Appendix I

Johnson Aviation Report

APPENDIX F: AIRPORT LAND USE COMPATIBILITY REPORT

Please see the next page.

City of San Luis Obispo

General Plan Update, Land Use & Circulation Element (LUCE)

Airport Land Use Compatibility Report - DRAFT

November 22, 2013

As updated June 2014 (see enclosed errata for overview of updates included)

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Errata Sheet

This errata sheet describes modifications to the finalized Airport Land Use Compatibility Report that clarify information or update data. Editorial changes such as sentence structure, word choice, punctuation, use of acronyms, spacing, style, spelling and capitalization have also been made, but are not recorded.

Page	Description
E-1	Clarification regarding forecasts.
2	Clarification regarding Airport Area Specific Plan (AASP).
5	Update to Figure 1-3 – Study Area.
6	Clarification regarding GIS mapping of Airport Land Use Commission's (ALUC's) Draft Dimensional Detail of Airport Safety Zones document and submittal and review of City's General Plan by the ALUC.
11	Clarification of California Airport Land Use Planning Handbook safety zone configurations.
14	Clarification regarding density and intensity and compatibility with airport activities.
38	FAA Terminal Area Forecast (TAF) shown in Table 5-1 was updated to reflect operational numbers released in January, 2014.
39	Forecast numbers updated in narrative to reflect FAA TAF operational numbers released in January, 2014.
41	FAA TAF numbers shown in Table 5-2 were updated to reflect operational numbers released in January, 2014.
59	Update to Figure 8-2 – Existing Land Uses.
66	Clarification regarding GIS mapping of ALUC's Draft Dimensional Detail of Airport Safety Zones document.
67	Update to Figure 8-4 – GIS-Mapped ALUP Safety Zones Compared to Handbook Safety Zones.
68	Clarification regarding GIS mapping of ALUC's Draft Dimensional Detail of Airport Safety Zones document.
70	Update to Table 9-1 to reflect recommendation to use California Airport Land Use Handbook density and land use surrounding airport.

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EXECUTIVE SUMMARY

The purpose of this Airport Land Use Compatibility Report is to establish the basis for the airport-area policies chapter in the City of San Luis Obispo General Plan, Land Use and Circulation Element (LUCE) Update.

This Report also provides updated technical information on the progress of airport development and operations since the completion of the most recent San Luis Obispo County Regional Airport (SBP) Master Plan Update. The Master Plan Update was completed in 2003, revised in 2004, and accepted by the Board of Supervisors of the County in 2005. In the 10 years since this planning was completed, much has changed in the aviation industry and as a result the forecasts of aviation activity at SBP require significant updates to align with the Federal Aviation Administration's (FAA's) official Terminal Area Forecast (TAF) for the facility[1]. Airport facilities, operations and related forecasts are critical elements for defining and assessing future land use compatibility. Supporting this updated information is accurate graphical information system (GIS) mapping of the Airport's safety zones, noise impact areas and overflight areas.

The City and the San Luis Obispo County Airport Land Use Commission (ALUC) have been trying to reconcile differences since 2012 between the details of the Airport Land Use Plan (ALUP), the Draft Dimensional Detail of Airport Safety Zones document, and compatible land use zoning within the City limits. The City assisted the ALUC in accurately mapping the assumptions behind the adopted ALUP zones into a GIS format to provide a basis for discussion and suggestions for an update to the ALUP that would balance the interests of the ALUC, the City, and the County. Currently there are four primary areas to resolve between the proposed update to the ALUP and proposed City land use zoning. These generally include:

1. ALUP Maneuvering Zone S-1b size and land use criteria, which are more restrictive than California Airport Land Use Planning Handbook guidelines and criteria.
2. ALUP Sideline Zone S-1c size and land use criteria, which are more restrictive than California Airport Land Use Planning Handbook guidelines and criteria.
3. ALUP Zone S-2 size and land use criteria, which are more restrictive than California Airport Land Use Planning Handbook guidelines and criteria.
4. ALUP aircraft noise contours and associated land use criteria, which are more restrictive than California Airport Land Use Planning Handbook guidelines and criteria, and based on outdated forecasts that are significantly more optimistic than those in the Airport Master Plan Update (2005), FAA forecasts, existing aviation activity, and reasonably foreseeable airport operations at SBP.

It is the intent of the City to continue working with the ALUC to find common ground and resolve these issues. This report provides information about land use compatibility guidelines in the State of California, existing and future facilities and activity at SBP, and other factual information on each of the above points to fully inform the review and deliberation process.

[1] FAA Advisory Circular 150/5070-6B: Airport Master Plans, May 1, 2007. See Sections 205.a.1) "Forecast of Demand" and 704.g. "Approval of Forecasts" for FAA planning review requirements and forecast update requirements.

The recommendations are based on the facts and substantial information that has been reviewed and assembled within this Report.

RECOMMENDATIONS

Recommendation 1: The City should continue to entertain discussions with the County to annex the Airport Area Specific Plan (AASP) area.

Recommendation 2: The City should use the SBP Master Plan forecasts of aviation activity as a reasonably foreseeable projection of ultimate aviation activity sufficient for long-term land use planning purposes, without regard for the date of 2023 because it is uncertain when the forecast levels of activity will be reached and to be consistent with the capital improvement plan for the Airport.

Recommendation 3: The City should use the aircraft noise analysis prepared for the SBP Environmental Assessment/Environmental Impact Report (EA/EIR) as an accurate mapping of the long term noise impact of the Airport's aviation activity that is tied to the ultimate facilities development depicted in the FAA-approved Airport Layout Plan (ALP) and the operational characteristics studied in the EA/EIR.

Recommendation 4: The City should continue working with the ALUC to resolve differences between specific ALUP safety zone configurations, sizes and land use criteria including the following specific recommendations for areas within the City limits:

1. Adopt the GIS-mapped versions of the ALUP Runway Protection Zones (ultimate planned locations based on the FAA-Approved ALP).
2. Adopt the GIS-mapped versions of the ALUP S-1a Inner Approach/Departure Zones.
3. Adopt the GIS-mapped versions of the ALUP S-1b Inner Turning Zones.
4. Adopt the GIS-mapped versions of the ALUP S-1b Outer Approach/Departure Zones.
5. Adopt the GIS-mapped versions of the ALUP S-1b Sideline Zones.
6. Eliminate ALUP Maneuvering Zone S-1b due to the fact that its size, configuration and land use criteria are inconsistent with California Airport Land Use Planning Handbook guidelines and criteria, i.e. there is no such equivalent zone in the Handbook. This zone is also unsubstantiated by the airport's activity forecasts as used for noise planning purposes, historical accident data at SBP, or safety zone adjustment factors as described in Table 3A of the Handbook.
7. Eliminate ALUP Sideline Zone S-1c due to the fact that its size, configuration and land use criteria are more restrictive than California Airport Land Use Planning Handbook guidelines and criteria, i.e. there is no such equivalent zone in the Handbook. This zone is also unsubstantiated by the airport's activity forecasts as used for noise planning purposes, historical accident data at SBP, or safety zone adjustment factors as described in Table 3A of the Handbook.
8. Revise ALUP Zone S-2 size, configuration and land use criteria to be consistent with Zone 6 – Traffic Pattern of the California Airport Land Use Planning Handbook guidelines and criteria.
9. Adopt Title 14 Code of Federal Regulations (CFR) Part 77 surfaces for the safe, efficient use and preservation of navigable airspace as applied to the ultimate ALP for SBP.

Recommendation 5: Land use density and intensity surrounding SBP should be simplified and consistent with Caltrans Airport Land use Planning Handbook guidelines.

Recommendation 6: The City should preserve and maintain as a plausible alternative its constitutional land use authority to overrule the ALUC with regard to adopting an amendment to its General Plan LUCE

that is consistent with the Handbook, State Aeronautics Act and State Law, but only if agreement cannot be reached with the ALUC.

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1 INTRODUCTION

1.1 Purpose

The purpose of this Airport Land Use Compatibility Report (Report) is to establish the basis for the airport-area policies chapter in the City of San Luis Obispo General Plan, Land Use and Circulation Element (LUCE) Update. The San Luis Obispo Regional Airport (SBP or Airport) is located southeast of the City in San Luis Obispo County and its influence area impacts land use in the southern portion of the City. Consistent with the purposes of the California State Aeronautics Act (SAA)[2] and the California Public Utilities Code (PUC)[3], the City's goal in this airport land use compatibility planning effort is to "protect public health, safety, and welfare" by adopting land use measures within the City's jurisdiction that "minimize the public's exposure to excessive noise and safety hazards" near the San Luis Obispo County Airport "to the extent that these areas are not already devoted to incompatible uses." This Report provides the City with a mechanism by which to assess land use compatibility and development surrounding the Airport within the City limits and within those areas near the Airport considered for annexation into the City. The City's ultimate objective is to reach land use decisions that achieve a balance between quality of life, protection of natural assets and open spaces, airport safety, and compatible development that is responsive to the City's economic and quality of life needs.

This Report also provides updated technical information on the progress of airport development and operations since the completion of the most recent Airport Master Plan Update. The Airport Master Plan Update was completed in 2003, revised in 2004, and accepted by the Board of Supervisors of the County in 2005. In the 10 years since this planning was completed, much has changed in the aviation industry and as a result the forecasts of aviation activity reflected in the Airport Master Plan Update require significant updates to align with the Federal Aviation Administration's (FAA's) official Terminal Area Forecast (TAF) for the facility[4]. Existing and planned airport facilities, current operations, and related forecasts are critical elements for defining and assessing future land use compatibility. Supporting this updated information is accurate graphical information system (GIS) mapping of the Airport's safety zones, noise impact areas, and overflight areas.

1.2 Background

The City has been involved in compatible land use planning around the Airport for many years. The Airport is a key economic and transportation asset to the community and its long term viability and protection are critical to the City's future. As the local land use authority within its boundaries, the City is responsible for land use planning and entitlement of associated development.

San Luis Obispo County, as the airport owner and sponsor, completed and adopted an Airport Master Plan for SBP in 2005. In 2006 the County completed and certified an Environmental Assessment (EA) and Environmental Impact Report (EIR) for extension of the main Runway 11/29 and other suggested Airport improvements. In 2010 the County received FAA approval of the Airport Layout Plan (ALP), as

[2] California Public Utilities Code § 21001-21020

[3] California Public Utilities Code § 21670

[4] FAA Advisory Circular 150/5070-6B: Airport Master Plans, May 1, 2007. See Sections 205.a.1) "Forecast of Demand" and 704.g. "Approval of Forecasts" for FAA planning review requirements and forecast update requirements.

shown in *Figure 1-1*, depicting planned airport improvements that were developed through the master plan and environmental process. The Airport has since completed construction on a number of airport improvement projects that were identified in the Master Plan Update. These major projects include:

- Extending Runway 11/29 to 6,100 feet.
- Constructing an engineered material arresting system (EMAS) in the Runway 11/29 safety areas.
- Shifting and shortening Runway 7/25 to remove its intersection with Runway 11/29.
- Service road improvements.

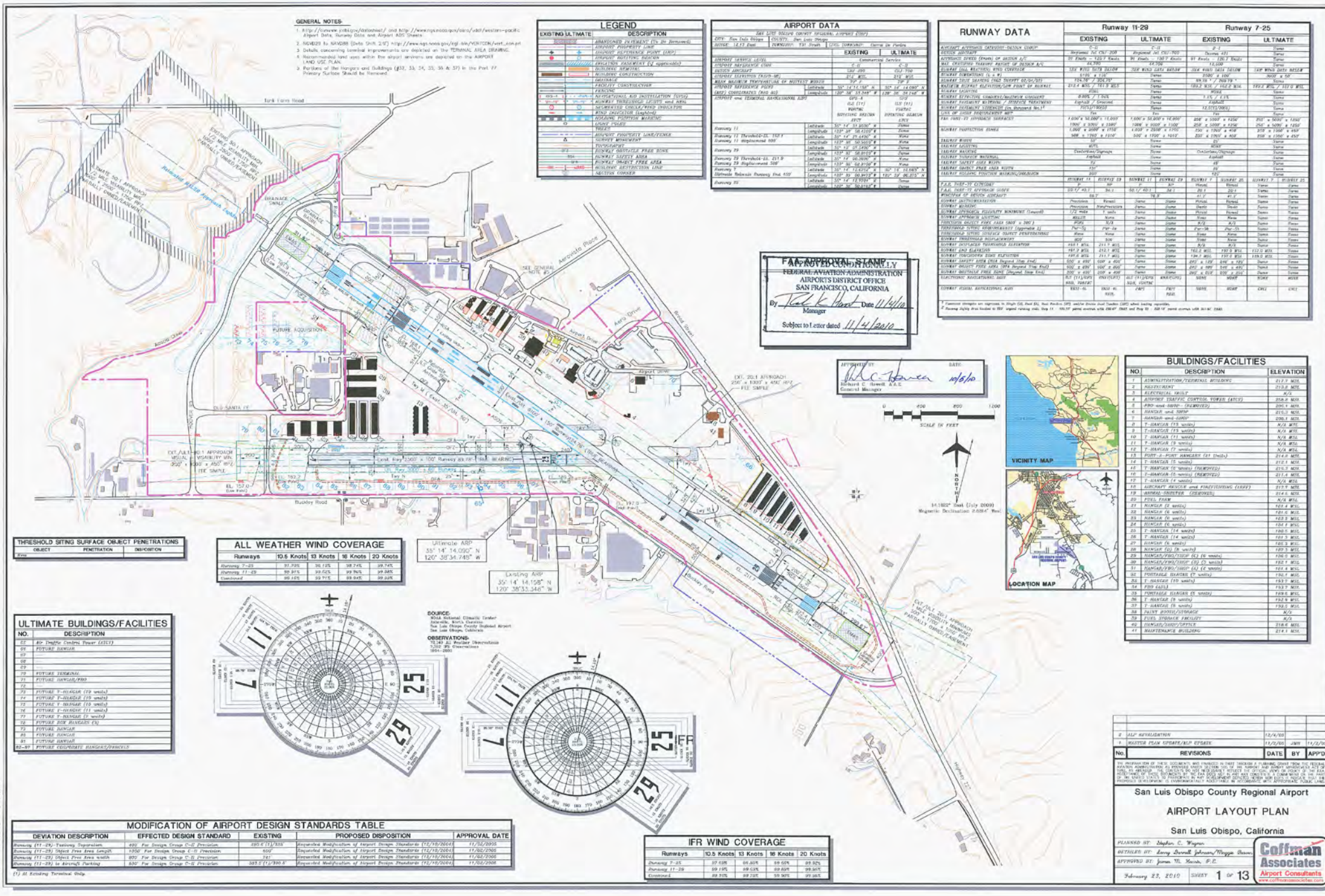
There are a number of other airfield improvements identified in the adopted Master Plan Update and FAA-approved ALP that remain to be completed over time. This Report assumes that these airfield improvements will be completed within the next 20 to 30 years as demand and activity warrant, and as funding is available and justified.

In addition to the areas of the City affected by airport operations, the City has an adopted Airport Area Specific Plan (AASP) that plans for the ultimate annexation of the land surrounding the Airport as well as the Airport property. Some of the land within the AASP has already been annexed but the largest portions still remain outside City limits. The AASP boundary is shown in *Figure 1-2*.

1.3 Study Area

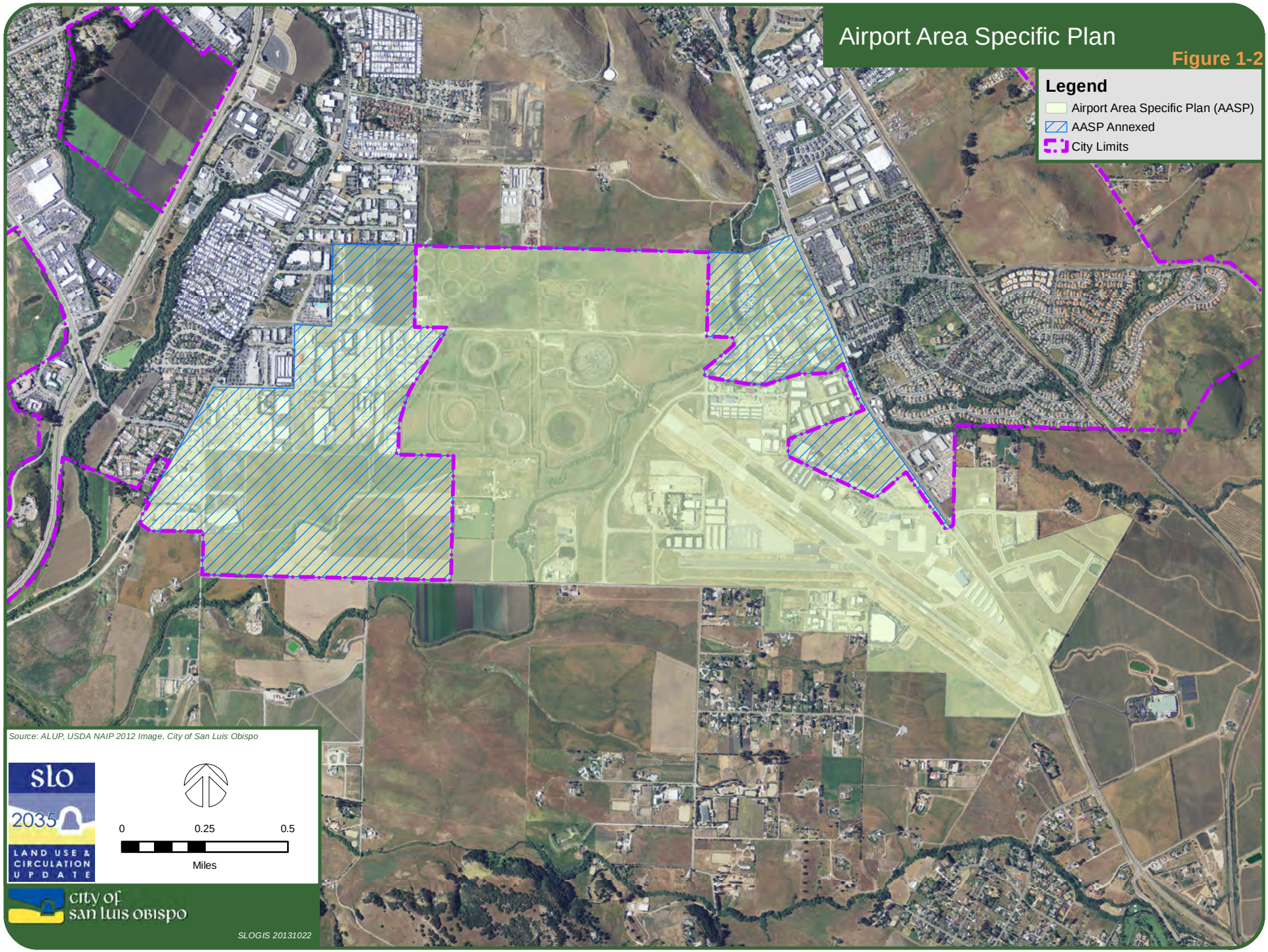
The study area for this Report and analysis is confined to the San Luis Obispo city limits and includes areas adjacent to these City limits that have been considered by the City for annexation in the Airport area (*Figure 1-3*). This study area is a subset of the larger airport influence area (AIA) as defined within the Airport Land Use Plan (ALUP). Specifically, this Report is focused on the area in which current or future airport-related noise, overflight, safety, or airspace protection factors may significantly affect land uses or necessitate restrictions on those uses consistent with the purposes of the State Aeronautics Act.

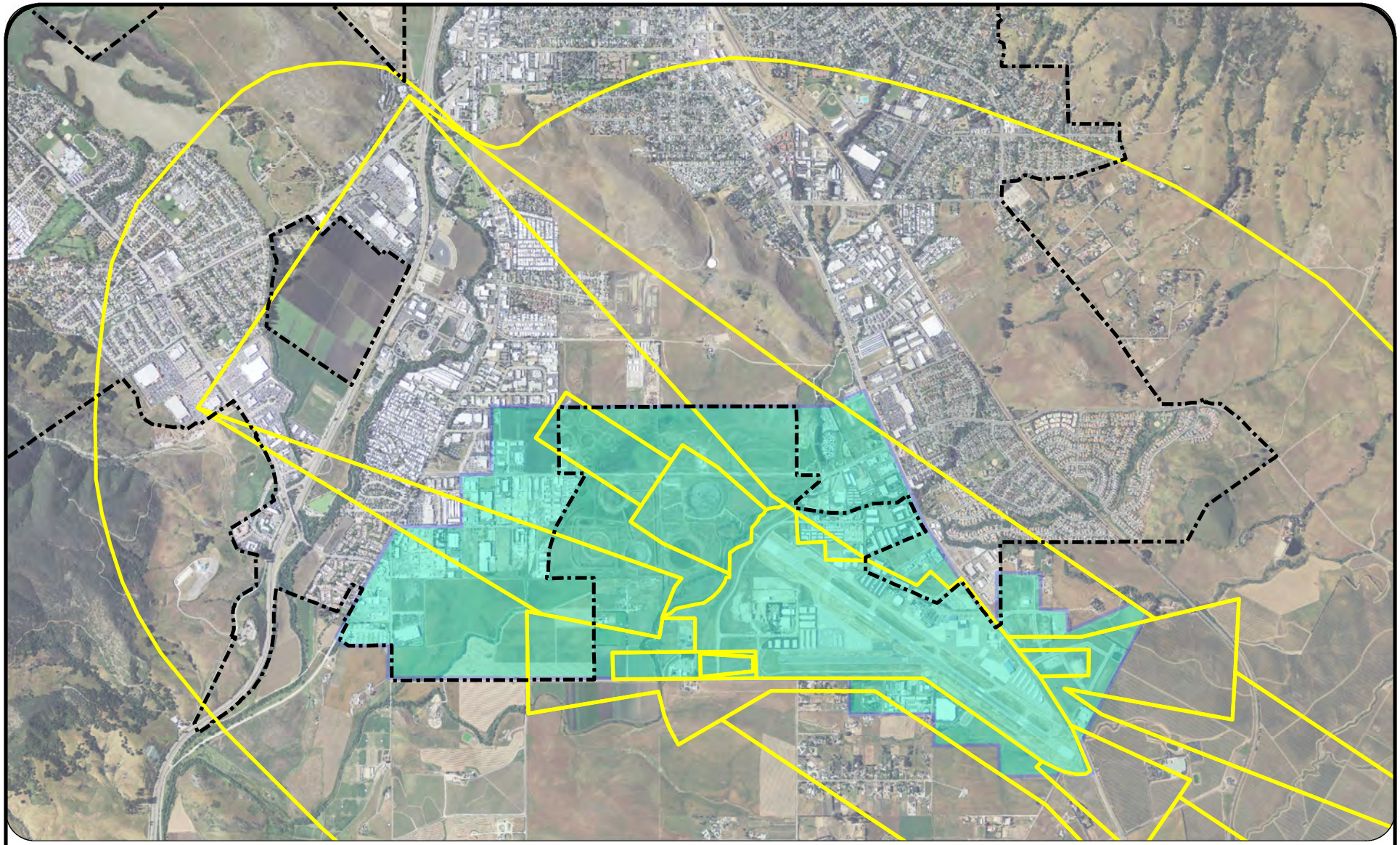
Figure 1-1 - San Luis Obispo Regional Airport FAA-Approved Airport Layout Plan



Airport Area Specific Plan

Figure 1-2





slo 2035 LAND USE & CIRCULATION UPDATE

city of san luis obispo

Figure 1-3

Study Area

1.4 Relationship to Airport Land Use Plan

The San Luis Obispo County Airport Land Use Commission (ALUC) is an independent body created by the State Legislature to support the orderly expansion of the airport and to coordinate compatible land use planning. The ALUC has two basic duties: 1) to prepare airport compatibility plans, and 2) to review referring agency actions and airport plans. The ALUC has developed, adopted, and amended the Airport Land Use Plan (ALUP) for SBP, the latest of which was amended in 2005. Between 2012 and 2013, the ALUC prepared a Draft Dimensional Detail of Airport Safety Zones document to address changes to the ALUP safety zones based on recommended improvements in the Master Plan Update. The City requested, and provided GIS staff and technical assistance to accurately map the described safety zones into a graphically-depicted GIS format. The ALUC is currently considering an update to the ALUP.

The City will be required to submit its General Plan amendment to the ALUC for review and the ALUC will be required to provide a Consistency Determination on the City's General Plan amendment. Prior to this required submittal, review and determination, the City and the ALUC have been trying to reconcile differences since 2012 between the details of the ALUP, the Draft Dimensional Detail of Airport Safety Zones document, and compatible land use zoning within the City limits. The City has offered suggestions on an update to the ALUP that would balance the interests of the ALUC, the City, and the County. Currently there are four primary areas to resolve between the ALUP, the Draft Dimensional Detail of Airport Safety Zones document, and proposed City land use zoning. These generally include:

1. Maneuvering Zone S-1b size and land use criteria, which are more restrictive than California Airport Land Use Planning Handbook guidelines and criteria.
2. Sideline Zone S-1c size and land use criteria, which are more restrictive than California Airport Land Use Planning Handbook guidelines and criteria.
3. Zone S-2 size and land use criteria, which are more restrictive than California Airport Land Use Planning Handbook guidelines and criteria.
4. Aircraft noise contours and associated land use criteria, which are more restrictive than California Airport Land Use Planning Handbook guidelines and criteria and are not based on forecasts in the adopted Airport Master Plan or corresponding Environmental Assessment/Environmental Impact Report (EA/EIR) completed in 2006.

It is the intent of the City to continue working with the ALUC to find common ground and resolve these issues.

This Report provides information about land use compatibility guidelines in the State of California, existing and future facilities and activity at SBP, and other factual information on each of the above points to inform the review and deliberation process.

2 LAND USE COMPATIBILITY CRITERIA

Land use compatibility in the vicinity of airports is about protecting persons and property on the ground from aircraft hazards, and limiting the public's exposure to aircraft noise. The Federal Aviation Administration (FAA) has no regulatory power to require or empower communities to implement land use planning, except that the airport sponsor's[5] ability to receive FAA grant funds is tied to land use compatibility. As outlined in Grant Assurance 21[6], "all airports that accept federal money must 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".

Consequently, it is important that airports and local communities work together to establish compatible land uses around airports, and for state governments to provide for specific airport land use planning legislation. The FAA does provide resources on topics related to land use issues, such as noise, but it is up to the local airport sponsor to implement the recommendations in these various resource documents. Additionally, in California, the State Department of Transportation, Aeronautics Division publishes *The California Airport Land Use Planning Handbook* as an implementation of the State Aeronautics Act that has detailed standards to guide airport compatibility planning efforts.

Planners, developers, and airport sponsors should rely on the height, use, noise, safety, and density criteria that are compatible with airport operations. These criteria are set forth in FAA AC 150/5300-13A, *Airport Design* (2012), Federal Aviation Regulation (FAR) Part 77, *Objects Affecting Navigable Airspace* (1993), FAR Part 150, *Airport Noise Compatibility Planning Program*, FAA AC 150/5020-1, *Noise Control and Compatibility Planning for Airports* (1983), FAA AC 150-5190-4A, *A Model Zoning Ordinance to Limit Height of Objects around Airports* (1987), the California Airport Land Use Planning Handbook (2011), and Sections 5001 to 5037, 21661 to 21669.6, and 21670 to 21679.5 of the California Public Utilities Code.

2.1 Noise

Noise can be a controversial topic for persons living near an airport. As per the California Public Utilities Code, "noise-sensitive land use" means residential uses, including detached single-family dwellings, multifamily dwellings, high rise apartments or condominiums, mobile homes, public and private educational facilities, hospitals, convalescent homes, churches, synagogues, temples, and other places of worship.

Even though the level of noise acceptable to a person residing in the vicinity of an airport has been determined by the FAA and the State of California to be a community noise equivalent level (CNEL) of 65 decibels (dB), it is not uncommon for individual perceptions to differ. Noise may be controlled or reduced by discouraging aircraft with higher noise levels from operating at the airport, encouraging approach and departure flight paths away from noise-sensitive land uses, planning runway utilization schedules that take into account noise sensitive periods, employing natural or man-made noise shielding, acquiring avigation easements, using acoustical insulation (interior noise level standards have

[5] An airport sponsor is an agency, such as an airport authority, authorized by the FAA to own and operate an airport and be able to meet all applicable requirements of current laws and regulations.
[6] See FAA Grant Assurances – Airport Sponsors, April 2012, http://www.faa.gov/airports/aip/grant_assurances/media/airport_sponsor_assurances_2012.pdf

been established in the California Building Code [CBC] at 45 dB in any habitable room), or acquiring land where acoustical insulation is not an option. However, the best way to protect persons from excessive noise exposure is for the airport to carry out a Part 150 Noise Compatibility Program (NCP).

A Part 150 NCP shows what measures the airport operator has taken, or proposes to take, to reduce noncompatible land uses and prevent the introduction of additional noncompatible land uses within the area covered by the airport's noise exposure map (NEM). Table 1 in Appendix A of FAR Part 150 (duplicated here as *Table 2-1*) describes compatible land use as a function of yearly day-night average sound levels (YDNL). Compatible or noncompatible land use is determined by comparing the predicted or measured YDNL values at a site with the values given.

Table 2-1 – FAR Part 150 Land Use Compatibility

TABLE 1—LAND USE COMPATIBILITY* WITH YEARLY DAY-NIGHT AVERAGE SOUND LEVELS

	Yearly day-night average sound level (L_{dn}) in decibels					
Land use	**Below 65**	**65-70**	**70-75**	**75-80**	**80-85**	**Over 85**
Residential						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y

Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts and camps	Y	Y	Y	N	N	N
Golf courses, riding stables and water recreation	Y	Y	25	30	N	N

NOTES:

SLUCM=Standard Land Use Coding Manual.

Y (Yes) =Land Use and related structures compatible without restrictions.

N (No) =Land Use and related structures are not compatible and should be prohibited.

NLR=Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

25, 30, or 35=Land use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

(1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor to indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as 5, 10 or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.

(2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(3) Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal noise level is low.

(4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise sensitive areas or where the normal level is low.

(5) Land use compatible provided special sound reinforcement systems are installed.

(6) Residential buildings require an NLR of 25.

(7) Residential buildings require an NLR of 30.

(8) Residential buildings not permitted.

Noise contours and details about the noise environment at SBP are provided in Chapter6, *Airport Noise*. The existing noise restrictions set in the ALUP are described in Section 6.2, *Airport Land Use Plan Noise Analysis Review*.

2.2 Safety

Land use nearest the runways is controlled by runway protection zones (RPZs). RPZs were originally established to define land areas underneath aircraft approach paths in which control by the airport operator was highly desirable to prevent the creation of air navigation hazards. Ultimately, it is desirable for airport owners to own the property under the runway approach and departure areas to at least the limits of the RPZ, clear the entire RPZ of all above-ground objects, or at least maintain the RPZ clear of all facilities supporting incompatible activities.

As per the most recent FAA interim land use guidance[7], the following land uses within an RPZ require coordination with the FAA: 1) Buildings and structures such as residences, schools, churches, hospitals, or commercial and industrial buildings, 2) Recreational land use such as golf courses, sports fields, amusement parks, and other places of public assembly, 3) Transportation facilities such as rail facilities, public roads and highways, and vehicular parking facilities, 4) Fuel storage facilities (above and below ground), 5) Hazardous material storage (above and below ground), 6) Wastewater treatment facilities, and 7) Above-ground utility infrastructure (i.e. electrical substations), including any type of solar panel installations.

Beyond the RPZ, land use compatibility deals with protecting the airspace surrounding the airport from obstructions, whether natural growth, terrain, or permanent or temporary construction. As per FAR Part 77 regulations, the FAA requires notification for the following: 1) any construction or alteration of more than 200 feet above ground level (AGL), 2) any construction or alteration of greater height than an imaginary surface extending outward and upward at a slope of 100 to 1 for a horizontal distance of 20,000 feet from a runway end at airports having at least one runway 3,200 feet in length, 3) any highway, railroad, or other traverse way for mobile objects, 4) any construction or alteration that would be in an instrument approach area, and 5) any construction or alteration at an airport listed in the Airmen's Information Manual (AIM) and Alaska or Pacific Airman's Guide, an airport under construction, or an airport operated by the US armed forces.

Obstruction clearance must also be provided for all en route and terminal (airport) instrument procedures including the approach, landing, missed approach, and departure segments, as per the United States Standard for Terminal Instrument Procedures (TERPS), described in FAA Order 8260.3B (June, 2009). Neither the ground nor any obstacles can penetrate a TERPS surface without need to modify the procedure.

The One-Engine Inoperative (OEI) Obstacle Identification surface must also be free from obstructions. This surface starts at the same elevation as the departure end of the runway and slopes upward at 1 foot vertically to 62.5 feet horizontally (62.5:1). The inner width of the OEI surface is 600 feet, the outer width is 12,000 feet, and the surface extends for a distance of 50,000 feet along the extended runway centerline. Specific dimensions for safety areas surrounding SBP are provided in Chapter 4*, Safety and Airspace Protection*.

While RPZs and Part 77 surfaces can been used as a starting point for establishing safety compatibility zones, there are shortcomings for purposes of land use safety, and historical accident location patterns must be identified. The California Airport Land Use Planning Handbook states that "runway protection zones encompass only the most highly concentrated areas of accident locations near runways, and while FAR Part 77 surfaces cover a much greater geographic area, they were established for the purposes of airspace protection, not safety compatibility for people and land uses on the ground". An analysis of accidents at SBP is provided in Section 4.2, *Accidents at SBP*.

2.3 Safety Compatibility Zones

California Public Utilities Code (PUC), Section 21675(a) requires preparation of an airport land use compatibility plan (ALUCP) for each public use airport in the State of California, and that land use plan must be guided by the creation of safety compatibility zones as per the California Airport Land Use Planning Handbook (2011).

[7]Interim Guidance on Land Uses within a Runway Protection Zone, Memorandum, dated September 27, 2012; http://www.faa.gov/airports/planning_capacity/media/interimLandUseRPZGuidance.pdf.

There are two components to safety compatibility policies: 1) identification of the locations where safety (risk of aircraft accidents) is a concern, and 2) definition of appropriate land use measures addressing those risks. The California Airport Land Use Planning Handbook provides examples of different safety zone configurations based on runway configuration and type of airport (general aviation, large air carrier, or military) to assist in the delineation of safety zones for a given airport.

Figure 2-1 depicts the following safety zones as recommended by the California Airport Land Use Planning Handbook that are applicable to an airport like SBP:

Zone 1: Runway protection zone and within runway object free area adjacent to the runway.

Zone 2: Inner approach/departure zone.

Zone 3: Inner turning zone.

Zone 4: Outer approach/departure zone.

Zone 5: Sideline zone.

Zone 6: Traffic pattern zone (not applicable to large air carrier airports).

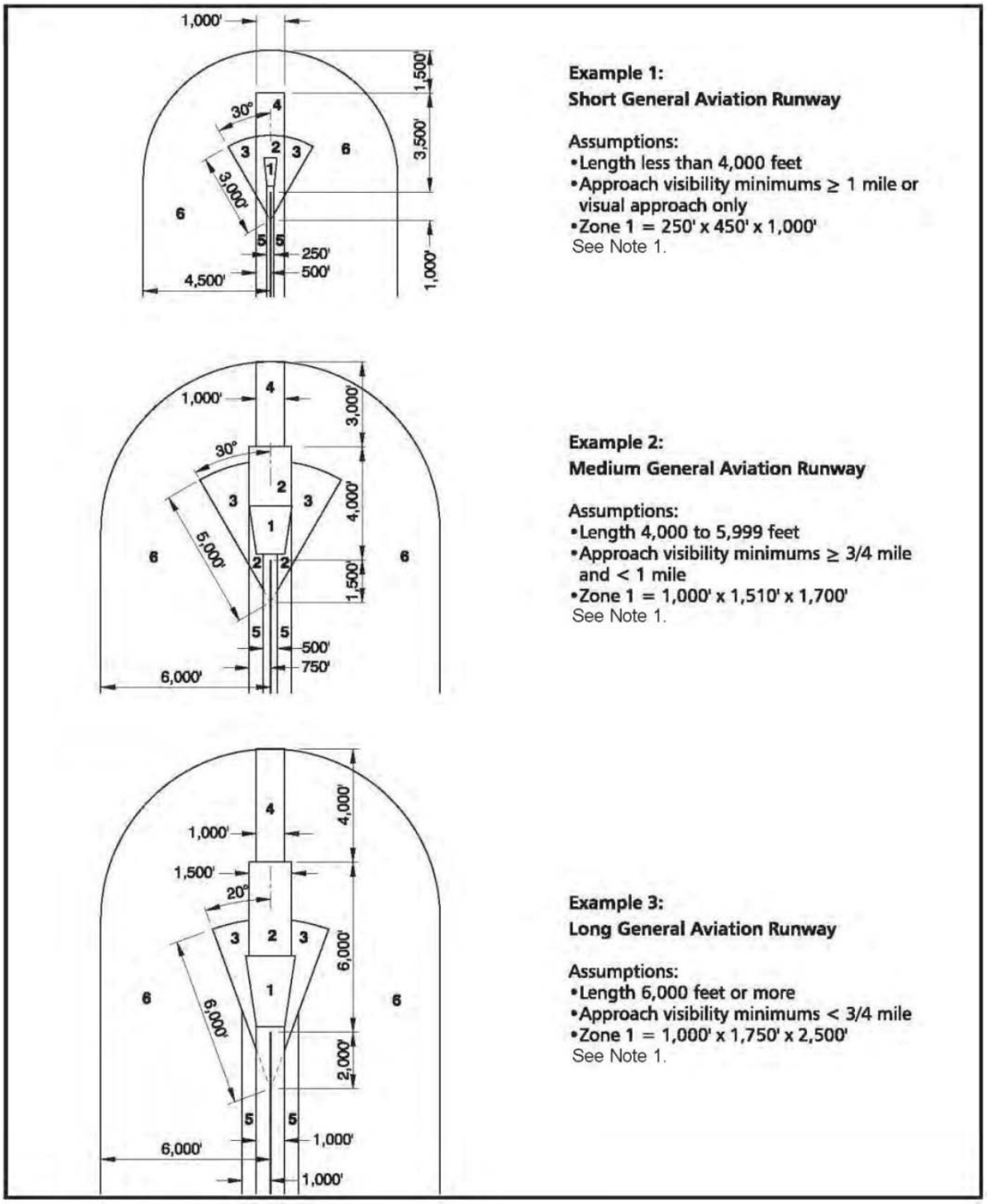
Example 1 in *Figure 2-1* should be applied to Runway 7-25, and Example 3 should be applied to Runway 11-29. The application of these zones to SBP is shown in *Figure 2-2*. While ALUCs are not mandated to use the sample zones provided in the Handbook, they are mandated to use the Handbook's guidance to create zones that have easily definable geometric shapes, are as compact as possible, have a distinct progression in the degree of risk represented, and are limited to a realistic number (five or six should be adequate in most cases).

Adjustments to the safety zones recommended by the California Airport Land Use Planning Handbook should be made if there are certain physical and operational characteristics present at the airport such as high terrain, roads, or non-standard instrument approach procedures. These characteristics are summarized in Table 3A of the Handbook, which is included in this report as Appendix A, *Handbook Safety Zone Adjustment Factors*.

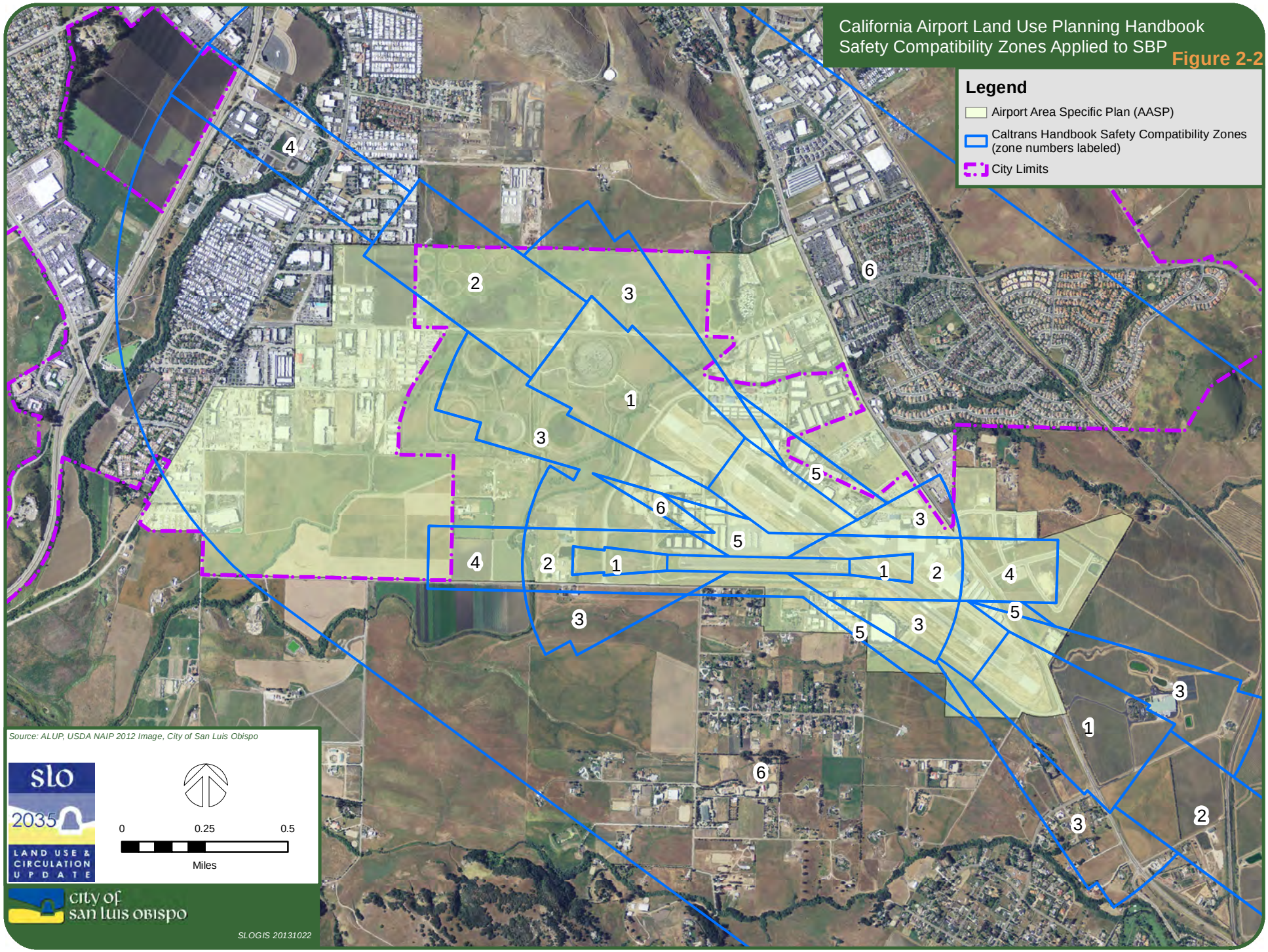
An assessment of whether any of these adjustment factors apply to SBP is provided in Section 4.3, *Safety Zone Adjustment Factors*.

The safety zones currently described in the ALUP are summarized in Section 8.4, *Land Use within Existing ALUP Safety Zones*.

Figure 2-1 – California Airport Land Use Planning Handbook Safety Compatibility Zones for GA Runways



Source: California Airport Land Use Planning Handbook


California Airport Land Use Planning Handbook
Safety Compatibility Zones Applied to SBP
Figure 2-2
Legend
Airport Area Specific Plan (AASP)
Caltrans Handbook Safety Compatibility Zones (zone numbers labeled)
City Limits
Source: ALUP, USDA NAIP 2012 Image, City of San Luis Obispo
slo 2035 LAND USE & CIRCULATION UPDATE
0
0.25
0.5
Miles
city of san luis obispo
SLOGIS 20131022

2.4 Density

Land use density criteria are the result of careful balancing between noise impacts and the progression in the degree of reduced safety risk further away from the runway end and the extended runway centerline. Density criteria are critical to actual land use compatibility control measures that result from the planning process.

To be compatible with airport activities, the number of dwelling units per acre or intensity of commercial development should not exceed the criterion specified for the safety compatibility zone where the use would occur. In general, the California Airport Land Use Planning Handbook suggests limiting the maximum number of dwellings or people in areas close to the airport, and avoiding highly risk-sensitive uses, such as schools, hospitals, and other uses in which the mobility of occupants is effectively limited. Critical public infrastructure should be avoided. Aboveground storage of large quantities of highly flammable or hazardous materials also should be avoided near airports. Appendix B*, California Airport Land Use Planning Handbook Safety Zone Criteria*, shows Figures 4B through 4G from the Handbook, which outlines the density criteria suitable for each recommended safety zone. This density criterion as well as the most stringent allowed and prohibited land uses are summarized in *Table 2-2*.

The density criteria listed in the ALUP are summarized in Section 8.4, *Land Use within Existing ALUP Safety Zones*.

Table 2-2 - California Airport Land Use Planning Handbook Density Criteria and Land Use - San Luis Obispo County Regional Airport

Zone	Maximum Densities: Non-residential (persons/acre)[1]	Maximum Densities: Residential (dwelling units/acre)[1]	Prohibited Uses	Normally Allow
1 - RPZ and ROFA adjacent to runway	0[1]	0	All new structures and residential land uses.	None
2 - Inner app/dep zone	10-40 (rural); 40-60 (suburban); 60-80 (urban); Allow infill at up to average intensity of comparable surrounding uses (dense urban).	For rural, maintain current zoning if less than density criteria for suburban setting; 1 per 10-20 acres (suburban); 0 (urban, dense urban)	Theatres, meeting halls and other assembly uses. Office buildings greater than 3 stories. Labor-intensive industrial uses. Children's schools, large daycare centers, hospitals, nursing homes. Stadiums, group recreational uses. Hazardous uses (e.g. aboveground bulk fuel storage).	Agriculture (non-group recreational uses). Low-hazard materials storage, warehouses. Low-intensity light industrial uses (auto, aircraft marine repair services).[2]
3 - Inner turning zone	50-70 (rural); 70-100 (suburban); 100-150 (urban); allow infill at up to the average of surrounding residential area (dense urban).	For rural, maintain current zoning if less than density criteria for suburban setting; 1 per 2-5 acres (suburban); allow infill at up the average of surrounding residential area (urban, dense urban).	Major shopping centers, theaters, meeting halls, and other assembly facilities. Children's schools, large daycare centers, hospitals, nursing homes. Stadiums, group recreational uses.	Uses allowed in Zone 2. Greenhouses, low-hazard materials storage, mini-storage, warehouses. Light industrial, vehicle repair services. [2]
4 - Outer app/dep zone	70-100 (rural); 100-150 (suburban); 150-200 (urban); allow infill at up to average density/intensity of comparable surrounding users (dense urban).	For rural, maintain current zoning if less than density criteria for suburban setting; 1 per 2-5 acres (suburban); allow infill at up the average of surrounding residential area (urban, dense urban).	Children's schools, large daycare centers, hospitals, nursing homes. Stadiums, group recreational uses.	Uses allowed in Zone 3. Restaurants, retail, industrial. [2]
5 - Sideline zone	50-70 (rural); 70-100 (suburban); 100-150 (urban); allow infill at up to average of surrounding residential area (dense urban).	For rural, maintain current zoning if less than density criteria for suburban setting; 1 per 1-2 acres (suburban); allow infill at up to the average of surrounding residential area (urban, dense urban).	Stadiums, group recreational uses. Children's schools, large daycare centers, hospitals, nursing homes.	Uses allowed in Zone 4 (subject to height limitations for airspace protection). All common aviation-related activities provided that FAA height-limit criteria are met. [2]
6 - Traffic pattern zone	150-200 (rural); 200-300 (suburban); no limit in urban and dense urban areas, although large stadiums and similar uses should be avoided.	No limit in rural, suburban, urban, and dense urban areas, although noise and overflight should be considered.	None	Residential uses (however, noise and overflight impacts should be considered where ambient noise levels are low). [2]

[1/]Exceptions can be permitted for agricultural activities, roads, and automobile parking provided that FAA criteria are satisfied.

[2/]Other uses may be allowed as per the guidelines in the California Airport Land Use Planning Handbook.

Source: California Airport Land Use Planning Handbook

3 SAN LUIS OBISPO REGIONAL AIRPORT FACILITIES

The San Luis Obispo County Regional Airport (SBP) is located on 340 acres of land in the west-central portion of San Luis Obispo County, 3.5 miles southeast of the City of San Luis Obispo. The Airport has one main runway (Runway 11-29) and one smaller runway (Runway 7-25). The Airport is served by two regional carriers: US Airways Express and United Express. Two all-cargo operators also serve the airport: Ameriflight for UPS and WestAir Inc. for FedEx.

As per the 2013-2017 National Plan of Integrated Airport Systems (NPIAS) and California Aviation System Plan (CASP), SBP is classified as a primary, commercial service airport.

3.1 Existing Facilities

The design aircraft for SBP is the Canadair Regional Jet, which has an airport reference code of C-II. The design aircraft determines the airport design standards for runways, taxiways, and other facilities. There are two runways at SBP. Runway 11-29 is the runway used for the majority of aircraft operations. Runway 7-25 is mostly used by small, light, general aviation aircraft during crosswind conditions. Both runways have parallel taxiways.

The existing passenger terminal building is approximately 14,400 square feet and was constructed in 1983. It was remodeled in 2000 to provide additional baggage area, arrival area, and departure lounge area. There are two fixed based operators (FBOs) at SBP: ACI Aviation Services and San Luis Obispo Fuel Service. These two FBOs offer aviation fuel, aircraft hangars, a passenger terminal and lounge, aircraft charters, aircraft maintenance, catering, rental cars, and courtesy transportation. The Airport features 65 newer aircraft storage hangars, which opened in the spring of 2007. This six-building complex includes two restrooms as well as lighting and electrical outlets in each hangar. Three apron areas at the Airport serve scheduled flights and provide tie-down areas for single and multi-engine based aircraft and transient aircraft.

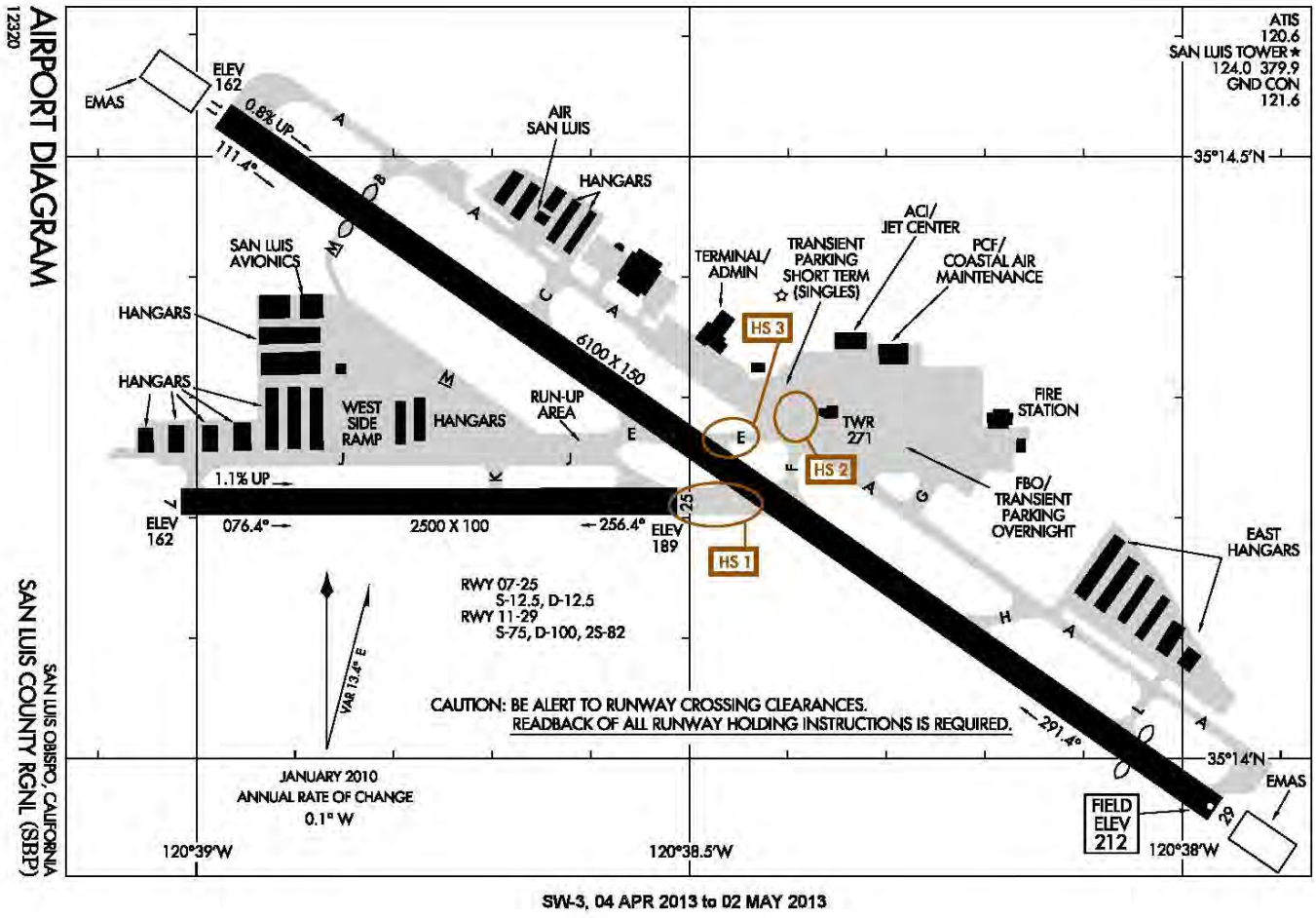
Figure 3-4 is an illustrative depiction of the existing facilities as per the 2013 Airport Facility Directory (AFD).

In addition to these two FBOs, the following businesses are located on the Airport, as per the Master Plan Update that was adopted in 2005:

- Air San Luis – Flight training, aircraft rental, aerial tours/sightseeing, aircraft charters, aircraft maintenance/modifications, aircraft painting/interiors.
- Coastal Air Maintenance – Aircraft maintenance, aircraft parts, oxygen service.
- Experimental Aircraft Association (EAA), Chapter 170 –Aviation organization.
- Golden State Propeller – Aircraft maintenance, aircraft parts.
- Helipro Inc. – Flight training, aircraft rental, aerial tours/sightseeing.
- MarcAir – Aircraft charter.
- PCF Aviation – Passenger terminal and lounge, flight training, aircraft rental, aerial tours/sightseeing, aircraft charters, pilot supplies, Internet access.

- San Luis Avionics – Avionics sales and service.
- San Luis Obispo Pilots Association (SLOPA) – Aviation organization.
- Shoreline Helicopter – Scenic tours.
- Spirit of San Luis – Restaurant.
- Victory Aviation – Flight Training.
- Vintage Aero – Aircraft maintenance, aircraft parts.

Figure 3-1 - Existing Airport Facilities



3.2 Planned Facilities

Since the completion of the most recent SBP Master Plan Update, an engineered material arresting system (EMAS) has been constructed at each end of Runway 11-29, thereby extending the useable length from 5,300 feet to 6,100 feet. Both runway ends have displaced thresholds. A displaced threshold is a runway threshold located at a point other than the physical beginning or end of the runway pavement. The portion of the runway so displaced may be used for takeoff but not for landing. Landing aircraft may use the displaced area on the opposite end for roll out. The runway at SBP is displaced 800 feet at the Runway 11 end and 500 feet at the Runway 29 end. The length of Runway 25 has been reduced by 760 feet to remove the previous intersection with Runway 11-29 and to focus its use by smaller aircraft.

Other planned airside improvements, as per the most recent SBP Master Plan Update, include relocating the Runway 11 ILS glideslope by 800 feet, thereby removing the current 800-foot displacement, extending Runway 7 by 500 feet, reducing the width of Runway 7-25 from 100 feet to 60 feet, and building a new airport rescue and firefighting (ARFF) station. Several sites have been designated for hangar development as well as a new air traffic control tower (ATCT). Land acquisition to protect aircraft approach areas, and drainage and access improvements were also recommended in the Master Plan Update. *Figure 3-2* depicts the recommended facilities at SBP. The FAA-approved Airport Layout Plan (ALP) dated November 4, 2010 (shown in this Report as *Figure 1-1)* depicts the ultimate planned development of SBP facilities, including runways and associated safety areas.

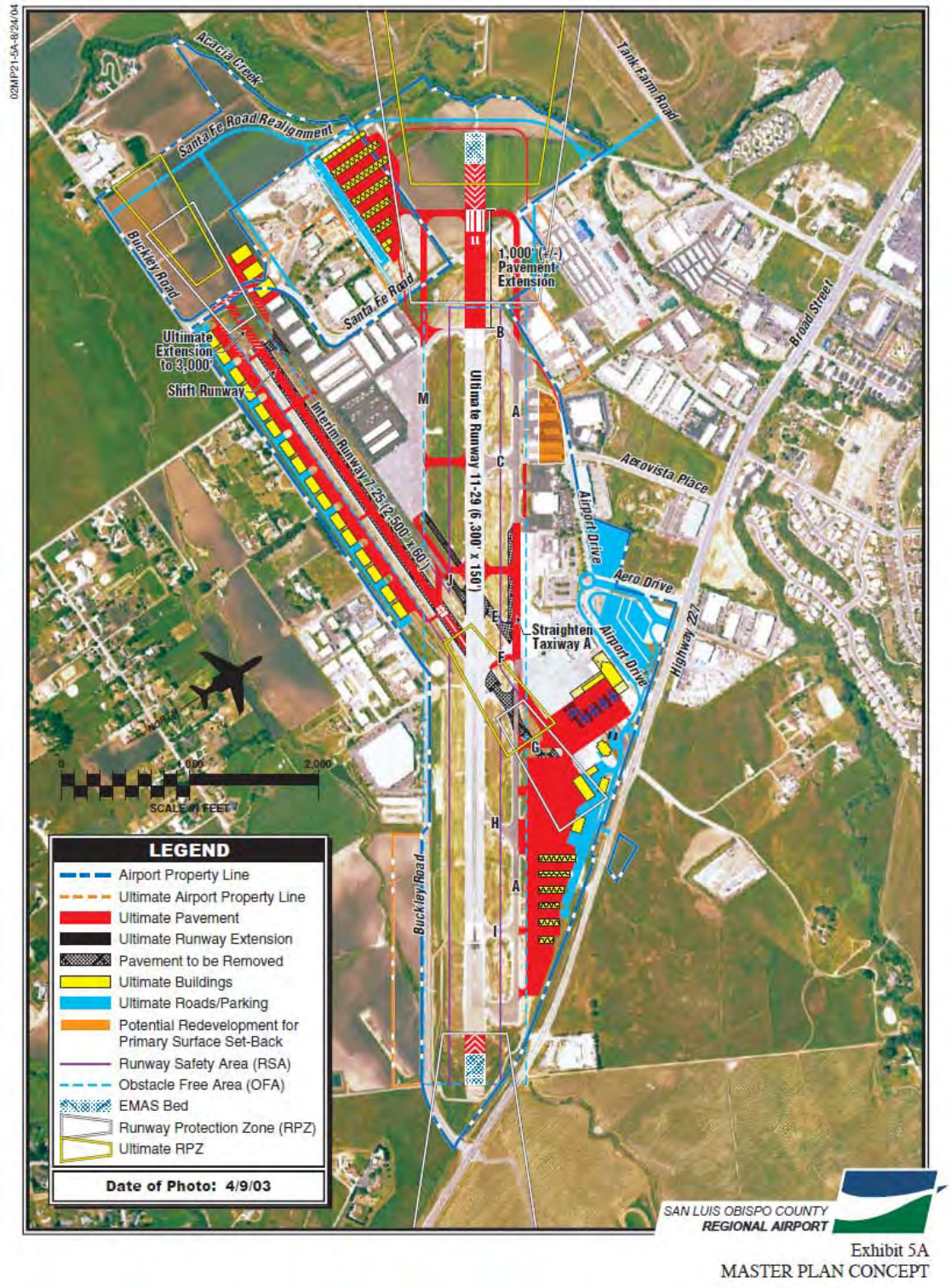
On August 18, 2010, Airport Services accepted a grant under the FAA Airport Improvement Program (AIP) for design services of a new terminal building. On March 6, 2012 the County Board approved a three phased New Terminal Design Development project. The project funding comes from an AIP grant and Passenger Facility Charges (PFC) collected from enplaning passengers to meet the local share requirements. On March 5, 2013 the Board accepted the results of Phase 1 of Terminal Design Development and approved the request to move to Phase 2. Airport Services and its consultant have completed the second phase of the work titled Schematic Design. The footprint of the new facility will be approximately 49,000 square feet.

The planned facilities identified in the SBP Master Plan Update and on the FAA-approved ALP are directly correlated to forecast demand. However, as noted in the SBP Master Plan Update, “the cost-effective, efficient, and orderly development of an airport should rely more upon actual demand at an airport than on a time-based forecast figure”. This is why the planning of facilities at SBP is based on milestones of short, intermediate, and long term aviation activity versus actual years.

“The development schedule is initially divided into the three planning horizons: short term (0-5 years), intermediate term (6-10 years), and long term (11-20 years). The highest priority development items are generally reflected in the first five years of the plan” (SBP Master Plan Update, adopted 2005).

The SBP Capital Improvement Program, based on a three-phase approach that is driven by specific activity levels being reached is shown in *Figure 3-3*. The activity levels that must be reached to justify development are shown in *Figure 3-4*. A summary of the existing and planned airport environment at SBP is provided in *Table 3-1*. More information about existing and forecast activity at SBP is provided in Chapter 5, Airport *Operations*.

Figure 3-2 - Planned Airport Facilities



Source: SBP Master Plan Update (adopted 2005)

Figure 3-3 – SBP Master Plan Update Capital Improvement Program

TABLE 5C
San Luis Obispo County Regional Airport
Capital Improvement Program

Year	Project Description	Total Cost	AIP Eligible	Local Share
2005	Midfield Taxiway Construction	$1,500,000	$1,425,000	$75,000
	East Hangar/Tie-Down Area	$1,500,000	$1,425,000	$75,000
	East Hangar Construction	$2,670,000	$0	$2,670,000
	Sub-Total	$5,670,000	$2,850,000	$2,820,000
2006	Land Acquisition (3 Parcels)	$12,500,000	$11,875,000	$625,000
	EMAS Installation (Runway 29)	$3,000,000	$2,850,000	$150,000
	Runway 11-29 Design (Phases I&II)	$500,000	$475,000	$25,000
	Santa Fe Relocation/Rwy 11-29/Twy A Extension	$15,000,000	$14,250,000	$750,000
	Sub-Total	$31,000,000	$29,450,000	$1,550,000
2007	Terminal Design (Phase II)	$2,500,000	$2,375,000	$125,000
	Terminal Construction (Phase I)	$5,000,000	$4,750,000	$250,000
	Sub-Total	$7,500,000	$7,125,000	$375,000
2008	Terminal Construction (Phase II)	$16,000,000	$14,400,000	$1,600,000
	Sub-Total	$16,000,000	$14,400,000	$1,600,000
2009	Terminal Construction (Phase III)	$16,000,000	$14,400,000	$1,600,000
	Sub-Total	$16,000,000	$14,400,000	$1,600,000
2010	Airport Sweeper	$200,000	$180,000	$20,000
	Sub-Total	$200,000	$180,000	$20,000
	Sub-Total Phase I (2005-2010)	$76,370,000	$68,405,000	$7,965,000
2011-2015	**Project Description**	**Total Cost**	**AIP Eligible**	**Local Share**
	Relocation of Taxiway A (Partial at Terminal)	$1,000,000	$900,000	$100,000
	Buckley Road Site Development	$1,000,000	$900,000	$100,000
	Extension of Taxiway M	$3,000,000	$2,700,000	$300,000
	Navaid/Lighting Upgrade - Runway 11-29	$1,000,000	$900,000	$100,000
	West Side Hangar Development (Phase I)	$3,000,000	$1,000,000	$2,000,000
	Pavement Rehabilitation	$5,000,000	$4,500,000	$500,000
	Equipment Replacement	$1,000,000	$900,000	$100,000
	Land Acquisition	$5,000,000	$4,500,000	$500,000
	Master Plan Update/Environmental Evaluations	$1,000,000	$900,000	$100,000
	Sub-Total Phase II (2011-2015)	$21,000,000	$17,200,000	$3,800,000
2016-2025	**Project Description**	**Total Cost**	**AIP Eligible**	**Local Share**
	Runway 7-25 Parallel Taxiway	$1,000,000	$900,000	$100,000
	West Side Hangar Development (Phase II)	$3,000,000	$1,000,000	$2,000,000
	Runway 7-25/Taxiway J Extension	$2,500,000	$2,250,000	$250,000
	ATCT Siting Study	$200,000	$180,000	$20,000
	ATCT Relocation	$5,000,000	$4,500,000	$500,000
	Pavement Rehabilitation	$5,000,000	$4,500,000	$500,000
	Equipment Replacement	$1,000,000	$900,000	$100,000
	Land Acquisition	$5,000,000	$4,500,000	$500,000
	Master Plan Update/Environmental Evaluations	$1,000,000	$900,000	$100,000
	Sub-Total Phase III (2016-2025)	$23,700,000	$19,630,000	$4,070,000
	Totals	$121,070,000	$105,235,000	$15,835,000

Revised 11/18/04

Source: SBP Master Plan Update (adopted 2005)

Figure 3-4 – Activity Levels Required for Development

TABLE 5B
Aviation Activity Planning Horizons
San Luis Obispo County Regional Airport

	Current Levels	Short Term	Intermediate Term	Long Term
Annual Enplanements	155,177	198,000	232,000	301,000
Commercial Operations	14,710	13,600	13,000	15,000
Air Taxi Operations	1,630	1,800	2,000	2,200
Military Operations	769	850	850	850
General Aviation Operations	92,155	101,300	107,800	122,000
Total Operations	109,264	117,550	123,650	140,050
Total Air Cargo (pounds)	1,242,592	1,400,000	1,600,000	2,000,000
Based Aircraft	301	320	350	400

Source: SBP Master Plan (adopted 2005)

Table 3-1 - Airport Environment - San Luis Obispo County Regional Airport

General Information:	**Airport Planning Documents:**
Airport Ownership: County of San Luis Obispo	
Property Size: 340 acres	Airport Master Plan Update for San Luis Obispo County Regional Airport (Accepted by the Board of Supervisors of the County of San Luis Obispo January, 2005)
Elevation: 212 feet MSL	
NPIAS & CASP Classification: Primary, Commercial Service Airport	San Luis Obispo County Regional Airport Master Plan Update Final EA/EIR (July, 2006)
FAR Part 139, ARFF Index A	San Luis Obispo County Regional Airport, Airport Layout Plan (FAA Approved, October 2010)
ATCT attended 6AM to 5PM	
Existing Facilities:	**Planned Facilities:**
Passenger terminal building - 14,400 sq.ft.	Relocating RWY 11 glideslope 800 feet
Two fixed-based operators offering fuel, hangars, lounge, charters, maintenance, catering, rental cars, and courtesy transport.	Extending RWY 7 by 500'; reducing RWY 07/25 width to 60'
	Build new ARFF station
	New hangar development
Other services: aircraft rental, flight training, aerial tours, aircraft painting, aircraft parts, oxygen service, avionics sales and service, propeller maintenance, EAA, SLOPA, and restaurant.	Land acquisition to protect approach areas
	Drainage and access improvements
	Build new ATCT
65 aircraft hangars; 161 aircraft tiedowns.	Build new terminal building; 49,000 sq.ft.

Runways:

Design Element	**Runway 11-29**		**Runway 07-25**	
Aircraft Design Group	C-II		B-I	
Parallel Taxiway	Yes		Yes	
Runway Dimension (LxW)	6,100' x 150'		2,500' x 100'	
	11	29	7	25
Lighting	MALSR. VASI(V4L)	REIL. VASI(V4L)	N/A	N/A
Threshold Remarks	Thld dsplcd 800´	Thld dsplcd 500´	N/A	N/A
Arresting Gear/System	EMAS	EMAS	N/A	N/A
FAR Part 77 Category	Precision	Non-Precision	Visual	Visual
Approach Visibility Minimum	1/2 mile	1 mile	Visual	Visual
RWY Safety Area *Length beyond Runway End*	1,000	1,000	240	240
Length prior to Threshold	600	600	240	240
Width	500	500	120	120
RWY Object Free Area *Length beyond Runway End*	1,000	1,000	240	240
Length prior to Threshold	600	600	240	240
Width	800	800	400	400
RWY Obstacle Free Zone *Length beyond Runway End*	200	200	200	200
Width	400	400	250	250
Precision Obstacle Free Zone *Length*	200	N/A	N/A	N/A
Width	800	N/A	N/A	N/A
RWY Protection Zone *Length*	2,500	1,700	1,000	1,000
Inner Width	1,000	500	500	500
Outer Width	1,750	1,010	700	700

Approach and Departure Procedures and Traffic Patterns:

AVILA Departure - Runway heading to 900 feet, then climbing right turn to AVILA Intersection.

CREPE THREE Departure - Climb runway heading to CREPE Intersection.

WYNNR TWO Departure - Turn right heading 130 degrees to MISHI Intersection.

RNAV (GPS) RWY 11, LOC RWY 11, ILS RWY 11 App.	Right-turn traffic pattern at 1,212' MSL (1000' above airport elevation); 1,203' MSL (991' above airport elevation) for single engine; 1,703' MSL (1,491' above airport elevation) for multi–engine, jet and high performance.
RNAV (GPS) RWY 29 Approach	
VOR or TACAN-A Approach	

4 SAFETY AND AIRSPACE PROTECTION

Land use compatibility and safety around airports is primarily concerned with protecting the locations around an airport that are at the greatest risk of experiencing an aircraft incident or accident. Protection involves designating areas around the ends of runways that must be free of objects, limiting the height of objects in the surrounding airspace, and understanding historical accident patterns.

Table 4-1 summarizes the design standards for Runway 11-29 and Runway 7-25 at SBP as per the FAA design standards outlined in FAA AC150/5300-13A, *Airport Design* (2012). All runway safety areas at SBP meet FAA design standards. As per the FAA-approved ALP, these existing standards will not change for ultimate development at SBP.

Table 4-1 – Runway Design Standards

San Luis Obispo Airport				
Runway Design Standards				
Design Element	Runway 11-29		Runway 07-25	
Aircraft Design Group	C-II		B-I	
Runway Dimension (LxW)	6,100' x 150'		2,500' x 100'	
	11	29	7	25
FAR Part 77 Category	Precision	Non-Precision	Visual	Visual
Approach Visibility Minimum	1/2 mile	1 mile	Visual	Visual
Runway Safety Area				
Length beyond Runway End	1,000	1,000	240	240
Length prior to Threshold	600	600	240	240
Width	500	500	120	120
Runway Object Free Area				
Length beyond Runway End	1,000	1,000	240	240
Length prior to Threshold	600	600	240	240
Width	800	800	400	400
Runway Obstacle Free Zone				
Length beyond Runway End	200	200	200	200
Width	400	400	250	250
Precision Obstacle Free Zone				
Length	200	N/A	N/A	N/A
Width	800	N/A	N/A	N/A
Runway Protection Zone				
Length	2,500	1,700	1,000	1,000
Inner Width	1,000	500	500	500
Outer Width	1,750	1,010	700	700

Source: FAA AC150/5300-13A, Airport Design; SBP Airport Layout Plan

For airports, the most geographically extensive compatibility concern is the airspace defined by Federal Aviation Regulations (FAR) Part 77 surfaces. The airspace surrounding an airport is divided into segments called imaginary surfaces, which protect aircraft landing at and departing from an airport. Under Part 77 those airspace protection surfaces are defined and applied to airport runways (primary surface, approach surface, transitional surface, horizontal surface, conical surface). These imaginary surfaces are used to establish the standards for determining obstructions to air navigation. The California Airport Land Use Planning Handbook uses RPZs and certain Part 77 surfaces to help delineate recommended safety zones around airports. The Handbook recognizes that all Part 77 surfaces encompass much more area than is required for safety zones.

The size of each imaginary surface is based on the category of each runway and the type of approach available or planned for that runway. The slope and dimensions of the approach surface applied to each end of a runway are determined by the most precise approach (existing or planned) for that runway end. The paragraphs below indicate the Part 77 surfaces for Runway 7-25 and Runway 11-29. *Table 4-2* summarizes these surfaces and *Figure 4-1* graphically depicts the runway protection zones and Part 77 surfaces surrounding SBP. As per the FAA-approved ALP, these existing standards will not change for ultimate development at SBP.

(a) Horizontal surface. A horizontal plane 150 feet above the established airport elevation, the perimeter of which is constructed by swinging arcs of specified radii from the center of each runway end. The radius of each arc is:

(1) 5,000 feet for all runways designated as utility or visual.

(2) 10,000 feet for all other runways.

(b) Conical surface. A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.

(c) Primary surface. A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway.

The width of a primary surface is:

(1) 250 feet for utility runways having only visual approaches.

(2) 500 feet for utility runways having nonprecision instrument approaches.

(3) For other than utility runways the width is:

(i) 500 feet for visual runways having only visual approaches.

(ii) 500 feet for nonprecision instrument runways having visibility minimums greater than three-fourths statute mile.

(iii) 1,000 feet for a nonprecision instrument runway having a nonprecision instrument approach with visibility minimums as low as three-fourths of a statute mile, and for precision instrument runways.

(d) Approach surface. A surface longitudinally centered on the extended runway centerline and extending outward and upward from each end of the primary surface.

(1) The inner edge of the approach surface is the same width as the primary surface and it expands uniformly to a width of:

(i) 1,250 feet for that end of a utility runway with only visual approaches.

(ii) 1,500 feet for that end of a runway other than a utility runway with only visual approaches.

(iii) 2,000 feet for that end of a utility runway with a nonprecision instrument approach.

(iv) 3,500 feet for that end of a nonprecision instrument runway other than utility, having visibility minimums greater than three-fourths of a statute mile.

(v) 4,000 feet for that end of a nonprecision instrument runway, other than utility, having a nonprecision instrument approach with visibility minimums as low as three-fourths statute mile.

(vi) 16,000 feet for precision instrument runways.

(2) The approach surface extends for a horizontal distance of:

(i) 5,000 feet at a slope of 20 to 1 for all utility and visual runways.

(ii) 10,000 feet at a slope of 34 to 1 for all nonprecision instrument runways other than utility.

(iii) 10,000 feet at a slope of 50 to 1 with an additional 40,000 feet at a slope of 40 to 1 for all precision instrument runways.

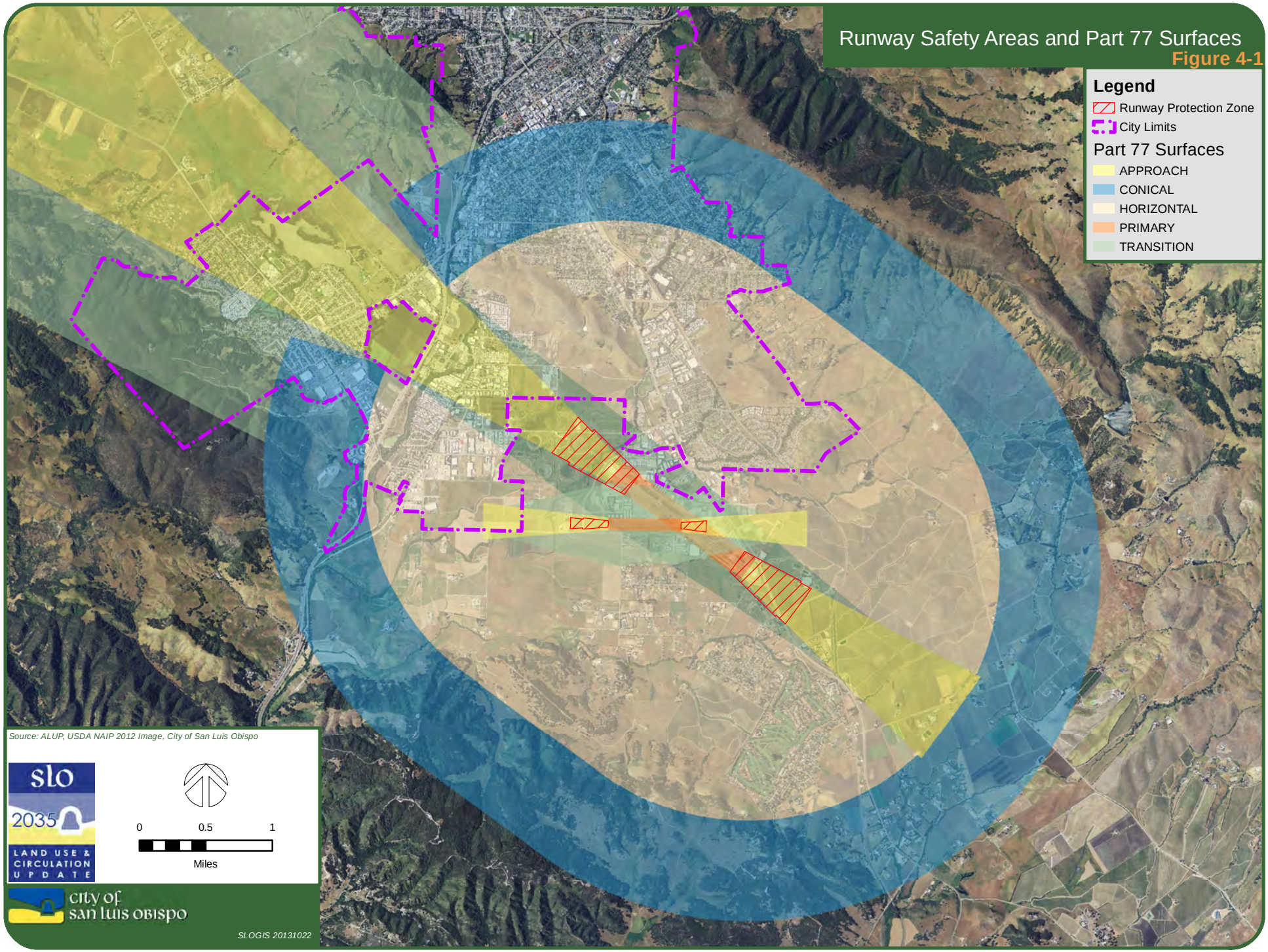
(e) ***Transitional surface.*** These surfaces extend outward and upward at right angles to the runway centerline and the runway centerline is extended at a slope of 7 to 1 from the sides of the primary surface and from the sides of the approach surfaces. Transitional surfaces for those portions of the precision approach surface which project through and beyond the limits of the conical surface, extend a distance of 5,000 feet measured horizontally from the edge of the approach surface and at right angles to the runway centerline.

Table 4-2 – Part 77 Surfaces at SBP

San Luis Obispo Airport
Part 77 Surfaces

Part 77 Surface	*Runway 11*	*Runway 29*	*Runway 7-25*
Horizontal	150 feet above airport elevation (212 AMSL); 10,000 foot swinging arc from center of each runway end.	150 feet above airport elevation (212 AMSL); 10,000 foot swinging arc from center of each runway end.	150 feet above airport elevation (212 AMSL); 5,000 foot swinging arc from center of each runway end.
Conical	20:1 slope from horizontal surface; 4,000 foot horizontal distance.	20:1 slope from horizontal surface; 4,000 foot horizontal distance.	20:1 slope from horizontal surface; 4,000 foot horizontal distance.
Primary	200 feet beyond runway end; 500 feet wide for RWY29.	200 feet beyond runway end; 1,000 feet wide for RWY 11.	200 feet beyond runway end; 250 feet wide.
Approach	3,500 foot inner edge, extending 10,000 feet at 34:1 slope for RWY 29.	16,000 foot inner edge, extending 10,000 feet at 50:1 slope for RWY 11.	1,250 foot inner edge, extending 5,000 feet at 20:1 slope.
Transitional	7:1 slope from primary and approach surface, 5,000 feet horizontally from edge of approach surface.	7:1 slope from primary and approach surface, 5,000 feet horizontally from edge of approach surface.	7:1 slope from primary and approach surface, 5,000 feet horizontally from edge of approach surface.

Source: Part 77, Objects Affecting Navigable Airspace (1993)


Runway Safety Areas and Part 77 Surfaces
Figure 4-1
Legend
Runway Protection Zone
City Limits
Part 77 Surfaces
APPROACH
CONICAL
HORIZONTAL
PRIMARY
TRANSITION
Source: ALUP, USDA NAIP 2012 Image, City of San Luis Obispo
slo 2035 LAND USE & CIRCULATION UPDATE
0
0.5
1
Miles
city of san luis obispo
SLOGIS 20131022

4.1 Air Traffic Procedures at SBP

Pilots navigate to and from an airport using visual flight rules (VFR) or instrument flight rules (IFR). Pilots flying IFR must use procedures published by the FAA, which are based on the class of airspace and equipment available at the airport and inside the aircraft. San Luis Obispo Airport currently has five published instrument approach procedures (LOC RWY 11, ILS RWY 11, RNAV GPS RWY 11, RNAV GPS RWY 29, VOR or TACAN-A) and three departure procedures (AVILA THREE Departure, CREPE THREE Departure, WYNNR TWO Departure). The instrument approach and departure "plates" for these procedures are provided in Appendix C, *Instrument Approach Procedures (IAPs) and Standard Instrument Departures (SIDs) at SBP*. The instrument procedures at SBP provide straight-in final approaches to Runway 11 and Runway 29 with vertical guidance for pilots flying in instrument weather conditions creating the safest approach possible and avoiding the need to use circling approaches.

The Airport has a right-turn traffic pattern off Runway 11-29 at the following altitudes: 1,212 feet above mean sea level (AMSL) (1000 feet above airport elevation); 1,203 feet AMSL (991 feet above airport elevation) for single engine; 1,703 feet MSL (1,491 above airport elevation) for multi–engine, jet and high performance. There are no traffic patterns off Runway 7-25 and all arriving and departing aircraft using this runway enter the traffic pattern for Runway 11-29. This improves safety for all aircraft operating at SBP.

Understanding where and how aircraft fly into and out of an airport determines the geography of risk around an airport. The California Airport Land Use Planning Handbook states that, "the geography of risk is determined by the runway configuration, approach and departure procedures, and other factors that determine where aircraft fly and where accidents occur. Except where features on the ground influence where aircraft actually fly—high terrain or a noise abatement route, for instance—safety zones should be defined independent of existing and future land uses and other geographic features."

Figure 4-2 is an illustrative diagram of the approach and departure procedures at SBP.

4.2 Accidents at SBP

As per the California Airport Land Use Planning Handbook, "the first step in creating safety compatibility zones is to identify historical accident location patterns". From a land use planning perspective, the risk associated with where accidents may occur in the future based on where they have occurred in the past, comes down to frequency and consequences. However, where accidents have occurred in the past is no guarantee that they will occur again in precisely the same location, especially at an airport where a limited amount of data is not likely to be statistically significant.

At airports with limited accident history data, a better option for determining accident risk is to review the 2002 and 2010 Aircraft Accident Research provided in Appendix E of the California Airport Land Use Planning Handbook. The 2002 research analyzed accident data between the years 1983 and 1992. The 2010 research is an update to the information provided in the 2002 Handbook and focuses on accidents that occurred between the years 2000 and 2009, exclusively in California (research in 2002 focused on accident data nationwide). The task of gathering and reviewing data from the National Transportation Safety Board (NTSB) was accomplished by the University of California, Berkeley, Institute of Transportation Studies working under contract to the California Department of Transportation Division of Aeronautics. To form the best reasoning for risk, the following criteria were applied: 1) Only accidents, no incidents, 2) Only accidents that occurred off runway (beyond primary surface), 3) Only accidents that occurred during takeoff, climb, approach and landing, 4) Only accidents that occurred

within 5 miles of the airport, 5) Only fixed wing, powered aircraft, and 6) Only NTSB records with latitude and longitude information for the accident locations (the latitude and longitude information was compared to the narrative for accuracy).

After applying these criteria, the 2010 research found 70 accident records fit for study. The 2002 Handbook examined 873 records that fit the above criteria. The 2010 records, plotted on an X and Y axis, as well as records from the study performed in 2002, are found in Appendix D, *California Airport Land Use Planning Handbook Accident Study*. These two studies form the basis for the recommended safety zones in the 2011 Handbook.

Some of the major findings from the research in the 2002 Handbook and 2011 Handbook are as follows[8]:

- Over two-thirds of both general aviation (68%) and commercial (67%) aircraft accidents take place on an airport.
- Another 3% of general aviation and 7% of commercial aviation are en route accidents— defined as ones occurring more than 5 miles from an airport.
- 29% of general aviation and 26% of commercial aviation accidents can be classified as airport-vicinity accidents—within 5 miles of an airport.
- Three-fourths (77%) of all general aviation landing accidents occur during touchdown or roll-out (usually hard or long landings, ground loops, etc.). The remaining 23% of general aviation landing accidents take place in the landing pattern, on final approach, or during a go-around attempt.
- Accidents on or near the runway range from 64% for air carrier operations, to 51% for commuter operations, to 58% for air taxi operations.
- Accident sites tend to be fairly close to the extended runway centerline and closer to the runway end than at points farther away.
- The greatest proportion of general aviation takeoff/departure accidents (some 65%) take place during the initial climb phase.
- For single-engine airplanes, a high percentage of accidents can be expected to occur within 7,000 to 9,000 feet of the start of takeoff roll.
- For multi-engine airplanes, including jets, a high percentage of accidents can be expected to occur within 5,000 to 10,000 feet of the start of takeoff roll.
- Approximately 86% of all general aviation accidents and 61% of commercial aircraft accidents take place during dawn, daylight, or dusk with about 14% of general aviation accidents and 39% of commercial aviation accidents occurring in hours of darkness.

There have been 33 accidents investigated by the NTSB at SBP between 1982 and 2013. *Table 4-3* summarizes this accident information and Appendix E, *NTSB Records of Probable Cause for Accidents at SBP* provides the probable cause for each of these accidents. Of the investigated accidents, six were fatal and meet the same criteria used by the University of California, Berkeley to form the best reasoning for risk (*Figure 4-3*). These six fatal accidents occurred during the takeoff, climb, approach or landing phase of flight and within five miles of the airport. There were 13 fatalities, none of which involved people on the ground.

[8] This data is summarized from the 2011 California Airport Land Use Planning Handbook, Appendix E.

During this time frame there has been one accident and one incident involving commercial airlines. On August 24, 1984 Wings West Flight 628 collided midair with a Rockwell 112 TC (single-engine aircraft) approximately eight miles west-northwest of SBP. Both aircraft crashed on open terrain and there were 17 fatalities. On May 13, 1997 the flight crew operating a Wings West flight experienced a power failure of both left and right engines during initial climb. After about 20 seconds, the engines recovered sufficient power, and the flight crew was able to land on the departure runway.

The California Airport Land Use Planning Handbook requires the assessment of historical accident data at an airport as a first step in defining safety zones. However, the historical accident data at SBP is insufficient to draw conclusions about risk of accidents in the future based on frequency and consequence. The Handbook recognizes that many general aviation airports will have limited accident history data (such as SBP) and suggests that a better option for determining accident risk is to review the 2002 and 2010 Aircraft Accident Research provided in Appendix E of the California Airport Land Use Planning Handbook. As seen in *Figure 4-3*, the accidents that have occurred at SBP fall within the safety zones recommended by the Handbook for an airport like SBP, which means that using these safety zones should adequately cover risk of future accidents at SBP.

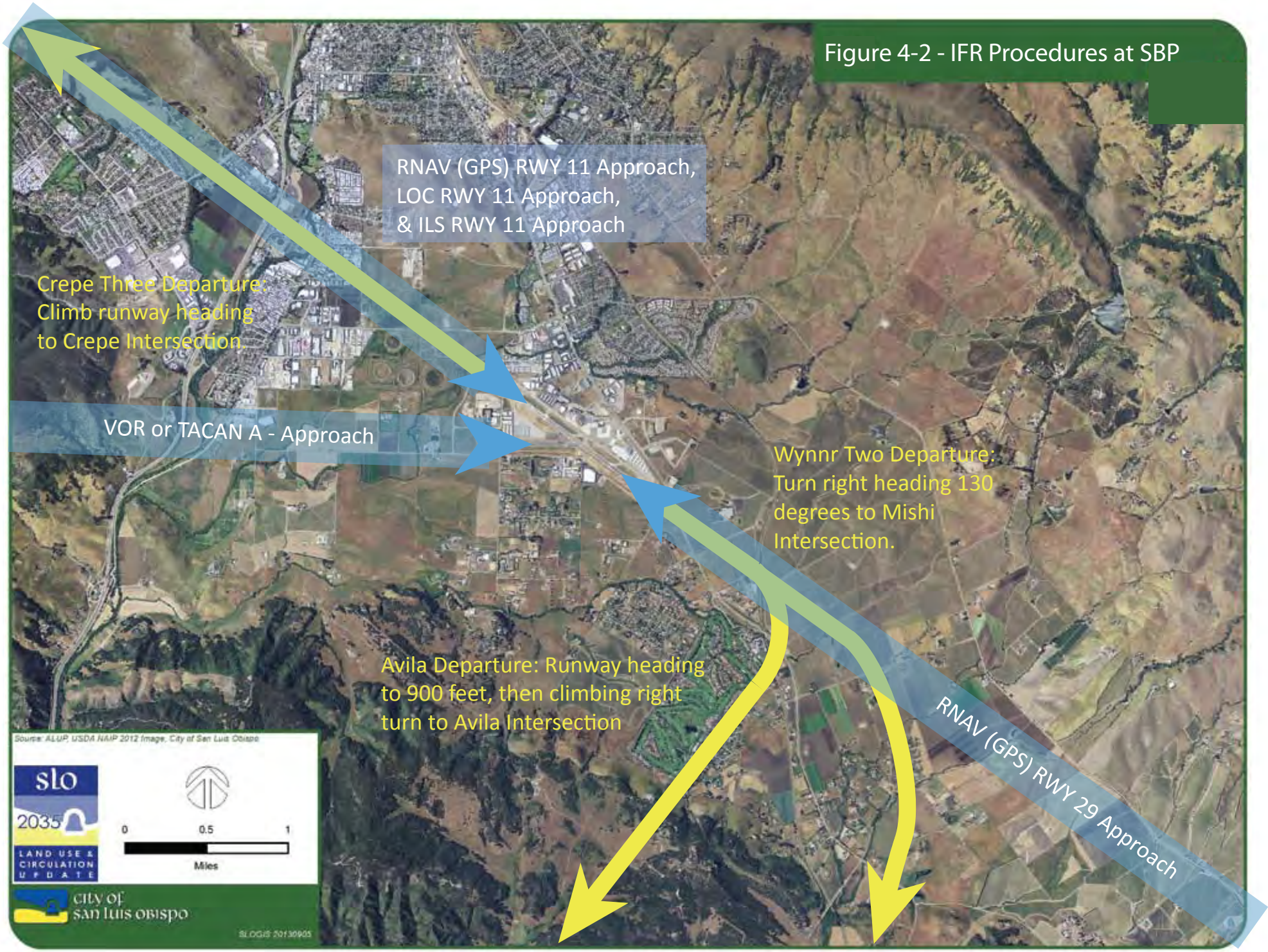


Figure 4-2 - IFR Procedures at SBP
RNAV (GPS) RWY 11 Approach,
LOC RWY 11 Approach,
& ILS RWY 11 Approach
Crepe Three Departure:
Climb runway heading
to Crepe Intersection.
VOR or TACAN A - Approach
Wynnr Two Departure:
Turn right heading 130
degrees to Mishi
Intersection.
Avila Departure: Runway heading
to 900 feet, then climbing right
turn to Avila Intersection
RNAV (GPS) RWY 29 Approach
Source: ALUP, USDA NAIP 2012 Image, City of San Luis Obispo
slo
2035
LAND USE & CIRCULATION UPDATE
0
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1
Miles
city of
san luis obispo

Table 4-3 - Accidents at San Luis Obispo Airport 1982 - 2013													
Investigation Type	Accident Number	Event Date	Airport Code	Injury Severity	Aircraft Damage	Make	Model	Number of Engines	Purpose of Flight	Total Fatal Injuries	Total Uninjured	Weather Condition	Broad Phase of Flight
Accident	WPR13FA289	6/24/2013	SBP	Fatal(1)	Destroyed	CESSNA	P337H	2	Personal	1	Not Reported	VMC	Not Reported
Accident	WPR11LA102	1/20/2011	SBP	Non-Fatal	Substantial	PIPER	PA-28-235	1	Personal	Not Reported	1	VMC	LANDING
Accident	WPR09CA157	3/17/2009	SBP	Non-Fatal	Substantial	PIPER	PA-24-250	1	Personal	Not Reported	1	VMC	LANDING
Accident	LAX08CA124	4/7/2008	KSBP	Non-Fatal	Substantial	Cessna	172S	1	Instructional	Not Reported	1	VMC	Landing
Accident	LAX07CA228	7/18/2007	SBP	Non-Fatal	Substantial	DTA Sari	Combo FC 912	1	Instructional	Not Reported	2	VMC	LANDING
Accident	LAX05FA255	8/1/2005	SBP	Fatal(1)	Destroyed	Piper	PA-28-151	1	Business	1	Not Reported	IMC	CLIMB
Accident	LAX05LA158	5/7/2005	KSBP	Non-Fatal	Substantial	Champion	7ECA	1	Personal	Not Reported	Not Reported	VMC	Cruise
Accident	LAX04LA169	3/21/2004	SBP	Non-Fatal	Substantial	Stanley	Glasair SH-2	1	Personal	Not Reported	Not Reported	VMC	CRUISE
Accident	LAX03LA007	10/13/2002	SBP	Non-Fatal	Substantial	Piper	PA-28-151	1	Instructional	Not Reported	1	VMC	TAXI
Accident	LAX01LA260	7/25/2001	SBP	Non-Fatal	Substantial	Cessna	140	1	Personal	Not Reported	1	VMC	LANDING
Accident	LAX01LA075B	1/15/2001	SBP	Non-Fatal	Substantial	Cessna	310	2	Business	Not Reported	3	VMC	STANDING
Accident	LAX01LA075A	1/15/2001	SBP	Non-Fatal	Substantial	Cessna	T210L	1	Business	Not Reported	3	VMC	TAXI
Accident	LAX01FA070	1/6/2001	SBP	Fatal(2)	Destroyed	Cessna	172F	1	Personal	2		IMC	CLIMB
Accident	LAX00LA270	7/18/2000	SBP	Non-Fatal	Substantial	Piper	PA-38-112	1	Personal	0	1	VMC	TAXI
Accident	LAX99LA248	7/10/1999	KSBP	Non-Fatal	Substantial	Piper	PA-24-180	1	Instructional	Not Reported	2	VMC	Takeoff
Accident	LAX98LA170	5/21/1998	SBP	Non-Fatal	Substantial	Robinson	R22B	1	Instructional	0	2	VMC	LANDING
Accident	LAX98LA115	3/14/1998	SBP	Non-Fatal	Substantial	Robinson	R22 BETA	1	Instructional	0	2	VMC	APPROACH
Accident	LAX96LA309	8/19/1996	SBP	Non-Fatal	Substantial	Cessna	195A	1	Personal	0	2	VMC	LANDING
Accident	LAX96FA228	6/6/1996	SBP	Non-Fatal	Substantial	British Aerospace	BA-3100/3201	2	Positioning	0	2	IMC	TAKEOFF
Accident	LAX95LA324	9/4/1995	SBP	Non-Fatal	Substantial	WELLES	KITFOX SPEEDSTER	1	Personal	0	1	VMC	TAKEOFF
Accident	LAX94FA308	8/7/1994	SBP	Fatal(4)	Destroyed	PIPER	PA-28R-200	1	Instructional	4		VMC	TAKEOFF
Accident	LAX93LA265	6/21/1993	SBP	Non-Fatal	Substantial	CULVER	LCA	1	Personal	0	1	VMC	TAKEOFF
Accident	LAX92LA038	11/2/1991	SBP	Non-Fatal	Substantial	QUESTAIRE	VENTURE	1	Personal	0	1	VMC	LANDING
Accident	LAX91LA283	6/30/1991	SBP	Non-Fatal	Substantial	BOEING	E75	1	Personal	0	1	VMC	LANDING
Accident	LAX90FA332	9/24/1990	SBP	Fatal(4)	Destroyed	CESSNA	500	2	Personal	4	0	IMC	APPROACH
Accident	LAX88FA314	9/7/1988	SBP	Fatal(1)	Destroyed	CESSNA	177RG	1	Personal	1	0	IMC	GO-AROUND
Accident	LAX88LA039	11/11/1987	SBP	Non-Fatal	Substantial	CESSNA	210A	1	Business	0	2	VMC	DESCENT
Accident	LAX87LA163	3/27/1987	SBP	Non-Fatal	Substantial	PIPER	PA-28-235	1	Personal	0	2	VMC	TAKEOFF
Accident	LAX86LA133	3/4/1986	SBP	Non-Fatal	Substantial	CESSNA	152	1	Instructional	0	1	VMC	LANDING
Accident	DCA84AA034B	8/24/1984	SBP	Fatal(17)	Destroyed	Rockwell	112TC	1	Instructional	17	0	VMC	DESCENT
Accident	DCA84AA034A	8/24/1984	SBP	Fatal(17)	Destroyed	BEECH	C-99	2	Unknown	17	0	VMC	CLIMB
Accident	LAX83LA178	4/5/1983	SBP	Non-Fatal	Substantial	PIPER	PA 32-300	1	Positioning	0	0	VMC	TAKEOFF
Accident	LAX82DA076	2/17/1982	SBP	Non-Fatal	Substantial	CESSNA	172M	1	Personal	0	2	VMC	LANDING
Source: National Transportation Safety Board Aviation Accident Database													

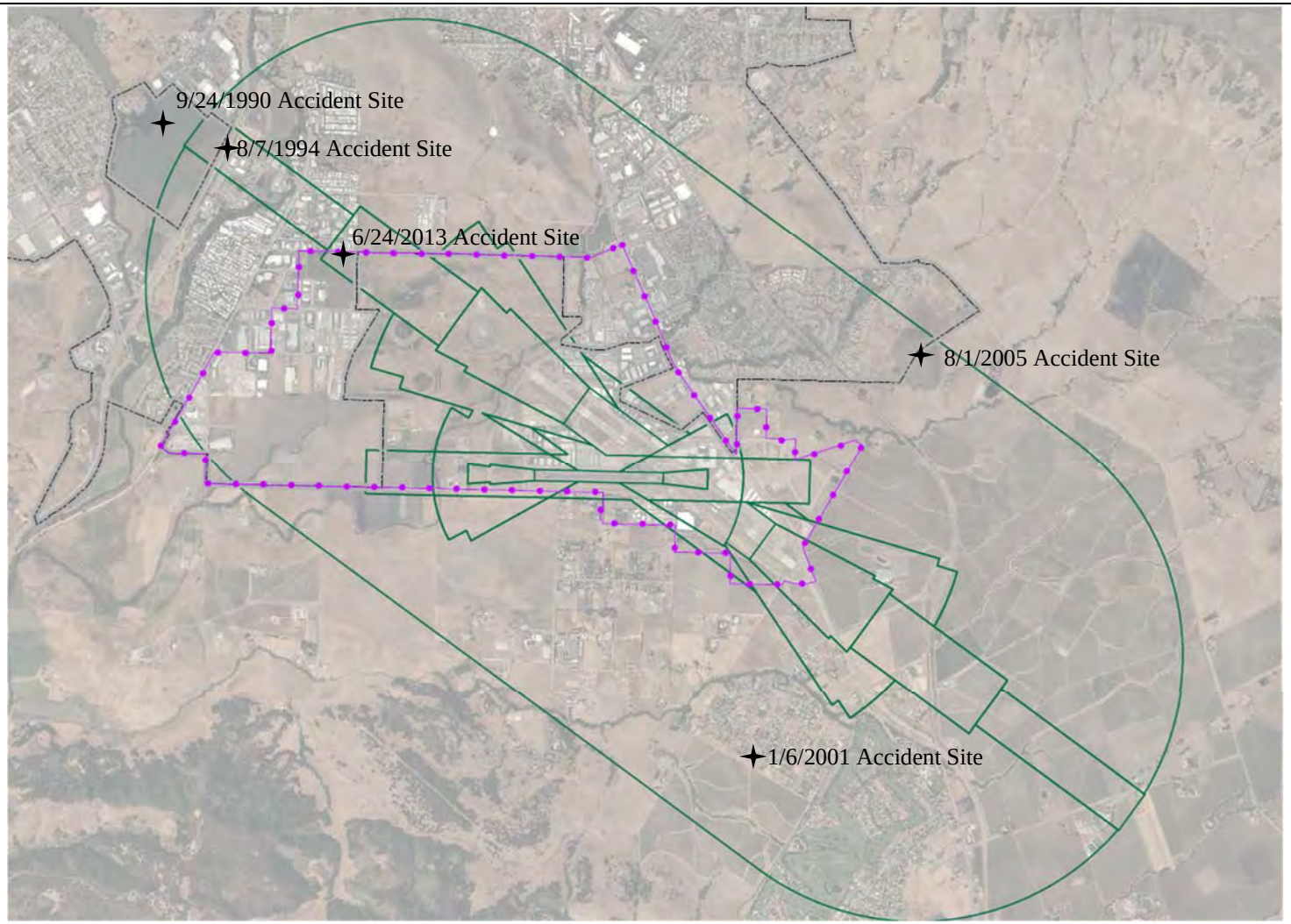


Figure 4-3

SBP Fatal Aircraft Accidents - National Transportation Safety Board Data 1982-2013

4.3 Safety Zone Adjustment Factors

As mentioned in Chapter 2 of this Report, the California Airport Land Use Planning Handbook provides examples of different safety zone configurations to assist in the delineation of safety zones for a given airport. While ALUCs are not mandated to use the sample zones provided in the Handbook, they are mandated to create zones that have easily definable geometric shapes, are as compact as possible, have a distinct progression in the degree of risk represented, and are limited to a realistic number (five or six should be adequate in most cases).

Adjustments to the safety zones recommended by the California Airport Land Use Planning Handbook should be made if there are certain physical and operational characteristics at the airport such as high terrain, roads, or non-standard instrument approach procedures. These characteristics are summarized in Table 3A of the Handbook, which is included in this report as Appendix A, *Handbook Safety Zone Adjustment Factors*.

An analysis of the Handbook Safety Zone Adjustment Factors was completed for SBP and the findings, presented below, indicate that no safety zone adjustments from those recommended by the Handbook are required.

- Airport Area Topography: The presence of high terrain, the edge of a precipice, or other such features may influence the location of aircraft traffic patterns and may need to be considered.
    - High terrain exists in the area of SBP but does not impede the standard traffic pattern or preclude precision and non-precision instrument approaches and departures. Nearby Morro Bay (MQO) VOR provides positive course guidance, positive terrain avoidance and aircraft holding for precision and non-precision instrument procedure missed approaches. **No safety zone adjustments required.**
- Boundaries Based on Geographic Features: Safety zone shapes and sizes might be adjusted in response to existing urban development such as roads, water courses, parcel lines, etc. With the advent of graphic information systems (GIS) this approach is less necessary than in years past.
    - The City and County of San Luis Obispo employ GIS for accurate mapping purposes. **No safety zone adjustments required.**
- Instrument Approach Procedure(s): Non-standard instrument procedures should be identified, as well as the extent to which they are used.
    - Circling Approaches: Circling approaches are charted for SBP including RNAV (GPS) RWY 11, RNAV (GPS) RWY 29, LOC RWY 11 and VOR or TACAN-A but no circling north of Runway 11-29 is allowed for any of these procedures. The circling minimum altitudes for these procedures are at standard traffic pattern altitudes. Even though these procedures are available, there are safer, straight-in approaches available for both runway ends of Runway 11-29. **No safety zone adjustments required.**
    - Non-Precision Approaches at Low Altitudes: Non-precision instrument approaches are charted for SBP including RNAV (GPS) RWY 11, RNAV (GPS) RWY 29, LOC RWY 11 and VOR or TACAN-A but the minimum descent altitudes for these procedures preclude descending below standard traffic pattern altitudes within the airport influence area. **No safety zone adjustments required.**

  - Non-Precision Approaches Not Aligned with the Runway: One non-precision instrument approach charted for SBP (VOR or TACAN-A) is not aligned with a runway but no circling north of Runway 11-29 is allowed for this procedure. The circling minimum altitudes for this procedure are at or above standard traffic pattern altitudes. Even though this procedure is available, there are safer, straight-in approaches available for both runway ends of Runway 11-29. **No safety zone adjustments required.**

- Other Special Flight Procedures or Limitations: Single-sided traffic patterns, nearby airports, high terrain, or noise-sensitive land uses may dictate where and at what altitude aircraft fly and may need to be taken into account during safety zone delineation.
  - Voluntary noise abatement procedures are established for SBP but when used, increase aircraft altitudes and increase safe operating altitudes. **No safety zone adjustments required.**
- Runway Use By Special-Purpose Aircraft: Fire attack, agricultural, military airplanes, and helicopters often have their own flight procedures, which need to be considered during the shaping of safety zones.
  - Military transport-type aircraft and helicopters make use of the SBP runways. Military aircraft fly standard arrival and departure procedures and helicopters likewise fly standard procedures for approach, departure and closed traffic patterns. **No safety zone adjustments required.**
- Small Aircraft Using Long Runways: When small airplanes take off from long runways (especially runways in excess of 8,000 feet in length), it is common practice for them to turn toward their intended direction of flight before passing over the far end of the runway, which can create a safety issue.
  - The longest runway at SBP is 6,100 feet long and is considered a standard general aviation runway (less than 8,000 feet long). The presence of an air traffic control tower and voluntary noise abatement procedures preclude early turns before an aircraft reaches the end of the departure runway and prior to reaching safe turning altitudes. **No safety zone adjustments required.**
- Runways Used Predominantly in One Direction: This factor does not apply to any of the runways at SBP. **No safety zone adjustments required.**
- Displaced Landing Thresholds: Runway 11 has a displaced threshold of 800 feet and Runway 29 has a displaced threshold of 500 feet. The safety zones have not been adjusted to reduce their length commensurate with these displaced thresholds thereby increasing the safety factor for each runway. **Safety Zone Reduction Possible.**

5 AIRPORT OPERATIONS

San Luis Obispo Airport has had a mix of commercial airline service and general aviation operations for most of its history. Between 1946 and 1956 Southwest Airways operated passenger flights, and in 1969, Swift Aire Lines started scheduled flights. By the time the control tower opened in 1988, SkyWest Airlines, WestAir, and Wings West (later merged into American Eagle) were in operation.

The recession that began in 2007 had a great impact on air travel. SBP lost nearly 34% of its enplanements as carriers responded to the rising price of oil, declining demand and realigned air service networks. American Eagle ceased all service into San Luis Obispo in 2008 and closed its maintenance base at the Airport. Delta Connection service to Salt Lake City also ceased in this time period.

Two regional airlines now serve San Luis Obispo: United Express and US Airways Express. United Express flies to Los Angeles and San Francisco while US Airways Express flies to Phoenix. The Airport offers convenient access to and from the Central Coast for residents and visitors. Two all-cargo airlines also operate out of SBP: West Air Inc. for FedEx Express and Ameriflight for UPS.

The Airport is home to full service general aviation and corporate flight facilities, including aircraft maintenance, aircraft rental, charter services, flight instruction, and fuel services. The recession and soaring aviation fuel prices have also impacted general aviation. The amount of leisure flying and business travel on private jets has decreased.

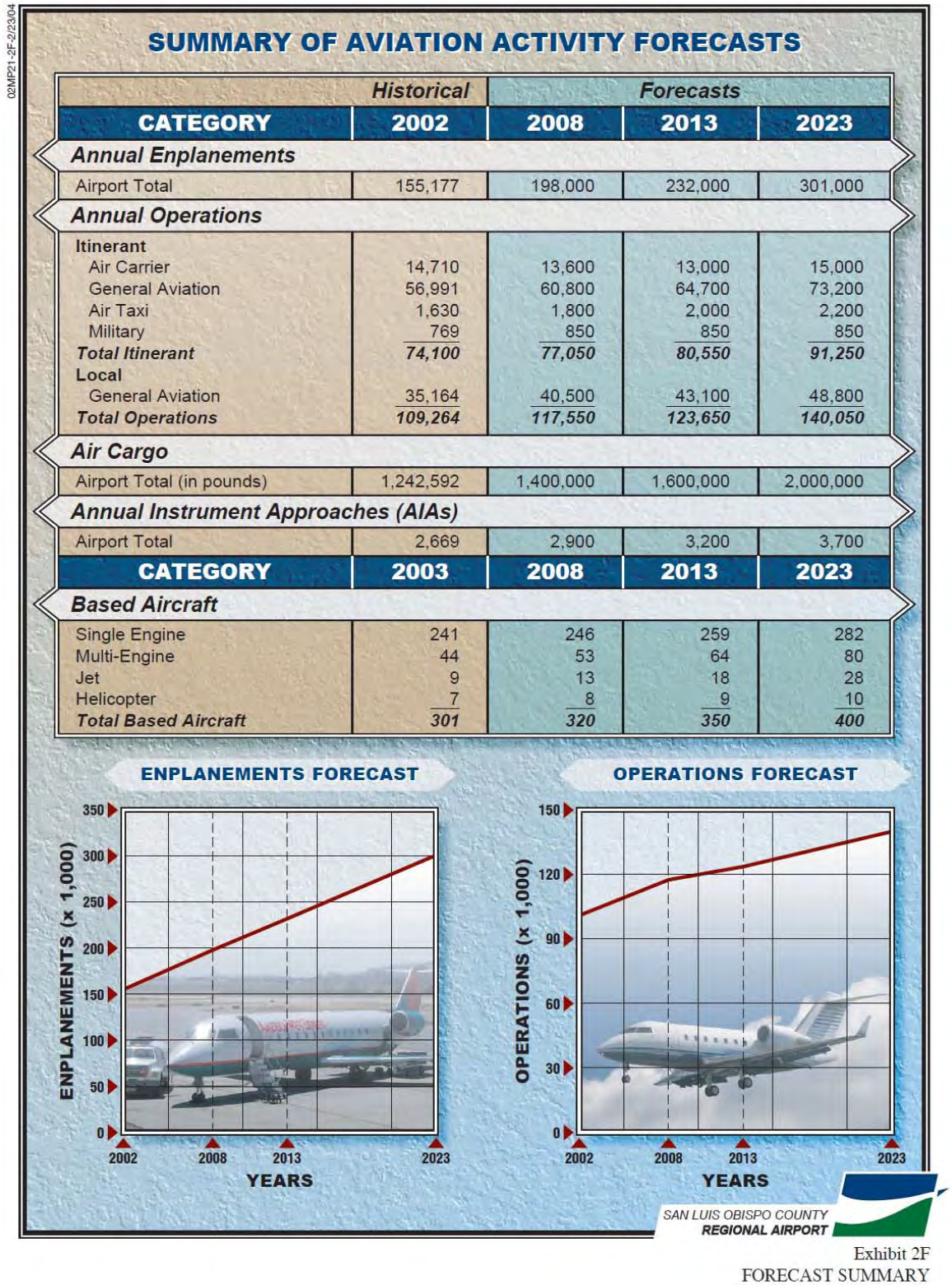
At the time of the SBP Master Plan Update (adopted in 2005), the fleet mix at SBP consisted of the following: 241 single-engine aircraft, 44 multi-engine aircraft, nine jets, and seven helicopters. Business aviation accounted for approximately 5% of general aviation operations, with the majority of general aviation operations being flight training and leisure flying. The split of general aviation operations at the Airport averaged 60 percent itinerant and 40 percent local, and military operations accounted for less than one percent of total operations. Enplaned air cargo at the Airport was growing at an average annual rate of 2.4 percent. The forecasts prepared for the master plan update are shown in *Figure 5-1*.

These forecasts were used as the basis for noise modeling in the SBPEA/EIR completed in 2006, which stated:

> The FAA and State of California require that annual average daily aircraft activity levels be used for the calculation of noise exposure as defined by the CNEL for federally-sponsored airport improvement projects. The annual average number of daily aircraft operations is determined by dividing the total number of aircraft operations occurring over the year by 365. This means that the number of aircraft operations assumed for the preparation of noise contours is likely to be less than the number of operations that occur on a busy day and greater than the number of operations that occur on a slow day. As previously stated, annual average levels of aircraft activity are generally used for assessment of the long-term or cumulative effects of noise from aircraft and other transportation sources.

The average annual daily aircraft operations and day/evening/night split used for noise modeling in the SBPEA/EIR are shown in *Figure 5-2* and *Figure 5-3*.

Figure 5-1 – SBP Master Plan Update Forecast



Source: SBP Master Plan Update (adopted in 2005)

Figure 5-2–SBPEA/EIR Annual Average Daily Aircraft Operations

TABLE 5.1-2
ANNUAL AVERAGE DAILY AIRCRAFT OPERATIONS: 2004-2023
SAN LUIS OBISPO COUNTY REGIONAL AIRPORT

Aircraft	Baseline Conditions (2004)	No Action Alternative (2010)	Proposed Action (2010)	Proposed Action (2023)
Itinerant Operations:				
EMB 120	20.0	18.63	6.99	0
20-35 Seat Commuter (Saab 340)	12.0	11.18	3.99	0
Embraer 140	2.0	2.30	4.39	8.22
CRJ-200/EMB 175/190	8.0	9.18	17.57	32.88
36-70 Seat Commuter (Q400)	0	4.58	3.66	0
Business Jets	21.03	22.4	22.40	26.3
Twin engine turboprop.	3.25	3.46	3.46	4.06
Twin engine piston prop.	12.13	12.68	12.68	14.88
Single engine prop.	133.41	139.36	139.36	163.56
Helicopter	6.12	6.40	6.40	7.50
Military	1.15	2.31	2.31	2.31
Subtotal	**219.09**	**232.48**	**223.21**	**259.71**
Local Operations:				
Twin engine piston prop.	7.70	8.44	8.44	9.92
Single engine prop.	84.58	92.82	92.82	109.04
Helicopter	3.88	4.26	4.26	5.00
Subtotal	**96.16**	**105.52**	**105.52**	**123.96**
Daily Totals	**315.25**	**338.00**	**328.73**	**383.67**
Annual Totals	**115,066**	**123,370**	**119,989**	**140,049**

NOTE: 2004 operations data was collected from the San Luis Obispo County Regional Airport

SOURCE: San Luis Obispo County Regional Airport Master Plan Update, 2005.

Source: SBPEA/EIR (2006)

Figure 5-3 – SBPEA/EIR Day/Evening/Night Split

TABLE 5.1-3
TEMPORAL DISTRIBUTION OF AIRCRAFT OPERATIONS FOR SAN LUIS OBISPO COUNTY REGIONAL AIRPORT

	Arrivals			Departures		
Aircraft Category	7a–7p	7p–10p	10p–7a	7a–7p	7p–10p	10p–7a
Commuter/Air Taxi	*67%*	*19%*	*14%*	*67%*	*19%*	*14%*
Twin Eng. Prop.	71%	21%	8%	71%	21%	8%
Single Eng. Prop.	85%	11%	4%	85%	11%	4%
GA Jet	90%	10%	-0-	90%	10%	-0-
Helicopter	80%	20%	-0-	80%	20%	-0-

SOURCE: Airline Schedules 2004; 1998 San Luis Obispo Airport Master Plan EA/EIR.

Source: SBPEA/EIR (2006)

Aviation demand in a region is based on driving factors such as population, employment and income. The more vibrant a community, the more likely it is to have a population that can afford to fly. Other factors such as the price of fuel, price of aircraft rental, travel options, airline ticket prices, and destinations served by airlines can also have a strong effect on consumer choices about business and leisure travel.

Since the preparation of the master plan update and forecasts, operations at the Airport have changed significantly, mostly due to the recession mentioned earlier in this chapter, but also as a result of demographics in the region. The City's population growth was half as fast in the past decade than during the 1990s. Retail, accommodation, and food services continues to be the largest industry group employer in the City, but also represents the group with the lowest median annual earnings (approximately $10,000), and there is a high student population working part time. Even though the median price of a house dropped to $400,000, the qualifying income is about $95,000, which is more than twice the median household income of $42,500. (San Luis Obispo General Plan Update [October, 2013] and Economic Development Strategic Plan [October, 2012]). *Table 5-1* summarizes historical and forecast operations at SBP, as prepared by the FAA.

Table 5-1 – FAA TAF Enplanements, Operations, Based Aircraft at SBP

SBP - FAA TAF Enplanements, Operations, Based Aircraft

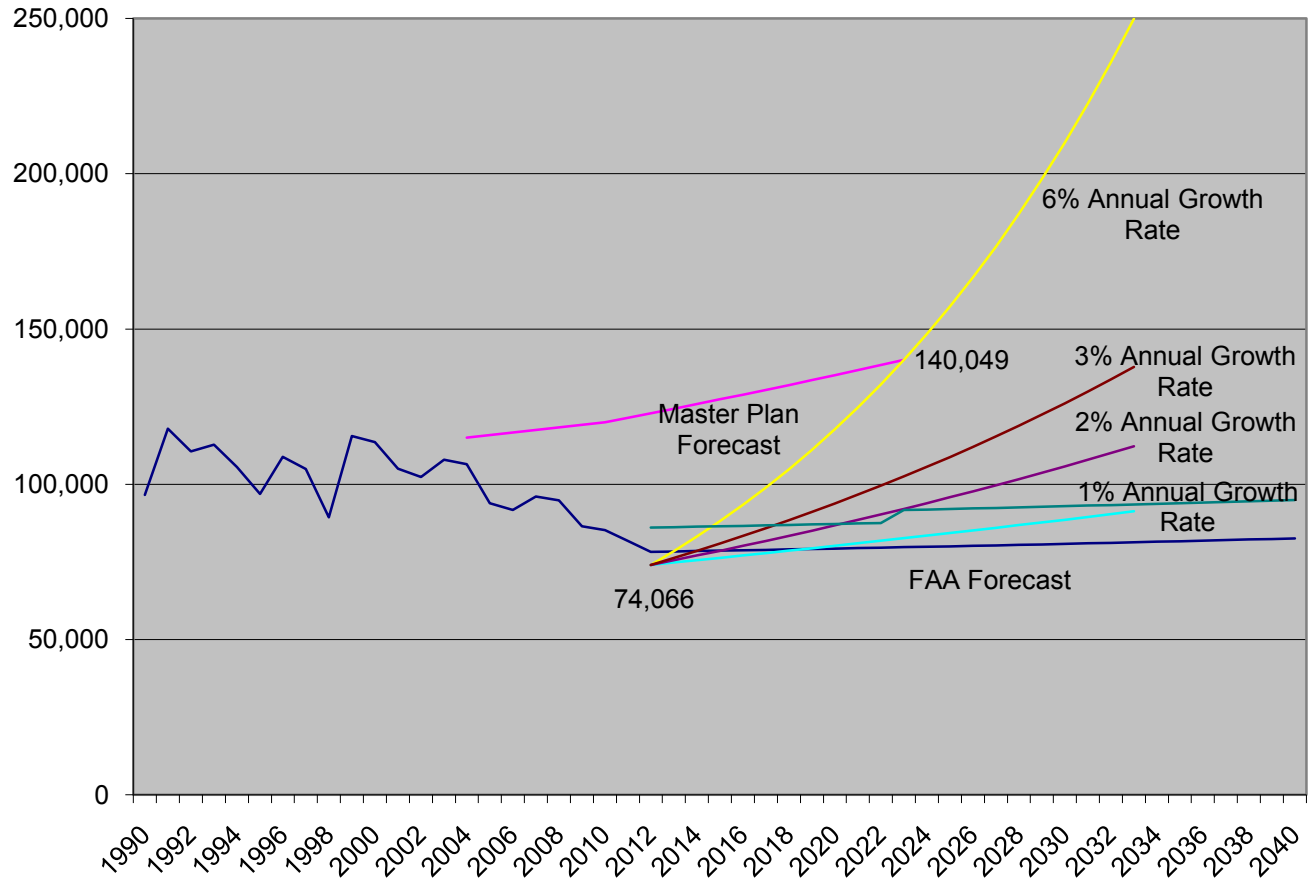
YEAR	**Total Enplanements**	Itinerant Operations	Local Operations	**Total Operations**	*Total Based Aircraft*
2000	**149,084**	68,653	44,882	**113,535**	*255*
2001	**149,810**	65,056	39,954	**105,010**	*242*
2002	**136,235**	67,053	35,339	**102,392**	*242*
2003	**141,648**	63,500	44,380	**107,880**	*243*
2004	**152,132**	65,479	40,992	**106,471**	*301*
2005	**168,540**	58,822	35,122	**93,944**	*301*
2006	**174,784**	57,462	34,278	**91,740**	*494*
2007	**176,211**	64,113	31,967	**96,080**	*319*
2008	**165,716**	60,995	33,829	**94,824**	*307*
2009	**117,884**	55,152	31,361	**86,513**	*293*
2010	**123,824**	53,391	31,866	**85,257**	*257*
2011	**134,623**	52,431	29,323	**81,754**	*269*
2012	**129,386**	50,994	28,804	**79,798**	*272*
2013	**129,079**	44,417	23,578	**67,995**	*275*
2014	**132,866**	43,861	22,817	**66,678**	*277*
2015	**136,766**	44,026	22,813	**66,839**	*278*
2016	**140,779**	44,193	22,809	**67,002**	*280*
2017	**144,913**	44,363	22,805	**67,168**	*283*
2018	**149,168**	44,535	22,801	**67,336**	*285*
2019	**153,545**	44,709	22,797	**67,506**	*287*
2020	**158,053**	44,886	22,793	**67,679**	*289*
2025	**182,653**	45,805	22,773	**68,578**	*300*
2030	**211,084**	46,785	22,753	**69,538**	*310*
2035	**243,938**	47,834	22,733	**70,567**	*320*
2040	**281,909**	48,955	22,713	**71,668**	*330*

Source: FAA Terminal Area Forecast Issued January 2014

Note: Numbers in yellow highlighted cells indicate forecast prepared by FAA

The trends predicted in the SBP Master Plan Update have not come to fruition. Actual annual aviation activity at SBP has been significantly lower than the SBP Master Plan forecasts. For example, the Master Plan Update forecast 117,550 total operations in 2008. However, the actual total operations recorded for that year was 94,824—a difference of approximately 24 percent. It is also important to note that while the Master Plan Update forecast operations, enplanements, and based aircraft growing each year, the actual numbers have declined. Actual annual aviation activity at SBP was 66% lower than the SBP Master Plan forecast for 2012 and it appears that this gap will grow larger in 2013 with even lower SBP aircraft operations. While it is plausible that at some point in its future SBP will reach the 140,050 total operations forecast in the Master Plan Update, it is uncertain when this threshold will be reached. The more modest prediction in the FAA TAF of 68,212 total operations in 2023 appears to be more in line with current trends as total operations continue to decline. *Figure 5-4* is an illustrative depiction of various comparative growth trends for the Airport provided for perspective.

Figure 5-4 – Comparison of Forecasts at SBP



Forecasts must be submitted to the FAA for approval. As per FAA AC 150/5070-6B, *Airport Master Plans*, master plan forecasts for operations, based aircraft, and enplanements are considered to be consistent with the TAF if they differ by less than 10 percent in the 5-year forecast and 15 percent in the 10-year period for "other commercial service airports" like SBP.

Regardless of this requirement, the SBP EA/EIR (2006) noise analysis used the SBP Master Plan Update forecasts, and these forecasts were also used to validate that noise analysis, the results of which are summarized in Chapter 6, *Airport Noise*. Even though the SBP Master Plan Update forecast is based on

aggressive growth at SBP, and trends that are not in line with existing activity and the FAA forecast, it substantiates the ultimate development of the Airport, which is shown on the FAA-approved ALP. *Table 5-2* summarizes historical and existing activity at SBP, as well as the FAA TAF and Master Plan Update forecasts prepared for the Airport.

Table 5-2 - Airport Activity - San Luis Obispo County Regional Airport

Based Aircraft:

Historical (2004)	Existing (2011)	TAF Forecast (2023)	MP Forecast (2023)
301[1]	269[1]	296[1]	400[2]

General Aviation Fleet Mix[2]:

Type	MP Existing (2004)	MP Forecast (2023)
Single-Engine	241 (80.1%)	282 (70.5%)
Multi-Engine	44 (14.6%)	80 (20.0%)
Jets	9 (3.0%)	28 (7.0%)
Helicopters	7 (2.3%)	10 (2.5%)
Total	301 (100%)	400 (100%)

Operations:

Historical (2004)	Existing (2011)	TAF Forecast (2023)	MP Forecast (2023)
106,471[1]	81,754[1]	68,212[1]	140,050[2]

Annual Average Daily Aircraft Operations[3]:

Type	Existing (2004)	Proposed (2023)
Itinerant Operations		
EMB 120	20	0
20-35 Seat Comm (Saab 340)	12	0
Embraer 140	2	8.22
CRJ-200/EMB 175/190	8	32.88
36-70 Seat Comm (Q400)	0	0
Business Jets	21.03	26.3
Twin-Engine Turboprop	3.25	4.06
Twin-Engine Pistonprop	12.13	14.88
Single-Engine Prop	133.41	163.56
Helicopters	6.12	7.5
Military	1.15	2.31
Subtotal	***219.09***	***259.71***
Local Operations		
Twin-Engine Pistonprop	7.7	9.92
Single-Engine Prop	84.58	109.04
Helicopters	3.88	5
Subtotal	***96.16***	***123.96***
Daily Totals	***315.25***	***383.67***
Annual Totals	***115,066***	***140,049***

Flight Track Allocation - Baseline and Future[3]:

Departures	
Runway 11	23%
Runway 29	77%
Runway 25	3%
Note: Runway 25 has GA propeller operations only	
Arrivals	
Runway 11	23%
Runway 29	77%
Touch and Go	
Runway 11	23%
Runway 29	77%

Air Cargo Freight (total in pounds):

Historical (2002)[2]	Existing (2011)[4]	Forecast (2023)[2]
1,242,592	2,698,682	2,000,000

Temporal Distribution of Aircraft Operations[3]:

	Arrivals			*Departures*		
Aircraft Category	7a-7p	7p-10p	10p-7a	7a-7p	7p-10p	10p-7a
Commuter/Air Taxi	67%	19%	14%	67%	19%	14%
Twin Eng. Prop.	71%	21%	8%	71%	21%	8%
Single Eng. Prop.	85%	11%	4%	85%	11%	4%
GA Jet	90%	10%	0%	90%	10%	0%
Helicopters	80%	20%	0%	80%	20%	0%

Source: [1/]FAA Terminal Area Forecast Report (2014); [2/]SBP Master Plan Update, Preferred Planning Forecast (2003);
[3/]SBP EA/EIR (2006); [4/]SBP Statistics (www.sloairport.com)

6 AIRPORT NOISE

Airport noise impact control through preventive measures is one of the fundamental airport land use compatibility planning considerations. Airport noise compatibility criteria are set by the FAA and similar guidelines have been adopted in California with additional guidance provided by Caltrans for noise analysis within airport land use plans.

Aircraft noise and its impact on people and property is federally regulated by the FAA[9]. The State of California has also established regulations for the maximum normally accepted aircraft noise levels to be consistent with federal aircraft noise regulations. This standard is the 65 dB yearly average noise level (using the Day-Night Level [DNL] for federal purposes and the Community Noise Equivalent Level [CNEL[10]] for California as officially recognized by the FAA for use in the State) for residential and other noise sensitive land uses. Federal interior noise levels are set for structures within the 65 dB CNEL contour and experiencing 45 dB or higher of interior noise with windows closed. Current guidance by the FAA allows local jurisdictions to set formal noise standards at 60 dB CNEL for land use compatibility planning if agreed to formally by both the airport sponsor (in this case the County of San Luis Obispo) and the local jurisdiction, however the 45 dB interior noise standard remains[11].

As discussed in Section 2.1, *Noise*, the best way to protect persons from excessive noise exposure is for the airport sponsor to carry out a Part 150 Noise Compatibility Program (NCP). A Part 150 NCP shows what measures the airport operator has taken, or proposes to take, to reduce noncompatible land uses and prevent the introduction of additional noncompatible land uses within the area covered by the airport's noise exposure map (NEM). The FAA reviews and approves airport NCPs and NEMs under 14 CFR Part 150, *Airport Noise and Compatibility Planning*. The FAA requires specific information to review and approve the program including assumptions on the type and frequency of aircraft operations, number of nighttime operations, flight patterns, airport layout including planned airport development, planned land use changes and demographic changes within the 65 dB CNEL noise contours. The FAA tracks all airports in the United States that have applied to the program and the status of those NCPs and NEMs as they are periodically updated. San Luis Obispo Airport is included in this tracking list, but to date, has not submitted a NCP or NEM to the FAA for review and approval[12]. As per the SBP EA/EIR (2006) there are no noise sensitive land uses within the existing 65 dB CNEL or 60 dB CNEL noise contours, or for the forecast noise contours.

There is significant guidance material regarding airport noise compatibility planning within the updated 2011 California Airport Land Use Planning Handbook. *Figure 6-1* is a summary of the suggested applicable standards for consideration by ALUCs and local communities.

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[9] See http://www.faa.gov/airports/environmental/airport_noise/ for links to the full body of FAA information on Airport Noise Compatibility Planning.

[10] The DNL standard provides a 10 times nighttime noise penalty to aircraft operations taking place between 10 PM and 7 AM. This is the effect of one nighttime operation counting as 10 operations toward the total noise impact on the airport community and reflects the higher sensitivity toward nighttime noise when ambient noise levels are generally lower. The CNEL standard provides this same DNL nighttime penalty but it also adds a three-times evening penalty from 7 PM to 10 PM. This is the effect of one evening operation counting as three operations toward the total noise impact.

[11] See Paragraph 812.b.2. for specific FAA guidance on locally approved noise standards http://www.faa.gov/airports/aip/guidance_letters/media/pgl_12_09_NoiseInsulation_attach1.pdf

[12] http://www.faa.gov/airports/environmental/airport_noise/part_150/states/?state=California

Figure 6-1 - Caltrans Handbook Noise Compatibility Criteria Alternatives

For purposes of airport land use compatibility planning, Caltrans advises that 65 dB CNEL is not an appropriate criterion for new noise-sensitive development around most airports. At a minimum, communities should assess the suitability and feasibility of setting a lower standard for new residential and other noise-sensitive development .

TABLE 4B: NOISE COMPATIBILITY CRITERIA ALTERNATIVES (NEW RESIDENTIAL LAND USES)

CNEL	Criteria	Suggested Applicability
65 dB	Set by the FAA and other federal agencies as the level above which residential land uses may be incompatible if not acoustically treated. Established by California state regulations as the maximum normally acceptable noise level for residential and certain other land uses at county-designated noise-problem airports.	Generally not appropriate for most new development. May be acceptable in noisy urban locations and/or in hot climates where most buildings are air conditioned.
60 dB	The contour within which California Building Code (Section 1207.11) requires an acoustical analysis of proposed residential structures, other than detached single-family dwellings. Suggested by the California Governor's Office of Planning and Research *General Plan Guidelines* as the maximum "normally acceptable" noise exposure for residential areas. [Note: Individual noise events will occasionally cause significant interference with residential land use activities, particularly outdoor activities, in quiet suburban/rural communities.]	Suitable for new development around most airports. Particularly appropriate in mild climates where windows are often open.
55 dB	Identified by the EPA as the level below which "undue interference with activity and annoyance" will not occur. [Note: Individual noise events will seldom significantly interfere with residential land use activities (e.g., interference with speech). In urban areas, aircraft contribution to this noise level may be less than that of other noise sources.]	Suitable for airports in quiet, rural locations.

Note: When setting criteria for a specific airport, other characteristics of the airport and its environs also need to be considered.

See Table 4A for normalization factors.

The City of San Luis Obispo is an urbanized area according to the 2010 US Census[13]. Based on this designation and the land use planned in the Airport Influence Area, Caltrans guidelines suggest that existing residential and noise sensitive land uses are appropriate up to the 65 dB CNEL contour, but that new residential development and noise sensitive uses should be limited to the 60 dB CNEL contour or less.

6.1 SBP Master Plan EA/EIR Noise Analysis Review

The aircraft noise analysis prepared for the SBP Master Plan Update in the 2006 EA/EIR provides an accurate mapping of the long term noise impact of the Airport's aviation activity that is tied to the ultimate facilities development depicted in the FAA-approved ALP. Accurate future airport noise impacts are based on total aircraft operations by each aircraft type, the time of day when those

[13] Federal Register, Department of Commerce, Bureau of the Census, Qualifying Urban Areas for the 2010 Census; Notice, March 27, 2012, http://www.gpo.gov/fdsys/pkg/FR-2012-03-27/pdf/2012-6903.pdf

operations occur, runway utilization, and the flight paths of arriving and departing aircraft. The SBPEA/EIR provides a detailed account of these variables in its noise section for the baseline airport activity that was occurring in 2004 as well as for the activity forecasts provided in the SBP Master Plan Update. The activity levels used to model the community noise impact associated with SBP are summarized in Chapter 5, *Airport Operations*.

"For determining the CNEL values around the Airport, Integrated Noise Model (INM) Version 6.1 was used. Version 6.1 is the latest version of the INM and represents the "state-of-the-art" in aircraft noise prediction models. It is also the noise model required by the FAA for use in quantifying aircraft noise exposure for the Federal Aviation Regulation (FAR) Part 150 noise compatibility planning process and for assessing the noise-related impacts of proposed airfield improvement projects." (SBP EA/EIR, 2006).

Noise contours were developed for the SBP EA/EIR at the 65 dB CNEL to 75 dB CNEL levels. For information purposes the SBP EA/EIR also prepared 60 dB CNEL noise contours, even though these contours were not valid for determining impacts. The noise analysis focused on the anticipated impacts resulting from three principal sources of noise: aircraft noise, surface transportation (vehicular traffic and railroad) noise, and construction noise during those periods when construction contemplated by the project is occurring.

To determine the SEL values around SBP, noise measurement sites were selected in cooperation with San Luis Obispo County staff. *Table 6-1* shows the noise monitoring locations and the primary noise sources affecting those locations.

Table 6-1 – SBP Master Plan Update Final EA/EIR Noise Monitoring Locations

TABLE 5.1-1
NOISE MONITORING LOCATIONS

Number	Description	Primary Noise Sources
1	3860 South Higuera Street	aircraft, traffic on South Higuera Street
2	4329 Poinsettia Street	aircraft, traffic on State Route 227
3	Davenport Creek Road	aircraft, traffic on Buckley Road
4	260 Hacienda Avenue	aircraft, traffic on Hacienda Avenue
5	5414 Edna Road	aircraft, traffic on Edna Road

Note: Site number 3 was located 500 feet from the intersection of Davenport Creek Road and Buckley Road.

SOURCE: ESA, 2005

As mentioned in the beginning of this section, to prepare the CNEL contours, aircraft operations data was taken from the forecasts contained within the SBP Master Plan Update. The day/evening/night distribution of commuter aircraft operations at SBP was estimated by reviewing the airline schedules provided by the Airport. The day/evening/night distribution of other aircraft operations was estimated based upon discussions with San Luis Obispo County staff, and previous noise studies conducted for the Airport. Runway use and flight tracks were determined from information provided by the FCT air traffic manager.

According to the EA/EIR, "there are three principal sources of noise in the SBP environs and a number of minor sources. The most obvious principal source is aircraft noise. Depending upon the location of a specific receiver, aircraft noise may be mostly caused by aircraft in flight (i.e., landings, takeoffs, pattern

operations) or aircraft moving about the airfield. However, like most urban or suburban areas, surface traffic noise, which is the second principal source, is pervasive in the Airport environs. The third principal source is railroad noise".

The Proposed Action for SBP assumes that Runway 11 will be extended by 800 feet to the west to accommodate existing passenger loads by the regional jet aircraft that currently operate at SBP, such as the Canadair 601.

The changes in the 2010 CNEL contours for the Proposed Action show that approximately 1.4 additional acres will be within the 65 CNEL contour under the Proposed Action compared to the No Action Alternative in 2010. The EA/EIR states that ***"no noise-sensitive land uses exist within this area where this increase in noise would occur. Therefore, the number of residents within the 65 CNEL noise contour would be zero, which is the same as the number of residents within the 65 CNEL noise contour under the No Action Alternative".***

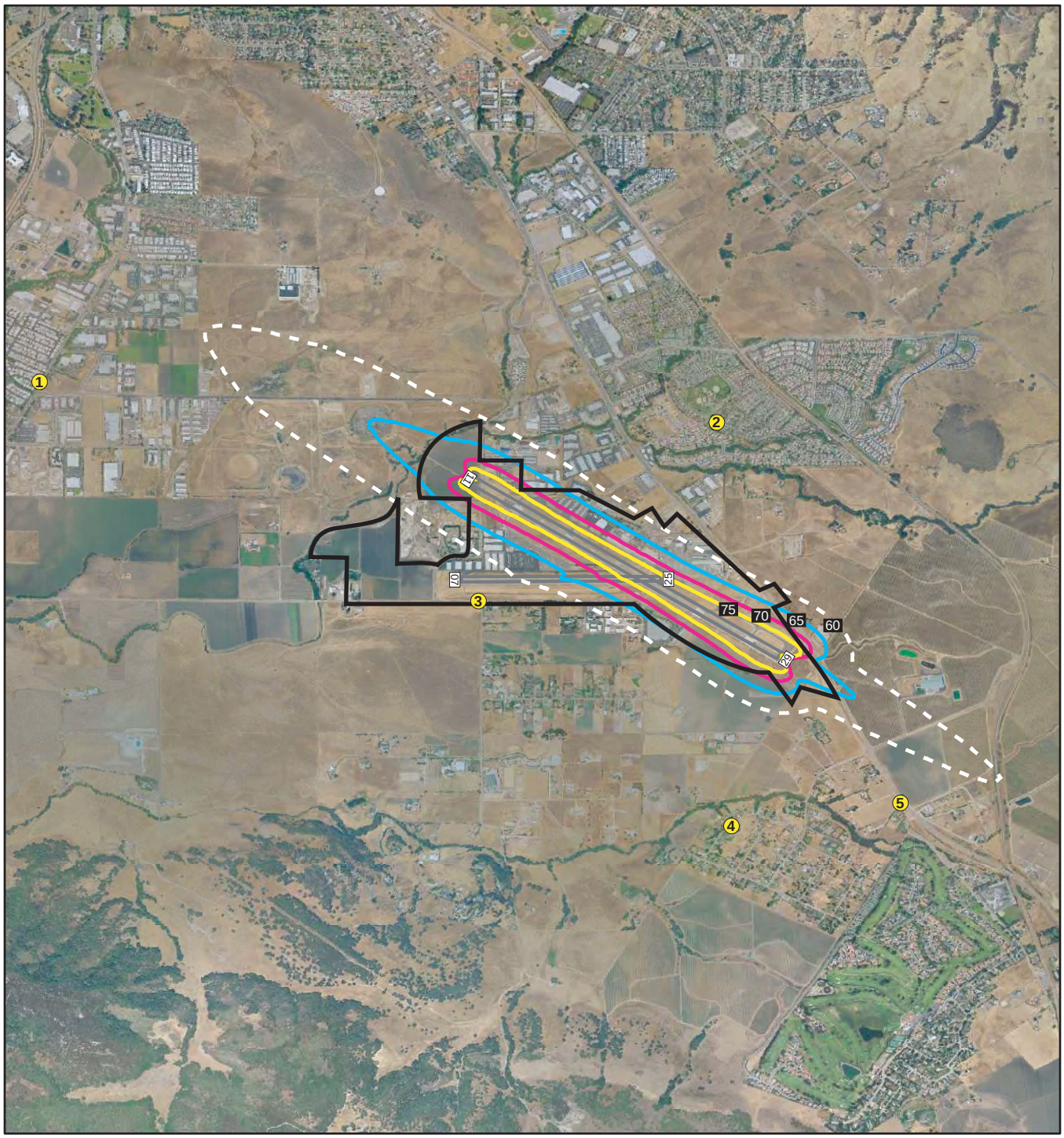
By 2023, approximately 39.9 additional acres will be within the 65 CNEL contour, however there would still not be any noise-sensitive land uses within this contour. This holds true for the 2023 CEQA analysis as well.

Under CEQA analysis, the EA/EIR states that ***"approximately 6.6 additional acres would be within the CNEL contour under the Proposed Action compared to the Baseline Condition in 2004. However, no noise-sensitive land uses or residents exist within this area where this increase in noise would occur".***

With regards to surface traffic noise for both 2010 and 2023, the EA/EIR states that ***"compared to the Baseline Conditions, the Proposed Action would result in an increase in traffic volumes on State Route 227 of about three percent. This is substantially less than the doubling in traffic volumes that would be required for a 3.0 dB increase to occur on roadways in the SBP vicinity. This is a less-than-significant impact".***

With regards to construction noise for both Phase I and Phase II of airport development, the EA/EIR states that ***"the construction noise that would occur under the Proposed Action would result in noise levels that are comparable to common noise events that occur in any residential neighborhood. Therefore, this is a less-than-significant impact".***

The noise contours associated with this analysis are shown in *Figure 6-2* and *Figure 6-3*.



AERIAL SOURCE: Airphoto USA, 8-01-03

0 2600
Foot

1 Noise Monitoring Sites

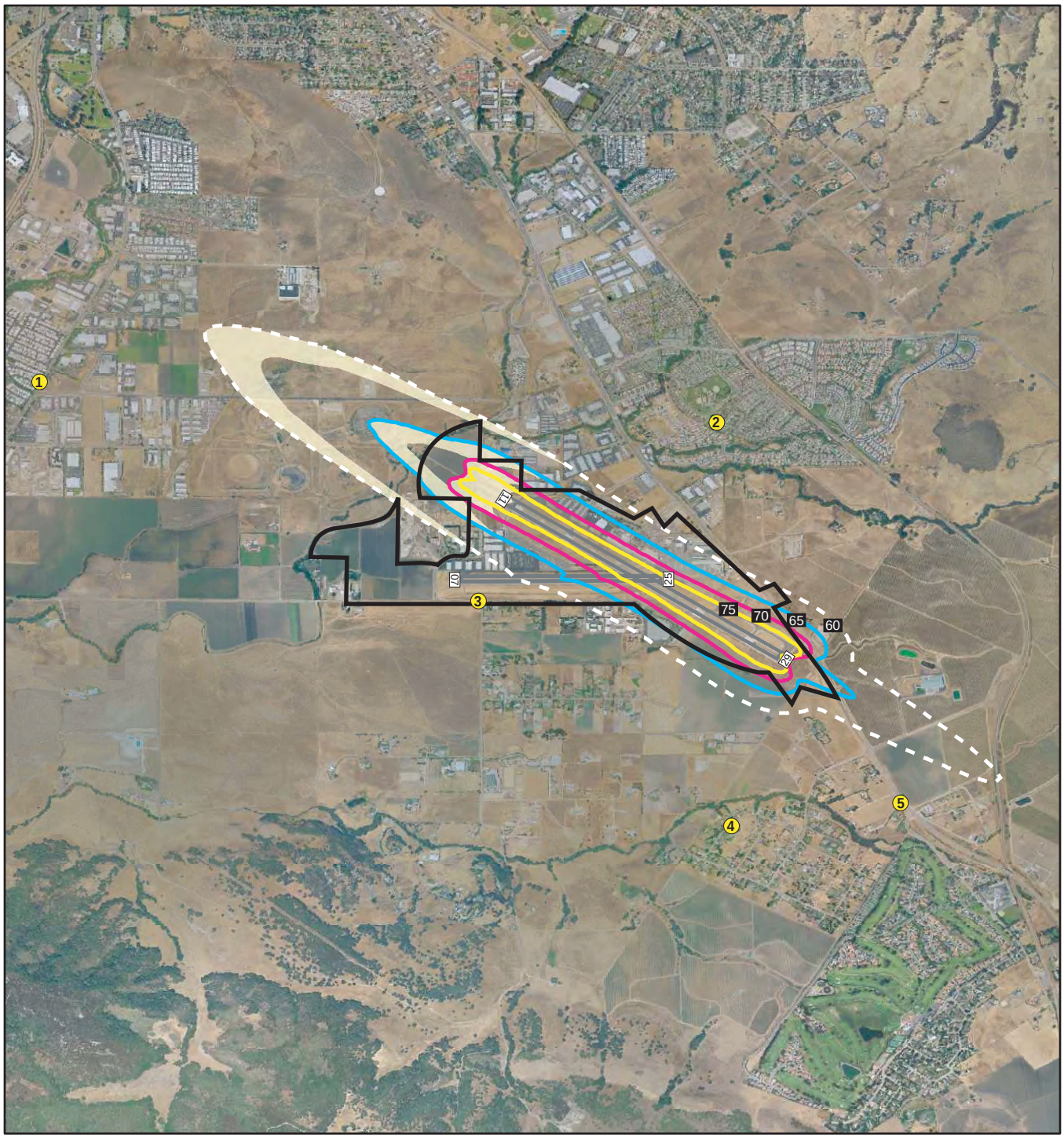
San Luis Obispo County
Regional Airport (Sbp) Boundary

Note: The 60 CNEL noise contour is provided for informational purposes only and is not used to determine impact significance.

SOURCE: ESA Airports, 2005

San Luis Obispo County Regional Airport Master Plan Update EA-EIR . 203092

Figure 6-2
Proposed Action
2023 CNEL Noise Contours at SBP



AERIAL SOURCE: Airphoto USA, 8-01-03

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1 Noise Monitoring Sites

San Luis Obispo County Regional Airport (Sbp) Boundary

Area of Noise Increase Compared to Baseline Conditions

Note: The 60 CNEL noise contour is provided for informational purposes only and is not used to determine impact significance.

SOURCE: ESA Airports, 2005

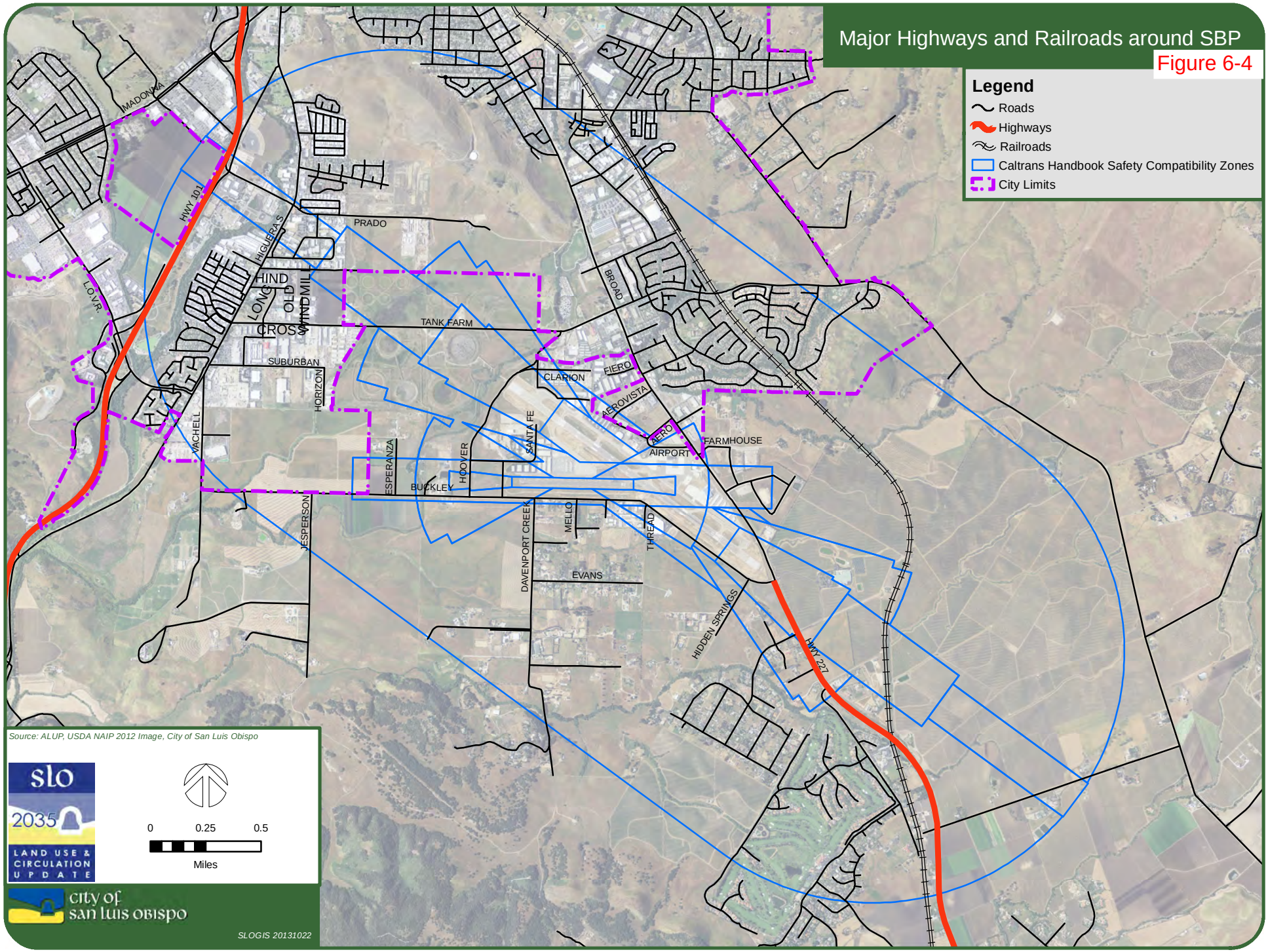
Figure 6-3

Comparison of 2023 CNEL Noise Contours for the Proposed Action with the 2004 CNEL Noise Contours for the Baseline Conditions

Urbanized areas within the City to the north, northwest and west of the airport generate their own background and ambient noise character during daytime hours. The following discussion of other noise considerations is from the SBPEA/EIR completed in July, 2006:

> There are several major roadways that pass adjacent to the Airport or that are in the areas affected by existing aircraft noise levels of approximately 60 CNEL or greater. Those roadways are U.S. Highway 101, State Route 227 (Broad Street/Edna Road), South Higuera Street, and Tank Farm Road. There are many other smaller (i.e., less traveled) roadways that are located in the Airport environs that do not generate noise levels exceeding 60 DNL at typical residential setbacks.
>
> The Union Pacific Railroad (formerly the Southern Pacific Transportation Co.) mainline is located about ½ miles east of the Airport. Based upon noise measurements reported by the Noise Element, maximum noise levels generated by passing trains in the San Luis Obispo area ranged from approximately 78 to 104 dBA at 50 feet from the tracks, depending upon whether or not warning horns were in use. The approximate distances from the center of the track to the 60 DNL contour, are 352 feet in areas removed from grade crossings and 525 feet in areas within 1,000 feet of a grade crossing.

Figure 6-4 depicts the roadways and intersections in proximity of SBP.


Major Highways and Railroads around SBP
Figure 6-4
Legend
Roads
Highways
Railroads
Caltrans Handbook Safety Compatibility Zones
City Limits
MADONNA
HWY 101
HIGUERA S
PRADO
LOVR
HIND
LONG
OLD
WINDMILL
CROSS
TANK FARM
SUBURBAN
HORIZON
VACHELL
ESPERANZA
BUCKLEY
HOOVER
SANTA FE
CLARION
FIERO
AEROVISTA
AERO
AIRPORT
FARMHOUSE
BROAD
JESPERSON
DAVENPORT CREEK
MELLO
THREAD
EVANS
HIDDEN SPRINGS
HWY 227
Source: ALUP, USDA NAIP 2012 Image, City of San Luis Obispo
0
0.25
0.5
Miles
slo 2035 LAND USE & CIRCULATION UPDATE
city of san luis obispo
SLOGIS 20131022

It is important to reiterate that the SBPEA/EIR found no existing or planned noise impact on the surrounding community as a result of the full build out of the Airport. In particular, the future forecast of aircraft operations used for the environmental analysis has been found to be a reasonable forecast of airport operations commensurate with the planned ultimate development of the Airport.

6.2 Airport Land Use Plan Noise Analysis Review

The San Luis Obispo County ALUC adopted its most recent update to the San Luis Obispo ALUCP in 2005. State Law requires that an ALUC must adopt a plan that, "shall be based on a long-range master plan…that reflects the anticipated growth of the airport during at least the next 20 years" (Public Utilities Code §21675. [a]). While the adopted ALUCP includes a summary of the SBP Master Plan Update airport activity forecasts (Section 3, Page 9 of the ALUCP), it does not include this information in the specific land use policies related to noise. The adopted ALUCP instead relies on a noise study dated April 2001 by Brown, Buntin Associates[14]. A note on Figure 1, Airport Noise Contours (in Section 4, Page 14-A of the ALUCP) states, "Airport Noise Contours are projected to runway capacity," and the noise section in the ALUCP makes assumptions about future noise impacts that are not consistent with the requirements under State Law or the California Airport Land Use Planning Handbook:

> ALUCs are not empowered to determine what the future airfield configuration, airport role, or activity levels will be. State statutes direct that an ALUCP must be based upon an airport master plan.
>
> State law anticipates that ALUCs will devise ALUCPs to support the future aviation uses selected by the airports' owners. If an airport's owner has selected a future airfield configuration, role, or activity level that an ALUC considers unrealistic or inappropriate, the ALUC has few options. The most that ALUCs can do is negotiate with the airport owner in an effort to have the airport plan modified to be more realistic or appropriate. Ultimately, state law forces ALUCs to accept plans adopted by airport owners, even if the ALUC considers the plans either unrealistically grandiose or too modest.[15]

The ALUP noise contours are not based on the SBP Master Plan forecast operations but rather on a theoretical "capacity" of the runways with no connection to the underlying demand or proven usage characteristics of the runways, resulting in an unrealistic and vastly over-stated noise impact. The ALUC does not present the underlying assumptions or technical facts used to create the noise contours provided in the ALUP and has not made this information available for review.

The ALUCP goes on to justify the use of a 55 dB CNEL contour for operations that are not consistent with the SBP Master Plan Update, adopting the 55 dB CNEL contour as the maximum acceptable residential noise level. This also applies to redevelopment of existing residential land uses. "Redevelopment may not increase the number of residential units located within the 55 dB CNEL airport noise contour" (ALUP, amended May, 2005). The basis of this justification is through the use of the Handbook's process for "normalization" of noise standards for land use planning. The result is a greatly compounded future noise impact area that is not based on reasonable future activity levels for SBP.

[14] The City of San Luis Obispo submitted a California Public Records Act request for a copy of the noise study identified in the ALUCP in October 2013. To date, this study has not been provided to allow a review of the facts and assumptions used to produce the noise contours published in the Adopted ALUCP.
[15] California Airport Land Use Planning Handbook, Page 3-47

The ALUC is faced with two very different land use settings around the Airport. In areas to the south and southeast of the Airport it is farm land and pockets of suburban residential land uses. In areas to the north and northwest within the City and the AASP area it is urban and planned urban areas of the City. While 55 dBs may be the FAA and Caltrans planning standard for areas outside of the City and AASP area, it is not the FAA and Caltrans planning standard for the "urban" land uses within the City.

6.3 Existing and Projected Noise Environment at SBP

As shown in *Table 6-2*, seventy-five percent of all aircraft noise complaints collected by County Airport officials over the last five years have been generated by three individuals.

Table 6-2 – Noise Complaints at SBP

Noise Complaint Origin:	Noise Complaint:						Percent of Total	Cumulative Percent
Caller #	Engine Runups	Low Flying	Noise	Other	Overflight	Grand Total		
Caller #101		3	237	7	477	724	41.1%	41.1%
Caller #36	1	231	185	4	49	470	26.7%	67.8%
Caller #15		44	10	2	69	125	7.1%	74.9%
Caller #83		5	34		31	70	4.0%	78.9%
Caller #67		2	18		38	58	3.3%	82.2%
Caller #98		1	2	1	33	37	2.1%	84.3%
Caller #56	3		16			19	1.1%	85.4%
Caller #93		5	1		13	19	1.1%	86.5%
Caller #40	1	3			8	12	0.7%	87.2%
Caller #95	1	1	5		5	12	0.7%	87.8%
Caller #94		3			7	10	0.6%	88.4%

Source: San Luis Obispo County Regional Airport (SBP)

According to the California Department of Transportation, there are 10 airports in California that have been designated by their County Board of Supervisors under Title 21, Section 5000 of the California Code of Regulations to be "noise problem" airports. These are: Bob Hope Airport, John Wayne Airport – Orange County, Long Beach Daugherty Field Airport, Los Angeles International Airport, Metropolitan Oakland International Airport, Norman Y. Mineta - San Jose International Airport, Ontario International Airport, San Diego International Airport, San Francisco International Airport, and Van Nuys Airport. SBP is not included in the list of ten "noise problem" airports in California as defined in the California Code of Regulations, Title 21, Section 5000, et seq. In addition, the San Luis Obispo County Board of Supervisors has not applied to the State to have SBP defined as a "noise problem" airport in California.

The 65 dB CNEL aircraft noise contour is the FAA and state aircraft noise planning standard for urban residential areas that are not classified as "noise problem" airports in California as defined in the California Code of Regulations, Title 21, Section 5000, et seq.

Figure 6-5 depicts the projected noise contours for the 2023 Proposed Action using the latest INM model (Version 7.0d) and the forecasts provided in the adopted 2005 SBP Master Plan Update and 2006 EA/EIR. This model validates the noise contours produced in the 2006 EA/EIR as accurate and in line with future facilities development at SBP as per the Master Plan Update.

Figure 6-5

SBP Airport Noise Contours - 2023 Master Plan EIR Proposed Action