10

REVISIONS	BY	APPROVED	DATE
4 ADDITION OF 104.38 ACRES LAND PURCHASE	JP		10-25-2010
3 COMPLETION OF RUNWAY AND TAXIWAY REHAB	WEC		6-15-2007
2 INTERNAL UPDATE – NO FAA APPROVAL RECEIVED	WEC		4-13-2006
1 ALP UPDATE	CSD		4-22-1996

BORREGO VALLEY AIRPORT
BORREGO SPRINGS, CALIFORNIA
AIRPORT LAYOUT PLAN

FILE NO.

SHEET 1 OF 3

TABLE C1 – Agua Caliente Springs Airport Summary

General Information

Airport Ownership: Airport lies within Anza-Borrego Desert State Park on land leased from the State to the County of San Diego
Property Size: 55 acres
Airport Elevation: 1,220 ft. MSL
Airport Master Plan: None
FAA Airport Classification: Non-NPIAS General Aviation
Air Traffic Control Tower: None; CTAF use required
Operating Hours: Open sunrise to sunset
FAA Class of Airspace: E

Airport Activity

Based Aircraft[1]		**Annual Operations**		
Single-Engine	0		**Existing (2018)**[1]	**20-Year Forecast**[2]
Multi-Engine	0	GA Local	0	0
Turboprop	0	GA Itinerant	4,400	4,600
Jet	0	Military Local	0	0
Helicopter	0	Military Itinerant	55	55
Other	0	**Total**	**4,455**	**4,655**
Total	**0**			

Airport Design – Runway 11-29

FAA Airport Reference Code: A-I
Critical Aircraft: Single-Engine, Propeller (Aircraft Design Group A-I)
Dimensions: 2,500 ft. x 60 ft.
Pavement Strength: 12,500 lbs. (single wheel)
Average Gradient: 1%
Runway Lighting: None
Primary Taxiways: None
Existing Runway Protection Zones

- **Runway 11**: 1,000 ft., portion off property traversed by County Road S2
- **Runway 29**: 1,000 ft., nearly all on airport property

Traffic Patterns and Approach Procedures

Approach Procedures: No instrument, all VFR
Traffic Patterns: Runway 11 – Left traffic | Runway 29 – Right traffic

- Wind permitting, aircraft typically use Runway 29 for landings and Runway 11 for departures due to 460-foot-high hill located ½ mile west of airport

Typical Pattern Altitude: 2,020 ft. MSL (800 ft. AGL)
Visual Approach Aids: Wind indicator and segmented circle
Approach Obstacles

Runway 11

- Flood control channel located 75 feet lateral to runway
- High terrain to the south and west
- Aircraft tiedown apron and berm located within primary surface

Building Area

Aircraft Parking Location/Capacity: Tiedown apron south of Runway 11; 6 tiedowns (no hangar spaces)
Other Facilities and Services: None

Planned Facility Improvements

None

Key:
NPIAS – National Plan of Integrated Airport Systems
CTAF – Common Traffic Advisory Frequency
MSL – Mean Sea Level
VFR – Visual Flight Rules
AGL – Above Ground Level
GA – General Aviation

Sources:
[1] FAA Form 5010, *Airport Master Record*
[2] Coffman Associates analysis, 2018

Table C2 – Borrego Valley Airport Summary

General Information

Airport Ownership: County of San Diego
Property Size: 674 acres
Airport Elevation: 1,220 ft. MSL
Airport Master Plan: Adopted January 23, 1996
FAA Airport Classification: NPIAS General Aviation
Air Traffic Control Tower: None; CTAF use required
Operating Hours: 24/7
FAA Class of Airspace: E

Airport Activity

Based Aircraft[1]		**Annual Operations**		
Single-Engine	10		**Existing (2018)**[2]	**20-Year Forecast**[3]
Multi-Engine	1	GA Local	1,050	1,100
Turboprop	0	GA Itinerant	17,200	18,600
Jet	0	Military Local	0	0
Helicopter	0	Military Itinerant	4,000	4,000
Other	0	**Total**	**22,250**	**23,700**
Total	**11**	Note: 1996 Master Plan forecasts were determined to be unreliable due to age. Updated forecasts were prepared based on current information.		

Airport Design – Runway 8-26

FAA Airport Reference Code: B-II
Critical Aircraft: Twin-Engine, Business Jet (Aircraft Design Group B-II)
Dimensions: 5,000 ft. x 75 ft.
Pavement Strength: 30,000 lbs. (single wheel); 54,000 lbs. (double wheel); 90,000 lbs. (double tandem)
Average Gradient: 0.1%
Runway Lighting: Medium Intensity Runway edge only
Primary Taxiways: Alpha, no lighting
Existing Runway Protection Zones

- **Runway 08**: 1,000 ft., all on Airport property
- **Runway 26**: 1,700 ft., nearly all on Airport property

Future Runway Protection Zones

- **Runway 08**: 1,700 ft., 700 ft. to be acquired (fee simple) between non-contiguous portions of Airport property
- **Runway 26**: 1,700 ft., easement to be acquired for small portion off Airport property

Traffic Patterns and Approach Procedures

Approach Procedures: Non-precision on both runway ends
Traffic Patterns: Runway 08 – Right traffic | Runway 26 – Left traffic
Typical Pattern Altitude: 1,520 ft. MSL (1,000 ft. AGL)
Visual Approach Aids: Wind indicator and segmented circle, 2-light PAPI on left of Runway 8-26
Approach Obstacles

- **Runway 08**: 140 ft. Tower 1,600 ft. N of runway
- **Runway 26:** None

Operational Notes/Noise Abatement Procedures

- Frequent changes in wind direction
- Noise-sensitive area west of Airport, including elementary school
- Aerobatic activity on north side of airport during daylight hours from surface to 5,000 ft. AGL

Building Area

Aircraft Parking Location/Capacity: South of Runway 8; 30 hangar spaces and 30 tiedowns
Other Facilities and Services: 2 FBOs, administrative building, fuel available

Planned Facility Improvements

- Extend Runway 26 1,000 ft. east for a total length of 6,000 ft.
- Construct T-hangars and expand aircraft parking apron
- Acquire 63.38 acres for Runway 26 RPZ
- Extend parallel taxiway and holding apron to new Runway 26 end

Key:
NPIAS – National Plan of Integrated Airport Systems
CTAF – Common Traffic Advisory Frequency
MSL – Mean Sea Level
AGL – Above Ground Level
FBO – Fixed Based Operator
RPZ – Runway Protection Zone
GA – General Aviation

Sources:
[1] County of San Diego Airports 2018
[2] FAA Form 5010, *Airport Master Record*
[3] Coffman Associates analysis, 2018

DRAFT

Table C3 – Fallbrook Community Airpark Summary

General Information

Airport Ownership: County of San Diego
Property Size: 290 acres
Airport Elevation: 708 ft. MSL
Airport Master Plan: Adopted September 24, 2008
FAA Airport Classification: NPIAS General Aviation
Air Traffic Control Tower: None; CTAF use required
Operating Hours: 24/7
FAA Class of Airspace: E

Airport Activity

Based Aircraft[1]		Annual Operations		
Single-Engine	83		**Existing (2018)[2]**	**20-Year Forecast[3]**
Multi-Engine	4	GA Local	11,756	12,800
Turboprop	0	GA Itinerant	7,838	8,500
Jet	0	Military Local	0	0
Helicopter	1	Military Itinerant	0	0
Other	0	**Total**	**19,594**	**21,300**
Total	**88**	Note: 2008 Master Plan forecasts were determined to be unreliable due to age. Updated forecasts were prepared based on current information.		

Airport Design – Runway 18-36

FAA Airport Reference Code: A-I
Critical Aircraft: Multi-Engine, Propeller (Aircraft Design Group B-II)
Dimensions: 2,160 ft. x 60 ft.
Pavement Strength: 12,000 lbs. (single wheel)
Average Gradient: Runway 18 – 0.5% | Runway 36 – 0.4%
Runway Lighting: Medium Intensity Runway Lighting edge only
Primary Taxiways: Alpha – CTAF activated taxiway lights
Helipad: H1**,** 45 ft. x 45 ft., unlit
Existing Runway Protection Zones

- **Runway 18**: 1,000 ft., nearly all off Airport property, existing residences within RPZ and traversed by Mission Road; area within existing ground protection easement
- **Runway 36**: 1,000 ft., all on Airport property

Future Runway Protection Zones

- **Runway 18**: 1,000 ft., mostly off Airport property, no residences in RPZ, traversed by Mission Road; acquire additional ground protection easement for 0.7-acre
- **Runway 36**: 1,000 ft., all on Airport property

Traffic Patterns and Approach Procedures

Approach Procedures: Instrument, basic markings for Runway 18 only
Traffic Patterns: Runway 18 – Left traffic | Runway 36 – Right traffic
Typical Pattern Altitude: 1,708 ft. MSL (1,000 ft. AGL)
Visual Approach Aids: Wind indicator and segmented circle, PVASI on Runway 18
Approach Obstacles

- **Runway 18**: None
- **Runway 36:** None

Operational Notes/Noise Abatement Procedures

- Major Use Permit allows for a maximum of 300 based aircraft
- Traffic climb straight ahead to 1,200 ft. MSL
- Avoid overflight of military airspace over USMC Camp Pendleton immediately W of Airport
- Runway 18 turn crosswind at abeam water tank (1.1 miles east southeast of runway)
- Runway 18 extend downwind leg to allow 1/3-mile final approach
- Fly downwind to east of high school

Building Area

Aircraft Parking Location/Capacity: West of Runway 18; 131 hangar spaces and 12 tiedowns
Other Facilities and Services: Administration/terminal building, fuel available

Planned Facility Improvements

- Provide non-precision approach capability to Runway 36 and upgrade runway markings from basic (visual) to non-precision.
- Shift runway 240 ft. south; remove same amount of existing pavement at north end; construct RSA/OFA at south end of runway.
- Expand aircraft parking apron and hangar area and construct new administration/terminal building

Key:
NPIAS – National Plan of Integrated Airport Systems
CTAF – Common Traffic Advisory Frequency
MSL – Mean Sea Level
AGL – Above Ground Level
PVASI – Pulsating Visual Approach Slope Indicator
RSA – Runway Safety Area
OFA – Object Free Area
GA – General Aviation

Sources:
[1] County of San Diego Airports 2018
[2] FAA Form 5010, *Airport Master Record*
[3] Coffman Associates analysis, 2018

DRAFT

Table C4 – Jacumba Airport Summary

General Information

Airport Ownership: County of San Diego
Property Size: 124 acres
Airport Elevation: 2,844 ft. MSL
Airport Master Plan: None
FAA Airport Classification: Non-NPIAS General Aviation
Air Traffic Control Tower: None; CTAF use required
Operating Hours: Open sunrise to sunset
FAA Class of Airspace: E

Airport Activity

Based Aircraft[1]		**Annual Operations**		
Single-Engine	0		**Existing (2018)**[1]	**20-Year Forecast**[2]
Multi-Engine	0	GA Local	535	600
Turboprop	0	GA Itinerant	835	900
Jet	0	Military Local	0	0
Helicopter	1	Military Itinerant	0	0
Other	0	**Total**	**1,370**	**1,500**
Total	**1**			

Airport Design – Runway 7-25

Airport Reference Code: A-I
Critical Aircraft: Single-Engine, Propeller (Aircraft Design Group A-I)
Dimensions: 2,567 ft. x 60 ft.
Pavement Strength: 12,500 lbs. (single wheel)
Average Gradient: 1%
Runway Lighting: None
Primary Taxiways: None
Existing Runway Protection Zones
Runway 07: 1,000 ft., portion off Airport property
Runway 25: 1,000 ft., all on Airport property

Traffic Patterns and Approach Procedures

Approach Procedures: No instrument, all VFR
Airplane Traffic Patterns: Runway 07 – Left traffic | Runway 25 – Right traffic
Typical Pattern Altitude: 3,844 ft. MSL (1,000 ft. AGL)
Visual Approach Aids: Wind indicator and segmented circle
Approach Obstacles
- **Runway 07**: None
- **Runway 25:** 480 ft. hill 5,000 ft. from runway, 10:1 slope to clear

Operational Notes/Noise Abatement Procedures
- Avoid overflight without authorization of Mexican border 615 ft. to south of runway
- Rapidly rising terrain in all quadrants
- Avoid overflight of residential community ½-mile to W
- Recommend landing on Runway 7 and departing from Runway 25, wind permitting
- Frequent glider activity on weekends

Building Area

Aircraft Parking Location/Capacity: Gravel tiedown apron located midfield on north side of airfield; three hangar spaces, no tiedowns
Other Facilities and Services: Launch winch for gliders

Planned Facility Improvements

None

Key:
NPIAS – National Plan of Integrated Airport Systems
CTAF – Common Traffic Advisory Frequency
VFR – Visual Flight Rules
AGL – Above Ground Level
MSL – Mean Sea Level
GA – General Aviation

Sources:
[1] FAA Form 5010, *Airport Master Record*
[2] Coffman Associates analysis, 2018

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Table C5 – Ocotillo Airport Summary

General Information

Airport Ownership: County of San Diego
Property Size: 353 acres
Airport Elevation: 160 ft. MSL
Airport Master Plan: None
FAA Airport Classification: Non-NPIAS General Aviation
Air Traffic Control Tower: None; CTAF use required
Operating Hours: Open sunrise to sunset
FAA Class of Airspace: E

Airport Activity

Based Aircraft[1]			**Annual Operations**	
			Existing (2018)[1]	**20-Year Forecast**[2]
Single-Engine	0			
Multi-Engine	0	GA Local	0	0
Turboprop	0	GA Itinerant	600	630
Jet	0	Military Local	0	0
Helicopter	0	Military Itinerant	1,200	1,200
Other	0	**Total**	**1,800**	**1,830**
Total	**0**			

Airport Design – Runway 13-31

FAA Airport Reference Code: A-I
Critical Aircraft: Single-Engine, Propeller (ADG A-I)
Dimensions: 4,210 ft. x 150 ft.
Pavement Strength: N/A (dirt)
Average Gradient: 0%
Runway Lighting: None
Primary Taxiways: None
Existing Runway Protection Zones

- **Runway 13**: 1,000 ft., mostly off Airport property
- **Runway 31**: 1,000 ft., mostly off Airport property, traversed by State Highway 78

Runway 09-27

FAA Airport Reference Code: A-I
Critical Aircraft: Single-Engine, Propeller (ADG A-I)
Dimensions: 2,475 ft. x 150 ft.
Pavement Strength: N/A (dirt)
Average Gradient: 0%
Runway Lighting: None
Primary Taxiways: None
Existing Runway Protection Zones

- **Runway 09**: 1,000 ft., partially off airport property
- **Runway 27**: 1,000 ft., approximately half off airport property

Traffic Patterns and Approach Procedures

Approach Procedures: No instrument, all VFR
Traffic Patterns: Runway 13 – Left traffic | Runway 31 – Right traffic; Runway 09 – Right traffic | Runway 27 – Left traffic
Typical Pattern Altitude: 960 ft. MSL (800 ft. AGL)
Visual Approach Aids: Wind indicator and segmented circle
Approach Obstacles

- **Runway 13**: 60 ft. hill. 2,000 ft. from runway, 33:1 slope to clear
- **Runway 31**: 19 ft. road, 420 ft. from runway, 22:1 slope to clear
- **Runway 09**: 50 ft. hill, 800 ft. from runway, 16:1 slope to clear
- **Runway 27**: 77 ft. hill, 3,000 ft. from runway, 38:1 slope to clear

Operational Notes/Noise Abatement Procedures

- Field unusable when wet
- Surrounded by Ocotillo Wells State Vehicular Recreation Area and off-road vehicles intrude on unenclosed Airport property
- Runway ends and intersection marked by white paving blocks
- Military and ultralight activity on and in the vicinity of Airport from surface to 4,000 ft. MSL

Building Area

Aircraft Parking Location/Capacity: None
Other Facilities and Services: None

Planned Facility Improvements

None

Key:
NPIAS – National Plan of Integrated Airport Systems
CTAF – Common Traffic Advisory Frequency
MSL – Mean Sea Level
ADG – Aircraft Design Group
AGL – Above Ground Level
VFR – Visual Flight Rules
GA – General Aviation

Sources:
[1] FAA Form 5010, *Airport Master Record*
[2] Coffman Associates analysis, 2018

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Table C6 – Ramona Airport Summary

General Information

Airport Ownership: County of San Diego
Property Size: 342 acres
Airport Elevation: 1,395 ft. MSL
Airport Master Plan: Prepared August 1994, never adopted
FAA Airport Classification : NPIAS Reliever
Air Traffic Control Tower: 8 am-8pm; CTAF after-hours
Operating Hours: 24/7
FAA Class of Airspace: D

Airport Activity

Based Aircraft[1]		**Annual Operations**		
Single-Engine	123		**Existing (2018)**[5]	**20-Year Forecast**[3]
Multi-Engine	6	GA Local	69,806	84,300
Turboprop	0	GA Itinerant	32,212	38,100
Jet	0	Military Local	300	300
Helicopter	0	Military Itinerant	220	220
Other	0	Air Carrier/Air Taxi	177	200
Total	**129**	**Total**	**102,715**	**123,120**[6]

Airport Design – Runway 9-27

FAA Airport Reference Code: B-II
Critical Aircraft: Twin-Engine, Business Jet (Aircraft Design Group B-II)
Dimensions: 5,000 ft. x 150 ft.
Pavement Strength: 75,000 lbs. (single wheel); 95,000 lbs. (double wheel); 170,000 lbs. (double tandem)
Average Gradient: 0.25%
Runway Lighting: REIL Runway 27; MIRL edge only Runway 9-27
Primary Taxiways: Alpha– CTAF activated taxiway lights
Helipad: H1**,** 340 ft. x 66 ft., unlit
Existing Runway Protection Zones

- **Runway 09**: 1,000 ft., all on Airport property
- **Runway 27:** 1,000 ft., all on Airport property

Traffic Patterns and Approach Procedures

Approach Procedures: Instrument, non-precision, on both runway ends
Airplane Traffic Patterns: Runway 9 – Left traffic | Runway 27 – Left traffic
Typical Pattern Altitude: Single-Engine - 2,395 ft. MSL (1,000 ft. AGL); Multi-Engine - 2,895 ft. MSL (1,500 ft. AGL)
Visual Approach Aids: VOR/DME-A, 2-light PAPI on left Runway 9-27, wind indicator, segmented circle, and rotating beacon
Approach Obstacles

- **Runway 09**: None
- **Runway 27:** None

Operational Notes/Noise Abatement Procedures

- On takeoff, climb to 1,900 ft. MSL prior to turns
- Voluntary jet curfew from 10:00 p.m. to 7:00 a.m.
- Noise-sensitive area NE-SE of Airport
- Helipad use restricted
- Ultralights not authorized
- Air tankers in airport vicinity May through November; frequently fly non-standard entry patterns

Building Area

Aircraft Parking Location/Capacity: End of Runway 27, north and south; 110 hangar spaces and 97 tiedowns
Other Facilities and Services: Three FBOs, fuel available

Planned Facility Improvements

None

Key:
NPIAS – National Plan of Integrated Airport Systems
CTAF – Common Traffic Advisory Frequency
MSL – Mean Sea Level
AGL – Above Ground Level
FBO – Fixed-Based Operator
VOR/DME – Very high frequency Omnidirectional Range and Distance Measuring Equipment
PAPI – Precision Approach Path Indicator
REIL – Runway End Identifier Lights
MIRL – Medium Intensity Runway Lights
ATCT – Air Traffic Control Tower
GA – General Aviation

Sources:
[1] County of San Diego Airports 2018
[2] 2017 Calendar Year ATCT Count
[3] Coffman Associates analysis, 2018

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DEPARTMENT OF TRANSPORTATION
DIVISION OF AERONAUTICS – M.S. #40
1120 N STREET
P. O. BOX 942874
SACRAMENTO, CA 94274-0001
PHONE (916) 654-4959
FAX (916) 653-9531
TTY 711
www.dot.ca.gov

Making Conservation a California Way of Life.

February 21, 2019

Mr. Ralph Redman
Manager, Airport Planning
Third Floor, SDCRAA Administration Building
3225 North Harbor Drive
San Diego, California 92101-1072

Dear Mr. Redman:

The California Department of Transportation, Division of Aeronautics (Division) received San Diego County Regional Airport Authority's (SDCRAA) request seeking written acceptance by the Division for Airport Land Use Plans (ALP), airport diagrams, and related airport forecasts. Thank you for submitting all the subsequent requested information.

The California Public Utilities Code (PUC) section 21675 (a) requires that Airport Land Use Compatibility Plans (ALUCPs) be based on adopted airport master plans. When no airport master plan exists, or is not current, the ALUCP should be based on a current ALP that reflects anticipated growth for the next 20 years. It is not necessary that a formal ALP be drawn. A more simplified diagram of the airport may be used for planning purposes if there is enough detail to adequately address the essential elements of airport land use compatibility.

SDCRAA, acting in its capacity as the Airport Land Use Commission (ALUC) for San Diego County, prepared the schematic plans to be used by the ALUC in connection with its compatibility planning and preparation of the ALUCP for rural airports located within San Diego County. In absence of a Federal Aviation Administration (FAA) approved ALP, the airport sponsor (County of San Diego) and the ALUC prepared airport diagrams based on published airport facility information and FAA design guidelines. A signature has been provided at the bottom of each airport diagram that notes the County's validation that the diagrams are accurate.

The update of the San Diego ALUC Rural Airport ALUCP includes six airports: Agua Caliente Springs, Borrego Valley, Fallbrook Community (Airpark), Jacumba, Ocotillo, and Ramona. The Division has reviewed and supports the ALPs, airport diagrams, and operational assumptions to be used in updating ALUCPs for rural airports located within San Diego County.

Caltrans recommendation remains in effect until any of the following occur: 1) a new airport master plan is adopted, or 2) there are significant changes in the existing airport conditions or the proprietor's expansion plans change over the next 20 years in such a manner as to have off-airport land use consequences.

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We look forward to continuing to work with the SDCRAA in connection with approval of this important ALUCP. Please let us know if we can be of any additional assistance regarding this matter.

Sincerely,

Robert Fiore

Robert Fiore
Aviation Planner

Appendix D
SAFETY SUPPORTING INFORMATION

D.1 ALUCP SAFETY ZONES

D.1.1 CALTRANS DIVISION OF AERONAUTICS GUIDANCE

The *California Airport Land Use Planning Handbook* (Handbook) provides guidance for establishing safety zones for airports. Handbook template zones, as shown on **Exhibit D-1**, geometrically circumscribe National Transportation Safety Board (NTSB) aircraft accident data to delineate areas with relatively uniform risk levels of impact in the event of an aircraft mishap. **Table D-1** provides the Handbook's analysis of the safety zones, including the distribution of accident data points within each zone. The area within each zone comprises an acreage over which accident data point concentration is assessed to establish maximum thresholds of appropriate residential unit or nonresidential people per acre for that zone in the ALUCPs. Figure 3A of the Handbook, reproduced as **Exhibit D-1**, provides five zone configurations for general aviation airports, differentiated by runway length (short, medium, long), traffic pattern, and activity level.

TABLE D-1
Analysis of Safety Zone Examples

	% of Points	Acres	% / Acre
Example 1			
Primary Surface	18%	0	2.65
Zone 1: Runway Protection Zone	21%	8	0.5
Zone 2: Inner Approach/Departure Zone	22%	44	0.08
Zone 3: Inner Turning Zone	4%	50	0.07
Zone 4: Outer Approach/Departure Zone	2%	35	0
Zone 5: Sideline Zone	5%	0	0
Zone 6: Traffic Pattern Zone	18%	0	0
Total Zones 1-6 + Primary Surface	91%	0	0
Example 2			
Primary Surface	15%	0	0
Zone 1: Runway Protection Zone	21%	49	0.40
Zone 2: Inner Approach/Departure Zone	10%	101	0.10
Zone 3: Inner Turning Zone	7%	151	0.05
Zone 4: Outer Approach/Departure Zone	5%	69	0.07
Zone 5: Sideline Zone	5%	0	0
Zone 6: Traffic Pattern Zone	23%	0	0
Total Zones 1-6 + Primary Surface	85%	0	0
Example 3			
Primary Surface	13	0	0.26
Zone 1: Runway Protection Zone	20	79	0.07
Zone 2: Inner Approach/Departure Zone	8	114	0.05
Zone 3: Inner Turning Zone	7	131	0.07
Zone 4: Outer Approach/Departure Zone	6	92	0
Zone 5: Sideline Zone	3	0	0
Zone 6: Traffic Pattern Zone	29	0	0
Total Zones 1-6 + Primary Surface	85	0	0

Source: California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, 2011, Table 3B, Examples 1-3, All Accident Sites

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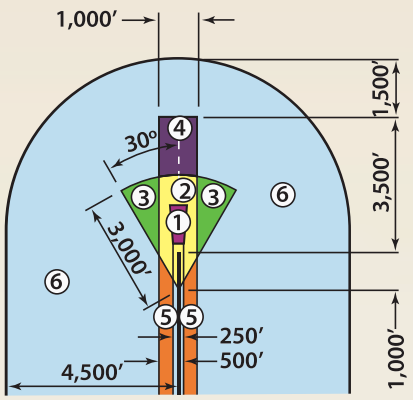
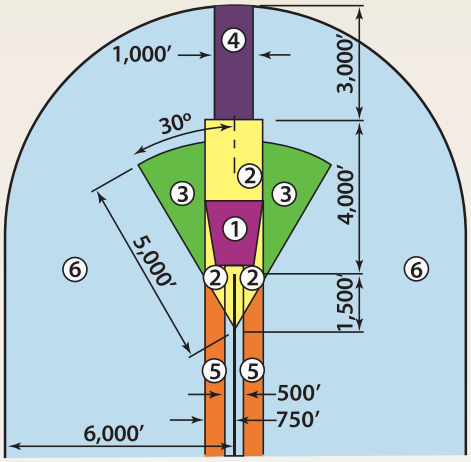


Example 1:
SHORT GENERAL AVIATION RUNWAY

Assumptions:

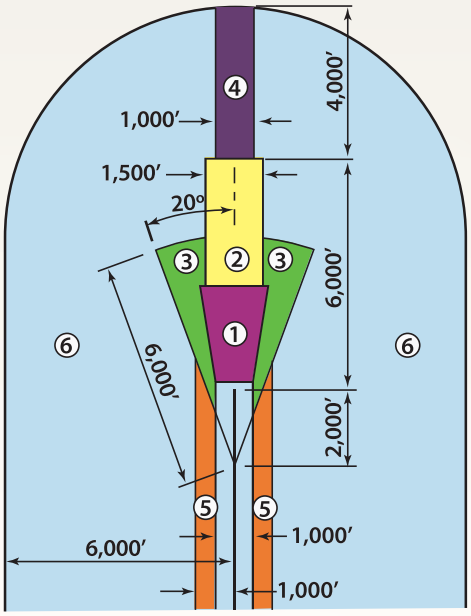
- Length less than 4,000 feet
- Approach visibility minimums ≥ 1 mile or visual approach only
- Zone 1 = 250′ x 450′ x 1,000′



Example 2:
MEDIUM GENERAL AVIATION RUNWAY

Assumptions:

- Length 4,000 to 5,999 feet ≥
- Approach visibility minimums ¾ mile and < 1 mile
- Zone 1 = 1,000′ x 1,510′ x 1,700



Example 3:
LONG GENERAL AVIATION RUNWAY

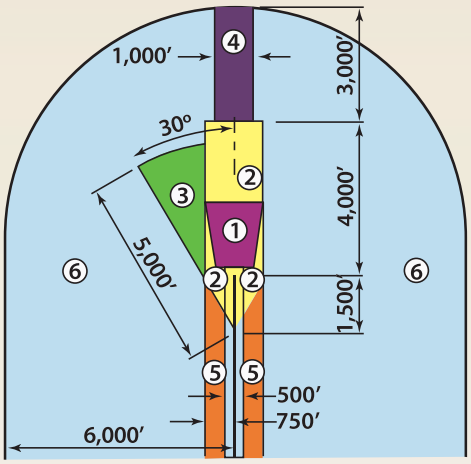
Assumptions:

- Length 6,000 or more
- Approach visibility minimums < ¾ mile
- Zone 1 = 1,000′ x 1,750′ x 2,500

LEGEND

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

Source: California Airport Land Use Planning Handbook, 2011.

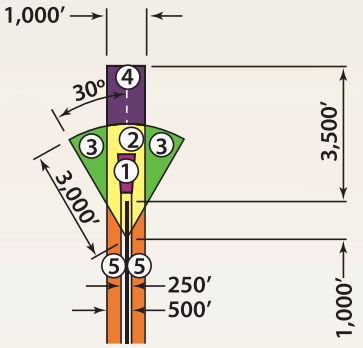


Example 4:
GENERAL AVIATION RUNWAY WITH SINGLE-SIDED TRAFFIC PATTERN

Assumptions:

- **Length 4,000 to 5,999 feet**
- **Approach visibility minimums ≥ ¾ mile and < 1 mile**
- **Zone 1 = 1,000′ x 1,510′ x 1,700**

See Note.



Example 5:
LOW ACTIVITY GENERAL AVIATION RUNWAY

Assumptions:

- **Less than 2,000 takeoffs and landings per year at individual runway end.**
- **Length less than 4,000 feet**
- **Approach visibility minimums ≥ 1 mile or visual approach only**

See Note.

Note:
RPZ (Zone 1) size in each example is as indicated by FAA criteria for the approach type assumed. Adjustment may be necessary if the Approach type differs.

These examples are intended to provide general guidance for establishment of airport safety compatibility zones. They do not represent California Department of Transportation standards of policy.

LEGEND

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

Source: California Airport Land Use Planning Handbook, 2011.

D.1.2 AGUA CALIENTE SPRINGS AIRPORT

For airports with a single runway, like Agua Caliente Springs, zones are selected based upon runway length and the volume of flight operations. With a runway length of 2,500 feet, the airport could be classified as a Low Activity General Aviation Runway (see **Exhibit D-1**, Example 5), but the forecast of 4,655 operations exceeds the maximum number for a Handbook Example 5 runway. Because the airport has a single-sided traffic pattern, Runway 11 to the left and Runway 29 to the right, the runway is classified as a General Aviation Runway with a Single-Sided Traffic Pattern (**Exhibit D-1**, Example 4). Runway 11 is recommended for departures due to a 460-foot hill one-half mile west of the airport. There are also mountains both south and west of the runway that are Part 77 obstructions.

Exhibit D-2 depicts the Agua Caliente Springs Airport safety zones with dimensions. **Exhibit D-3** depicts the safety zones in relation to generalized flight tracks.

D.1.3 BORREGO VALLEY AIRPORT

Borrego Valley Airport has a single runway, which is 5,000 feet long, classified as a Medium General Aviation Runway (see **Exhibit D-1**, Example 2). The 2010 Borrego Valley Airport Layout Plan (ALP) calls for a 1,000-foot extension to Runway 8-26 to the east. At the ultimate runway length of 6,000 feet, the runway would be classified as a Long General Aviation Runway (see **Exhibit D-1**, Example 3). The runway has a single-sided traffic pattern to the south – Runway 8 to the right and Runway 26 to the left. There is a 140-foot tall tower located 1,600 feet north of the beginning of Runway 8.

The safety zones for Borrego Valley Airport depicted on **Exhibit D-4** are based on a combination of Handbook Examples 2 and 3. The Example 2 safety zone dimensions are applied with respect to the existing runway ends, the Example 3 dimensions with respect to the future runway ends. This combination provides safety compatibility protection for areas exposed to risks based on current and planned facilities and operations. After the runway extension is built, it would be acceptable to revise the safety zones to adhere only to the Example 3 (Long General Aviation Runway) guidance.

Exhibit D-5 depicts the safety zones and generalized flight tracks. Despite the single-sided traffic pattern to the south, Safety Zone 3 is designated at the northeast end of the runway. This is in recognition of the Runway 8 departure turns over this general area. A large, rectangular extension of Safety Zone 5 is on the north side of the runway. The airspace above this area is used for aerobatic training and performance.

D.1.4 FALLBROOK COMMUNITY AIRPARK

At Fallbrook Community Airpark, Runway 18-36 is 2,160 feet long, classifying it as a Short General Aviation Runway (see **Exhibit D-1**, Example 1). The runway has a single-sided traffic pattern – Runway 18 to the left and Runway 36 end to the right. The resulting traffic pattern is to the east of the airport to avoid overflight of Naval Weapons Station Fallbrook located to the west of the airport. The 2006 Fallbrook Community Airpark ALP calls for Runway 18-36 to be shifted south 240 feet in the future. That is, the runway will be extended 240 feet to the south and a corresponding 240 feet of the runway on the north side will be closed.

Exhibit D-6 depicts the safety zones for the airport. As noted, the dimensions of the safety zones are based on Handbook Example 1. The safety zones are established relative to both the existing and planned runway ends to provide safety compatibility protection for areas with risk exposure based on each set of runway ends. When the runway is actually relocated, the safety zones can be adjusted to reflect the relocated runway ends.

Note that the placement of Safety Zones 2, 3, and 4 has been adjusted to begin at points 500 feet from each runway end, rather than 1,000 feet as in Handbook Example 1. The adjustment was made for the following reasons:

- Runway 18-36, at 2,160 feet, is much shorter than the maximum length for a Handbook Example 1 runway (4,000 feet).
- The Visual Approach Slope Indicator for Runway 18 is set for a touchdown point at approximately 500 feet from the runway end. Touchdown points are typically set at approximately 1,000 feet from the runway end, which corresponds to the starting point for Safety Zones 2, 3, and 4 in the Handbook example.
- Given the shortness of the runway, departures will be farther away from the opposite runway end when they reach a safe turning altitude than if they were using a 4,000-foot runway. Thus, an outward shift of the SZs would be justifiable for departures as well as approaches.
- This placement of Safety Zones 2, 3, and 4 is consistent with the placement of the zones in the 2006 ALUCP for Fallbrook Community Airpark.

Exhibit D-7 depicts the safety zones with respect to generalized flight tracks.

D.1.5 JACUMBA AIRPORT

Jacumba Airport has a runway length of 2,562 feet with 1,500 projected annual operations, classifying it as a Low Activity General Aviation Runway (see **Exhibit D-1**, Example 5). The runway has a single-sided traffic pattern on the north side – Runway 7 to the left and Runway 25 to the right. The U.S./Mexico border is located 750 feet south of Runway 7-25.

Exhibit D-8 depicts the safety zones and dimensions with respect to generalized flight tracks.

D.1.6 OCOTILLO AIRPORT

Ocotillo Airport has two runways. Runway 13-31 is 4,210 feet long and Runway 9-27 is 2,475 feet long. Given the runway length, Runway 13-31 qualifies as a Medium General Aviation Runway (see **Exhibit D-1**, Example 2). Given its length and the low volume of aircraft operations, Runway 9-27 qualifies as a Low Activity General Aviation Runway (see **Exhibit D-1**, Example 5). Both runways have single-sided traffic patterns. Hills surround the airport on all sides.

Exhibit D-9 depicts the safety zones and dimensions. **Exhibit D-10** depicts the safety zones with respect to generalized flight tracks. Note the helicopter/tiltrotor flight tracks begin and end at a point just southwest of the approach end of Runway 13. This is the typical landing point used by V-22 Osprey tiltrotor aircraft. Safety Zone 3 on the north side of Runway 9 is provided given the low altitude overflights as the Ospreys approach and depart from the designated landing area.

D.1.7 RAMONA AIRPORT

Ramona Airport has one runway, designated 9-27, measuring 5,000 feet long, classifying it as a Medium General Aviation Runway (see **Exhibit D-1**, Example 2). The runway has a double-sided traffic pattern, with traffic patterns to the left on both runway ends.

Exhibit D-11 depicts the Ramona Airport safety zones and dimensions. One adjustment to the layout of the Handbook Example 2 safety zones has been made. Safety Zone 4 on the west side of the airport is flared to the south, covering an area subject to frequent departure activity. This departure traffic is evident in **Exhibit D-12**, which depicts the safety zones relative to both generalized flight tracks and actual radar flight tracks.

Exhibit D-13 presents a flight track density analysis with respect to the safety zones. It indicates the basis for the southern boundary of the expanded Safety Zone 4, which is set to encompass the densest concentration of flight tracks over this area.

D.2 SAFETY ZONE COMPATIBILITY STANDARDS

The Handbook provides guidance for establishing land use compatibility standards within the safety zones.[1] Safety compatibility standards are established with two broad considerations in mind: (1) the risks of harm in the case of accident presented by the land uses themselves, and (2) the geographic concentration of land uses bearing in mind that the probability of an aircraft colliding with a building is reduced the more widely dispersed the buildings.

Land uses with the following characteristics are considered risk-sensitive and deserving of attention in safety-related land use compatibility standards:

- Residential land uses, where people live and sleep.
- High occupancy land uses where speedy evacuation is difficult or impossible
- Uses serving occupants that require supervision or assistance in the case of evacuation
- Uses involving hazardous materials, such as explosives; highly flammable, toxic or caustic substances; or infectious agents
- Uses that would pose harm to public health, safety, and welfare if damaged or put out of service by an aircraft accident
- Uses that pose hazards to low-flying aircraft

Handbook guidance advises the strictest standards in Safety Zone 1, with generally less restrictive standards as the zones move further away from the runway. At the strictest level, the guidance advises that the development of certain sensitive land uses be completely avoided. In safety zones with lower accident risk, limited residential development subject to dwelling unit density limits is advised. Similarly,

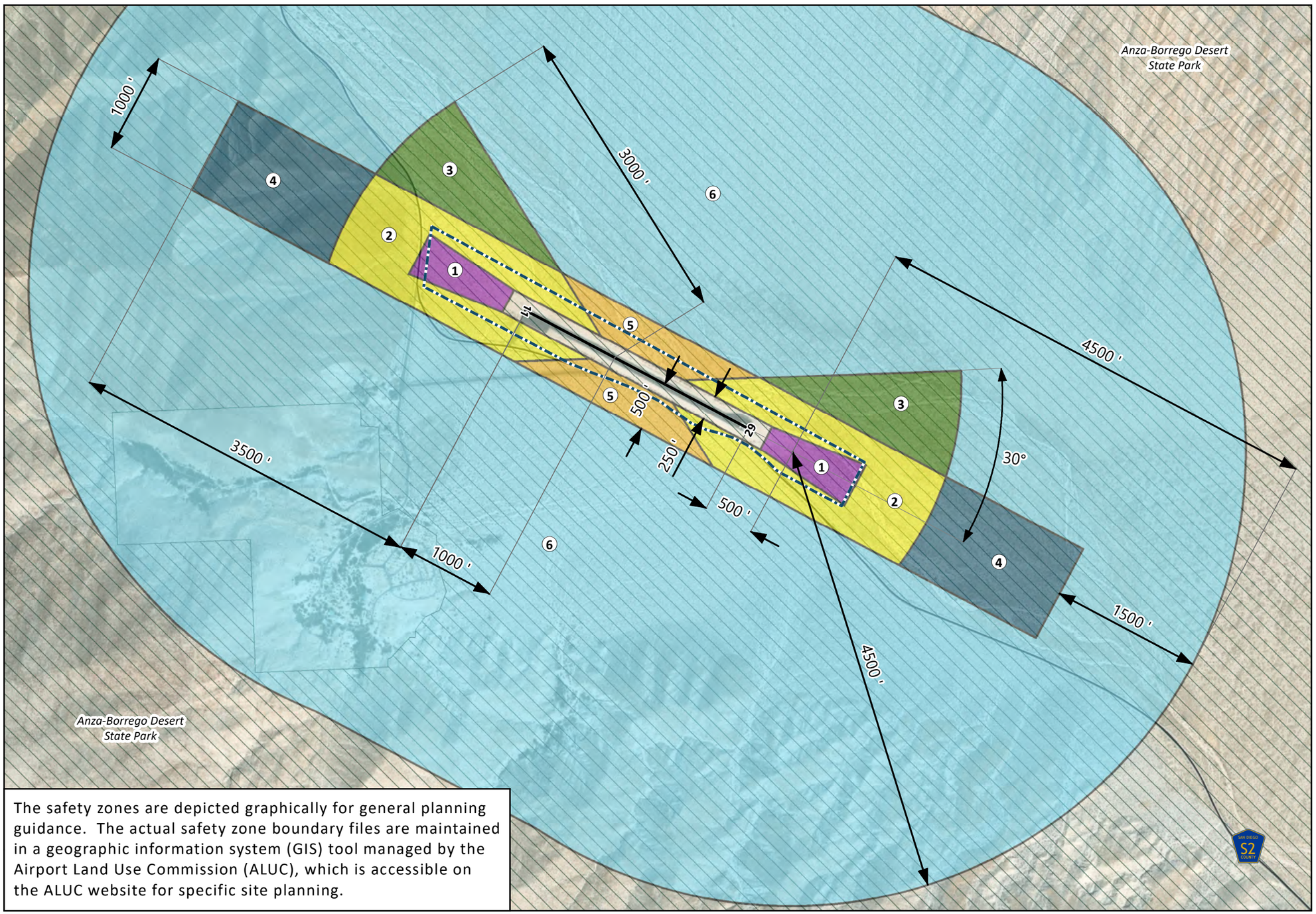
1 California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, 2011, p. 4-15 – 4-34.

nonresidential development subject to maximum occupancy (or intensity) limits is advised in these zones.

The safety compatibility standards in these updated ALUCPs are, with two exceptions, the same for all six airports. The exceptions are the north side Safety Zones 2,3, and 4 at Fallbrook Community Airpark and the east side Safety Zones 2, 3, and 4 at Ramona Airport. These safety zones extend into developed portions of each community, in contrast to the other safety zones that are over more rural areas. In accordance with Handbook guidance, the residential density and nonresidential intensity limits are marginally higher in these suburban zones.[2]

The compatibility standards in the updated ALUCPs are substantially the same as the standards in the 2006 ALUCPs. Those standards were originally developed through an extensive, collaborative outreach process involving the ALUCP Technical Advisory Group (ATAG). During that process, the standards were widely vetted and publicized. Thus, the ALUC believes that those standards should be continued in substantially the same form in the updated ALUCPs.

2 California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, 2011, p. 4-21 – 4-23.



LEGEND

- Airport Property Boundary
- Existing Runway
- Federal/State Lands
- Roadway
- 1 – Runway Protection Zone
- 2 – Inner Approach/Departure Zone
- 3 – Inner Turning Zone
- 4 – Outer Approach/Departure Zone
- 5 – Sideline Zone
- 6 – Traffic Pattern Zone

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Agua Caliente Springs Airport, Airport Diagram, 2018 (Airport property boundary, runway); Ricondo & Associates, Inc., based in part on Coffman Associates 2018 analysis, 2021 (safety zones).

N

0 500 1,000 2,000

1 inch = 1,000 feet

The safety zones are depicted graphically for general planning guidance. The actual safety zone boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Agua Caliente Springs Airport

Safety Zones

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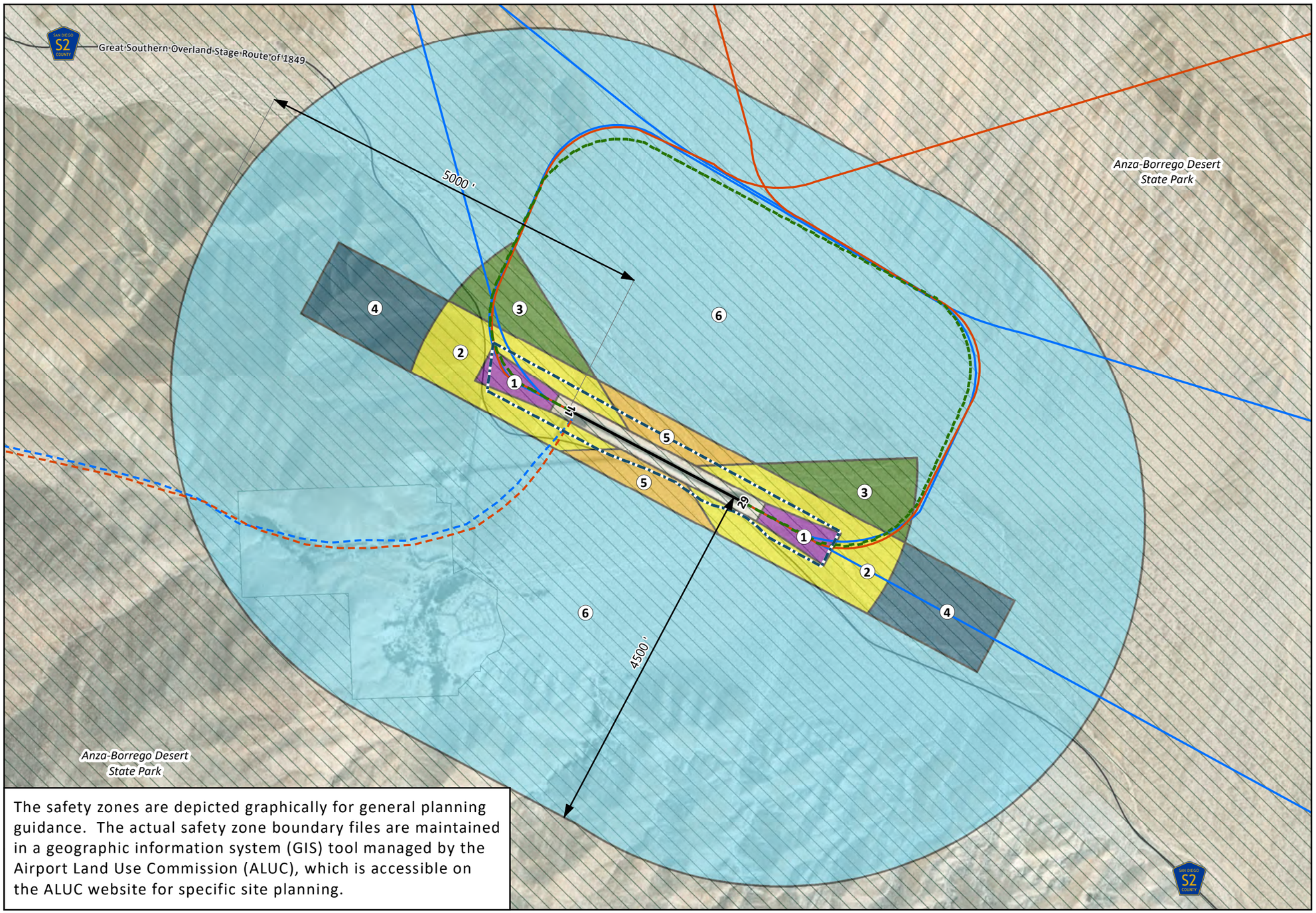

LEGEND

- Airport Property Boundary
- Existing Runway
- Federal/State Lands
- Roadway
- 1 – Runway Protection Zone
- 2 – Inner Approach/Departure Zone
- 3 – Inner Turning Zone
- 4 – Outer Approach/Departure Zone
- 5 – Sideline Zone
- 6 – Traffic Pattern Zone
- Fixed Wing Approach
- Fixed Wing Departure
- Fixed Wing Touch-and-Go
- Helicopter Approach
- Helicopter Departure

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Harris Miller Miller & Hanson Inc., November 2004 (flight tracks); Agua Caliente Springs Airport, Airport Diagram, 2018 (Airport property boundary, runway); Ricondo & Associates, Inc., based in part on Coffman Associates 2018 analysis, 2021 (safety zones).

N

0 500 1,000 2,000

1 inch = 1,250 feet

The safety zones are depicted graphically for general planning guidance. The actual safety zone boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Agua Caliente Springs Airport

Safety Analysis

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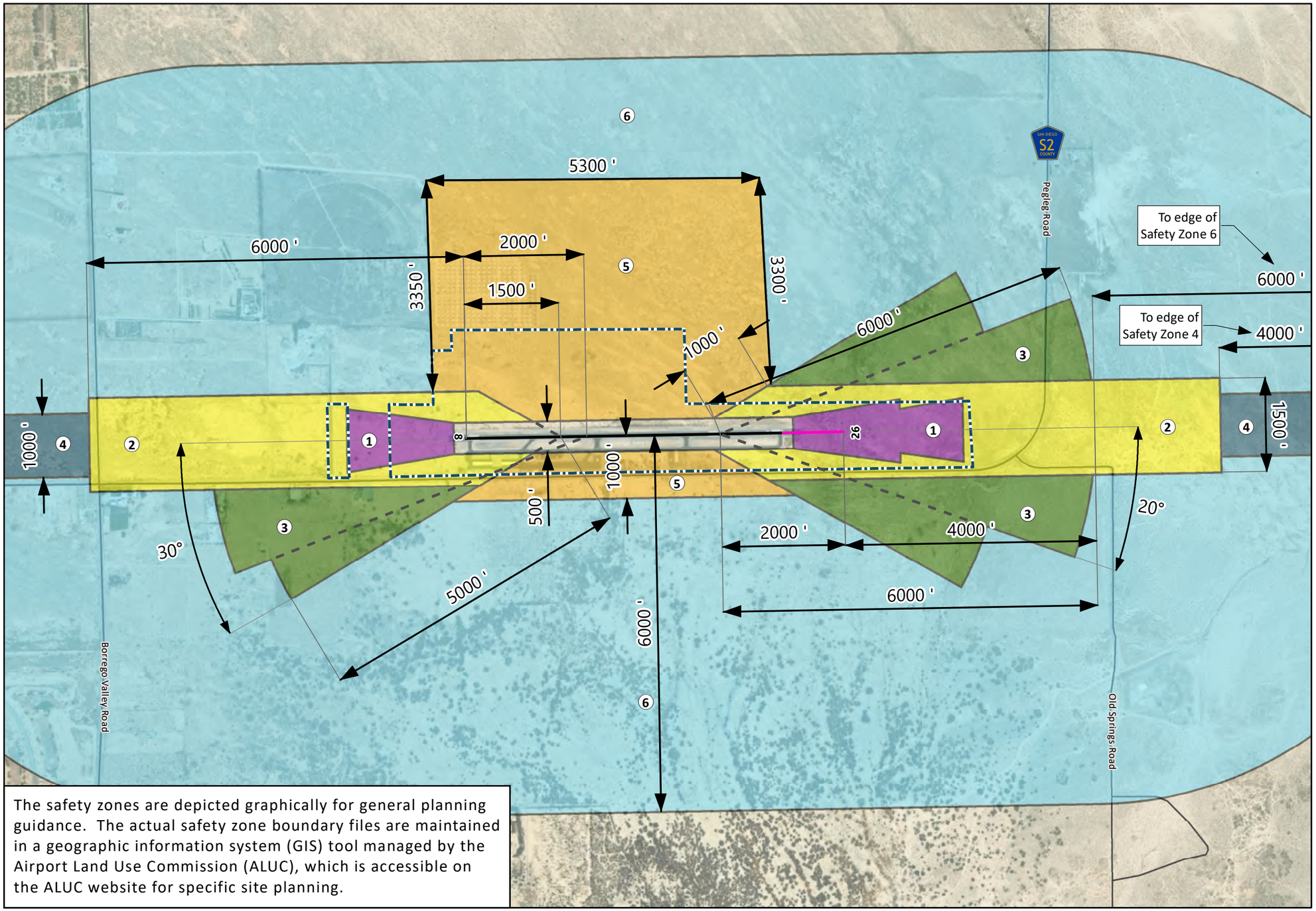

LEGEND

- Airport Property Boundary
- Existing Runway
- Future Runway Extension
- Federal/State Lands
- Roadway
- 1 – Runway Protection Zone
- 2 – Inner Approach/Departure Zone
- 3 – Inner Turning Zone
- 4 – Outer Approach/Departure Zone
- 5 – Sideline Zone
- 6 – Traffic Pattern Zone

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Borrego Valley Airport, Airport Diagram, 2018 (Airport property boundary, runways). Ricondo & Associates, Inc., based in part on Coffman Associates 2018 analysis, 2021 (safety zones).

N

0 800 1,600 3,200

1 inch = 1,600 feet

The safety zones are depicted graphically for general planning guidance. The actual safety zone boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Borrego Valley Airport

Safety Zones

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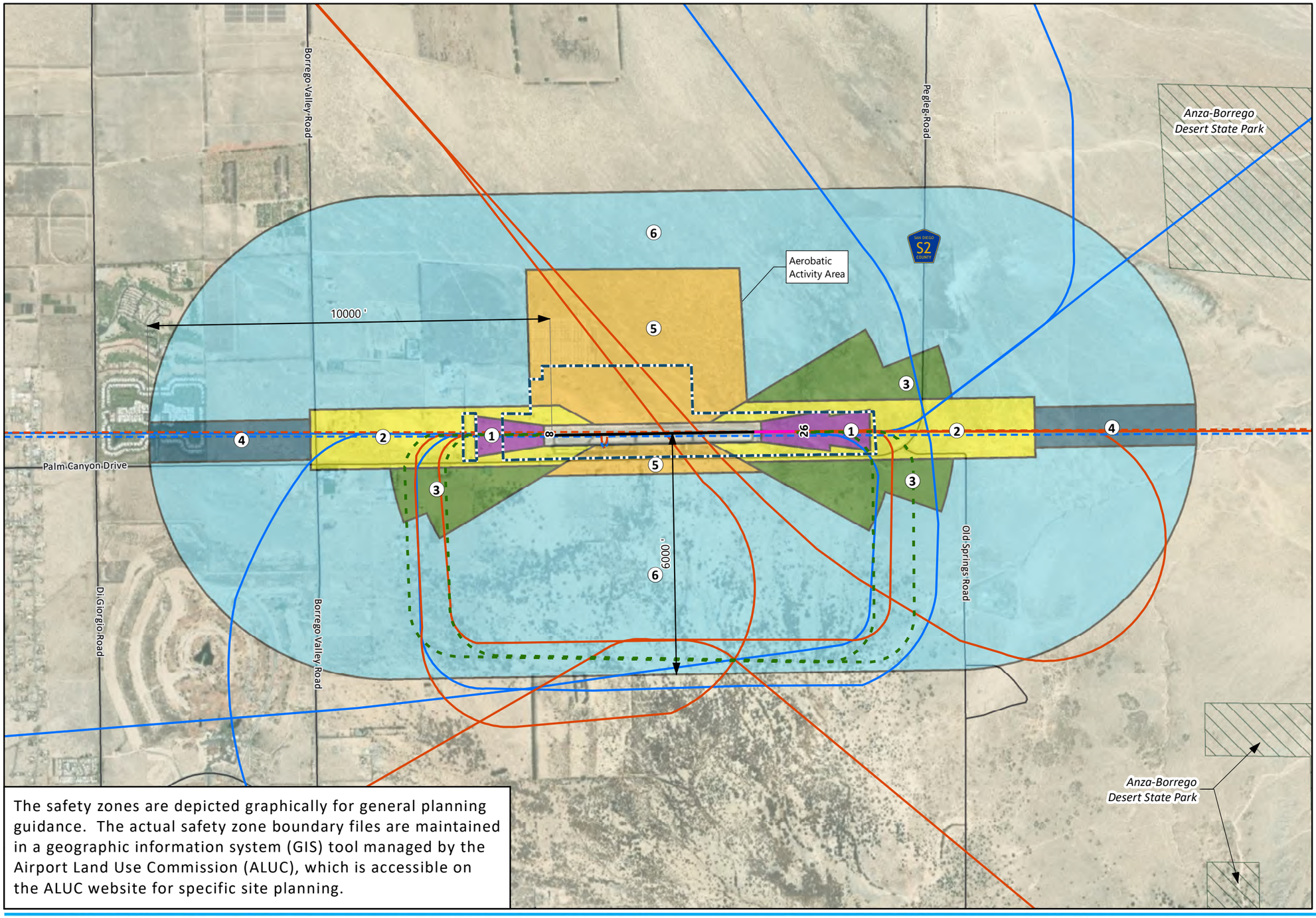

LEGEND

- Airport Property Boundary
- Existing Runway
- Future Runway Extension
- Federal/State Lands
- Roadway
- 1 – Runway Protection Zone
- 2 – Inner Approach/Departure Zone
- 3 – Inner Turning Zone
- 4 – Outer Approach/Departure Zone
- 5 – Sideline Zone
- 6 – Traffic Pattern Zone
- Fixed Wing Approach
- Fixed Wing Departure
- Fixed Wing Touch-and-Go
- Helicopter Approach
- Helicopter Departure

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Harris Miller Miller & Hanson Inc., November 2004 (flight tracks); Borrego Valley Airport, Airport Diagram, 2018 (Airport property boundary, runways). Ricondo & Associates, Inc., based in part on Coffman Associates 2018 analysis, 2021 (safety zones).

N

0 1,250 2,500 5,000

1 inch = 2,500 feet

The safety zones are depicted graphically for general planning guidance. The actual safety zone boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Borrego Valley Airport

Safety Analysis

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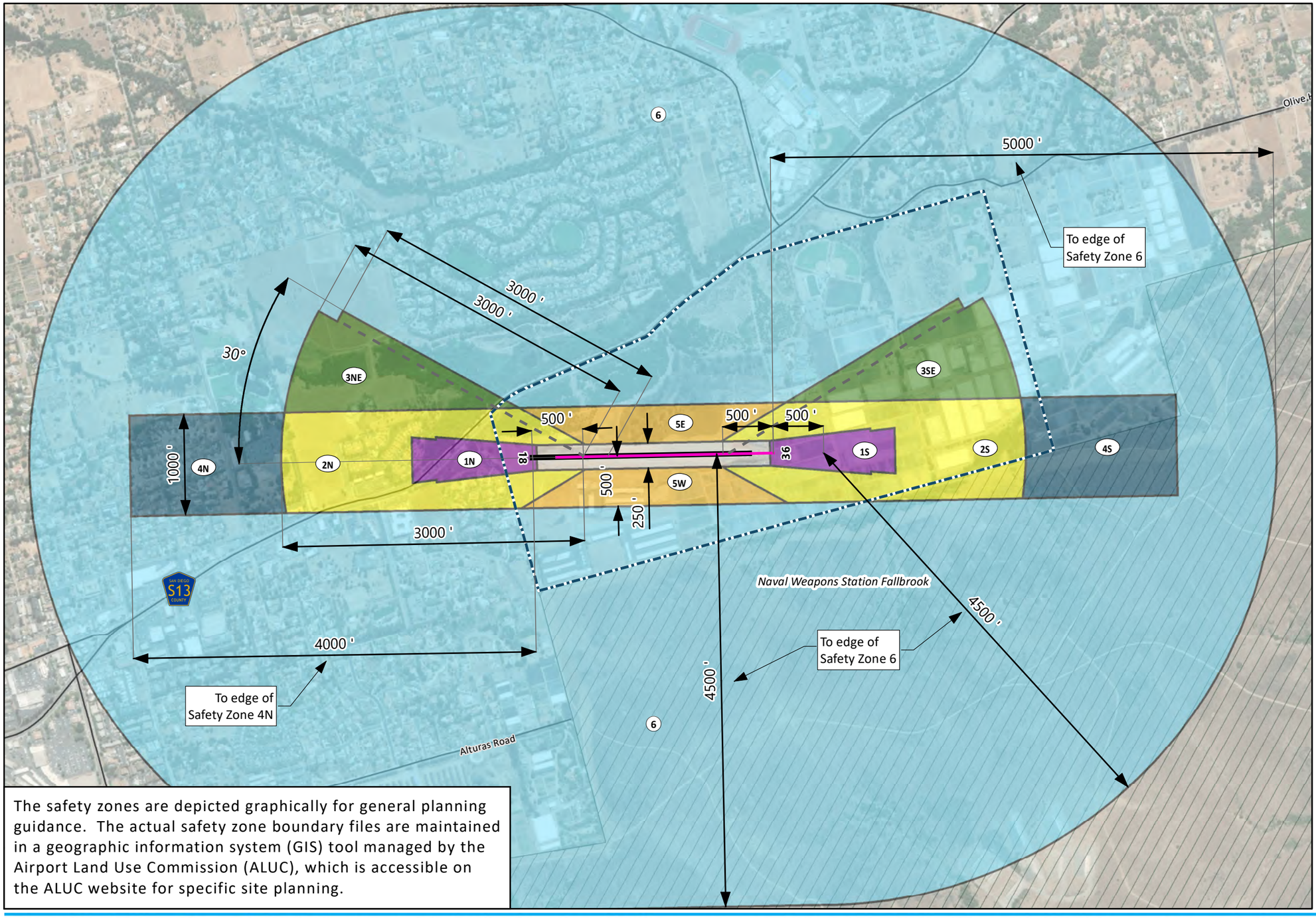

LEGEND

- Airport Property Boundary
- Existing Runway
- Future Relocated Runway [1]
- Federal/State Lands
- Roadway
- 1 – Runway Protection Zone
- 2 – Inner Approach/Departure Zone
- 3 – Inner Turning Zone
- 4 – Outer Approach/Departure Zone
- 5 – Sideline Zone
- 6 – Traffic Pattern Zone

NOTE:

1 Runway to be shifted 240 feet to the south.

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Fallbrook Community Airpark, Airport Diagram, 2018 (Airport property boundary, runways); Ricondo & Associates, Inc., based in part on Coffman Associates 2018 analysis, 2021 (safety zones).

N

0 500 1,000 2,000

1 inch = 1,000 feet

The safety zones are depicted graphically for general planning guidance. The actual safety zone boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Fallbrook Community Airpark

Safety Zones

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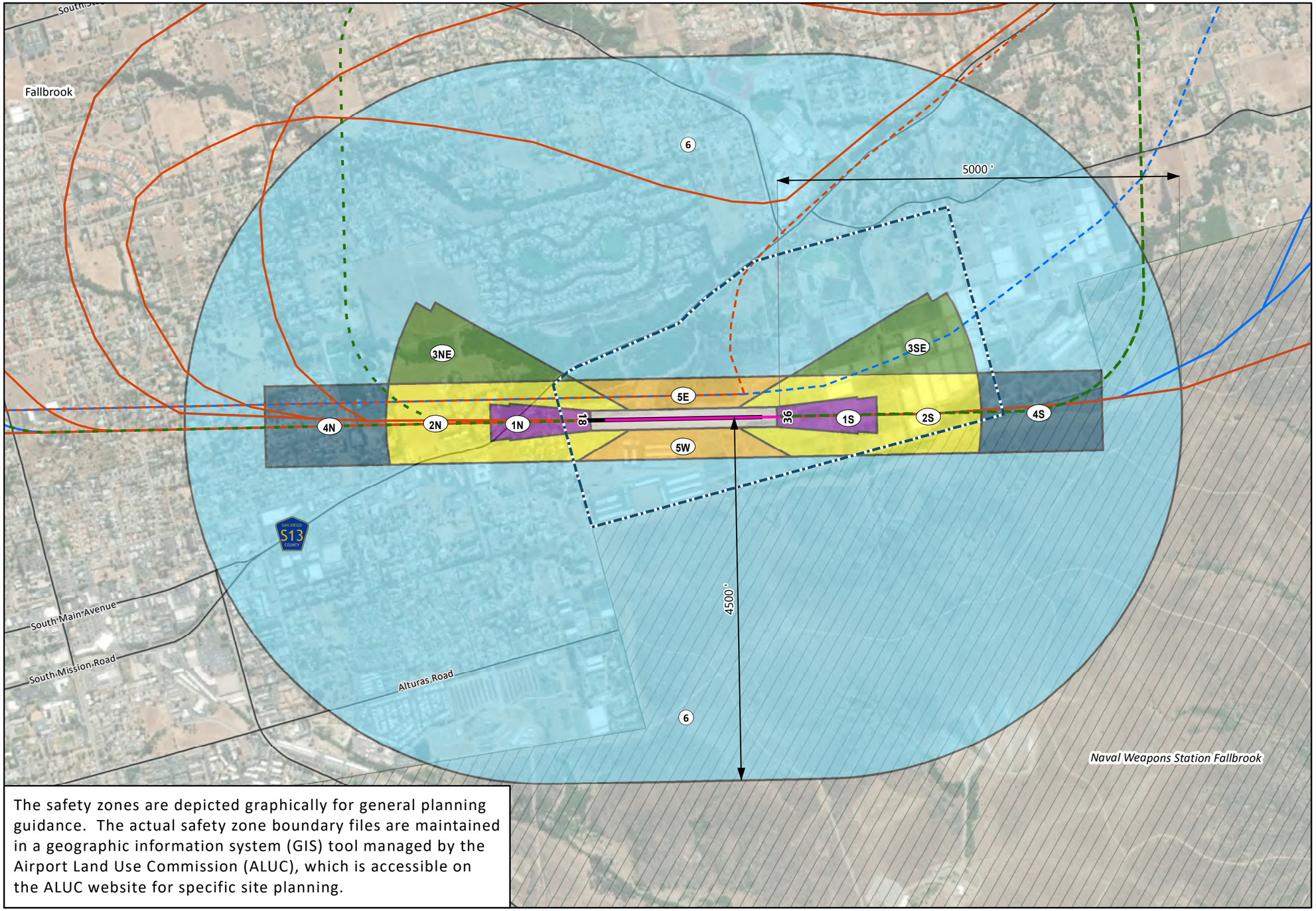

LEGEND

- Airport Property Boundary
- Existing Runway
- Future Relocated Runway [1]
- Federal/State Lands
- Roadway
- 1 – Runway Protection Zone
- 2 – Inner Approach/Departure Zone
- 3 – Inner Turning Zone
- 4 – Outer Approach/Departure Zone
- 5 – Sideline Zone
- 6 – Traffic Pattern Zone
- Fixed Wing Approach
- Fixed Wing Departure
- Fixed Wing Touch & Go
- Helicopter Approach
- Helicopter Departure

NOTE:

1 Runway to be shifted 240 feet to the south.

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Harris Miller Miller & Hanson Inc., November 2004 (flight tracks); Fallbrook Community Airpark, Airport Diagram, 2018 (Airport property boundary, runways); Ricondo & Associates, Inc., based in part on Coffman Associates 2018 analysis, 2021 (safety zones).

N

0 625 1,250 2,500

1 inch = 1,250 feet

The safety zones are depicted graphically for general planning guidance. The actual safety zone boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Fallbrook Community Airpark

Safety Analysis

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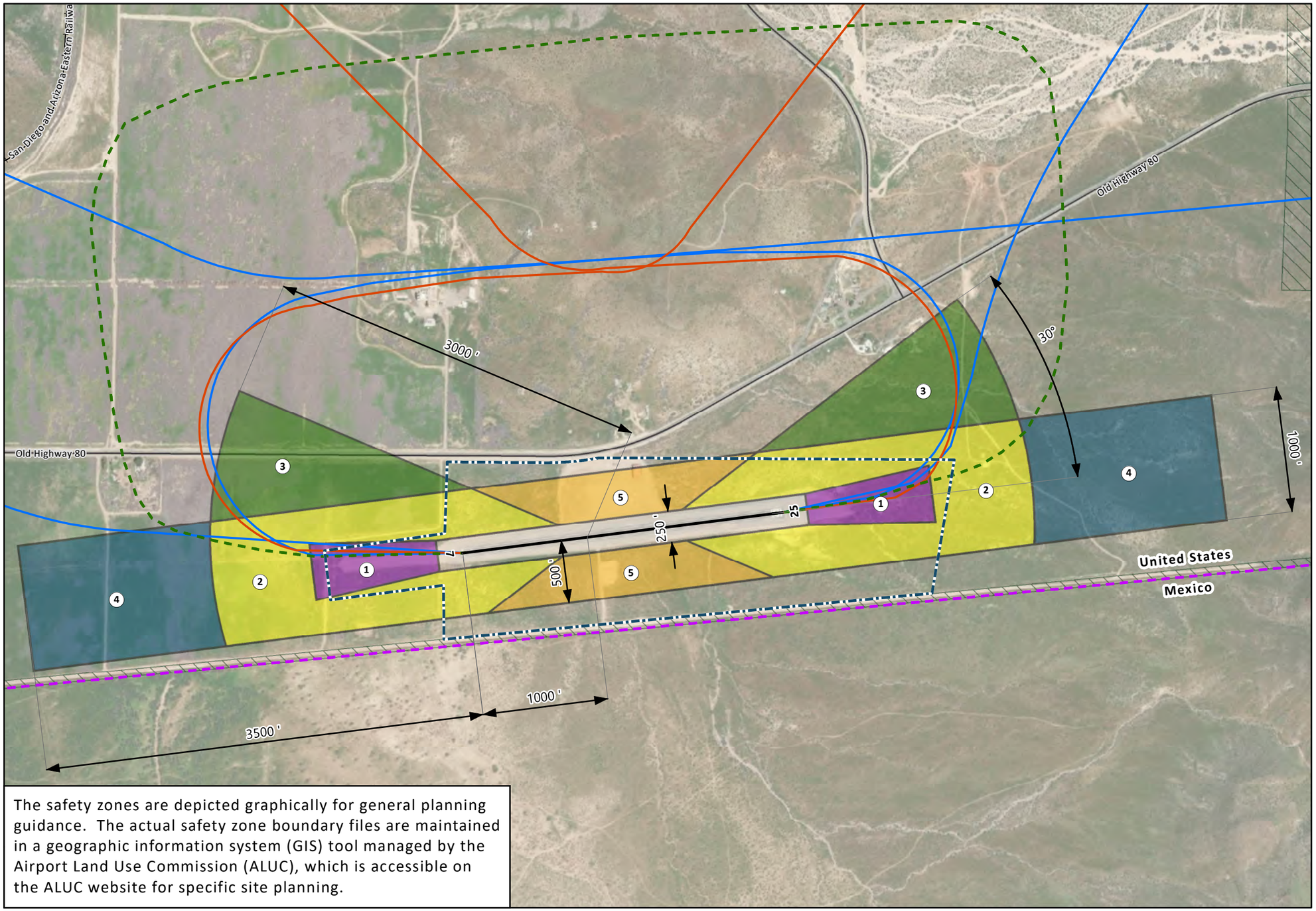

LEGEND

- Airport Property Boundary
- Existing Runway Centerline
- International Boundary
- Federal/State Lands
- Roadway
- Railway
- 1 – Runway Protection Zone
- 2 – Inner Approach/Departure Zone
- 3 – Inner Turning Zone
- 4 – Outer Approach/Departure Zone
- 5 – Sideline Zone
- Fixed Wing Approach
- Fixed Wing Departure
- Fixed Wing Touch-and-Go

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Harris Miller Miller & Hanson Inc., November 2004 (flight tracks); Jacumba Airport, Airport Diagram, 2018 (Airport property boundary, runways). Ricondo & Associates, Inc., based in part on Coffman Associates 2018 analysis, 2021 (safety zones).

N

0 400 800 1,600

1 inch = 800 feet

The safety zones are depicted graphically for general planning guidance. The actual safety zone boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Jacumba Airport

Safety Analysis

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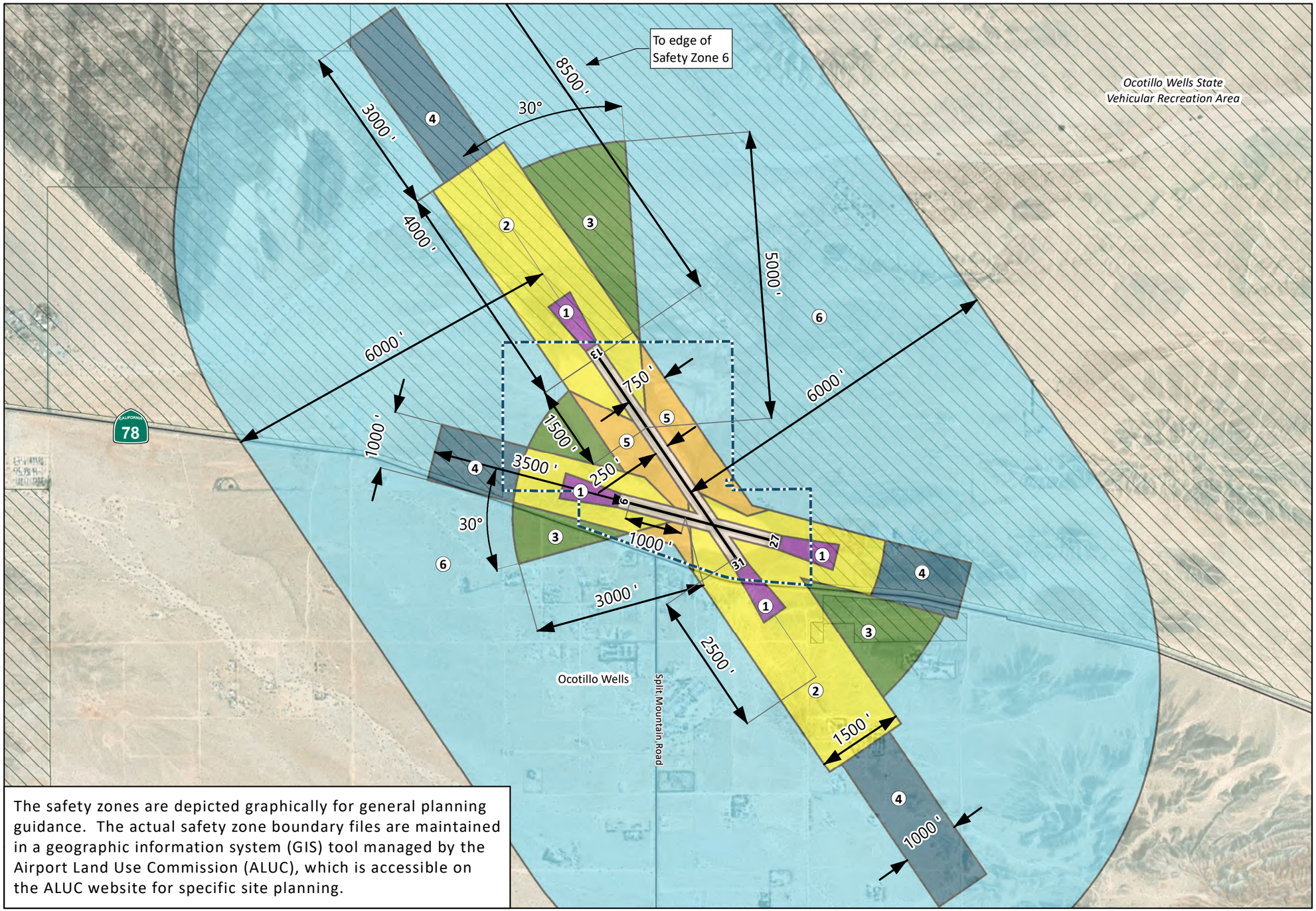

The safety zones are depicted graphically for general planning guidance. The actual safety zone boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

LEGEND

- Airport Property Boundary
- Existing Dirt Runway
- Federal/State Lands
- Roadway
- 1 – Runway Protection Zone
- 2 – Inner Approach/Departure Zone
- 3 – Inner Turning Zone
- 4 – Outer Approach/Departure Zone
- 5 – Sideline Zone
- 6 – Traffic Pattern Zone

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Ocotillo Airport, Airport Diagram, 2018 (Airport property boundary, runways); Ricondo & Associates, Inc., based in part on Coffman Associates 2018 analysis, 2021 (safety zones).

N

0 875 1,750 3,500

1 inch = 1,750 feet

Ocotillo Airport

Safety Zones

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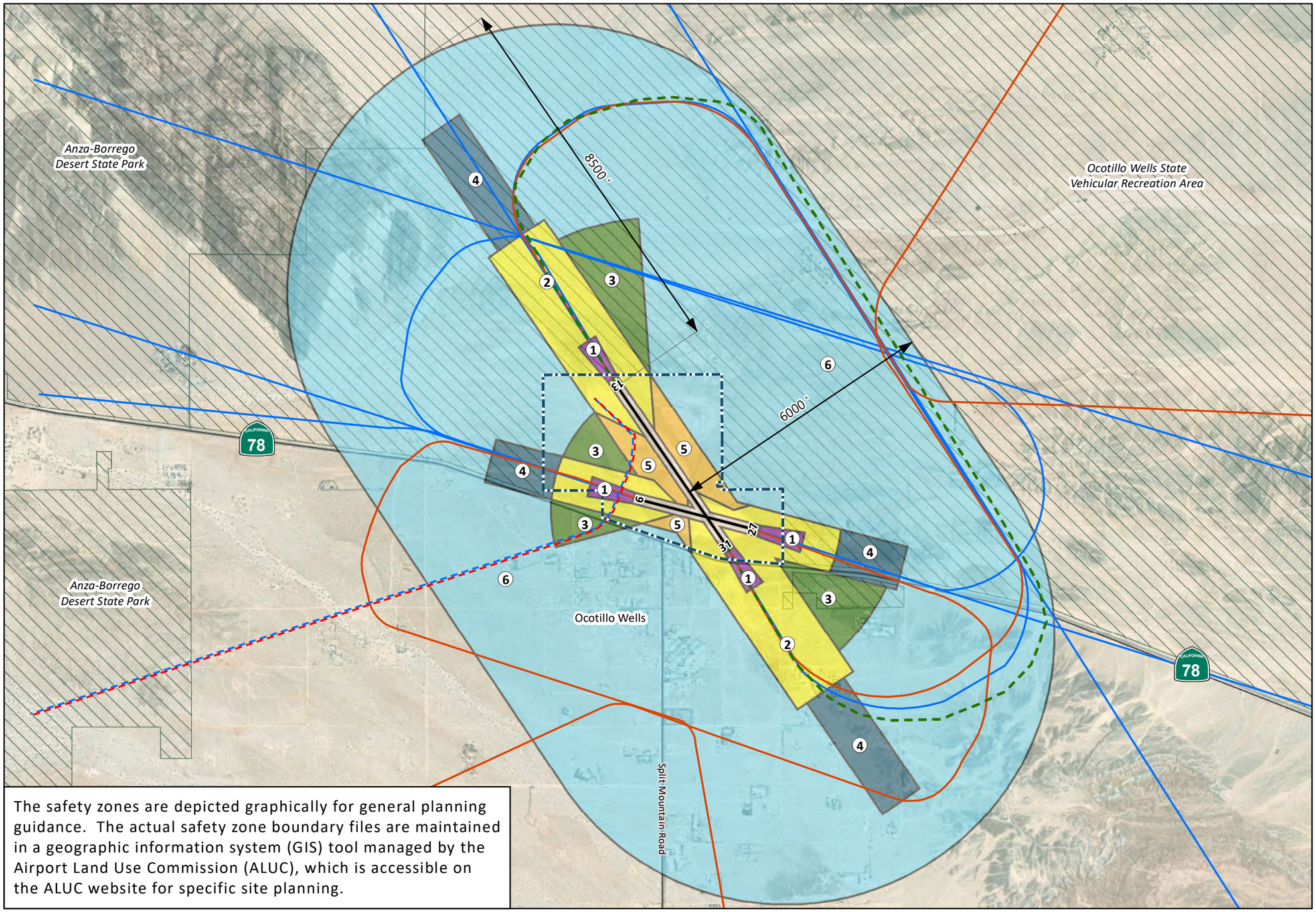

LEGEND

- Airport Property Boundary
- Existing Dirt Runway
- Federal/State Lands
- Roadway
- 1 – Runway Protection Zone
- 2 – Inner Approach/Departure Zone
- 3 – Inner Turning Zone
- 4 – Outer Approach/Departure Zone
- 5 – Sideline Zone
- 6 – Traffic Pattern Zone
- Fixed Wing Approach
- Fixed Wing Departure
- Fixed Wing Touch-and-Go
- Helicopter/Tiltrotor Approach
- Helicopter/Tiltrotor Departure

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Harris Miller Miller & Hanson Inc., November 2004 (flight tracks); Ocotillo Airport, Airport Diagram, 2018 (Airport property boundary, runways); Ricondo & Associates, Inc., based in part on Coffman Associates 2018 analysis, 2021 (safety zones).

N

0 1,125 2,250 4,500

1 inch = 2,250 feet

The safety zones are depicted graphically for general planning guidance. The actual safety zone boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Ocotillo Airport

Safety Analysis

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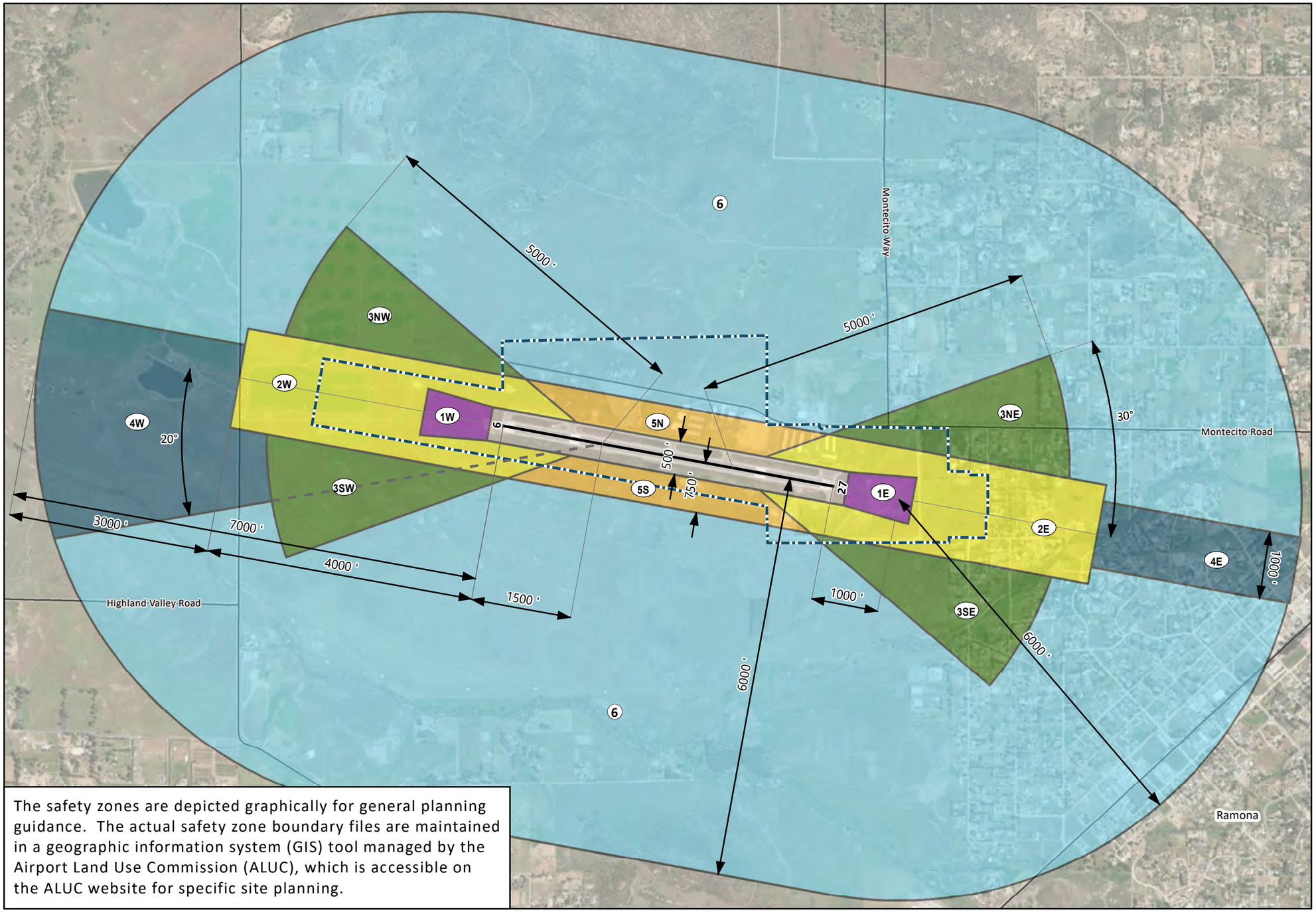

LEGEND

- Airport Property Boundary
- Existing Runway
- Federal/State Lands
- Roadway
- 1 – Runway Protection Zone
- 2 – Inner Approach/Departure Zone
- 3 – Inner Turning Zone
- 4 – Outer Approach/Departure Zone
- 5 – Sideline Zone
- 6 – Traffic Pattern Zone

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership) Ramona Airport, Airport Diagram, 2018 (Airport property boundary, runway); Ricondo & Associates, Inc., based in part on Coffman Associates 2018 analysis, 2021 (safety zones).

N

0 750 1,500 3,000

1 inch = 1,500 feet

The safety zones are depicted graphically for general planning guidance. The actual safety zone boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Ramona Airport

Safety Zones

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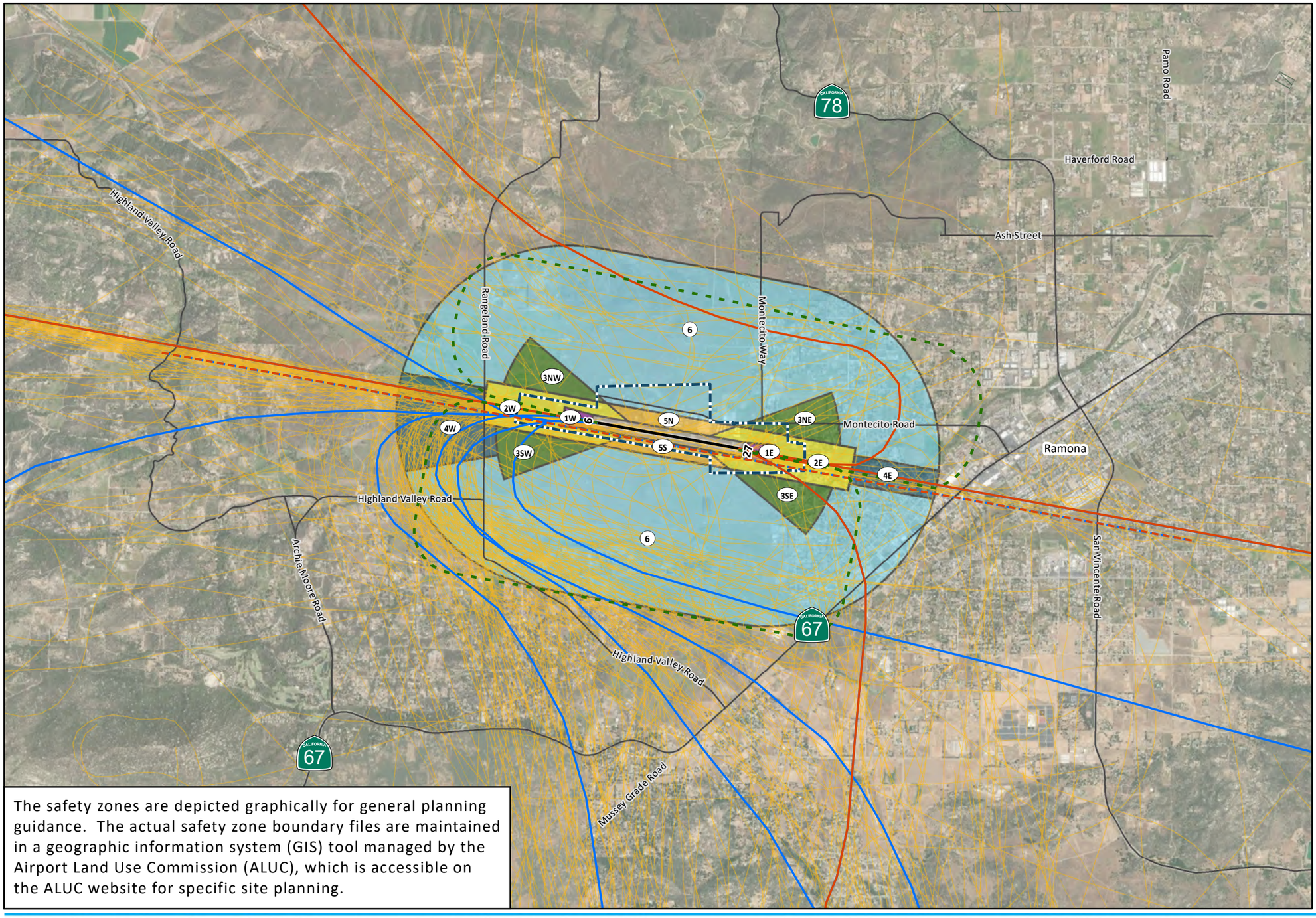

The safety zones are depicted graphically for general planning guidance. The actual safety zone boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

LEGEND

- Airport Property Boundary
- Existing Runway
- Federal/State Lands
- Roadway
- 1 – Runway Protection Zone
- 2 – Inner Approach/Departure Zone
- 3 – Inner Turning Zone
- 4 – Outer Approach/Departure Zone
- 5 – Sideline Zone
- 6 – Traffic Pattern Zone
- Radar Flight Tracks (3,000 feet mean sea level and below)
- Fixed Wing Approach
- Fixed Wing Departure
- Fixed Wing Touch-and-Go
- Helicopter Approach
- Helicopter Departure

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); San Diego County Regional Airport Authority, May 1-14, 2016 (radar flight tracks); Coffman Associates, Analysis of San Diego County Regional Airport Authority Radar Data, 2018 (flight tracks); Ramona Airport, Airport Diagram, 2018 (Airport property boundary, runway); Ricondo & Associates, Inc., based in part on Coffman Associates 2018 analysis, 2021 (safety zones).

N

0 1,750 3,500 7,000

1 inch = 3,500 feet

Ramona Airport

Safety Analysis

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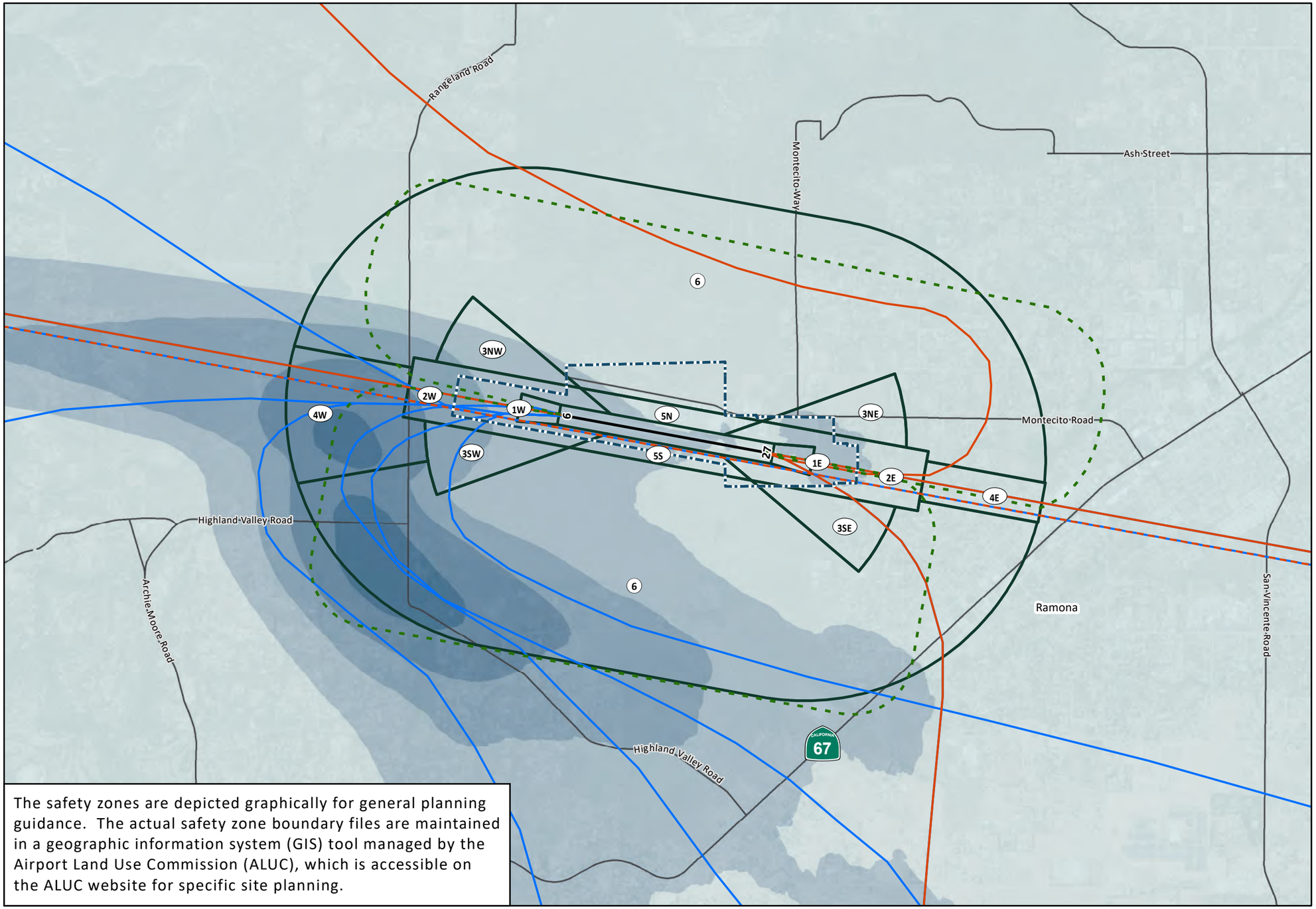

LEGEND

- Airport Property Boundary
- Existing Runway
- Federal/State Lands
- Roadway
- Safety Zone Boundaries
- Fixed Wing Approach
- Fixed Wing Departure
- Fixed Wing Touch-and-Go
- Helicopter Approach
- Helicopter Departure
- 0-50 Flight Tracks Per Square Mile
- 51-100 Flight Tracks Per Square Mile
- 101-150 Flight Tracks Per Square Mile
- 15-200 Flight Tracks Per Square Mile
- <200 Flight Tracks Per Square Mile

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Coffman Associates, Analysis of San Diego County Regional Airport Authority Radar Data, 2018 (flight tracks); Ramona Airport, Airport Diagram, 2018 (Airport property boundary, runway); Ricondo & Associates, Inc., based in part on Coffman Associates 2018 analysis, 2021 (safety zones); Ricondo & Associates, Inc., 2021 (tracks density).

N

0 1,250 2,500 5,000

1 inch = 2,500 feet

The safety zones are depicted graphically for general planning guidance. The actual safety zone boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Ramona Airport

Safety Zones and Flight Track Density

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Appendix E
NOISE SUPPORTING INFORMATION

E.1 NOISE EXPOSURE CONTOURS

The standard methodology for analyzing noise conditions at airports involves the use of a computer simulation model. The Federal Aviation Administration (FAA) has approved the Aviation Environmental Design Tool (AEDT) for use in environmental analyses. The noise model produces noise exposure contours that, when overlaid on a map of the airport and vicinity, graphically represent aircraft noise conditions in the area based on the data input to the model. As a computer simulation model, AEDT can be used to develop noise contours for various scenarios, including existing and forecast airport operating conditions.

To achieve an accurate representation of an airport's noise conditions, the AEDT uses a combination of industry standard information and user-supplied inputs specific to the airport. The software provides noise characteristics, standard flight profiles, and manufacturer-supplied flight procedures for aircraft within the U.S. civil and military fleets, including those which commonly operate at the airports in the Airport Land Use Compatibility Plans (ALUCPs). As each aircraft has different design and operating characteristics (number and type of engines, weight, and thrust levels), each aircraft has different noise characteristics.

The AEDT calculates cumulative aircraft sound exposure levels at points within a grid covering the airport and surrounding areas. The value at each grid point represents the cumulative noise level at that point. To create the noise contours, isolines, like those on a topographic map, are drawn to connect points of the same noise value. In the same way that a topographic contour represents areas of equal elevation, the noise contour represents areas of equal noise exposure.

California state law requires the use of the Community Noise Equivalent Level (CNEL) metric for describing airport and aircraft noise.[1] CNEL is a time-weighted, cumulative noise metric that accounts for all noise over a 24-hour period, with extra weights assigned to evening and nighttime periods when noise is presumed to be more annoying to most people than daytime noise.

- Evening (7:00 p.m. to 10:00 p.m.): operations are multiplied by three, equivalent to a 4.77 dB increase in noise during that period
- Nighttime (10:00 p.m. to 7:00 a.m.): operations are multiplied by ten, equivalent to a 10 dB increase in noise

The noise exposure contours reflect all noise associated with aircraft takeoffs and landings for an average day during the study year.

The noise contours developed for the ALUCPs reflect the anticipated growth in operations over the next 20 years, based on the forecasts provided in Appendix C, Airport Facilities and Activities Forecasts.

1 Title 21, California Code of Regulations, Subchapter 6, *Noise Standards*, Section 5012.

Airport-specific information, including runway configuration, generalized flight tracks, aircraft fleet mix, runway use distribution, local terrain and elevation, average temperature, and numbers of daytime, evening, and nighttime operations are required as modeling inputs. This information is discussed for each airport in the following sections.

E.1.1 AGUA CALIENTE SPRINGS AIRPORT (AGU)

Based on information provided by the County Airports staff, most aircraft activity (95 percent) occurs during the day (7 a.m. to 7 p.m.) and the remaining five percent in the evening (7 p.m. to 10 p.m.). Ninety percent of takeoffs and landings are on Runway 11, ten percent on Runway 29.

Exhibit E-1 depicts 20-year forecast noise contours for Agua Caliente Springs Airport along with generalized flight tracks used for noise modeling. Noise contours from 50 to 70 dB CNEL are depicted in 5 dB increments. (Note, however, that ALUCP noise compatibility policies and standards at Agua Caliente Springs Airport apply only above 55 dB CNEL.) The 65, 60, 55, and 50 dB CNEL noise contours all extend off airport property but are confined to State parkland not subject to an ALUCP; therefore, only non-aviation uses proposed on Airport property would be subject to ALUCP noise policies.

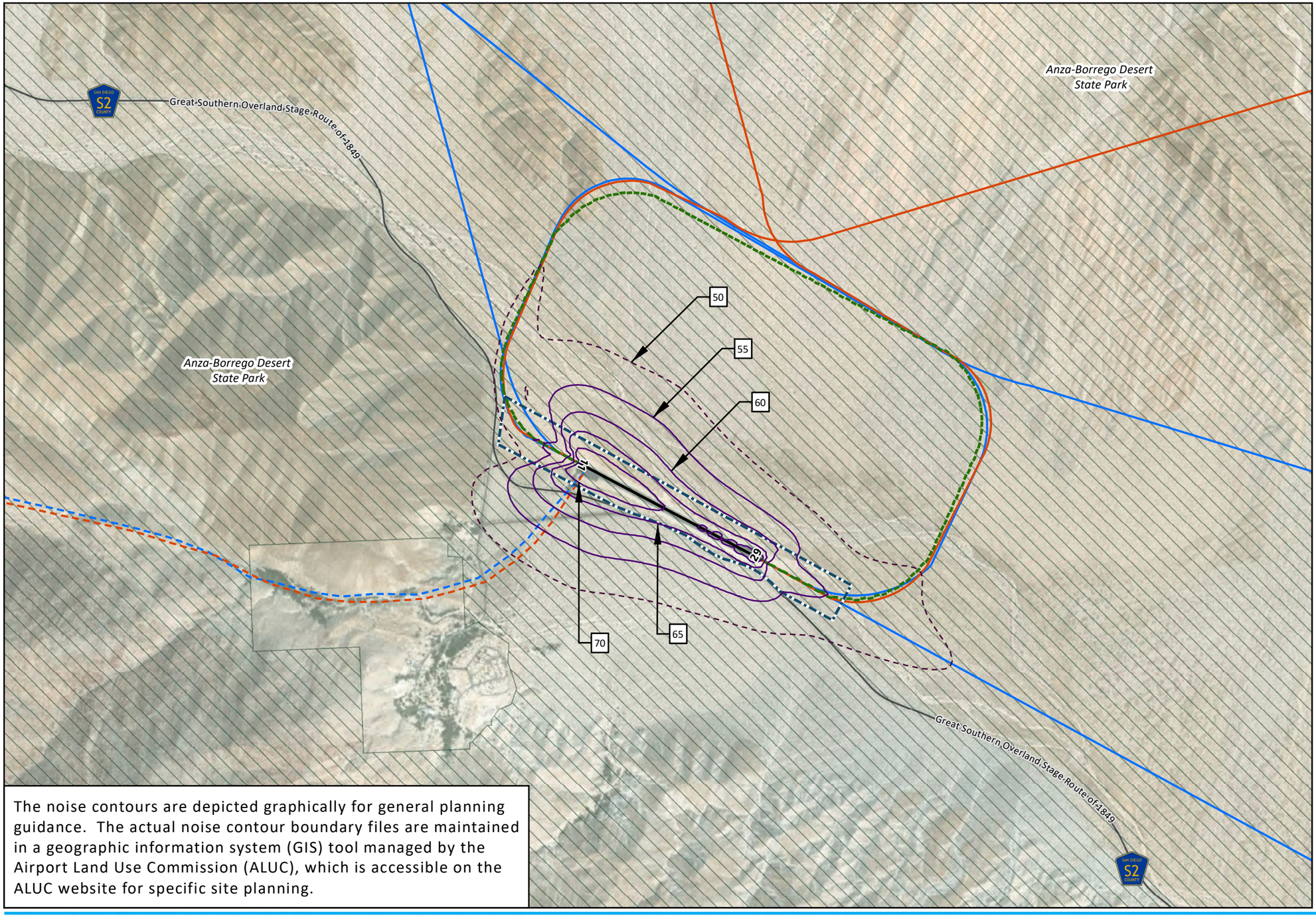
E.1.2 BORREGO VALLEY AIRPORT (BOR)

Based on information provided by the County Airports staff, most aircraft activity (95 percent) occurs during the day (7 a.m. to 7 p.m.) and the remaining five percent in the evening (7 p.m. to 10 p.m.). Seventy-five percent of takeoffs and landings are on Runway 8 and 25 percent on Runway 26.

The 2010 Borrego Valley Airport Layout Plan (ALP) calls for an eastward extension of 1,000 feet to Runway 8-26. (See Exhibit C-2 in Appendix C, Airport Facilities and Activity Forecasts.) Until the runway extension is built and in operation, noise contours intended for land use compatibility planning should reflect both the existing and the future runway conditions.

Exhibit E-2 depicts two sets of forecast noise contours, one based on the current runway and the other based on the extended runway. Noise contours from 50 to 70 dB CNEL are depicted in 5 dB increments. (Note, however, that ALUCP noise compatibility policies and standards at Borrego Valley Airport apply only above 55 dB CNEL.) As indicated in the exhibit, the runway extension has the effect of extending the noise contours to the east. On the west side of the airport, the noise contours are drawn back to the east, reflecting the relocated takeoff point for Runway 26 departures.

Exhibit E-3 depicts the composite noise contours (with and without the planned runway extension) and the generalized flight tracks used for noise modeling. As indicated on the exhibit, the 50 and 55 dB CNEL contours extend off airport property in all directions. A small portion of the 60 dB CNEL contour extends across the south airport property line.



The noise contours are depicted graphically for general planning guidance. The actual noise contour boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

LEGEND

- Airport Property Boundary
- Existing Runway
- Federal/State Lands
- Roadway
- CNEL Noise Contours [1]
- Fixed Wing Approach
- Fixed Wing Departure
- Fixed Wing Touch-and-Go
- Helicopter Approach
- Helicopter Departure

NOTES:

1 Noise capability policies apply within the 55 dB CNEL and higher contours.

CNEL – Community Noise Equivalent Level

dB – Decibel

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Harris Miller Miller & Hanson Inc., November 2004 (flight tracks); Coffman Associates, AEDT Version 2d, 2018 (noise contours); Agua Caliente Springs Airport, Airport Diagram, 2018 (Airport property boundary, runway).

N

0 625 1,250 2,500

1 inch = 1,250 feet

Agua Caliente Springs Airport

Forecast Noise Exposure and Generalized Flight Tracks

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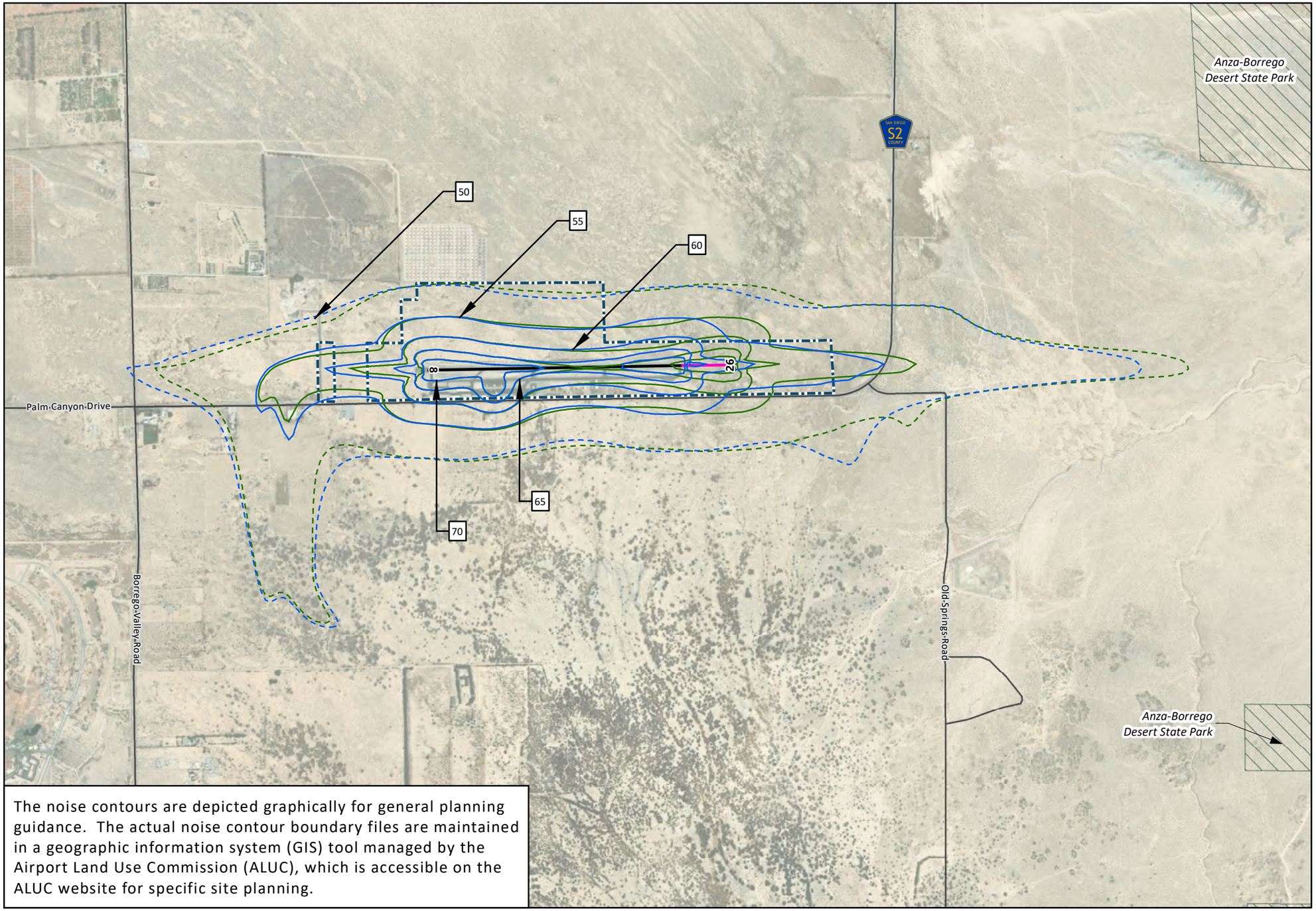

LEGEND

- Airport Property Boundary
- Existing Runway
- Future Runway Extension
- Federal/State Lands
- Roadway
- Forecast CNEL Contour with No Change to Existing Runway [1]
- Forecast CNEL Noise Contour with Future Runway Extension [1]

NOTES:

1 Noise capability policies apply within the 55 dB CNEL and higher contours.

CNEL – Community Noise Equivalent Level

dB – Decibel

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Coffman Associates, AEDT Version 2d, 2018 (noise contours); Borrego Valley Airport, Airport Diagram, 2018 (Airport property boundary, runways).

N

0 1,000 2,000 4,000

1 inch = 2,000 feet

The noise contours are depicted graphically for general planning guidance. The actual noise contour boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Borrego Valley Airport

Forecast Noise Exposure With and Without Future Runway Extension

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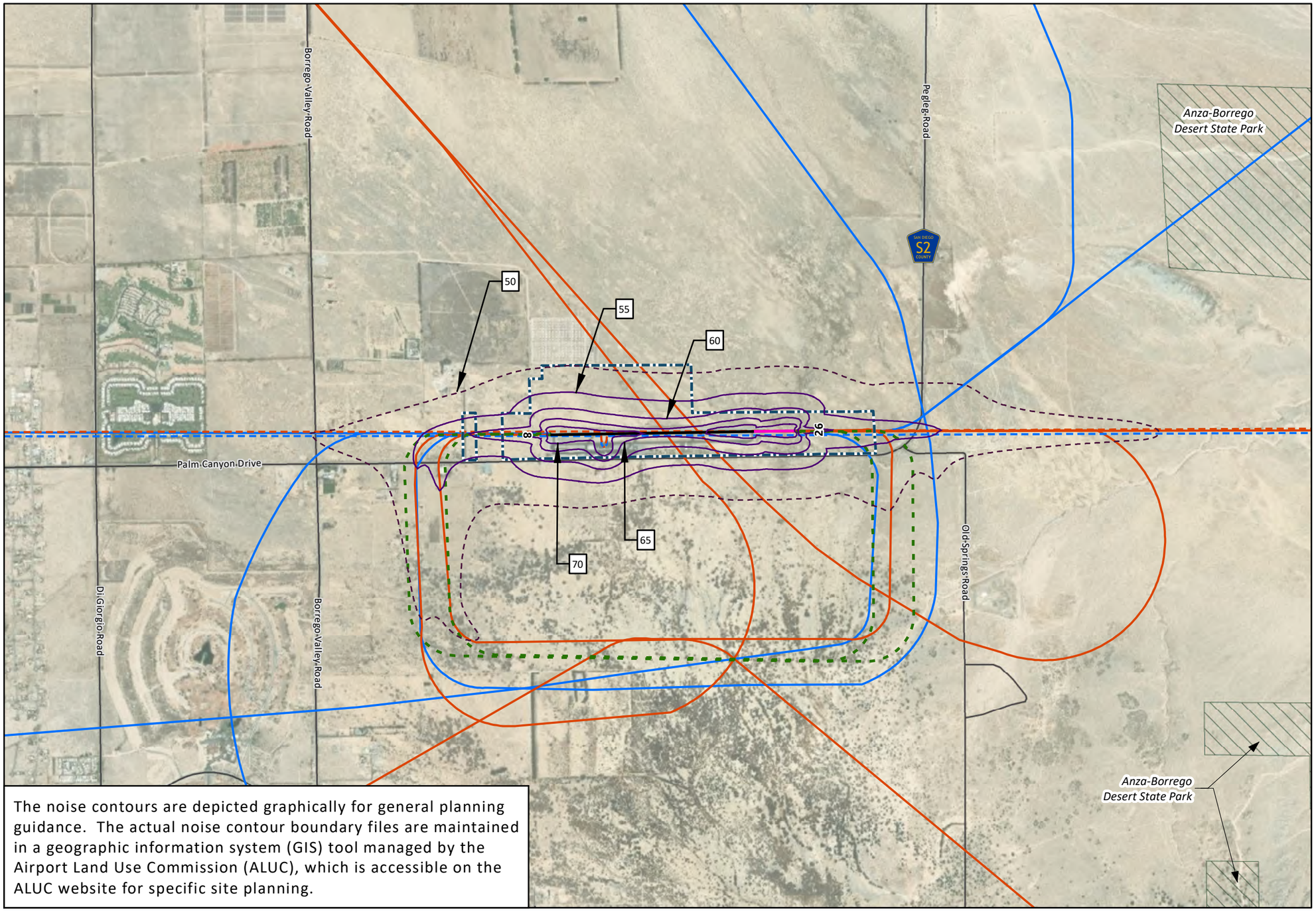

LEGEND

- Airport Property Boundary
- Existing Runway
- Future Runway Extension
- Federal/State Lands
- Roadway
- Composite CNEL Noise Contours With and Without Runway Extension [1]
- Fixed Wing Approach
- Fixed Wing Departure
- Fixed Wing Touch-and-Go
- Helicopter Approach
- Helicopter Departure

NOTES:

1 Noise capability policies apply within the 55 dB CNEL and higher contours.

CNEL – Community Noise Equivalent Level

dB – Decibel

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Harris Miller Miller & Hanson Inc., November 2004 (flight tracks); Coffman Associates, AEDT Version 2d, 2018 (noise contours); Borrego Valley Airport, Airport Diagram, 2018 (Airport property boundary, runways).

N

0 1,250 2,500 5,000

1 inch = 2,500 feet

The noise contours are depicted graphically for general planning guidance. The actual noise contour boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Borrego Valley Airport

Forecast Noise Exposure and Generalized Flight Tracks

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E.1.3 FALLBROOK COMMUNITY AIRPARK (FAL)

Based on information provided by the County Airports staff, most aircraft activity (95 percent) occurs during the day (7 a.m. to 7 p.m.) and the remaining five percent in the evening (7 p.m. to 10 p.m.). Ninety percent of takeoffs and landings are on Runway 18, and ten percent on Runway 36.

The 2006 Fallbrook Community Airpark ALP calls for Runway 18-36 to be shifted south 240 feet in the future. Until the runway relocation is accomplished, noise contours intended for land use compatibility planning should reflect both the existing and the future runway conditions.

Exhibit E-4 depicts two sets of noise exposure contours, one reflecting the current runway and the other the relocated runway. Noise contours from 55 to 70 dB CNEL are depicted in 5 dB increments. (Note, however, that ALUCP noise compatibility policies and standards at Fallbrook Community Airpark apply only above 60 dB CNEL.) The runway relocation has the effect of shifting the noise contours to the south.

Exhibit E-5 depicts the composite noise contours (with and without the planned runway relocation) and the generalized flight track used for noise modeling. The 55 dB CNEL contour extends off airport property in all directions. The 60 dB CNEL contour extends over the west airport property line and over the south property line onto Naval Weapons Station Fallbrook, which is not subject to ALUC land use planning jurisdiction. A very small portion of the 65 dB CNEL contour extends across the west airport property line.

E.1.4 JACUMBA AIRPORT (JAC)

Based on information provided by the County Airports staff, most aircraft activity (95 percent) occurs during the day (7 a.m. to 7 p.m.). The remaining five percent occur in the evening (7 p.m. to 10 p.m.). Ninety percent of takeoffs and landings are on Runway 25 and ten percent on Runway 7.

Exhibit E-6 depicts noise contours and generalized flight tracks used for noise modeling. Noise contours from 50 to 60 dB CNEL are depicted in 5 dB CNEL increments. All noise contours remain entirely on Airport property, and the 55 and 60 dB CNEL contours are confined to the immediate runway area.

E.1.5 OCOTILLO AIRPORT (OCO)

Based on information provided by the County Airports staff, most aircraft activity (95 percent) occurs during the day (7 a.m. to 7 p.m.). The remaining five percent occur in the evening (7 p.m. to 10 p.m.). Forty percent of takeoffs and landings are on Runway 9. The remaining operations are evenly split among Runways 13, 31, and 27.

Exhibit E-7 depicts the noise contours in 5 dB increments from 50 to 70 dB CNEL and the generalized flight tracks used for noise modeling. (Note, however, that ALUCP noise compatibility policies and standards at Ocotillo Airport apply only above 55 dB CNEL.) As shown on the exhibit, only portions of the 50 dB CNEL contour extend off airport property on the north and southwest sides. All other noise contours remain entirely on Airport property.

E.1.6 RAMONA AIRPORT (RAM)

Based on information provided by the County Airports staff, 95 percent of all aircraft activity occurs during the day (7 a.m. to 7 p.m.), and the remaining five percent in the evening (7 p.m. to 10 p.m.). Ninety-five percent of takeoffs and landings are on Runway 27, five percent on Runway 9.

Exhibit E-8 depicts the noise contours in 5 dB CNEL increments from 55 to 70 dB CNEL and generalized flight tracks used for noise modeling.(Note, however, that ALUCP noise compatibility policies and standards at Ramona Airport apply only above 60 dB CNEL.) The 55 and 60 dB CNEL contours extend off the Airport property in all directions. The 65 dB CNEL contour extends off Airport property on the south side.

E.2 NOISE COMPATIBILITY POLICIES AND STANDARDS

E.2.1 FEDERAL GUIDANCE

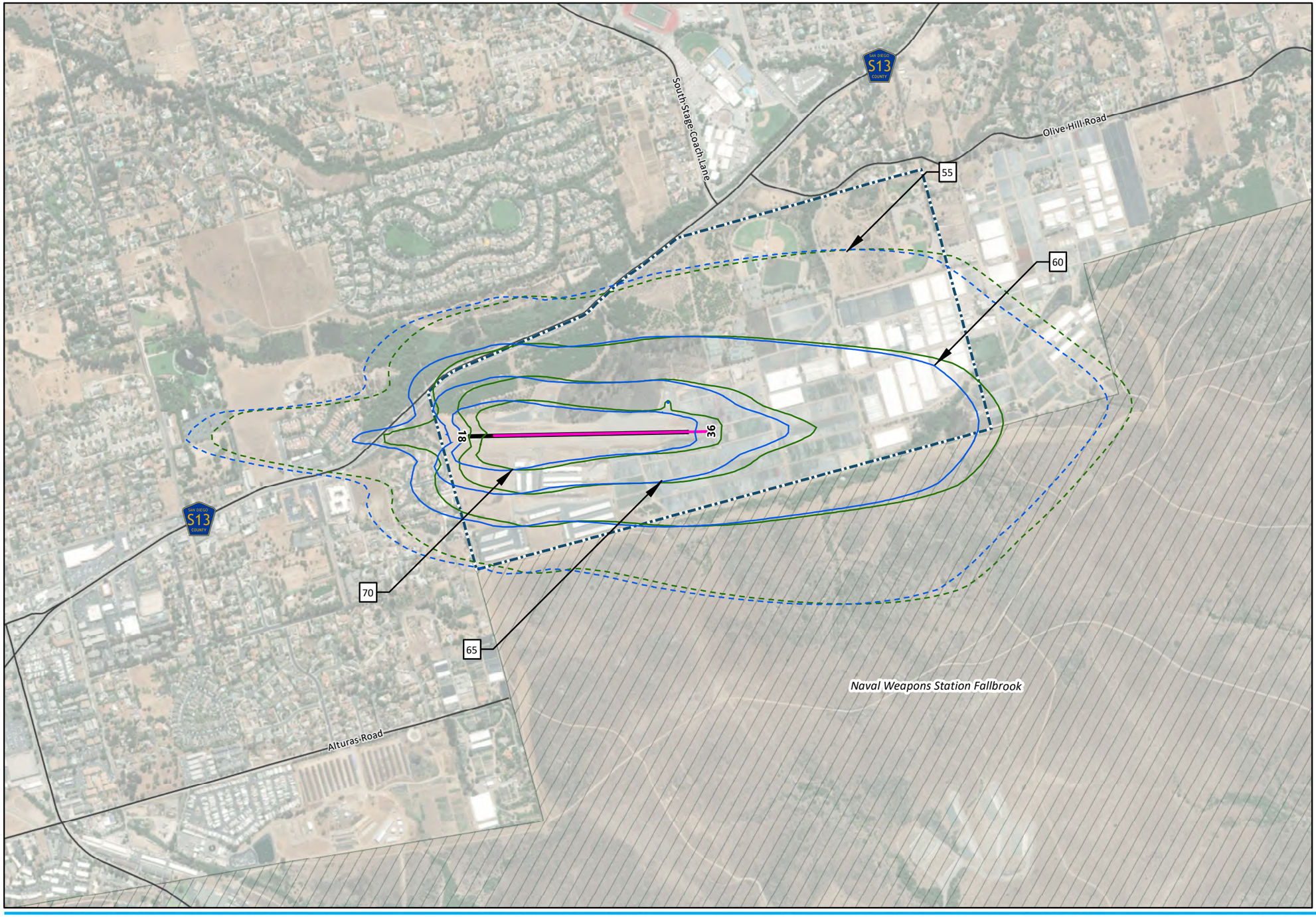
In 1979, Congress enacted legislation providing funding assistance to airport operators desiring to develop and implement noise compatibility plans and programs.[2] The FAA promulgated the regulations governing this voluntary program in Title14, Code of Federal Regulations (14 CFR) Part 150, Airport Noise Compatibility Planning.

Table 1 in Appendix A of the regulations (14 CFR A150.101) is a matrix indicating the suggested land use compatibility of various land uses with cumulative noise exposure levels.[3] Particularly noise-sensitive land uses identified in Table 1 include:

- Residences
- Schools
- Hospitals and nursing homes
- Churches, auditoriums, and concert halls
- Outdoor music shells and amphitheaters

2 49 U.S.C. 47501 *et seq.*

3 14 CFR Part 150 does not establish regulatory land use compatibility standards. As noted in Table 1, "[t]he designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable or unacceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses."



LEGEND

- Airport Property Boundary
- Existing Runway
- Future Relocated Runway [1]
- Federal/State Lands
- Roadway
- Forecast CNEL Contour with No Change to Existing Runway [2]
- Forecast CNEL Noise Contour with Future Runway Extension [2]

NOTES:

1 Runway to be shifted 240 feet to the south.

2 Noise capability policies apply within the 60 dB CNEL and higher contours.

This exhibit represents both existing and future Airport Layout Plan conditions.

CNEL – Community Noise Equivalent Level

dB – Decibel

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Harris Miller Miller & Hanson Inc., November 2004 (flight tracks); Coffman Associates, AEDT Version 2d, 2018 (noise contours); Fallbrook Community Airpark, Airport Diagram, 2018 (Airport property boundary, runways).

N

0 500 1,000 2,000

1 inch = 1,000 feet

Fallbrook Community Airpark

Forecast Noise Exposure With and Without Relocated Runway

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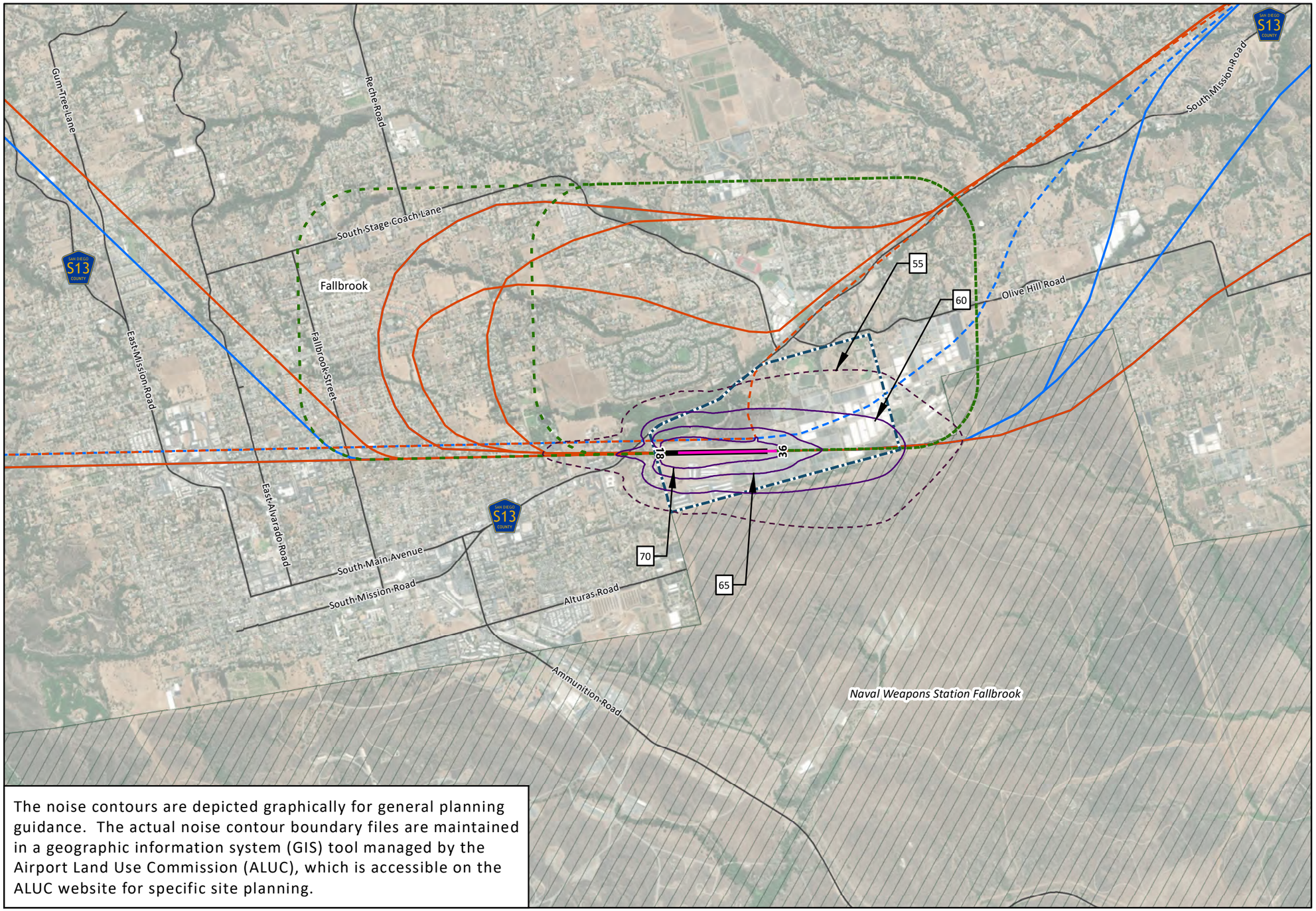

LEGEND

- Airport Property Boundary
- Existing Runway
- Future Relocated Runway [1]
- Federal/State Lands
- Roadway
- Composite CNEL Noise Contours With and Without Runway Relocation [2]
- Fixed Wing Approach
- Fixed Wing Departure
- Fixed Wing Touch & Go
- Helicopter Approach
- Helicopter Departure

NOTES:

1 Runway to be shifted 240 feet to the south.

2 Noise capability policies apply within the 60 dB CNEL and higher contours. Contours reflect forecast noise exposure with and without future relocated runway.

CNEL – Community Noise Equivalent Level

dB – Decibel

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Harris Miller Miller & Hanson Inc., November 2004 (flight tracks); Coffman Associates, AEDT Version 2d, 2018 (noise contours); Fallbrook Community Airpark, Airport Diagram, 2018 (Airport property boundary, runways).

N

0 1,125 2,250 4,500

1 inch = 2,250 feet

The noise contours are depicted graphically for general planning guidance. The actual noise contour boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Fallbrook Community Airpark

Forecast Noise Exposure and Generalized Flight Tracks

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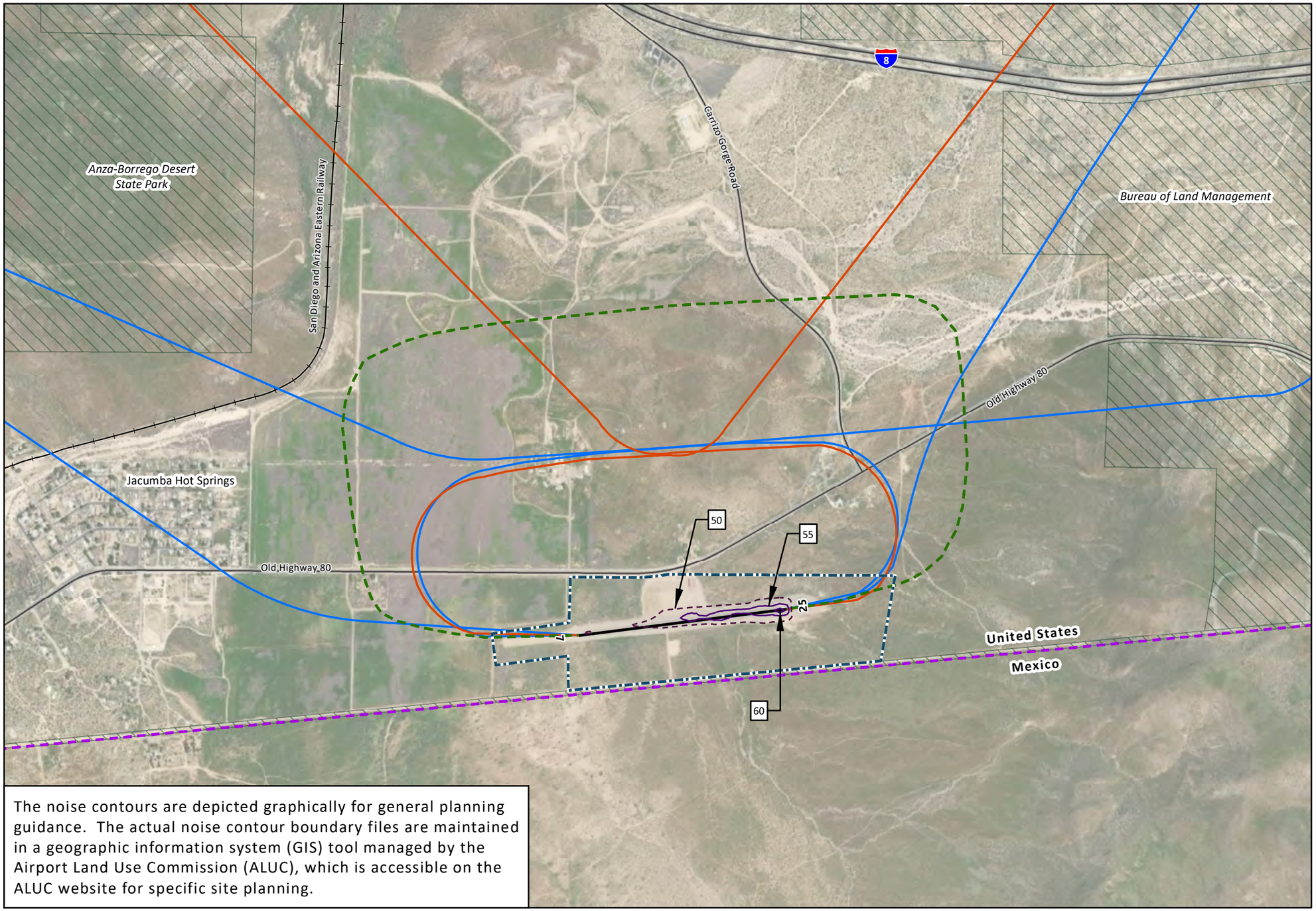

LEGEND

- Airport Property Boundary
- Existing Runway
- International Boundary
- Federal/State Lands
- Roadway
- Railway
- CNEL Noise Contours [1]
- Fixed Wing Approach
- Fixed Wing Departure
- Fixed Wing Touch-and-Go

NOTES:

1 Noise compatibility policies apply within the 55 dB CNEL and higher contours.

CNEL – Community Noise Equivalent Level

dB – Decibel

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Harris Miller Miller & Hanson Inc., November 2004 (flight tracks); Jacumba Airport, Airport Diagram, 2018 (Airport property boundary, runway); Ricondo & Associates, Inc., AEDT Version 2D, August 2021 (noise contours).

N

0 625 1,250 2,500

1 inch = 1,250 feet

The noise contours are depicted graphically for general planning guidance. The actual noise contour boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Jacumba Airport

Forecast Noise Exposure and Generalized Flight Tracks

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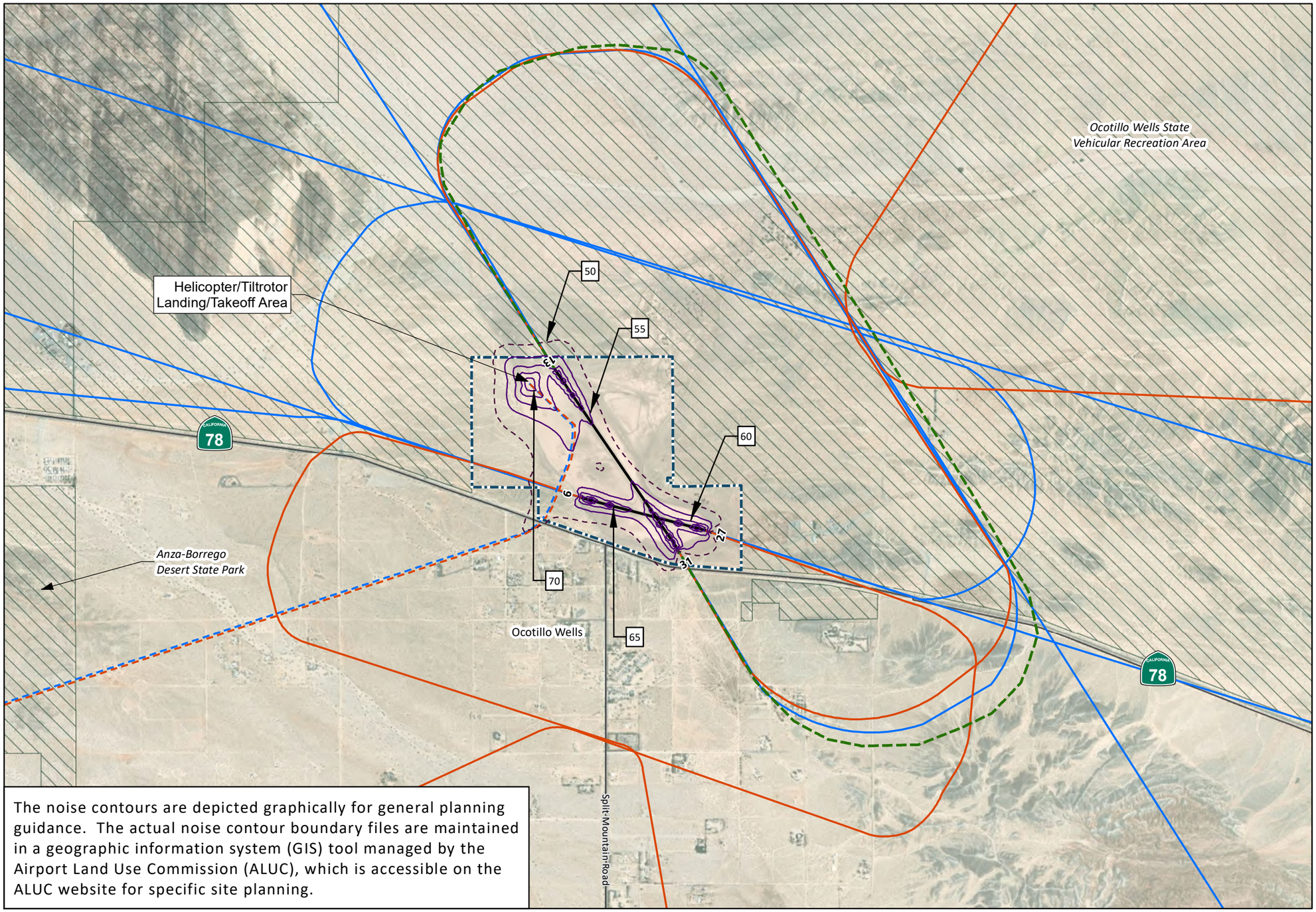

LEGEND

- Airport Property Boundary
- Existing Dirt Runway
- Federal/State Lands
- Roadway
- CNEL Noise Contours [1]
- Fixed Wing Approach
- Fixed Wing Departure
- Fixed Wing Touch-and-Go
- Helicopter Approach
- Helicopter Departure

NOTES:

1 Noise compatibility policies apply within the 55 dB CNEL and higher contours

CNEL – Community Noise Equivalent Level

dB – Decibel

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Harris Miller Miller & Hanson Inc., November 2004 (flight tracks); Coffman Associates, AEDT Version 2d, 2018 (noise contours); Ocotillo Airport, Airport Diagram, 2018 (Airport property boundary, runways).

N

0 1,000 2,000 4,000

1 inch = 2,000 feet

The noise contours are depicted graphically for general planning guidance. The actual noise contour boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Ocotillo Airport

Forecast Noise Exposure and Generalized Flight Tracks

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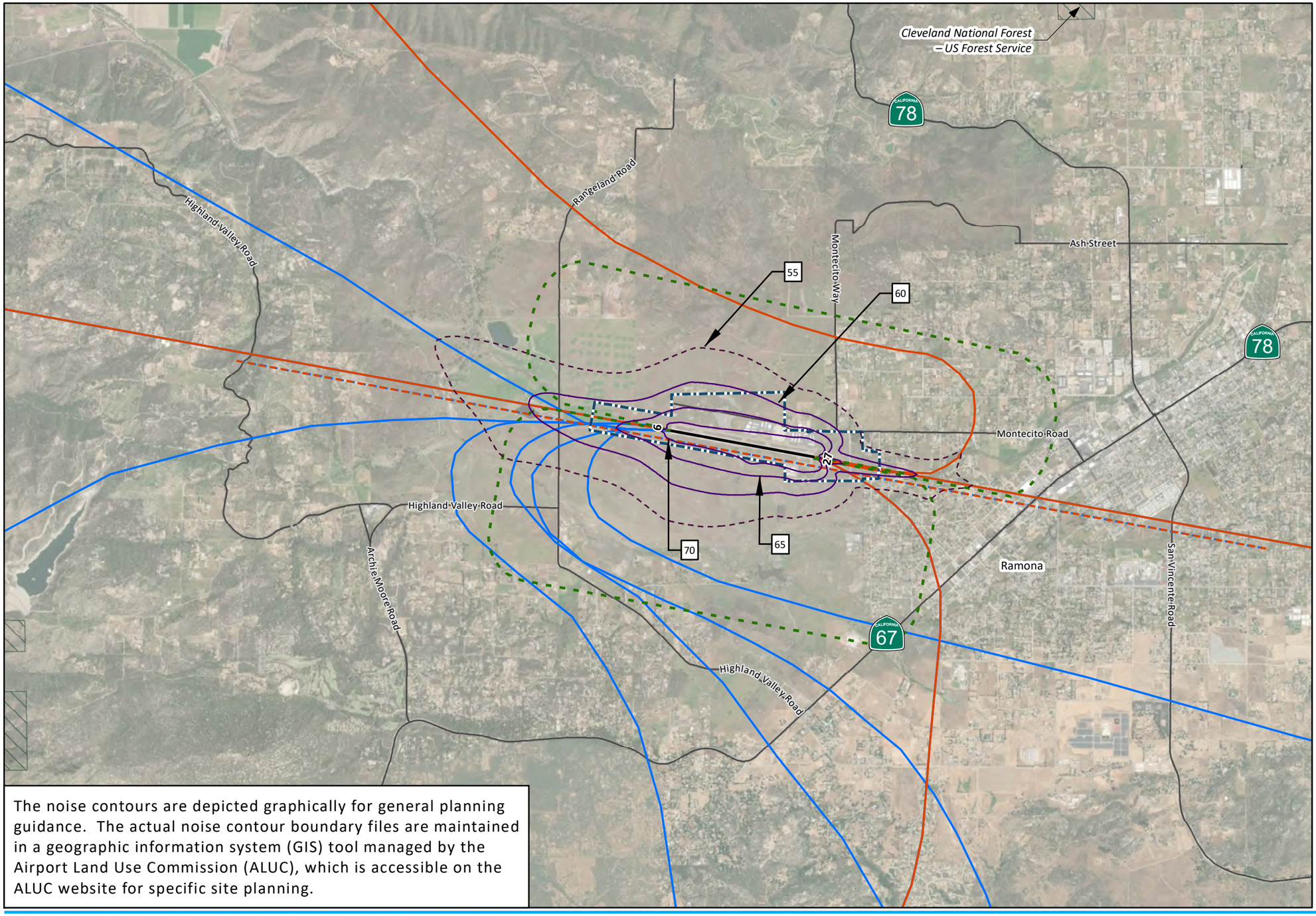

The noise contours are depicted graphically for general planning guidance. The actual noise contour boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

LEGEND

- Airport Property Boundary
- Existing Runway
- Federal/State Lands
- Roadway
- CNEL Noise Contours [1]
- Fixed Wing Approach
- Fixed Wing Departure
- Fixed Wing Touch-and-Go
- Helicopter Approach
- Helicopter Departure

NOTES:

1 Noise compatibility policies apply within the 60 dB CNEL and higher contours.

CNEL – Community Noise Equivalent Level

dB – Decibel

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); Coffman Associates, Analysis of San Diego County Regional Airport Authority Radar Data, 2018 (flight tracks); Coffman Associates, AEDT Version 2d, 2018 (noise contours); Ramona Airport, Airport Diagram, 2018 (Airport property boundary, runway).

N

0 1,750 3,500 7,000

1 inch = 3,500 feet

Ramona Airport

Forecast Noise Exposure and Generalized Flight Tracks

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E.2.2 CALIFORNIA NOISE LAW

Noise is generally considered the most extensive impact associated with airports because its effects are often experienced well beyond the airport boundary.

The State of California has enacted legislation to encourage the reduction of airport noise impacts and to mitigate the impact of noise on residents. California Code of Regulations, Title 21, Subchapter 6, describes airport noise standards developed by the California Department of Transportation (Caltrans), as directed by the state legislature in Section 21669 of the State Aeronautics Act. The regulations establish 65 dB CNEL as the "level of noise acceptable to a reasonable person residing in the vicinity of an airport."[4] Land uses described as incompatible with noise above 65 dB CNEL are:

- Residences (all types)
- Schools (public and private)
- Hospitals and convalescence homes
- Places of worship

According to the law, these uses are made compatible with noise above 65 dB CNEL if an avigation easement for noise is granted to the airport operator or if the buildings are sound attenuated to an indoor level of 45 dB CNEL or less in all habitable rooms.[5] The statute explains that a "noise impact area" exists around an airport if any incompatible uses are within the 65 dB CNEL contour. Airports with noise impact areas are to establish noise monitoring programs and establish measures to reduce and ultimately eliminate the noise impact area.

E.2.3 CALIFORNIA AIRPORT LAND USE PLANNING HANDBOOK

The California Noise Law was promulgated to establish standards and a process for remedying noise impacts that were created in the absence of airport land use compatibility planning. In establishing the ALUC process, a specific purpose of the California legislature was to "minimize the public's exposure to excessive noise … within areas around public airports…"[6] Thus, the ALUC process is complementary to the California noise law. While the noise law is intended to rectify existing impacts on noise-sensitive land uses, the ALUC process is intended to avoid the creation of new noise impacts through land use compatibility planning.

The *California Airport Land Use Planning Handbook* (the Handbook) includes guidance for the establishment of ALUCP noise compatibility policies and standards.[7] The Handbook notes that, despite the Part 150 land use guidelines and the California noise law, areas exposed to noise of 65 dB CNEL and higher are normally unacceptable for new residential development. The Handbook suggests that 60 dB

4 Title 21, California Code of Regulations, Subchapter 6, *Noise Standards*, Section 5006.
5 Title 21, California Code of Regulations, Subchapter 6, *Noise Standards*, Section 5014.
6 California Public Utilities Code §21670(a)(2).
7 California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011, p. 4-1 – 4-12.

CNEL is an acceptable threshold for residential development around most airports, and that 55 dB CNEL is an appropriate threshold in quiet, rural settings.[8]

The Handbook advises that after setting a compatibility threshold for residential land uses, thresholds can be set for nonresidential land uses based on the degree to which activities may be disrupted by aircraft noise.[9]

E.2.4 UPDATED ALUCP NOISE COMPATIBILITY STANDARDS

For Fallbrook Community Airpark and Ramona Airport, 60 dB CNEL is set as the threshold of noise compatibility for residences and other noise-sensitive land uses. In the 2006 ALUCPs for those airports, 60 dB CNEL was the threshold in the more densely developed parts within the noise contours (to the north at Fallbrook Community Airpark and to the east at Ramona Airport) and 55 dB CNEL as the compatibility threshold for the more rural parts within the contours (to the south at Fallbrook Community Airpark and to the west at Ramona Airport).

Other noise-sensitive uses considered incompatible with noise levels above 60 dB CNEL at Fallbrook and Ramona include:

- Noise-sensitive places of assembly
- Adult and children's schools and day care centers
- Cultural facilities (such as libraries)
- Medical and congregate care facilities, including hospitals and nursing homes

High aircraft noise levels can disrupt activities at all of these land uses. Significantly, many of these facilities serve people who have no choice but to use them. Teachers, students, and hospital and convalescent care patients lack the option to go elsewhere if aircraft noise is disturbing to them. It is also recognized that noise attenuation mitigation measures do not eliminate all potentially disruptive aircraft noise events. Of course, noise attenuation measures are completely ineffective for outdoor activities associated with these uses (e.g., playgrounds, outdoor nature laboratories and gardens, outdoor presentation and performance spaces, etc.).

For the four “rural” airports, Agua Caliente Springs, Borrego Valley, Jacumba, and Ocotillo, 55 dB CNEL is the noise compatibility threshold for new residences, as it was in the 2006 ALUCPs. The same threshold is applied to other noise-sensitive land uses.

8 California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011, p. 4-3, 4-7.
9 California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011, p. 4-9.

Appendix F
AIRSPACE AND OVERFLIGHT SUPPORTING INFORMATION

F.1 AIRSPACE

F.1.1 FEDERAL REGULATIONS AND GUIDANCE

The airspace protection policies and standards of the Airport Land Use Compatibility Plans (ALUCPs) reflect federal regulations and guidelines. The FAA has standards for assessing airspace obstructions and potential hazards to flight in relation to airspace surfaces. The federal airspace regulatory framework is provided in 14 CFR Part 77 which describes:

- When notice of construction or alteration must be provided to the FAA (Part 77, Subpart B)
- Standards to determine obstructions to navigable airspace (Part 77, Subpart C)
- FAA's process to determine the effect of proposed construction or alteration on navigable airspace (Part 77, Subpart D)

Among the obstruction standards defined in 14 CFR Part 77, Subpart C, are criteria for deriving civil airport imaginary surfaces. **Exhibit F-1** depicts the generic Part 77 imaginary surfaces and includes a table describing various surface dimensions based on operational characteristics of the subject airport. The exhibits listed below depict the Part 77 imaginary surfaces for the airports in this plan.

Exhibit F-2	Agua Caliente Springs Airport – Airspace Surfaces
Exhibit F-3	Borrego Valley Airport – Airspace Surfaces
Exhibit F-4	Fallbrook Community Airpark – Airspace Surfaces
Exhibit F-5	Jacumba Airport – Airspace Surfaces
Exhibit F-6	Ocotillo Airport – Airspace Surfaces
Exhibit F-7	Ramona Airport – Airspace Surfaces

In administering Part 77, the objectives of the FAA are to promote air safety and the efficient use of navigable airspace. However, the FAA has no authority to restrict or limit proposed construction.

As outlined in 14 CFR Part 77, Section 77.9, federal law requires project sponsors of structures/objects (including antennas, trees, and mobile and temporary objects, such as construction cranes) which meet the following conditions, to submit to the FAA a Notice of Proposed Construction or Alteration (Form 7460-1):[1, 2]

1. Any construction or alteration exceeding 200 feet above ground level; or
2. Any construction or alteration:

1 Title 14, Code of Federal Regulations, Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace, Subpart B, Notice Requirements, §77.9.

2 Federal Aviation Administration, Department of Obstruction Evaluation/Airport Airspace Analysis (OE/AAA), *Notice Criteria Tool*, https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm.

(a) Within 20,000 feet of a public-use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with its longest runway more than 3,200 feet [Borrego Valley, Ocotillo, and Ramona Airports];

(b) Within 10,000 feet of a public-use or military airport which exceeds a 50:1 surface from any point on the runway of each airport with its longest runway no more than 3,200 feet [Agua Caliente Springs, Fallbrook Community Airpark, and Jacumba Airport];

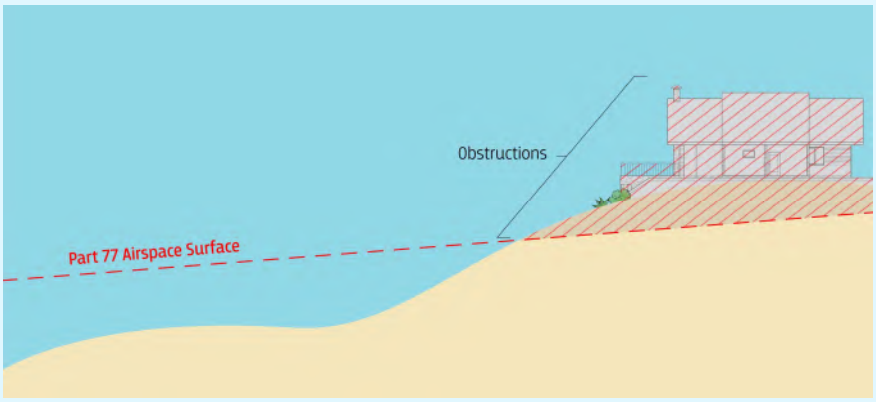
(c) Within 5,000 feet of a public-use heliport which exceeds a 25:1 surface; or

3. Any highway, railroad or other traverse way whose prescribed adjusted height would exceed the above noted standards; or

4. When requested by the FAA [as in cases, for example, where the potential for signal reception interference from structures or objects is a concern]; or

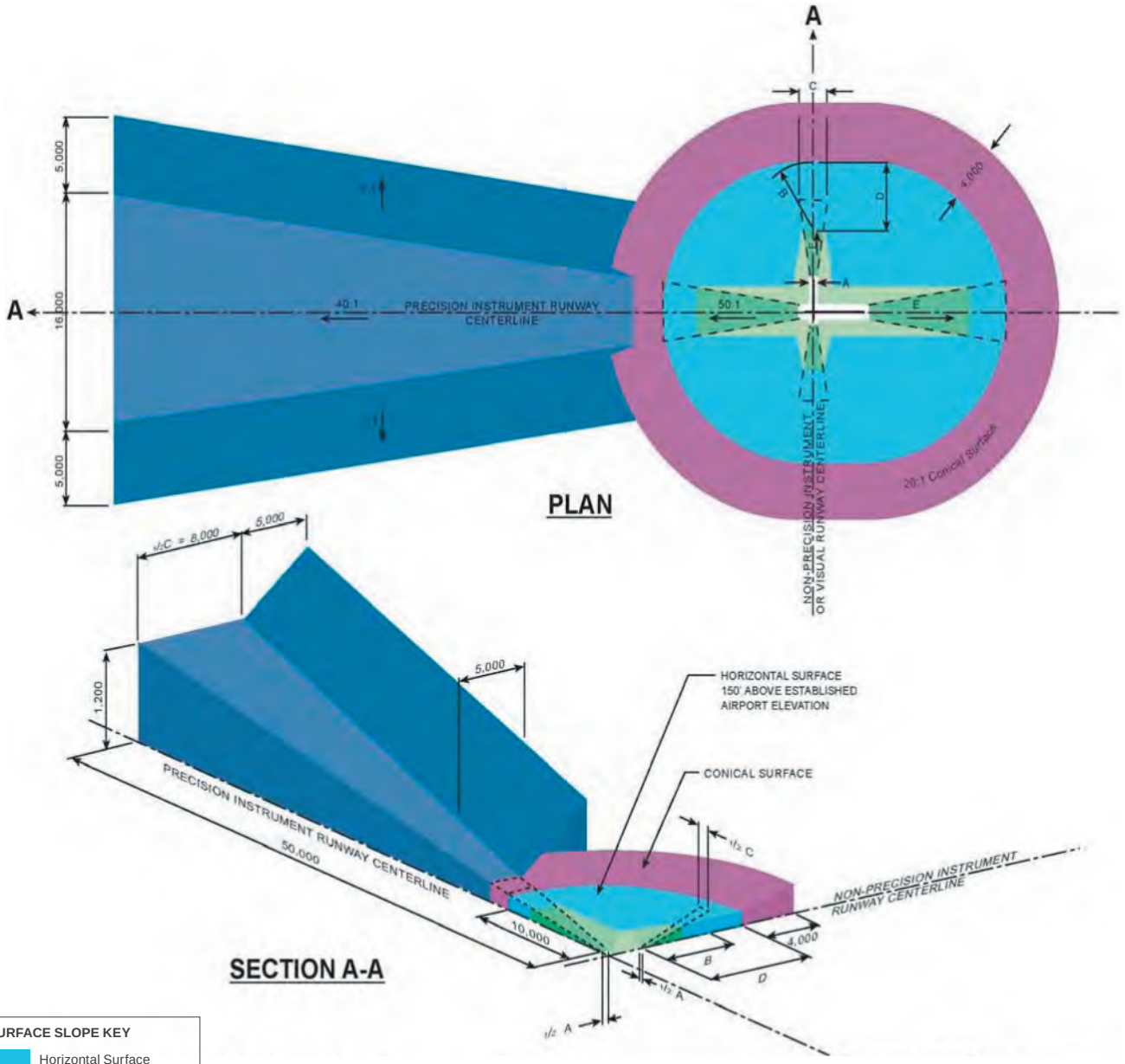
5. Any construction or alteration located on a public-use airport or heliport regardless of height or location.

An obstruction is an object that, upon evaluation, is determined by the FAA to require proper marking, lighting, and identification in aeronautical publications so that it may be easily recognized by pilots of aircraft navigating through the airspace. FAA obstruction standards are defined in Title 14, Code of Federal Regulations (CFR) Part 77 (Part 77), Subpart C.



After receiving a Form 7460-1, the FAA undertakes an aeronautical study of the proposed project, culminating in the issuance of either a Determination of No Hazard (DNH), a Determination of Hazard (DOH), or a Notice of Presumed Hazard (NPH). (Project applicants receiving a NPH may request a more detailed FAA study leading to a final determination, which may involve the consideration of modifications to avoid creating a hazard.) For a project to be consistent with an ALUCP, it must receive a DNH. In addition, the proposed project must not result in changes to the approach minimums for the airport. Project sponsors may refer to the FAA Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) website to determine if they are required to file Form 7460-1 with the FAA. [3]

3 https://oeaaa.faa.gov, FAA Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) website



SURFACE SLOPE KEY

- Horizontal Surface
- 20:1
- 7:1
- 7:1
- Varies (see "E" value in table)
- 40:1 (precision instrument runway only)

TABLE KEY

- X Visibility minimums greater than ¾ mile
- Y Visibility minimums as low as ¾ mile
- * Precision instrument approach slope is 50:1 for inner 10,000 feet and 40:1 for an additional 40,000 feet

DIM.	ITEM	DIMENSIONAL STANDARDS (FEET)					
		VISUAL RUNWAY		NON-PRECISION INSTRUMENT RUNWAY			PRECISION INSTRUMENT RUNWAY
		UTILITY	LARGER THAN UTILITY	UTILITY	LARGER THAN UTILITY		
					X	Y	
A	Width of primary surface and approach surface width at inner end	250	500	500	500	1,000	1,000
B	Radius of horizontal surface	5,000	5,000	5,000	10,000	10,000	10,000
		VISUAL APPROACH		NON-PRECISION INSTRUMENT APPROACH			PRECISION INSTRUMENT RUNWAY
		UTILITY	LARGER THAN UTILITY	UTILITY	LARGER THAN UTILITY		
					X	Y	
C	Approach surface width at end	1,250	1,500	2,000	3,500	4,000	16,000
D	Approach surface length	5,000	5,000	5,000	10,000	10,000	*
E	Approach slope	20.1	20.1	20.1	34.1	34.1	*

SOURCE: 14 CFR Part 77, *Safe, Efficient Use, and Preservation of the Navigable Airspace*, Sec. 77.19. January 18, 2011. Adapted by Ricondo from graphic prepared by Washington State Department of Transportation, Aviation Division, https://wsdot.wa.gov/sites/default/files/2006/03/03/ Civil_Airport_Imag_sm.gif, accessed August 10, 2021.

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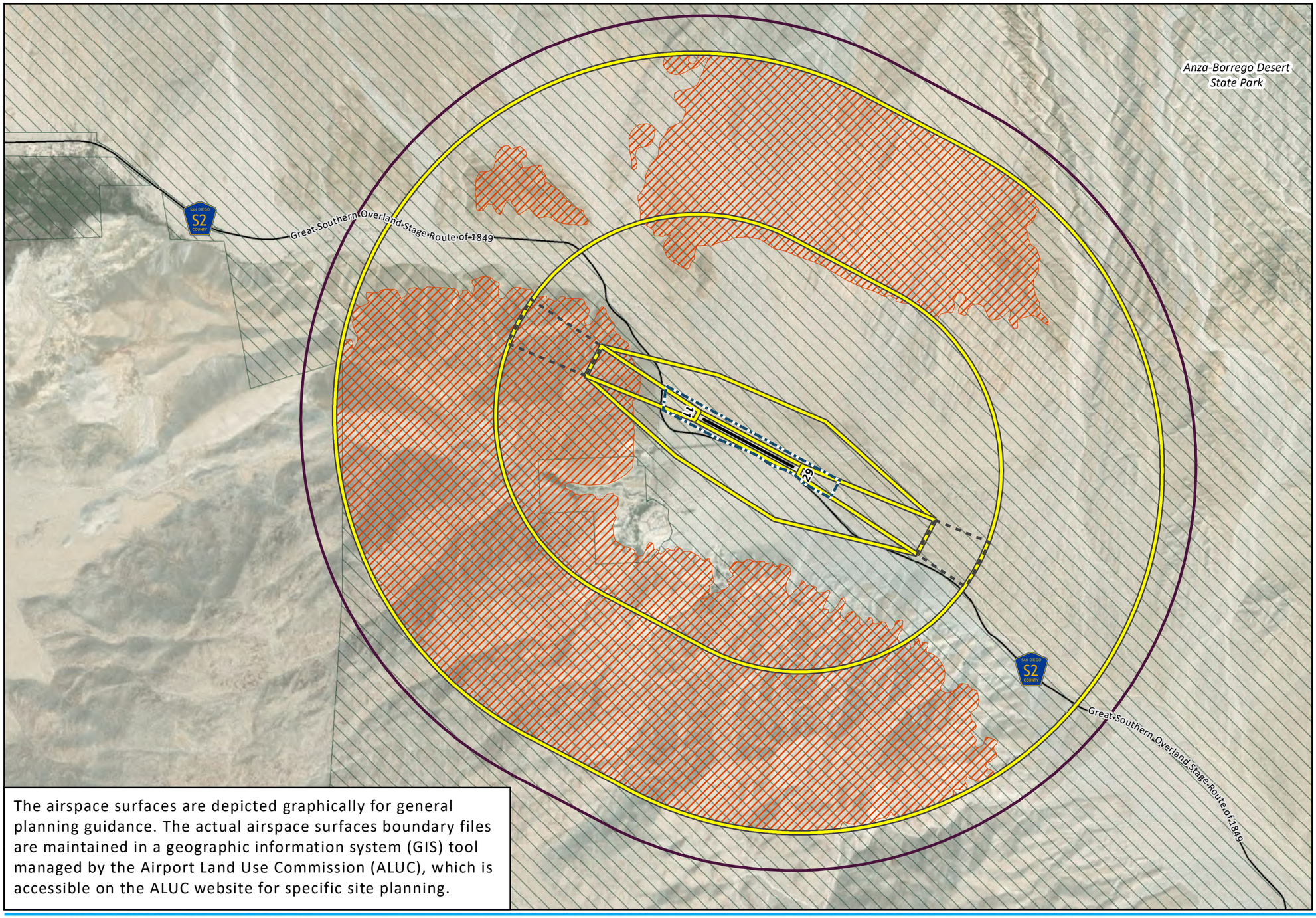

LEGEND

- Airport Property Boundary
- Existing Runway
- Federal/State Lands
- Roadway
- Part 77 Surfaces [1]
- Part 77 Approach Surfaces Lying Above Horizontal Surface
- Part 77 Terrain Penetrations [2]
- Federal Aviation Administration 50:1 Notification Surface Boundary

NOTES:

1 See Title 14 Code of Federal Regulations (CFR) 77.19.

2 Part 77 airspace terrain penetrations based off intersection of Part 77 Surfaces and terrain digital elevation model (DEM).

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); USDA/NRCS National Elevation Data - 10 meter or better dataset, processed June 2015 (terrain DEM); Coffman Associates, 2018 (Part 77 surfaces, terrain penetrations); Agua Caliente Springs Airport, Airport Diagram, 2018 (Airport property boundary, runway); Ricondo & Associates, Inc., January 2022 (notification surface boundary).

N

0 1,250 2,500 5,000

1 inch = 2,500 feet

The airspace surfaces are depicted graphically for general planning guidance. The actual airspace surfaces boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Agua Caliente Springs Airport

Airspace Surfaces

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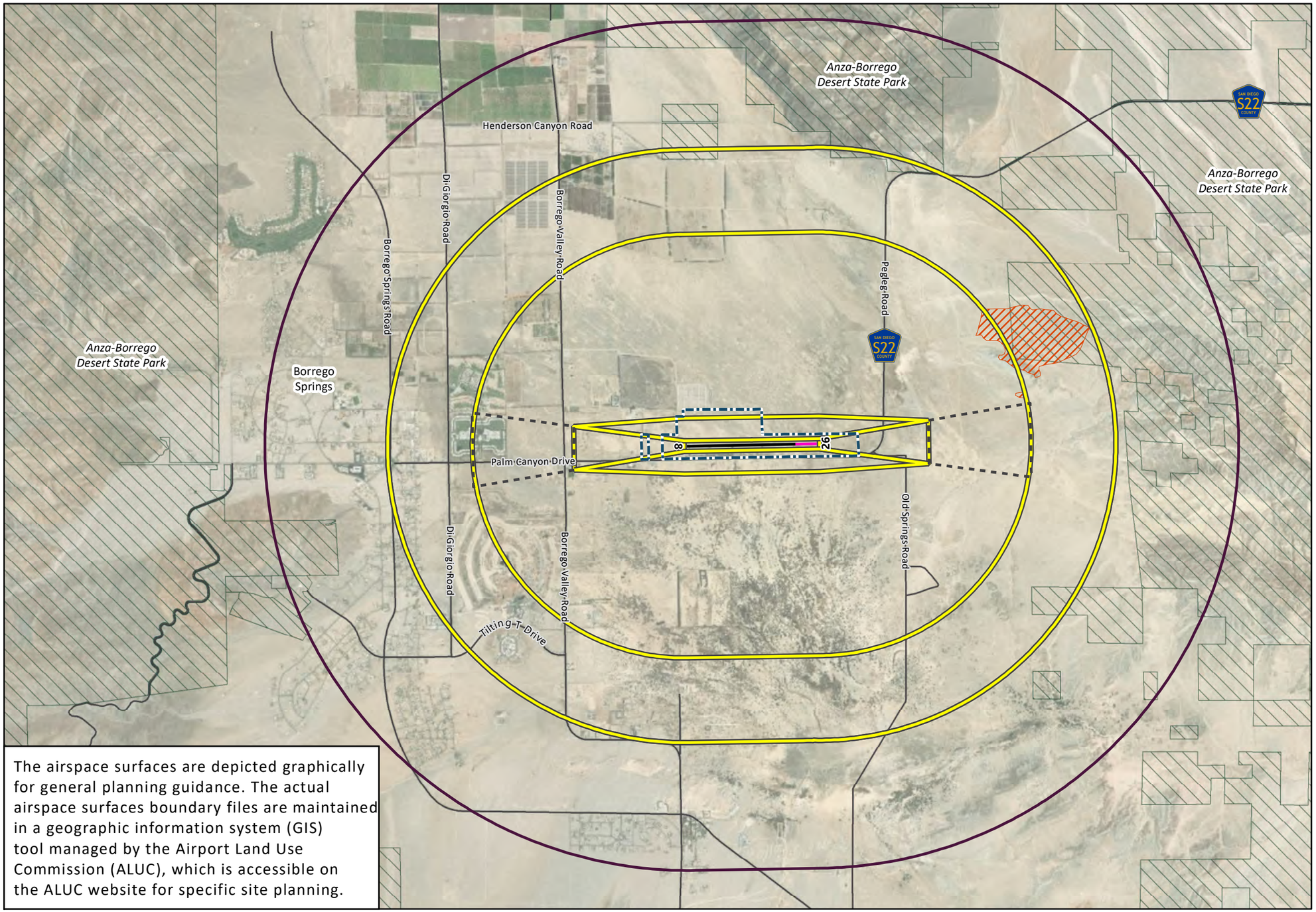

LEGEND

- Airport Property Boundary
- Existing Runway
- Future Runway Extension
- Federal/State Lands
- Roadway
- Part 77 Surfaces [1]
- Part 77 Approach Surfaces Lying Above Horizontal Surface
- Part 77 Terrain Penetrations [2]
- Federal Aviation Administration 100:1 Notification Surface Boundary

NOTES:

1 See Title 14 Code of Federal Regulations (CFR) 77.19.

2 Part 77 airspace terrain penetrations based off intersection of Part 77 Surfaces and terrain digital elevation model (DEM).

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); USDA/NRCS National Elevation Data - 10 meter or better dataset, processed June 2015 (terrain DEM); Coffman Associates, 2018 (Part 77 surfaces, terrain penetrations); Borrego Valley Airport, Airport Layout Plan, 2010 (Airport property boundary, runways); Ricondo & Associates, Inc., January 2022 (notification surface boundary).

N

0 2,375 4,750 9,500

1 inch = 4,750 feet

The airspace surfaces are depicted graphically for general planning guidance. The actual airspace surfaces boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Borrego Valley Airport

Airspace Surfaces

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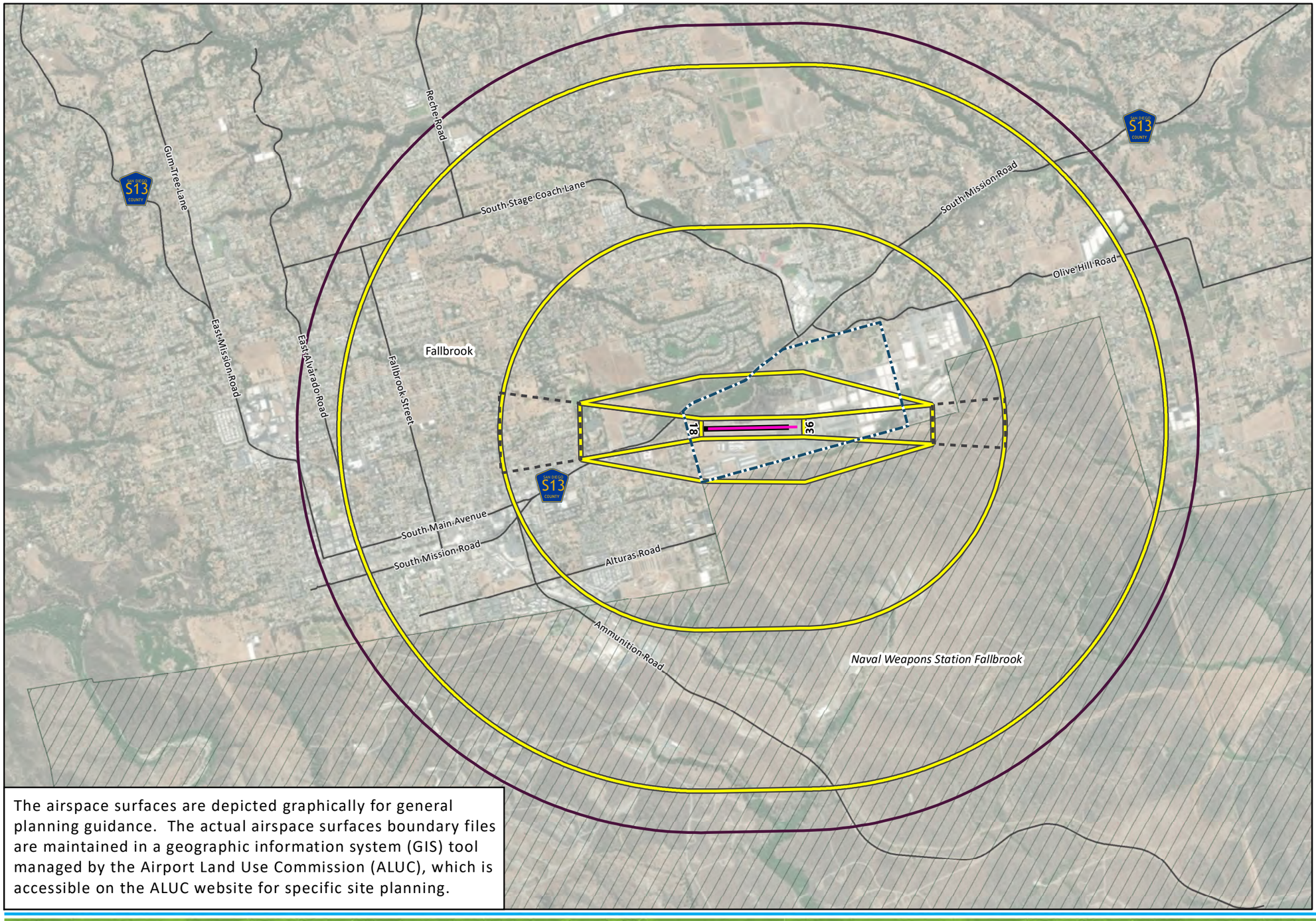

LEGEND

- Airport Property Boundary
- Existing Runway
- Future Relocated Runway [1]
- Federal/State Lands
- Roadway
- Part 77 Surfaces [2]
- Part 77 Approach Surfaces Lying Above Horizontal Surface
- Federal Aviation Administration 50:1 Notification Surface Boundary

NOTES:

1 Runway to be shifted 240 feet to the south.

2 See Title 14 Code of Federal Regulations (CFR) 77.19.

No Part 77 terrain penetrations found.

This exhibit represents both existing and future Airport Layout Plan conditions.

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); USDA/NRCS National Elevation Data - 10 meter or better dataset, processed June 2015 (terrain digital elevation model); Coffman Associates, 2018 (Part 77 surfaces, terrain penetrations); Fallbrook Community Airpark, Airport Layout Plan, 2006 (Airport property boundary, runways); Ricondo & Associates, Inc., January 2022 (notification surface boundary).

N

0 1,250 2,500 5,000

1 inch = 2,500 feet

The airspace surfaces are depicted graphically for general planning guidance. The actual airspace surfaces boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Fallbrook Community Airpark

Airspace Surfaces

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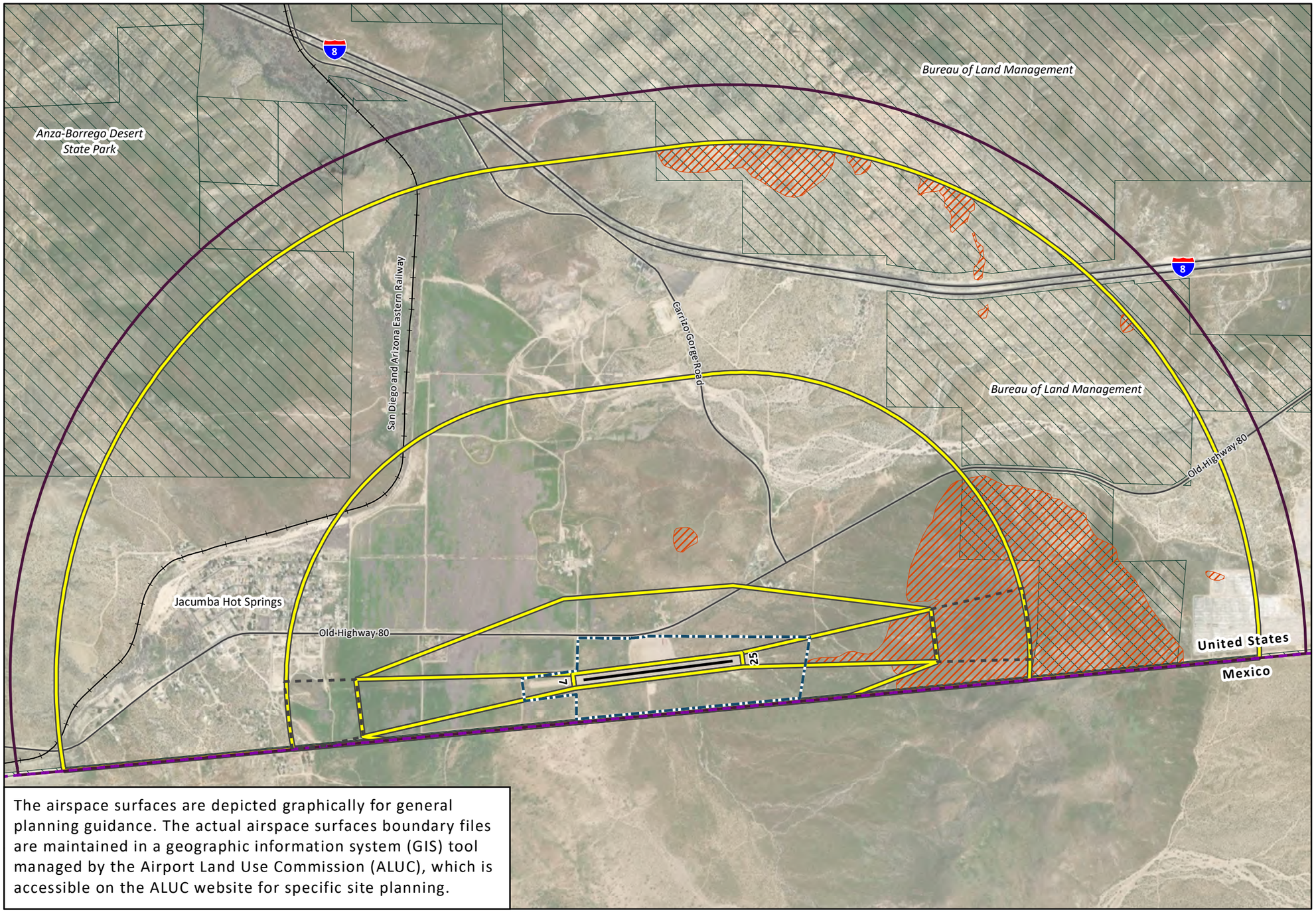

The airspace surfaces are depicted graphically for general planning guidance. The actual airspace surfaces boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

LEGEND

- Airport Property Boundary
- Existing Runway
- International Boundary
- Federal/State Lands
- Roadway
- Railway
- Part 77 Surfaces [1]
- Part 77 Approach Surfaces Lying Above Horizontal Surface
- Part 77 Terrain Penetrations [2]
- Federal Aviation Administration 50:1 Notification Surface Boundary

NOTES:

1 See Title 14 Code of Federal Regulations (CFR) 77.19.

2 Part 77 airspace terrain penetrations based off intersection of Part 77 Surfaces and terrain digital elevation model (DEM).

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); USDA/NRCS National Elevation Data - 10 meter or better dataset, processed June 2015 (terrain DEM); Coffman Associates, 2018 (Part 77 surfaces, terrain penetrations); Jacumba Airport, Airport Diagram, 2018 (Airport property boundary, runway); Ricondo & Associates, Inc., January 2022 (notification surface boundary).

N

0 875 1,750 3,500

1 inch = 1,750 feet

Jacumba Airport

Airspace Surfaces

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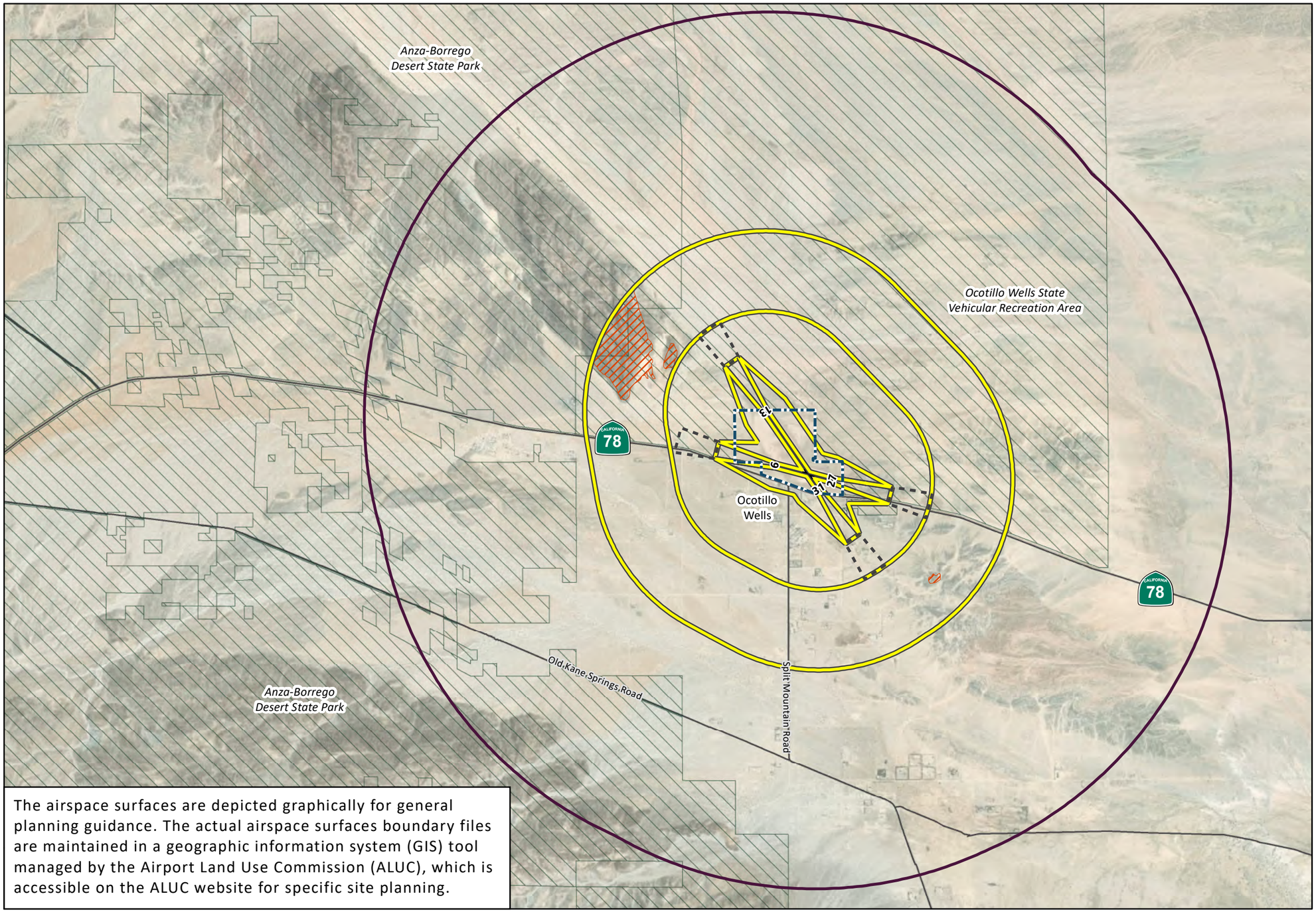

LEGEND

- Airport Property Boundary
- Existing Dirt Runway
- Federal/State Lands
- Roadway
- Part 77 Surfaces [1]
- Part 77 Approach Surfaces Lying Above Horizontal Surface
- Part 77 Terrain Penetrations [2]
- Federal Aviation Administration 100:1 Notification Surface Boundary

NOTES:

1 See Title 14 Code of Federal Regulations (CFR) 77.19.

2 Part 77 airspace terrain penetrations based off intersection of Part 77 Surfaces and terrain digital elevation model (DEM).

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); USDA/NRCS National Elevation Data - 10 meter or better dataset, processed June 2015 (terrain DEM); Coffman Associates, 2018 (Part 77 surfaces, terrain penetrations); Ocotillo Airport, Airport Diagram, 2018 (Airport property boundary, runways); Ricondo & Associates, Inc., January 2022 (notification surface boundary).

N

0 2,500 5,000 10,000

1 inch = 5,000 feet

The airspace surfaces are depicted graphically for general planning guidance. The actual airspace surfaces boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Ocotillo Airport

Airspace Surfaces

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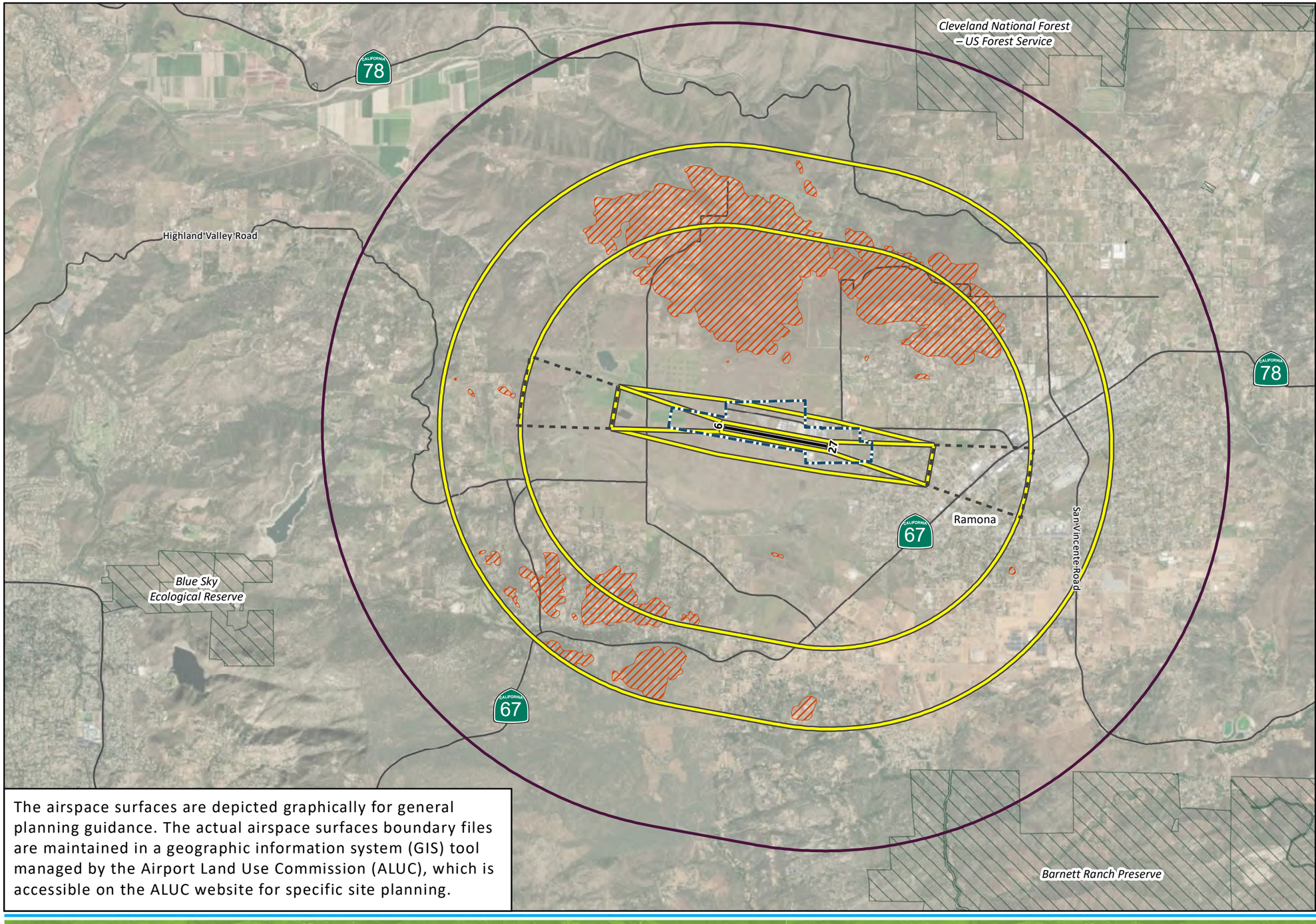

LEGEND

- Airport Property Boundary
- Existing Runway
- Federal/State Lands
- Roadway
- Part 77 Surfaces [1]
- Part 77 Approach Surfaces Lying Above Horizontal Surface
- Part 77 Terrain Penetrations [2]
- Federal Aviation Administration 100:1 Notification Surface Boundary

NOTES:

1 See Title 14 Code of Federal Regulations (CFR) 77.19.

2 Part 77 airspace terrain penetrations based off intersection of Part 77 Surfaces and terrain digital elevation model (DEM).

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); USDA/NRCS National Elevation Data - 10 meter or better dataset, processed June 2015 (terrain DEM); Coffman Associates, 2018 (Part 77 surfaces, terrain penetrations); Ramona Airport, Airport Layout Plan, 2009 (Airport property boundary, runway); Ricondo & Associates, Inc., January 2022 (notification surface boundary).

N

0 2,500 5,000 10,000

1 inch = 5,000 feet

The airspace surfaces are depicted graphically for general planning guidance. The actual airspace surfaces boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Ramona Airport

Airspace Surfaces

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Hazards are obstructions or other adverse objects that FAA aeronautical study concludes would have a "substantial adverse effect" to a "significant volume of aeronautical operations" as defined in FAA Order JO 7400.2M, *Procedures for Handling Airspace Matters*.[4] Objects that are hazards to navigation have been so determined because they are not sufficiently clear from the normal pathways of aircraft, would affect the useable length of an existing or planned runway, or because they result in certain other adverse effects, such as electromagnetic interference, control tower visibility hindrances, or pilot distraction.[5]

F.1.2 STATE REGULATIONS AND GUIDANCE

The *California State Aeronautics Act* recognizes the Part 77 obstruction and hazard standards and provides the basis for local agencies and the California Department of Transportation (Caltrans) to enforce their protection. State law prohibits the construction or alteration of structures or objects that exceed Part 77 obstruction standards unless a permit is issued by Caltrans.[6] The permit may be waived for a structure or object less than 500 feet above the ground if the FAA determines it would not be a hazard to air navigation.

The *California Airport Land Use Compatibility Planning Handbook* (the Handbook) defers largely to FAA guidance concerning airspace protection.[7] The Handbook advises the following:

- The compatibility strategy should be to limit the height of structures and objects so as not to cause hazards to flight.
- The airspace protection boundary should correspond to the Part 77 imaginary surfaces, with consideration given to TERPS surfaces[8] at airports where those surfaces are lower than the Part 77 surfaces.
- Airport Land Use Commissions (ALUCs) should consider the potential for certain land uses to include features that may create hazards to flight, such as bird attractants, interference with visibility (distracting lights, smoke, or glare), and electromagnetic interference with aircraft and air traffic control communications and navigation instruments. These and other hazards are discussed in the next section.

F.1.3 NON-HEIGHT-RELATED HAZARDS TO FLIGHT

Certain land use and development features have the potential to interfere with the safety of flight in the vicinity of airports. These characteristics include:

- Glare of such severity as to interfere with pilot or air traffic controller vision
- Lights that may be mistaken for airport identification and navigational lighting

4 Federal Aviation Administration, Order JO 7400.2M, *Procedures for Handling Airspace Matters*, Sections 6-3-4 and 6-3-5

5 Federal Aviation Administration, Order JO 7400.2M, *Procedures for Handling Airspace Matters*, Section 6-3-3.

6 California Public Utilities Code §21659

7 California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011, pp. 3-35, 4-35 - 4-41.

8 "TERPS" is a term applied to various airspace protection surfaces defined by the FAA for the protection of specific flight procedures. They are designed to ensure safe clearance of obstacles by aircraft in flight. See Federal Aviation Administration, Order 8260.3E, *United States Standard for Terminal Instrument Procedures (TERPS)*.

- Dust, smoke and vapor that may obstruct pilot or air traffic controller vision
- Thermal exhaust plumes with the potential to interfere with aircraft control
- Electromagnetic interference with communications and navigational signals
- Wildlife (especially bird) attractants

This section includes guidance for determining when these conditions may constitute flight safety hazards and should be considered incompatible with the airspace protection and flight safety policies.

F.1.3.1 Sources of Glare

Expanses of highly reflective materials may cause visual after-images or flash blindness for pilots and air traffic controllers, thus compromising flight safety. Potential problems can be caused by flat walls and roofs composed of reflective materials, such as glass, aluminum, stainless steel, or white-painted surfaces. Concentrating solar power plants that use mirrors to concentrate solar rays on pipes of heat transfer fluids may also create glare. Under certain circumstances, large photovoltaic cell arrays may create unacceptable levels of glare. Note that only expansive installations, such as large office buildings, expansive industrial buildings or warehouses with large amounts of roof space, or industrial-scale solar installations, would potentially cause problems. Rooftop solar installations and roof and wall materials on low-rise housing and commercial buildings would not create potentially severe glare effects.

F.1.3.2 Lighting

Certain kinds of lighting systems can interfere with the vision of pilots on approach to an airport and potentially create confusion in locating the airport and approach runway, especially when casting light upward and when roughly aligned with a runway (within approximately 30 degrees of an extended runway centerline). Potentially problematic lighting can include:

- Searchlights
- Laser lights
- Sequenced flashing lights
- Stroboscopic lights

F.1.3.3 Sources of Dust, Water Vapor and Smoke

Some land use projects may create dust, water vapor, or smoke dense enough to impair pilot or air traffic controller vision and compromise flight safety. The most common land uses of potential concern include electric power generation plants, large heating and cooling plants, refineries, and heavy industrial plants.

F.1.3.4 Sources of Thermal Exhaust Plumes

Thermal exhaust plumes of relatively high velocity can interfere with the safe operation of low-flying aircraft, causing turbulence or even oxygen starvation leading to engine failure.[9] The California Energy Commission has determined that thermal plumes with upward velocities of 4.3 meters (14.1 feet) per second or greater can jeopardize the safe control of aircraft, especially light aircraft.[10] Land uses capable

9 Federal Aviation Administration, *Aeronautical Information Manual*, June 17, 2021, Section 7-6-15.

10 California Energy Commission, *Blythe Solar Power Project – Commission Decision*, CEC-800-2010-009 CMF, Docket Number 09-AFC-6, September 2010, p. 470.

of producing thermal plumes of such velocity at altitudes high enough to interfere with aircraft are rare. Exhaust stacks and cooling towers associated with electrical generation plants and large-scale industrial processing plants can be problematic in certain circumstances.

F.1.3.5 Electromagnetic Interference

Sources of electromagnetic interference with aircraft instrumentation and satellite or ground-based radar and navigational aids can create hazards to flight. Projects of potential concern include microwave towers, cell towers, antenna arrays, and arrays of wind power turbines. The FAA and the Federal Communications Commission have established procedures coordinating the issuance of operating licenses and airspace review. Any concerns tend to be identified in the FAA's OE/AAA process.

F.1.3.6 Wildlife Attractants

Various wildlife attractants, especially bird attractants, can create hazards for aircraft in flight. The FAA has described them as including:[11]

- Waste Disposal Operations
  - Municipal and commercial solid waste landfills
  - Trash transfer stations that handle waste that are not fully enclosed or lack ventilation and air filtration systems adequate to control odors escaping to the outdoors
  - Commercial or institutional composting operations that accept food waste
- Water Management Facilities
  - Stormwater management facilities and artificial ponds, including water detention, retention, or recharge ponds, that create above-ground standing water[12]
  - Wastewater treatment facilities and associated settling ponds, including any devices or systems used to store, treat, recycle, or reclaim municipal sewage or liquid industrial wastes and artificial marshes designed for wastewater treatment[13]
  - Wetlands mitigation projects

F.1.4 AIRSPACE POLICY CONSIDERATIONS

The Handbook advises ALUCs to establish airspace protection policies that would limit building heights and avoid the establishment of other potential hazards to flight to ensure that new structures or objects do not become hazards to air navigation.[14] An effective way to accomplish this is to ensure that the FAA hazard and obstruction determinations are enforced as ALUCP policy. This approach ensures:

- Structures or objects tall enough to potentially become obstructions or hazards are studied by FAA experts before being permitted by local agencies.

11 Federal Aviation Administration, Advisory Circular AC 150/5200-33C, *Hazardous Wildlife Attractants on or Near Airports*, Chapter 2.

12 Design guidance for managing bird attractants is provided in Federal Aviation Administration, Advisory Circular AC 150/5200-33C, *Hazardous Wildlife Attractants on or Near Airports*, paragraph 2-3.

13 Retention ponds of treated wastewater should be considered the same as stormwater management facilities.

14 California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011, p. 4-34 - 4-41.

- Recommendations of the FAA regarding marking and lighting are recognized by local agencies issuing the development permits.
- Hazards to air navigation are not constructed.
- Airport operators have the opportunity to comment.

F.1.5 AIRSPACE PROTECTION BOUNDARIES

The Airspace Protection Boundaries for Agua Caliente, Borrego Valley, Fallbrook Community Airpark, Jacumba, Ocotillo, and Ramona airports are depicted on **Exhibits F-2** through **F-7**. They are based on the outer edge of the 100:1 notification surfaces at Borrego Valley, Ocotillo, and Ramona Airports and the 50:1 notification surfaces at Agua Caliente Springs, Fallbrook Community Airpark, and Jacumba Airport. All 14 CFR Part 77 imaginary airspace surfaces at each airport are within those boundaries. The 2010 Borrego Valley Airport Layout Plan (ALP) has a 1,000-foot extension to Runway 8-26 to the east, and the 2006 Fallbrook Community Airpark ALP includes a 240-foot shift of Runway 18-36 to the south in the future. These improvements to the runways are incorporated into their respective airspace protection area maps.

F.2 OVERFLIGHT

Neither the federal government nor the State of California has any specific laws or regulations restricting or regulating aircraft overflights. The state does have a real estate disclosure law, however, which is intended to inform prospective buyers and lessees of new and existing residential property of the presence of nearby airports and the potential for aircraft overflight impacts. Within the Airport Influence Area (AIA) established in the applicable ALUCPs, the state real estate disclosure law applies to the:

- Sale or lease of subdivided lands and condominium conversions
- Sale of residential properties with one to four dwellings units
- Sale of condominium and other common interest residential properties[15]

F.2.1 OVERFLIGHT BOUNDARIES

The Overflight Boundaries are based on the outer edge of the 100:1 notification surfaces at Borrego Valley, Ocotillo, and Ramona Airports and the 50:1 notification surfaces at Agua Caliente Springs, Fallbrook Community Airpark, and Jacumba Airport. As noted above, future runway improvements for Borrego Valley Airport and Fallbrook Community Airpark have been incorporated into their 14 CFR Part 77 surface drawings (**Exhibits F-3** and **F-4**, respectively).

To evaluate areas of overflight, data from the San Diego County Regional Airport Authority airport noise monitoring and management system, which is primarily used for San Diego International Airport, was reviewed to determine the suitability of data available for each of the six airports in this plan. Given the

15 California Business and Professions Code §11010; California Civil Code §§1102, 1102.6, 1103.4, 1353; California Code of Civil Procedure §731a.

distance from San Diego International Airport and terrain obstructions, it was determined that suitable radar flight track was available only for Ramona Airport.

A two-week sample of radar flight track data, which includes the location and altitude of aircraft, was used to evaluate aircraft overflights for aircraft operating at Ramona Airport. **Exhibit F-8** depicts flight tracks at altitudes below 3,000 feet above mean sea level. As depicted in the exhibit, the heaviest concentrations of flight tracks are west and southwest of the airport. The flight tracks to the southwest are associated with Runway 27 departures and generally lie within the Part 77 conical surface. The flight tracks along the extended runway centerline are approaches to Runway 9 using the RWY 9 RNAV (GPS) procedure. Using this information, the overflight boundary for Ramona Airport was extended 8,200 feet to the west beyond the outer edge of the 100:1 notification surface boundary to encompass this flight corridor.

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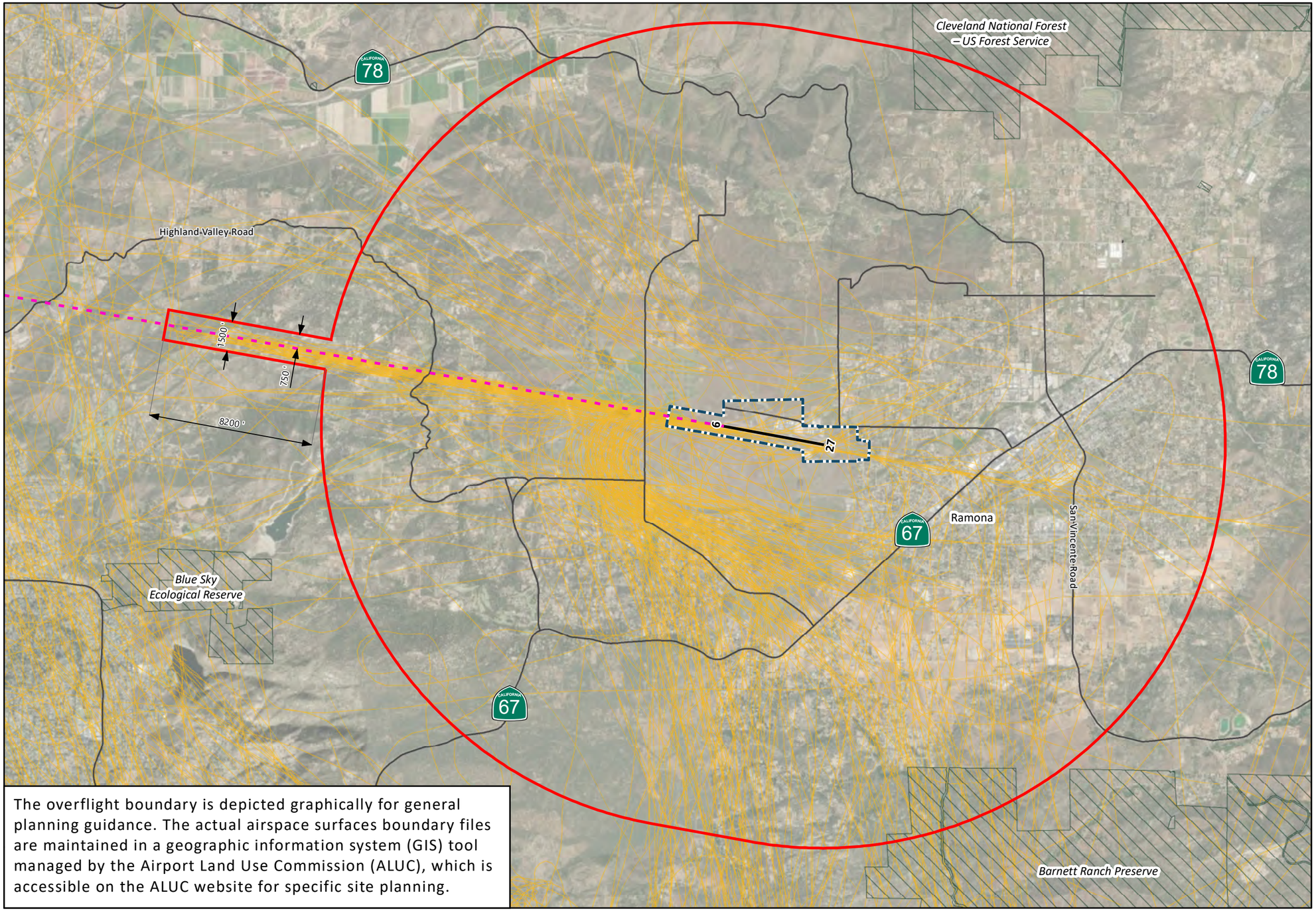

LEGEND

- Airport Property Boundary
- Existing Runway
- Extented Runway
- Federal/State Lands
- Roadway
- Radar Flight Tracks (3,000 feet mean sea level and below)
- Overflight Boundary

Data Sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, December 2019 (aerial photography – for visual reference only, may not be to scale); San Diego County GIS (SanGIS), 2016 (roads); SanGIS, 2020 (land ownership); USDA/NRCS National Elevation Data - 10 meter or better dataset, processed June 2015 (terrain DEM); Coffman Associates, 2018 (Part 77 surfaces, terrain penetrations); Ramona Airport, Airport Layout Plan, 2009 (Airport property boundary, runway); Ricondo & Associates, Inc., January 2022 (notification surface boundary).

N

0 2,500 5,000 10,000

1 inch = 5,000 feet

The overflight boundary is depicted graphically for general planning guidance. The actual airspace surfaces boundary files are maintained in a geographic information system (GIS) tool managed by the Airport Land Use Commission (ALUC), which is accessible on the ALUC website for specific site planning.

Ramona Airport

Overflight Boundary and Radar Flight Tracks

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Appendix G
GLOSSARY

This appendix provides definitions of terms used in the ALUCPs.

14 CFR Part 77: The part of Title 14 of the Code of Federal Regulations that deals with the safe and efficient use of the navigable airspace. Part 77 sets forth requirements for notice to the FAA of certain proposed construction or alteration, establishes standards for identifying obstructions to navigable airspace, and provides for aeronautical studies of obstructions to determine their effect on the safe and efficient use of airspace.

Above Ground Level (AGL): The elevation of a point or surface above the ground.

Aircraft Accident: An occurrence incident to flight in which, as a result of the operation of an aircraft, a person receives a 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 that 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.

Airport Layout Plan (ALP): A plan drawing that depicts existing and planned airport facilities, runway and taxiway safety areas, and the property boundary. It also includes data tables describing various components of the airport and approach surfaces. Specifications for preparing ALPs are provided by the Federal Aviation Administration (FAA).

Airport Master Plan: A comprehensive plan for development on Airport property. It includes airport activity forecasts, demand capacity analysis, an analysis of facility requirements, an evaluation of development alternatives, and a final plan for development of airside and landside facilities. It also includes existing and future airport layout plan drawings and supporting plan drawings.

Airspace Surfaces: Imaginary surfaces in the airspace surrounding airports, as defined for an individual airport in accordance with criteria set forth in 14 CFR Part 77, Subpart C, and FAA Order 8260.3B, U.S. Standard for Terminal Instrument Procedures (TERPS). These surfaces establish the maximum height that objects on the ground can reach without creating obstructions, obstacles, or hazards to the use of the airspace by aircraft approaching, departing, or maneuvering in the vicinity of an airport.

Aviation Environmental Design Tool (AEDT): The AEDT is federally sanctioned and was the industry-preferred modeling software for airport noise studies at the time the ALUCPs were prepared.

Avigation Easement: A type of easement that conveys the right of flight passage over a property and the corresponding right to cause associated impacts, including noise, vibration, air currents, fuel emissions, and fuel vapors. An avigation easement may also grant an airport operator access to the property to maintain navigational aids erected by the FAA or airport operator, as well as to remove, modify, or abate

(as in tree trimming) objects penetrating FAA airspace surfaces or interfering with aircraft communications or pilot or controller vision.

Building Restriction Line (BRL): A line established to provide 7:1 clearance over a 20' building. BRL does not extend beyond the airport property line. Refer to Section 213 of FAA Advisory Circular 150/5300-13A *Airport Design*.

Ceiling: Height above the earth's surface to the lowest layer of clouds or obscuring phenomena.

Community Noise Equivalent Level (CNEL): CNEL is used to describe the total noise level in a community over a given 24-hour period. It is a 24-hour, time-weighted, cumulative noise metric. Acoustical scientists developed CNEL to aid in predicting the effects of noise on communities. CNEL describes the total noise in a 24-hour period, with the addition of 4.8 dB to evening noise events (between 7:00 p.m. and 10:00 p.m.) and 10 dB to nighttime noise (between 10:00 p.m. and 7:00 a.m.). The evening and nighttime weights are added because noise in those periods is more disturbing to people than daytime noise. In aircraft noise studies, CNEL is calculated for an average day during a given study year. CNEL levels are typically mapped as noise contours at intervals of 5 dB. *Also, see "decibel."*

Decibel (dB): A unit of measure describing the pressure level of a sound, equal to the logarithm of the ratio of the sound pressure to the pressure of a reference level equivalent to a sound barely audible to an unimpaired human ear. Because the human ear is more sensitive to sound at specific frequencies (or pitches), special weighting scales have been developed so that sound measurements can be adjusted to accurately describe sounds that people hear. The A-weighting scale is most common. The use of the A-weighting scale is often indicated by the addition of an "A" to the dB abbreviation – dBA. Where the context clearly indicates that the A-weighting scale is being used, as in the ALUCPs, the "A" is usually dropped and the term "dB" is used. *Also, see "Community Noise Equivalent Level (CNEL)."*

Easement: A right by legal document held by one entity to make use of land owned by another entity for limited purposes as specified in the document.

General Aviation (GA): That portion of civil aviation that encompasses all facets of aviation except air carriers.

Global Positioning System (GPS): A navigational system that utilizes a network of satellites to determine a positional fix 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 enroute aerial navigation and selected types of nonprecision instrument approaches.

Gross Acreage: The total area of a property, typically undeveloped, which may include road, utility, or open space easements. Also, see "Net Acreage."

Handbook: The *California Airport Land Use Planning Handbook*, published by the Caltrans Division of Aeronautics (October 2011).

Hazard: An obstruction or other adverse object that FAA aeronautical study concludes would have a "substantial adverse effect" to a "significant volume of aeronautical operations" as defined in FAA Order JO 7400.2M, *Procedures for Handling Airspace Matters*. Objects that are hazards to navigation have been so determined because they are not sufficiently clear from the normal pathways of aircraft, would affect the useable length of an existing or planned runway, or because they result in certain other adverse effects, such as electromagnetic interference, control tower visibility hindrances, or pilot distraction.

Hazardous Materials: Substances that are considered severely harmful to human health and the environment.[1] Examples include highly flammable, explosive, corrosive, and toxic materials.

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; and (5) Approach Lights.

Mean Sea Level (MSL): An elevation datum using mean sea level as its reference elevation.

Net Acreage: The area of a lot available for building development. Net acreage does not include land dedicated for public purposes, such as streets or parks. *Also, see "Gross Acreage."*

Noise: Unwanted sound is referred to as noise. Sound is created by variations in air pressure and is measured in terms of pressure level. The decibel (dB) scale has been developed to describe sound pressure level. *Also, see "decibel" and "Community Noise Equivalent Level (CNEL)."*

Noise Contours: Continuous lines of equal noise level usually drawn around a noise source, such as an airport or highway. The lines are typically drawn in five-decibel increments so that they resemble elevation contours on topographic maps.

Noise-Sensitive Land Uses: Land uses for which the associated primary activities, whether indoor or outdoor, are susceptible to disruption by noise. These include dwellings and other land uses requiring a quiet indoor environment, such as classrooms, office areas, meeting rooms, performance halls, or contemplative areas.

Object Free Area (OFA): A two-dimensional, rectangular-shaped area centered on the runway or taxiway centerline, with specific length and width, which depends on the airplane design groups intended to operate on the airfield. According to FAA design standards, the OFA is to be clear of objects that could cause damage to an aircraft overrunning or veering off the runway. Only objects directly related to air navigation or aircraft maneuvering purposes are allowed within these areas.

Obstacle: An object that would penetrate an obstacle clearance surface or exceed other specific clearance requirements for a specific flight procedure, as defined by FAA instrument flight procedure

1 U.S. Environmental Protection Agency, *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA), http://www.epa.gov/osweroe1/content/hazsubs/cercsubs.htm (accessed January 12, 2012).

design criteria. An obstacle is known as a "controlling obstacle" when a flight procedure is designed around that obstacle as the limiting factor.

Obstacle Free Zone (OFZ): A three-dimensional, rectangular-shaped zone centered on the runway or taxiway centerline, with specific length, width, and elevation based on the type of runway/taxiway. The OFZ clearing standards preclude object penetrations unless they are frangible, visual NAVAIDS.

Obstruction: An object that, upon evaluation, is determined by the FAA to require proper marking, lighting, and identification in aeronautical publications so that it may be easily recognized by pilots of aircraft navigating through the airspace. FAA obstruction standards are defined in Title 14, Code of Federal Regulations (CFR) Part 77, Subpart C.

Overflight: Any distinctly visible or audible passage of an aircraft over an area.

Overlay Zone: A special purpose zoning district. The regulations within an overlay zone supplement the requirements of the underlying standard zoning districts (typically residential, commercial, or industrial). Overlay zones are used to achieve a special purpose, such as flood hazard protection or the preservation of a historic district, without directly changing the underlying land use in the affected area.

Real Estate Disclosure: This term refers to state law that requires sellers of residential property within an airport influence area (AIA) to notify buyers of airport proximity and the related, potentially adverse effects from airport activity.

Runway Protection Zone (RPZ): Two-dimensional, trapezoid-shaped areas defined off the ends of runways. The FAA advises airports to acquire RPZs and, if possible, clear all objects from the RPZs. If that is not practicable, land use controls should be adopted to prohibit housing, places of public assembly, and fuel facilities.

Runway Safety Area (RSA): A two-dimensional, rectangular-shaped area centered on the runway centerline, with specific length and width, which depend on the airplane design groups and approach categories of aircraft intended to operate on the airfield. FAA design standards (Paragraph 307 of Advisory Circular 150/5300-13A, *Airport Design*) require RSAs to be cleared and graded with no potentially hazardous ruts, humps, depressions, or other surface variations. No objects higher than three inches above grade are permitted in the RSAs, unless they are deemed acceptable because of their function and constructed on frangible-mounted structures.

Safety Zone: For the purpose of airport land use compatibility planning, an area near an airport in which land use restrictions are established to protect the safety of the public from potential aircraft accidents.

Touch-and-Go: An operation by an aircraft that lands and departs on a runway without stopping or exiting the runway.

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.

Visual Flight Rules (VFR): Rules that govern the procedures for conducting flight under visual conditions.

Zoning: A police power measure, usually enacted 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 includes a map and the text of the regulations.

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Appendix H
REFERENCES

This appendix provides a list of references helpful to the implementation and administration of the ALUCPs.

49 United States Code, Subchapter 1, *Noise Abatement*, Section 47501 *et seq*.

78 Federal Register 63276, *Interim Policy FAA Review of Solar Energy System Projects on Federally Obligated Airports*.

Australian Civil Aviation Safety Authority, Advisory Circular AC 139-05v3.0, *Plume Rise Assessments*, January 2019.

Avco Community Developers, Inc. v. South Coast Regional Com. (1976) 17 Cal.3d 785,791.

California Business and Professions Code, Division 4, Part 2, Chapter 1, *Subdivided Lands*, Article 2, *Investigation, Regulation and Report*.

California Civil Code, Division 2, *Property*, Part 4, *Acquisition of Property*.

California Code of Civil Procedure, Part 2, Title 10, Chapter 2, *Actions for Nuisance, Waste, and Willful Trespass, in Certain Cases, on Real Property*.

California Code of Regulations, Title 8, Subchapter 7, *General Industry Safety Orders*, Group 18, *Explosives and Pyrotechnics*, Article 114, *Storage of Explosives*.

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