Appendix H

Safety Zone Boundaries and Policy Review

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APPENDIX H
Safety Zone Boundaries and Policy Review

This appendix reviews the safety zone boundaries and safety compatibility policies from the 2014 Airport Land Use Compatibility Plan (ALUCP) for San Diego International Airport (SDIA or the Airport) and assesses the potential need for boundary and policy refinements. It begins with a review of federal airport safety-related land use guidance, followed by a discussion of California Department of Transportation (Caltrans) guidance.

H.1 FEDERAL GUIDANCE

The federal government does not have direct authority over local land use planning or approval of land use plans, regulations, and projects. It does, however, have authority over airports that receive federal funding. Three sets of requirements are relevant to airport land use compatibility planning: airport design standards, Airport Improvement Program grant assurances, and guidance for land use in runway protection zones (RPZs).

H.1.1 Airport Design Standards

For airports receiving federal funding, federal standards require safety-related land use restrictions on airport property near the runway. These standards are intended to minimize hazards associated with the most common kinds of aircraft accidents and incidents—overruns and excursions from runways and taxiways.

Federal Aviation Administration (FAA) Advisory Circular 150/5300-13B, *Airport Design,* contains object-clearing criteria to ensure safe and efficient airport operations. These zones and areas are described as follows:

- Runway safety areas (RSAs) are two-dimensional rectangular areas centered on the runway centerline, with varying dimensions based on the airplane design groups and approach categories of aircraft operating on the airfield. RSAs must be cleared and graded with no potentially hazardous surface variations. No objects higher than 3 inches above grade are permitted in the RSAs, unless they are acceptable because of their function and constructed on frangible mounts.[1]
- Obstacle free zones (OFZs) are three-dimensional rectangular zones centered on runway and taxiway centerlines, with lengths, widths, and surface elevations based on the type of runway/taxiway. The OFZ-clearing standards preclude object penetrations unless they are frangible visual navigational aids.[2]
- Object free areas (OFAs) are two-dimensional rectangular areas centered on runway and taxiway centerlines, with varying dimensions based on the airplane design groups operating on the airfield. The OFA provides additional space around the RSA and taxiway safety area (TSA) that should be clear of objects that could damage an aircraft overrunning or veering off the runway or taxiway. Only objects directly related to air navigation or aircraft maneuvering are allowed within these areas.[3]
- Runway protection zones (RPZs) are two-dimensional trapezoid areas defined off the ends of

[1] US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13B, *Airport Design*, March 2022 (Paragraph 3.10).
[2] US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13B, *Airport Design*, March 2022 (Paragraph 3.11).
[3] US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13B, *Airport Design*, March 2022 (Paragraph 3.12).

runways. One set of RPZs is associated with the runway approach and another with the runway departure.[4] "The RPZ function is to enhance the protection of people and property on the ground. Where practical, airport owners own the property under the runway approach and departure areas to at least the limits of the RPZ. It is desirable to clear the entire RPZ of all above-ground objects to minimize risk to the public."[5]

Exhibit H-1 depicts these areas/zones off each runway end at SDIA. At the west end, the Runway 27 departure RPZ and the Runway 9 approach RPZ both extend off Airport property, extending across Navy Channel and into Liberty Station and north of the runway end into the Marine Corps Recruit Depot. The RSA and runway OFA (ROFA) also extend off Airport property, while the OFZ is entirely on Airport property. At the east end of the runway, the outer corners of the Runway 27 approach RPZ extend off the Airport into street and highway rights-of-way. The Runway 9 departure RPZ extends farther east into developed property across Pacific Highway as far as Kettner Boulevard.[6] The RSA and all but the southeast corner of the ROFA are on Airport property. The outer corners of the OFZ extend off Airport property onto Pacific Highway and Laurel Street.

H.1.2 Airport Improvement Program Grant Assurances

Airports that have received grants through the federal Airport Improvement Program must abide by assurances to comply with certain federal laws and regulations and to effectively manage and maintain airport property and improvements. Grant Assurances C-20 and C-21, quoted below, require airport sponsors to protect airspace and to promote land use compatibility in the airport environs. At SDIA, the grant assurances apply to the San Diego County Regional Airport Authority (SDCRAA).

> **20. Hazard Removal and Mitigation.** It [the airport sponsor] will take appropriate action to assure that such terminal airspace as is required to protect instrument and visual operations to the airport (including established minimum flight altitudes) will be adequately cleared and protected by removing, lowering, relocating, marking, or lighting or otherwise mitigating existing airport hazards and by preventing the establishment or creation of future airport hazards.
>
> **21. Compatible Land Use.** It [the airport sponsor] will take appropriate action, to the extent reasonable, including the adoption of zoning laws, to restrict the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. In addition, if the project is for noise compatibility program implementation, it will not cause or permit any change in land use, within its jurisdiction, that will reduce its compatibility, with respect to the airport, of the noise compatibility program measures upon which Federal funds have been expended.[7]

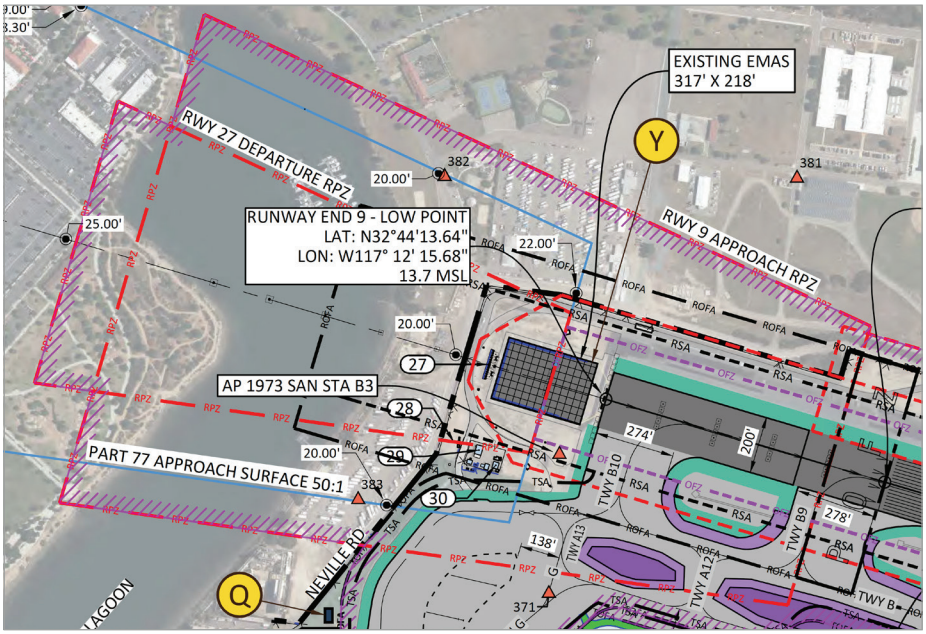
[4] US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13B, *Airport Design*, March 2022 (Paragraph 3.13).

[5] US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13B, *Airport Design*, March 2022 (Paragraph I.3.2).

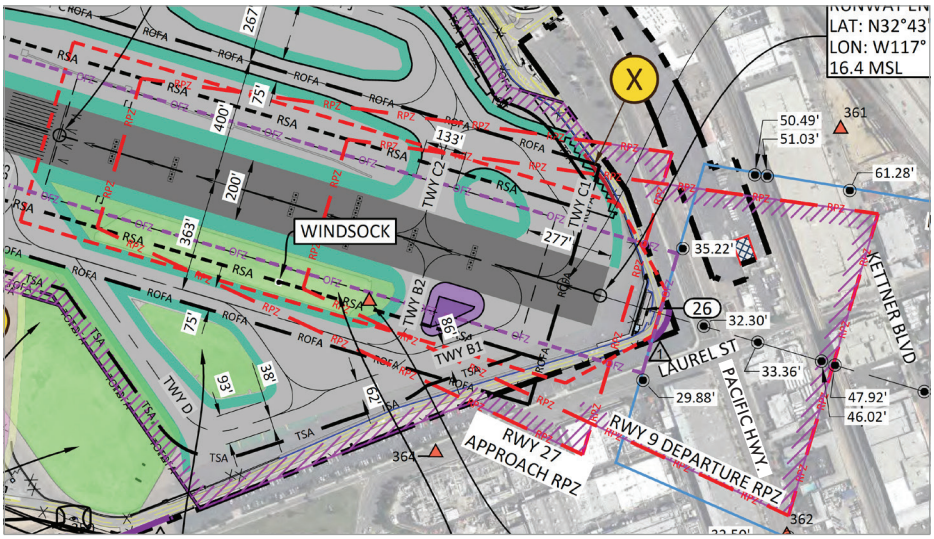
[6] San Diego County Regional Airport Authority, *San Diego International Airport, Airport Layout Plan*, August 3, 2021 (sheet 5 of 12, "Future Airport Layout Plan Drawing").

[7] US Department of Transportation, Federal Aviation Administration, FAA Airports, *Assurances – Airport Sponsors*, May 2022, Section C, Sponsor Certification.

West End of Runway



East End of Runway



NORTH

LEGEND

EMAS - Engineered Material Arresting System

LAT - Latitude

LON - Longitude

OFZ - Obstacle Free Zone

ROFA - Runway Object Free Area

RPZ - Runway Protection Zone

RSA - Runway Safety Area

RWY - Runway

TOFA - Taxiway Object Free Area

TSA - Taxiway Safety Area

TWY - Taxiway

NOTE: This data is depicted graphically for general planning guidance. The actual ALUCP mapping 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.

EXHIBIT H-1

AIRPORT LAND USE COMMISSION

SOURCE: San Diego County Regional Airport Authority, San Diego International Airport, *Airport Layout Plan*, August 3, 2021 (sheet 5 of 12, "Future Airport Layout Plan Drawing").

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FEDERAL AVIATION ADMINISTRATION SAFETY ZONES AT ENDS OF RUNWAY 9-27

H.1.3 Land Use in Runway Protection Zones

The FAA has extensive guidance relating to land use in RPZs.[8] The purpose of the RPZ is to enhance the protection of people and property on the ground, which is best achieved through airport ownership of the land.[9] RPZs should be clear of structures and nonstructural land uses attracting people. The FAA considers only selected land uses clearly compatible in RPZs:

- Crop farming that meets airport design clearance standards and avoids attracting wildlife;
- Irrigation channels designed to avoid attracting wildlife;
- Airport service roads, as long as they are not public roads and are directly controlled by the airport operator;
- Underground facilities, as long as they meet other applicable airport design criteria, such as compliance with RSA surface grade standards;
- Navigational aids (NAVAIDs) and aviation facilities, such as equipment for airport facilities considered fixed-by-function; and
- Above-ground fuel tanks associated with back-up generators for unstaffed NAVAIDs.[10]

In situations where incompatible uses are within RPZs, the FAA expects "airport sponsors to seek all possible opportunities to eliminate, reduce, or mitigate existing incompatible land uses."[11] The FAA recognizes that the degree of control that airport sponsors have over land use varies. **Table H-1** describes FAA expectations for airport sponsors with incompatible uses in RPZs based on the degree of airport control of the RPZ.

H.2 STATE REGULATIONS AND GUIDANCE

H.2.1 State Education Code

California Education Code Section 17215 restricts school districts and charter schools from purchasing or leasing school sites within 2 statute miles of an existing or planned runway. The governing boards of school districts and charter schools considering such sites must notify the State Department of Education, which informs Caltrans.[12]

Caltrans has 30 days to investigate the site and issue a report with a recommendation on the acquisition proposal. Caltrans typically consults with the local Airport Land Use Commission (ALUC) for input into its recommendation. If Caltrans does not support the site acquisition, then state and local funds may not be used for the acquisition of the site, construction of a school building on the site, or the expansion of any existing site to include the new site. If Caltrans supports the acquisition, then the school board or charter school may acquire the site, after holding a public hearing.

[8] US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13B, *Airport Design*, March 2022 (Paragraph I.3); and US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5190-4B, *Airport Land Use Compatibility Planning*, September 2022 (Paragraph 2.2.5, pp.2-12 – 2-19).

[9] US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5190-4B, *Airport Land Use Compatibility Planning*, September 2022 (Paragraph 2.2.5.1.1, pp.2-12 and 2-13).

[10] US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5190-4B, *Airport Land Use Compatibility Planning*, September 2022 (Paragraph 2.2.5.7.3, p.2-17).

[11] US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5190-4B, *Airport Land Use Compatibility Planning*, September 2022 (Paragraph 2.2.5.5.1, p.2-13).

[12] California Education Code, Section 17215.

Table H-1 FAA Expectations of Airport Sponsors with Incompatible Land Use in Runway Protection Zones

Type of Land Use Control	Expectations of Airport Sponsors	Applicability of Guidance to SDIA
If the airport sponsor owns the land:	Because the sponsor has total land use control, the FAA considers it a reasonable expectation that the sponsor will establish and enforce the necessary zoning controls or lease terms to enable it to address existing incompatible land uses when the opportunity arises.	Applies to parts of RPZs on Airport property.
Property is off-airport, but the airport sponsor has land use authority or the airport is under the jurisdiction of a governing body that has land use regulatory authority:	Because the sponsor has at least some influence over land use control, the FAA considers it a reasonable expectation that the sponsor will seek to establish the necessary zoning controls to enable it to address existing incompatible land uses when the opportunity arises.	SDCRAA, as the Airport Land Use Commission, has limited land use control in parts of the RPZs off Airport property. The ALUC can establish land use compatibility policies in these areas, but zoning and development permitting are under the City of San Diego's jurisdiction.
If the airport sponsor has no land use control (i.e., RPZ land falls in another jurisdiction):	Even though the sponsor has no land use control, the FAA still considers it a reasonable expectation that the sponsor will actively seek opportunities to establish the necessary zoning controls to enable it to address existing incompatible land uses when the opportunity arises. FAA will consider financial assistance to a public-sector airport sponsor for land acquisition even if the airport sponsor has no land use control, but only if the sponsor demonstrates that [it] is taking all appropriate steps available to enhance control and mitigate existing risks.	The City of San Diego, which is independent of SDCRAA, has ultimate land use control in parts of the RPZs off Airport property.

SOURCE: US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5190-4B, *Airport Land Use Compatibility Planning*, September 2022 (Section 2.2.5.5.2, p.2-14 (columns 1 and 2)). The third column was added by Ricondo & Associates, Inc., June 2024.

H.2.2 State of California Guidance

The Caltrans Division of Aeronautics is responsible for preparing and periodically updating the *California Airport Land Use Planning Handbook* (the Handbook), as required by state law.[13] The law requires that ALUCs be guided by the Handbook in developing ALUCPs and policies.[14]

The Handbook discusses the importance of the concept of risk in defining airport safety zones and land use policies. Risk is the product of two factors: (1) the probability of an aircraft accident at any location and (2) the consequences if an accident should occur. The components of risk vary based on the operations at any given airport. Accidents are more common among light general aviation aircraft than among commercial air carrier aircraft, for example. However, the consequences of light aircraft accidents are much less severe than for commercial aircraft. Indeed, the consequences of air carrier accidents can be severe given the size of the aircraft, the large fuel loads, and the relatively high speeds.

The Handbook includes a technical appendix with an analysis of a standardized dataset of aircraft accident locations in the immediate vicinity of airports.[15] The analysis indicates that aircraft accidents occur most frequently in the immediate runway environment. Accident locations become more widely scattered as distance from the runway end and the extended runway centerline increases.

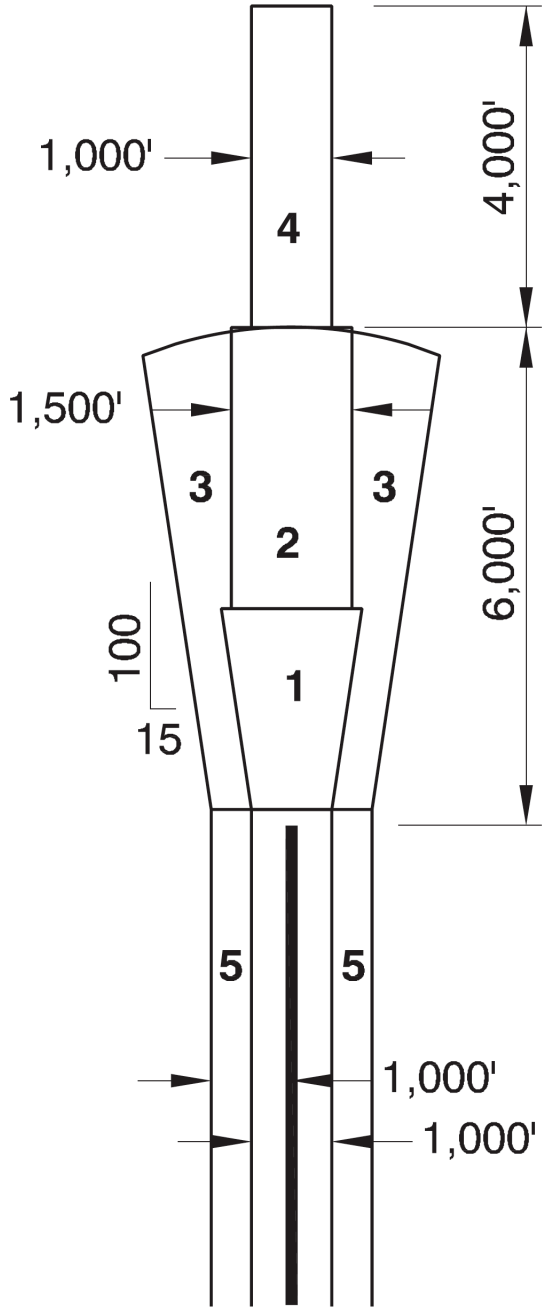
The Handbook provides guidance for defining airport safety zones and land use policies.[16] The guidance includes a suggested safety zone configuration based on near-airport aircraft accident location patterns and aeronautical data, including aircraft flight patterns and runway length.

Five safety zones depicted on **Exhibit H-2** apply to large air carrier airports like SDIA:[17]

- Safety Zone 1 (SZ 1): RPZ
- Safety Zone 2 (SZ 2): Inner Approach/Departure Zone
- Safety Zone 3 (SZ 3): Inner Turning Zone
- Safety Zone 4 (SZ 4): Outer Approach/Departure Zone
- Safety Zone 5 (SZ 5): Sideline Zone

The safety zones are configured assuming minimal activity by light general aviation aircraft and predominantly straight-in and straight-out arrivals and departures. The size of SZ 1 should correspond to the RPZ for the runway as indicated on the Future Airport Layout Plan (ALP).[18]

[13] California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011 (p. 3-20).
[14] California Public Utilities Code, Section 21674.7.
[15] The dataset includes accidents from across the United States, coded with respect to the ends of the arrival or departure runways used by the aircraft. For the analysis in the 2011 Handbook, more recent data for general aviation accidents were added to the accident location database developed by Caltrans for the previous edition of the Handbook (2002). See California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, Appendix E, "Aircraft Accident Characteristics," October 2011.
[16] California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011 (pp. 3-16 – 3-26 and 4-15 – 4-34).
[17] California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011 (pp. 3-19 – 3-26 and 4-19 – 4-24).
[18] The sizes of RPZs vary depending on the approach visibility minimums and the classification of aircraft using the runway. The RPZ on Exhibit H-2 is the largest size and is based on approach visibility minimums of less than three-quarters of a mile.



NOTES:

1. RPZ (Zone 1) size in the large air carrier runway example is as indicated by FAA criteria for the approach type assumed. Adjustment may be necessary if the approach type differs.
2. See Figure 3A [in the Handbook] for factors to consider regarding other possible adjustments to these zones to reflect characteristics of a specific airport runway.
3. See Figures 4B through 4F [in the Handbook] for guidance on compatibility criteria applicable with each zone.

EXHIBIT H-2

AIRPORT LAND USE COMMISSION

SOURCE: California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011, Figure 3B, p. 3-19.

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CALIFORNIA AIRPORT LAND USE PLANNING HANDBOOK
SAFETY ZONE EXAMPLE FOR LARGE AIR CARRIER RUNWAY

Table H-2 describes the nature of aircraft activity within each safety zone.

Table H-2 Nature of Aircraft Activity within Each Safety Zone

Safety Zones	Aircraft Activity
SZ 1: Runway Protection Zone	Aircraft in final landing phase or initial departure phase
SZ 2: Inner Approach/Departure Zone	Aircraft at low altitudes on final approach and straight-out departures
SZ 3: Inner Turning Zone	Aircraft initiating turns to en route direction on departure
SZ 4: Outer Approach/Departure Zone	Aircraft on instrument approaches and straight-out departures
SZ 5: Sideline Zone	Not normally overflown; primary risk is aircraft losing directional control on takeoff or landing due to excessive crosswind gusts, loss of one engine, landing gear failure, or tire blowout

SOURCE: Ricondo & Associates, Inc., June 2024 (descriptions of activity based on the California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011 (Figures 4B through 4F, pp. 4-20 through 4-24).

Land use policies and standards within the safety zones are intended to reduce the adverse consequences of accidents. Safety compatibility criteria focus on avoiding the development of new uses that are intrinsically hazardous (such as aboveground fuel storage and hazardous materials processing), uses that are vital to community health and safety (such as power plants and water and sanitary sewage treatment plants), and uses occupied by populations considered to be especially vulnerable. Vulnerable populations include those requiring assistance or supervision to evacuate in case of emergency, including children, hospitalized patients, and institutionalized people.

In addition, safety compatibility criteria address the maximum density or occupancy intensity of land uses. The idea is that in areas of accident risk, where new development cannot be avoided, uses attracting fewer people should be encouraged and those attracting dense concentrations of people should be avoided.

The 2011 Handbook provides a four-way classification of land uses for each safety zone:

- Normally Allowed: use is acceptable
- Limited: use is acceptable only if density/intensity restrictions are met
- Avoided: use generally should not be permitted unless no feasible alternative is available
- Prohibited: use should not be permitted under any circumstances[19]

[19] California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011 (p. 4-18).

For uses that should be "limited" within a safety zone, the Handbook provides suggested limits on the number of people occupying land uses in the zone.

- For residential uses, these limits are expressed in terms of dwelling unit density—the number of dwellings per acre.
- For nonresidential uses, the limits are expressed in terms of "intensity"—the average number of people occupying the land use per acre.

The Handbook provides suggested housing density and nonresidential intensity levels for four settings: rural, suburban, urban, and dense urban. The SDIA area is a heavily developed urban setting. Therefore, attention should be focused on the urban and dense urban settings, describe in the Handbook as follows:

- Urban: areas characterized by mid-rise (up to five stories) development; generally surface vehicle parking, but potentially some parking structures
- Dense urban: city core areas characterized by extensive mid- and high-rise buildings, often with 100 percent lot coverage and limited surface parking[20]

Table H-3 lists the Caltrans-suggested safety compatibility criteria for the five safety zones. Criteria for urban and dense urban areas, which apply in the area surrounding SDIA, are presented. The Handbook recommends maximum nonresidential intensities in urban areas based on the number of people per gross acre.[21] Gross acreage is the total area of a development project before lots are platted and public rights-of-way, parks, and other public properties are dedicated. Because all property within the SDIA safety zones has been subdivided, most future development will occur on platted lots and would be more easily evaluated in terms of people per net acre. Net acreage includes only the land actually available for development. Thus, Table H-3 expresses the Caltrans intensity guidance in urban areas in terms of people per net acre. The Handbook intensity limits were increased by 20 percent to convert them from intensity per gross acre to intensity per net acre.[22]

[20] California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011 (p. 4-18).

[21] California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011 (pp. 4-20 – 4-24 and 4-27).

[22] The conversion factor is based on typical right-of-way set-asides for modern residential subdivisions not involving the dedication of other public lands (such as parks and school sites). See Olympians for Smart Development and Livable Neighborhoods, *All About Housing Density and Zones*, undated, https://www.densitydoneright.org/Housing-Density.php (accessed September 22, 2023); City of Wilsonville, Oregon, *Wilsonville Residential Land Study: Technical Report*, 2014, https://ci.wilsonville.or.us/sites/default/files/fileattachments/planning/page/14511/wilsonville_residential_land_study_technical_report.pdf (p. 14; accessed September 22, 2023).

Table H-3 Safety Compatibility Criteria Guidelines for Urban and Dense Urban Areas per *California Airport Land Use Planning Handbook*

	SZ 1: Runway Protection Zone	SZ 2: Inner Approach/ Departure Zone	SZ 3: Inner Turning Zone	SZ 4: Outer Approach/ Departure Zone	SZ 5: Sideline Zone
Maximum Residential Densities					
Urban	0	0	Allow infill at up to average of surrounding residential area	Allow infill at up to average of surrounding residential area	Allow infill at up to average of surrounding residential area
Dense Urban	0	0	Allow infill at up to average of surrounding residential area	Allow infill at up to average of surrounding residential area	Allow infill at up to average of surrounding residential area
Maximum Nonresidential Intensity (people per net acre)					
Urban	0 *	72-96	120-180	180-240	120-180
Dense Urban	0 *	Allow infill at up to average intensity of comparable surrounding uses	Allow infill at up to average intensity of comparable surrounding uses	Allow infill at up to average intensity of comparable surrounding uses	Allow infill at up to average intensity of comparable surrounding uses

NOTE:

* Exceptions can be permitted for agricultural activities, roads, and automobile parking provided that Federal Aviation Administration criteria are satisfied.

SOURCE: Ricondo & Associates, Inc., June 2024 (urban and dense urban maximum residential densities and nonresidential intensities based on the California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011 (Figures 4B through 4F, pp. 4-20 through 4-24)).

H.3 TECHNICAL ANALYSIS

H.3.1 Adjustments to Safety Zone 1 to Reflect Current Airport Layout Plan

The portions of SZ 1 off each runway end are defined by the RPZs. The current version of the ALP for SDIA was approved by the FAA on August 3, 2021, and updated on January 25, 2022.[23] The location and configuration of the RPZs off each runway end differ from the ALP used for the 2014 ALUCP.[24] Current FAA standards require the designation of both approach and departure RPZs off all runway ends. Approach RPZs are established with respect to the landing threshold. Departure RPZs are established with respect to either the physical end of the runway or, if declared distances have been established (as for takeoffs on Runway 9), from the end of the takeoff run available (TORA).[25]

Exhibit H-3 depicts the 2014 ALUCP safety zones at each runway end along with the RPZs from the updated ALP. The departure RPZs extend outside the boundaries of SZ 1 from the 2014 ALUCP at both runway ends and farther outside the Airport property. SZ1 is proposed to be updated to reflect the RPZs in the ALP. The exhibit also depicts the RSA, ROFA, and OFZ for each runway end. At the east end, the Runway 27 approach RPZ is smaller than in the 2014 ALUCP, reflecting current FAA design standards for a runway with approach visibility minimums of 1 statute mile or greater.[26] As part of the ALUCP update process, a study was undertaken to determine the feasibility of enhancing the instrument approach to Runway 27 to achieve visibility minimums lower than 1 statute mile, which would require a larger RPZ.[27] The study found substantial barriers to an approach with visibility minimums below 1 statute mile. Numerous obstructions would need to be removed, many of which are large buildings. Thus, the approach RPZ for Runway 27 is unlikely to be enlarged in the future, unless the landing threshold is further displaced so that obstacle clearance could be established.

Exhibit H-4 depicts existing land use in the RPZs on the west side of the Airport, including:

- Liberty Station Esplanade and Park;
- Park equipment and facility buildings;
- Fisherman's Processing company; and
- Part of an office building.

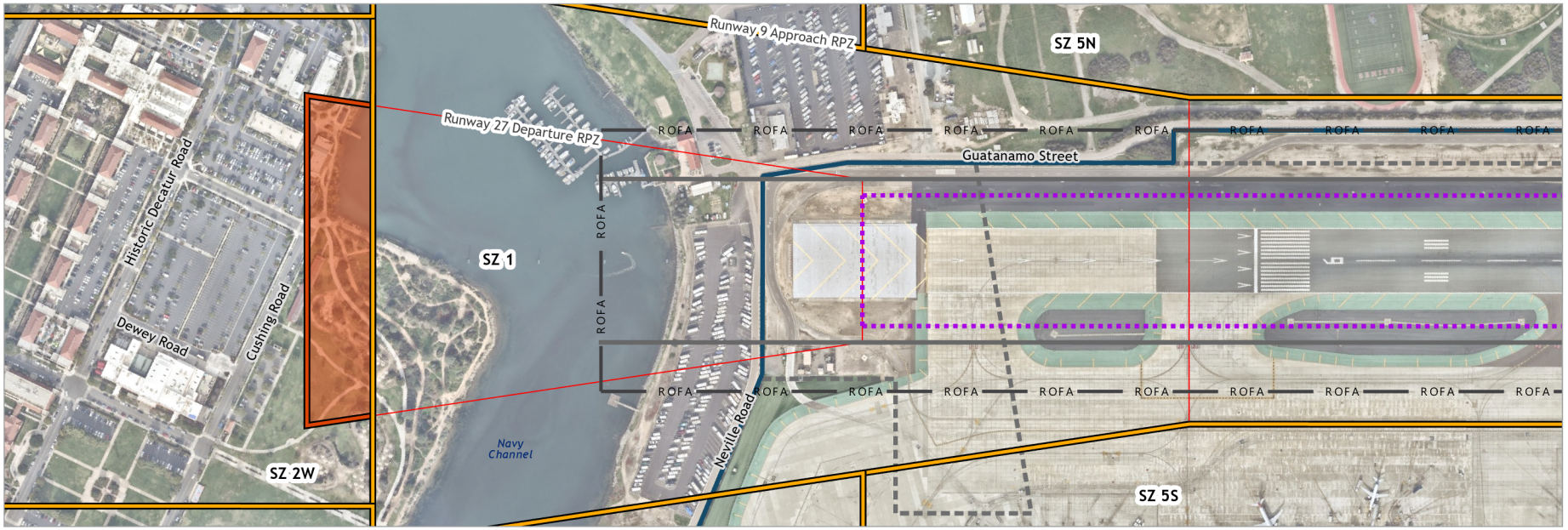
[23] San Diego County Regional Airport Authority, *San Diego International Airport, Airport Layout Plan*, August 3, 2021 (sheet 5 of 12, "Future Airport Layout Plan Drawing").

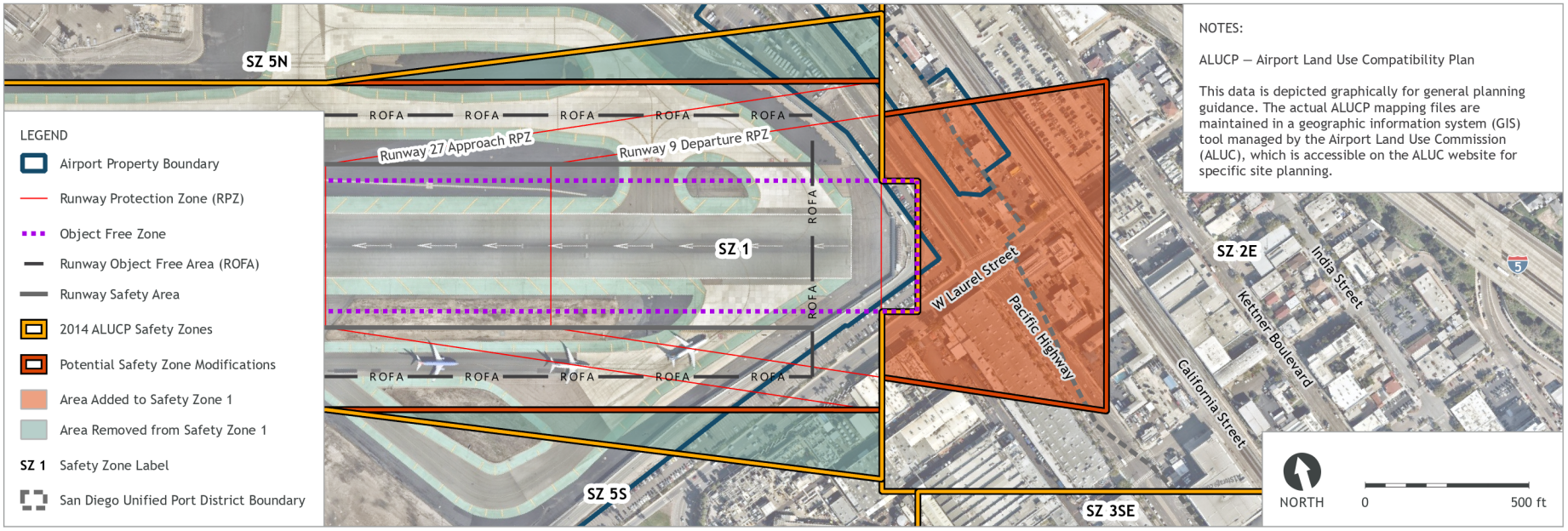
[24] See Airport Land Use Commission, San Diego County Regional Airport Authority, *San Diego International Airport Land Use Compatibility Plan*, May 2014 (amended; p. E-1).

[25] US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13B, *Airport Design*, March 2022 (Paragraph 3.13.1.2).

[26] US Department of Transportation, Federal Aviation Administration, Advisory Circular 150/5300-13B, *Airport Design*, March 2022 (Tables G-7 through G-12).

[27] Ricondo & Associates, Inc., Memorandum to San Diego County Regional Airport Authority, *Runway 27 Protection Zone Analysis – San Diego International Airport*, June 29, 2023. Included in this Appendix as Attachment 1.





AIRPORT LAND USE COMMISSION

SOURCES: Nearmap, January 2023 (aerial photography - for visual reference only, may not be to scale); San Diego County Regional Airport Authority, *San Diego International Airport, Airport Layout Plan*, August 2021 (Airport property boundary, safety areas); San Diego County Regional Airport Authority, 2023 (San Diego Unified Port District Boundary); Airport Land Use Commission, San Diego County Regional Airport Authority, *San Diego International Airport Land Use Compatibility Plan*, May 1, 2014, p. 3-3 (2014 ALUCP Safety Zones); Ricondo & Associates, Inc., 2023 (safety zones).

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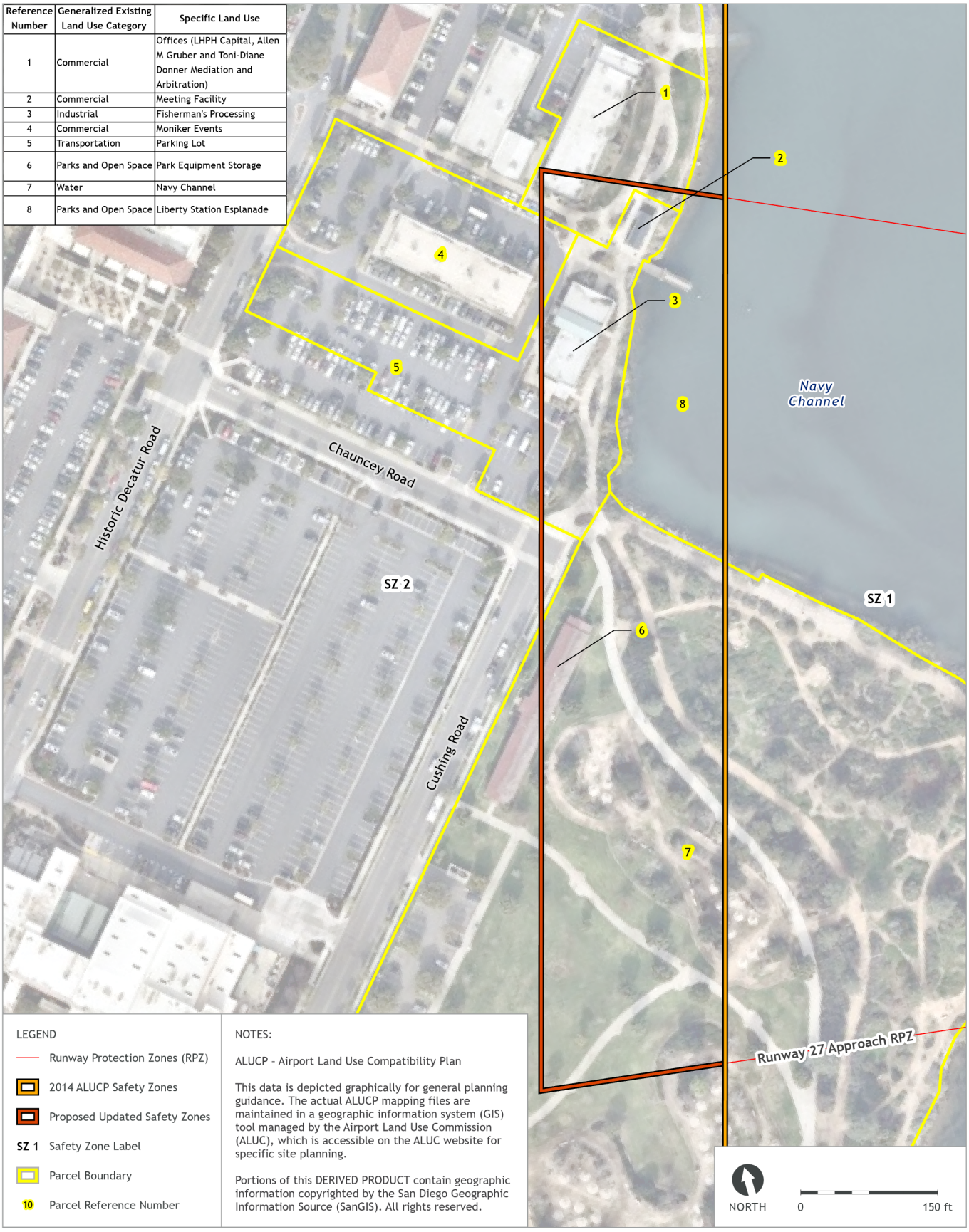
EXHIBIT H-3

MODIFIED SAFETY ZONE 1

Reference Number	Generalized Existing Land Use Category	Specific Land Use
1	Commercial	Offices (LHPH Capital, Allen M Gruber and Toni-Diane Donner Mediation and Arbitration)
2	Commercial	Meeting Facility
3	Industrial	Fisherman's Processing
4	Commercial	Moniker Events
5	Transportation	Parking Lot
6	Parks and Open Space	Park Equipment Storage
7	Water	Navy Channel
8	Parks and Open Space	Liberty Station Esplanade



LEGEND

- Runway Protection Zones (RPZ)
- 2014 ALUCP Safety Zones
- Proposed Updated Safety Zones
- SZ 1 Safety Zone Label
- Parcel Boundary
- 10 Parcel Reference Number

NOTES:

ALUCP - Airport Land Use Compatibility Plan

This data is depicted graphically for general planning guidance. The actual ALUCP mapping 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.

AIRPORT LAND USE COMMISSION

SOURCES: Nearmap, January 2023 (aerial photography - for visual reference only, may not be to scale); San Diego County Regional Airport Authority, *San Diego International Airport, Airport Layout Plan*, August 2021 (runway protection zone); San Diego Association of Governments, April 2024 (parcels); Airport Land Use Commission, San Diego County Regional Airport Authority, *San Diego International Airport Land Use Compatibility Plan*, May 1, 2014, p. 3-3 (2014 ALUCP Safety Zones); Ricondo & Associates, Inc., 2023 (safety zones); Ricondo & Associates, September 2023, based on Google Earth Pro investigation of land uses.

File Location: Project:P:\GIS\Projects\SAN\MXD\SAN_ALUCP_2024_Maps\SAN_ALUCP_AppendixH_20240517.aprx Layout: SAN_ALUCP_ExhH-4_ExistingLU_ModifiedSZ1_West_20240528

EXHIBIT H-4

EXISTING LAND USE IN MODIFIED SAFETY ZONE 1 – WEST SIDE

Exhibit H-5 depicts existing land use in the RPZs on the east side of the Airport, including:

- Surface parking lots;
- Parts of two parking structures;
- Two gas station/convenience stores;
- Two rental car facilities;
- One limousine service facility;
- Part of a shopping plaza;
- Fairway Golf USA retail store;
- Part of the Motel 6 property; and
- Part of the Solar Turbines manufacturing complex.

H.3.2 Adjustments to Safety Zones 3NW and 4W

The Handbook suggests that the example safety zones are a good starting place for defining the actual ALUCP safety zones at an airport, noting that adjustments may be needed to "take into account various operational characteristics of a particular airport runway," including common flight procedures.[28] In discussions with ALUC and SDCRAA staff during preparation of the 2014 ALUCP, Caltrans Department of Aeronautics staff stated that the example safety zone configuration for air carrier airports is considered the minimum area of desired safety zone coverage. Adjustments enlarging the zones may be justifiable, but reductions in the zones are inadvisable.

At SDIA, one common flight procedure should be considered in the delineation of safety area boundaries. This is the right turn made by departures on Runway 27. Of the nine departure procedures published for SDIA, eight apply to Runway 27 departures. Two call for aircraft to climb straight ahead on runway heading (278 degrees),[29] and six call for right turns to be made either to a heading of 293 degrees or directly toward navigational fixes over the ocean northwest of the Airport.[30] In the 2014 ALUCP, Safety Zones 3NW and 4W were adjusted to cover the area beneath this departure turn.

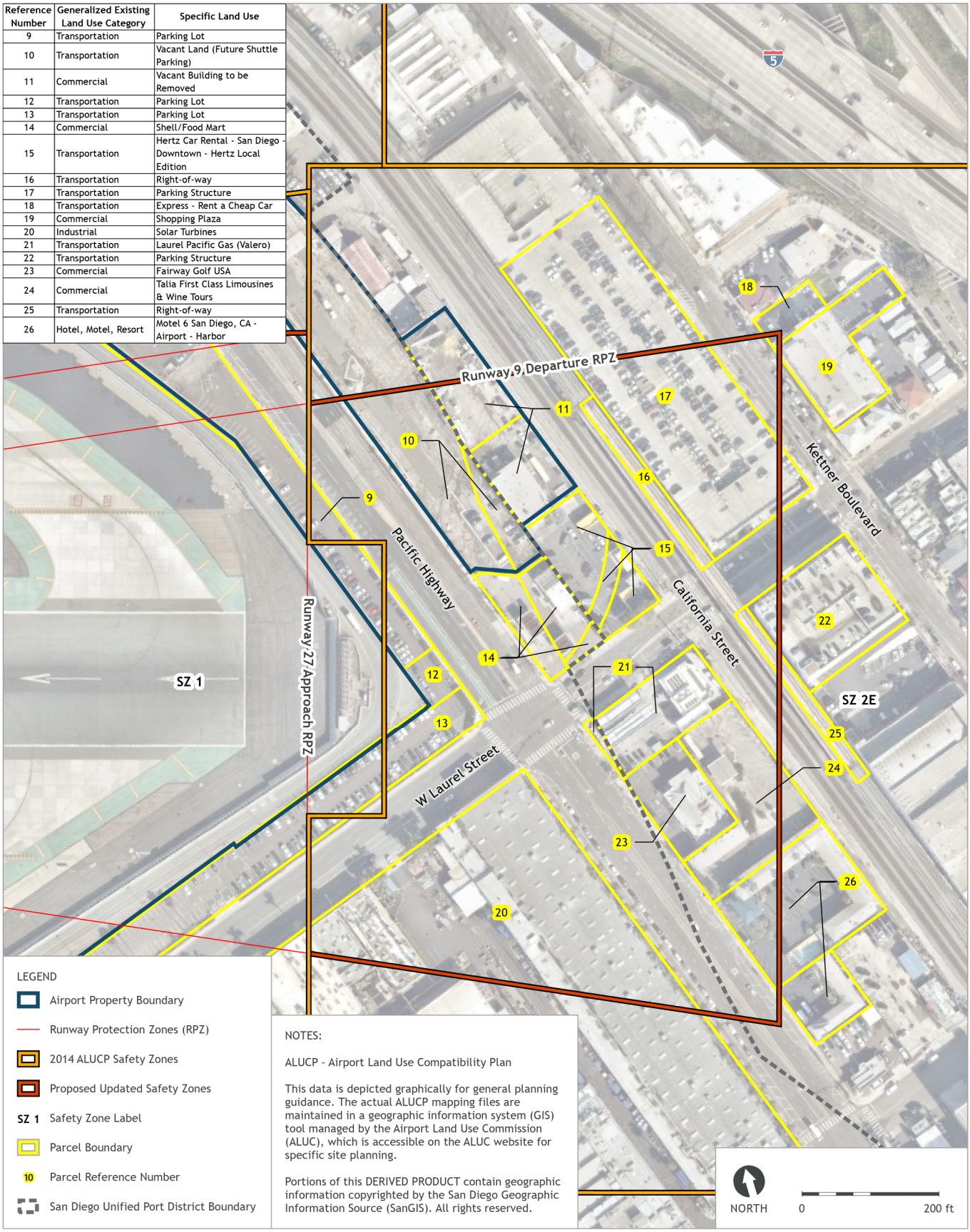
To determine the continued suitability of these safety zone boundary adjustments, flight track data were collected and analyzed, as described in Appendix F, *Radar Data Analysis*, prepared for this updated ALUCP.

[28] California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, Table 3A, "Safety Zone Adjustment Factors," October 2011 (p. 3-22).

[29] US Department of Transportation, Federal Aviation Administration, SW-3, 18 May to 15 June 2023, BORDER SEVEN and ZZOOO THREE Departures, https://www.faa.gov/air_traffic/flight_info/aeronav/procedures/application/?event=procedure.results&nasrId=SAN (accessed June 9, 2023).

[30] US Department of Transportation, Federal Aviation Administration, SW-3, 18 May to 15 June 2023, CWARD TWO, ECHHO TWO, FALCC ONE, MMOTO TWO, PADRZ TWO, and PEBLE SIX Departures, https://www.faa.gov/air_traffic/flight_info/aeronav/procedures/application/?event=procedure.results&nasrId=SAN (accessed June 9, 2023).

Reference Number	Generalized Existing Land Use Category	Specific Land Use
9	Transportation	Parking Lot
10	Transportation	Vacant Land (Future Shuttle Parking)
11	Commercial	Vacant Building to be Removed
12	Transportation	Parking Lot
13	Transportation	Parking Lot
14	Commercial	Shell/Food Mart
15	Transportation	Hertz Car Rental - San Diego - Downtown - Hertz Local Edition
16	Transportation	Right-of-way
17	Transportation	Parking Structure
18	Transportation	Express - Rent a Cheap Car
19	Commercial	Shopping Plaza
20	Industrial	Solar Turbines
21	Transportation	Laurel Pacific Gas (Valero)
22	Transportation	Parking Structure
23	Commercial	Fairway Golf USA
24	Commercial	Talia First Class Limousines & Wine Tours
25	Transportation	Right-of-way
26	Hotel, Motel, Resort	Motel 6 San Diego, CA - Airport - Harbor



AIRPORT LAND USE COMMISSION

SOURCES: Nearmap, January 2023 (aerial photography - for visual reference only, may not be to scale); San Diego County Regional Airport Authority, *San Diego International Airport, Airport Layout Plan*, August 2021 (Airport property boundary, runway protection zone); San Diego County Regional Airport Authority, 2023 (San Diego Unified Port District Boundary); San Diego Association of Governments, April 2024 (parcels); Airport Land Use Commission, San Diego County Regional Airport Authority, *San Diego International Airport Land Use Compatibility Plan*, May 1, 2014, p. 3-3 (2014 ALUCP Safety Zones); Ricondo & Associates, Inc., 2023 (safety zones); Ricondo & Associates, September 2023, based on Google Earth Pro investigation of land uses.

File Location: Project:P:\GIS\Projects\SAN\MXD\SAN_ALUCP_2024_Maps\SAN_ALUCP_AppendixH_20240517.aprx Layout: SAN_ALUCP_ExhH-5_ExistingLU_ModifiedSZ1_East_20240528

EXHIBIT H-5

EXISTING LAND USE IN MODIFIED SAFETY ZONE 1 - EAST SIDE

Exhibit H-6 depicts flight tracks up to 3,000 feet above airport field elevation (AAFE) for all aircraft types (commercial jet, business jet, and propeller aircraft) operating at SDIA. The exhibit also depicts the safety zones from the 2014 ALUCP. Flight tracks appear throughout the area, with the heaviest concentrations along the extended runway centerline off the east and west ends of the runway. A heavy concentration of flight tracks also extends from the west end of Runway 27 to the northwest. Lesser concentrations of flight tracks head southeast and southwest of the runway.

Exhibit H-7 depicts the average daily density of flight tracks up to 3,000 feet AAFE with respect to the safety zones from the 2014 ALUCP. The exhibit reflects the flight track pattern in Exhibit H-6. The density pattern clearly reveals the heaviest concentrations of flight tracks are along the extended runway centerline. The northwest departure corridor is focused along a centerline approximately 18 degrees north of the extended runway centerline.

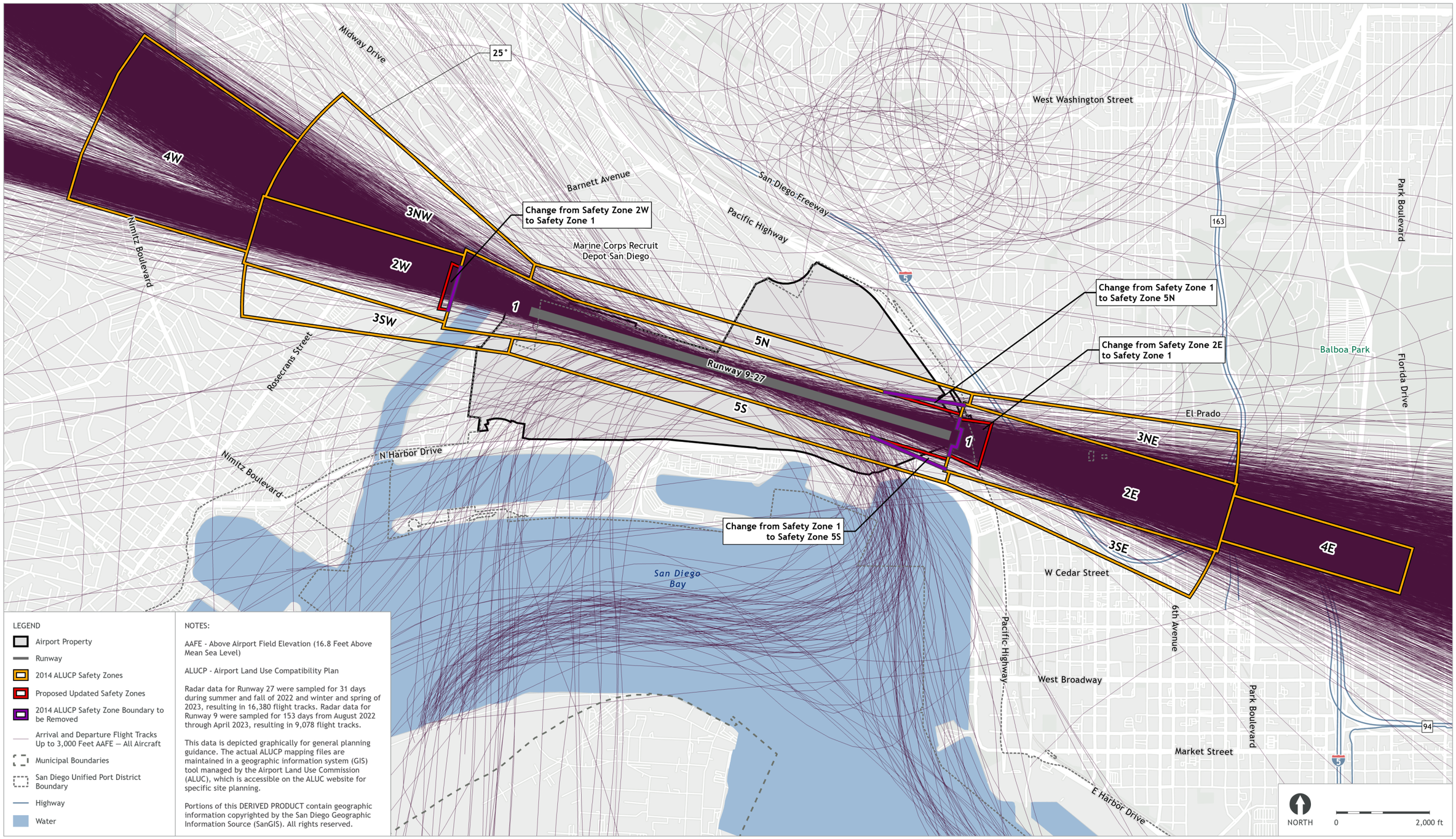
The same flight track pattern was observed in the analyses undertaken for the 2014 ALUCP.[31] For that reason, SZ 4W and SZ 3NW were both fanned to the north to cover the area subject to the highest density of Runway 27 departure turns. The 2014 ALUCP safety zone configuration is appropriate to retain for the updated ALUCP.

H.3.3 Updated Safety Zone Configuration

Exhibit H-8 depicts the dimensions of the existing and proposed safety zones. Zone 4W is widened and fanned 18 degrees clockwise based on the approximate center of the densest concentration of departure tracks turning right. The northeastern boundary of SZ 4W is set 500 feet northeast of the approximate centerline of the right departure turn. The northeast corner of SZ 3NW is set where an arc of 6,000 feet radius from a point on the extended runway centerline at the edge of the primary surface (200 feet beyond the runway end) intersects a line drawn 25 degrees clockwise from the northwest corner of SZ 5N. Safety Zones 2W, 2E, 3SW, 3NE, 3SE, and 4E are proposed to remain as indicated on the Handbook example safety zones for air carrier airports (Exhibit H-2).[32]

[31] Airport Land Use Commission, San Diego County Regional Airport Authority, *San Diego International Airport Land Use Compatibility Plan*, May 2014 (amended), Appendix E3, "Safety Compatibility Factor Technical Analysis," October 2011.

[32] During preparation of the 2014 ALUCP, Caltrans Division of Aeronautics staff told ALUC staff and legal counsel that it does not endorse reductions in the extent of the example safety zones at air carrier airports. The example safety zones are regarded as minimums.



LEGEND

- Airport Property
- Runway
- 2014 ALUCP Safety Zones
- Proposed Updated Safety Zones
- 2014 ALUCP Safety Zone Boundary to be Removed
- Arrival and Departure Flight Tracks Up to 3,000 Feet AAFE — All Aircraft
- Municipal Boundaries
- San Diego Unified Port District Boundary
- Highway
- Water

NOTES:

AAFE - Above Airport Field Elevation (16.8 Feet Above Mean Sea Level)

ALUCP - Airport Land Use Compatibility Plan

Radar data for Runway 27 were sampled for 31 days during summer and fall of 2022 and winter and spring of 2023, resulting in 16,380 flight tracks. Radar data for Runway 9 were sampled for 153 days from August 2022 through April 2023, resulting in 9,078 flight tracks.

This data is depicted graphically for general planning guidance. The actual ALUCP mapping 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.

AIRPORT LAND USE COMMISSION

SOURCES: San Diego Unified Port District, SanGIS, California State Parks, Esri, TomTom, Garmin, Foursquare, SafeGraph, GeoTechnologies, Inc., METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, US Census Bureau, April 2024 (basemap); San Diego County Regional Airport Authority, *San Diego International Airport, Airport Layout Plan*, August 2021 (Airport property, runway); SanGIS, 2023 (municipalities); San Diego County Regional Airport Authority, 2023 (San Diego Unified Port District Boundary); US Census Bureau, 2022 (roads); County of San Diego, Planning and Development Services, LUEG-GIS Services, 2018 (water); Ricondo & Associates, Inc., 2023 (safety zones); San Diego County Regional Airport Authority, Airport Noise and Operations Monitoring System (ANOMS), 2022 (radar tracks).

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EXHIBIT H-6

SAFETY ZONES IN RELATION TO LOW ALTITUDE FLIGHT TRACKS

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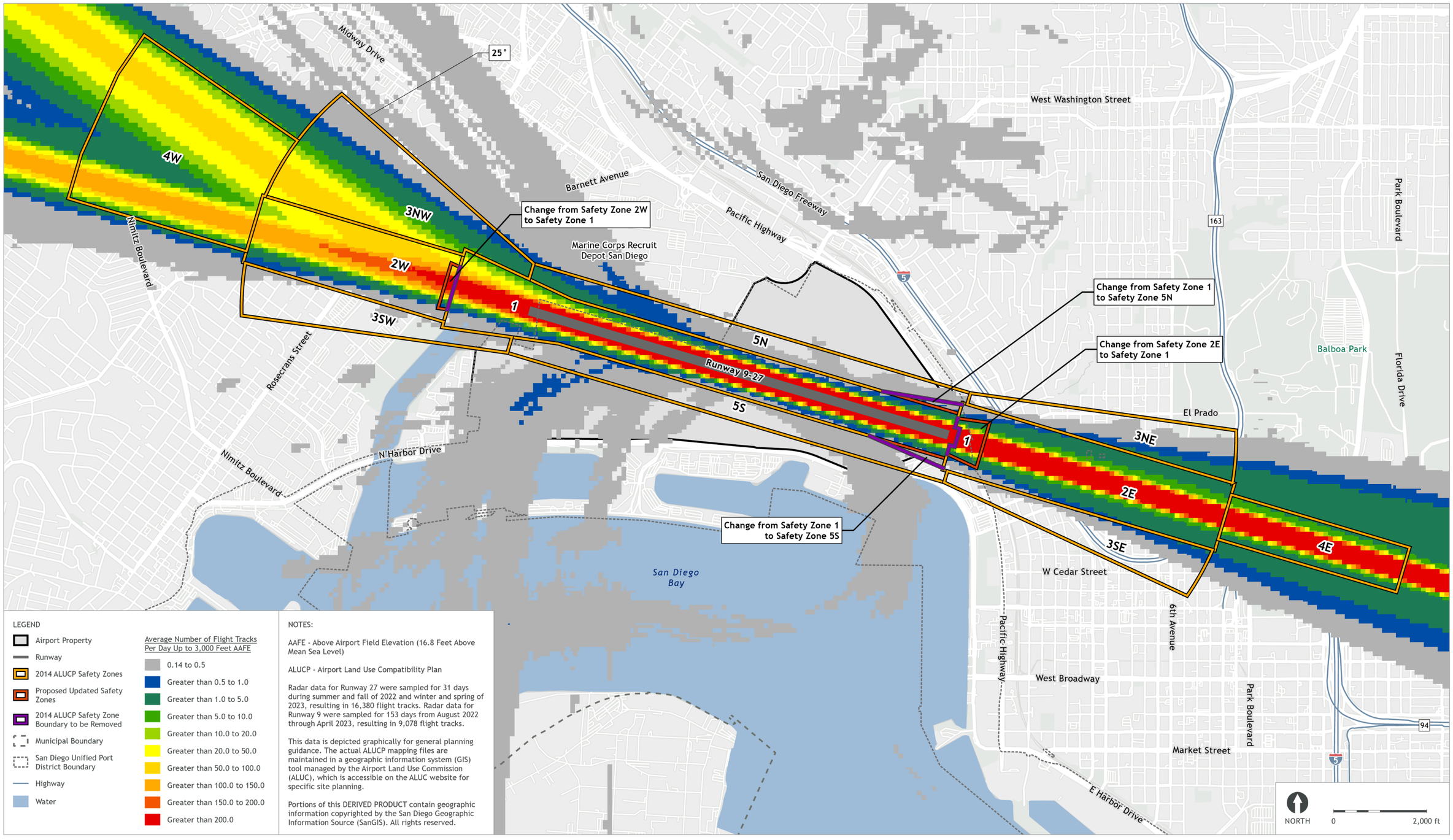

LEGEND

- Airport Property
- Runway
- 2014 ALUCP Safety Zones
- Proposed Updated Safety Zones
- 2014 ALUCP Safety Zone Boundary to be Removed
- Municipal Boundary
- San Diego Unified Port District Boundary
- Highway
- Water

Average Number of Flight Tracks Per Day Up to 3,000 Feet AAFE

- 0.14 to 0.5
- Greater than 0.5 to 1.0
- Greater than 1.0 to 5.0
- Greater than 5.0 to 10.0
- Greater than 10.0 to 20.0
- Greater than 20.0 to 50.0
- Greater than 50.0 to 100.0
- Greater than 100.0 to 150.0
- Greater than 200.0 to 200.0
- Greater than 200.0

NOTES:

AAFE - Above Airport Field Elevation (16.8 Feet Above Mean Sea Level)

ALUCP - Airport Land Use Compatibility Plan

Radar data for Runway 27 were sampled for 31 days during summer and fall of 2022 and winter and spring of 2023, resulting in 16,380 flight tracks. Radar data for Runway 9 were sampled for 153 days from August 2022 through April 2023, resulting in 9,078 flight tracks.

This data is depicted graphically for general planning guidance. The actual ALUCP mapping 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.

AIRPORT LAND USE COMMISSION

SOURCES: San Diego Unified Port District, SanGIS, California State Parks, Esri, TomTom, Garmin, Foursquare, SafeGraph, GeoTechnologies, Inc., METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, US Census Bureau, April 2024 (basemap); San Diego County Regional Airport Authority, *San Diego International Airport*, *Airport Layout Plan*, August 2021 (Airport property, runway); SanGIS, 2023 (municipalities); San Diego County Regional Airport Authority, 2023 (San Diego Unified Port District Boundary); US Census Bureau, 2022 (roads); County of San Diego, Planning and Development Services, LUEG-GIS Services, 2018 (water); Ricondo & Associates, Inc., 2023 (safety zones); San Diego County Regional Airport Authority, Airport Noise and Operations Monitoring System (ANOMS), 2022 (radar tracks); Ricondo & Associates, Inc., 2023 (radar density, safety zones).

File Location: Project:P:\GIS\Projects\SAN\MXD\SAN_ALUCP_2024_Maps\SAN_ALUCP_AppendixH_20240517.aprx Layout: SAN_ALUCP_ExhH-7_SZ_RadarDensity_LowAltitudes_20240527

EXHIBIT H-7

SAFETY ZONES IN RELATION TO
AVERAGE DAILY DENSITY OF LOW ALTITUDE FLIGHT TRACKS

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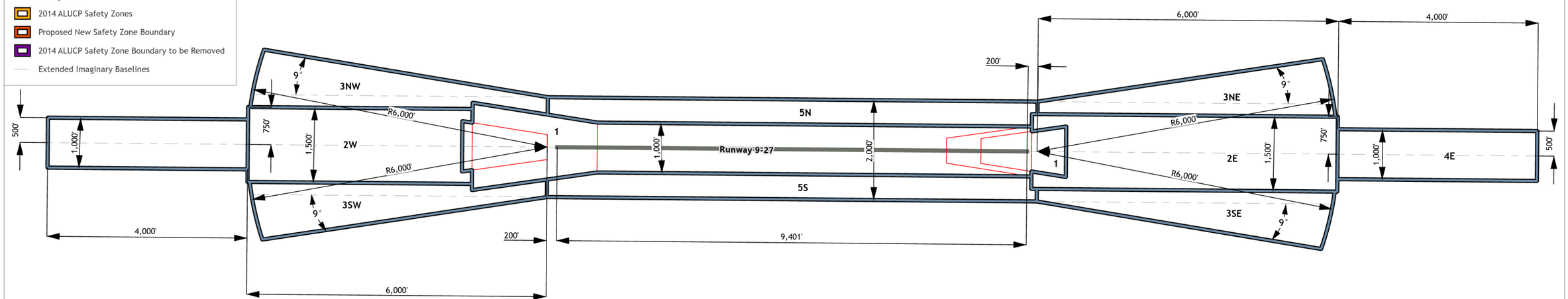
LEGEND

- Runway 9-27
- Runway Protection Zones (RPZ)
- *California Airport Land Use Planning Handbook* Safety Zones
- 2014 ALUCP Safety Zones
- Proposed New Safety Zone Boundary
- 2014 ALUCP Safety Zone Boundary to be Removed
- Extended Imaginary Baselines

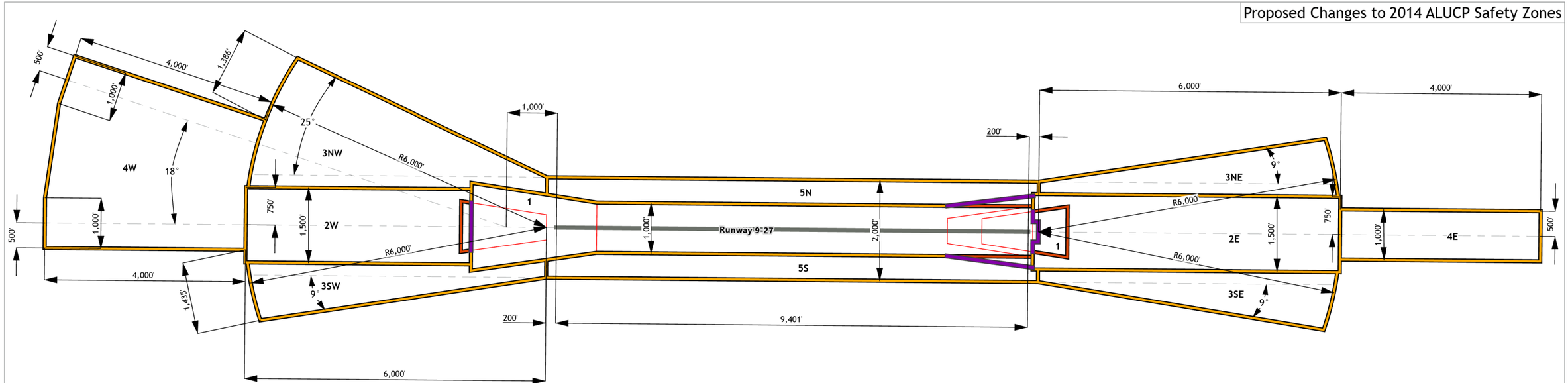
NOTES:

ALUCP - Airport Land Use Compatibility Plan
SDIA - San Diego International Airport

California Airport Land Use Planning Handbook Safety Zones Applied to SDIA



Proposed Changes to 2014 ALUCP Safety Zones



SOURCES: San Diego Regional Airport Authority, *San Diego International Airport*, *Airport Layout Plan*, August 3, 2021 (sheet 5 of 12, "Future Airport Layout Plan Drawing"; runway protection zones); California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, Figure B, October 2011 (Handbook safety zones), p. 3-19; Ricondo & Associates, Inc., June 2023 (safety zones).

File Location: Project:P:\GIS\Projects\SAN\MXD\SAN_ALUCP_2024_Maps\SAN_ALUCP_AppendixH_20240517.aprx Layout: SAN_ALUCP_ExhH-8_ComparisonOfSafetyZones_20250116

EXHIBIT H-8

PROPOSED UPDATED SAFETY ZONE MEASUREMENT DETAILS

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H.4 SAFETY COMPATIBILITY POLICY CONSIDERATIONS

Nearly all land in the SDIA vicinity, including the land within the safety zones, has been fully developed for many years. In fact, the greatest influence on the future development pattern is the nature and character of existing development, which tends to persist over time. A combination of real estate market forces, the interests of current property owners and residents, and local agency policies and regulations will also influence the preservation or redevelopment of areas surrounding the Airport.

The 2014 ALUCP established the following goal and objectives as the foundation for the safety compatibility policies and standards at SDIA. The goal and objectives remain appropriate for the updated ALUCP.

> [Protect] the public health, safety, and welfare by:
>
> - Prohibiting certain sensitive land uses within the safety zones; and
> - Limiting the number of people in areas subject to the highest risk of aircraft accidents.[33]

Appendix E3 in the 2014 ALUCP added further information relating to the goal. It explained that policies should "minimize the consequences of aircraft accidents and emergency landings to people and property on the ground," and described the following objectives:

- Avoid increasing the degree of incompatible development within the proposed safety zones for SDIA.
- As redevelopment occurs within the proposed safety zones, avoid increasing residential densities and non-residential development intensities above the current levels.
- Avoid the future development of new land uses which the Handbook advises to be prohibited within the safety zones.
- Ensure that new highly risk-sensitive land uses and those serving and housing vulnerable occupants are avoided in the proposed safety zones.
- Ensure that safety compatibility policies and standards are sensitive to the long-term sustainability and viability of the existing neighborhoods and business districts within the proposed safety zones, to the extent consistent with the preceding objectives.[34]

H.4.1 Evaluation of Safety Compatibility Policies

Table H-4 presents the safety compatibility policies and standards of the 2014 ALUCP, and it discusses considerations for their update, refinement, or retention.

[33] Airport Land Use Commission, San Diego County Regional Airport Authority, *San Diego International Airport Land Use Compatibility Plan*, May 2014 (amended; p. 1-2).

[34] Airport Land Use Commission, San Diego County Regional Airport Authority, *San Diego International Airport Land Use Compatibility Plan*, May 2014 (amended; pp. E-49 and E-50).

Table H-4 (1 of 8)2014 Airport Land Use Compatibility Plan – Safety Policies and Considerations for Update

2014 ALUCP POLICY NUMBER	2014 ALUCP POLICY DESCRIPTION	CONSIDERATIONS FOR UPDATED POLICY
Policy S.1	**Safety Compatibility Zone Map and Table** This ALUCP establishes the safety zones where safety policies and standards apply, as depicted in [Table H-5.] [Table H-5] establishes the safety compatibility standards that apply to different land use categories within each safety zone. Land uses are classified within each safety zone as: Compatible (green): The use is consistent with this ALUCP (no density or intensity limits apply). Conditionally compatible (yellow): The use is consistent with this ALUCP if the conditions described in [Table H-5] are met. For residential uses, the maximum allowable density is indicated for each Community Planning Area (CPA)/ neighborhood by safety zone. Residential density is measured as the number dwelling units per net acre. For nonresidential uses, the maximum allowable intensity is indicated for each CPA/neighborhood by safety zone. Nonresidential intensity is measured as the number of people per net acre. Incompatible (red): The use is inconsistent with this ALUCP.	The safety compatibility standards in Table H-5, immediately following Table H-4, are intended to: • avoid the development of new, highly risk-sensitive land uses; and • allow continued development and redevelopment in certain areas, subject to the stated density and intensity limits. The density and intensity limits in all safety zones but SZ 3SE were set at the higher of: • 110 percent of the average densities and intensities estimated through a land use inventory undertaken in 2011 for the 2014 ALUCP; or • the maximum intensities for "urban areas" suggested in the *California Airport Land Use Planning Handbook*. (See Table H-3.) The density and intensity limits in SZ 3SE were set at two times the average intensity in each CPA and neighborhood in that zone. The 2014 ALUCP explained that due "to published flight procedures at SDIA, low overflight activity in this area makes SZ 3SE unique when compared to other safety zones."* That standard was set after "extensive coordination with the Steering Committee, the City of San Diego and Civic San Diego (formerly known as Centre City Development Corporation [CCDC]) …"* See Attachment 2 of this appendix for an explanation of the density/intensity analysis for the 2014 ALUCP. The standards should be continued, with some changes to the classification of land uses, as noted in Table H-5.
Policy S.2	**Uses Allowed in Safety Zone 1** In Safety Zone 1, new structures are not allowed. Some nonstructural land uses are allowed only in the controlled activity area outside the central portion of the RPZ, see [Table H-5]. Exhibit 3-2 [in the 2014 ALUCP] depicts the RPZs for each runway end and associated controlled activity areas, based on FAA design standards. Additional limitations on uses within Safety Zone 1 can be found in Section 1.7 [of the 2014 ALUCP] and Policies S.10 through S.12.	This policy should be revised in light of updated FAA guidance provided in AC 150/5300-13B, Airport Design, Appendix I, Paragraph I.3. The updated guidance no longer distinguishes between the "central portion" and "controlled activity area" within the runway protection zone (RPZ). (The RPZ corresponds to Safety Zone 1.) The updated FAA guidance continues to advise the avoidance of new aboveground structures in the RPZ. Similar guidance is provided in FAA AC 150/5190-4B, Airport Land Use Compatibility Planning, paragraph 2.2.5.7.3.

Table H-4 (2 of 8)2014 Airport Land Use Compatibility Plan – Safety Policies and Considerations for Update

2014 ALUCP POLICY NUMBER	2014 ALUCP POLICY DESCRIPTION	CONSIDERATIONS FOR UPDATED POLICY
Policy S.3	**Maximum Densities Include Density Bonuses** The maximum allowable residential densities established in [Table H-5] include any density bonuses that local agencies may provide for affordable housing developed in accordance with state or local law. Land use projects with density bonuses cannot exceed the allowable densities established in [Table H-5].	This policy should be continued.
Policy S.4	**Maximum Densities Exclude Second Dwelling Units** Second dwelling units, as defined by state law, are not included in calculating the density of a proposed land use project.	This policy should be continued, although it needs to be updated to reflect current state law, which now applies to both accessory dwelling units and junior accessory units.
Policy S.5	**Residential Land Use Designations** As presented on Exhibit 3-3 [in the 2014 ALUCP], new residential development is allowed within the safety zones (except in Safety Zone 1) only if the affected property is currently designated to allow for residential use in the applicable general or community plan and it complies with the conditions described in [Table H-5]. Within the safety zones, general and community plan amendments from nonresidential to residential designations are not allowed.	This policy should be continued. **Exhibit H-9** depicts areas where residential use is allowed within the safety zones based on the applicable City land use plans. **Exhibit H-10** depicts the land use plan designations. **Exhibit H-11** depicts existing land use in the area for context.
Policy S.6	**Nonresidential Projects with a Single Use** The total intensity of a nonresidential project must not exceed the maximum allowable intensity for the use as shown in [Table H-5]. To determine the number of people occupying the use, divide the gross square footage of the building by the occupancy factor shown in [Table H-5]. The total number of occupants is then divided by the net acreage of the project site to determine intensity. Areas devoted to parking (whether above/below ground or enclosed) are not to be included in the gross square footage of the building and, therefore, are not considered in the calculation of intensity. See Table 3-2 [in the 2014 ALUCP] for an example of how to calculate nonresidential intensity.	This policy should be continued. Based on experience in administering the 2014 ALUCP, a new term, "gross occupied area," should be defined. Gross occupied area would include the gross square footage of the building and any outdoor areas intended for occupancy, such as dining, performance areas, and public reception areas.
Policy S.7	**Nonresidential Projects with Multiple Uses** The total intensity of a project with a mix of nonresidential uses must not exceed the maximum allowable intensity as shown in [Table H-5]. The number of people occupying each component use is calculated separately. The total number of occupants is then divided by the net acreage of the project site to determine intensity. Areas devoted to parking (whether above/below ground or enclosed) are not to be included in the gross square footage of the building and, therefore, are not considered in the calculation of intensity. See Table 3-2 [of the 2014 ALUCP] for an example of how to calculate nonresidential intensity with a mix of nonresidential uses.	This policy should be continued.

Table H-4 (3 of 8)2014 Airport Land Use Compatibility Plan – Safety Policies and Considerations for Update

2014 ALUCP POLICY NUMBER	2014 ALUCP POLICY DESCRIPTION	CONSIDERATIONS FOR UPDATED POLICY
Policy S.8	**Mixed-Use Projects** For a proposed project with a mix of residential and nonresidential uses, residential density is converted to intensity and the total number of residential occupants is limited to half of the maximum nonresidential intensity specified in [Table H-5]. For live/work projects, each dwelling unit is to be counted towards density, and only the square footage devoted to nonresidential use is to be used in the calculation of nonresidential intensity. Areas devoted to parking (whether above/below ground or enclosed) are not to be included in the gross square footage of the building and, therefore, are not considered in the calculation of intensity.	Two modifications to this policy merit consideration. • The second paragraph addressing "live/work projects" should be deleted as unnecessary. • A new paragraph should be added to this policy to clarify that mixed use projects with residential components are incompatible in any safety zone and CPA/neighborhood which has no existing residential use, as indicated in Table H-5, Updated Safety Compatibility Standards.
Policy S.9	**Ancillary Uses** Ancillary uses are primarily intended for use by the employees/residents/occupants of a land use project and cumulatively occupy no more than 10 percent of the total floor area. Ancillary uses occupying no more than 10 percent of the total floor area that are compatible (green) or conditionally compatible (yellow) according to [Table H-5] are not included in the calculation of intensity. Ancillary uses that are listed as "incompatible" (red) in [Table H-5] are not permitted.	This policy has been confusing as applied to some mixed-use projects. Developers have sometimes advocated applying this policy to uses which may incidentally serve the occupants of the project, but which are clearly catering to the public. The intent of the policy is to address uses specifically intended to serve the occupants of the primary use. To aid in implementing the intent of this policy, a more robust definition of "ancillary use" should be developed. In addition, the first sentence in the first paragraph should state that ancillary uses are intended for the exclusive use of the employees/residents/occupants of a land use project.

Table H-4 (4 of 8)2014 Airport Land Use Compatibility Plan – Safety Policies and Considerations for Update

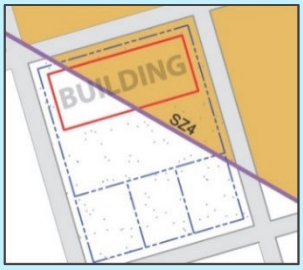
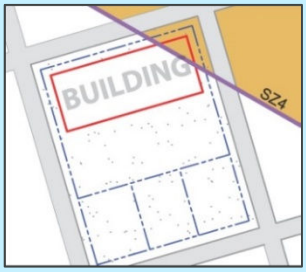
2014 ALUCP POLICY NUMBER	2014 ALUCP POLICY DESCRIPTION	CONSIDERATIONS FOR UPDATED POLICY
Policy S.10	**Building Located Partially Within a Single Safety Zone** When 50 percent or more of the building, as determined by gross floor area (in square feet), is located within a safety zone, the requirements of that safety zone apply. When more than 50 percent of the building is located outside a safety zone, no safety restrictions apply. However, no building or portion of a building is permitted within Safety Zone 1.  *Standards of SZ 4 Apply* *For Illustrative Purposes Only*  *No Safety Standards Apply* *For Illustrative Purposes Only*	This policy should be continued.

Table H-4 (5 of 8)2014 Airport Land Use Compatibility Plan – Safety Policies and Considerations for Update

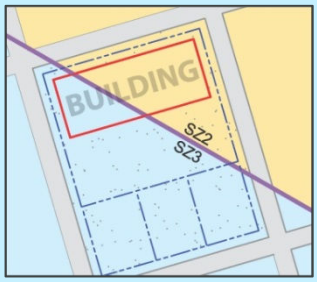
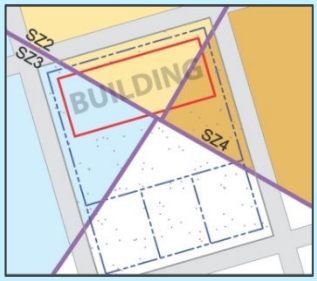
2014 ALUCP POLICY NUMBER	2014 ALUCP POLICY DESCRIPTION	CONSIDERATIONS FOR UPDATED POLICY
Policy S.11	**Building Located Within Two or More Safety Zones** When a building is located within two or more safety zones, the standards of the safety zone in which the greatest portion of the building, as determined by gross floor area (in square feet), is located apply. However, no building or portion of a building is permitted within Safety Zone 1.  *Standards of SZ 2 Apply* *For Illustrative Purposes Only*  *Standards of SZ 2 Apply* *For Illustrative Purposes Only* As an alternative, the portions of the project site within each safety zone can be used to calculate allowable densities/intensities. The resulting density/intensity calculations are then added together to derive total maximum densities/intensities for the entire site. The building(s) can be located anywhere on the entire site, regardless of safety zone boundaries. However, no building or portion of a building is permitted within Safety Zone 1.	This policy should be continued, but the "alternative" in the second paragraph should be refined to account for parcels that are in two or more safety zones and partly outside any safety zone.

Table H-4 (6 of 8)2014 Airport Land Use Compatibility Plan – Safety Policies and Considerations for Update

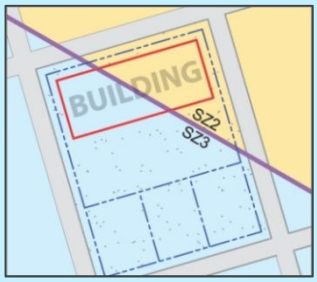
2014 ALUCP POLICY NUMBER	2014 ALUCP POLICY DESCRIPTION	CONSIDERATIONS FOR UPDATED POLICY
Policy S.12	**Building Located Equally Within Two or More Safety Zones** When a building is located equally within two or more safety zones, the standards of the most restrictive safety zone in which the building is located apply. However, no building or portion of a building is permitted within Safety Zone 1.  *Standards of SZ 2 Apply* *For Illustrative Purposes Only*	This policy should be deleted. This situation is adequately covered by Policies S.10 and S.11.
Policy S.13	**Land Uses Not Specified in [Table H-5]** For any proposed land use that is not specified in [Table H-5], the ALUC must determine the most similar land use based upon the land use definitions and guidance in Appendix A [of the 2014 ALUCP]. Once the most similar use is determined, standards for that use apply.	This policy should be continued.

Table H-4 (7 of 8)2014 Airport Land Use Compatibility Plan – Safety Policies and Considerations for Update

2014 ALUCP POLICY NUMBER	2014 ALUCP POLICY DESCRIPTION	CONSIDERATIONS FOR UPDATED POLICY
Policy S.14	**New Uses in Existing Buildings** No consistency review is required when new compatible or conditionally compatible uses are proposed within a portion of an existing building, such as a multi-tenant shopping center. Only those uses described in [Table H-5] as compatible or conditionally compatible are allowed; incompatible uses are not allowed. Consistency review is required when a new use (or multiple uses) is proposed to entirely occupy an existing building as indicated below. **Nonresidential Projects:** 1. The maximum intensity is limited as described in Policies S.6 and S.7. 2. If the overall size of the existing building results in a calculated intensity that exceeds the maximum limit, an occupancy deed restriction could be recorded on the property limiting the occupancy of the building to no more than the maximum limit. **Residential Projects:** The total density of a residential project must not exceed the maximum allowable density as shown in [Table H-5]. **Mixed-use Projects:** The maximum density and intensity are limited as described in Policy S.8.	This policy exempts conditionally compatible uses occupying only a portion of an existing building from compliance with the density and intensity standards of Table H-5. No limit on the "portion" of the building to be occupied by the new use is specified. Thus, for example, a proposed retail store occupying as much as 99 percent of an existing building would be exempt from the intensity standards. This is a loophole that was not foreseen when the original policy was adopted. The policy language in the first paragraph should be revised to ensure that the density and intensity limits in Table H-5 are observed. The calculation of density and intensity of conditional uses occupying parts of a building would require that the lot area be apportioned to the proposed land use based on the proportion of the gross occupied area of the building proposed for the new use. Item 2 under "Nonresidential Projects" effectively grants an exception to the intensity limits for high-occupancy nonresidential uses moving into existing buildings. The long-term effectiveness of a deed restriction limiting occupancy is questionable. No rationale for the exception is provided in the 2014 ALUCP. Item 2 of this policy should be removed.
Section 1.6.1 Existing Incompatible Land Uses	**1.6.1.2 Safety** An existing incompatible land use for safety either exceeds the residential density and/or nonresidential intensity levels listed in [Table H-5]… If it exceeds either limit, enlargement and reconstruction are subject to consistency review and the following requirements: **Residential Uses Only** An existing incompatible residential use may be expanded in building area or reconstructed if there is no increase in density. A second dwelling unit, as defined by state law, is not counted toward this limitation.	The current policy addresses only land uses that are classified as conditionally compatible (the yellow uses) and does not directly address those classified as "incompatible" in Table H-5 (the red uses). The language should be revised to address this oversight. The fourth paragraph of this policy relating to existing schools should be revised to be clearer and more practical. The section of the policy addressing existing land used in Safety Zone 1 should be revised to provide standards for the conversion of land uses in existing buildings.

Table H-4 (8 of 8)2014 Airport Land Use Compatibility Plan – Safety Policies and Considerations for Update

2014 ALUCP POLICY NUMBER	2014 ALUCP POLICY DESCRIPTION	CONSIDERATIONS FOR UPDATED POLICY
Section 1.6.1 Existing Incompatible Land Uses (continued)	**1.6.1.2 Safety (continued)** **Nonresidential Uses Only** An existing incompatible nonresidential use may be expanded in building area or reconstructed if there is no increase in the intensity of the use. Existing incompatible children's schools (grades K-12) may be expanded, replaced or reconstructed if required by State law. New, expanded or modernized facilities to accommodate existing enrollment must be submitted to the ALUC for review. ***Additional Limitations for Safety Zone 1*** Residential uses are not allowed. Reconstruction of existing incompatible land uses is allowed only if the structure or object is destroyed by calamity (e.g., fire, earthquake, etc.). Reconstructed buildings are limited to the same size and usage intensity of the original building. The size can only be increased if required for compliance with local building codes. Remodeling is allowed if no more than 50 percent of the exterior walls are removed and there is no increase in the building footprint or floor area. No increase in intensity can be associated with the remodeling.	

NOTES:

AC – Advisory Circular; ALUC – Airport Land Use Commission; ALUCP – Airport Land Use Compatibility Plan; FAA – Federal Aviation Administration; NAVAIDs – Navigational Aids; RPZ – Runway Protection Zone; SDIA – San Diego International Airport; SZ – Safety Zone.

* Airport Land Use Commission, San Diego County Regional Airport Authority, *San Diego International Airport Land Use Compatibility Plan*, May 2014 (amended), p. E-64.

SOURCES: Airport Land Use Commission, San Diego County Regional Airport Authority, *San Diego International Airport Land Use Compatibility Plan*, May 2014 (amended; columns 1 and 2, pp. 3-2 – 3-21 and pp. 1-9 – 1-10); Ricondo & Associates, Inc., June 2024 (column 3).

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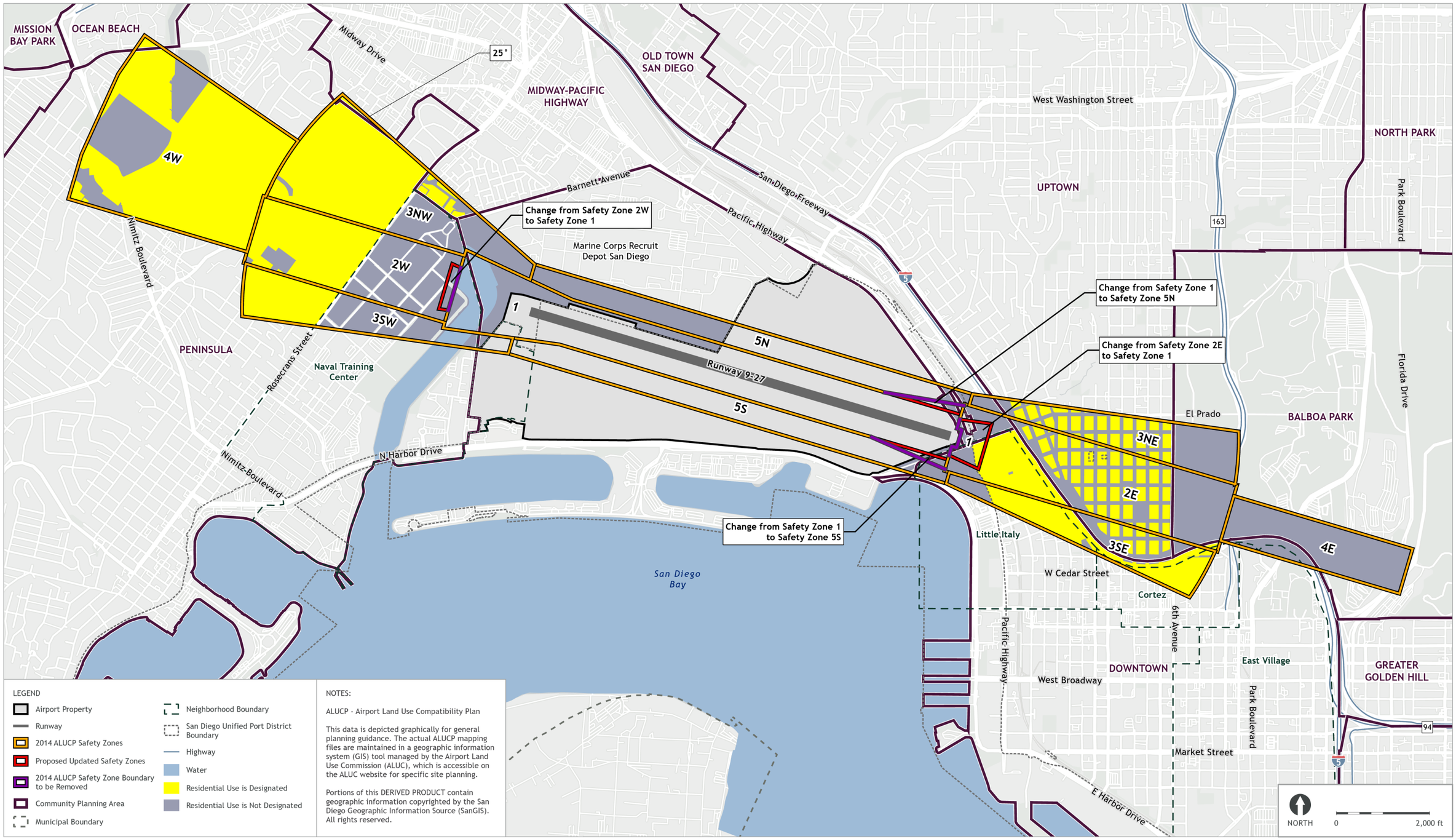

LEGEND

- Airport Property
- Runway
- 2014 ALUCP Safety Zones
- Proposed Updated Safety Zones
- 2014 ALUCP Safety Zone Boundary to be Removed
- Community Planning Area
- Municipal Boundary
- Neighborhood Boundary
- San Diego Unified Port District Boundary
- Highway
- Water
- Residential Use is Designated
- Residential Use is Not Designated

NOTES:

ALUCP - Airport Land Use Compatibility Plan

This data is depicted graphically for general planning guidance. The actual ALUCP mapping 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.

AIRPORT LAND USE COMMISSION

SOURCES: San Diego Unified Port District, SanGIS, California State Parks, Esri, TomTom, Garmin, Foursquare, SafeGraph, GeoTechnologies, Inc., METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, US Census Bureau, April 2024 (basemap); San Diego County Regional Airport Authority, *San Diego International Airport, Airport Layout Plan*, August 2021 (Airport property, runway); San Diego County Regional Airport Authority, 2023 (San Diego Unified Port District Boundary); City of San Diego, Planning Department, 2023 (general plan land use); US Census Bureau, 2022 (roads); County of San Diego, Planning and Development Services, LUEG-GIS Services, 2018 (water); Ricondo & Associates, Inc., 2023 (safety zones); Ricondo & Associates, Inc., October 2023 (neighborhood boundaries); Ricondo & Associates, Inc., May 2024 (community plan areas based on SanGIS).

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EXHIBIT H-9

RESIDENTIAL LAND USE ALLOWED IN SAFETY ZONES BASED ON CITY LAND USE PLANS

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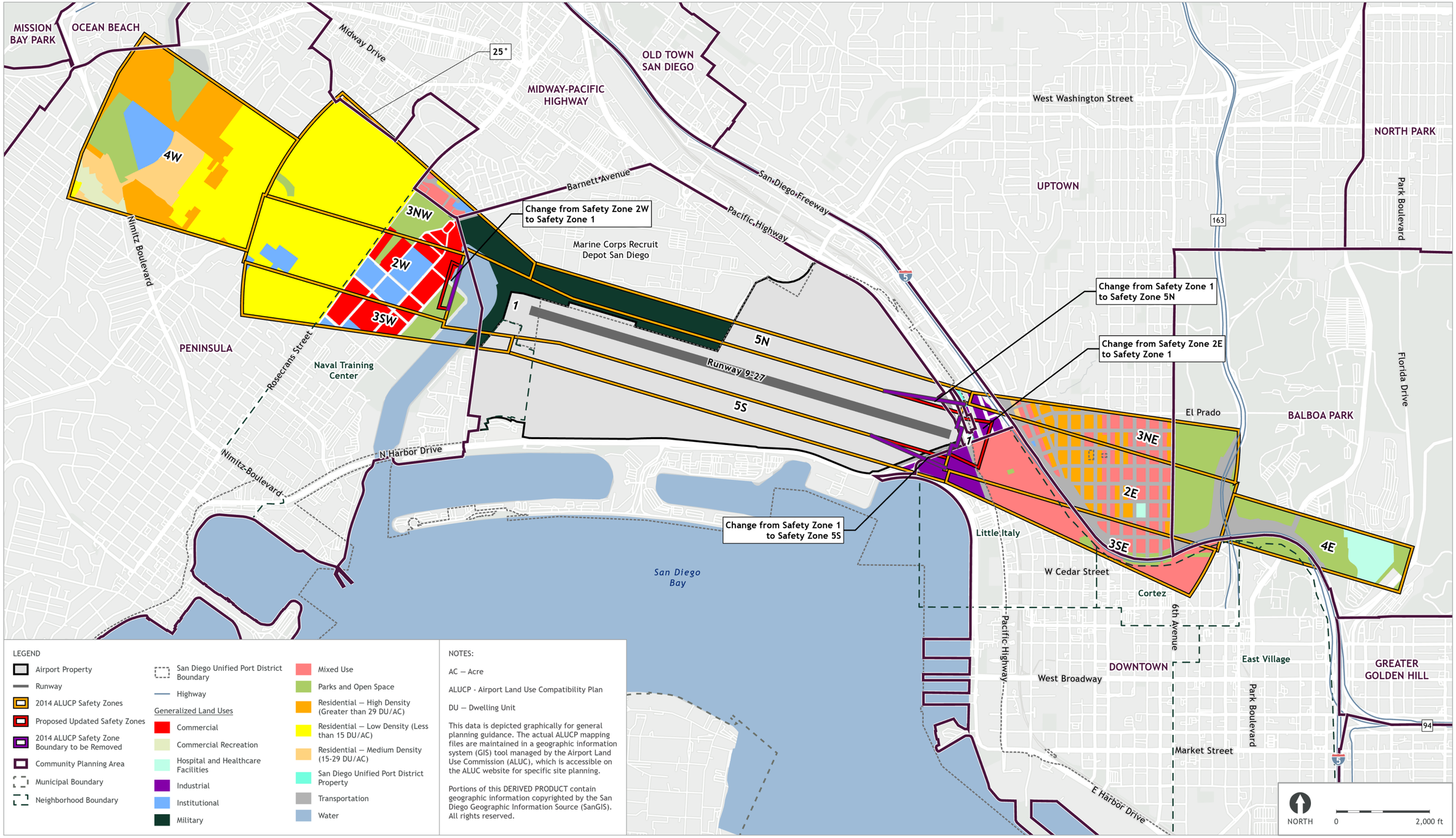

LEGEND

- Airport Property
- Runway
- 2014 ALUCP Safety Zones
- Proposed Updated Safety Zones
- 2014 ALUCP Safety Zone Boundary to be Removed
- Community Planning Area
- Municipal Boundary
- Neighborhood Boundary
- San Diego Unified Port District Boundary
- Highway

Generalized Land Uses

- Commercial
- Commercial Recreation
- Hospital and Healthcare Facilities
- Industrial
- Institutional
- Military
- Mixed Use
- Parks and Open Space
- Residential — High Density (Greater than 29 DU/AC)
- Residential — Low Density (Less than 15 DU/AC)
- Residential — Medium Density (15-29 DU/AC)
- San Diego Unified Port District Property
- Transportation
- Water

NOTES:

AC — Acre

ALUCP - Airport Land Use Compatibility Plan

DU — Dwelling Unit

This data is depicted graphically for general planning guidance. The actual ALUCP mapping 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.

AIRPORT LAND USE COMMISSION

SOURCES: San Diego Unified Port District, SanGIS, California State Parks, Esri, TomTom, Garmin, Foursquare, SafeGraph, GeoTechnologies, Inc., METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, US Census Bureau, April 2024 (basemap); San Diego County Regional Airport Authority, *San Diego International Airport, Airport Layout Plan*, August 2021 (Airport property, runway); San Diego County Regional Airport Authority, 2023 (San Diego Unified Port District Boundary); City of San Diego, Planning Department, 2023 (general plan land use); US Census Bureau, 2022 (roads); County of San Diego, Planning and Development Services, LUEG-GIS Services, 2018 (water); Ricondo & Associates, Inc., 2023 (safety zones); Ricondo & Associates, Inc., October 2023 (neighborhood boundaries); Ricondo & Associates, Inc., May 2024 (community plan areas based on SanGIS).

File Location: Project:P:\GIS\Projects\SAN\MXD\SAN_ALUCP_2024_Maps\SAN_ALUCP_AppendixH_20240517.aprx Layout: SAN_ALUCP_ExhH-10_CityLUPlans_SZ_20240528

EXHIBIT H-10

CITY LAND USE PLAN DESIGNATIONS IN SAFETY ZONES

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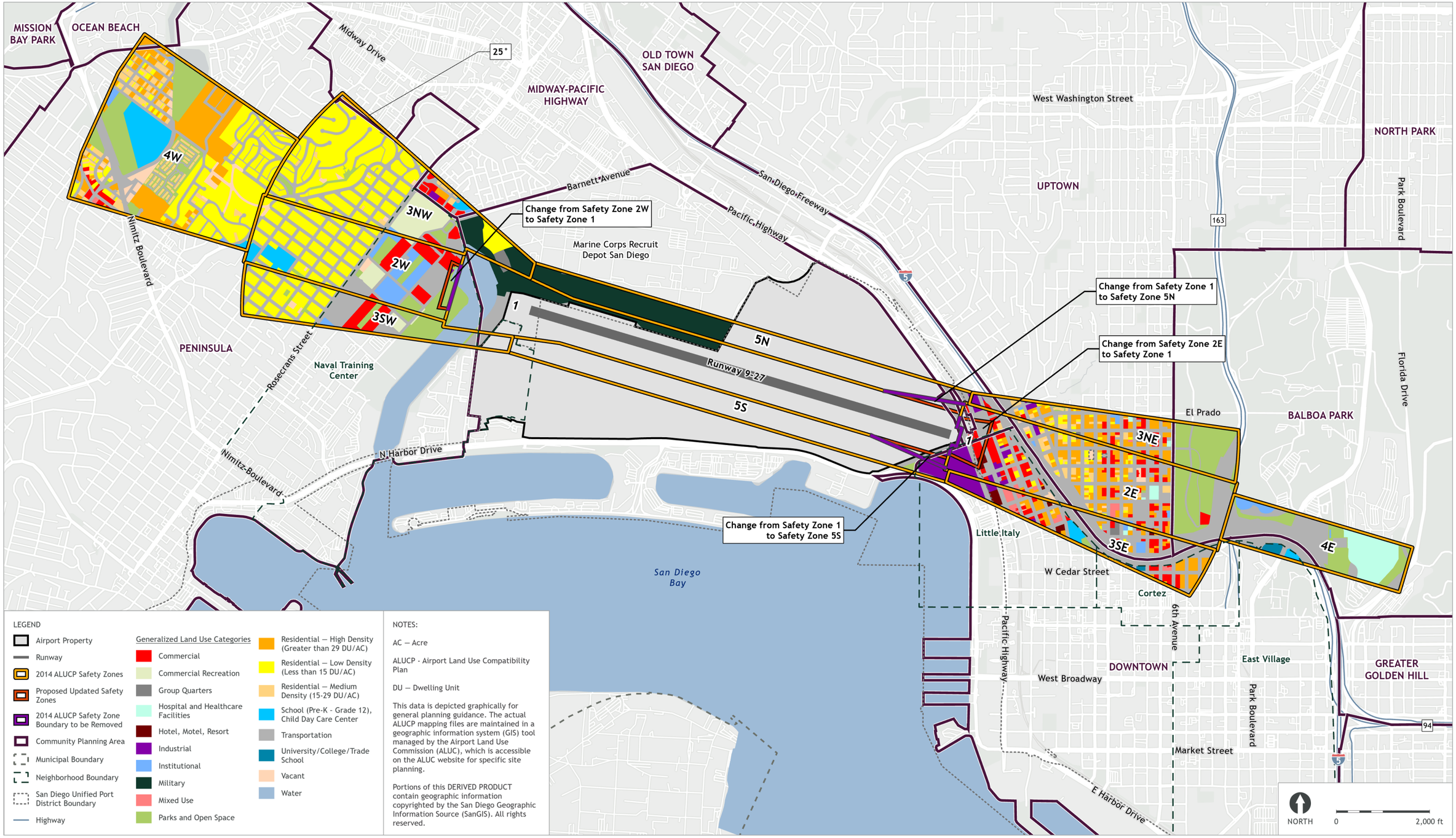

LEGEND

- Airport Property
- Runway
- 2014 ALUCP Safety Zones
- Proposed Updated Safety Zones
- 2014 ALUCP Safety Zone Boundary to be Removed
- Community Planning Area
- Municipal Boundary
- Neighborhood Boundary
- San Diego Unified Port District Boundary
- Highway

Generalized Land Use Categories

- Commercial
- Commercial Recreation
- Group Quarters
- Hospital and Healthcare Facilities
- Hotel, Motel, Resort
- Industrial
- Institutional
- Military
- Mixed Use
- Parks and Open Space
- Residential — High Density (Greater than 29 DU/AC)
- Residential — Low Density (Less than 15 DU/AC)
- Residential — Medium Density (15-29 DU/AC)
- School (Pre-K - Grade 12), Child Day Care Center
- Transportation
- University/College/Trade School
- Vacant
- Water

NOTES:

AC — Acre

ALUCP - Airport Land Use Compatibility Plan

DU — Dwelling Unit

This data is depicted graphically for general planning guidance. The actual ALUCP mapping 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.

AIRPORT LAND USE COMMISSION

SOURCES: SanGIS, California State Parks, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc., METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA, USFWS, February 2024 (basemap); San Diego County Regional Airport Authority, *San Diego International Airport*, *Airport Layout Plan*, August 2021 (Airport property boundary); SanGIS, 2023 (municipalities); San Diego County Regional Airport Authority, 2023 (San Diego Unified Port District Boundary); City of San Diego, Planning Department, 2023 (community plan areas, general plan land use); US Census Bureau, 2022 (roads); County of San Diego, Planning and Development Services, LUEG-GIS Services, 2018 (water); Ricondo & Associates, Inc., 2023 (safety zones); Ricondo & Associates, Inc., October 2023 (neighborhood boundaries); Ricondo & Associates, Inc., May 2024 (community plan areas based on SanGIS).

File Location: Project:P:\GIS\Projects\SAN\MXD\SAN_ALUCP_2024_Maps\SAN_ALUCP_AppendixH_20240517.aprx Layout: SAN_ALUCP_ExhH-11_SZ_ELU_20240527

EXHIBIT H-11

EXISTING LAND USE IN SAFETY ZONES

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H.4.2 Safety Compatibility Standards

Table H-5 presents proposed updated safety compatibility standards. Changes from the 2014 ALUCP standards are indicated in red. The following changes are proposed:

- In the Educational, Institutional, Public Services category, create a cultural facility category to include libraries, museums, galleries, planetariums, and aquariums.
- In the Educational, Institutional, Public Services category, create a custody facility category to include jails, prisons, and other detention facilities.
- In the Industrial category, eliminate the “junkyard, dump, recycling center, construction yard” land category and reassign those uses to other refined categories.
- In the Industrial category, establish a new category for "recycling centers handling inorganic matter and construction/material storage yards.”
- In the Industrial category, add refuse disposal, junkyards, dumps, and recycling centers handling organic matter to the “sanitary landfill” category.
- In the Industrial category, separate warehousing from storage facilities to distinguish between long-term storage facilities, with negligible employee presence, and warehouses and distribution centers where staff members are involved in regularly stocking shipments and filling orders for retail stores and customers. Stipulate maximum nonresidential intensity limits for “warehousing/distribution facilities.”
- In the Transportation, Communication, Utilities category, separate small from large electrical power generation facilities. Add battery energy storage systems, a land use supporting wind and solar power facilities, to the “electrical power generation facility (large)” category. Small electrical power generation facilities are conditionally compatible in Safety Zones 2, 3, and 4.
- In the Transportation, Communication, Utilities category, add flood control facilities and wireless communication/transmission facilities, as specified in the City land development code.
- In the Recreation, Park, Open Space category, add fairgrounds, as specified in the City land development code, to the “arena, stadium” land uses.
- In the Recreation, Park, Open Space category, add “botanical gardens, arboretums, zoological parks,” which are specified in the City land development code.
- In the Recreation, Park, Open Space category, add “campgrounds,” a use specified in the City land development code.
- In the Recreation, Park, Open Space category, add outdoor entertainment facilities, such as amphitheaters and bandstands.
- In the Recreation, Park, Open Space category, eliminate the “golf course clubhouse” land use as unnecessarily specific.
- For “golf course, park, open space, and recreation facilities” categories, stipulate that associated buildings be limited to the intensity per the applicable standards.
- In the Recreation, Park, Open Space category, separate “recreation facilities (outdoor) from “park, open space” to distinguish between open space uses and more intensively occupied recreation facilities.
- In the Agriculture category, add “horticulture and floriculture,” uses which are specified in the City land development code, to the “agriculture” land use. Also add “forestry.”

Table H-5 (1 of 7)Updated Safety Compatibility Standards

Community Planning Area - Neighborhood	Density/Intensity for Conditional Uses																			
	Safety Zones																			
	2E		2W		3NE		3SE		3NW		3SW		4E		4W		5N		5S	
	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR
Balboa Park	0‡	96											0‡	240						
Downtown - Cortez	0‡	96					210	842					0‡	240						
Downtown - East Village													0‡	240						
Downtown - Little Italy	40	255					154	732											0‡	180
Midway - Pacific Highway	46	191			0‡	180			44	198							0‡	180		
Ocean Beach															31	240				
Peninsula - NTC			0‡	127					0‡	180	0‡	235								
Peninsula - Other Neighborhoods			20	96					10	180	9	180			36	240				
Uptown	58	272			62	278	164	674												
Persons per household for mixed-use projects [1]	1.51		2.35		1.48		1.57		2.27		2.23		n/a		2.14		n/a		n/a	

R	Maximum compatible residential density, in dwelling units per acre.
NR	Maximum compatible nonresidential intensity, in people per acre.
‡	No dwellings are in the part of the CPA or neighborhood within the indicated Safety Zone. New dwellings are not compatible in this area. ~~unless the parcel was designated for residential use in the City land use plans as of the effective date of this ALUCP.~~
	No part of the Community Planning Area or neighborhood is in the Safety Zone.

Land Use Category [2]	Safety Zones					Conditions	Occupancy Factor [3]
	1	2	3	4	5		
RESIDENTIAL							
Single and Multiple Unit ~~Family, Multi-family~~						Zones 2, 3, 4: Compatible in areas designated for residential use in the applicable Community Plan, subject to the dwelling unit density limits shown above.	N/A
Single Room Occupancy (SRO) Facility [4]						Zones 2, 3, 4: Compatible subject to the dwelling unit density limited shown above. Each sleeping room is equivalent to a "dwelling unit." ~~if development intensity does not exceed the NR limits shown above.~~	~~200~~ N/A
Group Quarters [4]						Zones 3, 4: Compatible if development intensity does not exceed the NR limits shown above.	100

Table H-5 (2 of 7)Updated Safety Compatibility Standards

Community Planning Area - Neighborhood	Density/Intensity for Conditional Uses																			
	Safety Zones																			
	2E		2W		3NE		3SE		3NW		3SW		4E		4W		5N		5S	
	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR
Balboa Park	0‡	96											0‡	240						
Downtown - Cortez	0‡	96					210	842					0‡	240						
Downtown - East Village													0‡	240						
Downtown - Little Italy	40	255					154	732											0‡	180
Midway - Pacific Highway	46	191			0‡	180			44	198							0‡	180		
Ocean Beach															31	240				
Peninsula - NTC			0‡	127					0‡	180	0‡	235								
Peninsula - Other Neighborhoods			20	96					10	180	9	180			36	240				
Uptown	58	272			62	278	164	674												
Persons per household for mixed-use projects [1]	1.51		2.35		1.48		1.57		2.27		2.23		n/a		2.14		n/a		n/a	

R	Maximum compatible residential density, in dwelling units per acre.
NR	Maximum compatible nonresidential intensity, in people per acre.
‡	No dwellings are in the part of the CPA or neighborhood within the indicated Safety Zone. New dwellings are not compatible in this area. ~~unless the parcel was designated for residential use in the City land use plans as of the effective date of this ALUCP.~~
	No part of the Community Planning Area or neighborhood is in the Safety Zone.

Land Use Category [2]	Safety Zones					Conditions	Occupancy Factor [3]
	1	2	3	4	5		
COMMERCIAL, OFFICE, SERVICE, TRANSIENT LODGING							
Hotel, Motel, Resort						Zone 2: Compatible if no more than 56 rooms per acre and no conference facilities. No other use is compatible unless it qualifies as ancillary per Policy S.9.	N/A
						Zones 3, 4: Compatible if development intensity does not exceed the NR limits.	200
Office - Medical, Financial, Professional Services, Civic						Zones 2, 3, 4, 5: Compatible if development intensity does not exceed the NR limits shown above.	215
Retail (e.g., Convenience Market, Department Store, Drug Store, Pet Store)						Zones 2, 3, 4, 5: Compatible if development intensity does not exceed the NR limits shown above.	170
Service - Low Intensity (e.g., ~~Gas Station, Auto Repair,~~ Car Wash, Vehicle Rental, Vehicle Repair)						Zones 2, 3, 4, 5: Compatible if development intensity does not exceed the NR limits shown above.	250
Service - Medium Intensity (e.g., ~~Check-cashing, Veterinary Clinic, Kennel,~~ Personal Services, Pet Services, Business Services)						Zones 2, 3, 4, 5: Compatible if development intensity does not exceed the NR limits shown above.	200
Service - High Intensity (e.g., Eating-Drinking Establishment, Funeral Chapel)						Zones 2, 3, 4, 5: Compatible if development intensity does not exceed the NR limits shown above.	60
Sport/Fitness Facility						Zones 3, 4: Compatible if development intensity does not exceed the NR limits shown above.	60
Theater - Movie/Live Performance/Dinner						Zones 2, 3, 4: Compatible if development intensity does not exceed the NR limits shown above.	60

Table H-5 (3 of 7)Updated Safety Compatibility Standards

Community Planning Area - Neighborhood	Density/Intensity for Conditional Uses																			
	Safety Zones																			
	2E		2W		3NE		3SE		3NW		3SW		4E		4W		5N		5S	
	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR
Balboa Park	0‡	96											0‡	240						
Downtown - Cortez	0‡	96					210	842					0‡	240						
Downtown - East Village													0‡	240						
Downtown - Little Italy	40	255					154	732											0‡	180
Midway - Pacific Highway	46	191			0‡	180			44	198							0‡	180		
Ocean Beach															31	240				
Peninsula - NTC			0‡	127					0‡	180	0‡	235								
Peninsula - Other Neighborhoods			20	96					10	180	9	180			36	240				
Uptown	58	272			62	278	164	674												
Persons per household for mixed-use projects [1]	1.51		2.35		1.48		1.57		2.27		2.23		n/a		2.14		n/a		n/a	

R	Maximum compatible residential density, in dwelling units per acre.
NR	Maximum compatible nonresidential intensity, in people per acre.
‡	No dwellings are in the part of the CPA or neighborhood within the indicated Safety Zone. New dwellings are not compatible in this area. ~~unless the parcel was designated for residential use in the City land use plans as of the effective date of this ALUCP.~~
	No part of the Community Planning Area or neighborhood is in the Safety Zone.

Land Use Category [2]	Safety Zones					Conditions	Occupancy Factor [3]
	1	2	3	4	5		
EDUCATIONAL, INSTITUTIONAL, PUBLIC SERVICES							
Assembly - Adult (Religious, Fraternal, Other)						Zone 2: Compatible if capacity[5] is less than 50 people and intensity does not exceed the NR limits shown above. Zones 3, 4: Compatible if development intensity does not exceed the NR limits shown above.	60
Assembly - Children (Instructional Studio, Cultural Heritage School, Religious, Other)							N/A
Child Day Care Center/Pre-Kindergarten							N/A
Conference/Convention Center						Zones 3, 4: Compatible if development intensity does not exceed the NR limits shown above.	110
Cultural Facility (e.g., Library, Museum, Gallery, Planetarium, Aquarium)						Zone 2: Compatible if capacity[5] is less than 50 people and intensity does not exceed the NR limits shown above. Zones 3, 4: Compatible if development intensity does not exceed the NR limits shown above.	170
Custody Facility (e.g., Jail, Prison, Detention Facility							N/A
Emergency Service Facility (e.g., Fire/Police Station)						Zone 5: Compatible only if needed to provide emergency services at Airport.	215
Medical Care - Congregate Care Facility, ~~Nursing and Convalescent Home~~							N/A
Medical Care - Hospital							N/A
Medical Care - Out-Patient Surgery Center							N/A
School for Adults – College, University, Vocational/Trade School						Zones 3, 4: Compatible if development intensity does not exceed the NR limits shown above.	110
School for Children – Kindergarten through Grade 12 ~~(includes charter schools)~~							N/A

Table H-5 (4 of 7)Updated Safety Compatibility Standards

Community Planning Area - Neighborhood	Density/Intensity for Conditional Uses																			
	Safety Zones																			
	2E		2W		3NE		3SE		3NW		3SW		4E		4W		5N		5S	
	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR
Balboa Park	0‡	96											0‡	240						
Downtown - Cortez	0‡	96					210	842					0‡	240						
Downtown - East Village													0‡	240						
Downtown - Little Italy	40	255					154	732											0‡	180
Midway - Pacific Highway	46	191			0‡	180			44	198							0‡	180		
Ocean Beach															31	240				
Peninsula - NTC			0‡	127					0‡	180	0‡	235								
Peninsula - Other Neighborhoods			20	96					10	180	9	180			36	240				
Uptown	58	272			62	278	164	674												
Persons per household for mixed-use projects [1]	1.51		2.35		1.48		1.57		2.27		2.23		n/a		2.14		n/a		n/a	

R	Maximum compatible residential density, in dwelling units per acre.
NR	Maximum compatible nonresidential intensity, in people per acre.
‡	No dwellings are in the part of the CPA or neighborhood within the indicated Safety Zone. New dwellings are not compatible in this area. ~~unless the parcel was designated for residential use in the City land use plans as of the effective date of this ALUCP.~~
	No part of the Community Planning Area or neighborhood is in the Safety Zone.

Land Use Category [2]	Safety Zones					Conditions	Occupancy Factor [3]
	1	2	3	4	5		
INDUSTRIAL							
~~Junkyard, Dump, Recycling Center, Construction Yard~~							~~N/A~~
Manufacturing/Processing - General						Zones 2, 3, 4, 5: Compatible if development intensity does not exceed the NR limits shown above.	300
Manufacturing/Processing of Biomedical Agents, Biosafety Levels 3 and 4 Only [6]							N/A
Manufacturing/Processing of Hazardous Materials						Zone 5: Compatible only if needed for airport/aviation-related purpose, provided that development intensity does not exceed the NR limits shown above.	300
Mining, Extractive Industry						~~Zones 2, 3, 4, 5: Allow if development intensity does not exceed the NR limits shown above.~~	~~1,000~~ N/A
Recycling Center Handling Inorganic Matter, Construction/Material Storage Yard							N/A
Research and Development - Scientific, Technical						Zones 2, 3, 4, 5: Compatible if development intensity does not exceed the NR limits shown above.	300
Sanitary Landfill, Refuse Disposal, Junkyard, Dump, Recycling Centers Handling Organic Material or Tires.							N/A
Self-storage Facility, Moving/Storage Facility							N/A
Warehousing/Distribution Facility - General						Zones 2, 3, 4, 5: Compatible if development intensity does not exceed the NR limits shown above.	1000 ~~N/A~~
Warehousing/Storage of Biomedical Agents, Biosafety Levels 3 and 4 Only [6]							N/A
Warehousing/Storage of Hazardous Materials						Zone 5: Compatible only if needed for airport/aviation-related purpose, provided that development intensity does not exceed the NR limits shown above.	1,000

Table H-5 (5 of 7)Updated Safety Compatibility Standards

Community Planning Area - Neighborhood	Density/Intensity for Conditional Uses																			
	Safety Zones																			
	2E		2W		3NE		3SE		3NW		3SW		4E		4W		5N		5S	
	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR
Balboa Park	0‡	96											0‡	240						
Downtown - Cortez	0‡	96					210	842					0‡	240						
Downtown - East Village													0‡	240						
Downtown - Little Italy	40	255					154	732											0‡	180
Midway - Pacific Highway	46	191			0‡	180			44	198							0‡	180		
Ocean Beach															31	240				
Peninsula - NTC			0‡	127					0‡	180	0‡	235								
Peninsula - Other Neighborhoods			20	96					10	180	9	180			36	240				
Uptown	58	272			62	278	164	674												
Persons per household for mixed-use projects [1]	1.51		2.35		1.48		1.57		2.27		2.23		n/a		2.14		n/a		n/a	

R	Maximum compatible residential density, in dwelling units per acre.
NR	Maximum compatible nonresidential intensity, in people per acre.
‡	No dwellings are in the part of the CPA or neighborhood within the indicated Safety Zone. New dwellings are not compatible in this area. ~~unless the parcel was designated for residential use in the City land use plans as of the effective date of this ALUCP.~~
	No part of the Community Planning Area or neighborhood is in the Safety Zone.

Land Use Category [2]	Safety Zones					Conditions	Occupancy Factor [3]
	1	2	3	4	5		
TRANSPORTATION, COMMUNICATION, UTILITIES							
Auto Parking						Zone 1: Structures not permitted. Surface lots are compatible only outside the runway safety area (RSA) and runway object free area (ROFA), provided an avigation easement is granted to Airport operator for portion of use in Zone 1.	N/A
Electrical Power Generation Facility (Large) - Solar/Photovoltaic Power Facility (≥1MW), Wind Turbine Facility (≥100 kW), Battery Energy Storage System							N/A
Electrical Power Generation Facility (Small) – Solar/Photovoltaic Array (<1 MW), Wind Turbine Facility (<100 kW)						Zones 2, 3, 4: Compatible if development intensity does not exceed the NR limits shown above.	1,000 ~~N/A~~
Electrical Substation							N/A
Emergency Communications Facility							N/A
Flood Control Facility							N/A
Marine Cargo Terminal							N/A
Marine Passenger Terminal						Zones 3, 4: Compatible if development intensity does not exceed the NR limits shown above.	200
Transit Center, Bus/Rail Station						Zones 3, 4: Compatible if development intensity does not exceed the NR limits shown above.	200
Transportation, Communication, Utilities - Other						Zones 2, 3, 4, 5: Compatible if development intensity does not exceed the NR limits shown above.	1,000
Truck Terminal							N/A
Water, Wastewater Treatment Plant						Zones 3, 4: Compatible only if no alternative sites outside the zones are available and feasible for development.	1,000
Wireless Communication/Transmission Facility, Excluding Emergency Communications							N/A

Table H-5 (6 of 7)Updated Safety Compatibility Standards

Community Planning Area - Neighborhood	Density/Intensity for Conditional Uses																			
	Safety Zones																			
	2E		2W		3NE		3SE		3NW		3SW		4E		4W		5N		5S	
	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR
Balboa Park	0‡	96											0‡	240						
Downtown - Cortez	0‡	96					210	842					0‡	240						
Downtown - East Village													0‡	240						
Downtown - Little Italy	40	255					154	732											0‡	180
Midway - Pacific Highway	46	191			0‡	180			44	198							0‡	180		
Ocean Beach															31	240				
Peninsula - NTC			0‡	127					0‡	180	0‡	235								
Peninsula - Other Neighborhoods			20	96					10	180	9	180			36	240				
Uptown	58	272			62	278	164	674												
Persons per household for mixed-use projects [1]	1.51		2.35		1.48		1.57		2.27		2.23		n/a		2.14		n/a		n/a	

R	Maximum compatible residential density, in dwelling units per acre.
NR	Maximum compatible nonresidential intensity, in people per acre.
‡	No dwellings are in the part of the CPA or neighborhood within the indicated Safety Zone. New dwellings are not compatible in this area. ~~unless the parcel was designated for residential use in the City land use plans as of the effective date of this ALUCP.~~
	No part of the Community Planning Area or neighborhood is in the Safety Zone.

Land Use Category [2]	Safety Zones					Conditions	Occupancy Factor [3]
	1	2	3	4	5		
RECREATION, PARK, OPEN SPACE							
Arena, Stadium, Fairground							N/A
Botanical Garden, Arboretum, Zoological Park							N/A
Campground							N/A
Cemetery							N/A
Entertainment Facility - Outdoor							N/A
Golf Course						~~Zone 1: Structures not permitted. Surface lots are compatible only outside the runway safety area (RSA) and runway object free area (ROFA), provided an avigation easement is granted to Airport operator for portion of use in Zone 1.~~	N/A
~~Golf Course Clubhouse~~						~~Zones 2, 3, 4, 5: Allow if development intensity does not exceed the NR limits shown above.~~	~~170~~
Marina						Zones 3, 4, 5: Compatible if development intensity of buildings does not exceed the NR limits shown above.	170
Park, Open Space, ~~Recreation~~						Zone 1: Structures not permitted. An avigation easement must be granted to Airport operator for portion of use in Zone 1.	N/A
~~Park, Open Space~~, Recreation Facility (Outdoor)							N/A

Table H-5 (7 of 7)Updated Safety Compatibility Standards

Community Planning Area - Neighborhood	Density/Intensity for Conditional Uses																			
	Safety Zones																			
	2E		2W		3NE		3SE		3NW		3SW		4E		4W		5N		5S	
	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR	R	NR
Balboa Park	0‡	96											0‡	240						
Downtown - Cortez	0‡	96					210	842					0‡	240						
Downtown - East Village													0‡	240						
Downtown - Little Italy	40	255					154	732											0‡	180
Midway - Pacific Highway	46	191			0‡	180			44	198							0‡	180		
Ocean Beach															31	240				
Peninsula - NTC			0‡	127					0‡	180	0‡	235								
Peninsula - Other Neighborhoods			20	96					10	180	9	180			36	240				
Uptown	58	272			62	278	164	674												
Persons per household for mixed-use projects [1]	1.51		2.35		1.48		1.57		2.27		2.23		n/a		2.14		n/a		n/a	

R	Maximum compatible residential density, in dwelling units per acre.
NR	Maximum compatible nonresidential intensity, in people per acre.
‡	No dwellings are in the part of the CPA or neighborhood within the indicated Safety Zone. New dwellings are not compatible in this area. ~~unless the parcel was designated for residential use in the City land use plans as of the effective date of this ALUCP.~~
	No part of the Community Planning Area or neighborhood is in the Safety Zone.

Land Use Category [2]	Safety Zones					Conditions	Occupancy Factor [3]
	1	2	3	4	5		
AGRICULTURE							
Agriculture, Horticulture, Floriculture, Forestry						~~Zone 1: Compatible only if it does not attract wildlife, including birds, per FAA AC 150.5300-12, Sections 202.g. and 212.a.(2)(a), provided an avigation easement is granted to Airport operator for portion of use in Zone 1.~~	N/A
Aquaculture							N/A

LEGEND

	Compatible Use: Use is compatible within indicated safety zone.
	Conditional Use: Use is compatible subject to stated conditions.
	Incompatible Use: Use is not compatible under any circumstances. See Section ~~1.6.1~~ 1.3 for policy regarding existing incompatible uses.

NOTES

1	For details on persons per household data, refer to Appendix H, Attachment 2.
2	Refer to Appendix A for definitions of land uses in this table. Land uses not specifically listed must comply with standards for the most similar land use, in accordance with Policy S.13.
~~3~~	Occupancy factor expressed as square feet per person for nonresidential uses in structures. The occupancy factor is multiplied by the gross floor area of proposed buildings (in square feet) to determine the intensity of proposed nonresidential uses. N/A means "not applicable", since the land use does not involve the construction of habitable, nonresidential buildings.
4	While this is classified as a residential use, it does not include conventional dwelling units. Thus, only the NR intensity limits apply.
5	"Capacity" is the maximum building occupancy allowed by applicable health and safety codes.
6	Biosafety Level 3 facilities handle agents that cause serious or potentially lethal disease through inhalation. Biosafety Level 4 facilities handle agents that cause life-threatening disease for which there are no vaccines or treatments.

SOURCE: Ricondo & Associates, Inc., June 2024, adapted from *San Diego International Airport Land Use Compatibility Plan*, May 2014 (amended), Table 3-1, pp.3-5 - 3-9.

H.5 SUMMARY

The safety zone configuration in the 2014 ALUCP remains suitable for the updated ALUCP, with adjustments to SZ 1 on the east and west ends of the runway to reflect the RPZs on the current version of the ALP.

Several policy refinements are proposed:

- Policy S.2, Uses Allowed in Safety Zone 1 – Revise to address updated FAA guidance for RPZs.
- Policy S.6, Nonresidential Projects with a Single Use – Define "gross occupied area" as including gross floor area and any outdoor seating areas.
- Policy S.8, Mixed-Use Projects – Revise to improve clarity. Add definition of "mixed-use project" to specify a minimum proportion of nonresidential land use to quality as "mixed-use." Remove references to "live/work projects."
- Policy S.9, Ancillary Uses – Revise the definition of ancillary uses to include uses intended for the "exclusive use," rather than the "primary use," of the occupants of the land use.
- Policy S.11, Building Location Within Two or More Safety Zones – Revise to address situations where a parcel is in two or more safety zones and partly outside any safety zone.
- Policy S.12, Building Located Equally Within Two or More Safety Zones – Eliminate as unnecessary. Policies S.10 and S.11 adequately address the situation.
- Policy S.14, New Uses in Existing Buildings – Revise to improve clarity.
- Section 1.6.1.2, existing uses incompatible with the safety standards – Revise to clearly address how the standards apply to incompatible uses (red uses in Table H-5) in addition to uses that do not conform to the land use compatibility conditions (yellow uses in Table H-5). Add standards for proposed land use changes in Safety Zone 1.

For the most part, the safety compatibility standards in the 2014 ALUCP remain valid. Refinements presented in Table H-5 should be made, as discussed in Section H.4.2.

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Attachment 1

Runway 27 Protection Zone Analysis – San Diego International Airport

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RICONDO®

MEMORANDUM

Date: June 29, 2023

To: Ralph Redman
San Diego County Regional Airport Authority

From: David Ramacorti

Subject: RUNWAY 27 PROTECTION ZONE ANALYSIS – SAN DIEGO INTERNATIONAL AIRPORT

As requested, Ricondo & Associates, Inc. (Ricondo) has evaluated the feasibility of establishing an instrument approach procedure to Runway 27 at the San Diego International Airport (SAN or the Airport) with visibility minimums lower than one statute mile. This correlates to the lowest landing visibility minimums available for any of the published instrument approach procedures currently serving Runway 27. This evaluation was performed to support the safety area analysis for the ongoing Airport Land Use Compatibility Plan (ALUCP) update. It is intended to ascertain the potential for an increase in the size of the approach Runway Protection Zone (RPZ) in the future in accordance with the RPZ design standards contained in Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5300-13B, *Airport Design*.

This evaluation concluded that it is highly unlikely that the visibility minimums associated with an instrument approach to Runway 27 would ever be lower than one mile. With the current approach lighting system (MALS)[1], the lowest permissible visibility minimum is ¾ mile. To achieve this, however, the following modifications would need to occur:

- For Category C and D aircraft (i.e., approach speeds between 121 and 166 knots, including most jet aircraft), the published Minimum Descent Altitude (MDA), Decision Height (DH), or Decision Altitude (DA) would need to be reduced to 400 feet above the touchdown zone elevation (TDZE) or less.
- Due to existing terrain and obstacles, this is not achievable for existing instrument approach procedures. The lowest MDA/DH/DA associated with current instrument approach procedures serving Runway 27 is approximately 600 feet above the TDZE.

Another option to reducing the visibility minimums would be to install an Instrument Landing System (ILS) or Localizer Performance with Vertical Guidance (LPV) on Runway 27. Typically, the installation of a Category I ILS or LPV can achieve visibility minimums as low as ½ mile. However, the lowest achievable visibility minimums with an ILS or LPV on Runway 27 at SAN would be greater than one mile, due to the presence of obstacles in the final approach segment of the approach for Category C and D aircraft.

The following is a more detailed summary of the analyses to justify the conclusion that achieving landing minimums of less than one mile on Runway 27 is not likely.

[1] MALS – Medium Intensity Approach Lighting System

General Visibility Minimums and RPZ Criteria:

Approach RPZ dimensional criteria are predicated on the aircraft approach category, airplane design group (ADG), and the lowest visibility minimums prescribed for any instrument approach procedure serving the runway. The approach RPZ dimensional criteria for runways serving aircraft approach category C and D aircraft with an ADG V aircraft are summarized in **Table 1**. ADG V includes aircraft with a wingspan of at least 171 feet and up to 214 feet, which includes the Boeing 777, Boeing 787 and Airbus A330 aircraft.

TABLE 1 – APPROACH RUNWAY PROTECTION ZONE DIMENSIONAL STANDARDS – AIRCRAFT APPROACH CATEGORY C/D/E AND AIRPLANE DESIGN GROUP V

DIMENSION	VISUAL (3 MILES OR MORE)	NOT LOWER THAN 1 MILE[1]	NOT LOWER THAN ¾ MILE	LOWER THAN ¾ MILE
Length	1,700 ft.	1,700 ft.	1,700 ft.	2,500 ft.
Inner Width	500 ft.	500 ft.	1,000 ft.	1,000 ft.
Outer Width	1,010 ft.	1,010 ft.	1,510 ft.	1,750 ft.

NOTES:
ft. – feet
miles are in statute miles
1/ Current dimensions of Runway 27 approach RPZ.
SOURCE: Federal Aviation Administration, Advisory Circular 150/5300-13B, *Airport Design*, March 31, 2022.

Visibility minimums criteria for an instrument approach procedure are prescribed in FAA Order 8260.3E, *United States Standards for Terminal Instrument Procedures (TERPS)*. The visibility minimums are predicated on:

- type of approach lighting system serving the runway; and
- presence of obstacles within the final and/or missed approach segment of the approach.

Approach Visibility Considerations:

As depicted on the currently approved Airport Layout Plan (ALP) for the Airport, the existing and future approach RPZ associated with Runway 27 is configured to accommodate instrument approach procedures with visibility minimums as low as one mile for Category C and D aircraft. Due to the presence of obstacles, the lowest visibility minimum published for any of the instrument approach procedures currently serving Runway 27 at SAN is one mile. However, the one-mile visibility minimum applies only to Aircraft Approach Category A and B aircraft (approach speeds less than 121 knots). For Aircraft Approach Category C and D aircraft, the visibility minimums are 1 ¾ miles or higher. As shown in **Table 2**, there are currently four published instrument approach procedures with these minimums:

- Localizer Only Approach;
- Area Navigation (RNAV) (Global Positioning System [GPS]) Y – Localizer Performance;
- Required Navigation Performance (RNP) 0.30 DA; and
- RNAV (GPS) Y – Lateral Navigation (LNAV).

TABLE 2 – LOWEST VISIBILITY MINIMUMS FOR CURRENTLY PUBLISHED INSTRUMENT APPROACH PROCEDURES SERVING RUNWAY 27 [1/]

APPROACH PROCEDURE	AIRCRAFT APPROACH CATEGORY A	AIRCRAFT APPROACH CATEGORY B	AIRCRAFT APPROACH CATEGORY C	AIRCRAFT APPROACH CATEGORY D
Localizer:				
Straight-in	1	1	1 ¾	1 ¾
RNAV (GPS) Y:				
Localizer Performance	1	1	1 ¾	1 ¾
LNAV	1	1	1 ⅞	1 ⅞
RNP:				
RNP 0.11 DA	1 ½	1 ½	1 ½	1 ½
RNP 0.30 DA	2	2	2	2

NOTES:
1/ All values in statute miles.
DA – Decision Altitude
GPS – Global Positioning System
LNAV – Lateral Navigation
RNAV – Area Navigation
RNP – Required Navigation
SOURCE: Federal Aviation Administration, Instrument Approach Procedures, as of May 22, 2022.

Approach Lighting System (ALS) Considerations:

Runway 27 is currently equipped with a Medium Intensity Approach Light System (MALS). This type of ALS is classified as an Intermediate Approach Lighting System (IALS). In accordance with US Standard for Terminal Instrument Procedures (TERPS), the lowest visibility minimums that can be achieved for runways equipped with an IALS is ¾ mile.

To achieve visibility minimums lower than one mile, but greater than ¾ mile for Category C and D aircraft, significant obstruction mitigation (involving buildings), relocation of the PAPI, and/or displacement of the landing threshold will be required.

To achieve visibility minimums lower than ¾ mile for category C and D aircraft, Runway 27 will need to be equipped with an ALS that is classified as a full approach lighting system (FALS). The following ALSs fall into the FALS classification:

- Standard Approach Lighting System with Sequenced Flashers (ALSF-1);
- Standard Approach Lighting System with Sequenced Flashers and Category (CAT) II Modification (ALSF-2)
- Simplified Short Approach Lighting System with Runway Alignment Indicator Lights (SSALR); and
- Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR).

A FALS is typically associated with a precision instrument approach, such as an ILS or LPV approach. Typically, a FALS is not installed to support a runway with only non-precision approaches. Therefore, to achieve the lower landing minimums associated with a FALS (below ¾ mile), the runway will also need to be served with a precision approach.

The MALS that currently serves Runway 27 extends approximately 1,400 feet from the landing threshold. A FALS would have an overall length ranging between 2,400 feet to 3,000 feet. At a minimum of 2,400 feet from the existing Runway 27 threshold, this will cause the ALS to extend through the intersection of West Laurel Street and Pacific Highway and into the Valero Gas Station. At the maximum length of 3,000 feet, the ALS would extend beyond the Amtrack rail line and Kettner Boulevard. The need to extend the ALS off-Airport property could be mitigated by displacing the landing threshold of Runway 27 by a minimum of 1,000 feet, resulting in a Landing Distance Available (LDA) of 6,591 feet or less for Runway 27.

Consideration for Obstructions:

The visibility minimums associated with a published instrument approach procedure must be increased in the presence of obstructions. The increase in the visibility minimums is predicated on the resulting DH, DA, or MDA established for each approach procedure and the type of approach lighting system.

As shown in **Table 3**, Runway 27 is currently served by non-precision instrument approaches that have an MDA ranging from a height of 600 feet above touchdown elevation to 940 feet above touchdown elevation. In accordance with TERPS, the lowest visibility minimums achievable for Category C and D aircraft with an MDA/DH/DA of 600 feet above touchdown zone elevation is 1 $^{3}/_{8}$ mile. However, the lowest visibility minimums that are currently published for Category C and D aircraft is 1 ¾ mile.

To achieve visibility minimums less than one mile with the establishment of a precision approach to Runway 27, a DH or DA of less than 460 feet will be required. A preliminary obstruction analysis was performed and concluded that the lowest DH/DA for a precision approach will also be approximately 600 feet above touchdown zone elevation. On that basis, the lowest visibility minimum for Category C and D aircraft for a precision approach would also be 1 $^{3}/_{8}$ mile or greater. The critical building obstruction, at a maximum elevation of 318 feet, was identified as the San Diego Air and Space Museum at 2001 Pan American Plaza.[2] Hundreds of other structures, including 72 buildings, will also have to be lowered to achieve a DH/DA of less than 460 feet above touchdown zone elevation.

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[2] The building is in Balboa Park. The park is on the National Register of Historic Places (https://nationalregisterofhistoricplaces.com/ca/san+diego/state.html, accessed June 13, 2023).

TABLE 3 – LOWEST MDA/DH/DA FOR CURRENTLY PUBLISHED INSTRUMENT APPROACH PROCEDURES SERVING RUNWAY 27 [1/]

APPROACH PROCEDURE	AIRCRAFT APPROACH CATEGORY A	AIRCRAFT APPROACH CATEGORY B	AIRCRAFT APPROACH CATEGORY C	AIRCRAFT APPROACH CATEGORY D
Localizer:				
Straight-in	680	680	680	680
Circling	820	820	820	940
RNAV (GPS) Y:				
Localizer Performance	680	680	680	680
LNAV	760	760	760	760
Circling	820	820	820	940
RNP:				
RNP 0.11 DA	600	600	600	600
RNP 0.30 DA	761	761	761	761

NOTES:
1/ All values in feet above mean sea level.
DA – Decision Altitude (Precision Approach - GPS)
DH – Decision Height (Precision Approach – ILS)
GPS – Global Positioning System
LNAV – Lateral Navigation
MDA – Minimum Descent Altitude (Non-precision Approach)
RNAV – Area Navigation
RNP – Required Navigation Performance
SOURCE: Federal Aviation Administration, Instrument Approach Procedures, as of May 22, 2022.

cc: 21-14-1229-4.4.3.4.3.2

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Attachment 2

2014 Airport Land Use Compatibility Plan Analysis – Conditionally Compatible Uses

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E3.5.3 Scope of Safety Policies and Standards

Based on the guidance provided in the 2011 Handbook, land use policies and standards related to safety should recognize the potential severity of consequences of aircraft accidents while recognizing the potential probability of accidents in areas near the airport. The Handbook advises a policy framework that would prohibit highly sensitive land uses in the safety zones and limit the density of housing and the intensity of occupancy in nonresidential land uses. In applying this guidance, the land use restrictions would be stricter in the safety zones with higher accident risks.[15]

The Handbook also acknowledges that safety compatibility policies and standards in urbanized areas must recognize the existing development pattern in the airport vicinity. In urbanized areas, ALUCP policies must acknowledge that some redevelopment is likely in the future. At the same time, the ALUCP should incorporate realistic limits on the density and intensity of redevelopment to ensure that the existing land use incompatibilities are not increased.

In this ALUCP, the Handbook guidance has been applied by assigning land uses into three compatibility categories:

- *Compatible* land uses are consistent with the ALUCP
- *Conditionally compatible* land uses are consistent only if applicable conditions are met
- *Incompatible* land uses are inconsistent with the ALUCP

E3.5.3.1 Compatible Uses

Compatible land uses are consistent with the safety policies and standards of this ALUCP.

E3.5.3.2 Conditionally Compatible Uses

Conditionally compatible uses are those that can be made compatible within the safety zones if they are developed in compliance with certain conditions. The conditions of broadest applicability are limits on residential density and on the occupancy level of nonresidential uses, expressed as "intensity" (the number of people per acre).

In urban and dense urban areas, the Handbook advises that new dwellings should be allowed in SZ3, 4 and 5 only up to the average density of the surrounding residential area. The Handbook also advises that no new residential development be allowed within SZ2. In the area surrounding SDIA, large proportions of SZ2 on both sides of the Airport are developed with existing residential use. An outright prohibition of new residential development in these areas could set the stage for disinvestment in these neighborhoods and the onset of blight. For that reason, the approach recommended in the Handbook for SZ3, 4, and 5 was also applied to SZ2 in the area surrounding SDIA.

[15] California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011, pp. 4-17 – 4-34.

For nonresidential land uses, the Handbook offers different guidance for "urban" areas compared to "dense urban" areas. In urban areas, the Handbook advises maximum nonresidential intensities ranging from 60 to 200 people per acre, depending on the safety zone. (Refer to **Table E3-2** for details.) In dense urban areas, the Handbook advises that new nonresidential development should not exceed the average intensity of comparable surrounding uses.

Standards for Conditionally Compatible Residential Uses

In the safety zones where residential uses are conditionally compatible, the maximum allowable residential densities are set in conformance with the guidance in the Caltrans Handbook – allow new residential development "up to the average of the surrounding residential area." Because the Handbook guidance is general, it is necessary to develop a specific methodology for applying the guidance. For purposes of this ALUCP, the "surrounding residential area" is considered as each part of a CPA or officially designated neighborhood within a CPA within each safety zone. Within each of these areas, a detailed land use inventory was undertaken. The actual densities of all residential lots were calculated and summary statistics for each area were produced.

In setting the maximum allowable residential density in each CPA/safety zone (with the exception of SZ 3SE), the "average" density is taken as 110 percent of the calculated average density in the CPA/safety zone. This was done in recognition of the substantial variation in the actual densities in each CPA/safety zone. It also recognized the infill policy of the previous ALUCP, where new development was allowed at up to 110 percent of the average intensity of uses within a radius of 0.25 miles of the subject site.

Extensive analysis was prepared to assess the unique characteristics of SZ 3SE. This safety zone covers a densely developed area encompassing sections of three distinct neighborhoods. Due to published flight procedures at SDIA, low overflight activity in this area makes SZ 3SE unique when compared to other safety zones. Based on extensive coordination with the Steering Committee, the City of San Diego and Civic San Diego (formerly known as Centre City Development Corporation (CCDC)), the maximum allowable residential density in SZ 3SE is set at two times the calculated average of existing density in each CPA/neighborhood in the safety zone.

While the maximum allowable residential densities vary by CPA and safety zone due to the existing character of each area, the overall density of future development in the affected areas will be generally consistent with the current densities.

Standards for Conditionally Compatible Nonresidential Uses

In the safety zones where nonresidential uses are conditionally compatible, the maximum allowable intensities are set in conformance with the Handbook guidance for urban and dense

urban areas.[16] The actual intensities for all lots in each part of the CPA/neighborhood within each safety zone were calculated based on the detailed land use inventory developed for the area. Summary statistics were produced for each CPA (or neighborhood) by safety zone.

For all safety zones, except SZ 3SE, the maximum allowable intensities are based on the higher of:

- the maximum intensity levels for urban areas suggested in the 2011 *Handbook*, or
- 110 percent of the calculated average nonresidential intensities in the portions of each CPA within each safety zone.[17]

For the same reasons mentioned above, maximum allowable intensity in SZ 3SE is set at two times the calculated average of existing intensity in each CPA/neighborhood in the safety zone.

As with the residential densities, the maximum allowable intensities vary by CPA and safety zone due to the existing character of each area, therefore the allowable intensities of future development in the affected areas will be generally consistent with the current intensities.

Table 3-1 in **Chapter 3** of this ALUCP provides maximum allowable intensities for each nonresidential land use that is conditionally compatible in the safety zones. The occupancy factors, which are used to calculate the intensity of proposed conditionally compatible uses, were derived from the adopted Urban ALUCPs and the California Building Code (CBC). When CBC factors were used, they were adjusted in accordance with guidance from the Caltrans Handbook, Appendix G. The Handbook advises that CBC factors, which are indicators of maximum building occupancy, should be reduced by 50 percent when used to estimate intensity for ALUCPs. The maximum intensity levels in ALUCPs are intended to reflect typical occupancy levels rather than theoretical maximum levels.

Mixed residential-nonresidential development projects are common in San Diego, especially in and near downtown. In accounting for these kinds of development project, the safety standards require that the total intensity of the mixed use project must not exceed the maximum allowable intensity provided for in **Table 3-1** in **Chapter 3**. This policy requires the calculation of the "intensity" of the residential component of these mixed-use projects. This requires the conversion of the housing density to an estimated number of housing occupants – the residential intensity. This is accomplished by multiplying the number of housing units by

[16] In dense urban areas, the Handbook guidance advises setting intensity limits based on the average intensity of comparable surrounding uses. In applying this guidance, "comparable surrounding uses" were considered to be all conditionally allowable nonresidential uses within the portion of the CPA (or neighborhood) within each safety zone. "Average" intensity was taken as 110 percent of the calculated mean intensity of the conditionally allowable existing nonresidential uses. This recognized the wide variation in the actual intensities in each CPA/safety zone. It also recognized the infill policy of the previous ALUCP, where new development was allowed at up to 110 percent of the average intensity of uses within a radius of 0.25 miles of the subject site.

[17] Average nonresidential intensities were calculated for all existing nonresidential land uses that would be conditionally allowed in any of the Safety Zones. Uses classified as "incompatible" were not considered. The occupancy factors presented in Table 3-1 in Chapter 3 were applied to each existing land use to calculate intensity.

an average population per household factor. **Table E3-3** presents the average population per household factors for each safety zone.

Table E3-3 Household Population in Proposed Safety Zones

	Eastside Safety Zone				Westside Safety Zones				Total
	2E	3NE	3SE	4E	2W	3NW	3SW	4W	
Household Population	2,346	1,656	1,934	0	798	961	402	5185	13,282
Total Housing Units	1,558	1,116	1,228	0	340	424	180	2,421	7,267
Average Persons per Household	1.51	1.48	1.57	1.52[1/]	2.35	2.27	2.23	2.14	1.83

NOTE: 1/ The custom report did not report any household population or housing units within Safety Zone 4E. An average persons per household factor for the eastside safety zones was calculated (1.52) and applied to Safety Zone 4E.

Source: SANDAG, October 2012 (custom report prepared for San Diego County Regional Airport Authority).
Prepared by: Ricondo & Associates, Inc., June 2013.

E3.5.3.3 Incompatible Uses

As summarized in **Table E3-2**, the Handbook advises the prohibition of certain land uses in the safety zones. In Safety Zone 1, any structures are to be considered incompatible and should be prohibited. In the other safety zones, only selected land uses are to be considered incompatible.

In this ALUCP, several land uses of special concern are considered incompatible uses in the safety zones. These include uses serving vulnerable populations, uses involving hazardous materials, and critical public utilities.

Uses Serving Vulnerable Occupants

In this ALUCP, "vulnerable occupants" are people with reduced effective mobility. They are subject to relatively greater risks of harm in the event of an aircraft accident than fully ambulatory people. People with reduced effective mobility include the disabled, bedridden and people needing supervision to respond to emergencies and safely evacuate buildings (including, for example, children, the elderly and prisoners). Examples of uses in this category are:

- Children's schools (grades Pre-K-12)
- Assembly - Children
- Day care centers

- Hospitals and convalescent and nursing homes
- Jails and prisons, including other public inmate facilities

Uses Involving Hazardous Materials

Facilities involving the manufacture, processing, or storage of large quantities of highly flammable, explosive, corrosive, or toxic materials can pose serious risk to the public in case of aircraft accidents. Examples are:

- Facilities such as oil refineries and chemical plants that process and store bulk quantities (tank capacities greater than 10,000 gallons) of highly hazardous materials
- Facilities where hazardous materials are stored primarily for use at an otherwise compatible land use (such as warehouses for compressed gases)
- Explosives and fireworks manufacturing and storage
- Medical and biological research facilities handling substantial quantities of highly toxic or infectious agents

Critical Community Infrastructure

This category includes facilities that, if severely damaged in an aircraft accident, cause significant problems for public health, safety, or welfare beyond the immediate vicinity of the facility. Examples are:

- Water and wastewater treatment plants
- Electrical power generation plants
- Electrical power substations
- Emergency communications facilities
- Public emergency services, including fire and police stations

ESTABLISHING MAXIMUM COMPATIBLE RESIDENTIAL DENSITIES AND NONRESIDENTIAL INTENSITIES

The information in this section was prepared as part of the analysis supporting the 2014 ALUCP but was not published with the final ALUCP document.

* * *

Table E3-3-3.1 presents the residential densities and nonresidential intensities calculated for each CPA/neighborhood in the safety zones based on the 2011 land use inventory. The fourth and fifth columns in the table present the 2014 ALUCP standards that were based, in part, on the analysis of land use inventory data. As discussed in Section E3.5.3.2, the 2014 ALUCP density standards for all but Safety Zone 3SE were based on 110 percent of the inventoried densities. The intensity standards for all but Safety Zone 3SE were based on the greater of 110 percent of the calculated intensity or the maximum urban intensity (adjusted per net acre) provided in the Caltrans Handbook.[35] In Safety Zone 3SE, the standards were set at 200 percent of the inventoried densities. [36]

[35] California Department of Transportation, Division of Aeronautics, *California Airport Land Use Planning Handbook*, October 2011 (Figures 4B through 4F, pp. 4-20 through 4-24).

[36] Airport Land Use Commission, San Diego County Regional Airport Authority, *San Diego International Airport Land Use Compatibility Plan*, May 2014 (amended), p. E-64.

Table E3-3.1 (1 of 2) Density and Intensity in Safety Zones and Community Planning Areas/Neighborhoods

Safety Zone, CPA/Neighborhood	Per 2011 Land Use Inventory		2014 ALUCP Standards	
	Residential Density	Nonresidential Intensity	Residential Density[1]	Nonresidential Intensity [2]
Safety Zone 2E				
Balboa Park	0	0	0	96[4]
Downtown - Cortez	0	0	0	96[4]
Downtown - Little Italy	36	232	40	255
Midway-Pacific Highway	42	174	46	191
Uptown	53	247	58	272
Safety Zone 2W				
Peninsula - NTC	0	115	0	127
Peninsula - Other Neighborhoods	18	0	20	96[4]
Safety Zone 3NE				
Midway-Pacific Highway	0	95	0	180[4]
Uptown	56	253	62	278
Safety Zone 3NW				
Midway-Pacific Highway	40	180	44	198
Peninsula - NTC	0	113	0	180[4]
Peninsula - Other Neighborhoods	9	0	10	180[4]
Safety Zone 3SE[3]				
Downtown - Cortez	105	421	210	842
Downtown - Little Italy	77	366	154	732
Uptown	82	337	164	674

Table E3-3.1 (2 of 2) Density and Intensity in Safety Zones and Community Planning Areas/Neighborhoods

Safety Zone, CPA/Neighborhood	Per 2011 Land Use Inventory		2014 ALUCP Standards	
	Residential Density	Nonresidential Intensity	Residential Density[1]	Nonresidential Intensity [2]
Safety Zone 3SW				
Peninsula – NTC	0	214	0	235
Peninsula – Other Neighborhoods	8	0	9	180[4]
Safety Zone 4E				
Balboa Park	0	13	0	240[4]
Downtown – Cortez	0	0	0	240[4]
Downtown – East Village	0	0	0	240[4]
Safety Zone 4W				
Ocean Beach	28	0	31	240[4]
Peninsula – Other Neighborhoods	33	194	36	240[4]
Safety Zone 5N				
Midway-Pacific Highway	0	50	0	180[4]
Safety Zone 5S				
Downtown – Little Italy	0	57	0	180[4]

NOTES:

CPA – Community Planning Area

Residential density is expressed in number of dwelling units per acre.

Nonresidential intensity is expressed in number of occupants per acre.

1 Except for Safety Zone 3SE, the density standards are set at 110 percent of the inventoried densities.

2 Except for Safety Zone 3SE, the intensity standards in each CPA/neighborhood are set at the greater of (1) 110 percent of the inventoried intensities or (2) the suggested Handbook intensities for urban areas, listed in Table H-3 in Appendix H.

3 In Safety Zone 3SE, the standards are set at 200 percent of the inventoried densities and intensities.

4 Nonresidential intensity is based on the Handbook guidance for urban areas.

SOURCE: Ricondo & Associates, Inc., June 2024, based on 2012 Ricondo analysis of 2011 land use inventory.

DETERMINING AVERAGE PERSONS PER HOUSEHOLD

The following material is quoted from the 2014 ALUCP, Section E3.5.3.2, pages E-65 and E-66.

> Mixed residential-nonresidential development projects are common in San Diego, especially in and near downtown. In accounting for these kinds of development projects, the safety standards require that the total intensity of the mixed-use project must not exceed the maximum allowable intensity provided for in **Table 3-1** in **Chapter 3**. This policy requires the calculation of the "intensity" of the residential component of these mixed-use projects. This requires the conversion of the housing density to an estimated number of housing occupants – the residential intensity. This is accomplished by multiplying the number of housing units by an average population per household factor. **Table E3-3** presents the average population per household factors for each safety zone.

Table E3-3 Household Population in Proposed Safety Zones

Data Category	Eastside Safety Zone				Westside Safety Zones				Total
	2E	3NE	3SE	4E	2W	3NW	3SW	4W	
Household Population	2,346	1,656	1,934	0	798	961	402	5185	13,282
Total Housing Units	1,558	1,116	1,228	0	340	424	180	2,421	7,267
Average Persons per Household	1.51	1.48	1.57	1.52[1] [*sic*]	2.35	2.27	2.23	2.14	1.83

NOTE:

1 SANDAG's population analysis did not report any household population or housing units within Safety Zone 4E. An average persons per household factor for all eastside safety zones was calculated (1.52) and applied to Safety Zone 4E.

SOURCE: SANDAG, October 2012 (custom population analysis report prepared for San Diego County Regional Airport Authority).

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